Section 4.17
Transportation and Traffic

ESA

California Joint Utility Traffic Control Manual



April 2010 ◆ 5th Edition

TABLE OF CONTENTS

ENDORSEMENTS 5
INTRODUCTION TO THE FIFTH EDITION 7
PUBLIC UTILITIES CODE 9
CALIFORNIA JOINT UTILITY TRAFFIC CONTROL MANUAL 10
Fundamental Principles 10
TEMPORARY TRAFFIC CONTROL (TTC) GENERAL/REFERENCE INFORMATION 12
Short Duration Work Operations 12
End of Work Period 13
Night Operations 14
TTC Sign Recommendations 14
OPEN TRENCH Sign (C27(CA)) 14
FIGURE A – Use of C27 Open Trench Sign 15
Table A - Suggested **Minimum Advance Warning Sign Spacing** 16
Table B - Taper Length Criteria for Temporary Traffic Control Zones 16
Table C - Formulas for Determining Taper Lengths 16
Table D – Buffer Space Table 17
Table E - Taper Length Criteria for Temporary Traffic Control zones 17
Channelizing Devices 18
Table F – Maximum Spacing of Channelizing Devices 18
Barricades 19
Arrow Panels 19
Table G – Arrow Panel Table 20
Flagger Reference Information 20
FLAGGING TRAFFIC 21
REFERENCE SIGN CHART 24

DRAWING LIST

DRAWINGS SUBURBAN/RURAL SECTION

Two Lane Traffic Control without Centerline……..1
Work in Center of Road (w/Centerline) – Two Lane Traffic Control……2
Work in Center of Road (w/o Centerline) – Two Lane Traffic Control……..3
Midblock Half Street Closure – Flagger Control……..4
Single Lane Closure for One Way Street……..5
Multi Lane Closure for One Way Street – Right Lanes Closed……6
Single Lane Closure – Right Lane using Left Turn Lane……7
Left Turn Lane Closure – Midblock……..……8
Single Lane Closure – Right Lane……9
Shoulder Closure ……10
Midblock Closure for One Direction of Traffic……..11
Midblock No. 1 Lane Closure……12
Midblock No. 1 Lane and Left Turn Lane Closure……..……13
Midblock No. 1 Lanes and Left Turn Lane Closure……..14
Midblock No. 1 Lane Closures for Both Lanes of Traffic……15
Midblock Half Street Closure – Using Left Turn Lane as Traveled Lane...16
Multi Lane Closure – Right Lanes and Left Turn Lanes……17
Edge of Gutter Closure……18
Middle Lane Closure……19
Multi Lane Closure – Right Lanes……20
Midblock Closure of No. 2 Lane and Curb Lane……..…21
Multi Lane Closure – Left Lanes……..……22
Work Beyond Intersection – Right Lane……..23
Work Beyond Intersection – Left Lane……..24
Work Beyond Intersection – Right Side Single Thru Lane……25
Work Beyond Intersection – Left Side Single Thru Lane……..…26
Left Turn Lane Closure – At Intersection……27

Work Within Intersection – Left Lane/Left Turn Lane……..28
Work Within Intersection – Right Lane/Left Turn Lane……...29

DRAWINGS URBAN SECTION

Intersection Work – Right/Center……..30
Intersection Work – Right/Left……..……31
Beyond Intersection – Far Left……..32
Intersection Work – Center……33
Intersection Work – Right……34
Intersection Work – Right……35
Intersection Work – Center……..……36
Intersection Work – Right/Center……37
Intersection Work – Right/Center…..……38
Intersection Work – Right……39
Intersection Work – Far Left/Right ……40
Half Street Closure – Far Side……..……41
Half Street Closure – Near Side……42
Full Street Closure – Two Way Street……..……43
Full Street Closure – One Way Street…..……44
Sidewalk Closure – Right/Center……..45
Sidewalk Closure……...46
Sidewalk Closure……...47
Sample Traffic Circulation Plan……48

The California Joint Utility Traffic Control Manual is a joint effort among members of the California Inter-Utility Coordinating Committee. The member logos below are proudly displayed as a sign of their support in developing safe working conditions for their employees as well as for the traveling public. We are a dedicated group who wants safety first. As you read through this manual, please keep in mind that safety is everyone's business and it is up to each one of us to do our part in ensuring a safe work zone.













ENDORSEMENTS

California Department of Transportation (Caltrans) has reviewed the California Joint Utility Traffic Control Manual and finds it to be in conformance with the California Manual on Uniform Traffic Control Devices for Streets and Highways (FHWA's MUTCD 2003 Revision 2, as amended for use in California) also called California MUTCD 2010 issued by Caltrans on January 21, 2010.

Caltrans is not responsible for the content of this manual and it is up to the local jurisdiction to ensure the plans and traffic control being used are appropriate for the field conditions and work being performed. When working on State Highways in California refer to the California MUTCD 2010 and use the existing encroachment permit processes.

Gurinderpal (Johnny) Bhullar, P.E., T.E.
Senior Transportation Engineer
Editor, California MUTCD
Office of Signs, Markings & External Support
Caltrans, Division of Traffic Operations, MS-36
1120 N St., Sacramento, CA 95814
916-654-7312
johnny.bhullar@dot.ca.gov

I have been using the California Joint Utility Traffic Control Manual for more than 8 years because it has proven to be a sound resource for routine permit work within the public right of way. The modifications included in this edition ensure that safe work zones are properly set up to perform standard utility repairs and maintenance within the public right of way. This manual may help expedite the permitting process by notifying the jurisdictional agency exactly what traffic control will be used to successfully complete the permitted work.

Nelson D. Nelson, P.E.
City of Corona
Assistant Public Works Director/Assistant City Engineer

The City of Corona is not responsible for the content of this manual and it is up to the local jurisdiction to ensure the plans and traffic control being used are appropriate for the field conditions and work being performed.

The **City of Dana Point** allows encroachment permit applicants (applicants), generally Contractors and Utility Companies, to use the California Joint Utility Traffic Control Manual, among other publications via City Ordinance 14.01.220 Safety and Warning Devices Required. The guidelines and manuals noted in this ordinance are invaluable tools to applicants that need to accomplish work in City Streets. In a number of cases, these standard documents have helped these applicants in the City of Dana Point avoid expense in generating traffic control plans, as these plans specifically accommodate their needs, and provide for a safe working environment. The City will continue to allow these manuals/guidelines to be utilized to accomplish work in our rights-of-way. Of course, any Contractor or Utility Company doing work in any City street assumes all responsibility and liability.

Matthew Sinacori, P.E.
City Engineer
City of Dana Point
phone (949) 248-3574
fax (949) 234-2826

After reviewing the manual and its accompanying drawings I can completely endorse the use of the manual for routine utility work within Covina's rights-of-way.

Steve Henley
City of Covina
Public Works Director

The city of Claremont endorses the use of the (CJUTCM) manual.

Craig Bradshaw
City of Claremont
Senior City Engineer

Introduction to the Fifth Edition

This Manual is coordinated and prepared by the California Joint Utility Traffic Control Committee. It provides the basic standards for the safe movement of traffic upon highways or streets in accordance with Section 21400 of the California Vehicle Code and the California Manual on Uniform Traffic Control Devices for Street and Highways 2010 Edition. Traffic control includes safe protection for the public, motorist, cyclist, pedestrian and worker. It is the responsibility of the contractor or organization performing work on, or adjacent to, a roadway to install and maintain such devices which are necessary to provide safe passage for the traveling public through the work area and for the safety of the workers.

This text is not intended to establish or create a legal standard. The criteria for the position, location, manner of installation, and the use of such signs, lights and devices are furnished solely for the purpose of information and guidance. This manual will be updated as required to conform to Federal and State guidelines. When working on State Highways in California refer to the California Manual on Uniform Traffic Control Devices for Streets and Highways 2010 Edition and use the existing encroachment permit processes.

California Joint Utility Traffic Control Committee Members:

Reed Reisner	SCE --- Committee Chairman
Patti Good	SDG&E® --- Committee Vice Chairman
Louis Renner	PG&E
John Gilginas	PG&E
Mike Harriel	Southern California Gas Company
Mike Riley	Verizon
Oscar Escobar	Verizon
Kristin Maldonado	Verizon
Gail Dafun	AT&T
Dennis Buss	SDG&E®

Technical Review Team:

I have reviewed the Manual prepared by the California Joint Utility Traffic Control Committee and am pleased to endorse it.

LOUIS RENNER, Certified Safety Professional Certification # 11510
Board of Certified Safety Professionals (BCSP) 208 Burwash Avenue, Savoy, IL
Phone: 415-973-7470, Fax: 415-973-1390, Email: LPR3@pge.com
Pacific Gas and Electric Company. 77 Beale Street, Mail Code B23H Rm. 2854A
San Francisco, CA 94105

JOHN GILGINAS, Certified Safety Professional Certification # 18487
BCSP 208 Burwash Avenue, Savoy, IL
Phone: 415-973-2454, Fax: 415-973-1390, Email: JPGd@pge.com
Pacific Gas & Electric Company. 77 Beale Street, Mail Code B23H Rm. 2882
San Francisco, CA 94105

PARDUMAN S. MARWAH, RCE # 25380 State of California
Phone: 909-274-1436, Fax: 909-274-1465, Email: marwahps@sce.com
Southern California Edison Company. One Innovation Way.
Pomona, CA 91768
(For technical questions related to SCE work please contact Noe Bargas)

NOE BARGAS, Engineer
Phone: 909-274-1457, FAX: 909-274-1465, Email: noe.bargas@sce.com
Southern California Edison Company. One Innovation Way.
Pomona, CA 91768

MIKE HARRIEL, Technical Supervisor
Phone: 714-634-3278, Fax: 714-634-7287, Email: MHarriel@semprautilities.com
Southern California Gas Company. 1919 S. State College Blvd, Mail Code SC8321
Anaheim, CA 92806-6114

MIKE RILEY, Outside Plant Network Engineering Manager, South Division
Phone: 909-748-6650, Email: mike.riley@verizon.com
Verizon. 1980 Orange Tree Ln., Suite 100
Redlands, CA 92374

OSCAR ESCOBAR, Outside Plant Network Engineering Manager, East Division
Phone: 909-469-6351, Email: oscar.escobar@verizon.com
Verizon. 1400 E. Phillips Blvd.
Pomona, CA 91766

KRISTIN MALDONADO, Outside Plant Network Engineering Section Manager, Tri-Valley District
Phone: 951-925-5319 Email: kristin.m.maldonado@verizon.com
Verizon. 150 S. Juanita St.
Hemet, CA 92543

BRIAN R. TODD, Outside Plant Engineer South C&E Region
Phone: 714-666-5518, Fax: 714- 630-6617, Email: bt1469@att.com
AT&T California. 1265 N. Van Buren St Floor Room 180
Anaheim, CA 92807-1608

JAIME BORRUEL, TCP Specialist
Phone: 858.636.5589, Email: jborruel@semprautilities.com
San Diego Gas & Electric®

Public Utilities Code

AT&T and Verizon as telephone utilities have been granted by the State the right to use public streets. This grant, known as the state franchise is found in Section 7901 of the California Public Utilities Code. Section 7901 provides that:

"Telegraph or telephone corporations may construct lines of telegraph or telephone lines along and upon any public road or highway, along or across any of the waters or lands within this State, and may erect poles, posts piers, or abutments for supporting the insulators, wires, and other necessary fixtures of their lines, in such manner and at such points as not to incommode the public use of the road or highway or interrupt the navigation of the waters."

Many cities and counties have granted Southern California Edison, as an electric utility, San Diego Gas & Electric, as a gas and electric utility, Southern California Gas Company, as a gas utility, and Pacific Gas and Electric Company as an electric and gas utility the right to use public streets. These grants, known as the city or county franchises, are granted in accordance with: (1), the Broughton Act, set forth in Section 6001, et seq. of the Public Utilities Code, or (2) the Franchise Act of 1937, set forth in Section 6201, et seq. of the Public Utilities Code.

Illustrative of the franchise rights granted by counties and cities to public utilities, Section 6265 of the Public Utilities Code provides that:

"Every gas franchise granted pursuant to this chapter confers upon the grantee the right to use, or to lay and use, gas pipes and appurtenances for the purpose of transmitting and distributing oil or products thereof; every industrial gas franchise so granted confers upon the grantee the right to use, or lay and use industrial gas pipelines and appurtenances for the purpose of transmitting and distributing industrial gas;… and every electric franchise so granted confers upon the grantee thereof the right to use, or to construct and use, poles, wires or conduits and appurtenances for the purpose of transmitting and distributing electricity for all purposes, under, along, across, or upon the public streets, ways, alleys, and places as they now or hereafter exist within the municipality."

California Joint Utility Traffic Control Manual

Fundamental Principles:

The needs and control of all road users (motorists, bicyclists and pedestrians within the highway including persons with disabilities in accordance with the Americans with Disabilities Act of 1990 (ADA) Title II, Paragraph 35.130) through a temporary traffic control (TTC) zone shall be an essential part of highway construction, utility work, maintenance operations and the management of traffic incidents.

Those using the roadway (motorists, bicyclists and pedestrians), worker safety at the job site and accessibility in TTC zones should be an integral part of every project initiated in the planning phase and continuing through design and construction. In a like fashion, maintenance and utility work should be planned and conducted with the safety and accessibility of all motorists, bicyclists, pedestrians (including those with disabilities) as well as the safety of those workers performing the work.

NOTE: Work around a railroad or highway rail grade crossing will require early coordination with the railroad company prior to work planning.

To provide safety for motorists, bicyclists, pedestrians, workers, enforcement/emergency officials and equipment at the job site, the following factors must be considered:

1. Safety principles governing the design of permanent roadways and roadsides should also govern the design of temporary traffic control zones. The goal should be to route road users through such zones using roadway geometrics, roadway features and temporary traffic controls as nearly as possible comparable to those for normal highway/traffic situations.

2. A temporary traffic control plan should be prepared and understood by all responsible parties before the site is occupied. Any changes in the TTC plan shall be approved by the Engineer of the public agency or authority having jurisdiction over the highway.

Road user movement should be inhibited as little as practical, based on the following considerations:

1. TTC at work and incident sites should be designed on the assumption that drivers will only reduce their speeds if they clearly perceive a need to do so.
2. Frequent and abrupt changes in geometrics such as lane narrowing, dropped lanes or main roadway transitions that require rapid maneuvers should be avoided.
3. Provisions shall be made for the reasonably safe operation of work, particularly on high-speed, high-volume roadways.
4. Road users should be encouraged to use alternative routes that do not include TTC zones.
5. Bicyclists and pedestrians, including those with disabilities, should be provided with access and reasonably safe passage through the TTC zone.

NOTE: The context of through does not mean a bicyclist or pedestrian may enter a TTC zone but that passage is provided in the bike lane or crosswalk for a bicyclist and on the sidewalk or crosswalk for a pedestrian to navigate past or around (i.e. through) the TTC zone.

The following three items should be considered when planning for pedestrians in TTC zones:

Pedestrians should not be led into conflicts with work site vehicles, equipment or operations.
Pedestrians should not be led into conflicts with vehicles moving through or around the worksite.
Pedestrians should be provided with a reasonably safe, convenient and accessible path that replicates as nearly as possible the most desirable characteristics of the existing sidewalks (s) or footpath (s). Where pedestrians who have visual disabilities encounter work sites that require them to cross the roadway to find an accessible route, instructions should be provided using an audible information device.

6. Roadway occupancy should be scheduled during off-peak hours and, if necessary, night work should be considered.
7. Early coordination with officials having jurisdiction over the affected cross streets and providing emergency services should occur before roadway or ramp closures.

Motorists, bicyclists and pedestrians should be guided in a clear and positive manner while approaching and traversing TTC zones and incident sites. The following principles should apply:

A. Adequate warning, delineation and channelization (tapers) should be provided to assist in guiding road users in advance of and through (i.e. past or around) the TTC zone or incident site by using proper pavement marking, signing, or other devices that are effective under varying conditions. Providing information that is in usable formats by pedestrians with visual disabilities should also be considered.
B. TTC devices inconsistent with intended travel paths through (i.e. past or around) should be removed or covered. Intermediate-term stationary, short term, and mobile operations, where visible permanent devices are inconsistent with intended travel paths, devices that highlight or emphasize the appropriate path should be used (attached directional arrow indicators on a vehicle). Providing information that is in usable formats by pedestrians with visual disabilities should also be considered.
C. Flagging procedures, when used, should provide positive guidance to road users traversing the TTC zone.

   NOTE: Flaggers must have received the State of California Title 8, Construction Safety Orders, Section 1599 (f) "Training of Construction Site Flaggers" prior to performing flagger duties (See reference section).

D. Inspect the TTC zone to make sure warning flags are not wrapped around supports. Inspect warning signs for proper visibility, barricade lights or flashers for visibility and function. A good test of a TCC zone is to drive through the zone yourself, in addition to observing traffic, to determine if there is an orderly

transition. For nighttime work, lighting the work zone and approaches will allow the motorist better comprehension of imposed requirements. Since traffic patterns change, observation should be conducted periodically and adjustments made accordingly to assure traffic flow.

Each person whose actions affect the TTC zone safety, from upper-management through the field worker, should receive training appropriate to the job decisions each individual is required to make. Only those individuals who are trained in proper TTC practices and have a basic understanding of the principles (established by applicable standards and guidelines) should supervise the selection, placement and maintenance of TTC devices for TTC zones and for incident management.

NOTE: Before any new detour or temporary route is opened to traffic, all necessary signs shall be in place. All TTC devices shall be removed as soon as practical when they are no longer needed. When work is suspended for short periods of time, TTC devices that are no longer appropriate shall be removed or covered.

Good public relations should be maintained by applying the following:

1. The needs of the road user should be assessed such that appropriate advance road notice is given and clearly defined alternative paths are provided.
2. The cooperation of the various news media should be sought in publicizing the existence and reason for the TTC zones as news releases can assist by keeping the road user well informed.
3. The needs of abutting property owners, residents, and businesses should be assessed and appropriate accommodations made.
4. The needs of emergency service providers (law enforcement, fire, and medical) should be assessed and appropriate coordination and accommodations made.
5. The needs of railroads and transit should be assessed and appropriate coordination and accommodations made.
6. The needs of operators of commercial vehicles such as busses and large trucks should be assessed and appropriate coordination and accommodations made.

Temporary Traffic Control (TTC) General/Reference Information

Short Duration Work Operations

The CA MUTCD addresses work duration under section 6G.02 **Work Duration** and states:

> Work duration is a major factor in determining the number and types of devices used in TTC zones. The duration of a TTC zone is defined relative to the length of time a work operation occupies a spot location.
>
> Standard:
> The five categories of work duration and their time at a location shall be:
> A. Long-term stationary is work that occupies a location more than 3 days.
> B. Intermediate-term stationary is work that occupies a location more than one daylight period up to 3 days, or nighttime work lasting more than 1 hour.

C. Short-term stationary is daytime work that occupies a location for more than 1 hour within a single daylight period.
D. Short duration is work that occupies a location up to 1 hour.
E. Mobile is work that moves intermittently or continuously.

Standard:
Since intermediate-term operations extend into nighttime, retroreflective and/or illuminated devices shall be used in intermediate-term stationary TTC zones.

Support:
Most maintenance and utility operations are short-term stationary work.
As compared to stationary operations, mobile and short-duration operations are activities that might involve different treatments. Devices having greater mobility might be necessary such as signs mounted on trucks. Devices that are larger, more imposing, or more visible can be used effectively and economically. The mobility of the TTC zone is important.
Maintaining reasonably safe work and road user conditions is a paramount goal in carrying out mobile operations.

Guidance:
Safety in short-duration or mobile operations should not be compromised by using fewer devices simply because the operation will frequently change its location.

Option:
Appropriately colored or marked vehicles with high-intensity rotating, flashing, oscillating, or strobe lights may be used in place of signs and channelizing devices for short-duration or mobile operations. These vehicles may be augmented with signs or arrow panels.

Support:
During short-duration work, it often takes longer to set up and remove the TTC zone than to perform the work. Workers face hazards in setting up and taking down the TTC zone. Also, since the work time is short, delays affecting road users are significantly increased when additional devices are installed and removed.

Option:
Considering these factors, simplified control procedures may be warranted for short-duration work. A reduction in the number of devices may be offset by the use of other more dominant devices such as high-intensity rotating, flashing, oscillating, or strobe lights on work vehicles.

End of Work Period

Before leaving a work area, it is necessary that approved warning devices be placed to protect motorists, bicyclists or pedestrians.

1. Ensure the area is properly barricaded and that flashing lights, where required, are functioning satisfactorily.

2. Make sure that equipment is secured and that the work area is left orderly. Cover or barricade exposed openings (trenches, excavations, bell holes, etc.) to assure protection of the public.

Night Operations

Night Operations should be set up pursuant to the National Cooperative Highway Research Program (NCHPP) report 476, guidelines for design and operation of nighttime traffic control for highway maintenance and construction.

In order to provide enhanced warning and safety during twilight and night operations, the following steps are recommended:

1. When the work area is to be illuminated by use of flood lights, the light placement shall be such that the light beams are not hazardous to oncoming traffic.
2. All warning signs and channelizers shall have reflective properties.
3. Flashing or rotating amber lights on vehicles may be used when the vehicles are blocking established traffic lanes or for additional work area protection.

NOTE: Flares and red emergency lights and reflectors are strictly for emergency situations and must not be used as substitutes for standard work area warning devices. Flares shall not be used in high hazard fire areas.

TTC Sign Recommendations

All temporary traffic control signs shall be sized to be in accordance with CA MUTCD Table 6F-1, *Sizes of Temporary Control Signs*.

Approved warning signs shall be installed and properly maintained whenever hazards exist due to moving or stationary vehicles, open excavations, construction or maintenance operations or similar work. Warning signs shall be placed so as to provide adequate notice to motorists, bicyclists or pedestrians that they are approaching an excavation, obstruction or hazard. Warning signs shall be removed as soon as the excavation, obstruction or hazard is removed or cleared.

California MUTCD Section 6F.105(CA):

OPEN TRENCH Sign (C27(CA))
The OPEN TRENCH sign shall be used in advance of open trenches in/or adjacent to roadway. The edge of the traveled way shall be defined by edge line delineation consisting of appropriate markers or striping. Edge line delineation shall be white when located on the right of traffic and yellow when located on the left of traffic.

Standard:
Trenches in excess of 0.25 ft (3-inches) in depth that are less than 8 ft from the edge of traveled way shall be identified by C27(CA) and NO SHOULDER (C31A(CA)) portable signs on Type II or Type III barricades alternately set in the trench at intervals not to exceed 2,000 ft.

Use of C27(CA) and C31(CA) signs shall be incorporated into all temporary traffic control drawings contained in this manual where trenches are within 8-ft of the traveled way. See Figure A for reference.

FIGURE A – Use of C27 Open Trench Sign

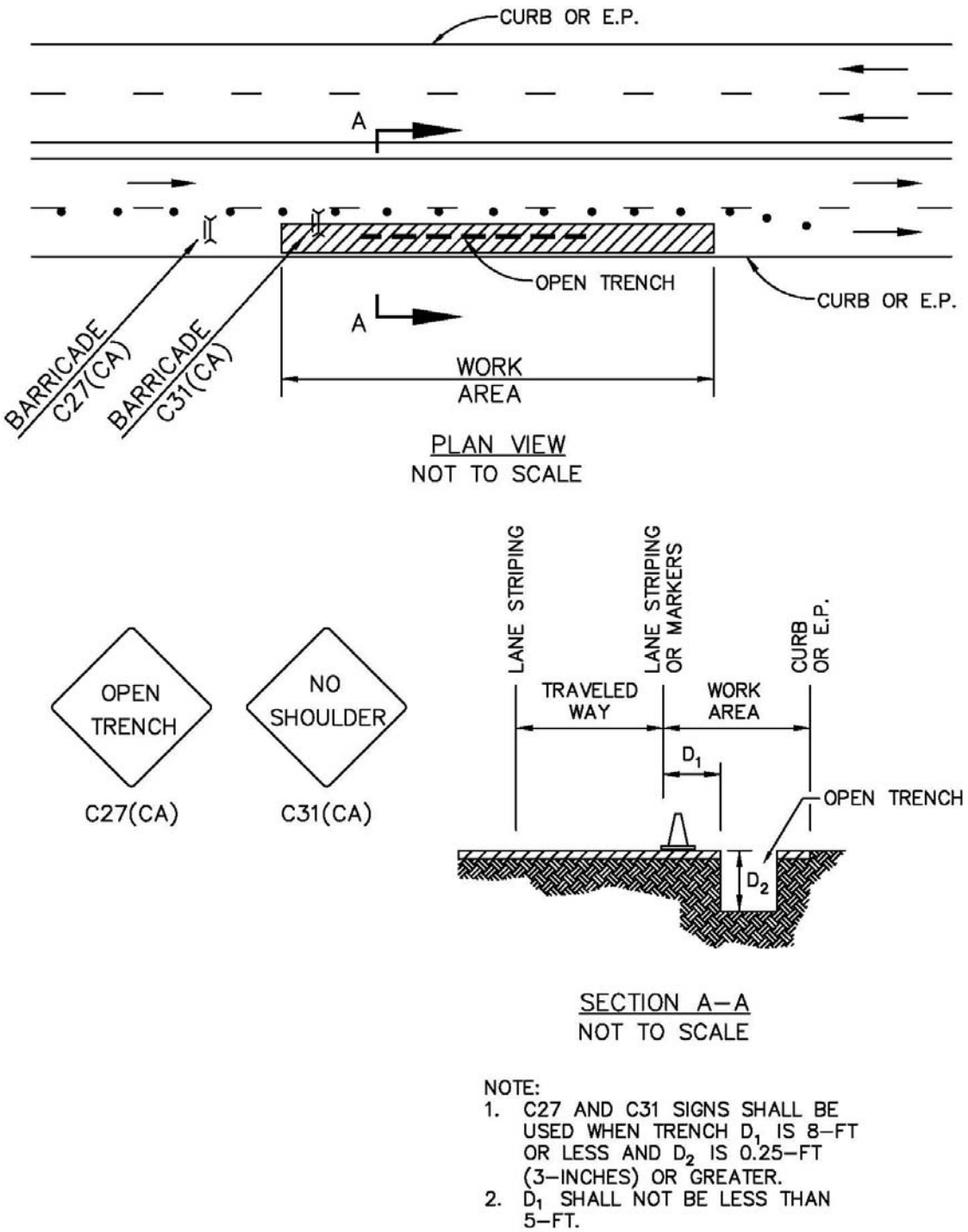


Table A - Suggested **Minimum Advance Warning Sign Spacing**

Posted Speed	Distance Between Signs **		
	A	B	C
Urban (low speed) 25 mph or less *	100	100	100
Urban (high speed) 30 mph or more *	350	350	350
Rural	500	500	500
55 mph & above	1,000	1,500	2,640

* Speed category to be determined by highway agency.

** Distances are shown in feet. **The column headings A, B, and C are the dimensions shown on drawings No. 1-51.** The A dimension is the distance from the transition or point of restriction to the first sign. The B dimension is the distance between the first and second signs. The C dimension is the distance between the second and third signs. (The third sign is one in a three sign series encountered by a driver/motorist approaching a TTC zone).

Table B - Taper Length Criteria for Temporary Traffic Control Zones

Type of Taper	Taper Length (L)
Merging Taper	at least L
Shifting Taper	at least 0.5L
Shoulder Taper	at least 0.33L
One-Lane, Two-Way Traffic Taper	100 feet maximum
Downstream taper	100 feet per lane

Table C - Formulas for Determining Taper Lengths

Speed Limit	Taper Length (L) Feet
40 mph or less	$L = WS^2/60$
45 mph or more	$L = WS$

Where: L = taper length in feet
W = width of offset feet
S = posted speed limit, or off peak 85^{th}- percentile speed prior to work starting. Or the anticipated operating speed in mph

Table D – Buffer Space Table

Speed (mph)	% Downgrade (Buffer Space)			
	<-3% (ft)	**-3% (ft)**	**-6% (ft)**	**-9% (ft)**
20	115	116	120	126
25	155	158	165	173
30	200	205	215	227
35	250	257	271	287
40	305	315	333	354
45	360	378	400	427
50	425	446	474	507
55	495	520	553	593
60	570	598	638	686
65	645	682	728	785
70	730	771	825	891

Table E - Taper Length Criteria for Temporary Traffic Control zones for 12 feet Offset Width

Speed* S (mph)	Minimum Taper Length ** For Width of Offset 12 ft (W)			
	Merging L (ft)	**Shifting L/2 (ft)**	**Shoulder L/3 (ft)**	**Down Stream (ft)**
20	80	40	27	100
25	125	63	42	100
30	180	90	60	100
35	245	123	82	100
40	320	160	107	100
45	540	270	180	100
50	600	300	200	100
55	660	330	220	100
60	720	360	240	100
65	780	390	260	100
70	840	420	280	100

*** - Posted Speed, off peak 85th percentile speed prior to work starting, or the anticipated operating speed.**

**** - For other offsets use the following merging taper length formula for L:**
For speeds of (40 mph) or less ($L=WS^2/60$)
For speeds of (45 mph) or more ($L=WS$)

Channelizing Devices

Channelizing devices (cones, tubular markers, drums or vertical panels) are elements in a total system of temporary traffic control for use during construction and maintenance operations. These elements shall be preceded by a subsystem of warning devices, adequate in size, number and placement for the type of roadway on which the work will take place.

Channelizing devices can be used as follows:

1. To channel and/or divert traffic in advance of a temporary traffic control zone (work zone).
2. To define traffic lanes through the work zone.
3. To define a change in the position of the lanes around a work zone.
4. On detours to define curves and the edges of the roadway.
5. To separate opposing lanes of traffic.

Table F – Maximum Spacing of Channelizing Devices

Speed (mph)	Maximum Channelizer Spacing		
	Taper* (ft)	Tangent (ft)	Conflict** (ft)
20	20	40	10
25	25	50	12
30	30	60	15
35	35	70	17
40	40	80	20
45	45	90	22
50	50	100	25
55	55	110	27
60	60	120	30
65	65	130	32
70	70	140	35

* Maximum channelizer spacing for all speeds on one-lane/two-way tapers is (20 ft). Maximum channelizer spacing for all speeds on downstream tapers is (20 ft). All other tapers are as shown.

** Use on intermediate and short term projects for taper and tangent sections where there are no pavement markings or where there is a conflict between existing pavement markings and channelizers.

On State highways a spacing of 10 ft is recommended for tapers and tangent sections.

Barricades

The function of barricades is to separate the motorist from objects or unusual situations created by construction or maintenance operations in or near the traveled way. Barricades should not be used to guide motorist through the transition or work zones.

The barricade would not be used where a collision with the barricade would be more severe than a collision with the object being separated. At such locations, channelizers or similar less rigid devices should be used.

Barricade design:
Barricades for vehicular traffic shall be of three types conforming to the CA MUTCD: Type I, Type II and Type III. Markings for barricades shall be alternate orange and white stripes sloping downward at a 45 degree angle. The entire area of orange and white shall be effectively reflectorized. Other barricade components shall be predominately the color white.

Arrow Panels

California MUTCD Section 6F.56 Arrow Panels:

> An arrow panel shall be a sign with a matrix of elements capable of either flashing or sequential display. This sign shall provide additional warning and directional information to assist in merging and controlling road users through or around a Temporary Traffic Control (TTC) zone.
>
> Guidance: An arrow panel in the arrow or chevron mode should be used to advise approaching traffic of a lane closure along major multi-lane roadways in situations involving heavy traffic volumes, high speeds and/or limited sight distances or at other locations and under the conditions where road users are less likely to expect such lane closures. When used, an arrow panel should be used in conjunction with appropriate signs, channelizing devices, or other TTC devices. An arrow panel should be placed on the shoulder of the roadway or if practical, further from the traveled lane. It should be delineated with retro reflective devices. When the arrow panel is not being used, it should be removed, if not removed, it should be shielded, or if the previous two options are not feasible, it should be delineated with retro reflective devices.
>
> Standard: When arrow panels are used to close multiple lanes, a separate arrow panel shall be used for each closed lane.
>
> Guidance: When arrow panels are used to close multiple lanes, if the first arrow panel is placed on the shoulder, the second arrow panel should be placed in the first closed lane at the beginning of the second merging taper. When the first arrow panel is placed in the first closed lane, the second arrow panel should be placed in the second closed lane at the downstream end of the second merging taper.

Table G – Arrow Panel Table

Panel Type	Minimum Size	Minimum Legibility Distance	Minimum Number of Elements
Type A – Low Speed Urban Areas	(48 X 24 inches)	(0.5 or ½ miles)	12
Type B or II – Intermediate speed facilities or mobile operations on high –speed roadways	(60 X 30 inches) On State highways Use 72 X 36 inches	(0.75 or ¾ miles)	13
Type C or I – High speed, high volume motor vehicle traffic control projects	(96 X 48 inches)	(1 mile)	15
Type D – for use on authorized vehicles	None	0.5 or 1/5 mile	12

Flagger Reference Information

1599 TRAINING OF CONSTRUCTION SITE FLAGGERS
Effective August 22, 2009

(a) Flaggers shall be utilized at locations on a construction site where barricades and warning signs cannot control the moving traffic.

(b) When flaggers are required, they shall be placed in relation to the equipment or operation so as to give effective warning.

(c) Placement of warning signs shall be according to the California Manual on Uniform Traffic Control Devices for Streets and Highways, September 26, 2006, published by the State Department of Transportation, which is herein incorporated by reference and referred to as the "Manual."

(d) Flaggers shall wear warning garments such as vests, jackets, or shirts manufactured in accordance with the requirements of the American National Standards Institute (ANSI)/International Safety Equipment Association (ISEA) 107-2004, High Visibility Safety Apparel and Headwear.

(e) During the hours of darkness, flaggers' stations shall be illuminated such that the flagger will be clearly visible to approaching traffic and flaggers shall be outfitted with reflectorized garments manufactured in accordance with the requirements of the American National Standards Institute (ANSI)/ International Safety Equipment Association (ISEA) 107-2004, High Visibility Safety Apparel and Headwear. The retroreflective material shall be visible at a minimum distance of 1,000 feet. White outer garments with retroreflective material that meets the above requirements may be worn during hours of darkness but not during snow or fog conditions, in lieu of colored vests, jackets and/or shirts.

(f) The employer shall select the proper type (class) of high visibility safety apparel for a given occupational activity by consulting the Manual, apparel manufacturer, ANSI/ISEA 107-2004, Appendix B or the American Traffic Safety Services Association (ATSSA).

(g) Flaggers shall be trained in the proper fundamentals of flagging moving traffic before being assigned as flaggers. Signaling directions used by flaggers shall conform to the "Manual" (CA MUTCD). The training and instructions shall be based on the "Manual" (CA MUTCD) and work site conditions and also include the following:

(1) flagger equipment which must be used,

(2) layout of the work zone and flagging station,

(3) methods to signal traffic to stop, proceed or slow down,

(4) methods of one-way traffic control,

(5) trainee demonstration of proper flagging methodology and operations,

(6) emergency vehicles traveling through the work zone,

(7) handling emergency situations,

(8) methods of dealing with hostile drivers,

(9) flagging procedures when a single flagger is used (when applicable)

Documentation of the training shall be maintained as required by Section 3203, Injury Illness and Prevention Program of the General Industry Safety Orders.

(h) flaggers shall be trained by persons with the qualifications and experience necessary to effectively instruct the employee in the proper fundamentals of flagging moving traffic.

Note: Authority cited: 142.3, Labor Code. Reference: Section 142.3, Labor Code.

California MUTCD Section 6E.04 Flagger Procedures:

Support:
The use of paddles and flags by flaggers is illustrated in Figure 6E-1 (see page 27).

Standard:
The following methods of signaling with paddles shall be used:

- **A. To stop road users, the flagger shall face road users and aim the STOP paddle face toward road users in a stationary position with the arm extended horizontally away from the body. The free arm shall be held with the palm of the hand above shoulder level toward approaching traffic.**
- **B. To direct stopped road users to proceed, the flagger shall face road users with the SLOW paddle face aimed toward road users in a stationary position with the arm extended horizontally away from the body. The flagger shall motion with the free hand for road users to proceed.**
- **C. To alert or slow traffic, the flagger shall face road users with the SLOW paddle face aimed toward road users in a stationary position with the arm extended horizontally away from the body.**

Option:
To further alert or slow traffic, the flagger holding the SLOW paddle face toward road users may motion up and down with the free hand, palm down.

Standard:
The following methods of signaling with a flag shall be used:

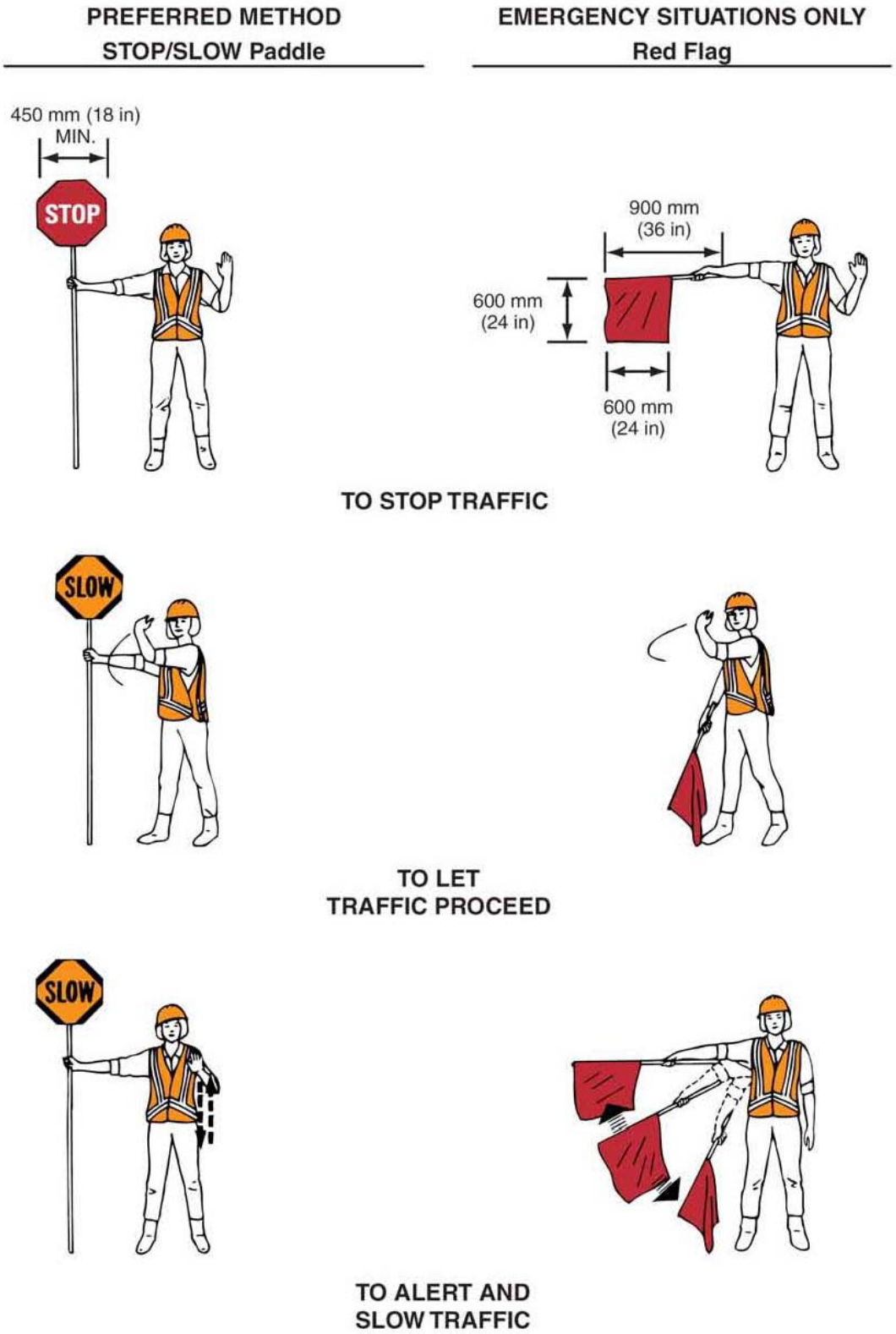
A. **To stop road users, the flagger shall face road users and extend the flag staff horizontally across the road users' lane in a stationary position so that the full area of the flag is visibly hanging below the staff. The free arm shall be held with the palm of the hand above the shoulder level toward approaching traffic.**
B. **To direct stopped road users to proceed, the flagger shall stand parallel to the road user movement and with flag and arm lowered from the view of the road users, and shall motion with the free hand for road users to proceed. Flags shall not be used to signal road users to proceed.**
C. **To alert or slow traffic, the flagger shall face road users and slowly wave the flag in a sweeping motion of the extended arm from shoulder level to straight down without raising the arm above a horizontal position. The flagger shall keep the free hand down.**

Section 6E.05 Flagger Stations
Standard:
Flagger stations shall be located such that approaching road users will have sufficient distance to stop at an intended stopping point.

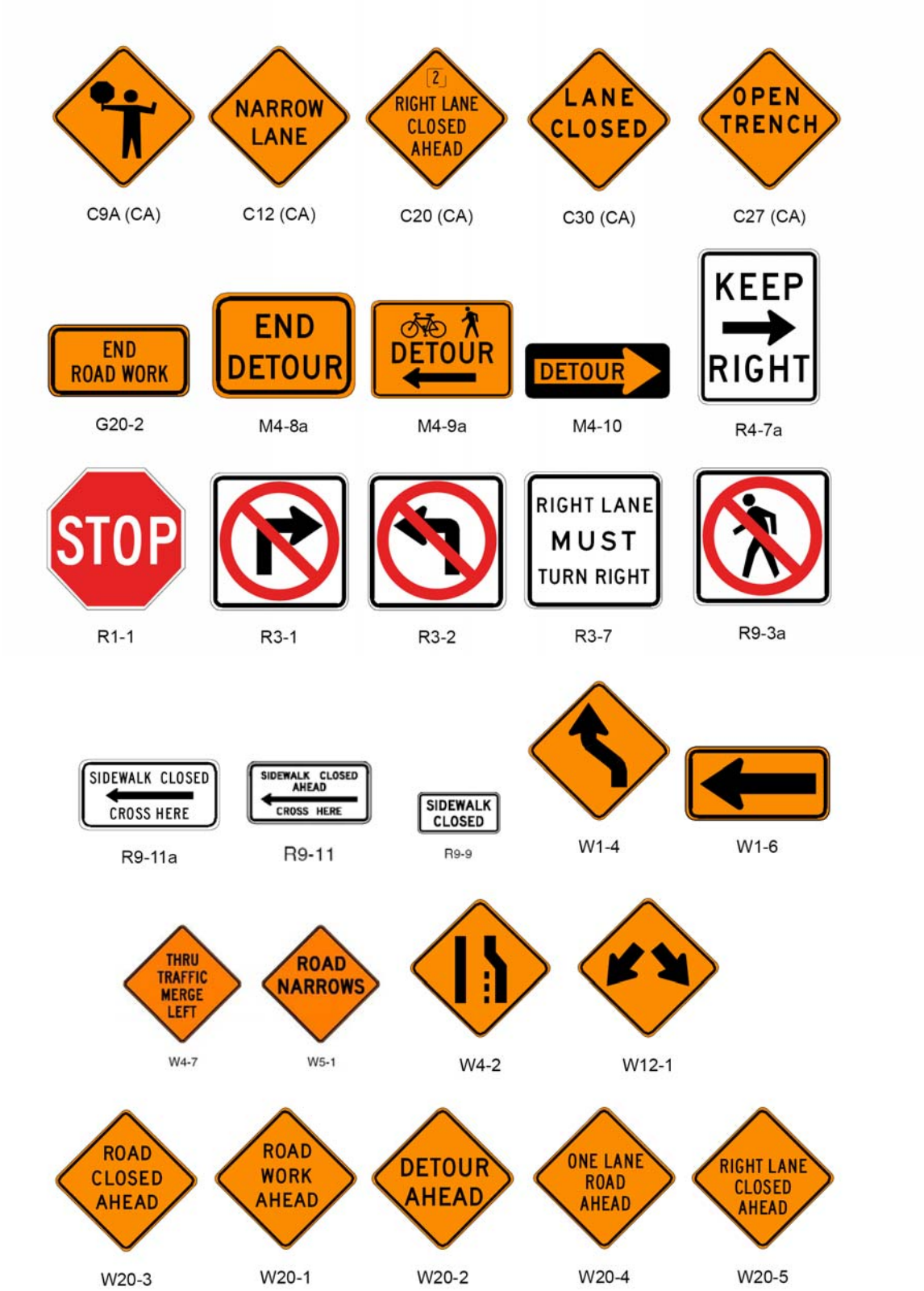
Guidance:
Flagger stations should be located such that an errant vehicle has additional space to stop without entering the work space.

Standard:
Except in emergency situations, flagger stations shall be preceded by an advance warning sign or signs. Except in emergency situations, flagger stations shall be illuminated at night.

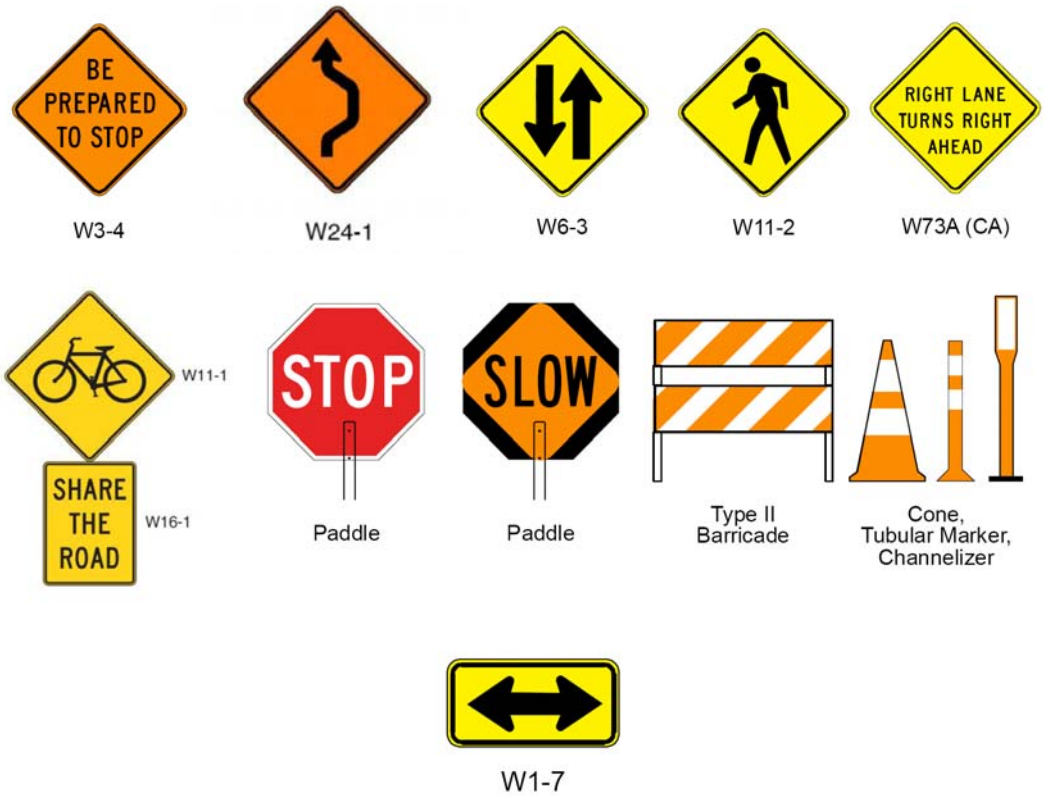
CA MUTCD Figure 6E-1. Use of Hand Signaling Devices by Flaggers

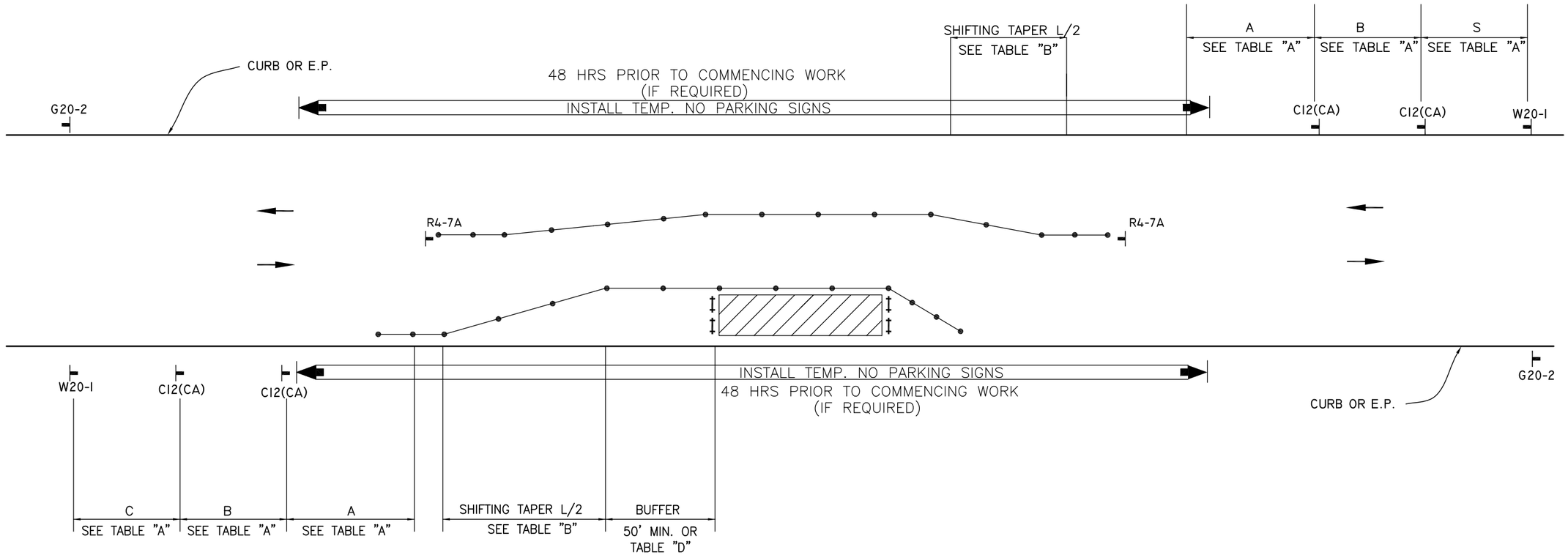


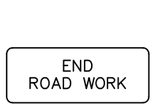
REFERENCE SIGN CHART



REFERENCE SIGN CHART







G20–2



C12(CA)



W20–1

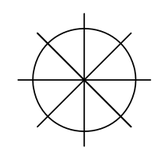


R4–7A

LEGEND

- TYPE III BARRICADE W/SIGN
- TYPE II BARRICADE W/O SIGN
- CHANNELIZING DEVICE
- TRAFFIC CONE WITH CLIP ON SIGN
- SIGN
- (S) SIGNALIZED INTERSECTION
- ARROW PANEL (FLASHING ARROW) (WHERE REQUIRED)
- HIGH LEVEL WARNING DEVICE (FLAGTREE) (OPTIONAL)
- FLAGGER
- TANS TOW AWAY NO STOPPING ___ TO ___ (SHOW HOURS)
- TANSAT TOW AWAY NO STOPPING ANY TIME
- WORK ZONE (ACTIVITY AREA) LIMITS
- DIRECTION OF TRAFFIC (NOT PAVEMENT MARKING)
- (A) ROADWAY DESIGNATION (A THROUGH D)

DATES OF TEMPORARY NO PARKING ZONE



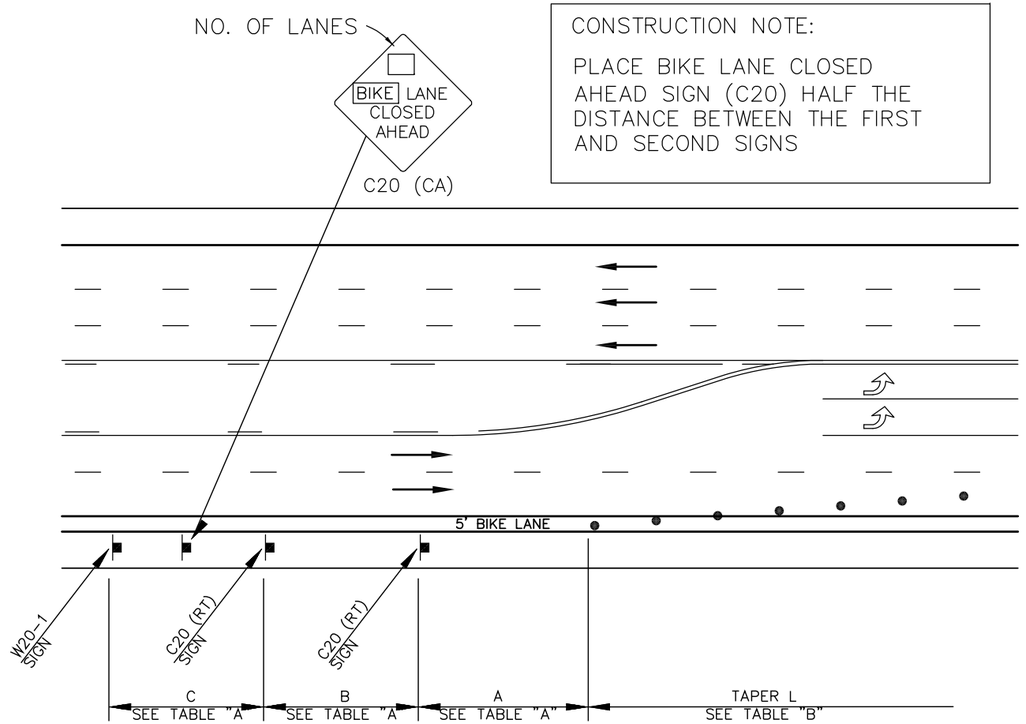
INDICATE NORTH WITH A "N"
AND AN ARROW POINT

WORKSITE TRAFFIC CONTROL PLAN
SIDE OF ROAD WORK
TWO LANE TRAFFIC CONTROL
WITHOUT CENTERLINE

DATE		SCALE
		NONE
		DRAWING NO. 1

CJUTCM-DW001.DWG

REV. APR-2010



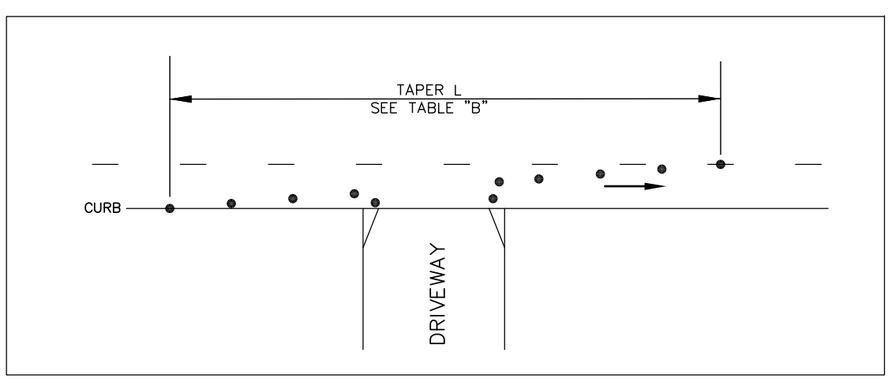
PLACEMENT OF BIKE LANE CLOSURE SIGN
(IF NECESSARY)

CONSTRUCTION NOTE:

PLACE BIKE LANE CLOSED AHEAD SIGN (C20) HALF THE DISTANCE BETWEEN THE FIRST AND SECOND SIGNS

CONSTRUCTION NOTE:

ALL DRIVEWAYS TO REMAIN OPEN (WHENEVER POSSIBLE) THROUGHOUT TRAFFIC CONTROL ZONE



SEE TABLE 'A'–'F' FOR SIGN AND CHANNELIZER DEVICE SPACING AND TAPER LENGTH

SPEED	APPROACH STREET	TAPER LENGTH	SIGN SPACING	CHANNELIZER SPACING

SEE TABLE 'A'–'F' FOR SIGN AND CHANNELIZER DEVICE SPACING AND TAPER LENGTH

SPEED	APPROACH STREET	TAPER LENGTH	SIGN SPACING	CHANNELIZER SPACING

ABBREVIATIONS:

S = Sign Spacing
Min = Minimum
LT = Left
RT = Right
LTP = Lane Traffic Panel
TANSAT = Tow Away, No Stopping Anytime
TANS = Tow Away, No Stopping

CHART A
MINIMUM RECOMMENDED DELINEATOR/CONE & SIGN PLACEMENT

POSTED SPEED LIMIT	TAPER LENGTH FOR 12–FT LANE			CHANNELIZER SPACING		SIGN SPACING (ADVANCE OF TAPER & BETWEEN SIGNS)
	MERGING	SHIFTING	SHOULDER	TAPER	TANGENT	
20 MPH	80 FT.	40 FT.	27 FT.	20 FT.	40 FT.	100 FT.
25 MPH	125 FT.	63 FT.	42 FT.	25 FT.	63 FT.	100 FT.
30 MPH	180 FT.	90 FT.	60 FT.	30 FT.	90 FT.	350 FT.
35 MPH	245 FT.	123 FT.	82 FT.	35 FT.	123 FT.	350 FT.
40 MPH	320 FT.	160 FT.	107 FT.	40 FT.	160 FT.	350 FT.
* 45 MPH	540 FT.	270 FT.	180 FT.	45 FT.	270 FT.	500 FT.
* 50 MPH	600 FT.	300 FT.	200 FT.	50 FT.	300 FT.	500 FT.
* 55+MPH	660 FT.	330 FT.	220 FT.	55 FT.	330 FT.	PER TABLE 'A'

NOTES

1. A Flashing Arrow sign shall be used for each lane closed.
*2. Two lane closure signs (C–20) shall be used on the approach to a lane closure with speeds of 45 mph or greater.

NOTE: This chart based on 12–foot wide lanes. For lane widths greater than 12 feet, use the following formulae:

Taper formula:

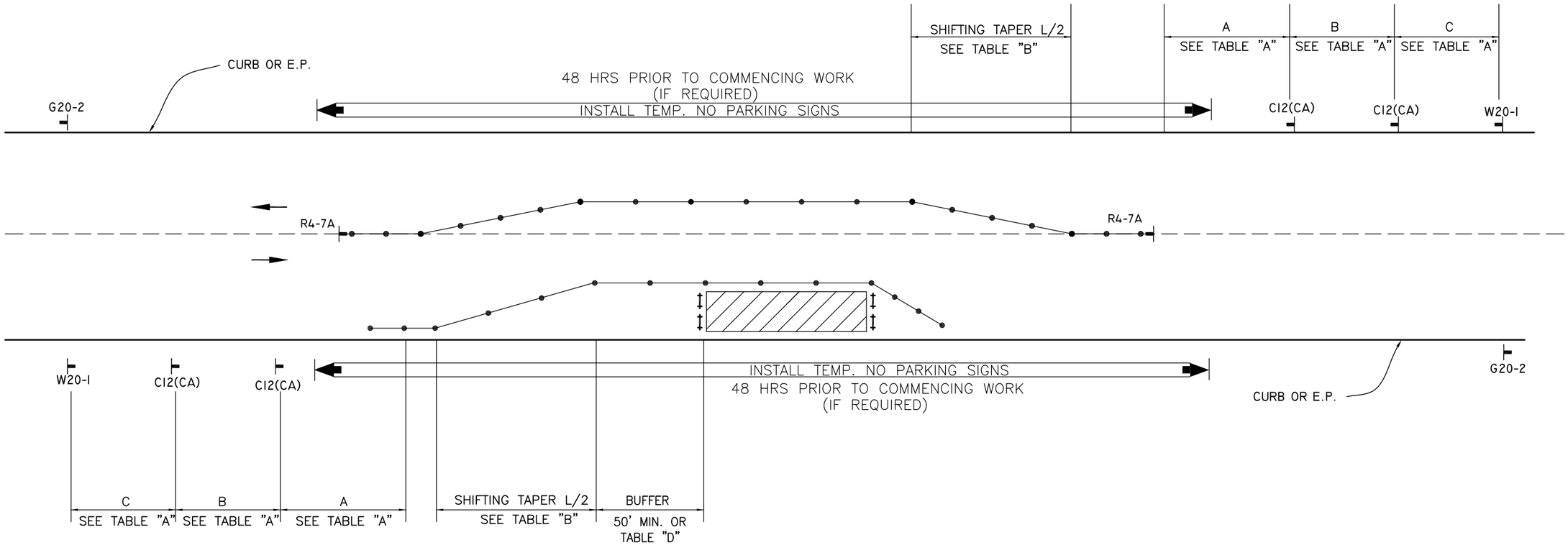
$L = S \times W$ for speeds of 45 mph or more.

$L = \frac{WS^2}{60}$ for speeds of 40 mph or less.

Where:

L = Minimum length of taper.
S = Numerical value of posted speed limit prior to work or 85 percentile speed.
W = Width of offset.

i.e.: 50 mph and 19' lane; L = 50 x 19 = 950 feet



END ROAD WORK
G20-2

NARROW LANE
C12(CA)

ROAD WORK AHEAD
W20-1

KEEP RIGHT
R4-7A

LEGEND

- TYPE III BARRICADE W/SIGN
- TYPE II BARRICADE W/O SIGN
- CHANNELIZING DEVICE
- TRAFFIC CONE WITH CLIP ON SIGN
- SIGN
- (S) SIGNALIZED INTERSECTION
- ARROW PANEL (FLASHING ARROW) (WHERE REQUIRED)
- HIGH LEVEL WARNING DEVICE (FLAGTREE) (OPTIONAL)
- FLAGGER
- TANS TOW AWAY NO STOPPING ___ TO ___ (SHOW HOURS)
- TANSAT TOW AWAY NO STOPPING ANY TIME
- WORK ZONE (ACTIVITY AREA) LIMITS
- DIRECTION OF TRAFFIC (NOT PAVEMENT MARKING)
- (A) ROADWAY DESIGNATION (A THROUGH D)

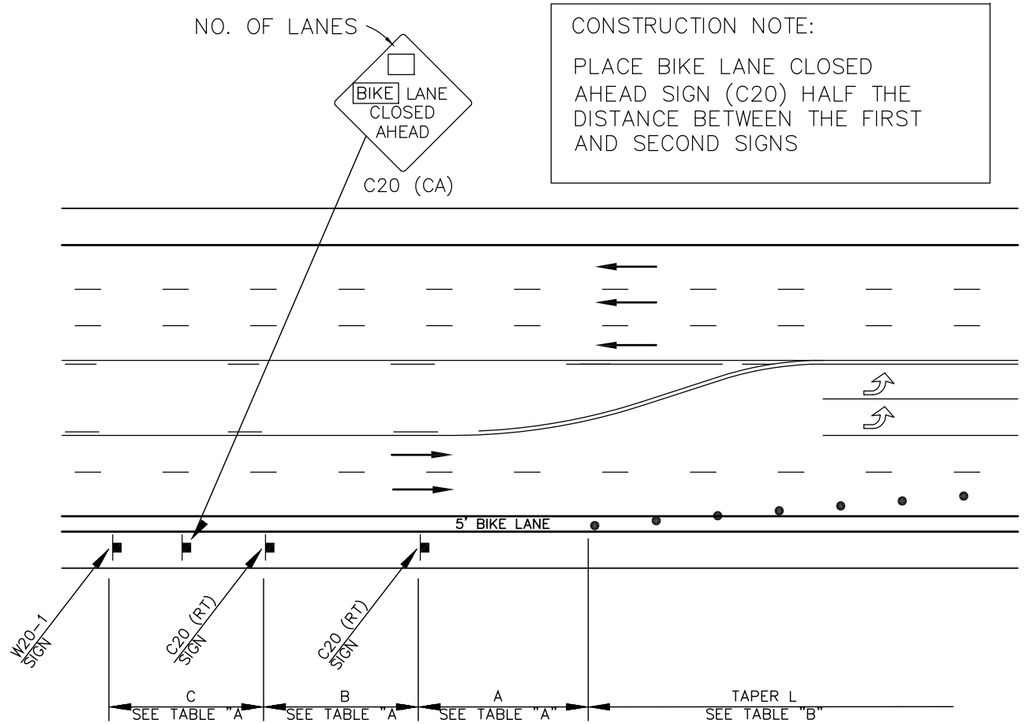
DATES OF TEMPORARY NO PARKING ZONE

INDICATE NORTH WITH A "N"
AND AN ARROW POINT

WORKSITE TRAFFIC CONTROL PLAN
CENTER OF ROAD WORK AREA
TWO LANE TRAFFIC CONTROL

DATE		SCALE
		NONE
		DRAWING NO. 2

REV. APR-2010 CJUTCM-DWG02.DWG



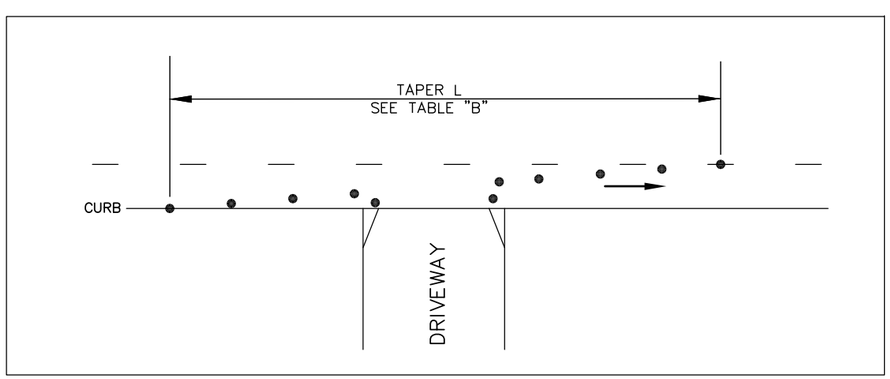
PLACEMENT OF BIKE LANE CLOSURE SIGN
(IF NECESSARY)

CONSTRUCTION NOTE:

PLACE BIKE LANE CLOSED AHEAD SIGN (C20) HALF THE DISTANCE BETWEEN THE FIRST AND SECOND SIGNS

CONSTRUCTION NOTE:

ALL DRIVEWAYS TO REMAIN OPEN (WHENEVER POSSIBLE) THROUGHOUT TRAFFIC CONTROL ZONE



SEE TABLE 'A'–'F' FOR SIGN AND CHANNELIZER DEVICE SPACING AND TAPER LENGTH

SPEED	APPROACH STREET	TAPER LENGTH	SIGN SPACING	CHANNELIZER SPACING

SEE TABLE 'A'–'F' FOR SIGN AND CHANNELIZER DEVICE SPACING AND TAPER LENGTH

SPEED	APPROACH STREET	TAPER LENGTH	SIGN SPACING	CHANNELIZER SPACING

ABBREVIATIONS:

S = Sign Spacing
Min = Minimum
LT = Left
RT = Right
LTP = Lane Traffic Panel
TANSAT = Tow Away, No Stopping Anytime
TANS = Tow Away, No Stopping

CHART A
MINIMUM RECOMMENDED DELINEATOR/CONE & SIGN PLACEMENT

POSTED SPEED LIMIT	TAPER LENGTH FOR 12–FT LANE			CHANNELIZER SPACING		SIGN SPACING (ADVANCE OF TAPER & BETWEEN SIGNS)
	MERGING	SHIFTING	SHOULDER	TAPER	TANGENT	
20 MPH	80 FT.	40 FT.	27 FT.	20 FT.	40 FT.	100 FT.
25 MPH	125 FT.	63 FT.	42 FT.	25 FT.	63 FT.	100 FT.
30 MPH	180 FT.	90 FT.	60 FT.	30 FT.	90 FT.	350 FT.
35 MPH	245 FT.	123 FT.	82 FT.	35 FT.	123 FT.	350 FT.
40 MPH	320 FT.	160 FT.	107 FT.	40 FT.	160 FT.	350 FT.
* 45 MPH	540 FT.	270 FT.	180 FT.	45 FT.	270 FT.	500 FT.
* 50 MPH	600 FT.	300 FT.	200 FT.	50 FT.	300 FT.	500 FT.
* 55+MPH	660 FT.	330 FT.	220 FT.	55 FT.	330 FT.	PER TABLE 'A'

NOTES

1. A Flashing Arrow sign shall be used for each lane closed.
*2. Two lane closure signs (C–20) shall be used on the approach to a lane closure with speeds of 45 mph or greater.

NOTE: This chart based on 12–foot wide lanes. For lane widths greater than 12 feet, use the following formulae:

Taper formula:

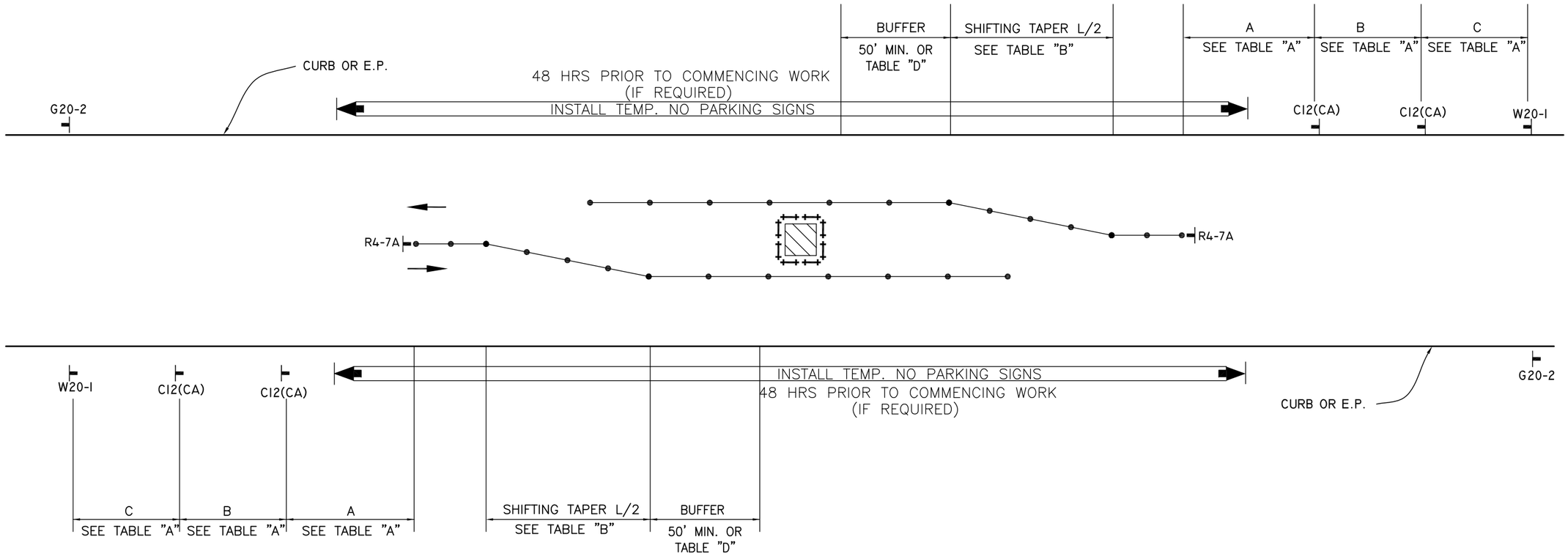
$L = S \times W$ for speeds of 45 mph or more.

$L = \frac{WS^2}{60}$ for speeds of 40 mph or less.

Where:

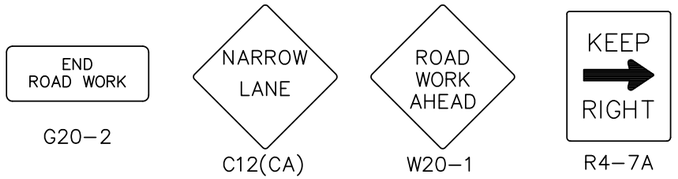
L = Minimum length of taper.
S = Numerical value of posted speed limit prior to work or 85 percentile speed.
W = Width of offset.

i.e.: 50 mph and 19' lane; L = 50 x 19 = 950 feet



LEGEND

- TYPE III BARRICADE W/SIGN
- TYPE II BARRICADE W/O SIGN
- CHANNELIZING DEVICE
- TRAFFIC CONE WITH CLIP ON SIGN
- SIGN
- (S) SIGNALIZED INTERSECTION
- ARROW PANEL (FLASHING ARROW) (WHERE REQUIRED)
- HIGH LEVEL WARNING DEVICE (FLAGTREE) (OPTIONAL)
- FLAGGER
- TANS TOW AWAY NO STOPPING ___ TO ___ (SHOW HOURS)
- TANSAT TOW AWAY NO STOPPING ANY TIME
- WORK ZONE (ACTIVITY AREA) LIMITS
- DIRECTION OF TRAFFIC (NOT PAVEMENT MARKING)
- (A) ROADWAY DESIGNATION (A THROUGH D)



DATES OF TEMPORARY NO PARKING ZONE

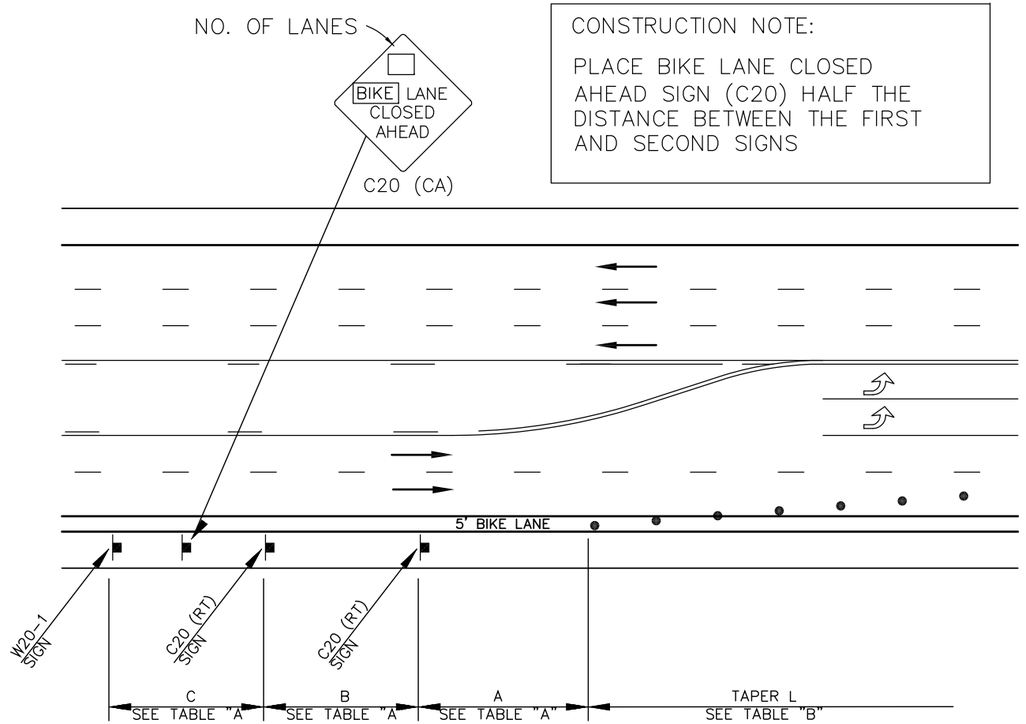
INDICATE NORTH WITH A "N" AND AN ARROW POINT

WORKSITE TRAFFIC CONTROL PLAN

WORK IN CENTER OF ROAD
TWO LANE TRAFFIC CONTROL

DATE	SCALE
	NONE
	DRAWING NO. 3

REV. APR-2010 CJUTCM-DWG03.DWG



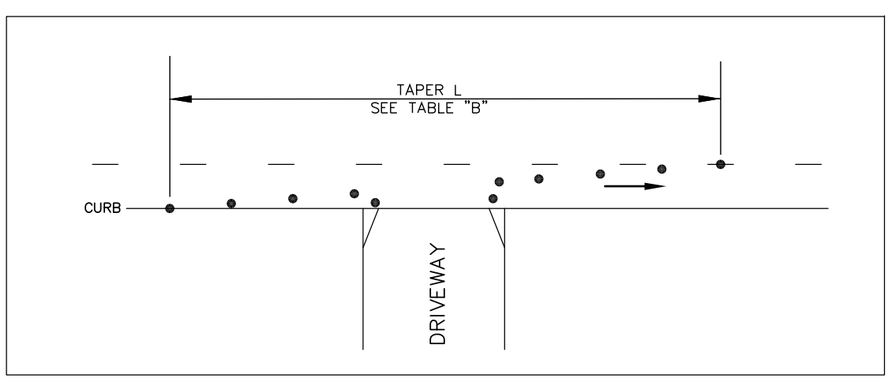
PLACEMENT OF BIKE LANE CLOSURE SIGN
(IF NECESSARY)

CONSTRUCTION NOTE:

PLACE BIKE LANE CLOSED AHEAD SIGN (C20) HALF THE DISTANCE BETWEEN THE FIRST AND SECOND SIGNS

CONSTRUCTION NOTE:

ALL DRIVEWAYS TO REMAIN OPEN (WHENEVER POSSIBLE) THROUGHOUT TRAFFIC CONTROL ZONE



SEE TABLE 'A'–'F' FOR SIGN AND CHANNELIZER DEVICE SPACING AND TAPER LENGTH

SPEED	APPROACH STREET	TAPER LENGTH	SIGN SPACING	CHANNELIZER SPACING

SEE TABLE 'A'–'F' FOR SIGN AND CHANNELIZER DEVICE SPACING AND TAPER LENGTH

SPEED	APPROACH STREET	TAPER LENGTH	SIGN SPACING	CHANNELIZER SPACING

ABBREVIATIONS:

S = Sign Spacing
Min = Minimum
LT = Left
RT = Right
LTP = Lane Traffic Panel
TANSAT = Tow Away, No Stopping Anytime
TANS = Tow Away, No Stopping

CHART A
MINIMUM RECOMMENDED DELINEATOR/CONE & SIGN PLACEMENT

POSTED SPEED LIMIT	TAPER LENGTH FOR 12–FT LANE			CHANNELIZER SPACING		SIGN SPACING (ADVANCE OF TAPER & BETWEEN SIGNS)
	MERGING	SHIFTING	SHOULDER	TAPER	TANGENT	
20 MPH	80 FT.	40 FT.	27 FT.	20 FT.	40 FT.	100 FT.
25 MPH	125 FT.	63 FT.	42 FT.	25 FT.	63 FT.	100 FT.
30 MPH	180 FT.	90 FT.	60 FT.	30 FT.	90 FT.	350 FT.
35 MPH	245 FT.	123 FT.	82 FT.	35 FT.	123 FT.	350 FT.
40 MPH	320 FT.	160 FT.	107 FT.	40 FT.	160 FT.	350 FT.
* 45 MPH	540 FT.	270 FT.	180 FT.	45 FT.	270 FT.	500 FT.
* 50 MPH	600 FT.	300 FT.	200 FT.	50 FT.	300 FT.	500 FT.
* 55+MPH	660 FT.	330 FT.	220 FT.	55 FT.	330 FT.	PER TABLE 'A'

NOTES

1. A Flashing Arrow sign shall be used for each lane closed.
*2. Two lane closure signs (C–20) shall be used on the approach to a lane closure with speeds of 45 mph or greater.

NOTE: This chart based on 12–foot wide lanes. For lane widths greater than 12 feet, use the following formulae:

Taper formula:

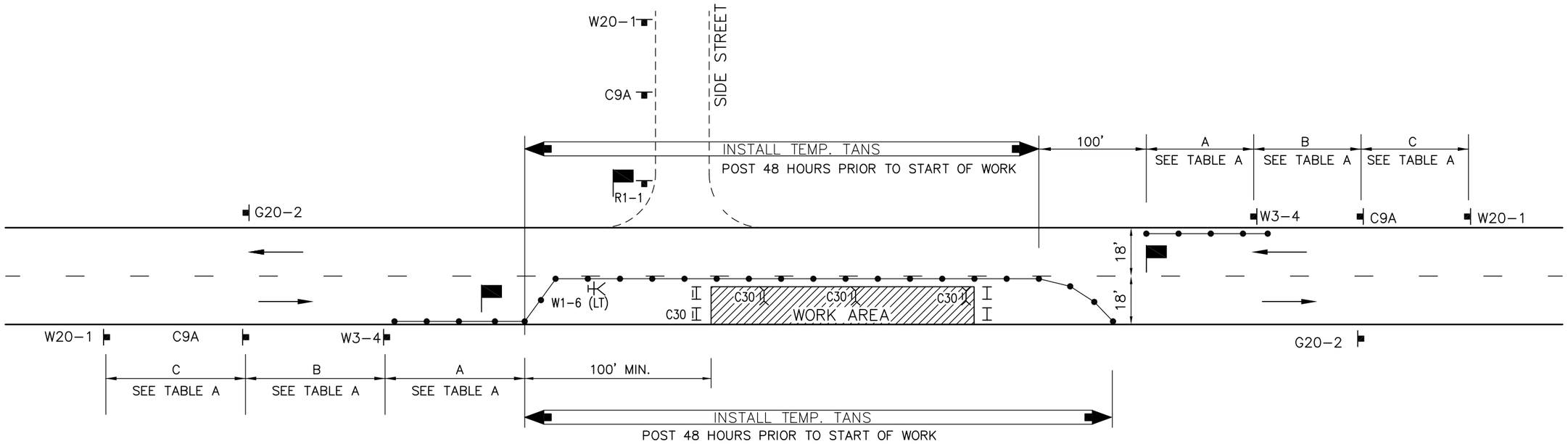
$L = S \times W$ for speeds of 45 mph or more.

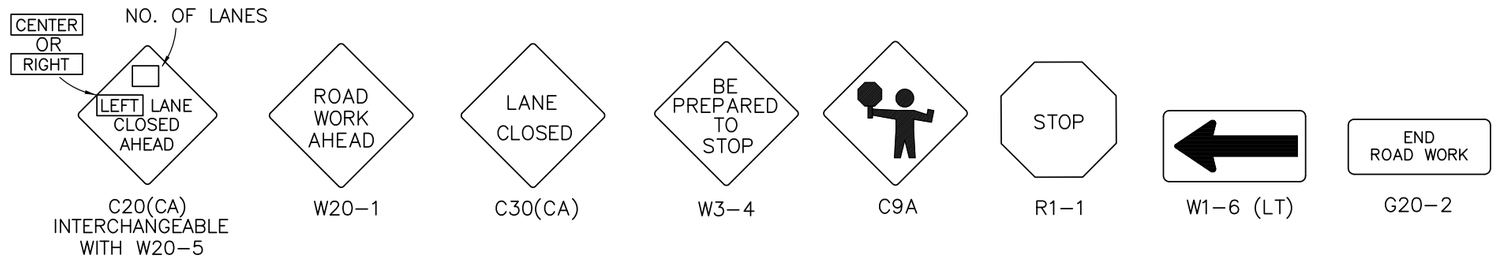
$L = \frac{WS^2}{60}$ for speeds of 40 mph or less.

Where:

L = Minimum length of taper.
S = Numerical value of posted speed limit prior to work or 85 percentile speed.
W = Width of offset.

i.e.: 50 mph and 19' lane; L = 50 x 19 = 950 feet





LEGEND

- TYPE III BARRICADE W/SIGN
- TYPE II BARRICADE W/O SIGN
- CHANNELIZING DEVICE
- TRAFFIC CONE WITH CLIP ON SIGN
- SIGN
- (S) SIGNALIZED INTERSECTION
- ARROW PANEL (FLASHING ARROW) (WHERE REQUIRED)
- HIGH LEVEL WARNING DEVICE (FLAGTREE) (OPTIONAL)
- FLAGGER
- TANS TOW AWAY NO STOPPING ___ TO ___ (SHOW HOURS)
- TANSAT TOW AWAY NO STOPPING ANY TIME
- WORK ZONE (ACTIVITY AREA) LIMITS
- DIRECTION OF TRAFFIC (NOT PAVEMENT MARKING)
- (A) ROADWAY DESIGNATION (A THROUGH D)

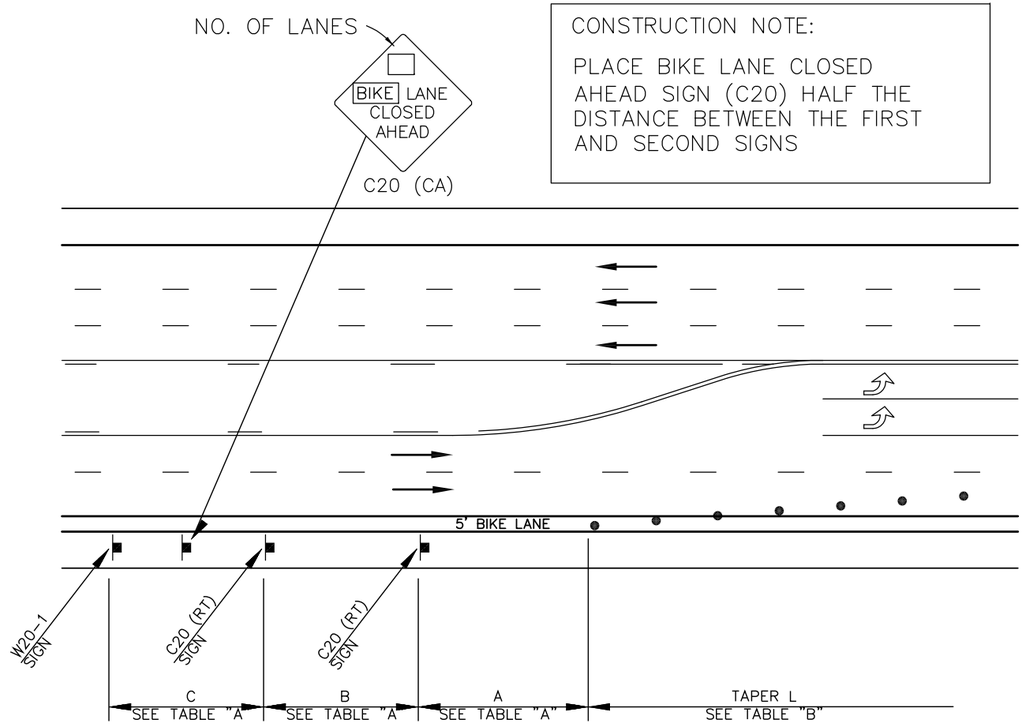
DATES OF TEMPORARY NO PARKING ZONE

INDICATE NORTH WITH A "N" AND AN ARROW POINT

WORKSITE TRAFFIC CONTROL PLAN
MIDBLOCK HALF STREET CLOSURE
FLAGGER CONTROL

DATE		SCALE
		NONE
		DRAWING NO. 4

REV. APR-2010 CJUTCM-DWG04.DWG



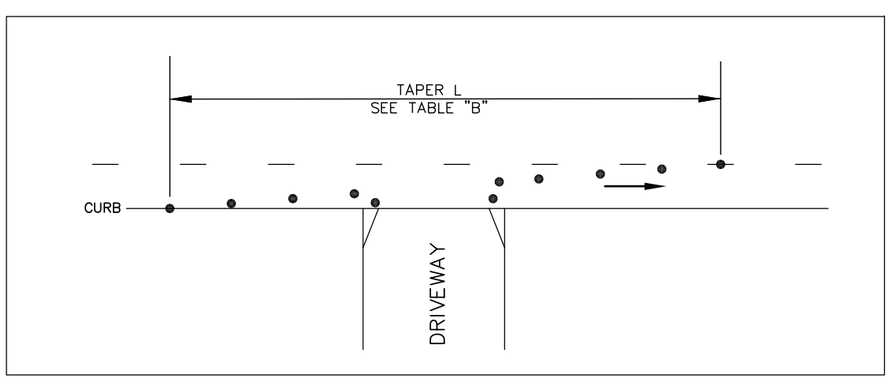
PLACEMENT OF BIKE LANE CLOSURE SIGN
(IF NECESSARY)

CONSTRUCTION NOTE:

PLACE BIKE LANE CLOSED AHEAD SIGN (C20) HALF THE DISTANCE BETWEEN THE FIRST AND SECOND SIGNS

CONSTRUCTION NOTE:

ALL DRIVEWAYS TO REMAIN OPEN (WHENEVER POSSIBLE) THROUGHOUT TRAFFIC CONTROL ZONE



SEE TABLE 'A'–'F' FOR SIGN AND CHANNELIZER DEVICE SPACING AND TAPER LENGTH

SPEED	APPROACH STREET	TAPER LENGTH	SIGN SPACING	CHANNELIZER SPACING

SEE TABLE 'A'–'F' FOR SIGN AND CHANNELIZER DEVICE SPACING AND TAPER LENGTH

SPEED	APPROACH STREET	TAPER LENGTH	SIGN SPACING	CHANNELIZER SPACING

ABBREVIATIONS:

S = Sign Spacing
Min = Minimum
LT = Left
RT = Right
LTP = Lane Traffic Panel
TANSAT = Tow Away, No Stopping Anytime
TANS = Tow Away, No Stopping

CHART A
MINIMUM RECOMMENDED DELINEATOR/CONE & SIGN PLACEMENT

POSTED SPEED LIMIT	TAPER LENGTH FOR 12–FT LANE			CHANNELIZER SPACING		SIGN SPACING (ADVANCE OF TAPER & BETWEEN SIGNS)
	MERGING	SHIFTING	SHOULDER	TAPER	TANGENT	
20 MPH	80 FT.	40 FT.	27 FT.	20 FT.	40 FT.	100 FT.
25 MPH	125 FT.	63 FT.	42 FT.	25 FT.	63 FT.	100 FT.
30 MPH	180 FT.	90 FT.	60 FT.	30 FT.	90 FT.	350 FT.
35 MPH	245 FT.	123 FT.	82 FT.	35 FT.	123 FT.	350 FT.
40 MPH	320 FT.	160 FT.	107 FT.	40 FT.	160 FT.	350 FT.
* 45 MPH	540 FT.	270 FT.	180 FT.	45 FT.	270 FT.	500 FT.
* 50 MPH	600 FT.	300 FT.	200 FT.	50 FT.	300 FT.	500 FT.
* 55+MPH	660 FT.	330 FT.	220 FT.	55 FT.	330 FT.	PER TABLE 'A'

NOTES

1. A Flashing Arrow sign shall be used for each lane closed.
*2. Two lane closure signs (C–20) shall be used on the approach to a lane closure with speeds of 45 mph or greater.

NOTE: This chart based on 12–foot wide lanes. For lane widths greater than 12 feet, use the following formulae:

Taper formula:

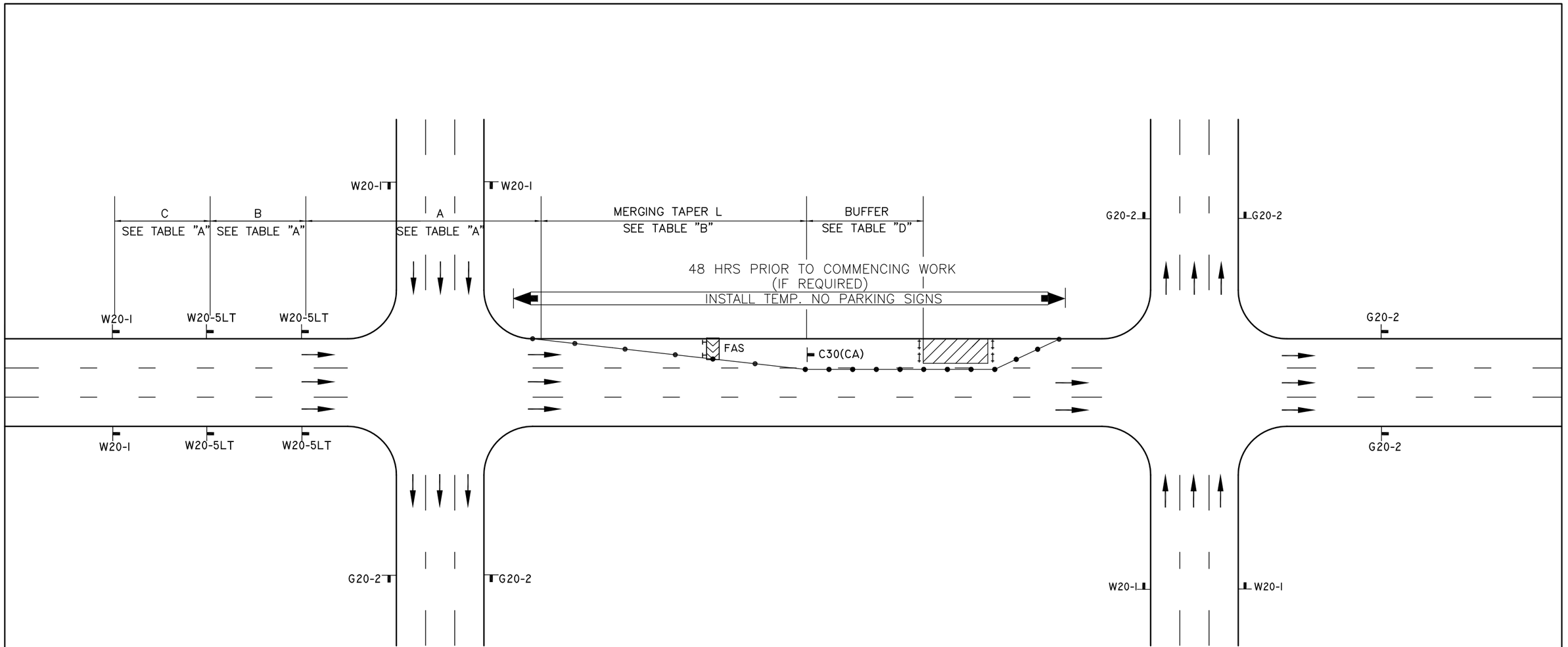
$L = S \times W$ for speeds of 45 mph or more.

$L = \frac{WS^2}{60}$ for speeds of 40 mph or less.

Where:

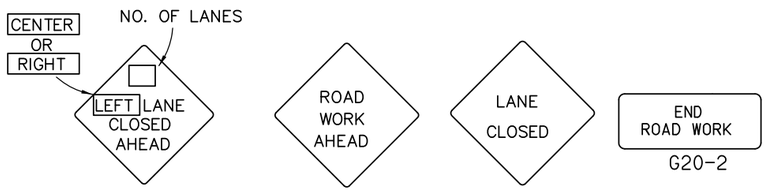
L = Minimum length of taper.
S = Numerical value of posted speed limit prior to work or 85 percentile speed.
W = Width of offset.

i.e.: 50 mph and 19' lane; L = 50 x 19 = 950 feet



LEGEND

- TYPE III BARRICADE W/SIGN
- TYPE II BARRICADE W/O SIGN
- CHANNELIZING DEVICE
- TRAFFIC CONE WITH CLIP ON SIGN
- SIGN
- (S) SIGNALIZED INTERSECTION
- ARROW PANEL (FLASHING ARROW) (WHERE REQUIRED)
- HIGH LEVEL WARNING DEVICE (FLAGTREE) (OPTIONAL)
- FLAGGER
- TANS TOW AWAY NO STOPPING ___ TO ___ (SHOW HOURS)
- TANSAT TOW AWAY NO STOPPING ANY TIME
- WORK ZONE (ACTIVITY AREA) LIMITS
- DIRECTION OF TRAFFIC (NOT PAVEMENT MARKING)
- (A) ROADWAY DESIGNATION (A THROUGH D)



W20-5 INTERCHANGEABLE WITH C20(CA)

W20-1

C30(CA)

DATES OF TEMPORARY NO PARKING ZONE

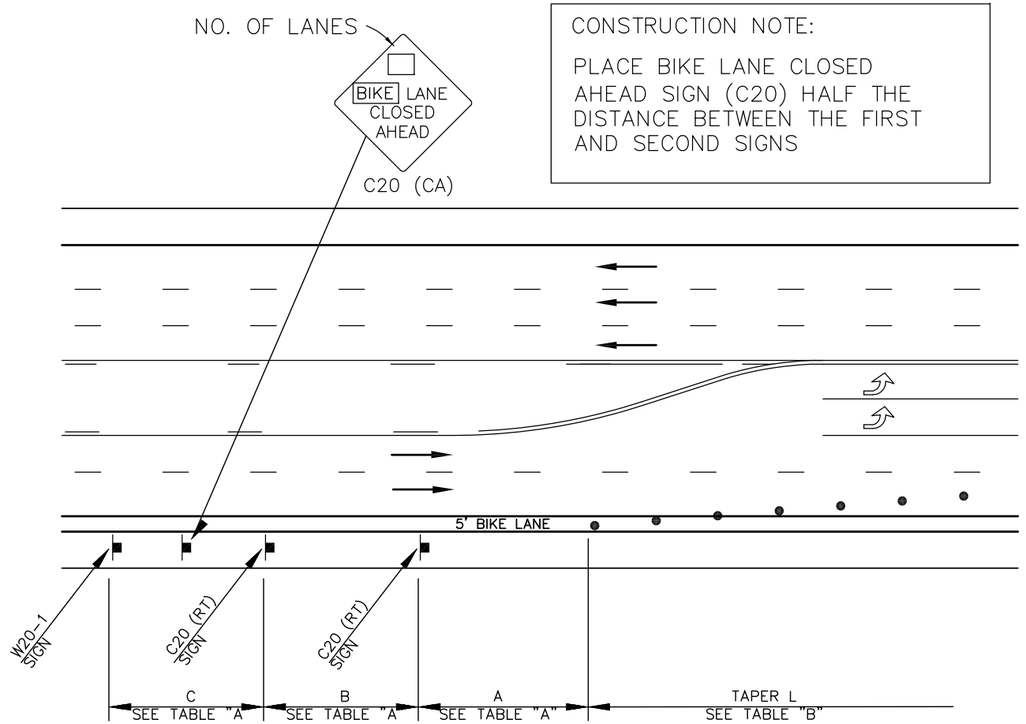
INDICATE NORTH WITH A "N" AND AN ARROW POINT

WORKSITE TRAFFIC CONTROL PLAN

SIDE OF ROAD WORK AREA
SINGLE LANE CLOSURE FOR ONE WAY STREET

DATE		SCALE
		NONE
		DRAWING NO. 5

REV. APR-2010 CJUTCM-DWG50.DWG



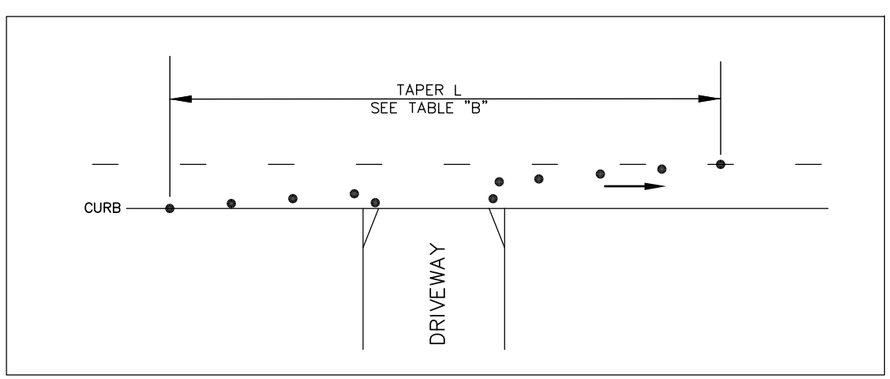
PLACEMENT OF BIKE LANE CLOSURE SIGN
(IF NECESSARY)

CONSTRUCTION NOTE:

PLACE BIKE LANE CLOSED AHEAD SIGN (C20) HALF THE DISTANCE BETWEEN THE FIRST AND SECOND SIGNS

CONSTRUCTION NOTE:

ALL DRIVEWAYS TO REMAIN OPEN (WHENEVER POSSIBLE) THROUGHOUT TRAFFIC CONTROL ZONE



SEE TABLE 'A'–'F' FOR SIGN AND CHANNELIZER DEVICE SPACING AND TAPER LENGTH

SPEED	APPROACH STREET	TAPER LENGTH	SIGN SPACING	CHANNELIZER SPACING

SEE TABLE 'A'–'F' FOR SIGN AND CHANNELIZER DEVICE SPACING AND TAPER LENGTH

SPEED	APPROACH STREET	TAPER LENGTH	SIGN SPACING	CHANNELIZER SPACING

ABBREVIATIONS:

S = Sign Spacing
Min = Minimum
LT = Left
RT = Right
LTP = Lane Traffic Panel
TANSAT = Tow Away, No Stopping Anytime
TANS = Tow Away, No Stopping

CHART A
MINIMUM RECOMMENDED DELINEATOR/CONE & SIGN PLACEMENT

POSTED SPEED LIMIT	TAPER LENGTH FOR 12–FT LANE			CHANNELIZER SPACING		SIGN SPACING (ADVANCE OF TAPER & BETWEEN SIGNS)
	MERGING	SHIFTING	SHOULDER	TAPER	TANGENT	
20 MPH	80 FT.	40 FT.	27 FT.	20 FT.	40 FT.	100 FT.
25 MPH	125 FT.	63 FT.	42 FT.	25 FT.	63 FT.	100 FT.
30 MPH	180 FT.	90 FT.	60 FT.	30 FT.	90 FT.	350 FT.
35 MPH	245 FT.	123 FT.	82 FT.	35 FT.	123 FT.	350 FT.
40 MPH	320 FT.	160 FT.	107 FT.	40 FT.	160 FT.	350 FT.
* 45 MPH	540 FT.	270 FT.	180 FT.	45 FT.	270 FT.	500 FT.
* 50 MPH	600 FT.	300 FT.	200 FT.	50 FT.	300 FT.	500 FT.
* 55+MPH	660 FT.	330 FT.	220 FT.	55 FT.	330 FT.	PER TABLE 'A'

NOTES

1. A Flashing Arrow sign shall be used for each lane closed.
*2. Two lane closure signs (C–20) shall be used on the approach to a lane closure with speeds of 45 mph or greater.

NOTE: This chart based on 12–foot wide lanes. For lane widths greater than 12 feet, use the following formulae:

Taper formula:

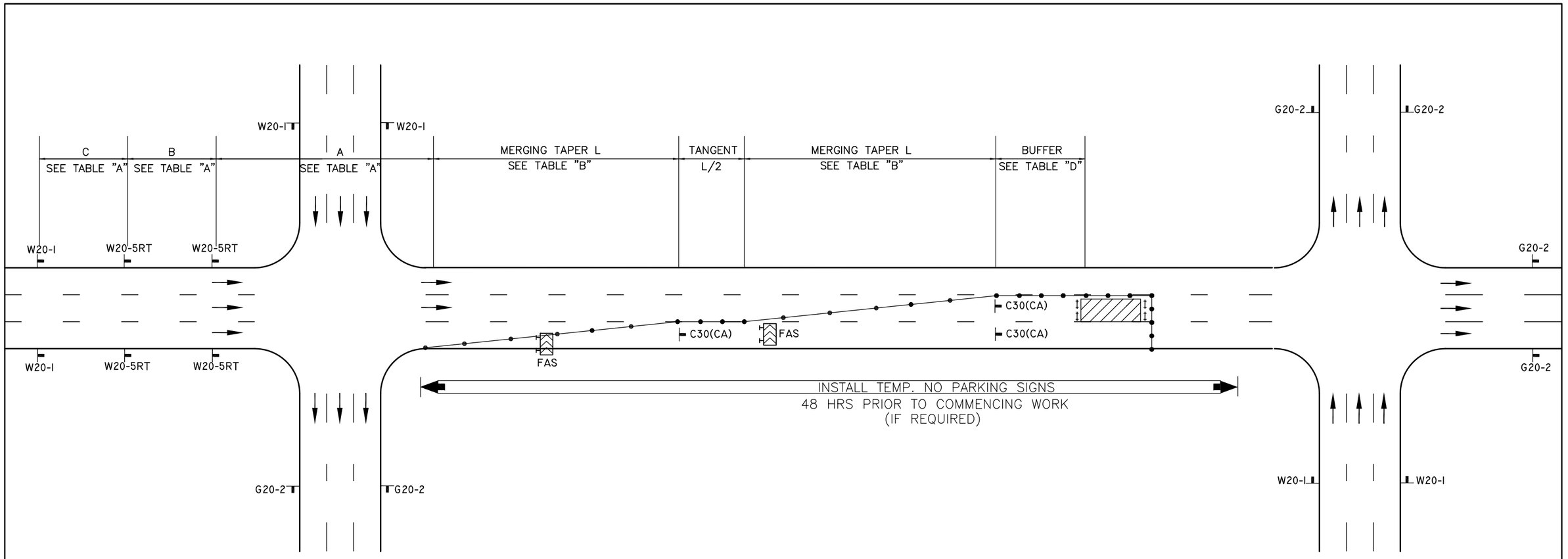
$L = S \times W$ for speeds of 45 mph or more.

$L = \frac{WS^2}{60}$ for speeds of 40 mph or less.

Where:

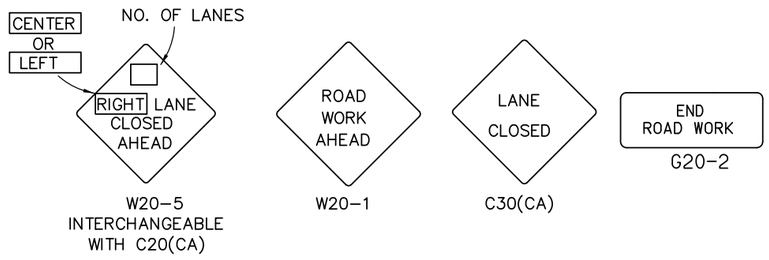
L = Minimum length of taper.
S = Numerical value of posted speed limit prior to work or 85 percentile speed.
W = Width of offset.

i.e.: 50 mph and 19' lane; L = 50 x 19 = 950 feet



LEGEND

- TYPE III BARRICADE W/SIGN
- TYPE II BARRICADE W/O SIGN
- CHANNELIZING DEVICE
- TRAFFIC CONE WITH CLIP ON SIGN
- SIGN
- (S) SIGNALIZED INTERSECTION
- ARROW PANEL (FLASHING ARROW) (WHERE REQUIRED)
- HIGH LEVEL WARNING DEVICE (FLAGTREE) (OPTIONAL)
- FLAGGER
- TANS — TOW AWAY NO STOPPING ___ TO ___ (SHOW HOURS)
- TANSAT — TOW AWAY NO STOPPING ANY TIME
- WORK ZONE (ACTIVITY AREA) LIMITS
- DIRECTION OF TRAFFIC (NOT PAVEMENT MARKING)
- (A) ROADWAY DESIGNATION (A THROUGH D)



DATES OF TEMPORARY NO PARKING ZONE

INDICATE NORTH WITH A "N" AND AN ARROW POINT

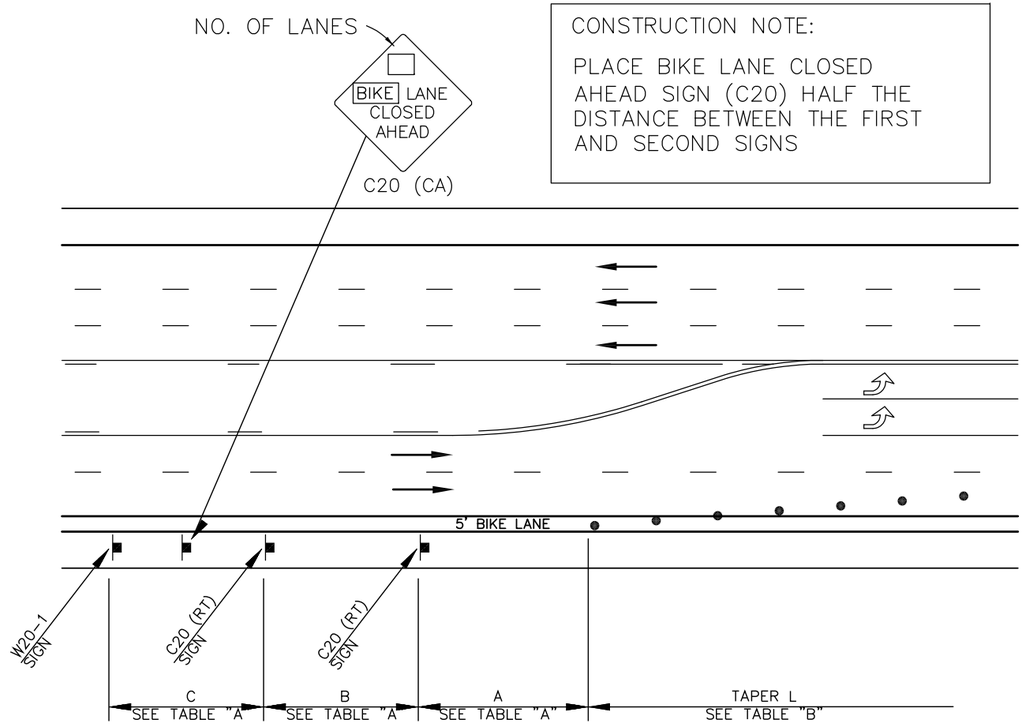
WORKSITE TRAFFIC CONTROL PLAN

SIDE OF ROAD WORK AREA
MULTILANE CLOSURE FOR ONE WAY STREET
RIGHT TRAFFIC LANES CLOSED–ONE LANE

DATE		SCALE
		NONE
		DRAWING NO. 6

CJUTCM–DWG06.DWG

REV. APR–2010



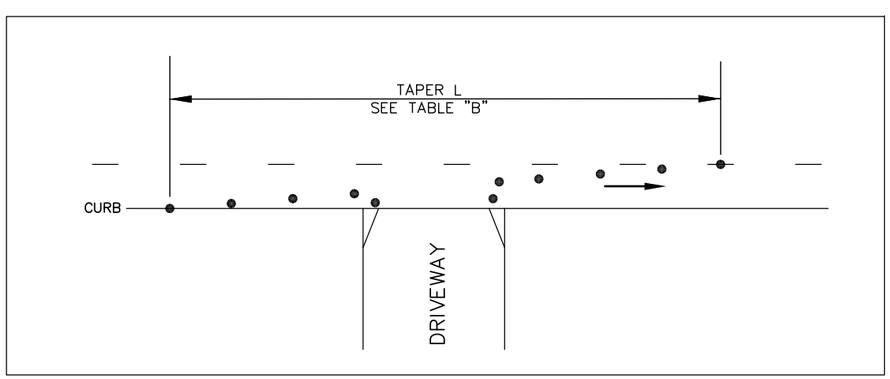
PLACEMENT OF BIKE LANE CLOSURE SIGN
(IF NECESSARY)

CONSTRUCTION NOTE:

PLACE BIKE LANE CLOSED AHEAD SIGN (C20) HALF THE DISTANCE BETWEEN THE FIRST AND SECOND SIGNS

CONSTRUCTION NOTE:

ALL DRIVEWAYS TO REMAIN OPEN (WHENEVER POSSIBLE) THROUGHOUT TRAFFIC CONTROL ZONE



SEE TABLE 'A'–'F' FOR SIGN AND CHANNELIZER DEVICE SPACING AND TAPER LENGTH

SPEED	APPROACH STREET	TAPER LENGTH	SIGN SPACING	CHANNELIZER SPACING

SEE TABLE 'A'–'F' FOR SIGN AND CHANNELIZER DEVICE SPACING AND TAPER LENGTH

SPEED	APPROACH STREET	TAPER LENGTH	SIGN SPACING	CHANNELIZER SPACING

ABBREVIATIONS:

S = Sign Spacing
Min = Minimum
LT = Left
RT = Right
LTP = Lane Traffic Panel
TANSAT = Tow Away, No Stopping Anytime
TANS = Tow Away, No Stopping

CHART A
MINIMUM RECOMMENDED DELINEATOR/CONE & SIGN PLACEMENT

POSTED SPEED LIMIT	TAPER LENGTH FOR 12–FT LANE			CHANNELIZER SPACING		SIGN SPACING (ADVANCE OF TAPER & BETWEEN SIGNS)
	MERGING	SHIFTING	SHOULDER	TAPER	TANGENT	
20 MPH	80 FT.	40 FT.	27 FT.	20 FT.	40 FT.	100 FT.
25 MPH	125 FT.	63 FT.	42 FT.	25 FT.	63 FT.	100 FT.
30 MPH	180 FT.	90 FT.	60 FT.	30 FT.	90 FT.	350 FT.
35 MPH	245 FT.	123 FT.	82 FT.	35 FT.	123 FT.	350 FT.
40 MPH	320 FT.	160 FT.	107 FT.	40 FT.	160 FT.	350 FT.
* 45 MPH	540 FT.	270 FT.	180 FT.	45 FT.	270 FT.	500 FT.
* 50 MPH	600 FT.	300 FT.	200 FT.	50 FT.	300 FT.	500 FT.
* 55+MPH	660 FT.	330 FT.	220 FT.	55 FT.	330 FT.	PER TABLE 'A'

NOTES

1. A Flashing Arrow sign shall be used for each lane closed.
*2. Two lane closure signs (C–20) shall be used on the approach to a lane closure with speeds of 45 mph or greater.

NOTE: This chart based on 12–foot wide lanes. For lane widths greater than 12 feet, use the following formulae:

Taper formula:

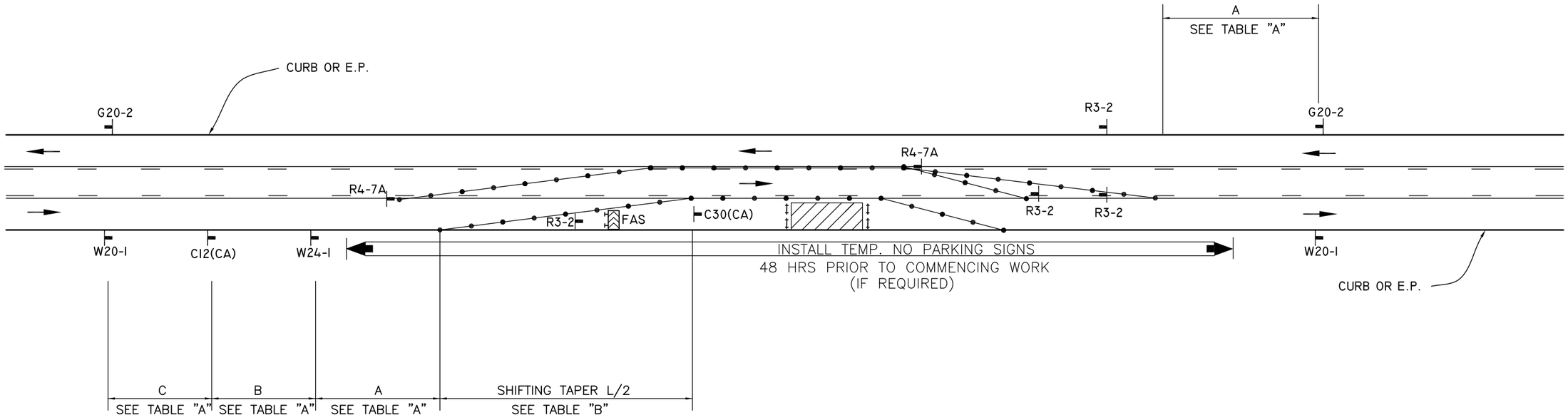
$L = S \times W$ for speeds of 45 mph or more.

$L = \frac{WS^2}{60}$ for speeds of 40 mph or less.

Where:

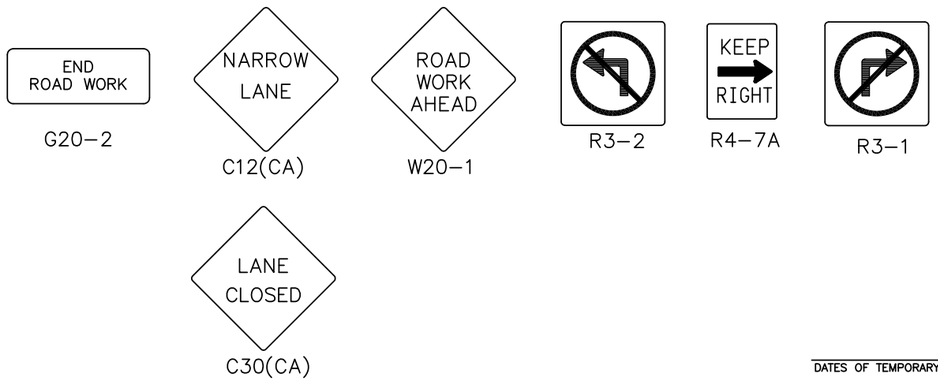
L = Minimum length of taper.
S = Numerical value of posted speed limit prior to work or 85 percentile speed.
W = Width of offset.

i.e.: 50 mph and 19' lane; L = 50 x 19 = 950 feet



LEGEND

- TYPE III BARRICADE W/SIGN
- TYPE II BARRICADE W/O SIGN
- CHANNELIZING DEVICE
- TRAFFIC CONE WITH CLIP ON SIGN
- SIGN
- (S) SIGNALIZED INTERSECTION
- ARROW PANEL (FLASHING ARROW) (WHERE REQUIRED)
- HIGH LEVEL WARNING DEVICE (FLAGTREE) (OPTIONAL)
- FLAGGER
- TANS TOW AWAY NO STOPPING ___ TO ___ (SHOW HOURS)
- TANSAT TOW AWAY NO STOPPING ANY TIME
- WORK ZONE (ACTIVITY AREA) LIMITS
- DIRECTION OF TRAFFIC (NOT PAVEMENT MARKING)
- (A) ROADWAY DESIGNATION (A THROUGH D)



DATES OF TEMPORARY NO PARKING ZONE

INDICATE NORTH WITH A "N" AND AN ARROW POINT

WORKSITE TRAFFIC CONTROL PLAN

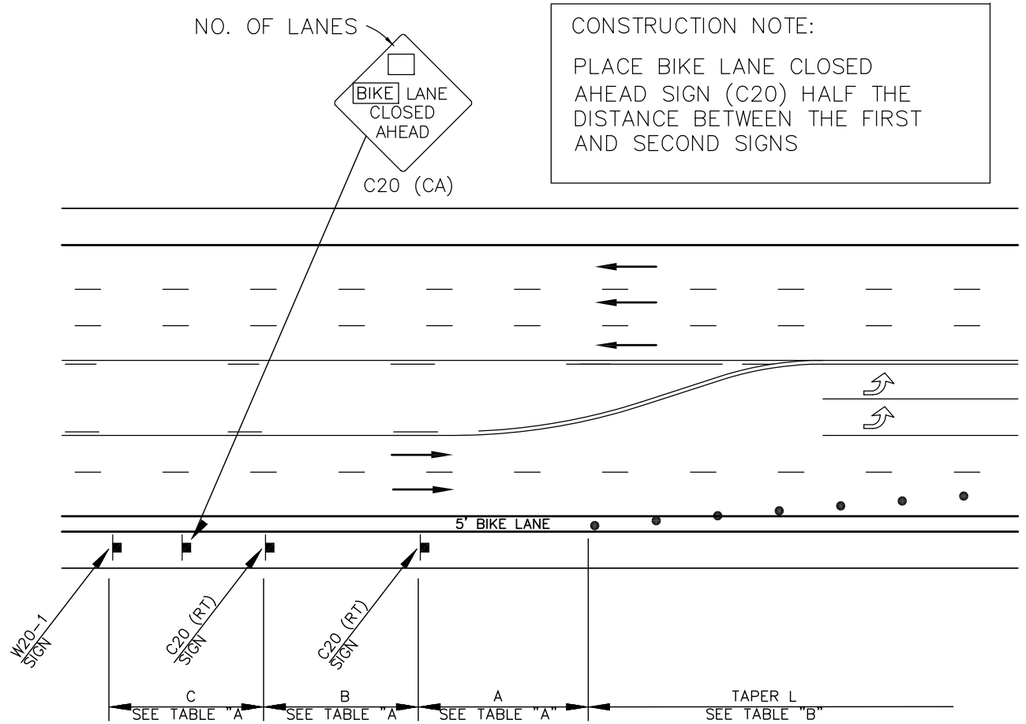
SIDE OF ROAD WORK AREA
SINGLE LANE CLOSURE – RIGHT LANE
USING LEFT TURN LANE

DATE

SCALE NONE

DRAWING NO. 7

REV. APR-2010 CJUTCM-DWG07.DWG



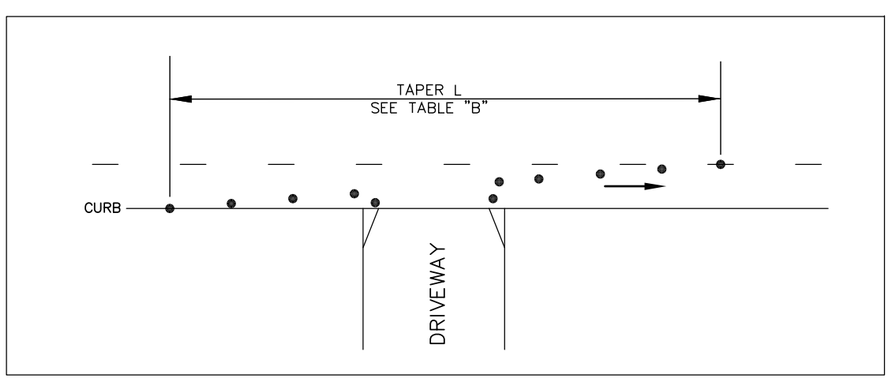
PLACEMENT OF BIKE LANE CLOSURE SIGN
(IF NECESSARY)

CONSTRUCTION NOTE:

PLACE BIKE LANE CLOSED AHEAD SIGN (C20) HALF THE DISTANCE BETWEEN THE FIRST AND SECOND SIGNS

CONSTRUCTION NOTE:

ALL DRIVEWAYS TO REMAIN OPEN (WHENEVER POSSIBLE) THROUGHOUT TRAFFIC CONTROL ZONE



SEE TABLE 'A'–'F' FOR SIGN AND CHANNELIZER DEVICE SPACING AND TAPER LENGTH

SPEED	APPROACH STREET	TAPER LENGTH	SIGN SPACING	CHANNELIZER SPACING

SEE TABLE 'A'–'F' FOR SIGN AND CHANNELIZER DEVICE SPACING AND TAPER LENGTH

SPEED	APPROACH STREET	TAPER LENGTH	SIGN SPACING	CHANNELIZER SPACING

ABBREVIATIONS:

S = Sign Spacing
Min = Minimum
LT = Left
RT = Right
LTP = Lane Traffic Panel
TANSAT = Tow Away, No Stopping Anytime
TANS = Tow Away, No Stopping

CHART A
MINIMUM RECOMMENDED DELINEATOR/CONE & SIGN PLACEMENT

POSTED SPEED LIMIT	TAPER LENGTH FOR 12–FT LANE			CHANNELIZER SPACING		SIGN SPACING (ADVANCE OF TAPER & BETWEEN SIGNS)
	MERGING	SHIFTING	SHOULDER	TAPER	TANGENT	
20 MPH	80 FT.	40 FT.	27 FT.	20 FT.	40 FT.	100 FT.
25 MPH	125 FT.	63 FT.	42 FT.	25 FT.	63 FT.	100 FT.
30 MPH	180 FT.	90 FT.	60 FT.	30 FT.	90 FT.	350 FT.
35 MPH	245 FT.	123 FT.	82 FT.	35 FT.	123 FT.	350 FT.
40 MPH	320 FT.	160 FT.	107 FT.	40 FT.	160 FT.	350 FT.
* 45 MPH	540 FT.	270 FT.	180 FT.	45 FT.	270 FT.	500 FT.
* 50 MPH	600 FT.	300 FT.	200 FT.	50 FT.	300 FT.	500 FT.
* 55+MPH	660 FT.	330 FT.	220 FT.	55 FT.	330 FT.	PER TABLE 'A'

NOTES

1. A Flashing Arrow sign shall be used for each lane closed.
*2. Two lane closure signs (C–20) shall be used on the approach to a lane closure with speeds of 45 mph or greater.

NOTE: This chart based on 12–foot wide lanes. For lane widths greater than 12 feet, use the following formulae:

Taper formula:

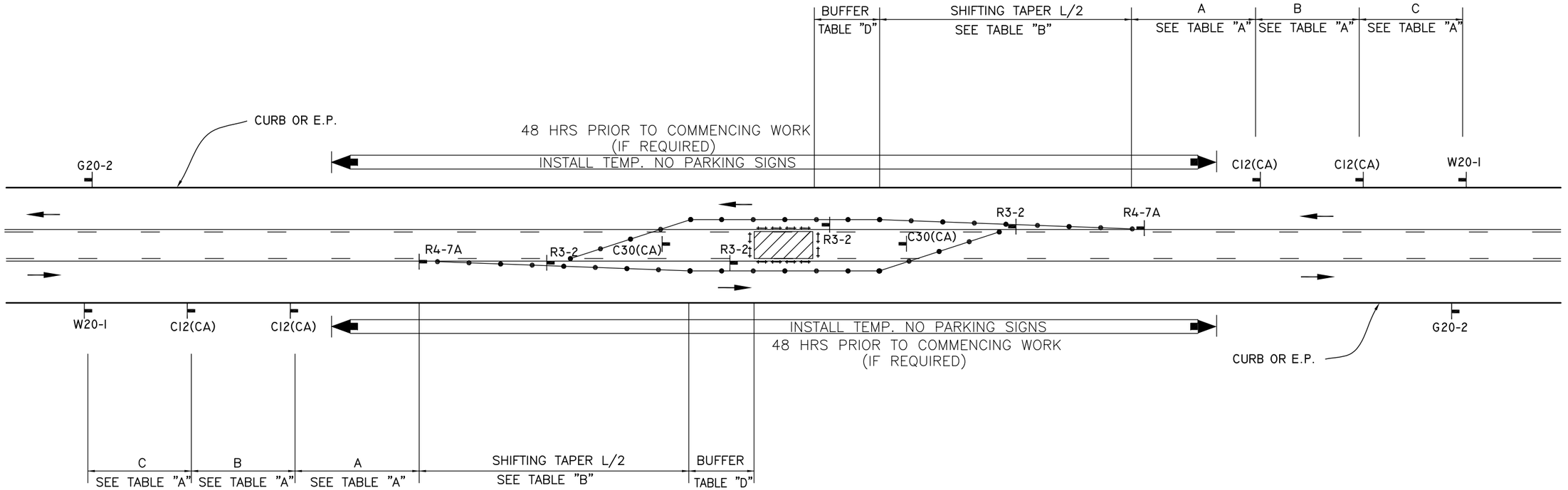
$L = S \times W$ for speeds of 45 mph or more.

$L = \frac{WS^2}{60}$ for speeds of 40 mph or less.

Where:

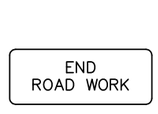
L = Minimum length of taper.
S = Numerical value of posted speed limit prior to work or 85 percentile speed.
W = Width of offset.

i.e.: 50 mph and 19' lane; L = 50 x 19 = 950 feet



LEGEND

- TYPE III BARRICADE W/SIGN
- TYPE II BARRICADE W/O SIGN
- CHANNELIZING DEVICE
- TRAFFIC CONE WITH CLIP ON SIGN
- SIGN
- (S) SIGNALIZED INTERSECTION
- ARROW PANEL (FLASHING ARROW) (WHERE REQUIRED)
- HIGH LEVEL WARNING DEVICE (FLAGTREE) (OPTIONAL)
- FLAGGER
- TANS TOW AWAY NO STOPPING ___ TO ___ (SHOW HOURS)
- TANSAT TOW AWAY NO STOPPING ANY TIME
- WORK ZONE (ACTIVITY AREA) LIMITS
- DIRECTION OF TRAFFIC (NOT PAVEMENT MARKING)
- (A) ROADWAY DESIGNATION (A THROUGH D)



G20-2

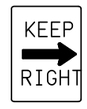


C12(CA)



W20-1


R3-2



R4-7A


R3-1



C30(CA)

INDICATE NORTH WITH A "N" AND AN ARROW POINT

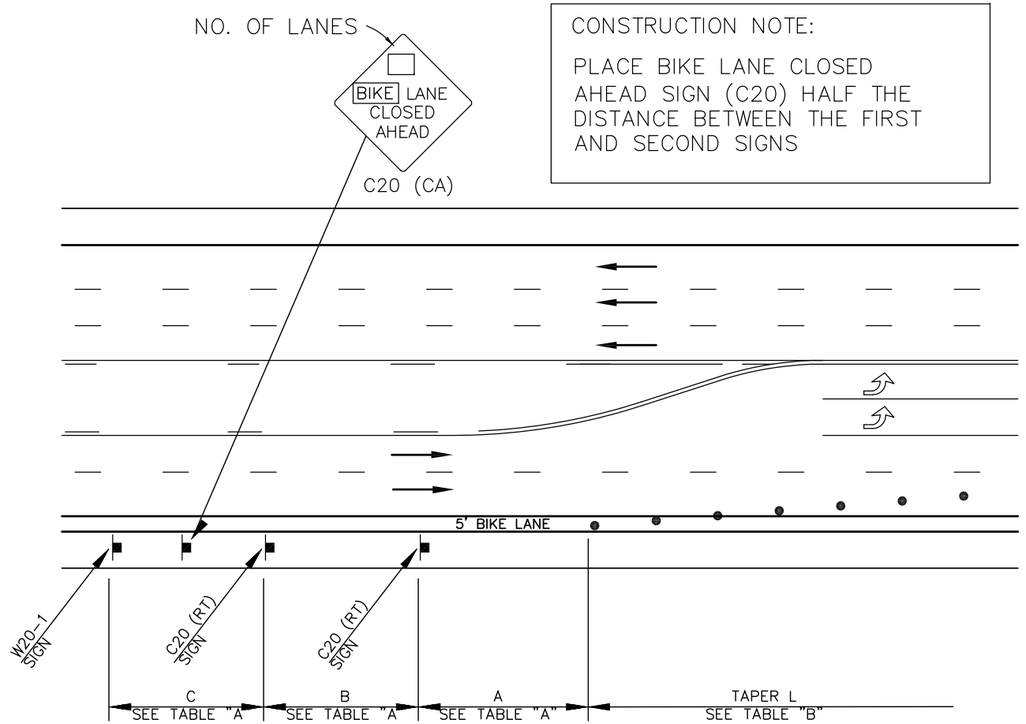
DATES OF TEMPORARY NO PARKING ZONE

WORKSITE TRAFFIC CONTROL PLAN

LEFT TURN LANE CLOSURE – MIDBLOCK

DATE		SCALE
		NONE
		DRAWING NO. 8

REV. APR-2010 CJUTCM-DWG08.DWG



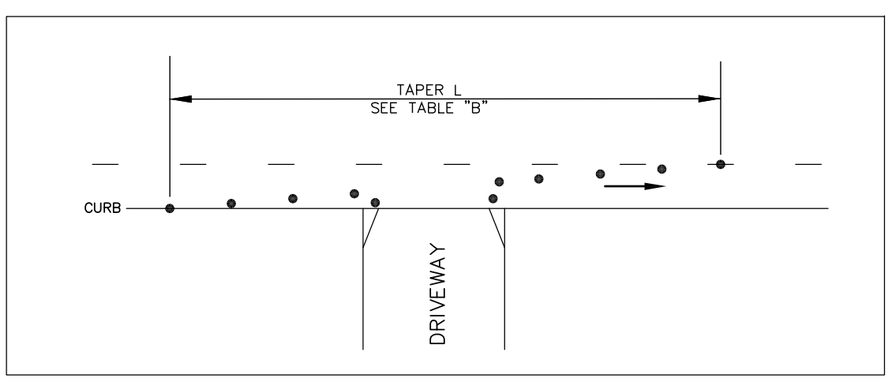
PLACEMENT OF BIKE LANE CLOSURE SIGN
(IF NECESSARY)

CONSTRUCTION NOTE:

PLACE BIKE LANE CLOSED AHEAD SIGN (C20) HALF THE DISTANCE BETWEEN THE FIRST AND SECOND SIGNS

CONSTRUCTION NOTE:

ALL DRIVEWAYS TO REMAIN OPEN (WHENEVER POSSIBLE) THROUGHOUT TRAFFIC CONTROL ZONE



SEE TABLE 'A'–'F' FOR SIGN AND CHANNELIZER DEVICE SPACING AND TAPER LENGTH

SPEED	APPROACH STREET	TAPER LENGTH	SIGN SPACING	CHANNELIZER SPACING

SEE TABLE 'A'–'F' FOR SIGN AND CHANNELIZER DEVICE SPACING AND TAPER LENGTH

SPEED	APPROACH STREET	TAPER LENGTH	SIGN SPACING	CHANNELIZER SPACING

ABBREVIATIONS:

S = Sign Spacing
Min = Minimum
LT = Left
RT = Right
LTP = Lane Traffic Panel
TANSAT = Tow Away, No Stopping Anytime
TANS = Tow Away, No Stopping

CHART A
MINIMUM RECOMMENDED DELINEATOR/CONE & SIGN PLACEMENT

POSTED SPEED LIMIT	TAPER LENGTH FOR 12–FT LANE			CHANNELIZER SPACING		SIGN SPACING (ADVANCE OF TAPER & BETWEEN SIGNS)
	MERGING	SHIFTING	SHOULDER	TAPER	TANGENT	
20 MPH	80 FT.	40 FT.	27 FT.	20 FT.	40 FT.	100 FT.
25 MPH	125 FT.	63 FT.	42 FT.	25 FT.	63 FT.	100 FT.
30 MPH	180 FT.	90 FT.	60 FT.	30 FT.	90 FT.	350 FT.
35 MPH	245 FT.	123 FT.	82 FT.	35 FT.	123 FT.	350 FT.
40 MPH	320 FT.	160 FT.	107 FT.	40 FT.	160 FT.	350 FT.
* 45 MPH	540 FT.	270 FT.	180 FT.	45 FT.	270 FT.	500 FT.
* 50 MPH	600 FT.	300 FT.	200 FT.	50 FT.	300 FT.	500 FT.
* 55+MPH	660 FT.	330 FT.	220 FT.	55 FT.	330 FT.	PER TABLE 'A'

NOTES

1. A Flashing Arrow sign shall be used for each lane closed.
*2. Two lane closure signs (C–20) shall be used on the approach to a lane closure with speeds of 45 mph or greater.

NOTE: This chart based on 12–foot wide lanes. For lane widths greater than 12 feet, use the following formulae:

Taper formula:

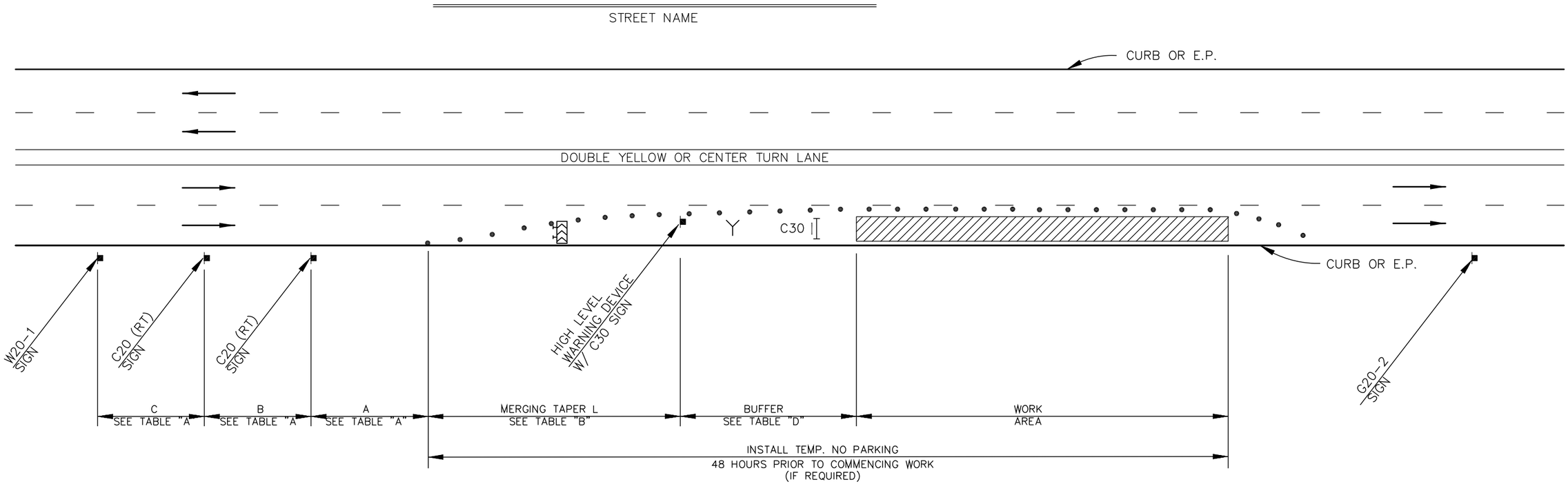
$L = S \times W$ for speeds of 45 mph or more.

$L = \frac{WS^2}{60}$ for speeds of 40 mph or less.

Where:

L = Minimum length of taper.
S = Numerical value of posted speed limit prior to work or 85 percentile speed.
W = Width of offset.

i.e.: 50 mph and 19' lane; L = 50 x 19 = 950 feet

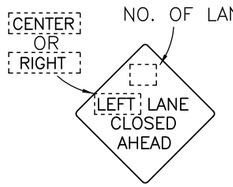


LEGEND

- TYPE III BARRICADE W/SIGN
- TYPE II BARRICADE W/O SIGN
- 28"(11cm)TRAFFIC CONES W/13"(5cm) REFLECTIVE SLEEVE FOR DAY/NIGHT USE OR DELINEATORS IF DAY USE ONLY
- TRAFFIC CONE WITH CLIP ON SIGN
- PROPOSED SIGN AND POST
- EXISTING SIGN AND POST
- (S) SIGNALIZED INTERSECTION
- FLASHING ARROW SIGN
- HIGH LEVEL WARNING DEVICE WITH SIGN
- FLAGGER
- TANS — TOW AWAY NO STOPPING ___ TO ___ (SHOW HOURS)
- TANSAT — TOW AWAY NO STOPPING ANY TIME
- WORK ZONE LIMITS
- DIRECTION OF TRAFFIC
- (A) ROADWAY DESIGNATION (A THROUGH D)



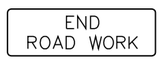
W20-1



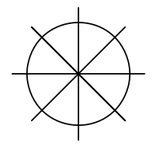
C20(CA)
INTERCHANGEABLE WITH W20-5



C30(CA)



G20-2



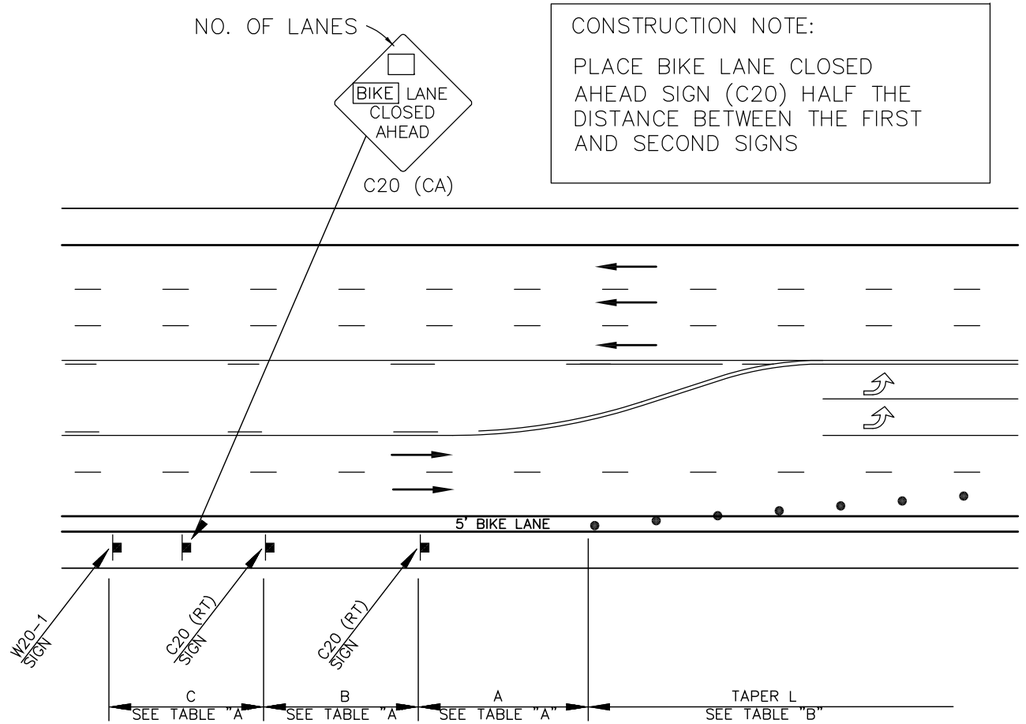
INDICATE NORTH WITH A "N" AND AN ARROW POINT

DATES OF TEMPORARY NO PARKING ZONE

WORKSITE TRAFFIC CONTROL PLAN
SINGLE LANE CLOSURE
(RIGHT LANE)

DATE	SCALE
	NONE
	DRAWING NO. 9

REV. APR-2010 CJUTCM-DW609.DWG



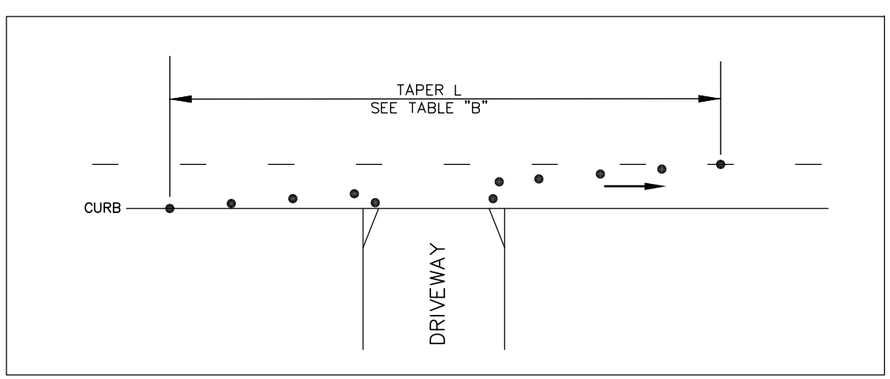
PLACEMENT OF BIKE LANE CLOSURE SIGN
(IF NECESSARY)

CONSTRUCTION NOTE:

PLACE BIKE LANE CLOSED AHEAD SIGN (C20) HALF THE DISTANCE BETWEEN THE FIRST AND SECOND SIGNS

CONSTRUCTION NOTE:

ALL DRIVEWAYS TO REMAIN OPEN (WHENEVER POSSIBLE) THROUGHOUT TRAFFIC CONTROL ZONE



SEE TABLE 'A'–'F' FOR SIGN AND CHANNELIZER DEVICE SPACING AND TAPER LENGTH

SPEED	APPROACH STREET	TAPER LENGTH	SIGN SPACING	CHANNELIZER SPACING

SEE TABLE 'A'–'F' FOR SIGN AND CHANNELIZER DEVICE SPACING AND TAPER LENGTH

SPEED	APPROACH STREET	TAPER LENGTH	SIGN SPACING	CHANNELIZER SPACING

ABBREVIATIONS:

S = Sign Spacing
Min = Minimum
LT = Left
RT = Right
LTP = Lane Traffic Panel
TANSAT = Tow Away, No Stopping Anytime
TANS = Tow Away, No Stopping

CHART A
MINIMUM RECOMMENDED DELINEATOR/CONE & SIGN PLACEMENT

POSTED SPEED LIMIT	TAPER LENGTH FOR 12–FT LANE			CHANNELIZER SPACING		SIGN SPACING (ADVANCE OF TAPER & BETWEEN SIGNS)
	MERGING	SHIFTING	SHOULDER	TAPER	TANGENT	
20 MPH	80 FT.	40 FT.	27 FT.	20 FT.	40 FT.	100 FT.
25 MPH	125 FT.	63 FT.	42 FT.	25 FT.	63 FT.	100 FT.
30 MPH	180 FT.	90 FT.	60 FT.	30 FT.	90 FT.	350 FT.
35 MPH	245 FT.	123 FT.	82 FT.	35 FT.	123 FT.	350 FT.
40 MPH	320 FT.	160 FT.	107 FT.	40 FT.	160 FT.	350 FT.
* 45 MPH	540 FT.	270 FT.	180 FT.	45 FT.	270 FT.	500 FT.
* 50 MPH	600 FT.	300 FT.	200 FT.	50 FT.	300 FT.	500 FT.
* 55+MPH	660 FT.	330 FT.	220 FT.	55 FT.	330 FT.	PER TABLE 'A'

NOTES

1. A Flashing Arrow sign shall be used for each lane closed.
*2. Two lane closure signs (C–20) shall be used on the approach to a lane closure with speeds of 45 mph or greater.

NOTE: This chart based on 12–foot wide lanes. For lane widths greater than 12 feet, use the following formulae:

Taper formula:

$L = S \times W$ for speeds of 45 mph or more.

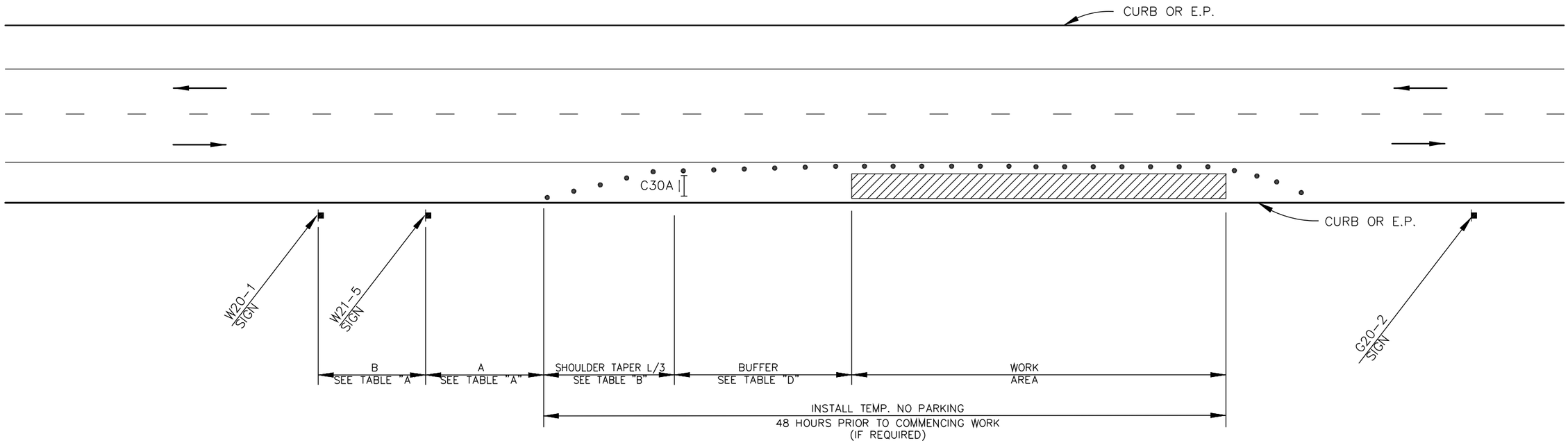
$L = \frac{WS^2}{60}$ for speeds of 40 mph or less.

Where:

L = Minimum length of taper.
S = Numerical value of posted speed limit prior to work or 85 percentile speed.
W = Width of offset.

i.e.: 50 mph and 19' lane; L = 50 x 19 = 950 feet

STREET NAME



LEGEND

- TYPE III BARRICADE W/SIGN
- TYPE II BARRICADE W/O SIGN
- 28"(11cm)TRAFFIC CONES W/13"(5cm) REFLECTIVE SLEEVE FOR DAY/NIGHT USE OR DELINEATORS IF DAY USE ONLY
- TRAFFIC CONE WITH CLIP ON SIGN
- PROPOSED SIGN AND POST
- EXISTING SIGN AND POST
- (S) SIGNALIZED INTERSECTION
- FLASHING ARROW SIGN
- HIGH LEVEL WARNING DEVICE WITH SIGN
- FLAGGER
- TANS TOW AWAY NO STOPPING ___ TO ___ (SHOW HOURS)
- TANSAT TOW AWAY NO STOPPING ANY TIME
- WORK ZONE LIMITS
- DIRECTION OF TRAFFIC
- (A) ROADWAY DESIGNATION (A THROUGH D)



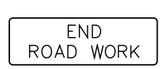
W20-1



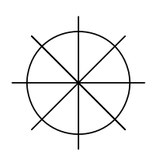
W21-5



C30A



G20-2

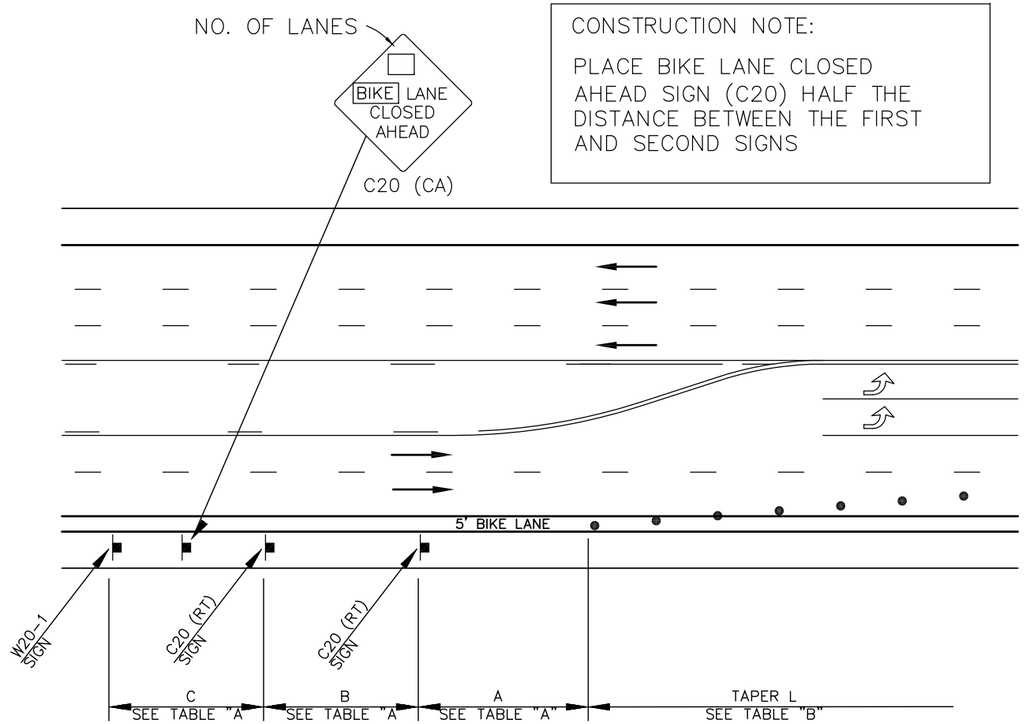

INDICATE NORTH WITH A "N" AND AN ARROW POINT

DATES OF TEMPORARY NO PARKING ZONE

WORKSITE TRAFFIC CONTROL PLAN
SHOULDER CLOSURE

DATE		SCALE NONE
		DRAWING NO. 10

REV. APR-2010 CJUTCM-DWG10.DWG



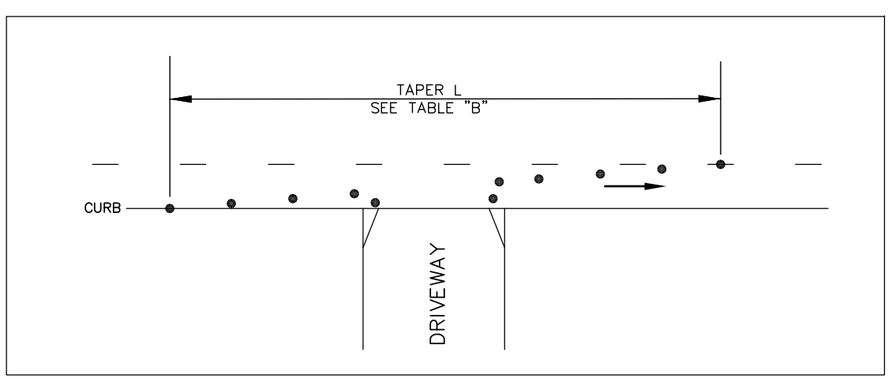
PLACEMENT OF BIKE LANE CLOSURE SIGN
(IF NECESSARY)

CONSTRUCTION NOTE:

PLACE BIKE LANE CLOSED AHEAD SIGN (C20) HALF THE DISTANCE BETWEEN THE FIRST AND SECOND SIGNS

CONSTRUCTION NOTE:

ALL DRIVEWAYS TO REMAIN OPEN (WHENEVER POSSIBLE) THROUGHOUT TRAFFIC CONTROL ZONE



SEE TABLE 'A'–'F' FOR SIGN AND CHANNELIZER DEVICE SPACING AND TAPER LENGTH

SPEED	APPROACH STREET	TAPER LENGTH	SIGN SPACING	CHANNELIZER SPACING

SEE TABLE 'A'–'F' FOR SIGN AND CHANNELIZER DEVICE SPACING AND TAPER LENGTH

SPEED	APPROACH STREET	TAPER LENGTH	SIGN SPACING	CHANNELIZER SPACING

ABBREVIATIONS:

S = Sign Spacing
Min = Minimum
LT = Left
RT = Right
LTP = Lane Traffic Panel
TANSAT = Tow Away, No Stopping Anytime
TANS = Tow Away, No Stopping

CHART A
MINIMUM RECOMMENDED DELINEATOR/CONE & SIGN PLACEMENT

POSTED SPEED LIMIT	TAPER LENGTH FOR 12–FT LANE			CHANNELIZER SPACING		SIGN SPACING (ADVANCE OF TAPER & BETWEEN SIGNS)
	MERGING	SHIFTING	SHOULDER	TAPER	TANGENT	
20 MPH	80 FT.	40 FT.	27 FT.	20 FT.	40 FT.	100 FT.
25 MPH	125 FT.	63 FT.	42 FT.	25 FT.	63 FT.	100 FT.
30 MPH	180 FT.	90 FT.	60 FT.	30 FT.	90 FT.	350 FT.
35 MPH	245 FT.	123 FT.	82 FT.	35 FT.	123 FT.	350 FT.
40 MPH	320 FT.	160 FT.	107 FT.	40 FT.	160 FT.	350 FT.
* 45 MPH	540 FT.	270 FT.	180 FT.	45 FT.	270 FT.	500 FT.
* 50 MPH	600 FT.	300 FT.	200 FT.	50 FT.	300 FT.	500 FT.
* 55+MPH	660 FT.	330 FT.	220 FT.	55 FT.	330 FT.	PER TABLE 'A'

NOTES

1. A Flashing Arrow sign shall be used for each lane closed.
*2. Two lane closure signs (C–20) shall be used on the approach to a lane closure with speeds of 45 mph or greater.

NOTE: This chart based on 12–foot wide lanes. For lane widths greater than 12 feet, use the following formulae:

Taper formula:

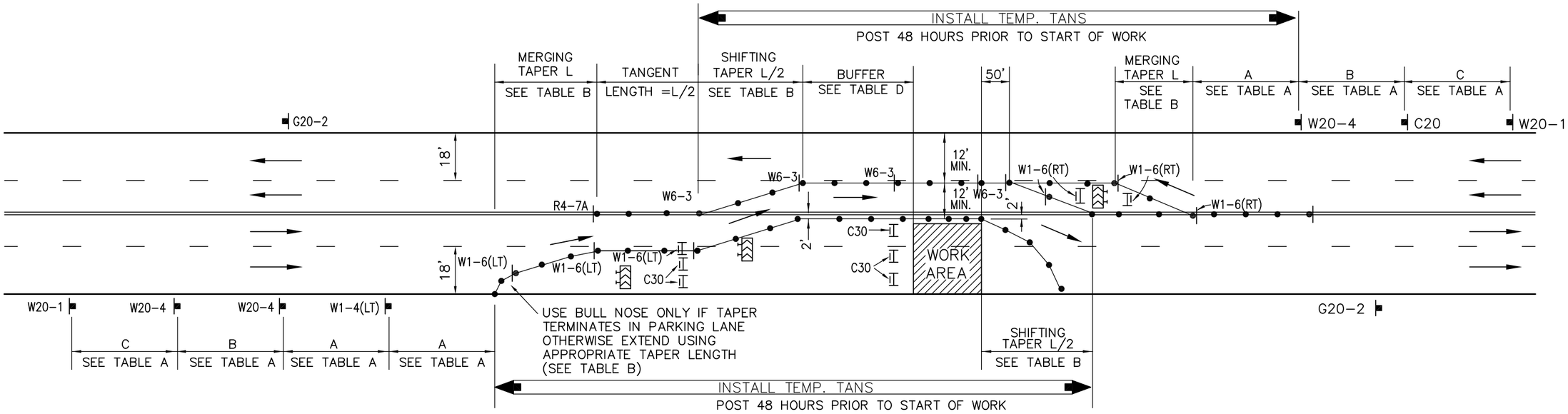
$L = S \times W$ for speeds of 45 mph or more.

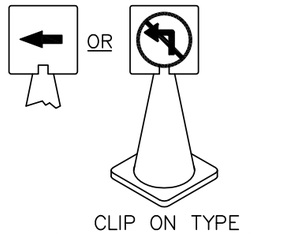
$L = \frac{WS^2}{60}$ for speeds of 40 mph or less.

Where:

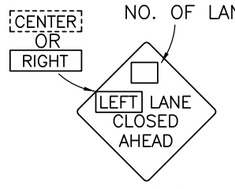
L = Minimum length of taper.
S = Numerical value of posted speed limit prior to work or 85 percentile speed.
W = Width of offset.

i.e.: 50 mph and 19' lane; L = 50 x 19 = 950 feet





CLIP ON TYPE
CONE MOUNTED SIGNS



C20(CA)
INTERCHANGEABLE
WITH W20-5



W20-4



W20-1



C30(CA)



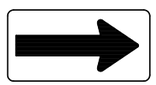
W1-4 (LT)



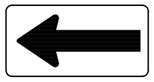
W6-3
(DOUBLE SIDED)



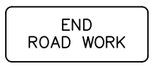
R4-7A



W1-6 (RT)



W1-6 (LT)



G20-2

LEGEND

- TYPE III BARRICADE W/SIGN
- TYPE II BARRICADE W/O SIGN
- CHANNELIZING DEVICE
- TRAFFIC CONE WITH CLIP ON SIGN
- SIGN
- (S) SIGNALIZED INTERSECTION
- ARROW PANEL (FLASHING ARROW) (WHERE REQUIRED)
- HIGH LEVEL WARNING DEVICE (FLAGTREE) (OPTIONAL)
- FLAGGER
- TANS TOW AWAY NO STOPPING ___ TO ___ (SHOW HOURS)
- TANSAT TOW AWAY NO STOPPING ANY TIME
- WORK ZONE (ACTIVITY AREA) LIMITS
- DIRECTION OF TRAFFIC (NOT PAVEMENT MARKING)
- (A) ROADWAY DESIGNATION (A THROUGH D)

DATES OF TEMPORARY NO PARKING ZONE

INDICATE NORTH WITH A "N" AND AN ARROW POINT

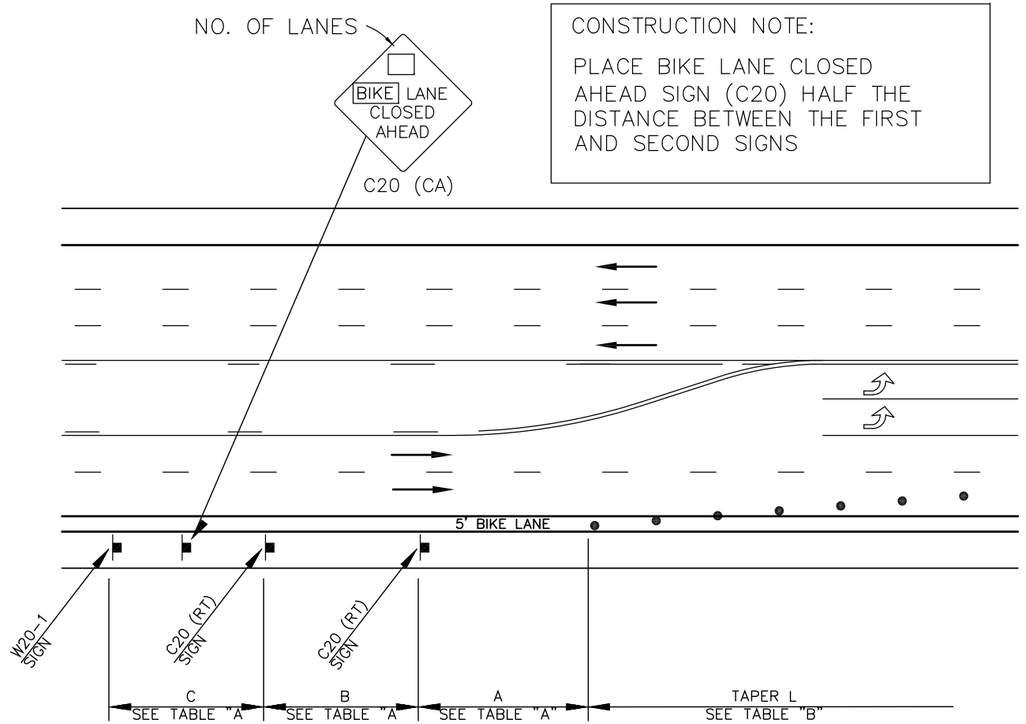
WORKSITE TRAFFIC CONTROL PLAN
MIDBLOCK CLOSURE
FOR ONE DIRECTION OF TRAFFIC

DATE

SCALE NONE

DRAWING NO. 11

REV. APR-2010 CJUTCM-DWG11.DWG



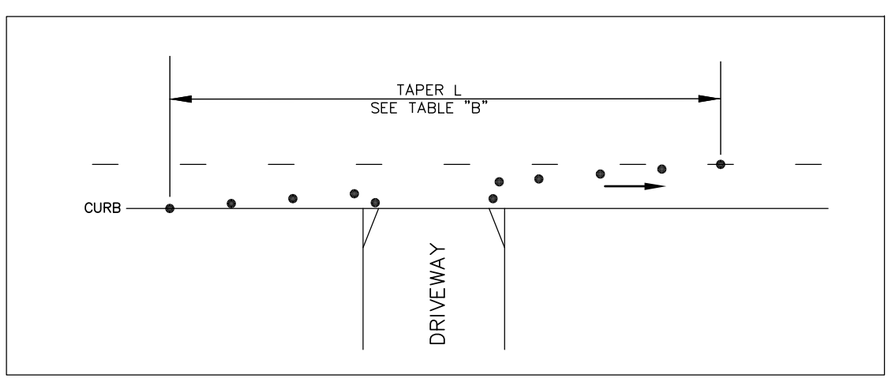
PLACEMENT OF BIKE LANE CLOSURE SIGN
(IF NECESSARY)

CONSTRUCTION NOTE:

PLACE BIKE LANE CLOSED AHEAD SIGN (C20) HALF THE DISTANCE BETWEEN THE FIRST AND SECOND SIGNS

CONSTRUCTION NOTE:

ALL DRIVEWAYS TO REMAIN OPEN (WHENEVER POSSIBLE) THROUGHOUT TRAFFIC CONTROL ZONE



SEE TABLE 'A'–'F' FOR SIGN AND CHANNELIZER DEVICE SPACING AND TAPER LENGTH

SPEED	APPROACH STREET	TAPER LENGTH	SIGN SPACING	CHANNELIZER SPACING

SEE TABLE 'A'–'F' FOR SIGN AND CHANNELIZER DEVICE SPACING AND TAPER LENGTH

SPEED	APPROACH STREET	TAPER LENGTH	SIGN SPACING	CHANNELIZER SPACING

ABBREVIATIONS:

S = Sign Spacing
Min = Minimum
LT = Left
RT = Right
LTP = Lane Traffic Panel
TANSAT = Tow Away, No Stopping Anytime
TANS = Tow Away, No Stopping

CHART A
MINIMUM RECOMMENDED DELINEATOR/CONE & SIGN PLACEMENT

POSTED SPEED LIMIT	TAPER LENGTH FOR 12–FT LANE			CHANNELIZER SPACING		SIGN SPACING (ADVANCE OF TAPER & BETWEEN SIGNS)
	MERGING	SHIFTING	SHOULDER	TAPER	TANGENT	
20 MPH	80 FT.	40 FT.	27 FT.	20 FT.	40 FT.	100 FT.
25 MPH	125 FT.	63 FT.	42 FT.	25 FT.	63 FT.	100 FT.
30 MPH	180 FT.	90 FT.	60 FT.	30 FT.	90 FT.	350 FT.
35 MPH	245 FT.	123 FT.	82 FT.	35 FT.	123 FT.	350 FT.
40 MPH	320 FT.	160 FT.	107 FT.	40 FT.	160 FT.	350 FT.
* 45 MPH	540 FT.	270 FT.	180 FT.	45 FT.	270 FT.	500 FT.
* 50 MPH	600 FT.	300 FT.	200 FT.	50 FT.	300 FT.	500 FT.
* 55+MPH	660 FT.	330 FT.	220 FT.	55 FT.	330 FT.	PER TABLE 'A'

NOTES

1. A Flashing Arrow sign shall be used for each lane closed.
*2. Two lane closure signs (C–20) shall be used on the approach to a lane closure with speeds of 45 mph or greater.

NOTE: This chart based on 12–foot wide lanes. For lane widths greater than 12 feet, use the following formulae:

Taper formula:

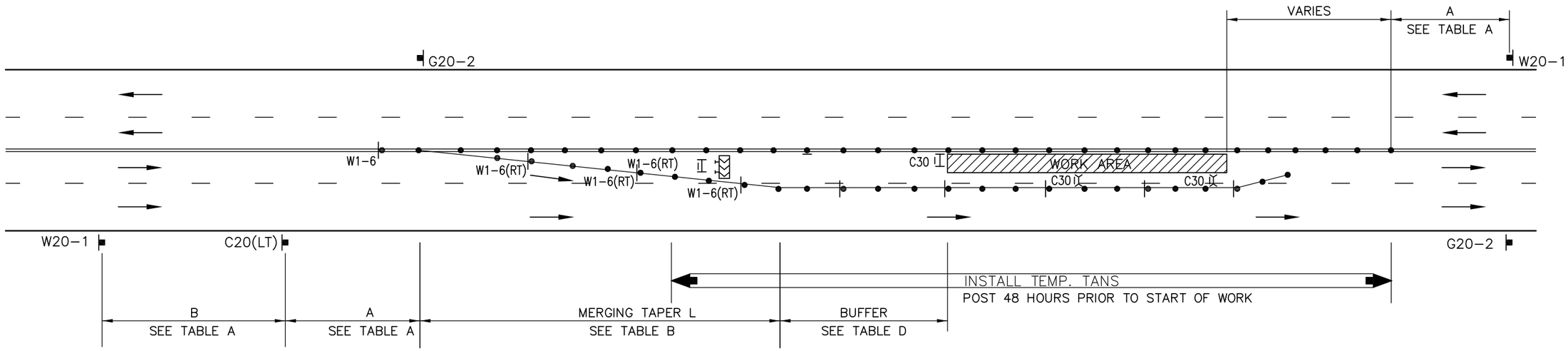
$L = S \times W$ for speeds of 45 mph or more.

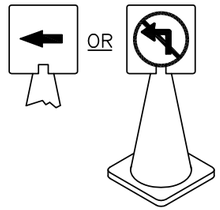
$L = \frac{WS^2}{60}$ for speeds of 40 mph or less.

Where:

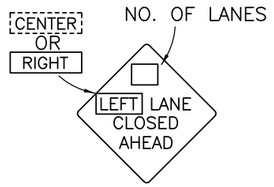
L = Minimum length of taper.
S = Numerical value of posted speed limit prior to work or 85 percentile speed.
W = Width of offset.

i.e.: 50 mph and 19' lane; L = 50 x 19 = 950 feet





CLIP ON TYPE
CONE MOUNTED SIGNS



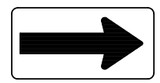
C20(CA)
INTERCHANGEABLE
WITH W20-5



W20-1



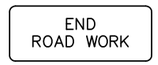
C30(CA)



W1-6 (RT)



W1-6

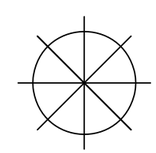


G20-2

LEGEND

- TYPE III BARRICADE W/SIGN
- TYPE II BARRICADE W/O SIGN
- CHANNELIZING DEVICE
- TRAFFIC CONE WITH CLIP ON SIGN
- SIGN
- (S) SIGNALIZED INTERSECTION
- ARROW PANEL (FLASHING ARROW) (WHERE REQUIRED)
- HIGH LEVEL WARNING DEVICE (FLAGTREE) (OPTIONAL)
- FLAGGER
- TANS TOW AWAY NO STOPPING ___ TO ___ (SHOW HOURS)
- TANSAT TOW AWAY NO STOPPING ANY TIME
- WORK ZONE (ACTIVITY AREA) LIMITS
- DIRECTION OF TRAFFIC (NOT PAVEMENT MARKING)
- (A) ROADWAY DESIGNATION (A THROUGH D)

DATES OF TEMPORARY NO PARKING ZONE

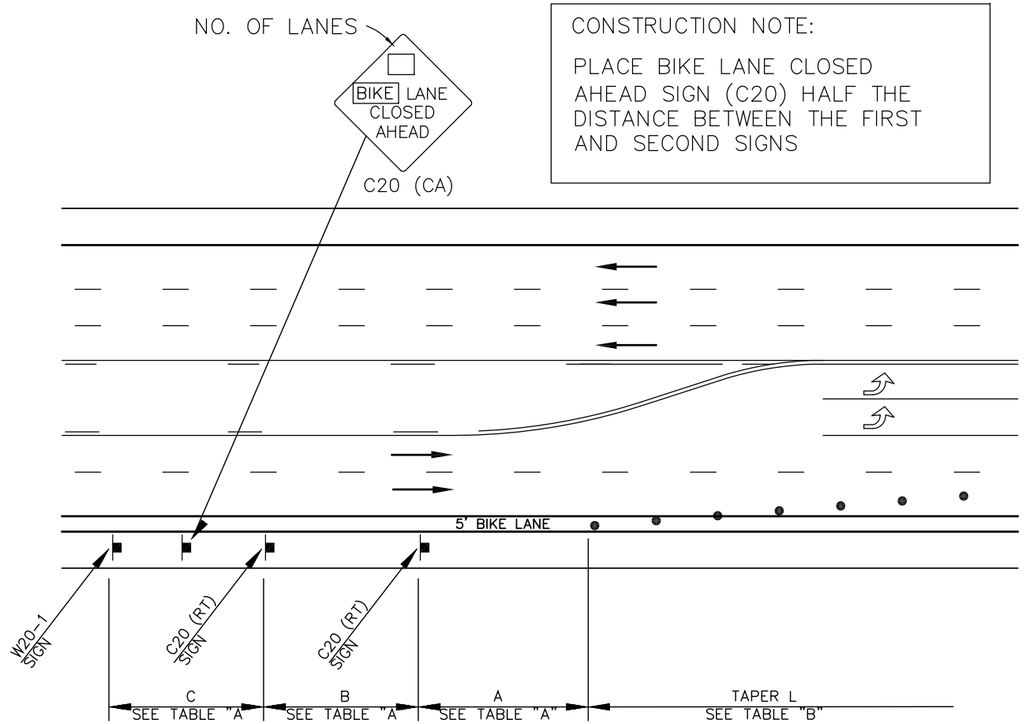


INDICATE NORTH WITH A "N"
AND AN ARROW POINT

WORKSITE TRAFFIC CONTROL PLAN
MIDBLOCK NO. 1 LANE CLOSURE

DATE		SCALE
		NONE
		DRAWING NO. 12

CJUTCM-DWG12.DWG
REV. APR-2010



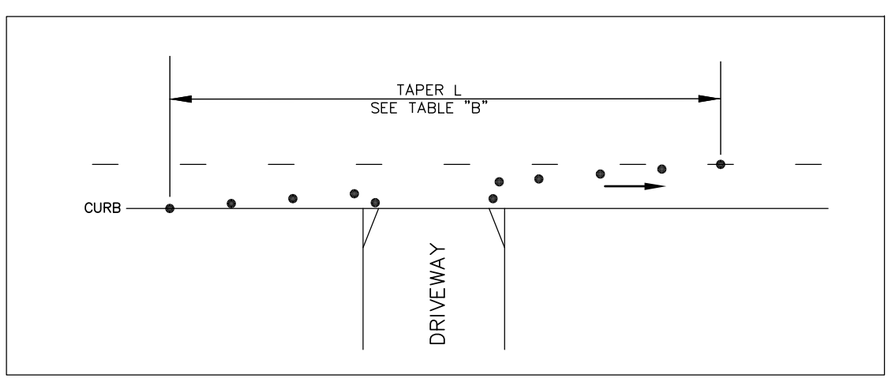
PLACEMENT OF BIKE LANE CLOSURE SIGN
(IF NECESSARY)

CONSTRUCTION NOTE:

PLACE BIKE LANE CLOSED AHEAD SIGN (C20) HALF THE DISTANCE BETWEEN THE FIRST AND SECOND SIGNS

CONSTRUCTION NOTE:

ALL DRIVEWAYS TO REMAIN OPEN (WHENEVER POSSIBLE) THROUGHOUT TRAFFIC CONTROL ZONE



SEE TABLE 'A'–'F' FOR SIGN AND CHANNELIZER DEVICE SPACING AND TAPER LENGTH

SPEED	APPROACH STREET	TAPER LENGTH	SIGN SPACING	CHANNELIZER SPACING

SEE TABLE 'A'–'F' FOR SIGN AND CHANNELIZER DEVICE SPACING AND TAPER LENGTH

SPEED	APPROACH STREET	TAPER LENGTH	SIGN SPACING	CHANNELIZER SPACING

ABBREVIATIONS:

S = Sign Spacing
Min = Minimum
LT = Left
RT = Right
LTP = Lane Traffic Panel
TANSAT = Tow Away, No Stopping Anytime
TANS = Tow Away, No Stopping

CHART A
MINIMUM RECOMMENDED DELINEATOR/CONE & SIGN PLACEMENT

POSTED SPEED LIMIT	TAPER LENGTH FOR 12–FT LANE			CHANNELIZER SPACING		SIGN SPACING (ADVANCE OF TAPER & BETWEEN SIGNS)
	MERGING	SHIFTING	SHOULDER	TAPER	TANGENT	
20 MPH	80 FT.	40 FT.	27 FT.	20 FT.	40 FT.	100 FT.
25 MPH	125 FT.	63 FT.	42 FT.	25 FT.	63 FT.	100 FT.
30 MPH	180 FT.	90 FT.	60 FT.	30 FT.	90 FT.	350 FT.
35 MPH	245 FT.	123 FT.	82 FT.	35 FT.	123 FT.	350 FT.
40 MPH	320 FT.	160 FT.	107 FT.	40 FT.	160 FT.	350 FT.
* 45 MPH	540 FT.	270 FT.	180 FT.	45 FT.	270 FT.	500 FT.
* 50 MPH	600 FT.	300 FT.	200 FT.	50 FT.	300 FT.	500 FT.
* 55+MPH	660 FT.	330 FT.	220 FT.	55 FT.	330 FT.	PER TABLE 'A'

NOTES

1. A Flashing Arrow sign shall be used for each lane closed.
*2. Two lane closure signs (C–20) shall be used on the approach to a lane closure with speeds of 45 mph or greater.

NOTE: This chart based on 12–foot wide lanes. For lane widths greater than 12 feet, use the following formulae:

Taper formula:

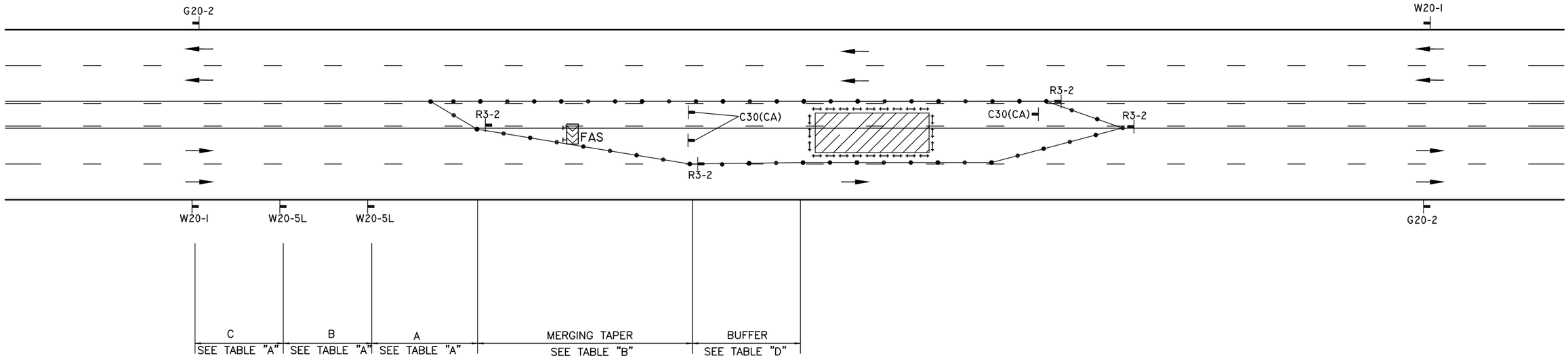
$L = S \times W$ for speeds of 45 mph or more.

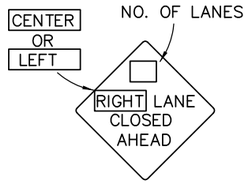
$L = \frac{WS^2}{60}$ for speeds of 40 mph or less.

Where:

L = Minimum length of taper.
S = Numerical value of posted speed limit prior to work or 85 percentile speed.
W = Width of offset.

i.e.: 50 mph and 19' lane; L = 50 x 19 = 950 feet





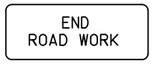
W20-5
INTERCHANGEABLE
WITH C20(CA)



W20-1



C30(CA)



G20-2



R4-7A



R3-2

LEGEND

- TYPE III BARRICADE W/SIGN
- TYPE II BARRICADE W/O SIGN
- CHANNELIZING DEVICE
- TRAFFIC CONE WITH CLIP ON SIGN
- SIGN
- (S) SIGNALIZED INTERSECTION
- ARROW PANEL (FLASHING ARROW) (WHERE REQUIRED)
- HIGH LEVEL WARNING DEVICE (FLAGTREE) (OPTIONAL)
- FLAGGER
- TANS TOW AWAY NO STOPPING ___ TO ___ (SHOW HOURS)
- TANSAT TOW AWAY NO STOPPING ANY TIME
- WORK ZONE (ACTIVITY AREA) LIMITS
- DIRECTION OF TRAFFIC (NOT PAVEMENT MARKING)
- (A) ROADWAY DESIGNATION (A THROUGH D)

DATES OF TEMPORARY NO PARKING ZONE

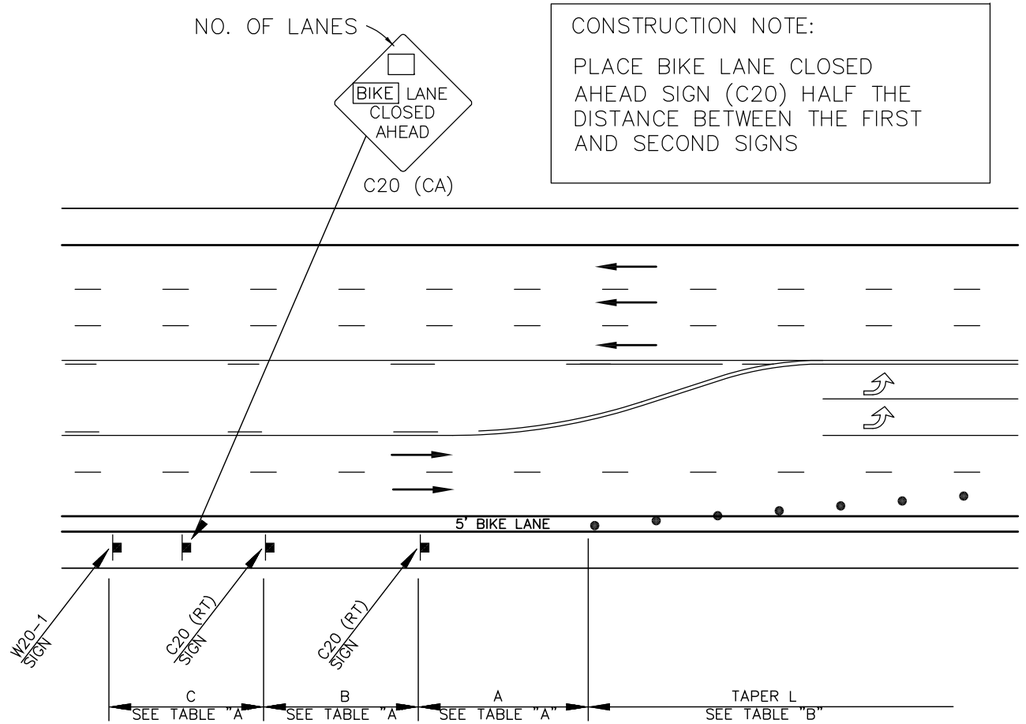
INDICATE NORTH WITH A "N"
AND AN ARROW POINT

WORKSITE TRAFFIC CONTROL PLAN

MIDBLOCK NO. 1 LANE AND
LEFT TURN LANE CLOSURE

DATE		SCALE
		NONE
		DRAWING NO. 13

REV. APR-2010 CJUTCM-DWG13.DWG



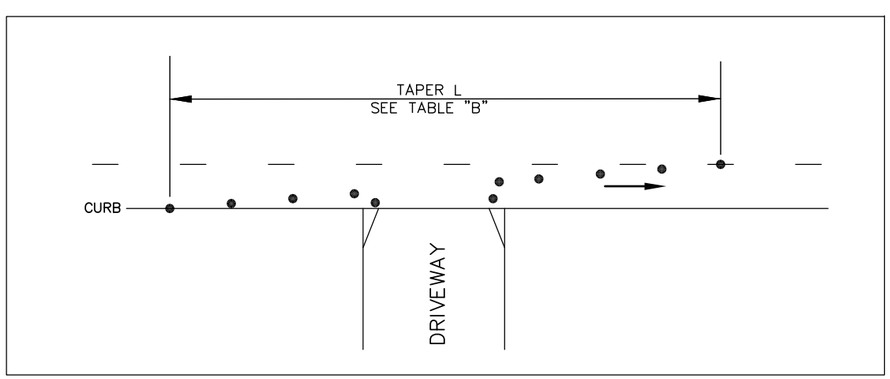
PLACEMENT OF BIKE LANE CLOSURE SIGN
(IF NECESSARY)

CONSTRUCTION NOTE:

PLACE BIKE LANE CLOSED AHEAD SIGN (C20) HALF THE DISTANCE BETWEEN THE FIRST AND SECOND SIGNS

CONSTRUCTION NOTE:

ALL DRIVEWAYS TO REMAIN OPEN (WHENEVER POSSIBLE) THROUGHOUT TRAFFIC CONTROL ZONE



SEE TABLE 'A'–'F' FOR SIGN AND CHANNELIZER DEVICE SPACING AND TAPER LENGTH

SPEED	APPROACH STREET	TAPER LENGTH	SIGN SPACING	CHANNELIZER SPACING

SEE TABLE 'A'–'F' FOR SIGN AND CHANNELIZER DEVICE SPACING AND TAPER LENGTH

SPEED	APPROACH STREET	TAPER LENGTH	SIGN SPACING	CHANNELIZER SPACING

ABBREVIATIONS:

S = Sign Spacing
Min = Minimum
LT = Left
RT = Right
LTP = Lane Traffic Panel
TANSAT = Tow Away, No Stopping Anytime
TANS = Tow Away, No Stopping

CHART A
MINIMUM RECOMMENDED DELINEATOR/CONE & SIGN PLACEMENT

POSTED SPEED LIMIT	TAPER LENGTH FOR 12–FT LANE			CHANNELIZER SPACING		SIGN SPACING (ADVANCE OF TAPER & BETWEEN SIGNS)
	MERGING	SHIFTING	SHOULDER	TAPER	TANGENT	
20 MPH	80 FT.	40 FT.	27 FT.	20 FT.	40 FT.	100 FT.
25 MPH	125 FT.	63 FT.	42 FT.	25 FT.	63 FT.	100 FT.
30 MPH	180 FT.	90 FT.	60 FT.	30 FT.	90 FT.	350 FT.
35 MPH	245 FT.	123 FT.	82 FT.	35 FT.	123 FT.	350 FT.
40 MPH	320 FT.	160 FT.	107 FT.	40 FT.	160 FT.	350 FT.
* 45 MPH	540 FT.	270 FT.	180 FT.	45 FT.	270 FT.	500 FT.
* 50 MPH	600 FT.	300 FT.	200 FT.	50 FT.	300 FT.	500 FT.
* 55+MPH	660 FT.	330 FT.	220 FT.	55 FT.	330 FT.	PER TABLE 'A'

NOTES

1. A Flashing Arrow sign shall be used for each lane closed.
*2. Two lane closure signs (C–20) shall be used on the approach to a lane closure with speeds of 45 mph or greater.

NOTE: This chart based on 12–foot wide lanes. For lane widths greater than 12 feet, use the following formulae:

Taper formula:

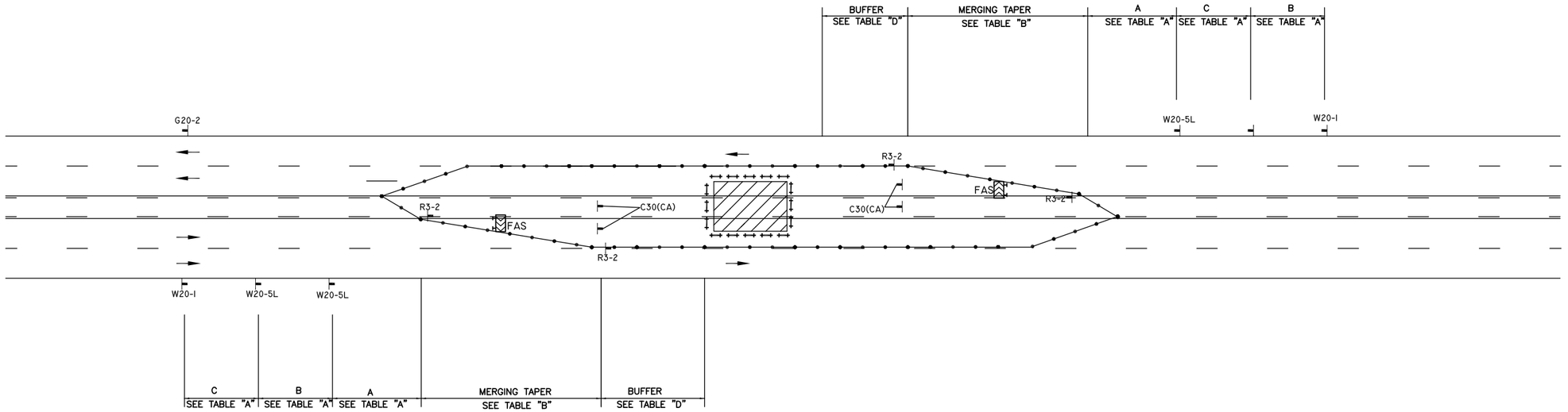
$L = S \times W$ for speeds of 45 mph or more.

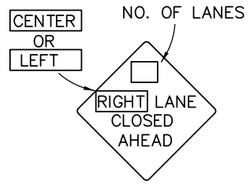
$L = \frac{WS^2}{60}$ for speeds of 40 mph or less.

Where:

L = Minimum length of taper.
S = Numerical value of posted speed limit prior to work or 85 percentile speed.
W = Width of offset.

i.e.: 50 mph and 19' lane; L = 50 x 19 = 950 feet





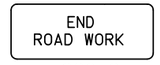
W20–5
INTERCHANGEABLE
WITH C20(CA)



W20–1



C30(CA)



G20–2



R4–7A

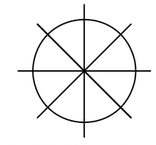


R3–2

LEGEND

- TYPE III BARRICADE W/SIGN
- TYPE II BARRICADE W/O SIGN
- CHANNELIZING DEVICE
- TRAFFIC CONE WITH CLIP ON SIGN
- SIGN
- (S) SIGNALIZED INTERSECTION
- ARROW PANEL (FLASHING ARROW) (WHERE REQUIRED)
- HIGH LEVEL WARNING DEVICE (FLAGTREE) (OPTIONAL)
- FLAGGER
- TANS TOW AWAY NO STOPPING ___ TO ___ (SHOW HOURS)
- TANSAT TOW AWAY NO STOPPING ANY TIME
- WORK ZONE (ACTIVITY AREA) LIMITS
- DIRECTION OF TRAFFIC (NOT PAVEMENT MARKING)
- (A) ROADWAY DESIGNATION (A THROUGH D)

DATES OF TEMPORARY NO PARKING ZONE



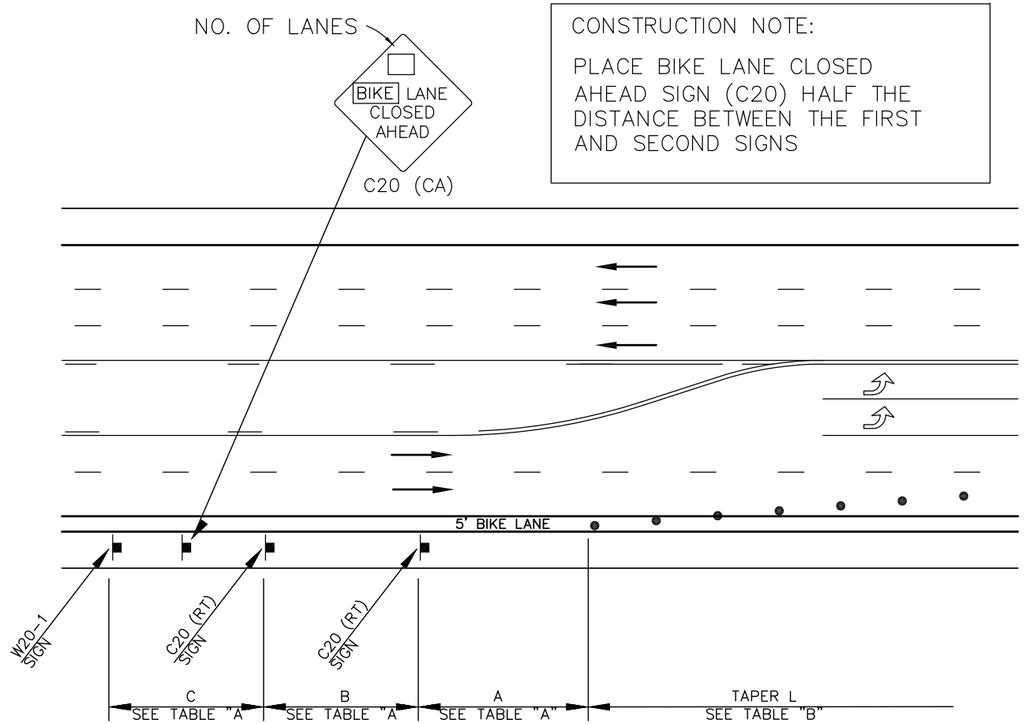
INDICATE NORTH WITH A "N"
AND AN ARROW POINT

WORKSITE TRAFFIC CONTROL PLAN

MIDBLOCK NO.1 LANES AND
LEFT TURN LANE CLOSURE

DATE		SCALE
		NONE
		DRAWING NO. 14

REV. APR-2010 CJUTCM-DWG14.DWG



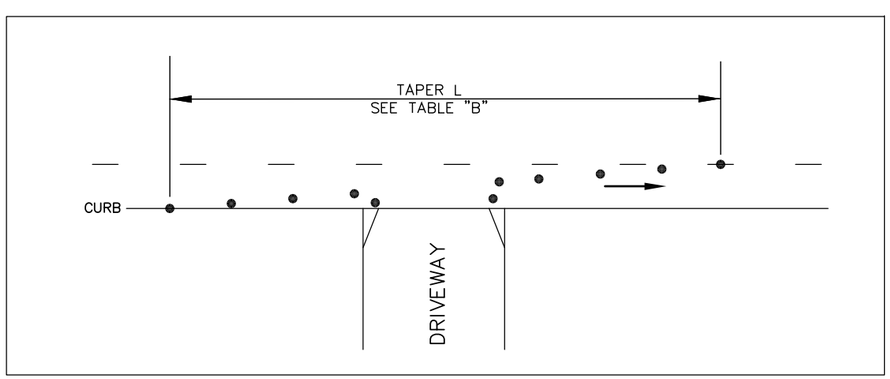
PLACEMENT OF BIKE LANE CLOSURE SIGN
(IF NECESSARY)

CONSTRUCTION NOTE:

PLACE BIKE LANE CLOSED AHEAD SIGN (C20) HALF THE DISTANCE BETWEEN THE FIRST AND SECOND SIGNS

CONSTRUCTION NOTE:

ALL DRIVEWAYS TO REMAIN OPEN (WHENEVER POSSIBLE) THROUGHOUT TRAFFIC CONTROL ZONE



SEE TABLE 'A'–'F' FOR SIGN AND CHANNELIZER DEVICE SPACING AND TAPER LENGTH

SPEED	APPROACH STREET	TAPER LENGTH	SIGN SPACING	CHANNELIZER SPACING

SEE TABLE 'A'–'F' FOR SIGN AND CHANNELIZER DEVICE SPACING AND TAPER LENGTH

SPEED	APPROACH STREET	TAPER LENGTH	SIGN SPACING	CHANNELIZER SPACING

ABBREVIATIONS:

S = Sign Spacing
Min = Minimum
LT = Left
RT = Right
LTP = Lane Traffic Panel
TANSAT = Tow Away, No Stopping Anytime
TANS = Tow Away, No Stopping

CHART A
MINIMUM RECOMMENDED DELINEATOR/CONE & SIGN PLACEMENT

POSTED SPEED LIMIT	TAPER LENGTH FOR 12–FT LANE			CHANNELIZER SPACING		SIGN SPACING (ADVANCE OF TAPER & BETWEEN SIGNS)
	MERGING	SHIFTING	SHOULDER	TAPER	TANGENT	
20 MPH	80 FT.	40 FT.	27 FT.	20 FT.	40 FT.	100 FT.
25 MPH	125 FT.	63 FT.	42 FT.	25 FT.	63 FT.	100 FT.
30 MPH	180 FT.	90 FT.	60 FT.	30 FT.	90 FT.	350 FT.
35 MPH	245 FT.	123 FT.	82 FT.	35 FT.	123 FT.	350 FT.
40 MPH	320 FT.	160 FT.	107 FT.	40 FT.	160 FT.	350 FT.
* 45 MPH	540 FT.	270 FT.	180 FT.	45 FT.	270 FT.	500 FT.
* 50 MPH	600 FT.	300 FT.	200 FT.	50 FT.	300 FT.	500 FT.
* 55+MPH	660 FT.	330 FT.	220 FT.	55 FT.	330 FT.	PER TABLE 'A'

NOTES

1. A Flashing Arrow sign shall be used for each lane closed.
*2. Two lane closure signs (C–20) shall be used on the approach to a lane closure with speeds of 45 mph or greater.

NOTE: This chart based on 12–foot wide lanes. For lane widths greater than 12 feet, use the following formulae:

Taper formula:

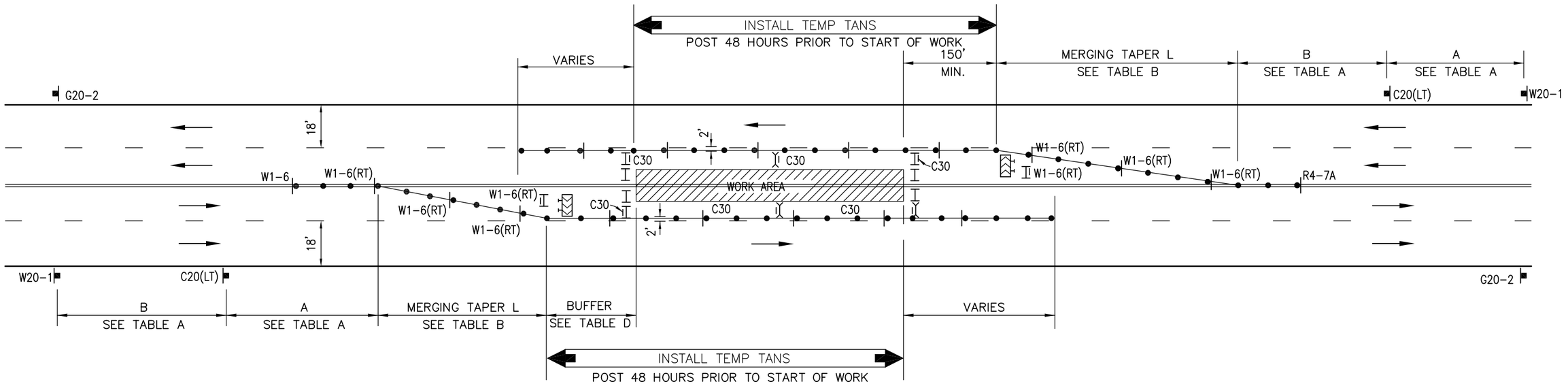
$L = S \times W$ for speeds of 45 mph or more.

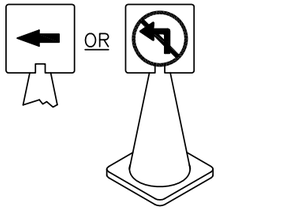
$L = \frac{WS^2}{60}$ for speeds of 40 mph or less.

Where:

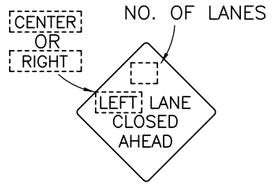
L = Minimum length of taper.
S = Numerical value of posted speed limit prior to work or 85 percentile speed.
W = Width of offset.

i.e.: 50 mph and 19' lane; L = 50 x 19 = 950 feet





CLIP ON TYPE
CONE MOUNTED SIGNS



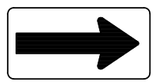
C20(CA)
INTERCHANGEABLE
WITH W20-5



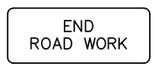
W20-1



C30(CA)



W1-6(RT)

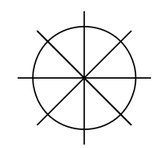


G20-2

LEGEND

- TYPE III BARRICADE W/SIGN
- TYPE II BARRICADE W/O SIGN
- CHANNELIZING DEVICE
- TRAFFIC CONE WITH CLIP ON SIGN
- SIGN
- (S) SIGNALIZED INTERSECTION
- ARROW PANEL (FLASHING ARROW) (WHERE REQUIRED)
- HIGH LEVEL WARNING DEVICE (FLAGTREE) (OPTIONAL)
- FLAGGER
- TANS TOW AWAY NO STOPPING ___ TO ___ (SHOW HOURS)
- TANSAT TOW AWAY NO STOPPING ANY TIME
- WORK ZONE (ACTIVITY AREA) LIMITS
- DIRECTION OF TRAFFIC (NOT PAVEMENT MARKING)
- (A) ROADWAY DESIGNATION (A THROUGH D)

DATES OF TEMPORARY NO PARKING ZONE

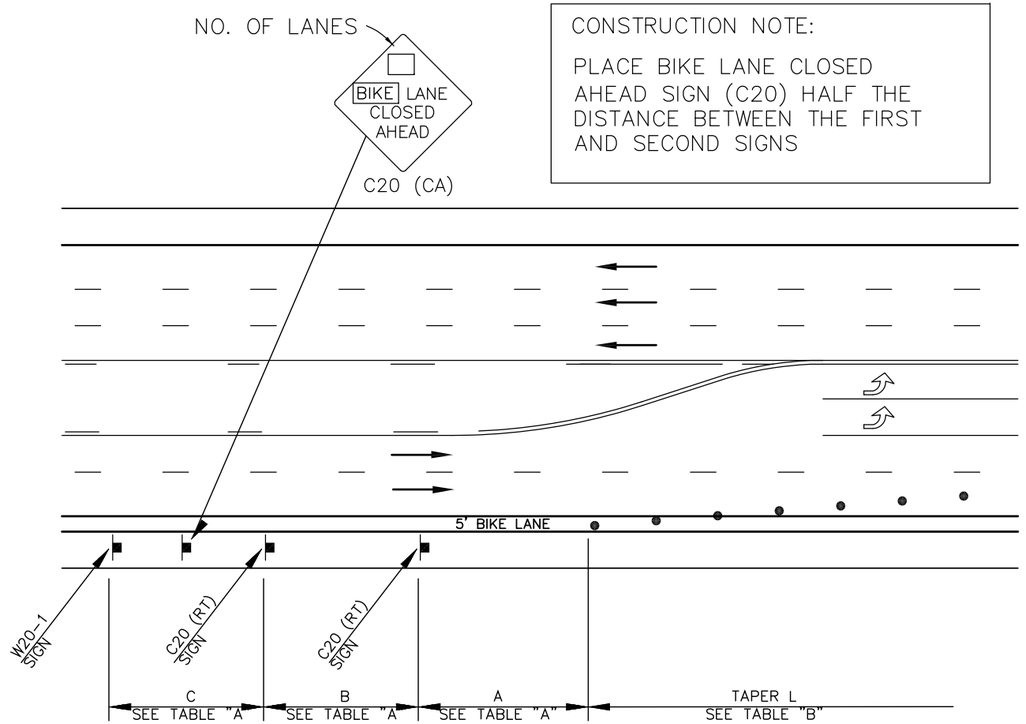


INDICATE NORTH WITH A "N"
AND AN ARROW POINT

WORKSITE TRAFFIC CONTROL PLAN
MIDBLOCK NO. 1 LANE CLOSURES FOR BOTH LANES OF TRAFFIC

DATE		SCALE
		NONE
		DRAWING NO. 15

REV. APR-2010 CJUTCM-DWG15.DWG



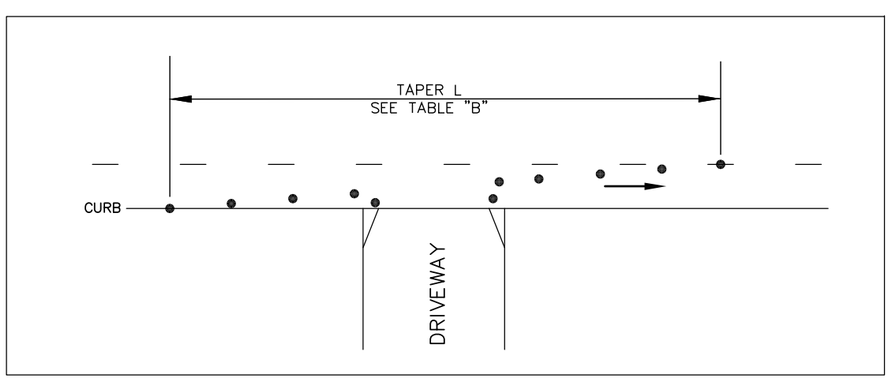
PLACEMENT OF BIKE LANE CLOSURE SIGN
(IF NECESSARY)

CONSTRUCTION NOTE:

PLACE BIKE LANE CLOSED AHEAD SIGN (C20) HALF THE DISTANCE BETWEEN THE FIRST AND SECOND SIGNS

CONSTRUCTION NOTE:

ALL DRIVEWAYS TO REMAIN OPEN (WHENEVER POSSIBLE) THROUGHOUT TRAFFIC CONTROL ZONE



SEE TABLE 'A'–'F' FOR SIGN AND CHANNELIZER DEVICE SPACING AND TAPER LENGTH

SPEED	APPROACH STREET	TAPER LENGTH	SIGN SPACING	CHANNELIZER SPACING

SEE TABLE 'A'–'F' FOR SIGN AND CHANNELIZER DEVICE SPACING AND TAPER LENGTH

SPEED	APPROACH STREET	TAPER LENGTH	SIGN SPACING	CHANNELIZER SPACING

ABBREVIATIONS:

S = Sign Spacing
Min = Minimum
LT = Left
RT = Right
LTP = Lane Traffic Panel
TANSAT = Tow Away, No Stopping Anytime
TANS = Tow Away, No Stopping

CHART A
MINIMUM RECOMMENDED DELINEATOR/CONE & SIGN PLACEMENT

POSTED SPEED LIMIT	TAPER LENGTH FOR 12–FT LANE			CHANNELIZER SPACING		SIGN SPACING (ADVANCE OF TAPER & BETWEEN SIGNS)
	MERGING	SHIFTING	SHOULDER	TAPER	TANGENT	
20 MPH	80 FT.	40 FT.	27 FT.	20 FT.	40 FT.	100 FT.
25 MPH	125 FT.	63 FT.	42 FT.	25 FT.	63 FT.	100 FT.
30 MPH	180 FT.	90 FT.	60 FT.	30 FT.	90 FT.	350 FT.
35 MPH	245 FT.	123 FT.	82 FT.	35 FT.	123 FT.	350 FT.
40 MPH	320 FT.	160 FT.	107 FT.	40 FT.	160 FT.	350 FT.
* 45 MPH	540 FT.	270 FT.	180 FT.	45 FT.	270 FT.	500 FT.
* 50 MPH	600 FT.	300 FT.	200 FT.	50 FT.	300 FT.	500 FT.
* 55+MPH	660 FT.	330 FT.	220 FT.	55 FT.	330 FT.	PER TABLE 'A'

NOTES

1. A Flashing Arrow sign shall be used for each lane closed.
*2. Two lane closure signs (C–20) shall be used on the approach to a lane closure with speeds of 45 mph or greater.

NOTE: This chart based on 12–foot wide lanes. For lane widths greater than 12 feet, use the following formulae:

Taper formula:

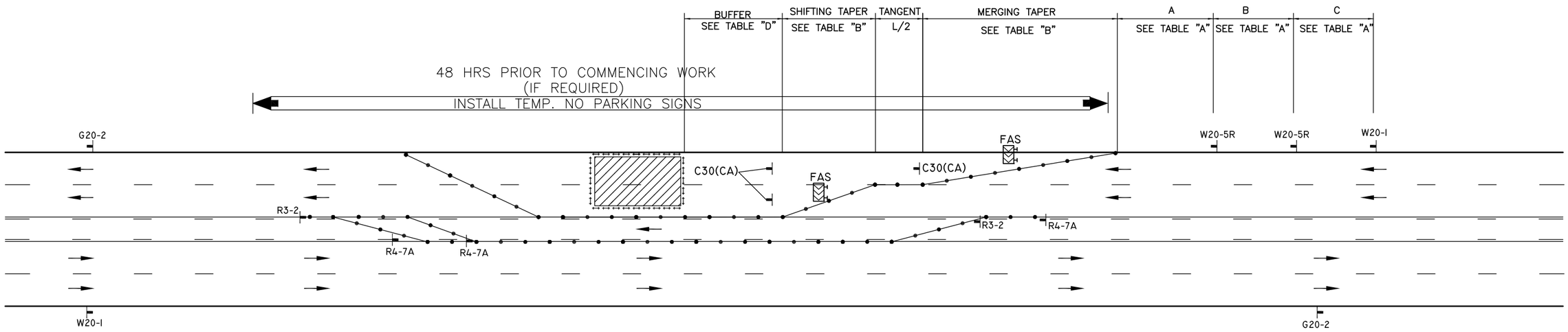
$L = S \times W$ for speeds of 45 mph or more.

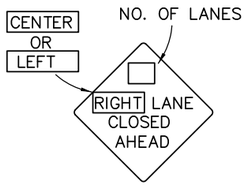
$L = \frac{WS^2}{60}$ for speeds of 40 mph or less.

Where:

L = Minimum length of taper.
S = Numerical value of posted speed limit prior to work or 85 percentile speed.
W = Width of offset.

i.e.: 50 mph and 19' lane; L = 50 x 19 = 950 feet





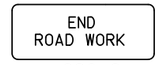
W20-5
INTERCHANGEABLE
WITH C20(CA)



W20-1



C30(CA)



G20-2



R4-7A



R3-2

LEGEND

- TYPE III BARRICADE W/SIGN
- TYPE II BARRICADE W/O SIGN
- CHANNELIZING DEVICE
- TRAFFIC CONE WITH CLIP ON SIGN
- SIGN
- (S) SIGNALIZED INTERSECTION
- ARROW PANEL (FLASHING ARROW) (WHERE REQUIRED)
- HIGH LEVEL WARNING DEVICE (FLAGTREE) (OPTIONAL)
- FLAGGER
- TANS TOW AWAY NO STOPPING ___ TO ___ (SHOW HOURS)
- TANSAT TOW AWAY NO STOPPING ANY TIME
- WORK ZONE (ACTIVITY AREA) LIMITS
- DIRECTION OF TRAFFIC (NOT PAVEMENT MARKING)
- (A) ROADWAY DESIGNATION (A THROUGH D)

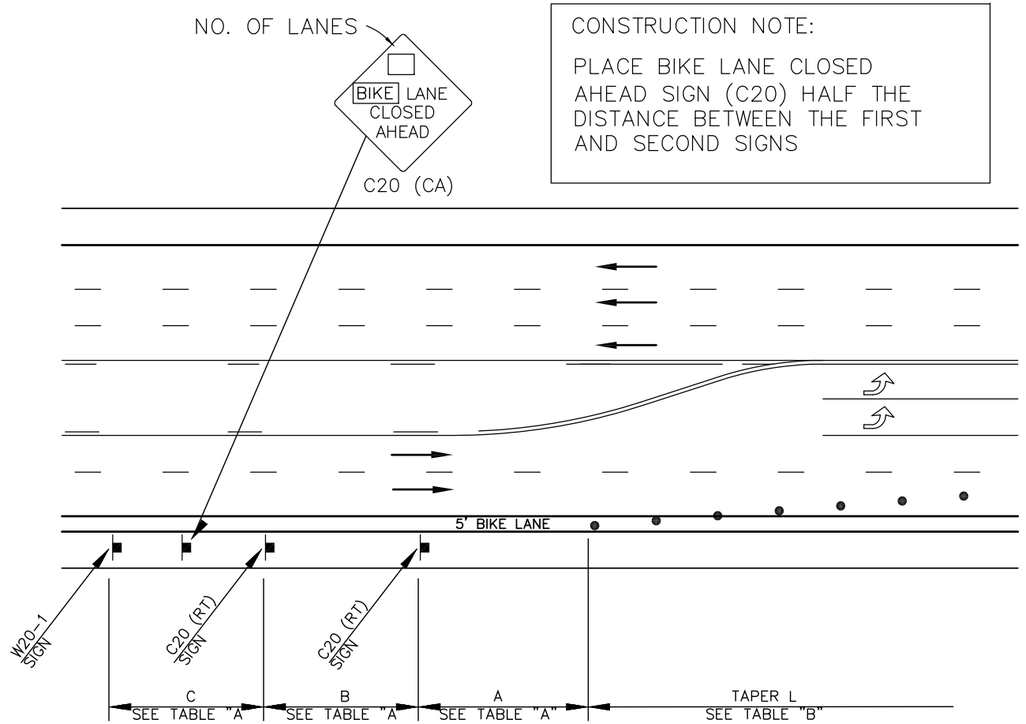
DATES OF TEMPORARY NO PARKING ZONE

INDICATE NORTH WITH A "N"
AND AN ARROW POINT

WORKSITE TRAFFIC CONTROL PLAN
MIDBLOCK HALF STREET CLOSURE
USING LEFT TURN LANE AS TRAVELED LANE

DATE		SCALE
		NONE
		DRAWING NO. 16

REV. APR-2010 CJUTCM-DWG16.DWG



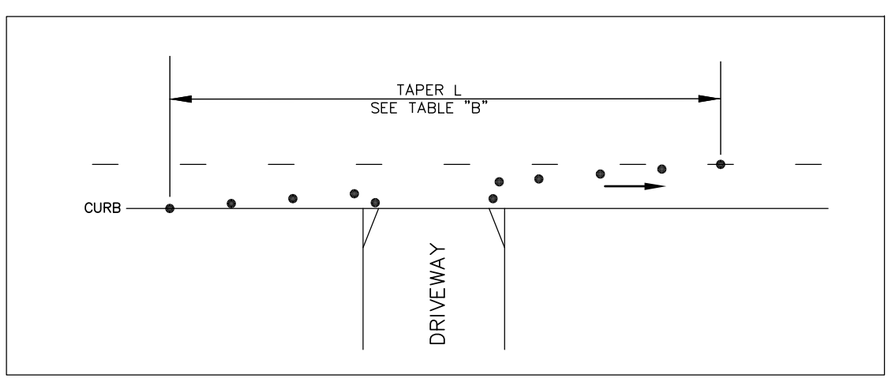
PLACEMENT OF BIKE LANE CLOSURE SIGN
(IF NECESSARY)

CONSTRUCTION NOTE:

PLACE BIKE LANE CLOSED AHEAD SIGN (C20) HALF THE DISTANCE BETWEEN THE FIRST AND SECOND SIGNS

CONSTRUCTION NOTE:

ALL DRIVEWAYS TO REMAIN OPEN (WHENEVER POSSIBLE) THROUGHOUT TRAFFIC CONTROL ZONE



SEE TABLE 'A'–'F' FOR SIGN AND CHANNELIZER DEVICE SPACING AND TAPER LENGTH

SPEED	APPROACH STREET	TAPER LENGTH	SIGN SPACING	CHANNELIZER SPACING

SEE TABLE 'A'–'F' FOR SIGN AND CHANNELIZER DEVICE SPACING AND TAPER LENGTH

SPEED	APPROACH STREET	TAPER LENGTH	SIGN SPACING	CHANNELIZER SPACING

ABBREVIATIONS:

S = Sign Spacing
Min = Minimum
LT = Left
RT = Right
LTP = Lane Traffic Panel
TANSAT = Tow Away, No Stopping Anytime
TANS = Tow Away, No Stopping

CHART A
MINIMUM RECOMMENDED DELINEATOR/CONE & SIGN PLACEMENT

POSTED SPEED LIMIT	TAPER LENGTH FOR 12–FT LANE			CHANNELIZER SPACING		SIGN SPACING (ADVANCE OF TAPER & BETWEEN SIGNS)
	MERGING	SHIFTING	SHOULDER	TAPER	TANGENT	
20 MPH	80 FT.	40 FT.	27 FT.	20 FT.	40 FT.	100 FT.
25 MPH	125 FT.	63 FT.	42 FT.	25 FT.	63 FT.	100 FT.
30 MPH	180 FT.	90 FT.	60 FT.	30 FT.	90 FT.	350 FT.
35 MPH	245 FT.	123 FT.	82 FT.	35 FT.	123 FT.	350 FT.
40 MPH	320 FT.	160 FT.	107 FT.	40 FT.	160 FT.	350 FT.
* 45 MPH	540 FT.	270 FT.	180 FT.	45 FT.	270 FT.	500 FT.
* 50 MPH	600 FT.	300 FT.	200 FT.	50 FT.	300 FT.	500 FT.
* 55+MPH	660 FT.	330 FT.	220 FT.	55 FT.	330 FT.	PER TABLE 'A'

NOTES

1. A Flashing Arrow sign shall be used for each lane closed.
*2. Two lane closure signs (C–20) shall be used on the approach to a lane closure with speeds of 45 mph or greater.

NOTE: This chart based on 12–foot wide lanes. For lane widths greater than 12 feet, use the following formulae:

Taper formula:

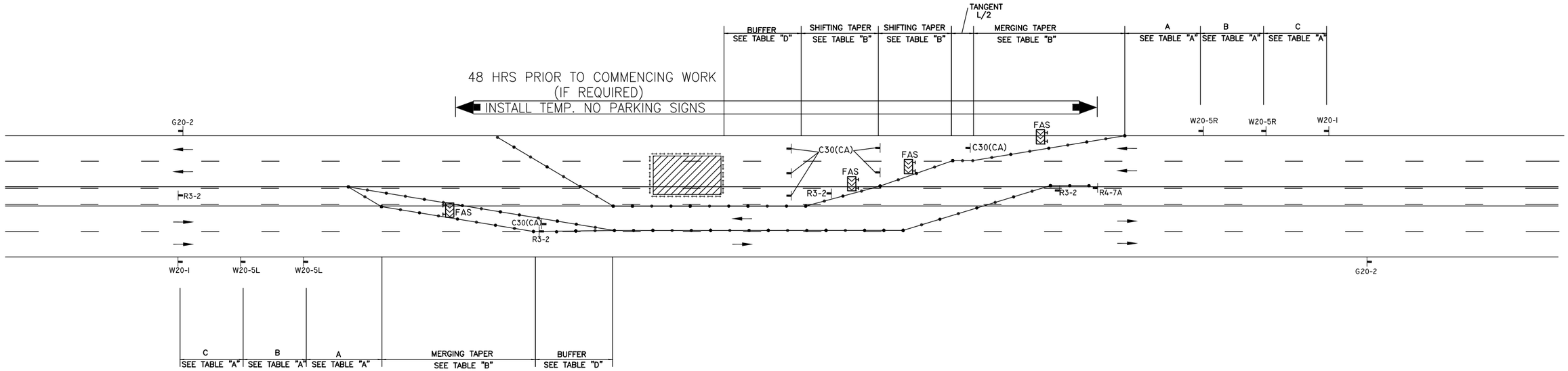
$L = S \times W$ for speeds of 45 mph or more.

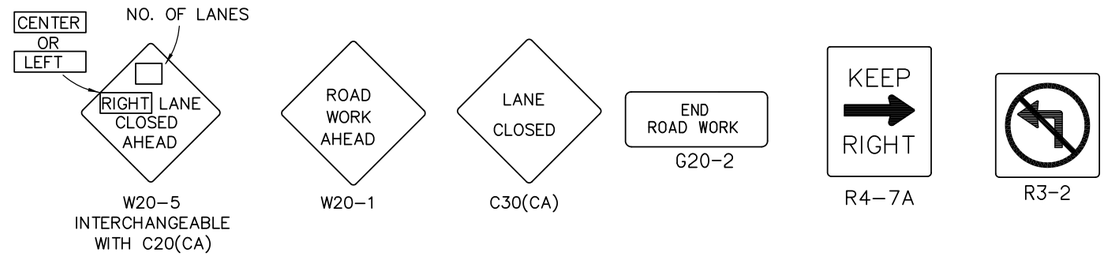
$L = \frac{WS^2}{60}$ for speeds of 40 mph or less.

Where:

L = Minimum length of taper.
S = Numerical value of posted speed limit prior to work or 85 percentile speed.
W = Width of offset.

i.e.: 50 mph and 19' lane; L = 50 x 19 = 950 feet





W20-5 INTERCHANGEABLE WITH C20(CA)

W20-1

C30(CA)

G20-2

R4-7A

R3-2

LEGEND

- TYPE III BARRICADE W/SIGN
- TYPE II BARRICADE W/O SIGN
- CHANNELIZING DEVICE
- TRAFFIC CONE WITH CLIP ON SIGN
- SIGN
- (S) SIGNALIZED INTERSECTION
- ARROW PANEL (FLASHING ARROW) (WHERE REQUIRED)
- HIGH LEVEL WARNING DEVICE (FLAGTREE) (OPTIONAL)
- FLAGGER
- TANS TOW AWAY NO STOPPING ___ TO ___ (SHOW HOURS)
- TANSAT TOW AWAY NO STOPPING ANY TIME
- WORK ZONE (ACTIVITY AREA) LIMITS
- DIRECTION OF TRAFFIC (NOT PAVEMENT MARKING)
- (A) ROADWAY DESIGNATION (A THROUGH D)

DATES OF TEMPORARY NO PARKING ZONE

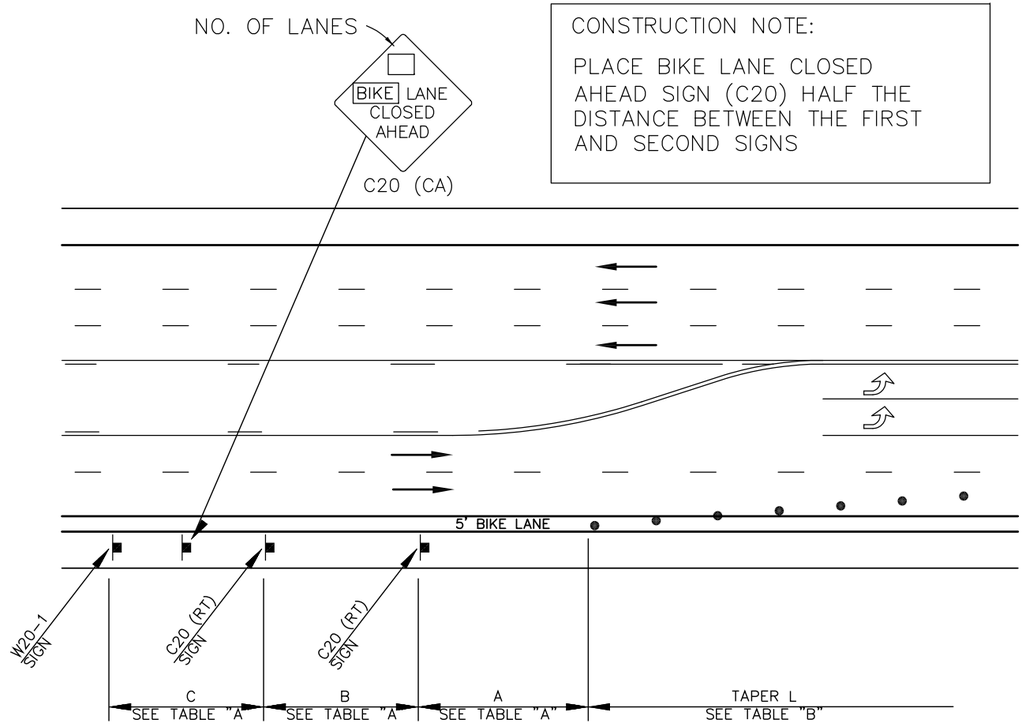
INDICATE NORTH WITH A "N" AND AN ARROW POINT

WORKSITE TRAFFIC CONTROL PLAN

MULTILANE CLOSURE
RIGHT LANES AND LEFT TURN LANES

DATE		SCALE
		NONE
		DRAWING NO. 17

REV. APR-2010 CJUTCM-DWG17.DWG



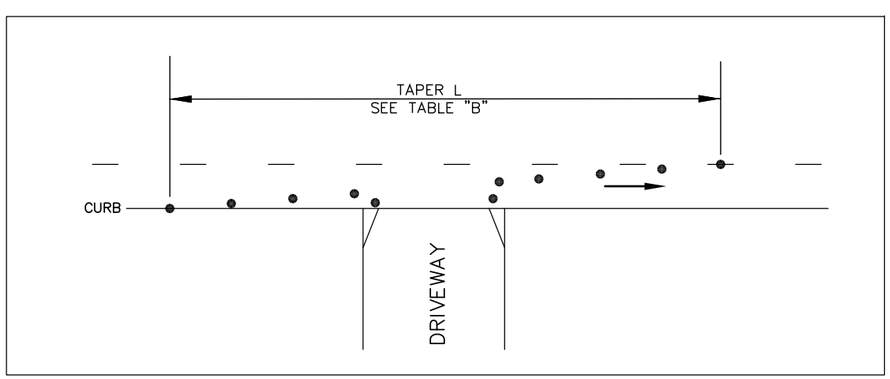
PLACEMENT OF BIKE LANE CLOSURE SIGN
(IF NECESSARY)

CONSTRUCTION NOTE:

PLACE BIKE LANE CLOSED AHEAD SIGN (C20) HALF THE DISTANCE BETWEEN THE FIRST AND SECOND SIGNS

CONSTRUCTION NOTE:

ALL DRIVEWAYS TO REMAIN OPEN (WHENEVER POSSIBLE) THROUGHOUT TRAFFIC CONTROL ZONE



SEE TABLE 'A'–'F' FOR SIGN AND CHANNELIZER DEVICE SPACING AND TAPER LENGTH

SPEED	APPROACH STREET	TAPER LENGTH	SIGN SPACING	CHANNELIZER SPACING

SEE TABLE 'A'–'F' FOR SIGN AND CHANNELIZER DEVICE SPACING AND TAPER LENGTH

SPEED	APPROACH STREET	TAPER LENGTH	SIGN SPACING	CHANNELIZER SPACING

ABBREVIATIONS:

S = Sign Spacing
Min = Minimum
LT = Left
RT = Right
LTP = Lane Traffic Panel
TANSAT = Tow Away, No Stopping Anytime
TANS = Tow Away, No Stopping

CHART A
MINIMUM RECOMMENDED DELINEATOR/CONE & SIGN PLACEMENT

POSTED SPEED LIMIT	TAPER LENGTH FOR 12–FT LANE			CHANNELIZER SPACING		SIGN SPACING (ADVANCE OF TAPER & BETWEEN SIGNS)
	MERGING	SHIFTING	SHOULDER	TAPER	TANGENT	
20 MPH	80 FT.	40 FT.	27 FT.	20 FT.	40 FT.	100 FT.
25 MPH	125 FT.	63 FT.	42 FT.	25 FT.	63 FT.	100 FT.
30 MPH	180 FT.	90 FT.	60 FT.	30 FT.	90 FT.	350 FT.
35 MPH	245 FT.	123 FT.	82 FT.	35 FT.	123 FT.	350 FT.
40 MPH	320 FT.	160 FT.	107 FT.	40 FT.	160 FT.	350 FT.
* 45 MPH	540 FT.	270 FT.	180 FT.	45 FT.	270 FT.	500 FT.
* 50 MPH	600 FT.	300 FT.	200 FT.	50 FT.	300 FT.	500 FT.
* 55+MPH	660 FT.	330 FT.	220 FT.	55 FT.	330 FT.	PER TABLE 'A'

NOTES

1. A Flashing Arrow sign shall be used for each lane closed.
*2. Two lane closure signs (C–20) shall be used on the approach to a lane closure with speeds of 45 mph or greater.

NOTE: This chart based on 12–foot wide lanes. For lane widths greater than 12 feet, use the following formulae:

Taper formula:

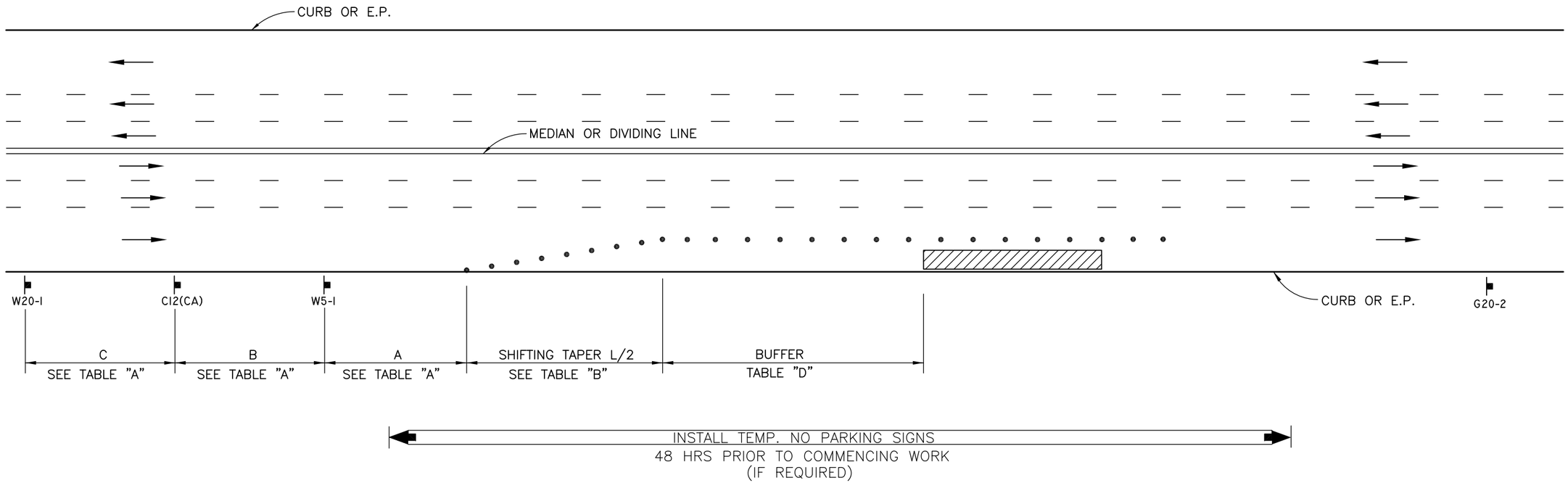
$L = S \times W$ for speeds of 45 mph or more.

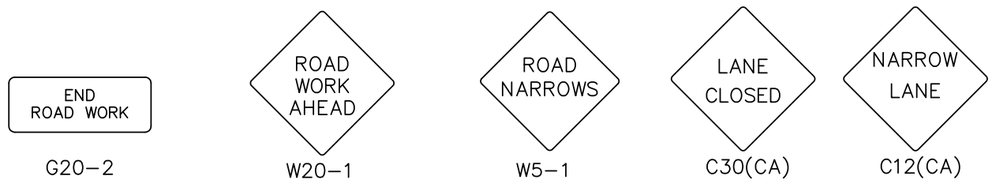
$L = \frac{WS^2}{60}$ for speeds of 40 mph or less.

Where:

L = Minimum length of taper.
S = Numerical value of posted speed limit prior to work or 85 percentile speed.
W = Width of offset.

i.e.: 50 mph and 19' lane; L = 50 x 19 = 950 feet





LEGEND

- TYPE III BARRICADE W/SIGN
- TYPE II BARRICADE W/O SIGN
- CHANNELIZING DEVICE
- TRAFFIC CONE WITH CLIP ON SIGN
- SIGN
- (S) SIGNALIZED INTERSECTION
- ARROW PANEL (FLASHING ARROW) (WHERE REQUIRED)
- HIGH LEVEL WARNING DEVICE (FLAGTREE) (OPTIONAL)
- FLAGGER
- TANS TOW AWAY NO STOPPING ___ TO ___ (SHOW HOURS)
- TANSAT TOW AWAY NO STOPPING ANY TIME
- WORK ZONE (ACTIVITY AREA) LIMITS
- DIRECTION OF TRAFFIC (NOT PAVEMENT MARKING)
- (A) ROADWAY DESIGNATION (A THROUGH D)

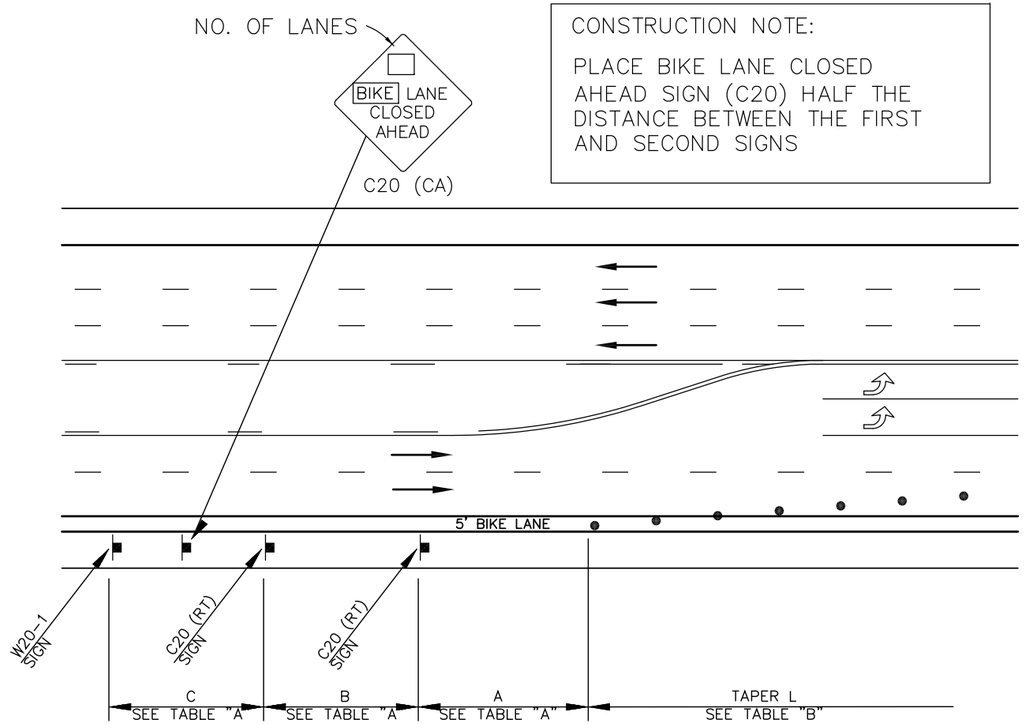
DATES OF TEMPORARY NO PARKING ZONE

INDICATE NORTH WITH A "N"
AND AN ARROW POINT

WORKSITE TRAFFIC CONTROL PLAN
EDGE OF GUTTER CLOSURE

DATE		SCALE
		NONE
		DRAWING NO. 18

REV. APR-2010 CJUTCM-DWG18.DWG



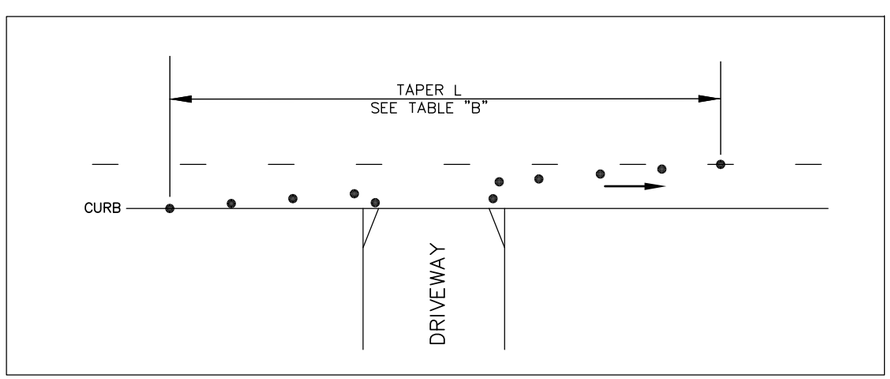
PLACEMENT OF BIKE LANE CLOSURE SIGN
(IF NECESSARY)

CONSTRUCTION NOTE:

PLACE BIKE LANE CLOSED AHEAD SIGN (C20) HALF THE DISTANCE BETWEEN THE FIRST AND SECOND SIGNS

CONSTRUCTION NOTE:

ALL DRIVEWAYS TO REMAIN OPEN (WHENEVER POSSIBLE) THROUGHOUT TRAFFIC CONTROL ZONE



SEE TABLE 'A'–'F' FOR SIGN AND CHANNELIZER DEVICE SPACING AND TAPER LENGTH

SPEED	APPROACH STREET	TAPER LENGTH	SIGN SPACING	CHANNELIZER SPACING

SEE TABLE 'A'–'F' FOR SIGN AND CHANNELIZER DEVICE SPACING AND TAPER LENGTH

SPEED	APPROACH STREET	TAPER LENGTH	SIGN SPACING	CHANNELIZER SPACING

ABBREVIATIONS:

S = Sign Spacing
Min = Minimum
LT = Left
RT = Right
LTP = Lane Traffic Panel
TANSAT = Tow Away, No Stopping Anytime
TANS = Tow Away, No Stopping

CHART A
MINIMUM RECOMMENDED DELINEATOR/CONE & SIGN PLACEMENT

POSTED SPEED LIMIT	TAPER LENGTH FOR 12–FT LANE			CHANNELIZER SPACING		SIGN SPACING (ADVANCE OF TAPER & BETWEEN SIGNS)
	MERGING	SHIFTING	SHOULDER	TAPER	TANGENT	
20 MPH	80 FT.	40 FT.	27 FT.	20 FT.	40 FT.	100 FT.
25 MPH	125 FT.	63 FT.	42 FT.	25 FT.	63 FT.	100 FT.
30 MPH	180 FT.	90 FT.	60 FT.	30 FT.	90 FT.	350 FT.
35 MPH	245 FT.	123 FT.	82 FT.	35 FT.	123 FT.	350 FT.
40 MPH	320 FT.	160 FT.	107 FT.	40 FT.	160 FT.	350 FT.
* 45 MPH	540 FT.	270 FT.	180 FT.	45 FT.	270 FT.	500 FT.
* 50 MPH	600 FT.	300 FT.	200 FT.	50 FT.	300 FT.	500 FT.
* 55+MPH	660 FT.	330 FT.	220 FT.	55 FT.	330 FT.	PER TABLE 'A'

NOTES

1. A Flashing Arrow sign shall be used for each lane closed.
*2. Two lane closure signs (C–20) shall be used on the approach to a lane closure with speeds of 45 mph or greater.

NOTE: This chart based on 12–foot wide lanes. For lane widths greater than 12 feet, use the following formulae:

Taper formula:

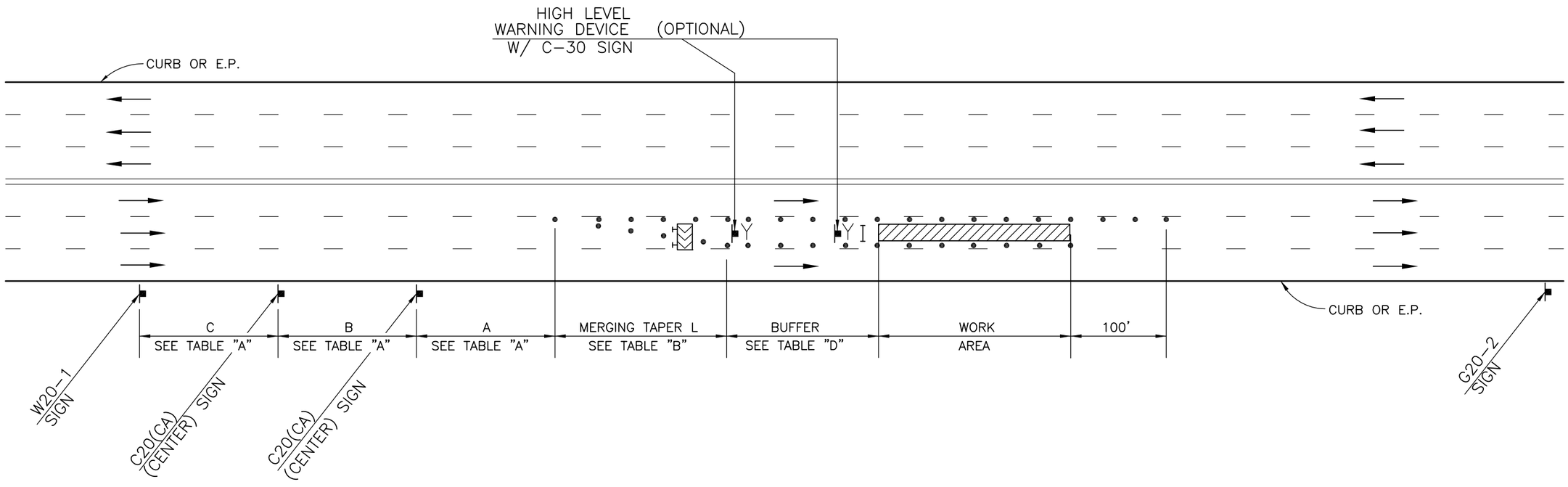
$L = S \times W$ for speeds of 45 mph or more.

$L = \frac{WS^2}{60}$ for speeds of 40 mph or less.

Where:

L = Minimum length of taper.
S = Numerical value of posted speed limit prior to work or 85 percentile speed.
W = Width of offset.

i.e.: 50 mph and 19' lane; L = 50 x 19 = 950 feet



LEGEND

- TYPE III BARRICADE W/SIGN
- TYPE II BARRICADE W/O SIGN
- CHANNELIZING DEVICE
- TRAFFIC CONE WITH CLIP ON SIGN
- SIGN
- (S) SIGNALIZED INTERSECTION
- ARROW PANEL (FLASHING ARROW) (WHERE REQUIRED)
- HIGH LEVEL WARNING DEVICE (FLAGTREE) (OPTIONAL)
- FLAGGER
- TANS TOW AWAY NO STOPPING ___ TO ___ (SHOW HOURS)
- TANSAT TOW AWAY NO STOPPING ANY TIME
- WORK ZONE (ACTIVITY AREA) LIMITS
- DIRECTION OF TRAFFIC (NOT PAVEMENT MARKING)
- (A) ROADWAY DESIGNATION (A THROUGH D)

END
ROAD WORK

G20-2

CENTER OR RIGHT

NO. OF LANES

LEFT LANE CLOSED AHEAD

C20(CA)
INTERCHANGEABLE WITH W20-5

ROAD WORK AHEAD

W20-1

LANE CLOSED

C30(CA)

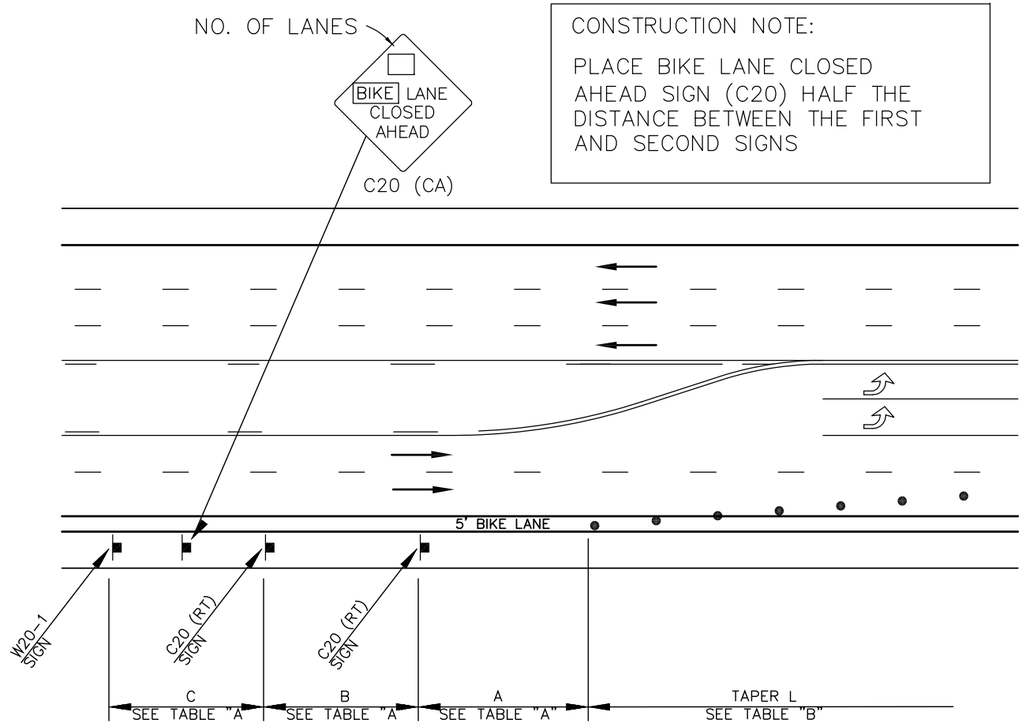
DATES OF TEMPORARY NO PARKING ZONE

INDICATE NORTH WITH A "N" AND AN ARROW POINT

WORKSITE TRAFFIC CONTROL PLAN
MIDDLE LANE CLOSURE

DATE		SCALE
		NONE
		DRAWING NO. 19

REV. APR-2010 CJJTCM-DWGS19.DWG



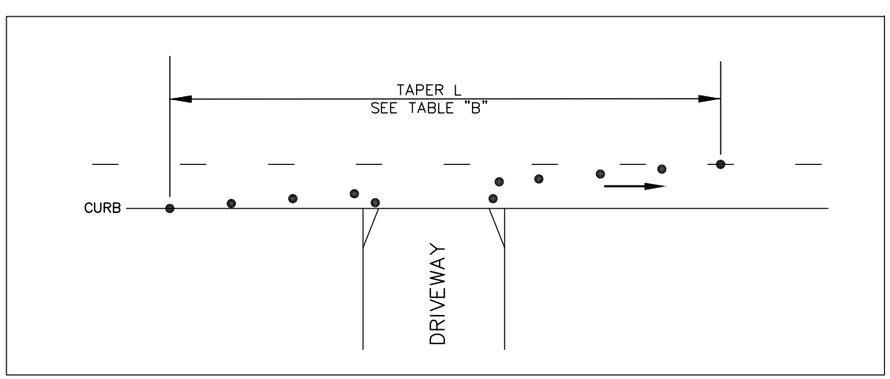
PLACEMENT OF BIKE LANE CLOSURE SIGN
(IF NECESSARY)

CONSTRUCTION NOTE:

PLACE BIKE LANE CLOSED AHEAD SIGN (C20) HALF THE DISTANCE BETWEEN THE FIRST AND SECOND SIGNS

CONSTRUCTION NOTE:

ALL DRIVEWAYS TO REMAIN OPEN (WHENEVER POSSIBLE) THROUGHOUT TRAFFIC CONTROL ZONE



SEE TABLE 'A'–'F' FOR SIGN AND CHANNELIZER DEVICE SPACING AND TAPER LENGTH

SPEED	APPROACH STREET	TAPER LENGTH	SIGN SPACING	CHANNELIZER SPACING

SEE TABLE 'A'–'F' FOR SIGN AND CHANNELIZER DEVICE SPACING AND TAPER LENGTH

SPEED	APPROACH STREET	TAPER LENGTH	SIGN SPACING	CHANNELIZER SPACING

ABBREVIATIONS:

S = Sign Spacing
Min = Minimum
LT = Left
RT = Right
LTP = Lane Traffic Panel
TANSAT = Tow Away, No Stopping Anytime
TANS = Tow Away, No Stopping

CHART A
MINIMUM RECOMMENDED DELINEATOR/CONE & SIGN PLACEMENT

POSTED SPEED LIMIT	TAPER LENGTH FOR 12–FT LANE			CHANNELIZER SPACING		SIGN SPACING (ADVANCE OF TAPER & BETWEEN SIGNS)
	MERGING	SHIFTING	SHOULDER	TAPER	TANGENT	
20 MPH	80 FT.	40 FT.	27 FT.	20 FT.	40 FT.	100 FT.
25 MPH	125 FT.	63 FT.	42 FT.	25 FT.	63 FT.	100 FT.
30 MPH	180 FT.	90 FT.	60 FT.	30 FT.	90 FT.	350 FT.
35 MPH	245 FT.	123 FT.	82 FT.	35 FT.	123 FT.	350 FT.
40 MPH	320 FT.	160 FT.	107 FT.	40 FT.	160 FT.	350 FT.
* 45 MPH	540 FT.	270 FT.	180 FT.	45 FT.	270 FT.	500 FT.
* 50 MPH	600 FT.	300 FT.	200 FT.	50 FT.	300 FT.	500 FT.
* 55+MPH	660 FT.	330 FT.	220 FT.	55 FT.	330 FT.	PER TABLE 'A'

NOTES

1. A Flashing Arrow sign shall be used for each lane closed.
*2. Two lane closure signs (C–20) shall be used on the approach to a lane closure with speeds of 45 mph or greater.

NOTE: This chart based on 12–foot wide lanes. For lane widths greater than 12 feet, use the following formulae:

Taper formula:

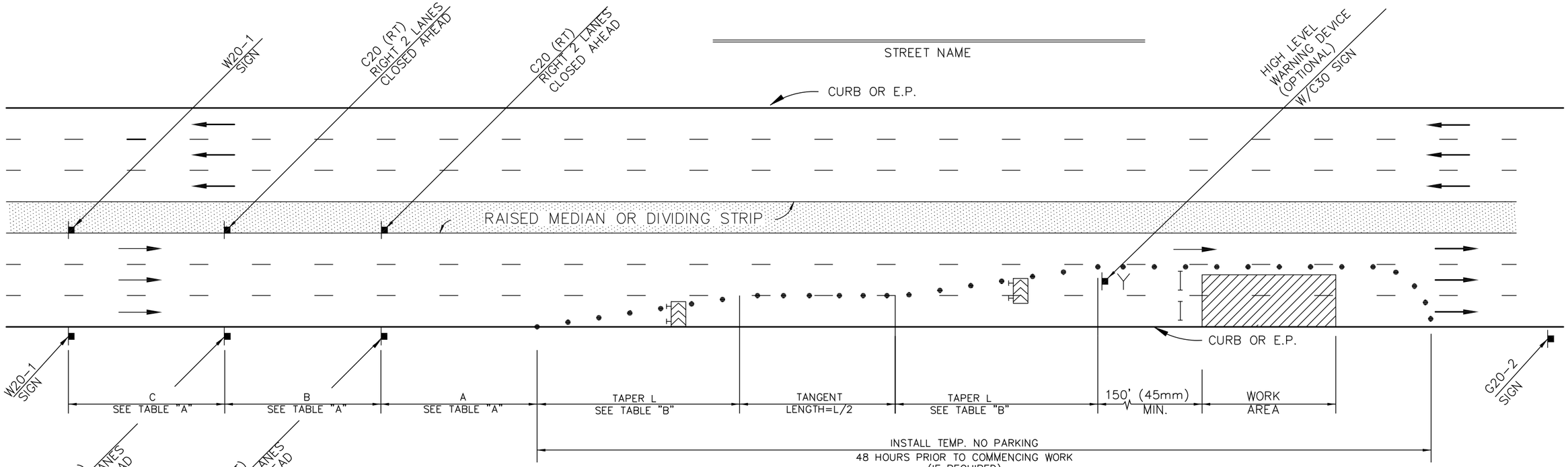
$L = S \times W$ for speeds of 45 mph or more.

$L = \frac{WS^2}{60}$ for speeds of 40 mph or less.

Where:

L = Minimum length of taper.
S = Numerical value of posted speed limit prior to work or 85 percentile speed.
W = Width of offset.

i.e.: 50 mph and 19' lane; L = 50 x 19 = 950 feet



LEGEND

- TYPE III BARRICADE W/SIGN
- TYPE II BARRICADE W/O SIGN
- 28"(11cm)TRAFFIC CONES W/13"(5cm) REFLECTIVE SLEEVE FOR DAY/NIGHT USE OR DELINEATORS IF DAY USE ONLY
- TRAFFIC CONE WITH CLIP ON SIGN
- PROPOSED SIGN AND POST
- EXISTING SIGN AND POST
- (S) SIGNALIZED INTERSECTION
- FLASHING ARROW SIGN
- HIGH LEVEL WARNING DEVICE WITH SIGN
- FLAGGER
- TANS TOW AWAY NO STOPPING ___ TO ___ (SHOW HOURS)
- TANSAT TOW AWAY NO STOPPING ANY TIME
- WORK ZONE LIMITS
- DIRECTION OF TRAFFIC
- (A) ROADWAY DESIGNATION (A THROUGH D)



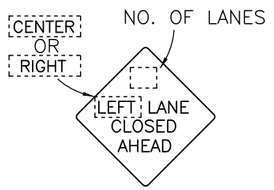
C30(CA)



G20-2

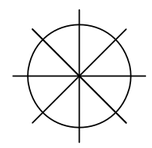


W20-1



C20(CA)
INTERCHANGEABLE WITH W20-5

DATES OF TEMPORARY NO PARKING ZONE



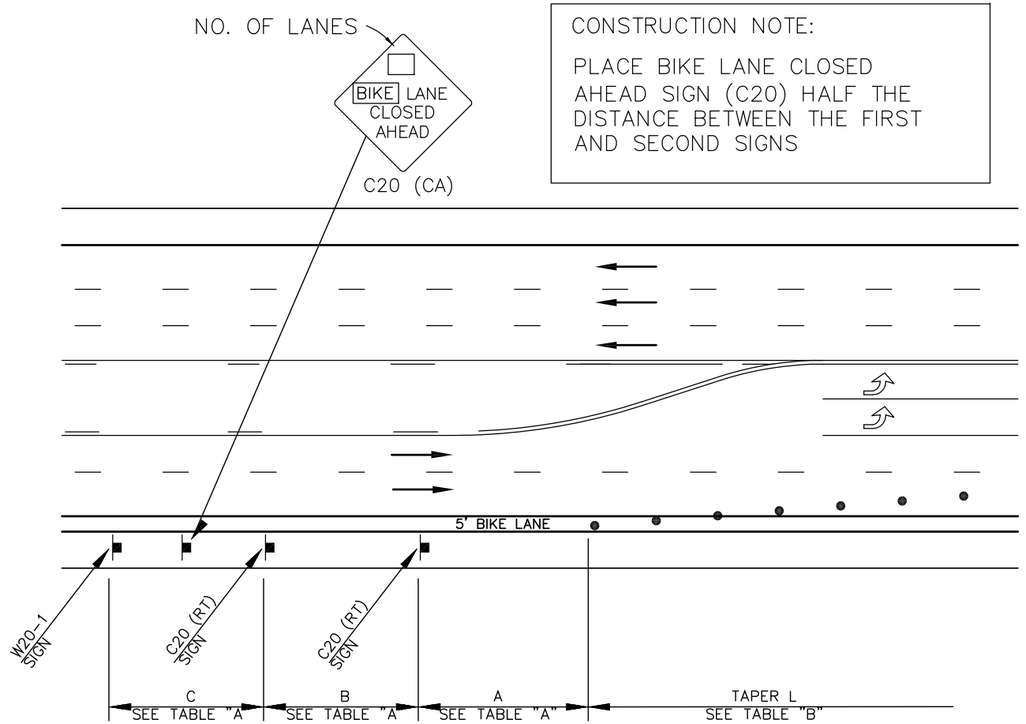
INDICATE NORTH WITH A "N" AND AN ARROW POINT

WORKSITE TRAFFIC CONTROL PLAN
MULTI LANE CLOSURE
(RIGHT LANE)

DATE		SCALE
		NONE
		DRAWING NO.
		20

CJUTCM-DWG20.DWG

REV. APR-2010



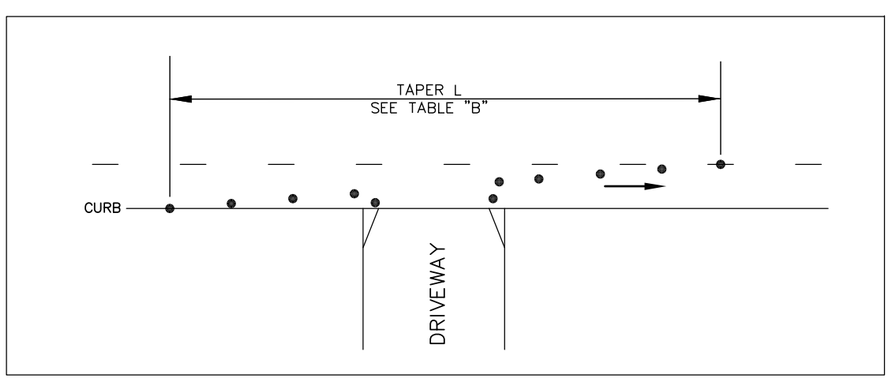
PLACEMENT OF BIKE LANE CLOSURE SIGN
(IF NECESSARY)

CONSTRUCTION NOTE:

PLACE BIKE LANE CLOSED AHEAD SIGN (C20) HALF THE DISTANCE BETWEEN THE FIRST AND SECOND SIGNS

CONSTRUCTION NOTE:

ALL DRIVEWAYS TO REMAIN OPEN (WHENEVER POSSIBLE) THROUGHOUT TRAFFIC CONTROL ZONE



SEE TABLE 'A'–'F' FOR SIGN AND CHANNELIZER DEVICE SPACING AND TAPER LENGTH

SPEED	APPROACH STREET	TAPER LENGTH	SIGN SPACING	CHANNELIZER SPACING

SEE TABLE 'A'–'F' FOR SIGN AND CHANNELIZER DEVICE SPACING AND TAPER LENGTH

SPEED	APPROACH STREET	TAPER LENGTH	SIGN SPACING	CHANNELIZER SPACING

ABBREVIATIONS:

S = Sign Spacing
Min = Minimum
LT = Left
RT = Right
LTP = Lane Traffic Panel
TANSAT = Tow Away, No Stopping Anytime
TANS = Tow Away, No Stopping

CHART A
MINIMUM RECOMMENDED DELINEATOR/CONE & SIGN PLACEMENT

POSTED SPEED LIMIT	TAPER LENGTH FOR 12–FT LANE			CHANNELIZER SPACING		SIGN SPACING (ADVANCE OF TAPER & BETWEEN SIGNS)
	MERGING	SHIFTING	SHOULDER	TAPER	TANGENT	
20 MPH	80 FT.	40 FT.	27 FT.	20 FT.	40 FT.	100 FT.
25 MPH	125 FT.	63 FT.	42 FT.	25 FT.	63 FT.	100 FT.
30 MPH	180 FT.	90 FT.	60 FT.	30 FT.	90 FT.	350 FT.
35 MPH	245 FT.	123 FT.	82 FT.	35 FT.	123 FT.	350 FT.
40 MPH	320 FT.	160 FT.	107 FT.	40 FT.	160 FT.	350 FT.
* 45 MPH	540 FT.	270 FT.	180 FT.	45 FT.	270 FT.	500 FT.
* 50 MPH	600 FT.	300 FT.	200 FT.	50 FT.	300 FT.	500 FT.
* 55+MPH	660 FT.	330 FT.	220 FT.	55 FT.	330 FT.	PER TABLE 'A'

NOTES

1. A Flashing Arrow sign shall be used for each lane closed.
*2. Two lane closure signs (C–20) shall be used on the approach to a lane closure with speeds of 45 mph or greater.

NOTE: This chart based on 12–foot wide lanes. For lane widths greater than 12 feet, use the following formulae:

Taper formula:

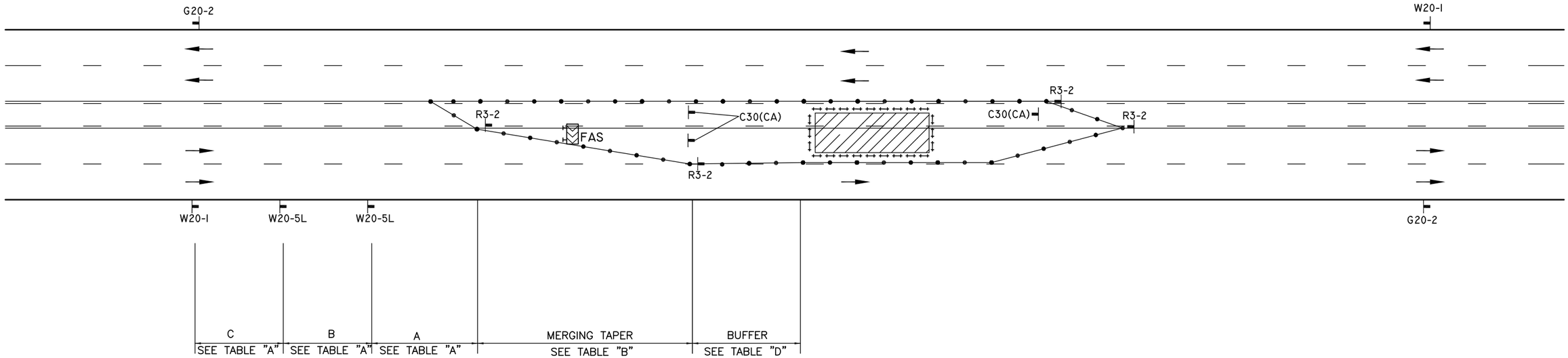
$L = S \times W$ for speeds of 45 mph or more.

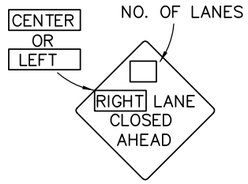
$L = \frac{WS^2}{60}$ for speeds of 40 mph or less.

Where:

L = Minimum length of taper.
S = Numerical value of posted speed limit prior to work or 85 percentile speed.
W = Width of offset.

i.e.: 50 mph and 19' lane; L = 50 x 19 = 950 feet





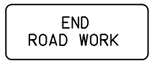
W20-5
INTERCHANGEABLE
WITH C20(CA)



W20-1



C30(CA)



G20-2



R4-7A

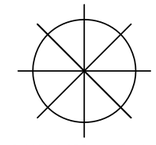


R3-2

LEGEND

- TYPE III BARRICADE W/SIGN
- TYPE II BARRICADE W/O SIGN
- CHANNELIZING DEVICE
- TRAFFIC CONE WITH CLIP ON SIGN
- SIGN
- (S) SIGNALIZED INTERSECTION
- ARROW PANEL (FLASHING ARROW) (WHERE REQUIRED)
- HIGH LEVEL WARNING DEVICE (FLAGTREE) (OPTIONAL)
- FLAGGER
- TANS TOW AWAY NO STOPPING ___ TO ___ (SHOW HOURS)
- TANSAT TOW AWAY NO STOPPING ANY TIME
- WORK ZONE (ACTIVITY AREA) LIMITS
- DIRECTION OF TRAFFIC (NOT PAVEMENT MARKING)
- (A) ROADWAY DESIGNATION (A THROUGH D)

DATES OF TEMPORARY NO PARKING ZONE



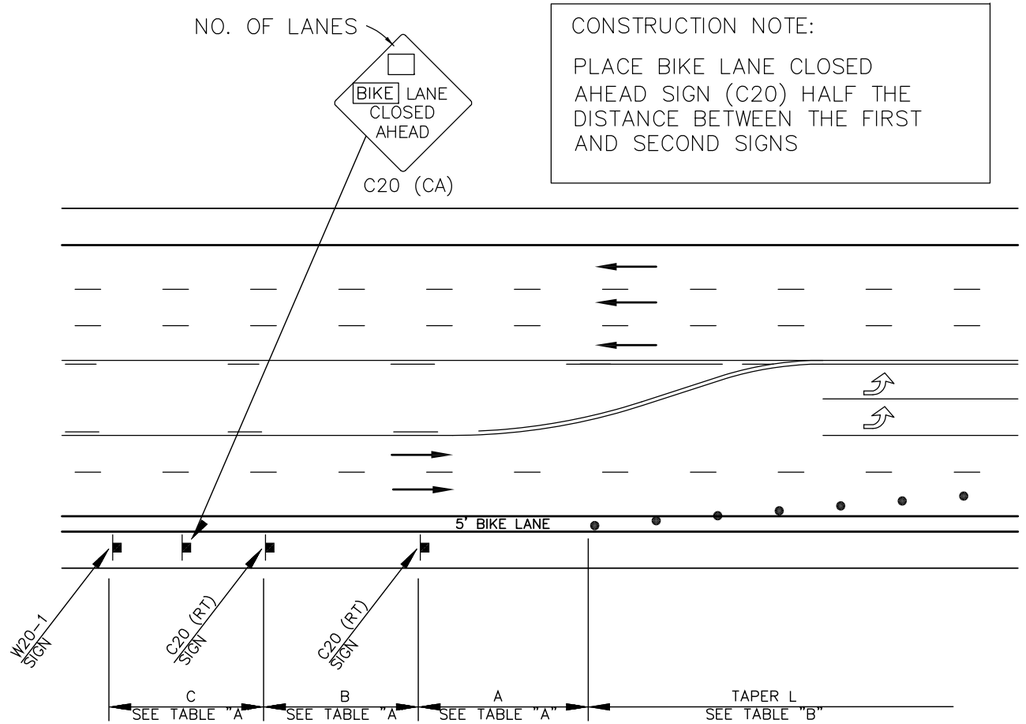
INDICATE NORTH WITH A "N"
AND AN ARROW POINT

WORKSITE TRAFFIC CONTROL PLAN

MIDBLOCK NO. 1 LANE AND
LEFT TURN LANE CLOSURE

DATE		SCALE
		NONE
		DRAWING NO. 21

REV. APR-2010 CJUTCM-DWG21.DWG



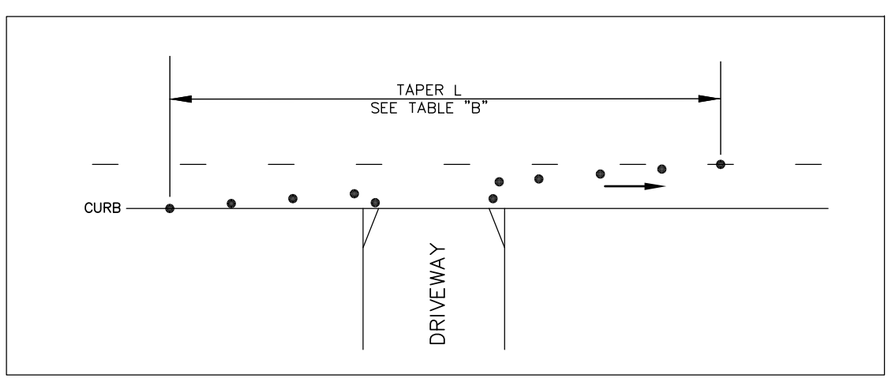
PLACEMENT OF BIKE LANE CLOSURE SIGN
(IF NECESSARY)

CONSTRUCTION NOTE:

PLACE BIKE LANE CLOSED AHEAD SIGN (C20) HALF THE DISTANCE BETWEEN THE FIRST AND SECOND SIGNS

CONSTRUCTION NOTE:

ALL DRIVEWAYS TO REMAIN OPEN (WHENEVER POSSIBLE) THROUGHOUT TRAFFIC CONTROL ZONE



SEE TABLE 'A'–'F' FOR SIGN AND CHANNELIZER DEVICE SPACING AND TAPER LENGTH

SPEED	APPROACH STREET	TAPER LENGTH	SIGN SPACING	CHANNELIZER SPACING

SEE TABLE 'A'–'F' FOR SIGN AND CHANNELIZER DEVICE SPACING AND TAPER LENGTH

SPEED	APPROACH STREET	TAPER LENGTH	SIGN SPACING	CHANNELIZER SPACING

ABBREVIATIONS:

S = Sign Spacing
Min = Minimum
LT = Left
RT = Right
LTP = Lane Traffic Panel
TANSAT = Tow Away, No Stopping Anytime
TANS = Tow Away, No Stopping

CHART A
MINIMUM RECOMMENDED DELINEATOR/CONE & SIGN PLACEMENT

POSTED SPEED LIMIT	TAPER LENGTH FOR 12–FT LANE			CHANNELIZER SPACING		SIGN SPACING (ADVANCE OF TAPER & BETWEEN SIGNS)
	MERGING	SHIFTING	SHOULDER	TAPER	TANGENT	
20 MPH	80 FT.	40 FT.	27 FT.	20 FT.	40 FT.	100 FT.
25 MPH	125 FT.	63 FT.	42 FT.	25 FT.	63 FT.	100 FT.
30 MPH	180 FT.	90 FT.	60 FT.	30 FT.	90 FT.	350 FT.
35 MPH	245 FT.	123 FT.	82 FT.	35 FT.	123 FT.	350 FT.
40 MPH	320 FT.	160 FT.	107 FT.	40 FT.	160 FT.	350 FT.
* 45 MPH	540 FT.	270 FT.	180 FT.	45 FT.	270 FT.	500 FT.
* 50 MPH	600 FT.	300 FT.	200 FT.	50 FT.	300 FT.	500 FT.
* 55+MPH	660 FT.	330 FT.	220 FT.	55 FT.	330 FT.	PER TABLE 'A'

NOTES

1. A Flashing Arrow sign shall be used for each lane closed.
*2. Two lane closure signs (C–20) shall be used on the approach to a lane closure with speeds of 45 mph or greater.

NOTE: This chart based on 12–foot wide lanes. For lane widths greater than 12 feet, use the following formulae:

Taper formula:

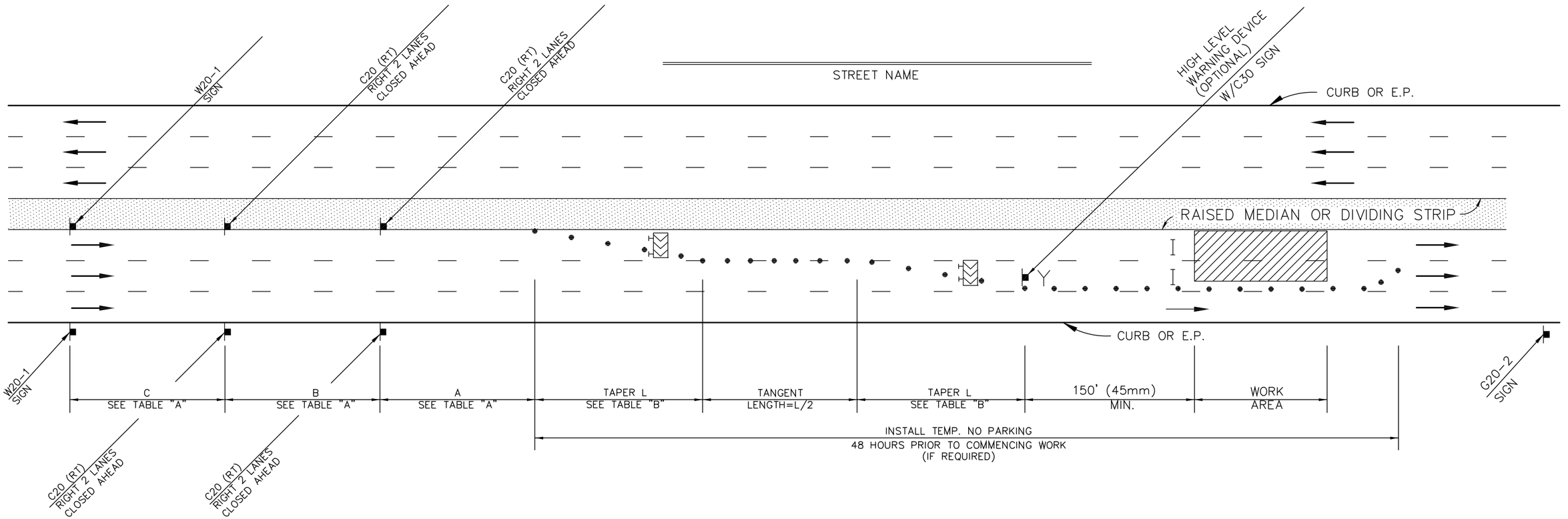
$L = S \times W$ for speeds of 45 mph or more.

$L = \frac{WS^2}{60}$ for speeds of 40 mph or less.

Where:

L = Minimum length of taper.
S = Numerical value of posted speed limit prior to work or 85 percentile speed.
W = Width of offset.

i.e.: 50 mph and 19' lane; L = 50 x 19 = 950 feet

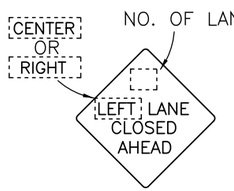


LEGEND

- TYPE III BARRICADE W/SIGN
- TYPE II BARRICADE W/O SIGN
- 28"(11cm)TRAFFIC CONES W/13"(5cm) REFLECTIVE SLEEVE FOR DAY/NIGHT USE OR DELINEATORS IF DAY USE ONLY
- TRAFFIC CONE WITH CLIP ON SIGN
- PROPOSED SIGN AND POST
- EXISTING SIGN AND POST
- (S) SIGNALIZED INTERSECTION
- FLASHING ARROW SIGN
- HIGH LEVEL WARNING DEVICE WITH SIGN
- FLAGGER
- TANS TOW AWAY NO STOPPING ___ TO ___ (SHOW HOURS)
- TANSAT TOW AWAY NO STOPPING ANY TIME
- WORK ZONE LIMITS
- DIRECTION OF TRAFFIC
- (A) ROADWAY DESIGNATION (A THROUGH D)



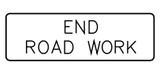
W20-1



C20(CA)
INTERCHANGEABLE WITH W20-5

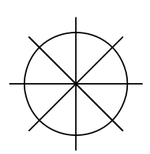


C30(CA)



G20-2

DATES OF TEMPORARY NO PARKING ZONE



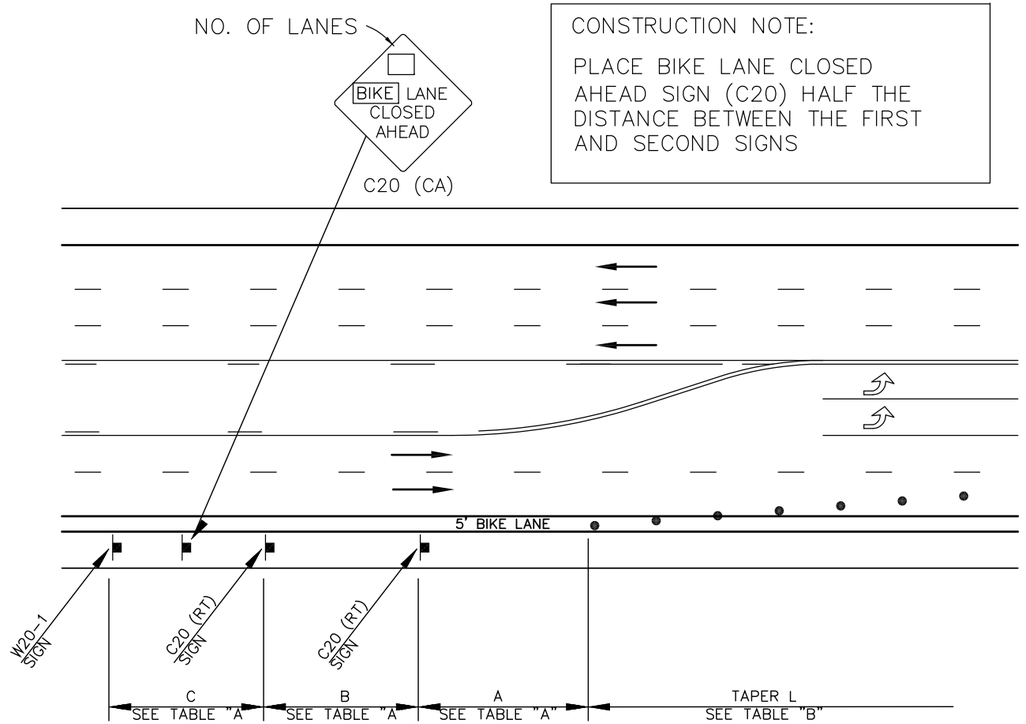
INDICATE NORTH WITH A "N" AND AN ARROW POINT

WORKSITE TRAFFIC CONTROL PLAN
MULTI LANE CLOSURE
(LEFT LANES)

DATE		SCALE
		NONE
		DRAWING NO.
		22

CJUTCM-DW022.DWG

REV. APR-2010



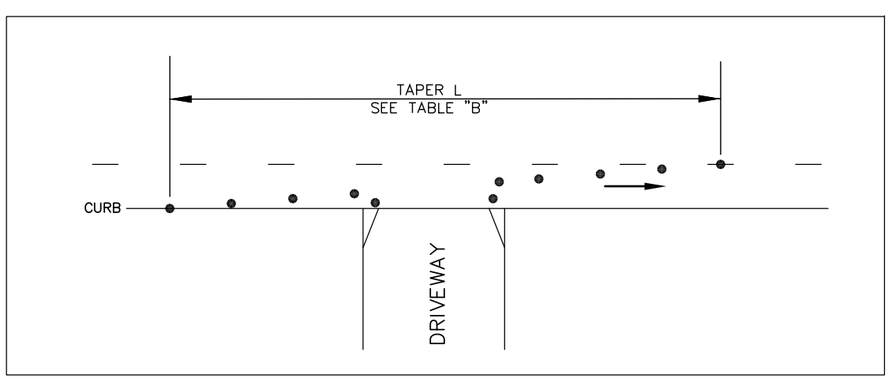
PLACEMENT OF BIKE LANE CLOSURE SIGN
(IF NECESSARY)

CONSTRUCTION NOTE:

PLACE BIKE LANE CLOSED AHEAD SIGN (C20) HALF THE DISTANCE BETWEEN THE FIRST AND SECOND SIGNS

CONSTRUCTION NOTE:

ALL DRIVEWAYS TO REMAIN OPEN (WHENEVER POSSIBLE) THROUGHOUT TRAFFIC CONTROL ZONE



SEE TABLE 'A'–'F' FOR SIGN AND CHANNELIZER DEVICE SPACING AND TAPER LENGTH

SPEED	APPROACH STREET	TAPER LENGTH	SIGN SPACING	CHANNELIZER SPACING

SEE TABLE 'A'–'F' FOR SIGN AND CHANNELIZER DEVICE SPACING AND TAPER LENGTH

SPEED	APPROACH STREET	TAPER LENGTH	SIGN SPACING	CHANNELIZER SPACING

ABBREVIATIONS:

S = Sign Spacing
Min = Minimum
LT = Left
RT = Right
LTP = Lane Traffic Panel
TANSAT = Tow Away, No Stopping Anytime
TANS = Tow Away, No Stopping

CHART A
MINIMUM RECOMMENDED DELINEATOR/CONE & SIGN PLACEMENT

POSTED SPEED LIMIT	TAPER LENGTH FOR 12–FT LANE			CHANNELIZER SPACING		SIGN SPACING (ADVANCE OF TAPER & BETWEEN SIGNS)
	MERGING	SHIFTING	SHOULDER	TAPER	TANGENT	
20 MPH	80 FT.	40 FT.	27 FT.	20 FT.	40 FT.	100 FT.
25 MPH	125 FT.	63 FT.	42 FT.	25 FT.	63 FT.	100 FT.
30 MPH	180 FT.	90 FT.	60 FT.	30 FT.	90 FT.	350 FT.
35 MPH	245 FT.	123 FT.	82 FT.	35 FT.	123 FT.	350 FT.
40 MPH	320 FT.	160 FT.	107 FT.	40 FT.	160 FT.	350 FT.
* 45 MPH	540 FT.	270 FT.	180 FT.	45 FT.	270 FT.	500 FT.
* 50 MPH	600 FT.	300 FT.	200 FT.	50 FT.	300 FT.	500 FT.
* 55+MPH	660 FT.	330 FT.	220 FT.	55 FT.	330 FT.	PER TABLE 'A'

NOTES

1. A Flashing Arrow sign shall be used for each lane closed.
*2. Two lane closure signs (C–20) shall be used on the approach to a lane closure with speeds of 45 mph or greater.

NOTE: This chart based on 12–foot wide lanes. For lane widths greater than 12 feet, use the following formulae:

Taper formula:

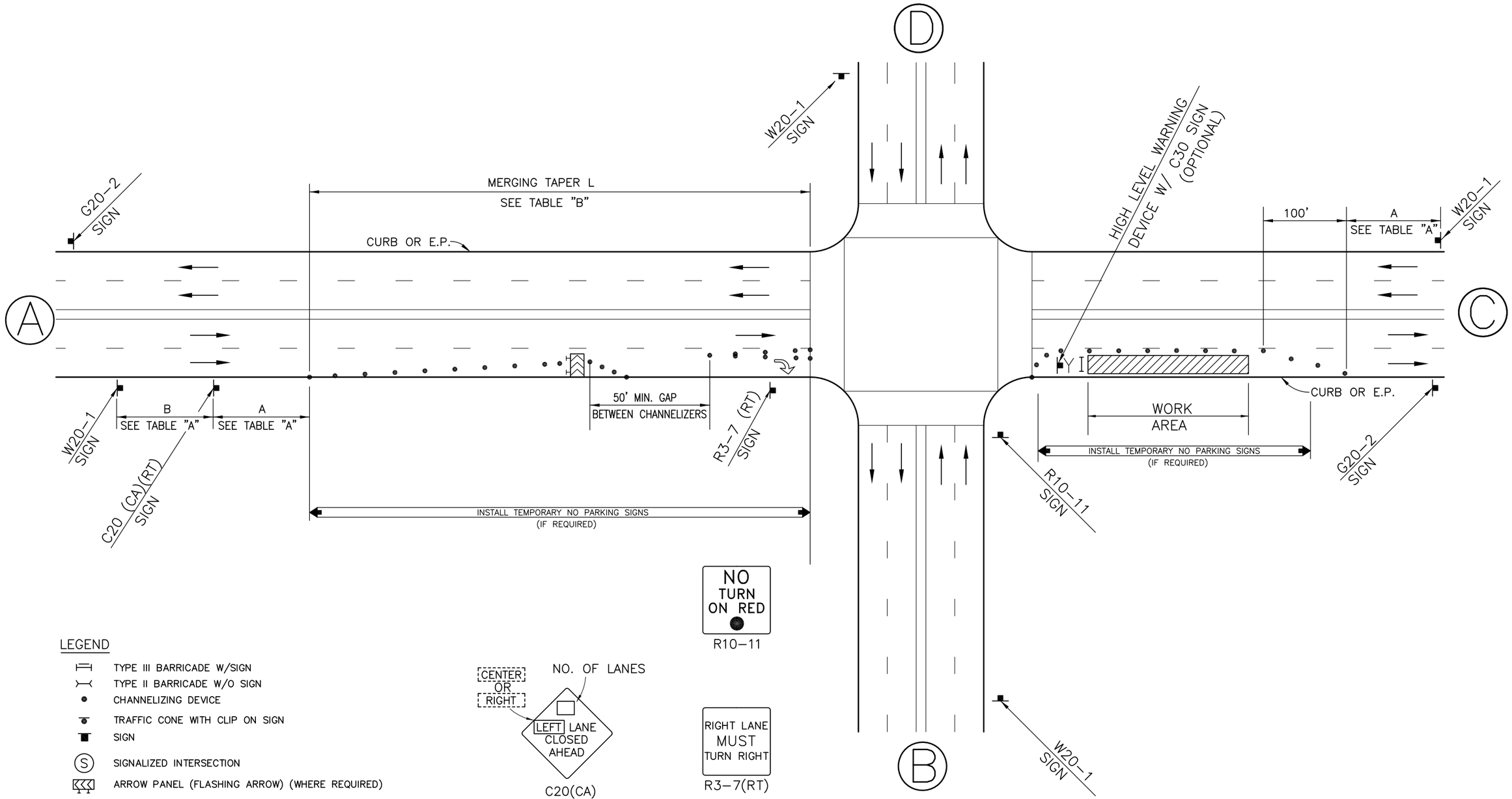
$L = S \times W$ for speeds of 45 mph or more.

$L = \frac{WS^2}{60}$ for speeds of 40 mph or less.

Where:

L = Minimum length of taper.
S = Numerical value of posted speed limit prior to work or 85 percentile speed.
W = Width of offset.

i.e.: 50 mph and 19' lane; L = 50 x 19 = 950 feet



NO TURN ON RED

R10-11

CENTER OR RIGHT

NO. OF LANES

LEFT LANE CLOSED AHEAD

C20(CA)
INTERCHANGEABLE WITH W20-5

RIGHT LANE MUST TURN RIGHT

R3-7(RT)

LEGEND

- TYPE III BARRICADE W/SIGN
- TYPE II BARRICADE W/O SIGN
- CHANNELIZING DEVICE
- TRAFFIC CONE WITH CLIP ON SIGN
- SIGN
- (S) SIGNALIZED INTERSECTION
- ARROW PANEL (FLASHING ARROW) (WHERE REQUIRED)
- HIGH LEVEL WARNING DEVICE (FLAGTREE) (OPTIONAL)
- FLAGGER
- TANS TOW AWAY NO STOPPING ___ TO ___ (SHOW HOURS)
- TANSAT TOW AWAY NO STOPPING ANY TIME
- WORK ZONE (ACTIVITY AREA) LIMITS
- DIRECTION OF TRAFFIC (NOT PAVEMENT MARKING)
- (A) ROADWAY DESIGNATION (A THROUGH D)

END ROAD WORK

G20-2

ROAD WORK AHEAD

W20-1

LANE CLOSED

C30(CA)

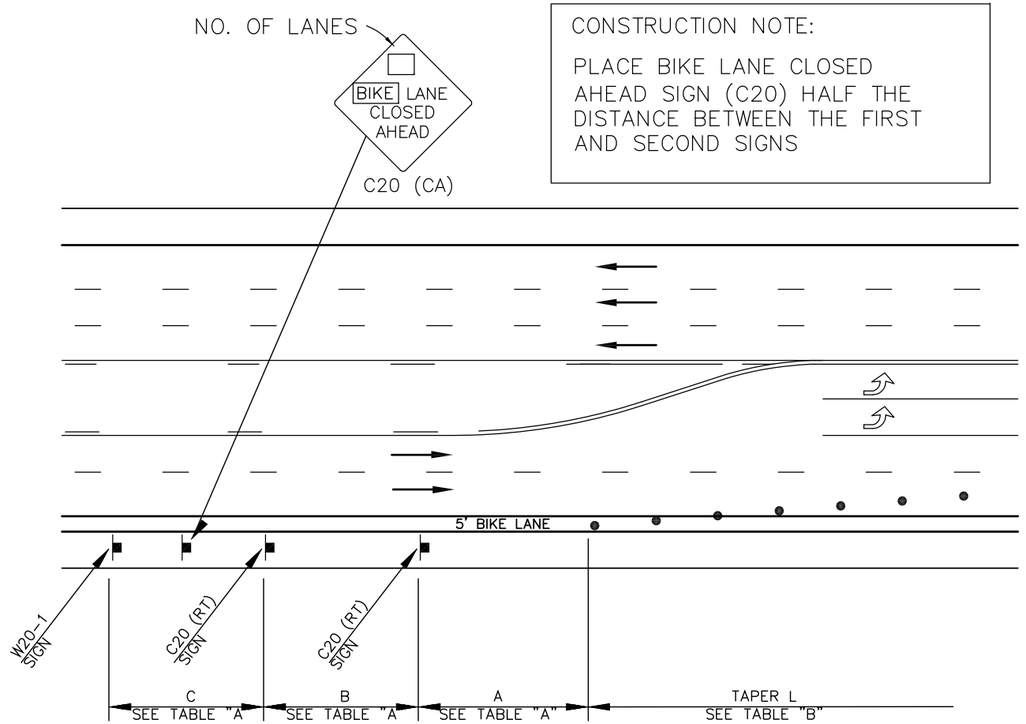
INDICATE NORTH WITH A "N" AND AN ARROW POINT

DATES OF TEMPORARY NO PARKING ZONE

WORKSITE TRAFFIC CONTROL PLAN
WORK BEYOND INTERSECTION (RIGHT LANE)

DATE		SCALE
		NONE
		DRAWING NO. 23

REV. APR-2010 CJUTCM-DWGS23.DWG



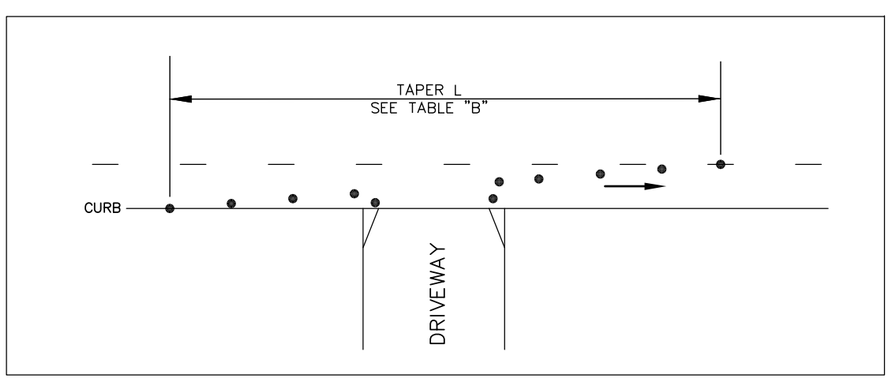
PLACEMENT OF BIKE LANE CLOSURE SIGN
(IF NECESSARY)

CONSTRUCTION NOTE:

PLACE BIKE LANE CLOSED AHEAD SIGN (C20) HALF THE DISTANCE BETWEEN THE FIRST AND SECOND SIGNS

CONSTRUCTION NOTE:

ALL DRIVEWAYS TO REMAIN OPEN (WHENEVER POSSIBLE) THROUGHOUT TRAFFIC CONTROL ZONE



SEE TABLE 'A'–'F' FOR SIGN AND CHANNELIZER DEVICE SPACING AND TAPER LENGTH

SPEED	APPROACH STREET	TAPER LENGTH	SIGN SPACING	CHANNELIZER SPACING

SEE TABLE 'A'–'F' FOR SIGN AND CHANNELIZER DEVICE SPACING AND TAPER LENGTH

SPEED	APPROACH STREET	TAPER LENGTH	SIGN SPACING	CHANNELIZER SPACING

ABBREVIATIONS:

S = Sign Spacing
Min = Minimum
LT = Left
RT = Right
LTP = Lane Traffic Panel
TANSAT = Tow Away, No Stopping Anytime
TANS = Tow Away, No Stopping

CHART A
MINIMUM RECOMMENDED DELINEATOR/CONE & SIGN PLACEMENT

POSTED SPEED LIMIT	TAPER LENGTH FOR 12–FT LANE			CHANNELIZER SPACING		SIGN SPACING (ADVANCE OF TAPER & BETWEEN SIGNS)
	MERGING	SHIFTING	SHOULDER	TAPER	TANGENT	
20 MPH	80 FT.	40 FT.	27 FT.	20 FT.	40 FT.	100 FT.
25 MPH	125 FT.	63 FT.	42 FT.	25 FT.	63 FT.	100 FT.
30 MPH	180 FT.	90 FT.	60 FT.	30 FT.	90 FT.	350 FT.
35 MPH	245 FT.	123 FT.	82 FT.	35 FT.	123 FT.	350 FT.
40 MPH	320 FT.	160 FT.	107 FT.	40 FT.	160 FT.	350 FT.
* 45 MPH	540 FT.	270 FT.	180 FT.	45 FT.	270 FT.	500 FT.
* 50 MPH	600 FT.	300 FT.	200 FT.	50 FT.	300 FT.	500 FT.
* 55+MPH	660 FT.	330 FT.	220 FT.	55 FT.	330 FT.	PER TABLE 'A'

NOTES

1. A Flashing Arrow sign shall be used for each lane closed.
*2. Two lane closure signs (C–20) shall be used on the approach to a lane closure with speeds of 45 mph or greater.

NOTE: This chart based on 12–foot wide lanes. For lane widths greater than 12 feet, use the following formulae:

Taper formula:

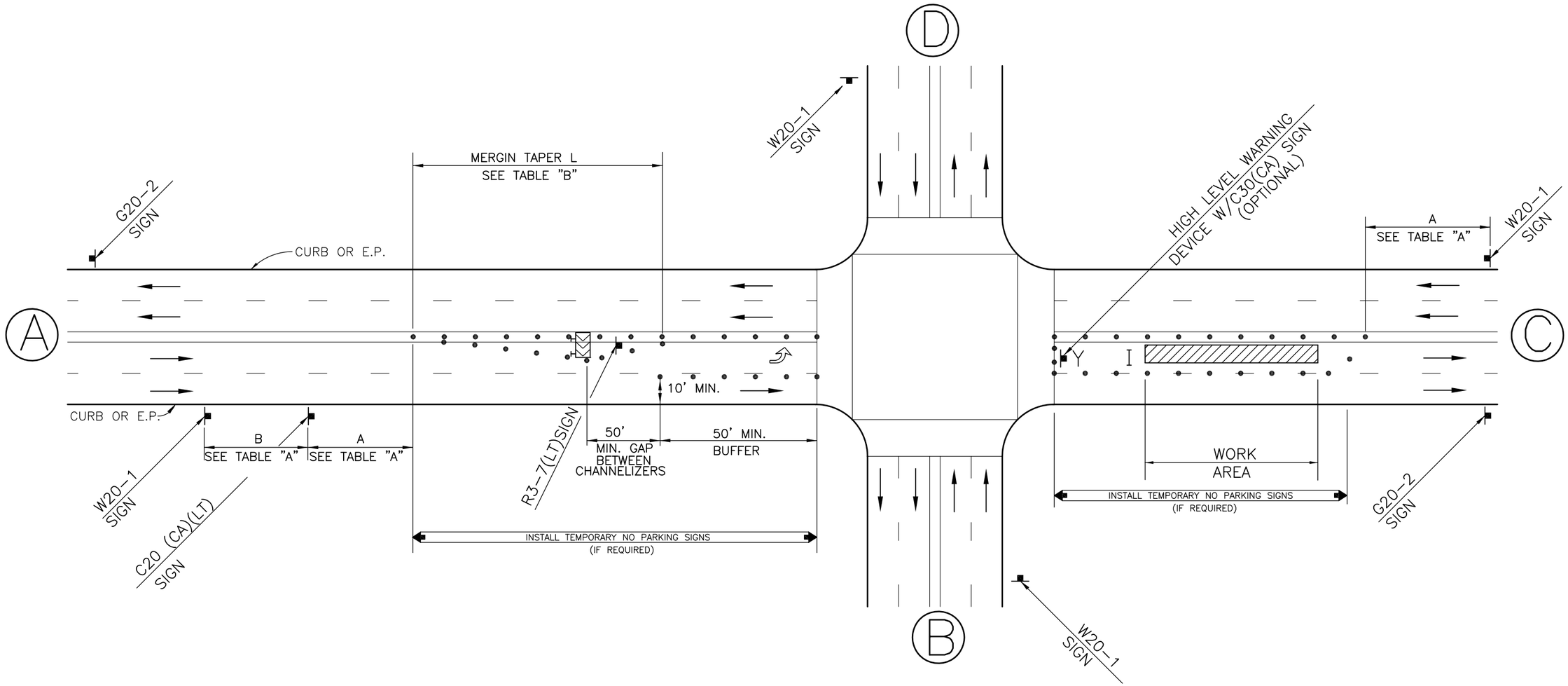
$L = S \times W$ for speeds of 45 mph or more.

$L = \frac{WS^2}{60}$ for speeds of 40 mph or less.

Where:

L = Minimum length of taper.
S = Numerical value of posted speed limit prior to work or 85 percentile speed.
W = Width of offset.

i.e.: 50 mph and 19' lane; L = 50 x 19 = 950 feet



LEGEND

- TYPE III BARRICADE W/SIGN
- TYPE II BARRICADE W/O SIGN
- CHANNELIZING DEVICE
- TRAFFIC CONE WITH CLIP ON SIGN
- SIGN
- (S) SIGNALIZED INTERSECTION
- ARROW PANEL (FLASHING ARROW) (WHERE REQUIRED)
- HIGH LEVEL WARNING DEVICE (FLAGTREE) (OPTIONAL)
- FLAGGER
- TANS TOW AWAY NO STOPPING ___ TO ___ (SHOW HOURS)
- TANSAT TOW AWAY NO STOPPING ANY TIME
- WORK ZONE (ACTIVITY AREA) LIMITS
- DIRECTION OF TRAFFIC (NOT PAVEMENT MARKING)
- (A) ROADWAY DESIGNATION (A THROUGH D)

CENTER OR RIGHT — NO. OF LANES

LEFT LANE CLOSED AHEAD

CA20(CA)
INTERCHANGEABLE WITH W20-5

END ROAD WORK

G20-2

LEFT LANE MUST TURN LEFT

R3-7(LT)

DATES OF TEMPORARY NO PARKING ZONE

ROAD WORK AHEAD

W20-1

LANE CLOSED

C30(CA)

ROAD WORK AHEAD

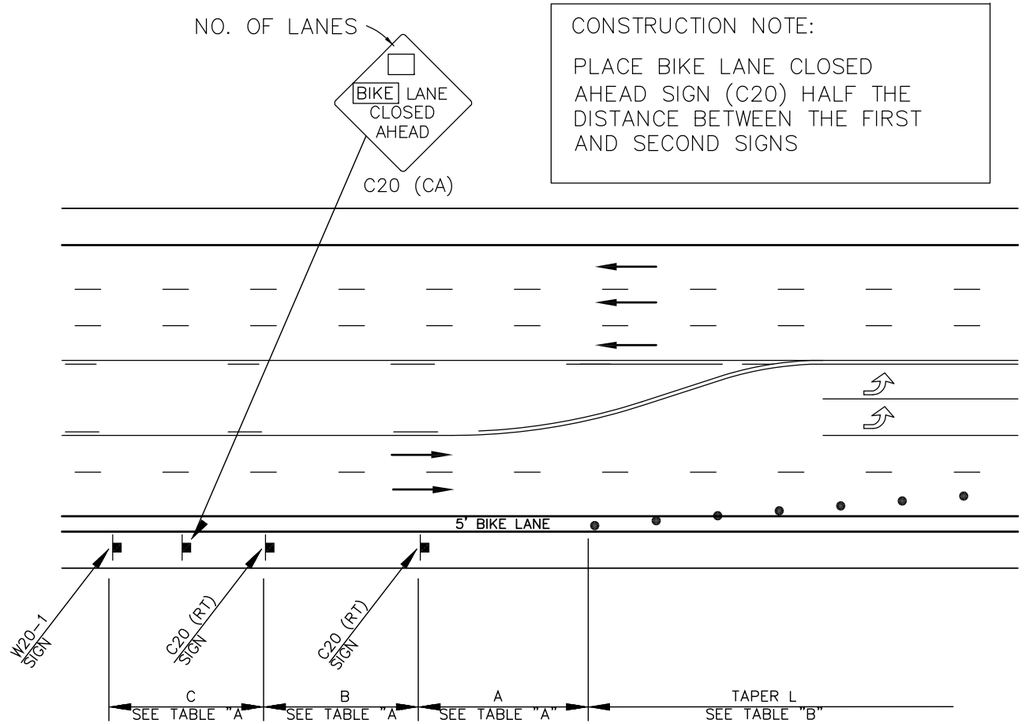
W20-1

INDICATE NORTH WITH A "N" AND AN ARROW POINT

WORKSITE TRAFFIC CONTROL PLAN
WORK BEYOND INTERSECTION (LEFT LANE)

DATE		SCALE
		NONE
		DRAWING NO. 24

REV. APR-2010 CJUTCM-DWG24.DWG



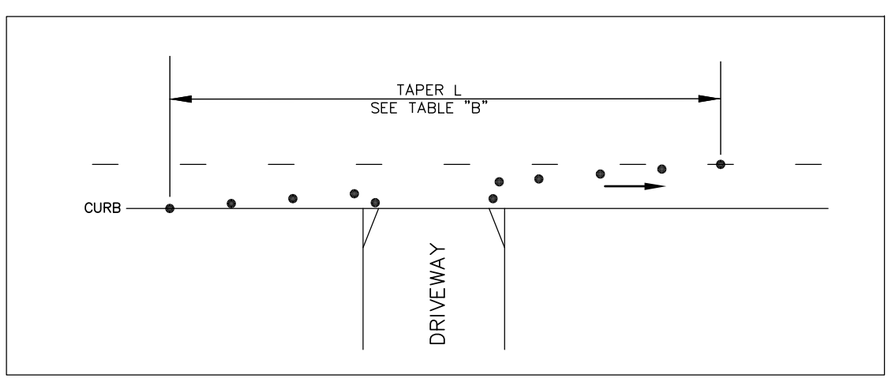
PLACEMENT OF BIKE LANE CLOSURE SIGN
(IF NECESSARY)

CONSTRUCTION NOTE:

PLACE BIKE LANE CLOSED AHEAD SIGN (C20) HALF THE DISTANCE BETWEEN THE FIRST AND SECOND SIGNS

CONSTRUCTION NOTE:

ALL DRIVEWAYS TO REMAIN OPEN (WHENEVER POSSIBLE) THROUGHOUT TRAFFIC CONTROL ZONE



SEE TABLE 'A'–'F' FOR SIGN AND CHANNELIZER DEVICE SPACING AND TAPER LENGTH

SPEED	APPROACH STREET	TAPER LENGTH	SIGN SPACING	CHANNELIZER SPACING

SEE TABLE 'A'–'F' FOR SIGN AND CHANNELIZER DEVICE SPACING AND TAPER LENGTH

SPEED	APPROACH STREET	TAPER LENGTH	SIGN SPACING	CHANNELIZER SPACING

ABBREVIATIONS:

S = Sign Spacing
Min = Minimum
LT = Left
RT = Right
LTP = Lane Traffic Panel
TANSAT = Tow Away, No Stopping Anytime
TANS = Tow Away, No Stopping

CHART A
MINIMUM RECOMMENDED DELINEATOR/CONE & SIGN PLACEMENT

POSTED SPEED LIMIT	TAPER LENGTH FOR 12–FT LANE			CHANNELIZER SPACING		SIGN SPACING (ADVANCE OF TAPER & BETWEEN SIGNS)
	MERGING	SHIFTING	SHOULDER	TAPER	TANGENT	
20 MPH	80 FT.	40 FT.	27 FT.	20 FT.	40 FT.	100 FT.
25 MPH	125 FT.	63 FT.	42 FT.	25 FT.	63 FT.	100 FT.
30 MPH	180 FT.	90 FT.	60 FT.	30 FT.	90 FT.	350 FT.
35 MPH	245 FT.	123 FT.	82 FT.	35 FT.	123 FT.	350 FT.
40 MPH	320 FT.	160 FT.	107 FT.	40 FT.	160 FT.	350 FT.
* 45 MPH	540 FT.	270 FT.	180 FT.	45 FT.	270 FT.	500 FT.
* 50 MPH	600 FT.	300 FT.	200 FT.	50 FT.	300 FT.	500 FT.
* 55+MPH	660 FT.	330 FT.	220 FT.	55 FT.	330 FT.	PER TABLE 'A'

NOTES

1. A Flashing Arrow sign shall be used for each lane closed.
*2. Two lane closure signs (C–20) shall be used on the approach to a lane closure with speeds of 45 mph or greater.

NOTE: This chart based on 12–foot wide lanes. For lane widths greater than 12 feet, use the following formulae:

Taper formula:

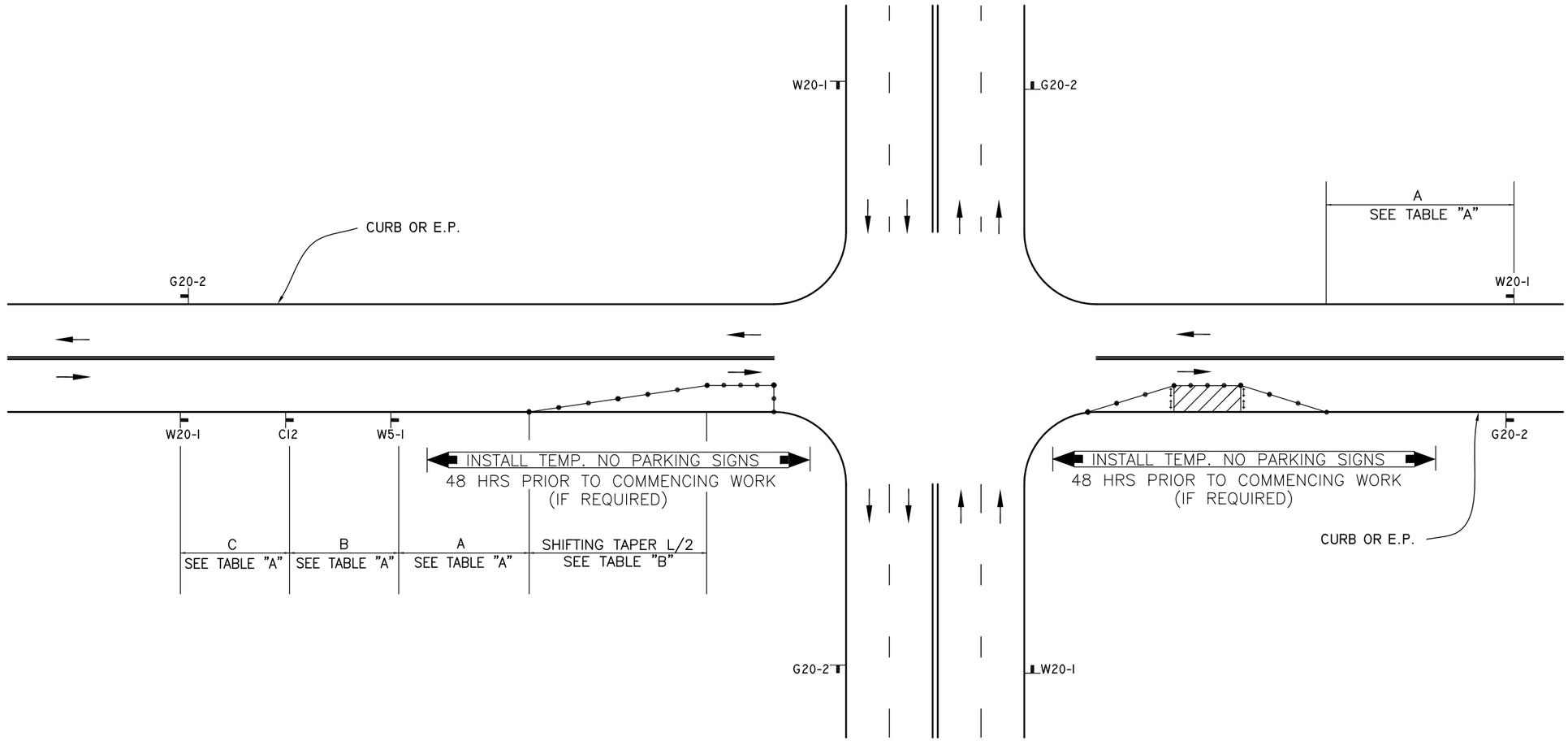
$L = S \times W$ for speeds of 45 mph or more.

$L = \frac{WS^2}{60}$ for speeds of 40 mph or less.

Where:

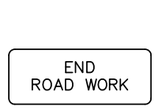
L = Minimum length of taper.
S = Numerical value of posted speed limit prior to work or 85 percentile speed.
W = Width of offset.

i.e.: 50 mph and 19' lane; L = 50 x 19 = 950 feet



LEGEND

- TYPE III BARRICADE W/SIGN
- TYPE II BARRICADE W/O SIGN
- CHANNELIZING DEVICE
- TRAFFIC CONE WITH CLIP ON SIGN
- SIGN
- (S) SIGNALIZED INTERSECTION
- ARROW PANEL (FLASHING ARROW) (WHERE REQUIRED)
- HIGH LEVEL WARNING DEVICE (FLAGTREE) (OPTIONAL)
- FLAGGER
- TANS TOW AWAY NO STOPPING ___ TO ___ (SHOW HOURS)
- TANSAT TOW AWAY NO STOPPING ANY TIME
- WORK ZONE (ACTIVITY AREA) LIMITS
- DIRECTION OF TRAFFIC (NOT PAVEMENT MARKING)
- (A) ROADWAY DESIGNATION (A THROUGH D)



G20-2



C12(CA)

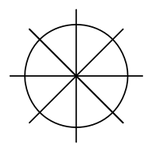


W20-1



W5-1

DATES OF TEMPORARY NO PARKING ZONE

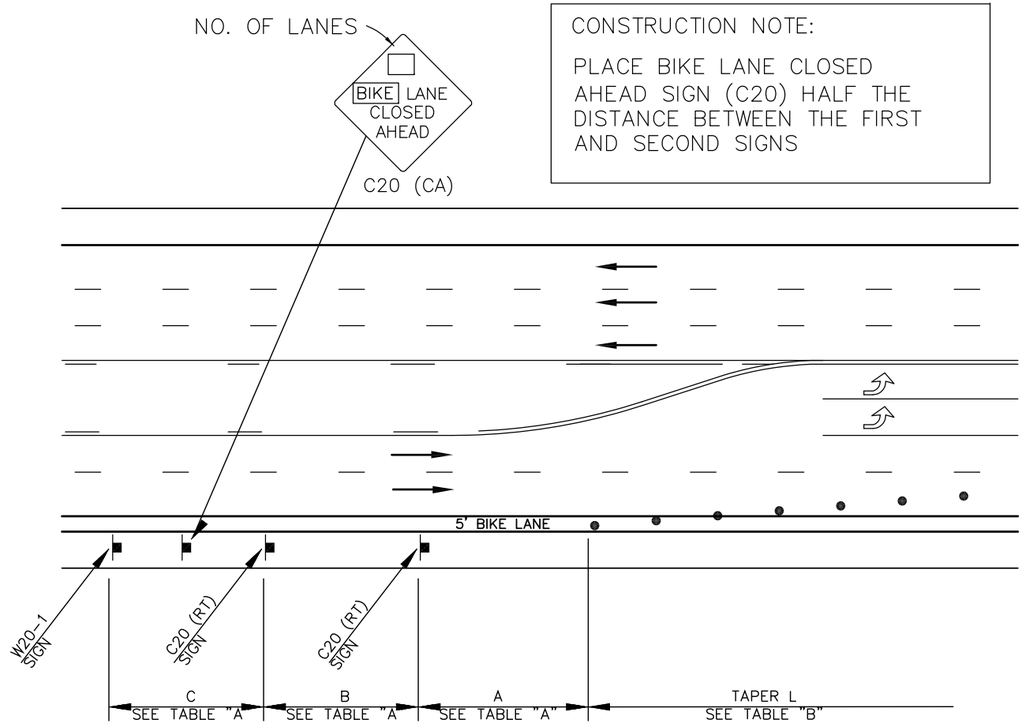

INDICATE NORTH WITH A "N"
AND AN ARROW POINT

WORKSITE TRAFFIC CONTROL PLAN

WORK BEYOND INTERSECTION
RIGHT SIDE SINGLE THRU LANE

DATE		SCALE
		NONE
		DRAWING NO. 25

REV. APR-2010 CJUTCM-DWG25.DWG



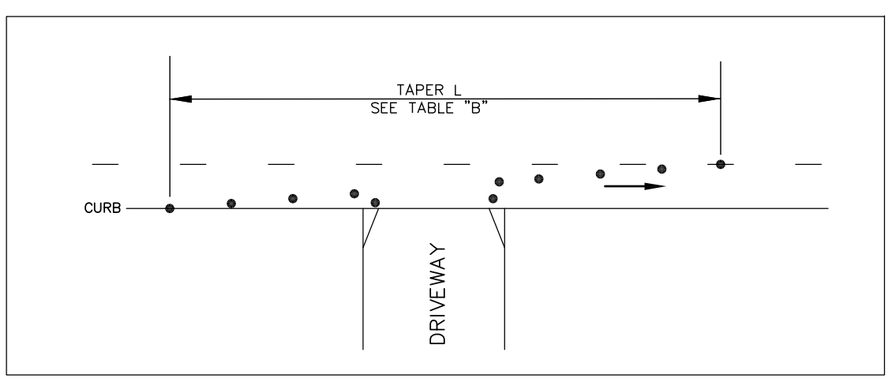
PLACEMENT OF BIKE LANE CLOSURE SIGN
(IF NECESSARY)

CONSTRUCTION NOTE:

PLACE BIKE LANE CLOSED AHEAD SIGN (C20) HALF THE DISTANCE BETWEEN THE FIRST AND SECOND SIGNS

CONSTRUCTION NOTE:

ALL DRIVEWAYS TO REMAIN OPEN (WHENEVER POSSIBLE) THROUGHOUT TRAFFIC CONTROL ZONE



SEE TABLE 'A'–'F' FOR SIGN AND CHANNELIZER DEVICE SPACING AND TAPER LENGTH

SPEED	APPROACH STREET	TAPER LENGTH	SIGN SPACING	CHANNELIZER SPACING

SEE TABLE 'A'–'F' FOR SIGN AND CHANNELIZER DEVICE SPACING AND TAPER LENGTH

SPEED	APPROACH STREET	TAPER LENGTH	SIGN SPACING	CHANNELIZER SPACING

ABBREVIATIONS:

S = Sign Spacing
Min = Minimum
LT = Left
RT = Right
LTP = Lane Traffic Panel
TANSAT = Tow Away, No Stopping Anytime
TANS = Tow Away, No Stopping

CHART A
MINIMUM RECOMMENDED DELINEATOR/CONE & SIGN PLACEMENT

POSTED SPEED LIMIT	TAPER LENGTH FOR 12–FT LANE			CHANNELIZER SPACING		SIGN SPACING (ADVANCE OF TAPER & BETWEEN SIGNS)
	MERGING	SHIFTING	SHOULDER	TAPER	TANGENT	
20 MPH	80 FT.	40 FT.	27 FT.	20 FT.	40 FT.	100 FT.
25 MPH	125 FT.	63 FT.	42 FT.	25 FT.	63 FT.	100 FT.
30 MPH	180 FT.	90 FT.	60 FT.	30 FT.	90 FT.	350 FT.
35 MPH	245 FT.	123 FT.	82 FT.	35 FT.	123 FT.	350 FT.
40 MPH	320 FT.	160 FT.	107 FT.	40 FT.	160 FT.	350 FT.
* 45 MPH	540 FT.	270 FT.	180 FT.	45 FT.	270 FT.	500 FT.
* 50 MPH	600 FT.	300 FT.	200 FT.	50 FT.	300 FT.	500 FT.
* 55+MPH	660 FT.	330 FT.	220 FT.	55 FT.	330 FT.	PER TABLE 'A'

NOTES

1. A Flashing Arrow sign shall be used for each lane closed.
*2. Two lane closure signs (C–20) shall be used on the approach to a lane closure with speeds of 45 mph or greater.

NOTE: This chart based on 12–foot wide lanes. For lane widths greater than 12 feet, use the following formulae:

Taper formula:

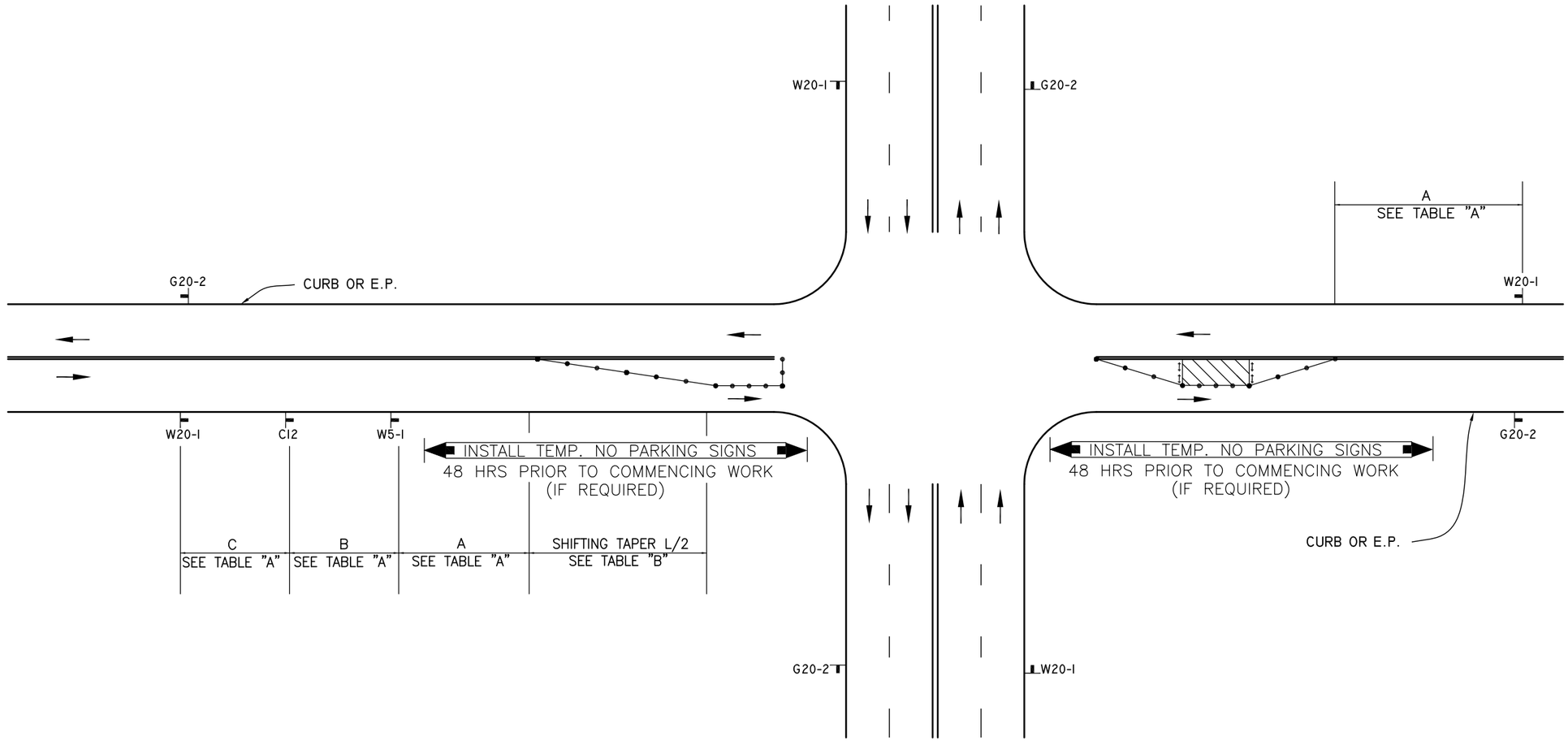
$L = S \times W$ for speeds of 45 mph or more.

$L = \frac{WS^2}{60}$ for speeds of 40 mph or less.

Where:

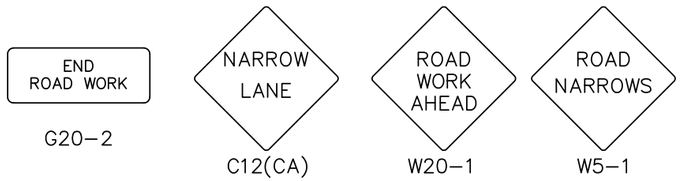
L = Minimum length of taper.
S = Numerical value of posted speed limit prior to work or 85 percentile speed.
W = Width of offset.

i.e.: 50 mph and 19' lane; L = 50 x 19 = 950 feet



LEGEND

- TYPE III BARRICADE W/SIGN
- TYPE II BARRICADE W/O SIGN
- CHANNELIZING DEVICE
- TRAFFIC CONE WITH CLIP ON SIGN
- SIGN
- (S) SIGNALIZED INTERSECTION
- ARROW PANEL (FLASHING ARROW) (WHERE REQUIRED)
- HIGH LEVEL WARNING DEVICE (FLAGTREE) (OPTIONAL)
- FLAGGER
- TANS TOW AWAY NO STOPPING ___ TO ___ (SHOW HOURS)
- TANSAT TOW AWAY NO STOPPING ANY TIME
- WORK ZONE (ACTIVITY AREA) LIMITS
- DIRECTION OF TRAFFIC (NOT PAVEMENT MARKING)
- (A) ROADWAY DESIGNATION (A THROUGH D)



DATES OF TEMPORARY NO PARKING ZONE

INDICATE NORTH WITH A "N"
AND AN ARROW POINT

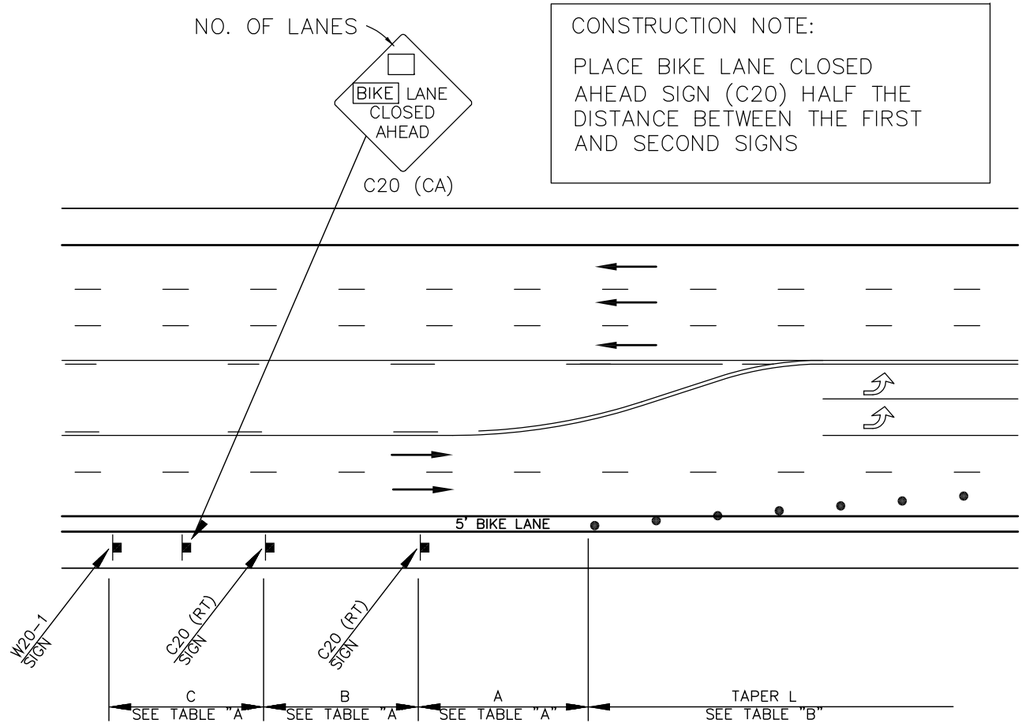
WORKSITE TRAFFIC CONTROL PLAN

WORK BEYOND INTERSECTION
LEFT SIDE SINGLE THRU LANE

DATE		SCALE
		NONE
		DRAWING NO. 26

CJUTCM-DWG26.DWG

REV. APR-2010



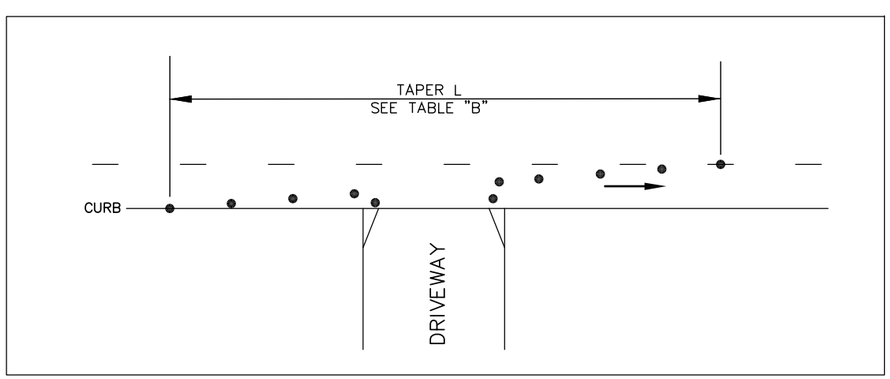
PLACEMENT OF BIKE LANE CLOSURE SIGN
(IF NECESSARY)

CONSTRUCTION NOTE:

PLACE BIKE LANE CLOSED AHEAD SIGN (C20) HALF THE DISTANCE BETWEEN THE FIRST AND SECOND SIGNS

CONSTRUCTION NOTE:

ALL DRIVEWAYS TO REMAIN OPEN (WHENEVER POSSIBLE) THROUGHOUT TRAFFIC CONTROL ZONE



SEE TABLE 'A'–'F' FOR SIGN AND CHANNELIZER DEVICE SPACING AND TAPER LENGTH

SPEED	APPROACH STREET	TAPER LENGTH	SIGN SPACING	CHANNELIZER SPACING

SEE TABLE 'A'–'F' FOR SIGN AND CHANNELIZER DEVICE SPACING AND TAPER LENGTH

SPEED	APPROACH STREET	TAPER LENGTH	SIGN SPACING	CHANNELIZER SPACING

ABBREVIATIONS:

S = Sign Spacing
Min = Minimum
LT = Left
RT = Right
LTP = Lane Traffic Panel
TANSAT = Tow Away, No Stopping Anytime
TANS = Tow Away, No Stopping

CHART A
MINIMUM RECOMMENDED DELINEATOR/CONE & SIGN PLACEMENT

POSTED SPEED LIMIT	TAPER LENGTH FOR 12–FT LANE			CHANNELIZER SPACING		SIGN SPACING (ADVANCE OF TAPER & BETWEEN SIGNS)
	MERGING	SHIFTING	SHOULDER	TAPER	TANGENT	
20 MPH	80 FT.	40 FT.	27 FT.	20 FT.	40 FT.	100 FT.
25 MPH	125 FT.	63 FT.	42 FT.	25 FT.	63 FT.	100 FT.
30 MPH	180 FT.	90 FT.	60 FT.	30 FT.	90 FT.	350 FT.
35 MPH	245 FT.	123 FT.	82 FT.	35 FT.	123 FT.	350 FT.
40 MPH	320 FT.	160 FT.	107 FT.	40 FT.	160 FT.	350 FT.
* 45 MPH	540 FT.	270 FT.	180 FT.	45 FT.	270 FT.	500 FT.
* 50 MPH	600 FT.	300 FT.	200 FT.	50 FT.	300 FT.	500 FT.
* 55+MPH	660 FT.	330 FT.	220 FT.	55 FT.	330 FT.	PER TABLE 'A'

NOTES

1. A Flashing Arrow sign shall be used for each lane closed.
*2. Two lane closure signs (C–20) shall be used on the approach to a lane closure with speeds of 45 mph or greater.

NOTE: This chart based on 12–foot wide lanes. For lane widths greater than 12 feet, use the following formulae:

Taper formula:

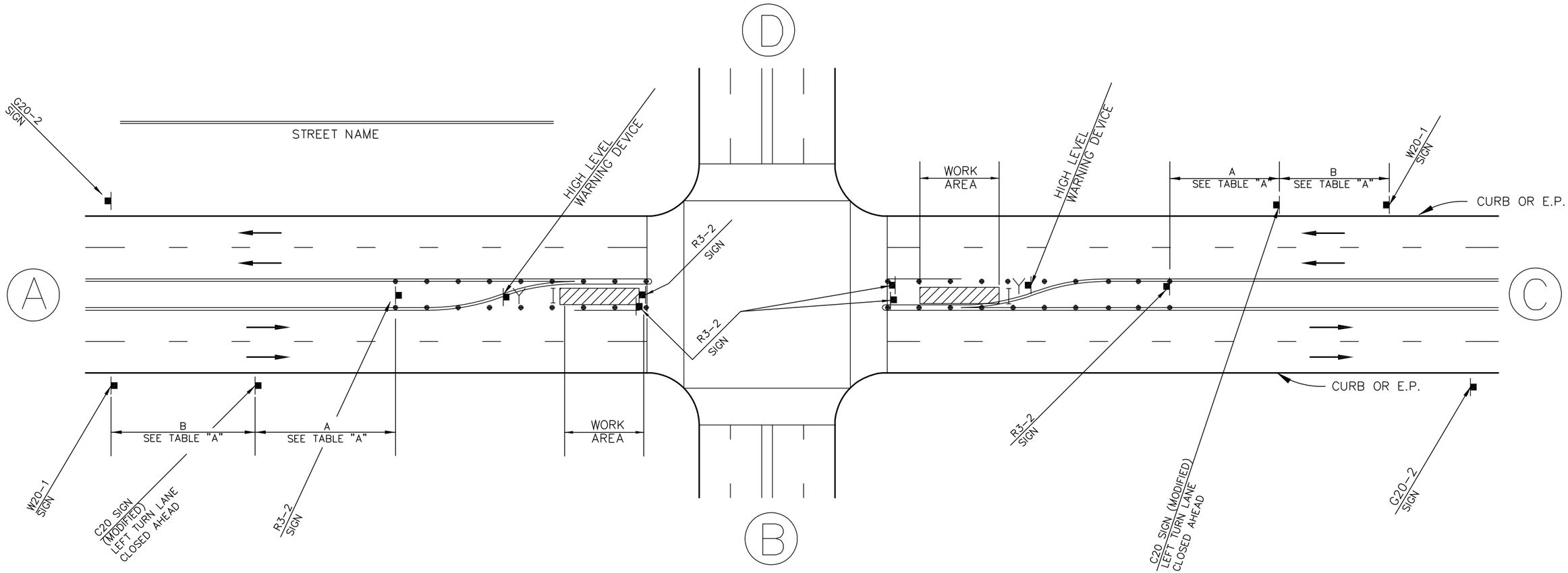
$L = S \times W$ for speeds of 45 mph or more.

$L = \frac{WS^2}{60}$ for speeds of 40 mph or less.

Where:

L = Minimum length of taper.
S = Numerical value of posted speed limit prior to work or 85 percentile speed.
W = Width of offset.

i.e.: 50 mph and 19' lane; L = 50 x 19 = 950 feet



LEGEND

- TYPE III BARRICADE W/SIGN
- TYPE II BARRICADE W/O SIGN
- 28"(11cm)TRAFFIC CONES W/13"(5cm) REFLECTIVE SLEEVE FOR DAY/NIGHT USE OR DELINEATORS IF DAY USE ONLY
- TRAFFIC CONE WITH CLIP ON SIGN
- PROPOSED SIGN AND POST
- EXISTING SIGN AND POST
- (S) SIGNALIZED INTERSECTION
- FLASHING ARROW SIGN
- HIGH LEVEL WARNING DEVICE WITH SIGN
- FLAGGER
- TANS — TOW AWAY NO STOPPING ___ TO ___ (SHOW HOURS)
- TANSAT — TOW AWAY NO STOPPING ANY TIME
- WORK ZONE LIMITS
- DIRECTION OF TRAFFIC
- (A) ROADWAY DESIGNATION (A THROUGH D)

END ROAD WORK
G20-2

ROAD WORK AHEAD
W20-1

CENTER OR RIGHT
NO. OF LANES
LEFT LANE CLOSED AHEAD
C20(CA)
INTERCHANGEABLE WITH W20-5

R3-2

LANE CLOSED
C30(CA)

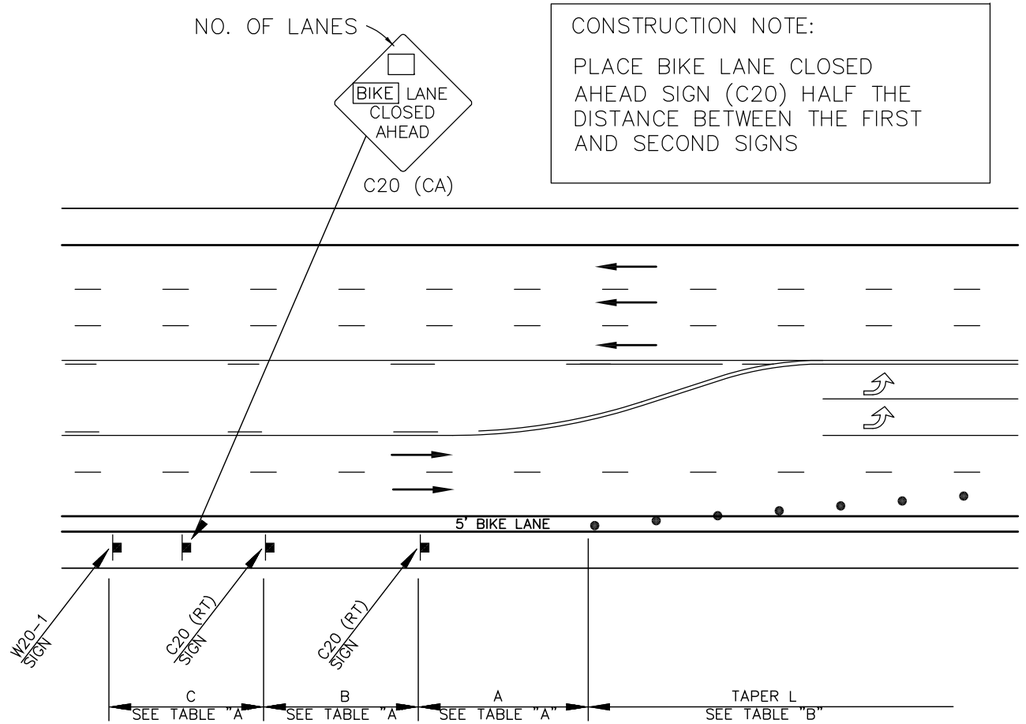
DATES OF TEMPORARY NO PARKING ZONE

INDICATE NORTH WITH A "N" AND AN ARROW POINT

WORKSITE TRAFFIC CONTROL PLAN
LEFT TURN LANE CLOSURE

DATE		SCALE
		NONE
		DRAWING NO. 27

CJUTCM-DWG27.DWG
REV. APR-2010



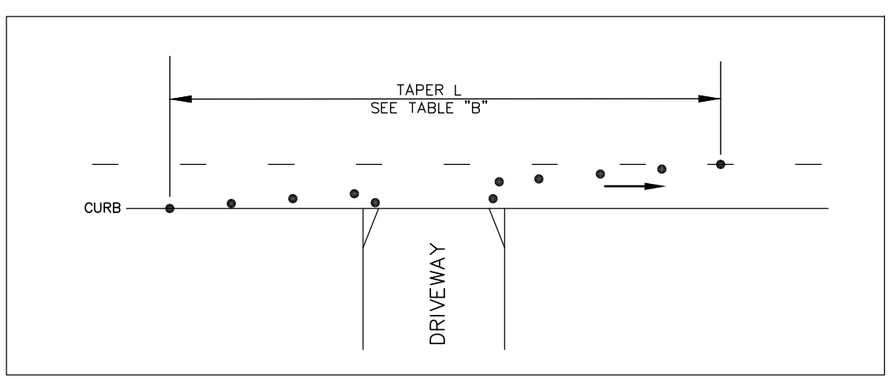
PLACEMENT OF BIKE LANE CLOSURE SIGN
(IF NECESSARY)

CONSTRUCTION NOTE:

PLACE BIKE LANE CLOSED AHEAD SIGN (C20) HALF THE DISTANCE BETWEEN THE FIRST AND SECOND SIGNS

CONSTRUCTION NOTE:

ALL DRIVEWAYS TO REMAIN OPEN (WHENEVER POSSIBLE) THROUGHOUT TRAFFIC CONTROL ZONE



SEE TABLE 'A'–'F' FOR SIGN AND CHANNELIZER DEVICE SPACING AND TAPER LENGTH

SPEED	APPROACH STREET	TAPER LENGTH	SIGN SPACING	CHANNELIZER SPACING

SEE TABLE 'A'–'F' FOR SIGN AND CHANNELIZER DEVICE SPACING AND TAPER LENGTH

SPEED	APPROACH STREET	TAPER LENGTH	SIGN SPACING	CHANNELIZER SPACING

ABBREVIATIONS:

S = Sign Spacing
Min = Minimum
LT = Left
RT = Right
LTP = Lane Traffic Panel
TANSAT = Tow Away, No Stopping Anytime
TANS = Tow Away, No Stopping

CHART A
MINIMUM RECOMMENDED DELINEATOR/CONE & SIGN PLACEMENT

POSTED SPEED LIMIT	TAPER LENGTH FOR 12–FT LANE			CHANNELIZER SPACING		SIGN SPACING (ADVANCE OF TAPER & BETWEEN SIGNS)
	MERGING	SHIFTING	SHOULDER	TAPER	TANGENT	
20 MPH	80 FT.	40 FT.	27 FT.	20 FT.	40 FT.	100 FT.
25 MPH	125 FT.	63 FT.	42 FT.	25 FT.	63 FT.	100 FT.
30 MPH	180 FT.	90 FT.	60 FT.	30 FT.	90 FT.	350 FT.
35 MPH	245 FT.	123 FT.	82 FT.	35 FT.	123 FT.	350 FT.
40 MPH	320 FT.	160 FT.	107 FT.	40 FT.	160 FT.	350 FT.
* 45 MPH	540 FT.	270 FT.	180 FT.	45 FT.	270 FT.	500 FT.
* 50 MPH	600 FT.	300 FT.	200 FT.	50 FT.	300 FT.	500 FT.
* 55+MPH	660 FT.	330 FT.	220 FT.	55 FT.	330 FT.	PER TABLE 'A'

NOTES

1. A Flashing Arrow sign shall be used for each lane closed.
*2. Two lane closure signs (C–20) shall be used on the approach to a lane closure with speeds of 45 mph or greater.

NOTE: This chart based on 12–foot wide lanes. For lane widths greater than 12 feet, use the following formulae:

Taper formula:

$L = S \times W$ for speeds of 45 mph or more.

$L = \frac{WS^2}{60}$ for speeds of 40 mph or less.

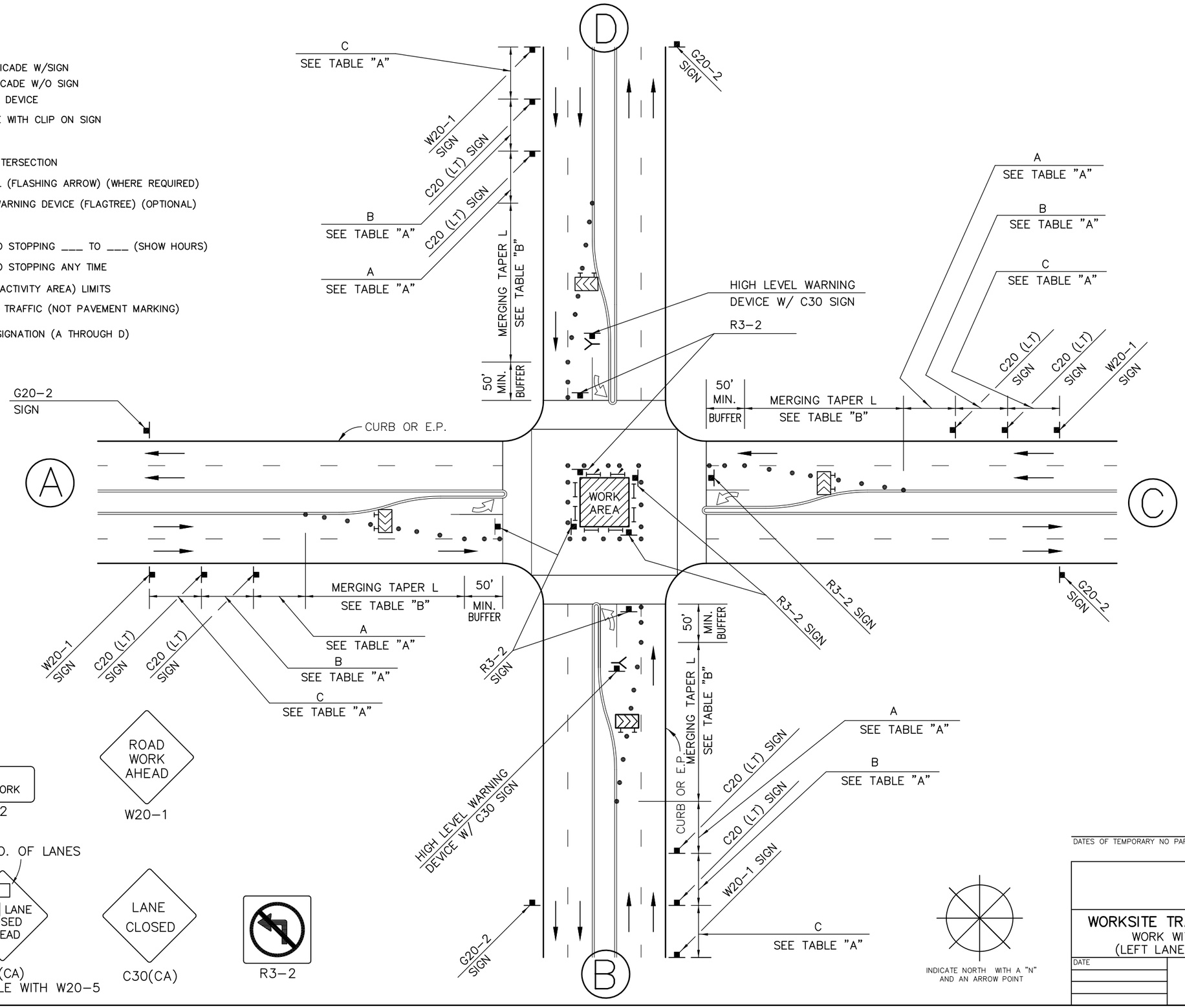
Where:

L = Minimum length of taper.
S = Numerical value of posted speed limit prior to work or 85 percentile speed.
W = Width of offset.

i.e.: 50 mph and 19' lane; L = 50 x 19 = 950 feet

LEGEND

- TYPE III BARRICADE W/SIGN
- TYPE II BARRICADE W/O SIGN
- CHANNELIZING DEVICE
- TRAFFIC CONE WITH CLIP ON SIGN
- SIGN
- (S) SIGNALIZED INTERSECTION
- ARROW PANEL (FLASHING ARROW) (WHERE REQUIRED)
- HIGH LEVEL WARNING DEVICE (FLAGTREE) (OPTIONAL)
- FLAGGER
- TANS TOW AWAY NO STOPPING ___ TO ___ (SHOW HOURS)
- TANSAT TOW AWAY NO STOPPING ANY TIME
- WORK ZONE (ACTIVITY AREA) LIMITS
- DIRECTION OF TRAFFIC (NOT PAVEMENT MARKING)
- (A) ROADWAY DESIGNATION (A THROUGH D)



END ROAD WORK
G20-2

ROAD WORK AHEAD
W20-1

CENTER OR RIGHT
NO. OF LANES
LEFT LANE CLOSED AHEAD
C20(CA)
INTERCHANGEABLE WITH W20-5

LANE CLOSED
C30(CA)

R3-2

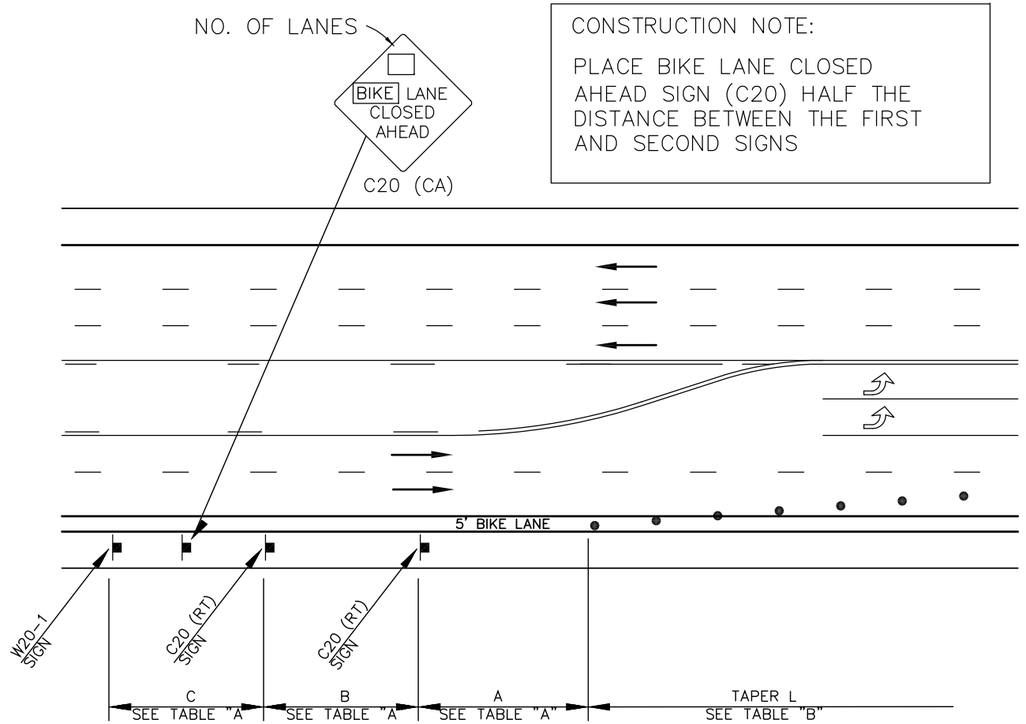
DATES OF TEMPORARY NO PARKING ZONE

INDICATE NORTH WITH A "N" AND AN ARROW POINT

WORKSITE TRAFFIC CONTROL PLAN
WORK WITHIN INTERSECTION (LEFT LANE / LEFT TURN LANE)

DATE		SCALE
		NONE
		DRAWING NO. 28

REV. APR-2010 CJUTCM-DWG28.DWG



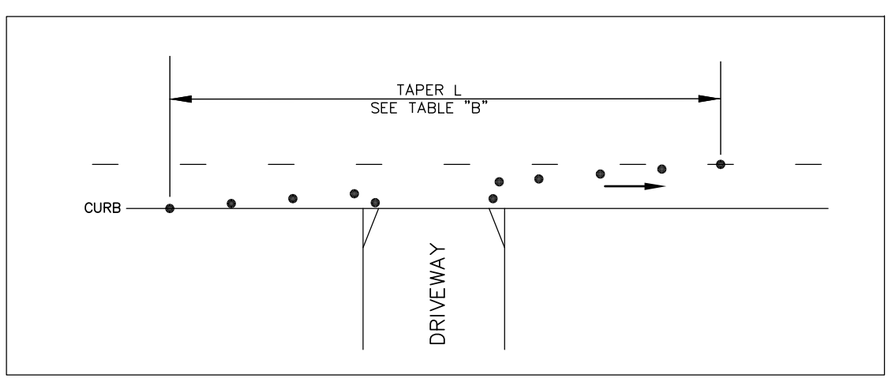
PLACEMENT OF BIKE LANE CLOSURE SIGN
(IF NECESSARY)

CONSTRUCTION NOTE:

PLACE BIKE LANE CLOSED AHEAD SIGN (C20) HALF THE DISTANCE BETWEEN THE FIRST AND SECOND SIGNS

CONSTRUCTION NOTE:

ALL DRIVEWAYS TO REMAIN OPEN (WHENEVER POSSIBLE) THROUGHOUT TRAFFIC CONTROL ZONE



SEE TABLE 'A'–'F' FOR SIGN AND CHANNELIZER DEVICE SPACING AND TAPER LENGTH

SPEED	APPROACH STREET	TAPER LENGTH	SIGN SPACING	CHANNELIZER SPACING

SEE TABLE 'A'–'F' FOR SIGN AND CHANNELIZER DEVICE SPACING AND TAPER LENGTH

SPEED	APPROACH STREET	TAPER LENGTH	SIGN SPACING	CHANNELIZER SPACING

ABBREVIATIONS:

S = Sign Spacing
Min = Minimum
LT = Left
RT = Right
LTP = Lane Traffic Panel
TANSAT = Tow Away, No Stopping Anytime
TANS = Tow Away, No Stopping

CHART A
MINIMUM RECOMMENDED DELINEATOR/CONE & SIGN PLACEMENT

POSTED SPEED LIMIT	TAPER LENGTH FOR 12–FT LANE			CHANNELIZER SPACING		SIGN SPACING (ADVANCE OF TAPER & BETWEEN SIGNS)
	MERGING	SHIFTING	SHOULDER	TAPER	TANGENT	
20 MPH	80 FT.	40 FT.	27 FT.	20 FT.	40 FT.	100 FT.
25 MPH	125 FT.	63 FT.	42 FT.	25 FT.	63 FT.	100 FT.
30 MPH	180 FT.	90 FT.	60 FT.	30 FT.	90 FT.	350 FT.
35 MPH	245 FT.	123 FT.	82 FT.	35 FT.	123 FT.	350 FT.
40 MPH	320 FT.	160 FT.	107 FT.	40 FT.	160 FT.	350 FT.
* 45 MPH	540 FT.	270 FT.	180 FT.	45 FT.	270 FT.	500 FT.
* 50 MPH	600 FT.	300 FT.	200 FT.	50 FT.	300 FT.	500 FT.
* 55+MPH	660 FT.	330 FT.	220 FT.	55 FT.	330 FT.	PER TABLE 'A'

NOTES

1. A Flashing Arrow sign shall be used for each lane closed.
*2. Two lane closure signs (C–20) shall be used on the approach to a lane closure with speeds of 45 mph or greater.

NOTE: This chart based on 12–foot wide lanes. For lane widths greater than 12 feet, use the following formulae:

Taper formula:

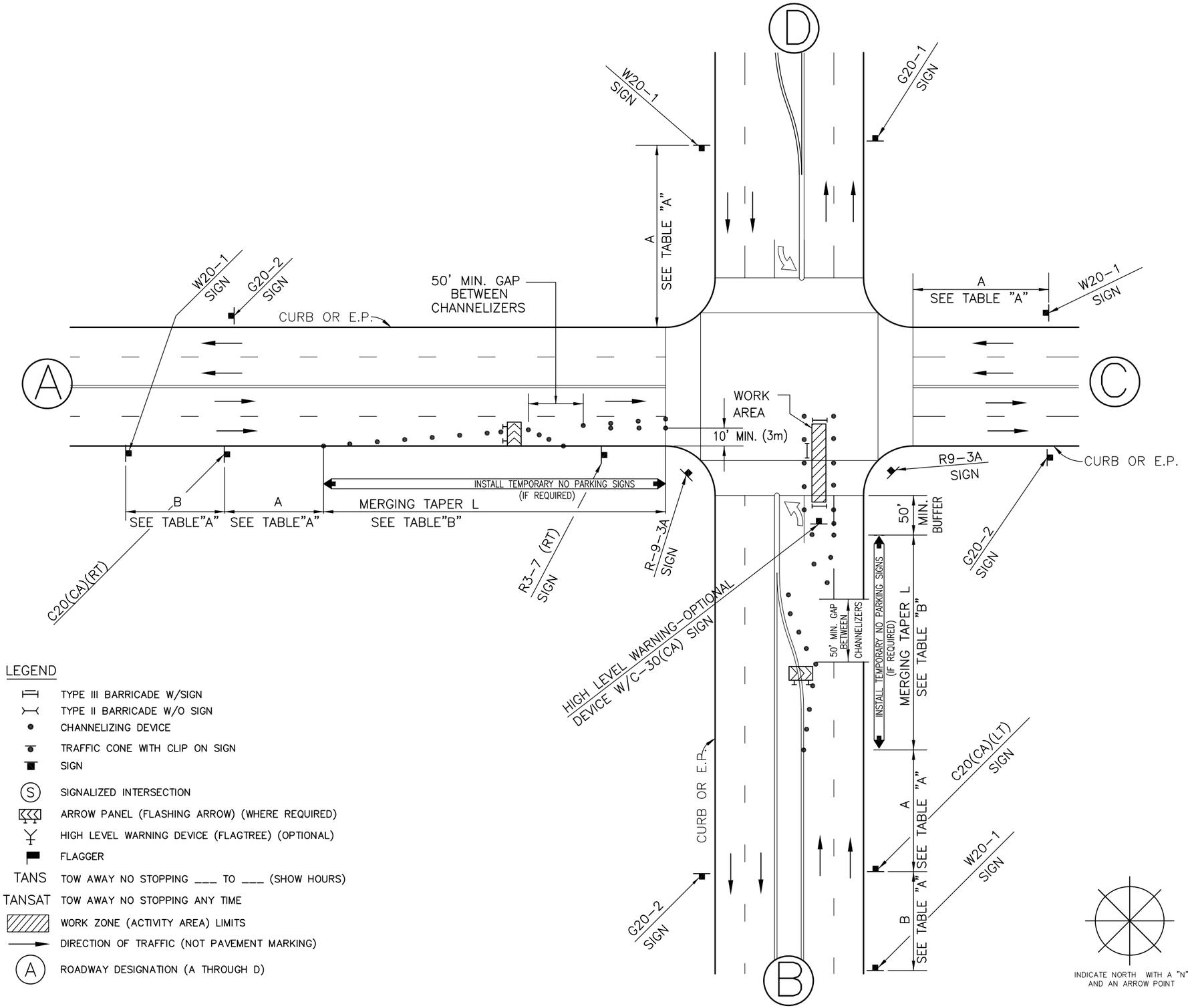
$L = S \times W$ for speeds of 45 mph or more.

$L = \frac{WS^2}{60}$ for speeds of 40 mph or less.

Where:

L = Minimum length of taper.
S = Numerical value of posted speed limit prior to work or 85 percentile speed.
W = Width of offset.

i.e.: 50 mph and 19' lane; L = 50 x 19 = 950 feet



CENTER OR RIGHT — NO. OF LANES

LEFT LANE CLOSED AHEAD

C20(CA)
INTERCHANGEABLE WITH W20-5

LANE CLOSED

C30(CA)

ROAD WORK AHEAD

W20-1

END ROAD WORK

G20-2

LEGEND

- TYPE III BARRICADE W/SIGN
- TYPE II BARRICADE W/O SIGN
- CHANNELIZING DEVICE
- TRAFFIC CONE WITH CLIP ON SIGN
- SIGN
- (S) SIGNALIZED INTERSECTION
- ARROW PANEL (FLASHING ARROW) (WHERE REQUIRED)
- HIGH LEVEL WARNING DEVICE (FLAGTREE) (OPTIONAL)
- FLAGGER
- TANS TOW AWAY NO STOPPING ___ TO ___ (SHOW HOURS)
- TANSAT TOW AWAY NO STOPPING ANY TIME
- WORK ZONE (ACTIVITY AREA) LIMITS
- DIRECTION OF TRAFFIC (NOT PAVEMENT MARKING)
- (A) ROADWAY DESIGNATION (A THROUGH D)

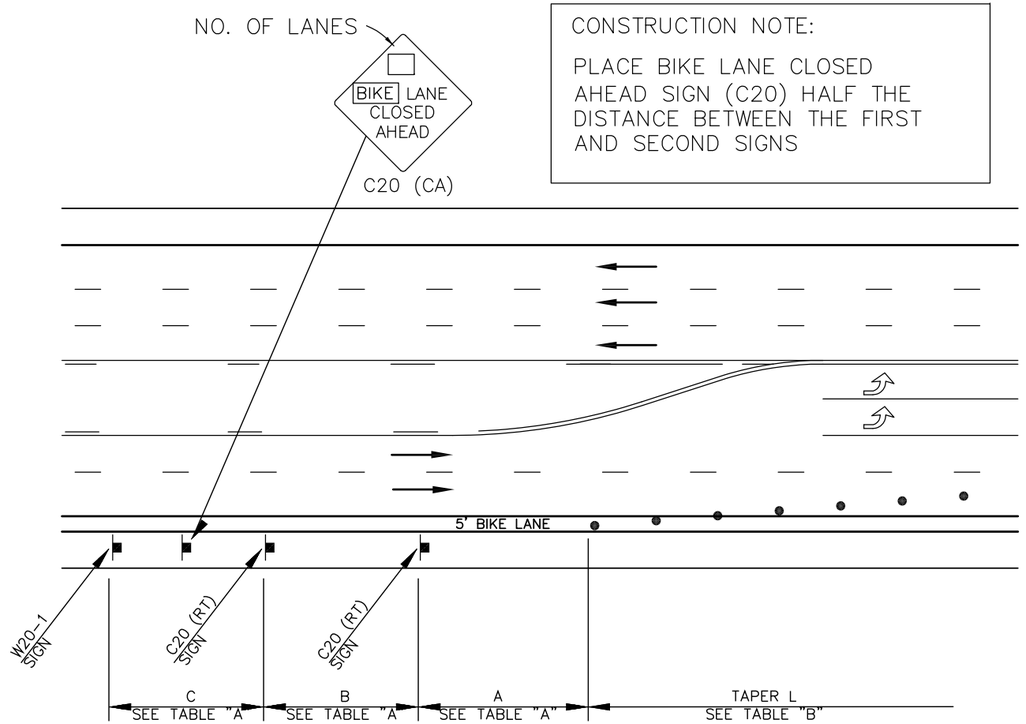
DATES OF TEMPORARY NO PARKING ZONE

INDICATE NORTH WITH A "N" AND AN ARROW POINT

WORKSITE TRAFFIC CONTROL PLAN
WORK WITHIN INTERSECTION (RIGHT LANE / LEFT LANE)

DATE		SCALE
		NONE
		DRAWING NO. 29

REV. APR-2010 CJUTCM-DWG29.DWG



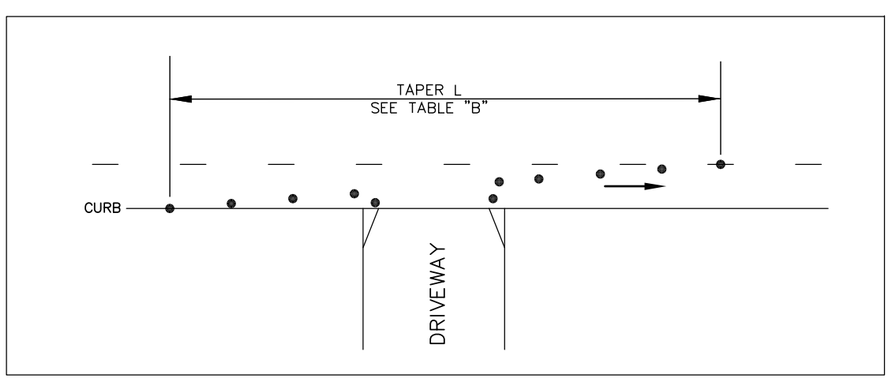
PLACEMENT OF BIKE LANE CLOSURE SIGN
(IF NECESSARY)

CONSTRUCTION NOTE:

PLACE BIKE LANE CLOSED AHEAD SIGN (C20) HALF THE DISTANCE BETWEEN THE FIRST AND SECOND SIGNS

CONSTRUCTION NOTE:

ALL DRIVEWAYS TO REMAIN OPEN (WHENEVER POSSIBLE) THROUGHOUT TRAFFIC CONTROL ZONE



SEE TABLE 'A'–'F' FOR SIGN AND CHANNELIZER DEVICE SPACING AND TAPER LENGTH

SPEED	APPROACH STREET	TAPER LENGTH	SIGN SPACING	CHANNELIZER SPACING

SEE TABLE 'A'–'F' FOR SIGN AND CHANNELIZER DEVICE SPACING AND TAPER LENGTH

SPEED	APPROACH STREET	TAPER LENGTH	SIGN SPACING	CHANNELIZER SPACING

ABBREVIATIONS:

S = Sign Spacing
Min = Minimum
LT = Left
RT = Right
LTP = Lane Traffic Panel
TANSAT = Tow Away, No Stopping Anytime
TANS = Tow Away, No Stopping

CHART A
MINIMUM RECOMMENDED DELINEATOR/CONE & SIGN PLACEMENT

POSTED SPEED LIMIT	TAPER LENGTH FOR 12–FT LANE			CHANNELIZER SPACING		SIGN SPACING (ADVANCE OF TAPER & BETWEEN SIGNS)
	MERGING	SHIFTING	SHOULDER	TAPER	TANGENT	
20 MPH	80 FT.	40 FT.	27 FT.	20 FT.	40 FT.	100 FT.
25 MPH	125 FT.	63 FT.	42 FT.	25 FT.	63 FT.	100 FT.
30 MPH	180 FT.	90 FT.	60 FT.	30 FT.	90 FT.	350 FT.
35 MPH	245 FT.	123 FT.	82 FT.	35 FT.	123 FT.	350 FT.
40 MPH	320 FT.	160 FT.	107 FT.	40 FT.	160 FT.	350 FT.
* 45 MPH	540 FT.	270 FT.	180 FT.	45 FT.	270 FT.	500 FT.
* 50 MPH	600 FT.	300 FT.	200 FT.	50 FT.	300 FT.	500 FT.
* 55+MPH	660 FT.	330 FT.	220 FT.	55 FT.	330 FT.	PER TABLE 'A'

NOTES

1. A Flashing Arrow sign shall be used for each lane closed.
*2. Two lane closure signs (C–20) shall be used on the approach to a lane closure with speeds of 45 mph or greater.

NOTE: This chart based on 12–foot wide lanes. For lane widths greater than 12 feet, use the following formulae:

Taper formula:

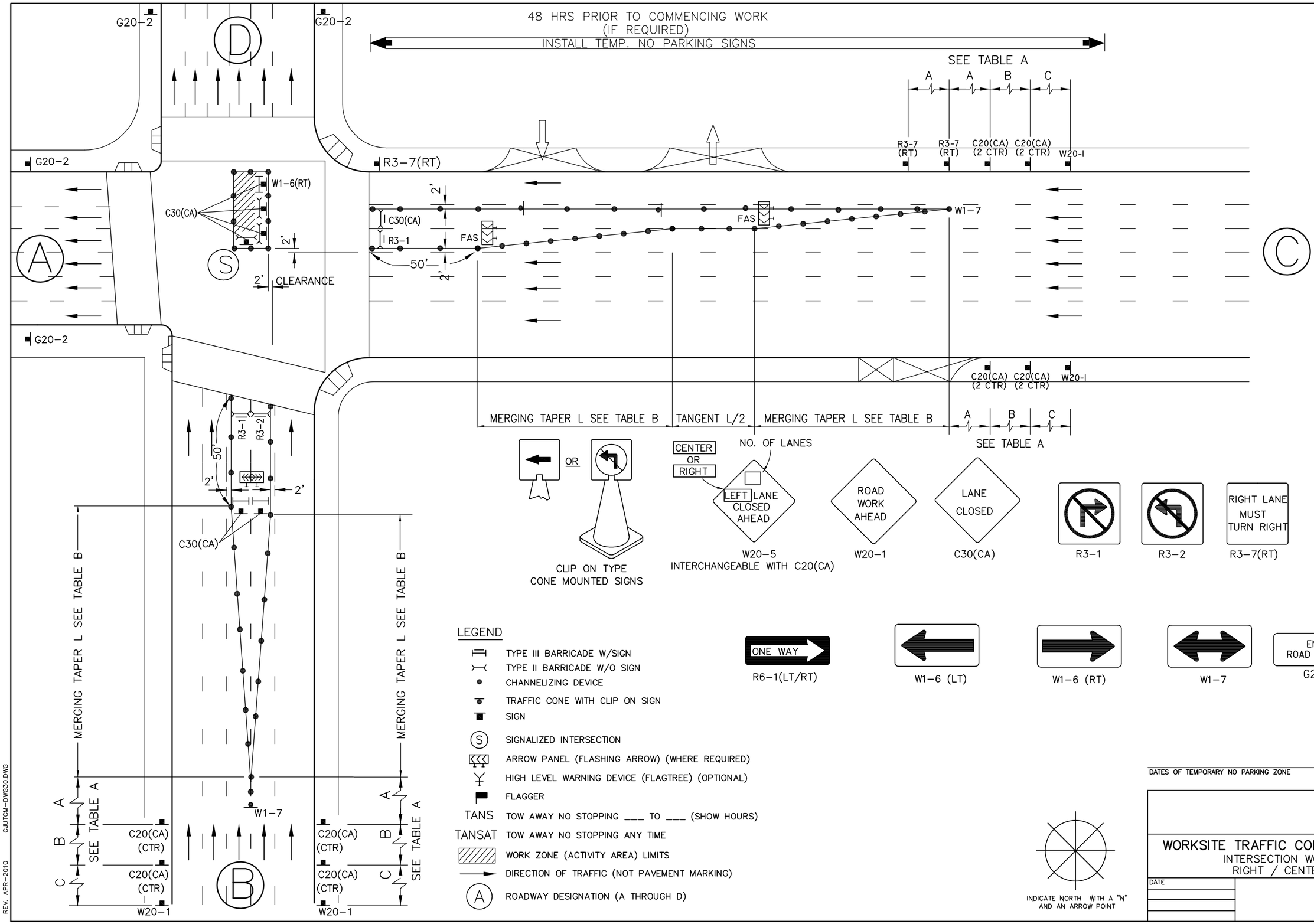
$L = S \times W$ for speeds of 45 mph or more.

$L = \frac{WS^2}{60}$ for speeds of 40 mph or less.

Where:

L = Minimum length of taper.
S = Numerical value of posted speed limit prior to work or 85 percentile speed.
W = Width of offset.

i.e.: 50 mph and 19' lane; L = 50 x 19 = 950 feet



OR

CLIP ON TYPE
CONE MOUNTED SIGNS

CENTER OR RIGHT

NO. OF LANES

LEFT LANE CLOSED AHEAD

W20-5
INTERCHANGEABLE WITH C20(CA)

ROAD WORK AHEAD

W20-1

LANE CLOSED

C30(CA)

R3-1

R3-2

RIGHT LANE MUST TURN RIGHT

R3-7(RT)

LEGEND

- TYPE III BARRICADE W/SIGN
- TYPE II BARRICADE W/O SIGN
- CHANNELIZING DEVICE
- TRAFFIC CONE WITH CLIP ON SIGN
- SIGN
- (S) SIGNALIZED INTERSECTION
- ARROW PANEL (FLASHING ARROW) (WHERE REQUIRED)
- HIGH LEVEL WARNING DEVICE (FLAGTREE) (OPTIONAL)
- FLAGGER
- TANS TOW AWAY NO STOPPING ___ TO ___ (SHOW HOURS)
- TANSAT TOW AWAY NO STOPPING ANY TIME
- WORK ZONE (ACTIVITY AREA) LIMITS
- DIRECTION OF TRAFFIC (NOT PAVEMENT MARKING)
- (A) ROADWAY DESIGNATION (A THROUGH D)

ONE WAY

R6-1(LT/RT)

W1-6 (LT)

W1-6 (RT)

W1-7

END ROAD WORK

G20-2

INDICATE NORTH WITH A "N" AND AN ARROW POINT

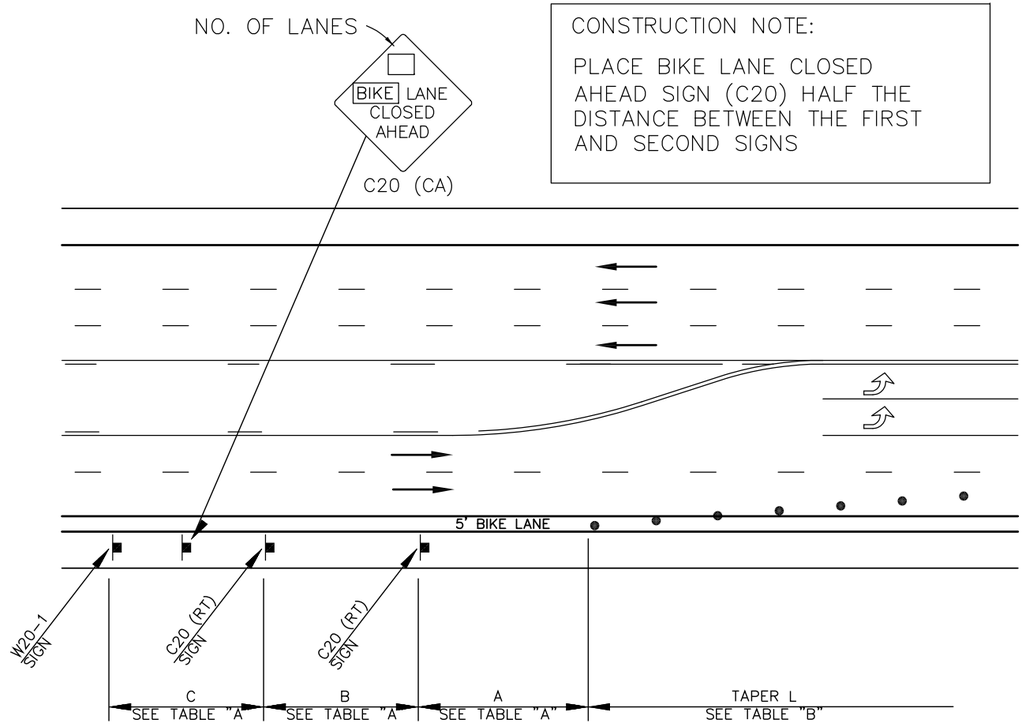
DATES OF TEMPORARY NO PARKING ZONE

WORKSITE TRAFFIC CONTROL PLAN

INTERSECTION WORK
RIGHT / CENTER

DATE		SCALE NONE
		DRAWING NO. 30

REV. APR-2010 CJUTCM-DWG30.DWG



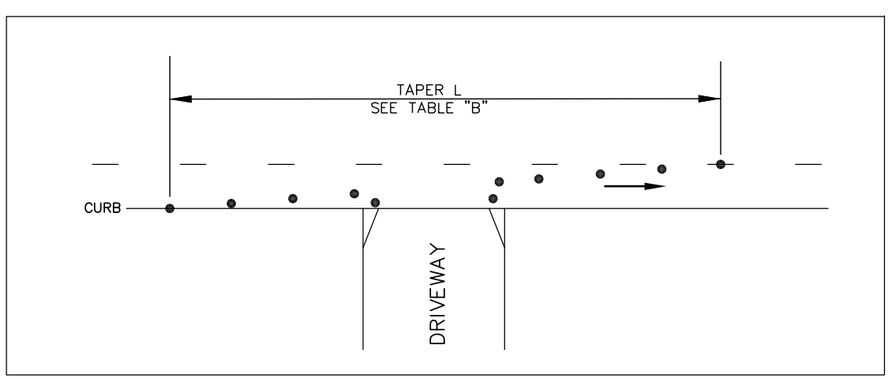
PLACEMENT OF BIKE LANE CLOSURE SIGN
(IF NECESSARY)

CONSTRUCTION NOTE:

PLACE BIKE LANE CLOSED AHEAD SIGN (C20) HALF THE DISTANCE BETWEEN THE FIRST AND SECOND SIGNS

CONSTRUCTION NOTE:

ALL DRIVEWAYS TO REMAIN OPEN (WHENEVER POSSIBLE) THROUGHOUT TRAFFIC CONTROL ZONE



SEE TABLE 'A'–'F' FOR SIGN AND CHANNELIZER DEVICE SPACING AND TAPER LENGTH

SPEED	APPROACH STREET	TAPER LENGTH	SIGN SPACING	CHANNELIZER SPACING

SEE TABLE 'A'–'F' FOR SIGN AND CHANNELIZER DEVICE SPACING AND TAPER LENGTH

SPEED	APPROACH STREET	TAPER LENGTH	SIGN SPACING	CHANNELIZER SPACING

ABBREVIATIONS:

S = Sign Spacing
Min = Minimum
LT = Left
RT = Right
LTP = Lane Traffic Panel
TANSAT = Tow Away, No Stopping Anytime
TANS = Tow Away, No Stopping

CHART A
MINIMUM RECOMMENDED DELINEATOR/CONE & SIGN PLACEMENT

POSTED SPEED LIMIT	TAPER LENGTH FOR 12–FT LANE			CHANNELIZER SPACING		SIGN SPACING (ADVANCE OF TAPER & BETWEEN SIGNS)
	MERGING	SHIFTING	SHOULDER	TAPER	TANGENT	
20 MPH	80 FT.	40 FT.	27 FT.	20 FT.	40 FT.	100 FT.
25 MPH	125 FT.	63 FT.	42 FT.	25 FT.	63 FT.	100 FT.
30 MPH	180 FT.	90 FT.	60 FT.	30 FT.	90 FT.	350 FT.
35 MPH	245 FT.	123 FT.	82 FT.	35 FT.	123 FT.	350 FT.
40 MPH	320 FT.	160 FT.	107 FT.	40 FT.	160 FT.	350 FT.
* 45 MPH	540 FT.	270 FT.	180 FT.	45 FT.	270 FT.	500 FT.
* 50 MPH	600 FT.	300 FT.	200 FT.	50 FT.	300 FT.	500 FT.
* 55+MPH	660 FT.	330 FT.	220 FT.	55 FT.	330 FT.	PER TABLE 'A'

NOTES

1. A Flashing Arrow sign shall be used for each lane closed.
*2. Two lane closure signs (C–20) shall be used on the approach to a lane closure with speeds of 45 mph or greater.

NOTE: This chart based on 12–foot wide lanes. For lane widths greater than 12 feet, use the following formulae:

Taper formula:

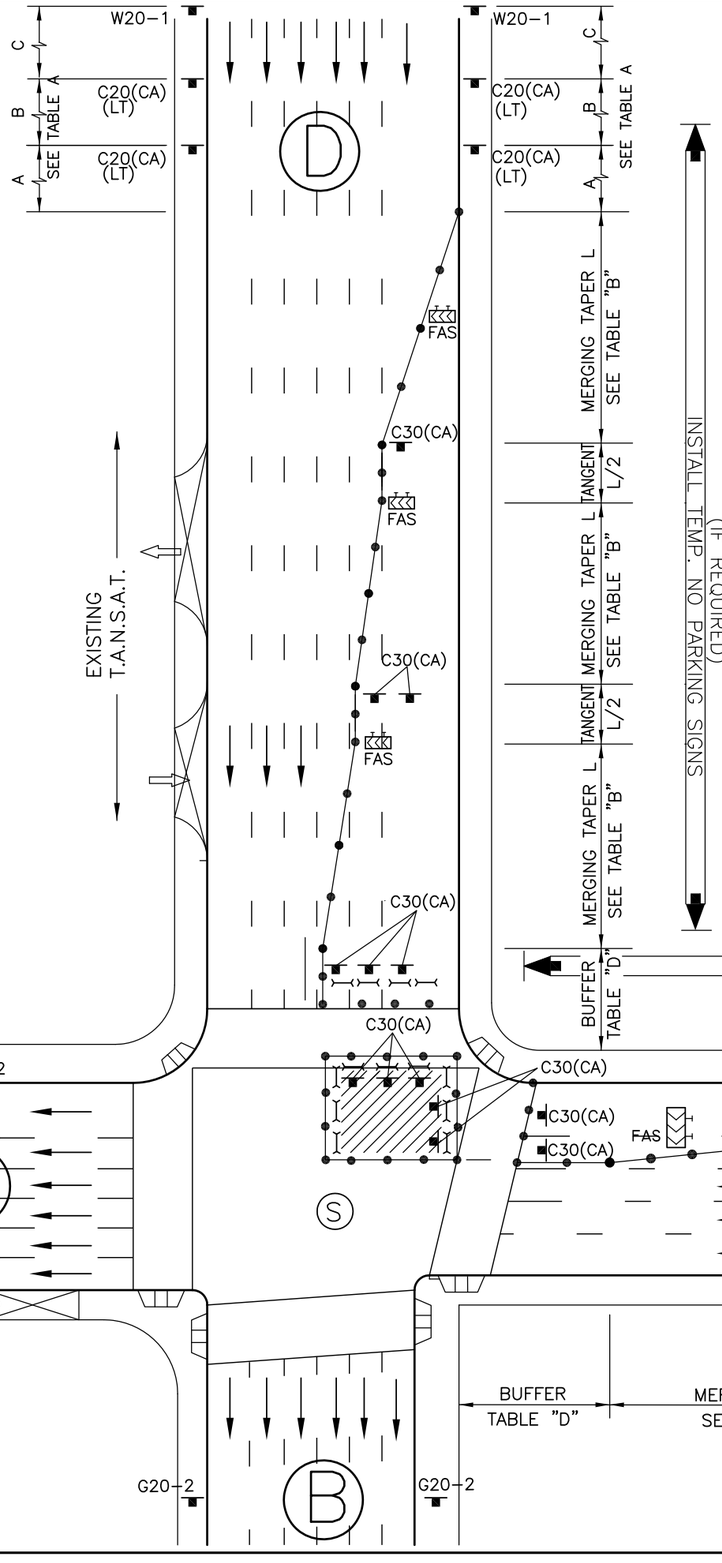
$L = S \times W$ for speeds of 45 mph or more.

$L = \frac{WS^2}{60}$ for speeds of 40 mph or less.

Where:

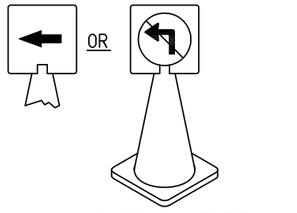
L = Minimum length of taper.
S = Numerical value of posted speed limit prior to work or 85 percentile speed.
W = Width of offset.

i.e.: 50 mph and 19' lane; L = 50 x 19 = 950 feet



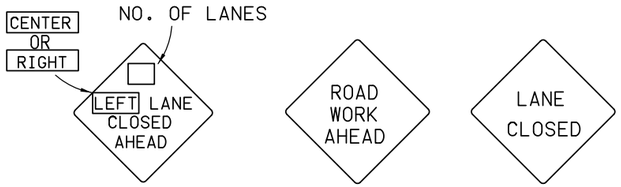
LEGEND

- TYPE III BARRICADE W/SIGN
- TYPE II BARRICADE W/O SIGN
- CHANNELIZING DEVICE
- TRAFFIC CONE WITH CLIP ON SIGN
- SIGN
- (S) SIGNALIZED INTERSECTION
- ARROW PANEL (FLASHING ARROW) (WHERE REQUIRED)
- HIGH LEVEL WARNING DEVICE (FLAGTREE) (OPTIONAL)
- FLAGGER
- TANS TOW AWAY NO STOPPING ___ TO ___ (SHOW HOURS)
- TANSAT TOW AWAY NO STOPPING ANY TIME
- WORK ZONE (ACTIVITY AREA) LIMITS
- DIRECTION OF TRAFFIC (NOT PAVEMENT MARKING)
- (A) ROADWAY DESIGNATION (A THROUGH D)



CLIP ON TYPE
CONE MOUNTED SIGNS







USE BULL NOSE ONLY IF TAPER TERMINATES IN PARKING LANE OTHERWISE EXTEND USING APPROPRIATE TAPER LENGTH (SEE TABLE B)

48 HRS PRIOR TO COMMENCING WORK
(IF REQUIRED)
INSTALL TEMP. NO PARKING SIGNS

BUFFER
TABLE "D"

A
SEE TABLE A

B
SEE TABLE A

C

PROVIDE ACCESS
FOR DRIVEWAY

C20(CA)
(RT)

C20(CA)
(RT)

W20-1

BUFFER
TABLE "D"

MERGING TAPER L
SEE TABLE "B"

TANGENT
LENGTH=L/2

MERGING TAPER L
SEE TABLE "B"

A
SEE TABLE A

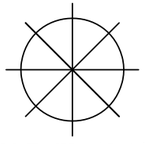
B
SEE TABLE A

C

C20(CA)
(RT)

C20(CA)
(RT)

W20-1



INDICATE NORTH WITH A "N"
AND AN ARROW POINT

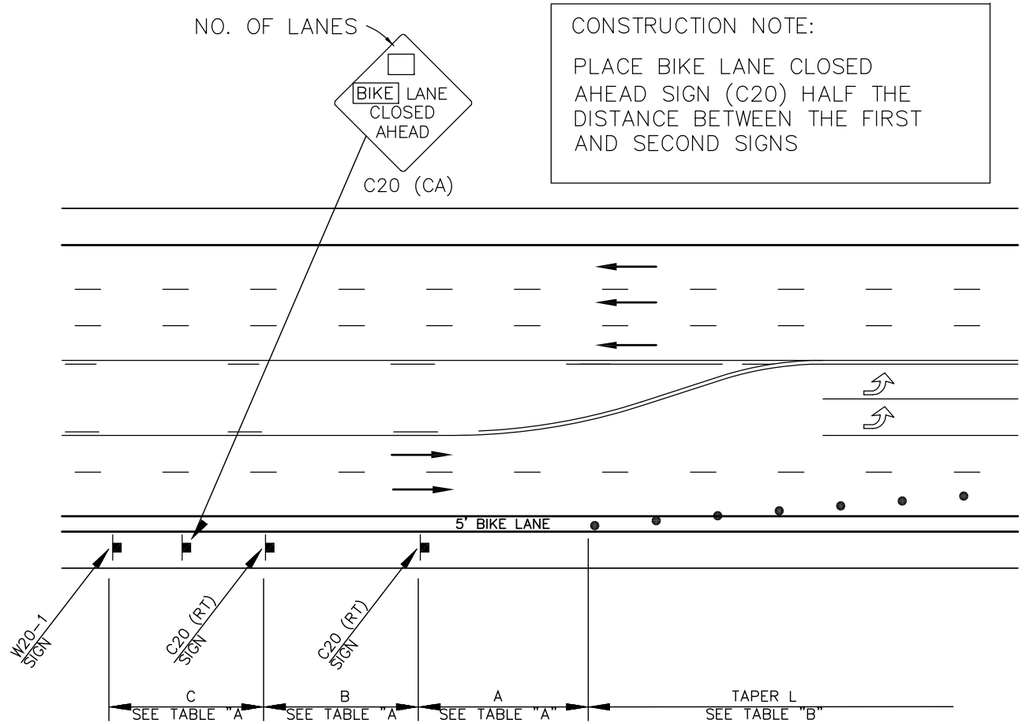
DATES OF TEMPORARY NO PARKING ZONE

WORKSITE TRAFFIC CONTROL PLAN
INTERSECTION WORK
RIGHT / LEFT

DATE		SCALE
		NONE
		DRAWING NO. 31

CJUTCM-DWG31.DWG

REV. APR-2010



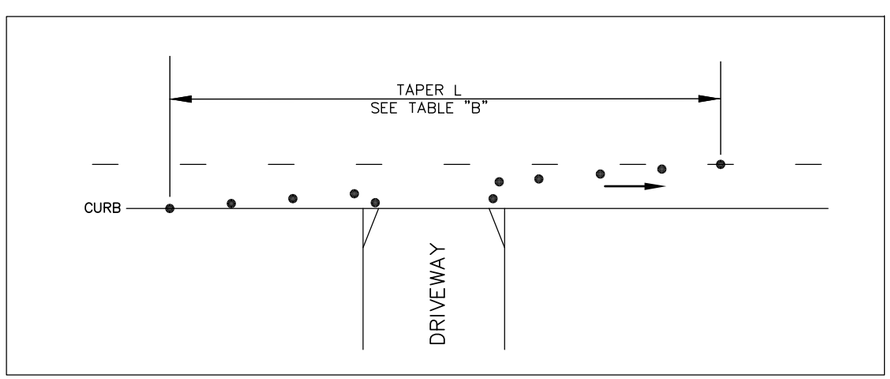
PLACEMENT OF BIKE LANE CLOSURE SIGN
(IF NECESSARY)

CONSTRUCTION NOTE:

PLACE BIKE LANE CLOSED AHEAD SIGN (C20) HALF THE DISTANCE BETWEEN THE FIRST AND SECOND SIGNS

CONSTRUCTION NOTE:

ALL DRIVEWAYS TO REMAIN OPEN (WHENEVER POSSIBLE) THROUGHOUT TRAFFIC CONTROL ZONE



SEE TABLE 'A'–'F' FOR SIGN AND CHANNELIZER DEVICE SPACING AND TAPER LENGTH

SPEED	APPROACH STREET	TAPER LENGTH	SIGN SPACING	CHANNELIZER SPACING

SEE TABLE 'A'–'F' FOR SIGN AND CHANNELIZER DEVICE SPACING AND TAPER LENGTH

SPEED	APPROACH STREET	TAPER LENGTH	SIGN SPACING	CHANNELIZER SPACING

ABBREVIATIONS:

S = Sign Spacing
Min = Minimum
LT = Left
RT = Right
LTP = Lane Traffic Panel
TANSAT = Tow Away, No Stopping Anytime
TANS = Tow Away, No Stopping

CHART A
MINIMUM RECOMMENDED DELINEATOR/CONE & SIGN PLACEMENT

POSTED SPEED LIMIT	TAPER LENGTH FOR 12–FT LANE			CHANNELIZER SPACING		SIGN SPACING (ADVANCE OF TAPER & BETWEEN SIGNS)
	MERGING	SHIFTING	SHOULDER	TAPER	TANGENT	
20 MPH	80 FT.	40 FT.	27 FT.	20 FT.	40 FT.	100 FT.
25 MPH	125 FT.	63 FT.	42 FT.	25 FT.	63 FT.	100 FT.
30 MPH	180 FT.	90 FT.	60 FT.	30 FT.	90 FT.	350 FT.
35 MPH	245 FT.	123 FT.	82 FT.	35 FT.	123 FT.	350 FT.
40 MPH	320 FT.	160 FT.	107 FT.	40 FT.	160 FT.	350 FT.
* 45 MPH	540 FT.	270 FT.	180 FT.	45 FT.	270 FT.	500 FT.
* 50 MPH	600 FT.	300 FT.	200 FT.	50 FT.	300 FT.	500 FT.
* 55+MPH	660 FT.	330 FT.	220 FT.	55 FT.	330 FT.	PER TABLE 'A'

NOTES

1. A Flashing Arrow sign shall be used for each lane closed.
*2. Two lane closure signs (C–20) shall be used on the approach to a lane closure with speeds of 45 mph or greater.

NOTE: This chart based on 12–foot wide lanes. For lane widths greater than 12 feet, use the following formulae:

Taper formula:

$L = S \times W$ for speeds of 45 mph or more.

$L = \frac{WS^2}{60}$ for speeds of 40 mph or less.

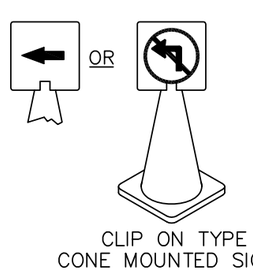
Where:

L = Minimum length of taper.
S = Numerical value of posted speed limit prior to work or 85 percentile speed.
W = Width of offset.

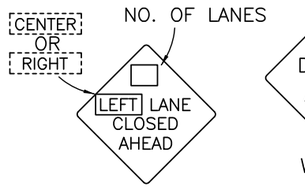
i.e.: 50 mph and 19' lane; L = 50 x 19 = 950 feet

LEGEND

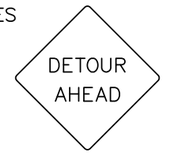
- TYPE III BARRICADE W/SIGN
- TYPE II BARRICADE W/O SIGN
- CHANNELIZING DEVICE
- TRAFFIC CONE WITH CLIP ON SIGN
- SIGN
- (S) SIGNALIZED INTERSECTION
- ARROW PANEL (FLASHING ARROW) (WHERE REQUIRED)
- HIGH LEVEL WARNING DEVICE (FLAGTREE) (OPTIONAL)
- FLAGGER
- TANS TOW AWAY NO STOPPING ___ TO ___ (SHOW HOURS)
- TANSAT TOW AWAY NO STOPPING ANY TIME
- WORK ZONE (ACTIVITY AREA) LIMITS
- DIRECTION OF TRAFFIC (NOT PAVEMENT MARKING)
- (A) ROADWAY DESIGNATION (A THROUGH D)



CLIP ON TYPE
CONE MOUNTED SIGNS



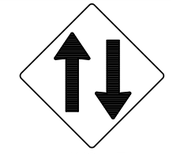
W20–5
INTERCHANGEABLE WITH C20(CA)



W20–2



W20–1



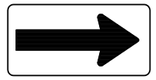
W6–3
(DOUBLE SIDED)



W1–4(LT)



W1–6 (LT)



W1–6 (RT)



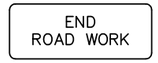
R6–1(RT)



R3–1



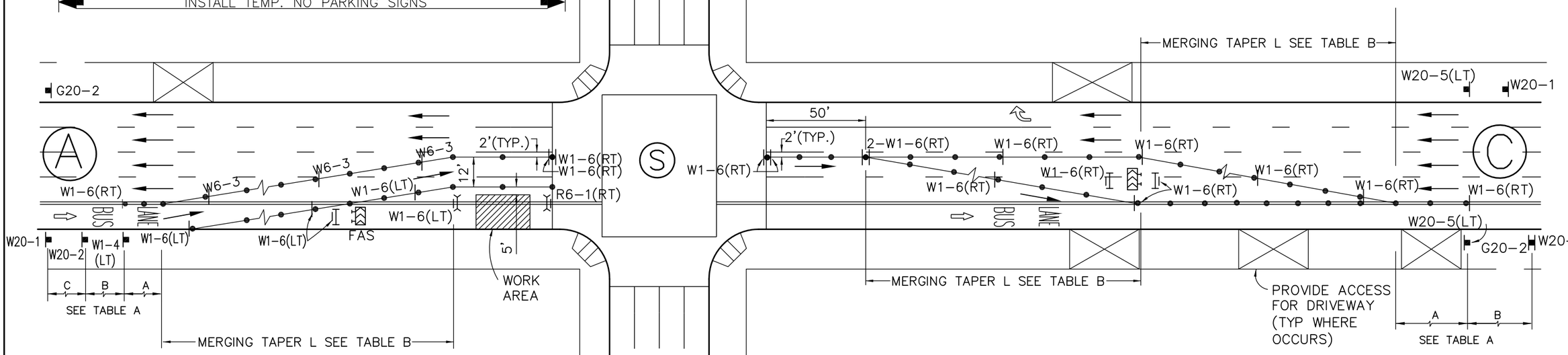
R3–2



G20–2

48 HRS PRIOR TO COMMENCING WORK
(IF REQUIRED)
INSTALL TEMP. NO PARKING SIGNS

48 HRS PRIOR TO COMMENCING WORK
(IF REQUIRED)
INSTALL TEMP. NO PARKING SIGNS



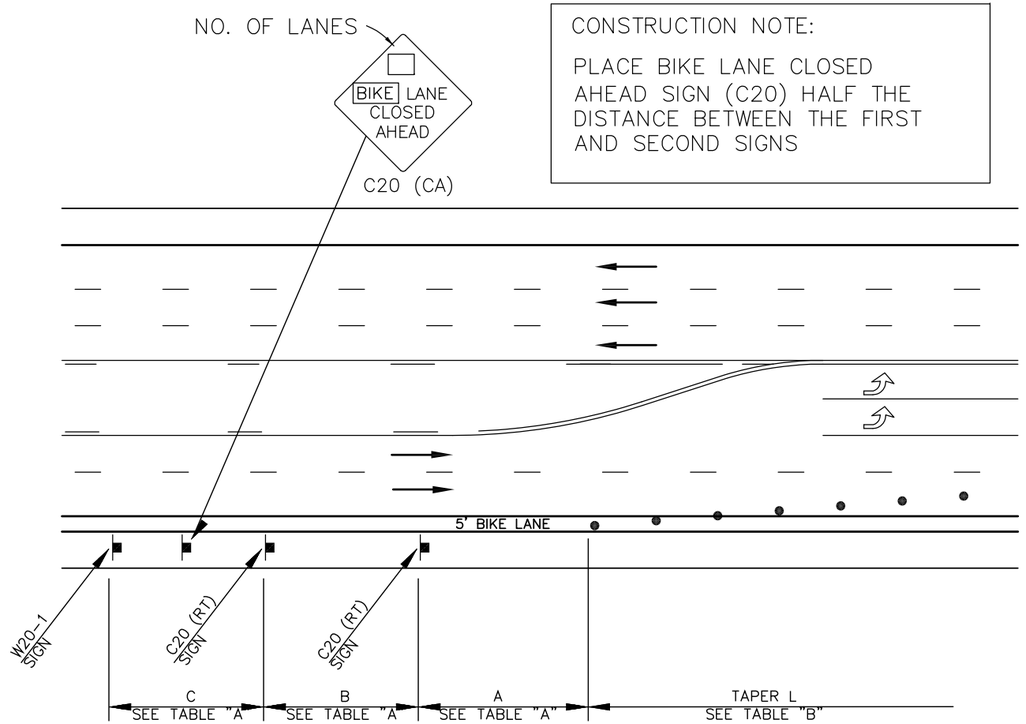
DATES OF TEMPORARY NO PARKING ZONE

INDICATE NORTH WITH A "N"
AND AN ARROW POINT

WORKSITE TRAFFIC CONTROL PLAN
BEYOND INTERSECTION
FAR LEFT

DATE		SCALE
		NONE
		DRAWING NO. 32

REV. APR–2010 CJUTCM–DWG32.DWG



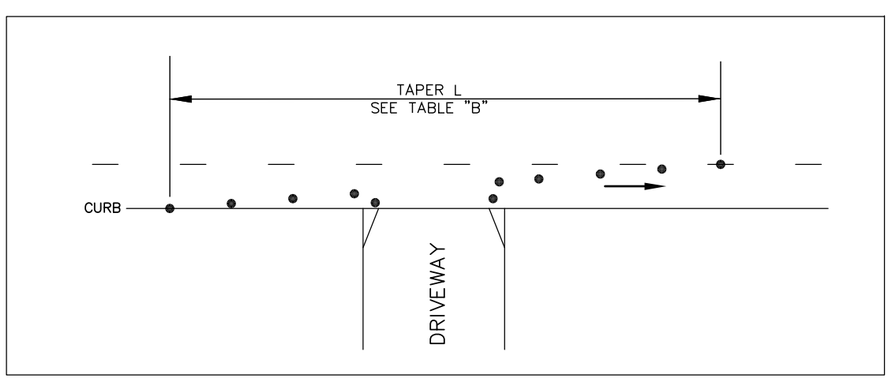
PLACEMENT OF BIKE LANE CLOSURE SIGN
(IF NECESSARY)

CONSTRUCTION NOTE:

PLACE BIKE LANE CLOSED AHEAD SIGN (C20) HALF THE DISTANCE BETWEEN THE FIRST AND SECOND SIGNS

CONSTRUCTION NOTE:

ALL DRIVEWAYS TO REMAIN OPEN (WHENEVER POSSIBLE) THROUGHOUT TRAFFIC CONTROL ZONE



SEE TABLE 'A'–'F' FOR SIGN AND CHANNELIZER DEVICE SPACING AND TAPER LENGTH

SPEED	APPROACH STREET	TAPER LENGTH	SIGN SPACING	CHANNELIZER SPACING

SEE TABLE 'A'–'F' FOR SIGN AND CHANNELIZER DEVICE SPACING AND TAPER LENGTH

SPEED	APPROACH STREET	TAPER LENGTH	SIGN SPACING	CHANNELIZER SPACING

ABBREVIATIONS:

S = Sign Spacing
Min = Minimum
LT = Left
RT = Right
LTP = Lane Traffic Panel
TANSAT = Tow Away, No Stopping Anytime
TANS = Tow Away, No Stopping

CHART A
MINIMUM RECOMMENDED DELINEATOR/CONE & SIGN PLACEMENT

POSTED SPEED LIMIT	TAPER LENGTH FOR 12–FT LANE			CHANNELIZER SPACING		SIGN SPACING (ADVANCE OF TAPER & BETWEEN SIGNS)
	MERGING	SHIFTING	SHOULDER	TAPER	TANGENT	
20 MPH	80 FT.	40 FT.	27 FT.	20 FT.	40 FT.	100 FT.
25 MPH	125 FT.	63 FT.	42 FT.	25 FT.	63 FT.	100 FT.
30 MPH	180 FT.	90 FT.	60 FT.	30 FT.	90 FT.	350 FT.
35 MPH	245 FT.	123 FT.	82 FT.	35 FT.	123 FT.	350 FT.
40 MPH	320 FT.	160 FT.	107 FT.	40 FT.	160 FT.	350 FT.
* 45 MPH	540 FT.	270 FT.	180 FT.	45 FT.	270 FT.	500 FT.
* 50 MPH	600 FT.	300 FT.	200 FT.	50 FT.	300 FT.	500 FT.
* 55+MPH	660 FT.	330 FT.	220 FT.	55 FT.	330 FT.	PER TABLE 'A'

NOTES

1. A Flashing Arrow sign shall be used for each lane closed.
*2. Two lane closure signs (C–20) shall be used on the approach to a lane closure with speeds of 45 mph or greater.

NOTE: This chart based on 12–foot wide lanes. For lane widths greater than 12 feet, use the following formulae:

Taper formula:

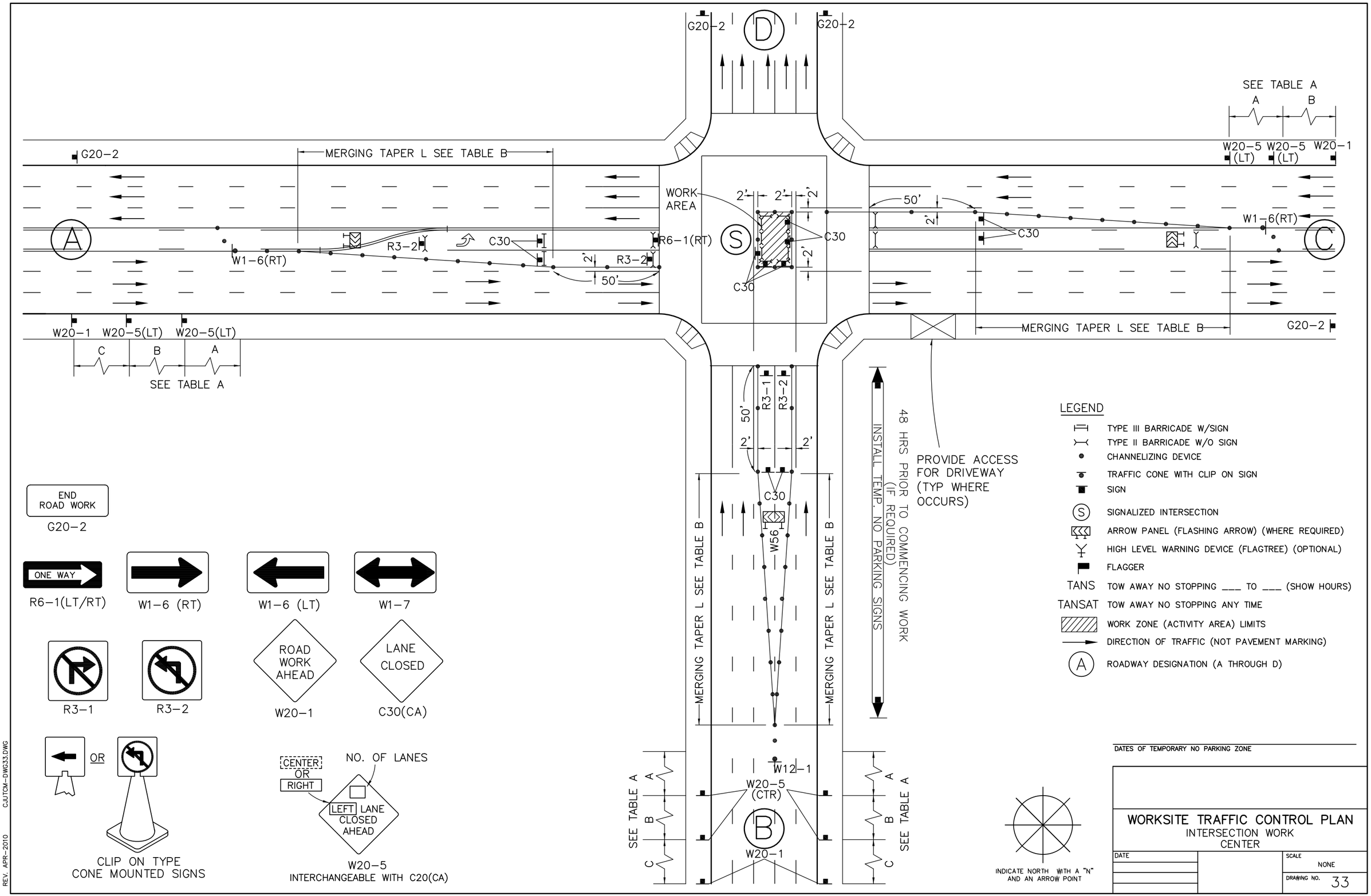
$L = S \times W$ for speeds of 45 mph or more.

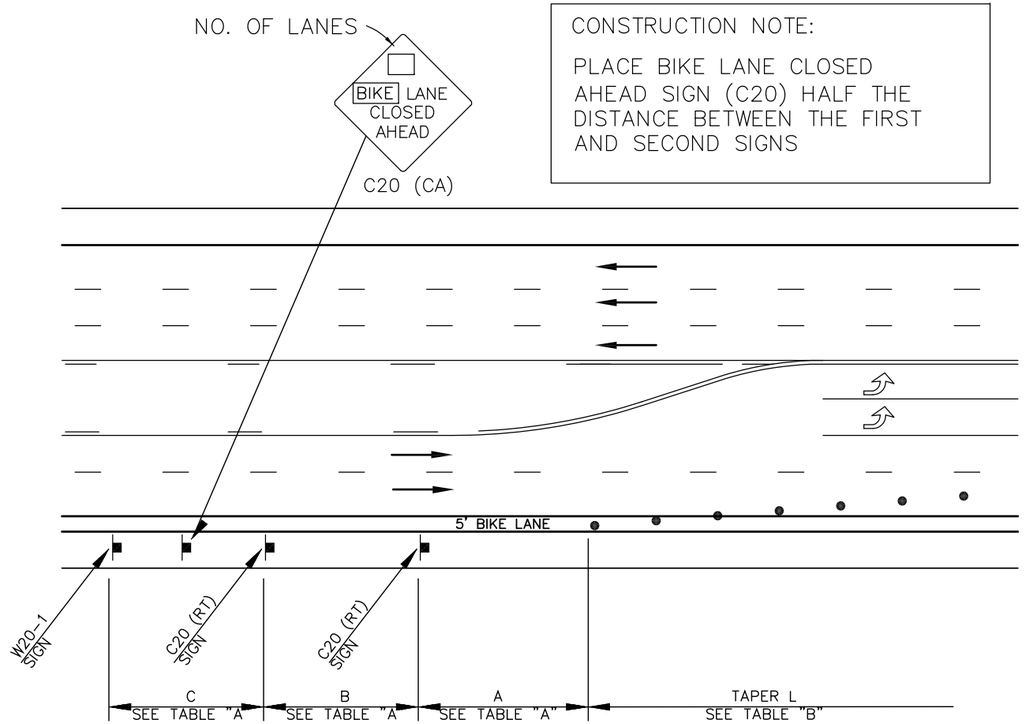
$L = \frac{WS^2}{60}$ for speeds of 40 mph or less.

Where:

L = Minimum length of taper.
S = Numerical value of posted speed limit prior to work or 85 percentile speed.
W = Width of offset.

i.e.: 50 mph and 19' lane; L = 50 x 19 = 950 feet


G20-2
D
G20-2
SEE TABLE A
A
B
W20-5 (LT)
W20-5 (LT)
W20-1
G20-2
MERGING TAPER L SEE TABLE B
WORK AREA
2'
2'
2'
50'
2'
W1-6(RT)
C30
A
R3-2
W1-6(RT)
C30
R6-1(RT)
S
C30
2'
R3-2
2'
50'
C30
C
W20-1
W20-5(LT)
W20-5(LT)
C
B
A
SEE TABLE A
MERGING TAPER L SEE TABLE B
G20-2
50'
R3-1
R3-2
2'
2'
C30
W56
W12-1
W20-5
(CTR)
B
W20-1
MERGING TAPER L SEE TABLE B
MERGING TAPER L SEE TABLE B
48 HRS PRIOR TO COMMENCING WORK
(IF REQUIRED)
INSTALL TEMP. NO PARKING SIGNS
PROVIDE ACCESS FOR DRIVEWAY (TYP WHERE OCCURS)
SEE TABLE A
A
B
C
SEE TABLE A
A
B
C
LEGEND
TYPE III BARRICADE W/SIGN
TYPE II BARRICADE W/O SIGN
CHANNELIZING DEVICE
TRAFFIC CONE WITH CLIP ON SIGN
SIGN
S SIGNALIZED INTERSECTION
ARROW PANEL (FLASHING ARROW) (WHERE REQUIRED)
HIGH LEVEL WARNING DEVICE (FLAGTREE) (OPTIONAL)
FLAGGER
TANS TOW AWAY NO STOPPING ___ TO ___ (SHOW HOURS)
TANSAT TOW AWAY NO STOPPING ANY TIME
WORK ZONE (ACTIVITY AREA) LIMITS
DIRECTION OF TRAFFIC (NOT PAVEMENT MARKING)
A ROADWAY DESIGNATION (A THROUGH D)
END ROAD WORK
G20-2
ONE WAY
R6-1(LT/RT)
W1-6 (RT)
W1-6 (LT)
W1-7
R3-1
R3-2
ROAD WORK AHEAD
W20-1
LANE CLOSED
C30(CA)
OR
CLIP ON TYPE CONE MOUNTED SIGNS
CENTER OR RIGHT
NO. OF LANES
LEFT LANE CLOSED AHEAD
W20-5
INTERCHANGEABLE WITH C20(CA)
INDICATE NORTH WITH A "N" AND AN ARROW POINT
DATES OF TEMPORARY NO PARKING ZONE
WORKSITE TRAFFIC CONTROL PLAN
INTERSECTION WORK CENTER
DATE
SCALE
NONE
DRAWING NO. 33
REV. APR-2010
CJUTCM-DWG33.DWG



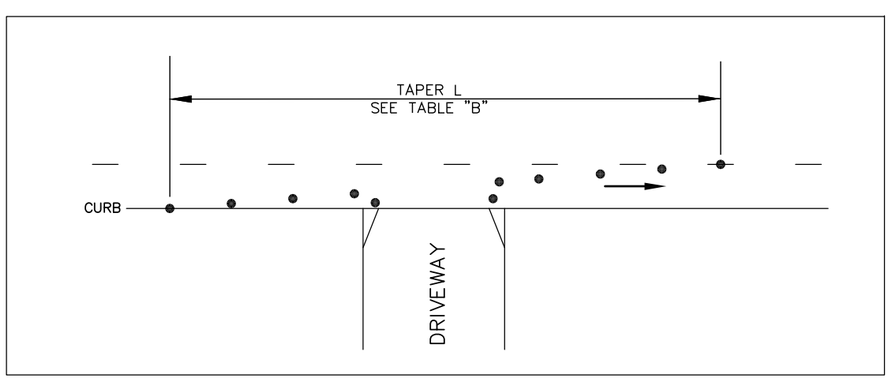
PLACEMENT OF BIKE LANE CLOSURE SIGN
(IF NECESSARY)

CONSTRUCTION NOTE:

PLACE BIKE LANE CLOSED AHEAD SIGN (C20) HALF THE DISTANCE BETWEEN THE FIRST AND SECOND SIGNS

CONSTRUCTION NOTE:

ALL DRIVEWAYS TO REMAIN OPEN (WHENEVER POSSIBLE) THROUGHOUT TRAFFIC CONTROL ZONE



SEE TABLE 'A'–'F' FOR SIGN AND CHANNELIZER DEVICE SPACING AND TAPER LENGTH

SPEED	APPROACH STREET	TAPER LENGTH	SIGN SPACING	CHANNELIZER SPACING

SEE TABLE 'A'–'F' FOR SIGN AND CHANNELIZER DEVICE SPACING AND TAPER LENGTH

SPEED	APPROACH STREET	TAPER LENGTH	SIGN SPACING	CHANNELIZER SPACING

ABBREVIATIONS:

S = Sign Spacing
Min = Minimum
LT = Left
RT = Right
LTP = Lane Traffic Panel
TANSAT = Tow Away, No Stopping Anytime
TANS = Tow Away, No Stopping

CHART A
MINIMUM RECOMMENDED DELINEATOR/CONE & SIGN PLACEMENT

POSTED SPEED LIMIT	TAPER LENGTH FOR 12–FT LANE			CHANNELIZER SPACING		SIGN SPACING (ADVANCE OF TAPER & BETWEEN SIGNS)
	MERGING	SHIFTING	SHOULDER	TAPER	TANGENT	
20 MPH	80 FT.	40 FT.	27 FT.	20 FT.	40 FT.	100 FT.
25 MPH	125 FT.	63 FT.	42 FT.	25 FT.	63 FT.	100 FT.
30 MPH	180 FT.	90 FT.	60 FT.	30 FT.	90 FT.	350 FT.
35 MPH	245 FT.	123 FT.	82 FT.	35 FT.	123 FT.	350 FT.
40 MPH	320 FT.	160 FT.	107 FT.	40 FT.	160 FT.	350 FT.
* 45 MPH	540 FT.	270 FT.	180 FT.	45 FT.	270 FT.	500 FT.
* 50 MPH	600 FT.	300 FT.	200 FT.	50 FT.	300 FT.	500 FT.
* 55+MPH	660 FT.	330 FT.	220 FT.	55 FT.	330 FT.	PER TABLE 'A'

NOTES

1. A Flashing Arrow sign shall be used for each lane closed.
*2. Two lane closure signs (C–20) shall be used on the approach to a lane closure with speeds of 45 mph or greater.

NOTE: This chart based on 12–foot wide lanes. For lane widths greater than 12 feet, use the following formulae:

Taper formula:

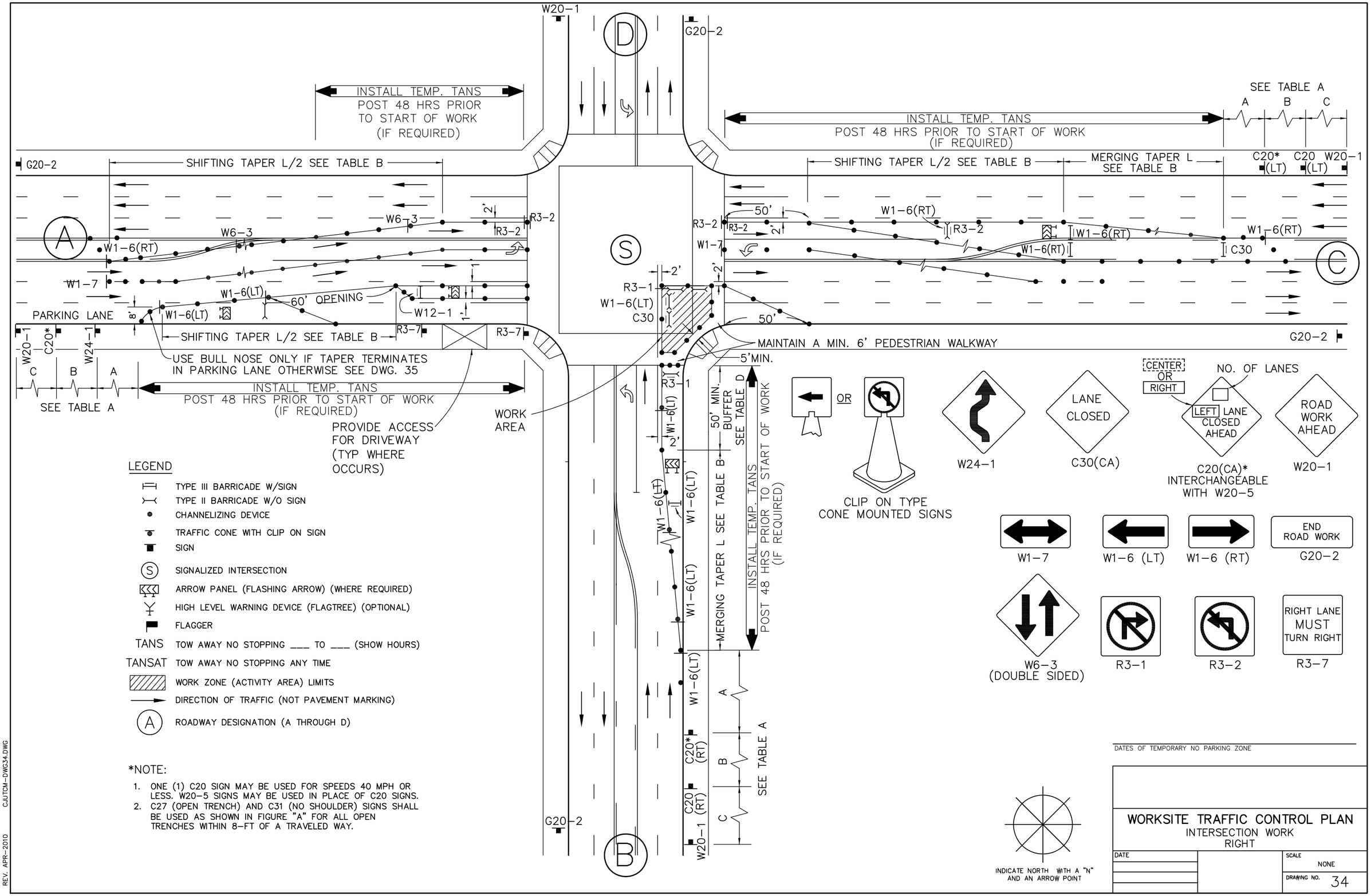
$L = S \times W$ for speeds of 45 mph or more.

$L = \frac{WS^2}{60}$ for speeds of 40 mph or less.

Where:

L = Minimum length of taper.
S = Numerical value of posted speed limit prior to work or 85 percentile speed.
W = Width of offset.

i.e.: 50 mph and 19' lane; L = 50 x 19 = 950 feet



LEGEND

- TYPE III BARRICADE W/SIGN
- TYPE II BARRICADE W/O SIGN
- CHANNELIZING DEVICE
- TRAFFIC CONE WITH CLIP ON SIGN
- SIGN
- (S) SIGNALIZED INTERSECTION
- ARROW PANEL (FLASHING ARROW) (WHERE REQUIRED)
- HIGH LEVEL WARNING DEVICE (FLAGTREE) (OPTIONAL)
- FLAGGER
- TANS TOW AWAY NO STOPPING ___ TO ___ (SHOW HOURS)
- TANSAT TOW AWAY NO STOPPING ANY TIME
- WORK ZONE (ACTIVITY AREA) LIMITS
- DIRECTION OF TRAFFIC (NOT PAVEMENT MARKING)
- (A) ROADWAY DESIGNATION (A THROUGH D)

*NOTE:

1. ONE (1) C20 SIGN MAY BE USED FOR SPEEDS 40 MPH OR LESS. W20-5 SIGNS MAY BE USED IN PLACE OF C20 SIGNS.
2. C27 (OPEN TRENCH) AND C31 (NO SHOULDER) SIGNS SHALL BE USED AS SHOWN IN FIGURE "A" FOR ALL OPEN TRENCHES WITHIN 8-FT OF A TRAVELED WAY.

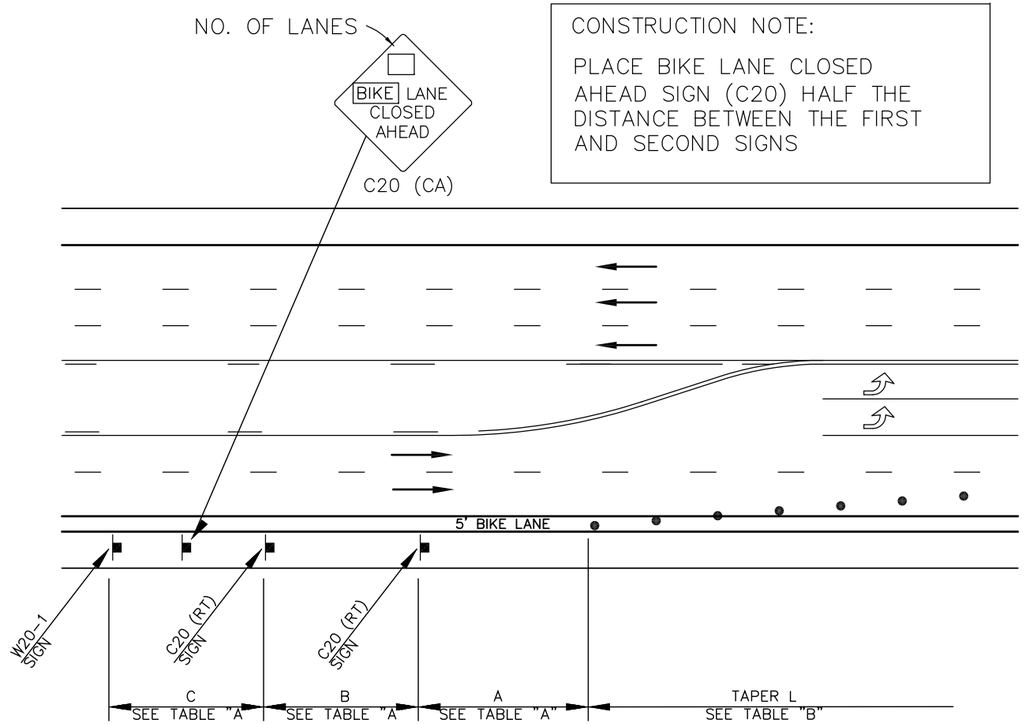
DATES OF TEMPORARY NO PARKING ZONE

INDICATE NORTH WITH A "N" AND AN ARROW POINT

WORKSITE TRAFFIC CONTROL PLAN
INTERSECTION WORK
RIGHT

DATE		SCALE
		NONE
		DRAWING NO. 34

REV. APR-2010 CJUTCM-DWG34.DWG



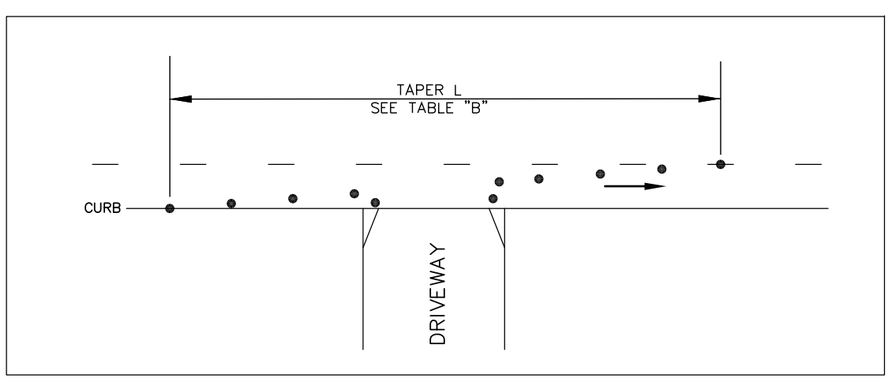
PLACEMENT OF BIKE LANE CLOSURE SIGN
(IF NECESSARY)

CONSTRUCTION NOTE:

PLACE BIKE LANE CLOSED AHEAD SIGN (C20) HALF THE DISTANCE BETWEEN THE FIRST AND SECOND SIGNS

CONSTRUCTION NOTE:

ALL DRIVEWAYS TO REMAIN OPEN (WHENEVER POSSIBLE) THROUGHOUT TRAFFIC CONTROL ZONE



SEE TABLE 'A'–'F' FOR SIGN AND CHANNELIZER DEVICE SPACING AND TAPER LENGTH

SPEED	APPROACH STREET	TAPER LENGTH	SIGN SPACING	CHANNELIZER SPACING

SEE TABLE 'A'–'F' FOR SIGN AND CHANNELIZER DEVICE SPACING AND TAPER LENGTH

SPEED	APPROACH STREET	TAPER LENGTH	SIGN SPACING	CHANNELIZER SPACING

ABBREVIATIONS:

S = Sign Spacing
Min = Minimum
LT = Left
RT = Right
LTP = Lane Traffic Panel
TANSAT = Tow Away, No Stopping Anytime
TANS = Tow Away, No Stopping

CHART A
MINIMUM RECOMMENDED DELINEATOR/CONE & SIGN PLACEMENT

POSTED SPEED LIMIT	TAPER LENGTH FOR 12–FT LANE			CHANNELIZER SPACING		SIGN SPACING (ADVANCE OF TAPER & BETWEEN SIGNS)
	MERGING	SHIFTING	SHOULDER	TAPER	TANGENT	
20 MPH	80 FT.	40 FT.	27 FT.	20 FT.	40 FT.	100 FT.
25 MPH	125 FT.	63 FT.	42 FT.	25 FT.	63 FT.	100 FT.
30 MPH	180 FT.	90 FT.	60 FT.	30 FT.	90 FT.	350 FT.
35 MPH	245 FT.	123 FT.	82 FT.	35 FT.	123 FT.	350 FT.
40 MPH	320 FT.	160 FT.	107 FT.	40 FT.	160 FT.	350 FT.
* 45 MPH	540 FT.	270 FT.	180 FT.	45 FT.	270 FT.	500 FT.
* 50 MPH	600 FT.	300 FT.	200 FT.	50 FT.	300 FT.	500 FT.
* 55+MPH	660 FT.	330 FT.	220 FT.	55 FT.	330 FT.	PER TABLE 'A'

NOTES

1. A Flashing Arrow sign shall be used for each lane closed.
*2. Two lane closure signs (C–20) shall be used on the approach to a lane closure with speeds of 45 mph or greater.

NOTE: This chart based on 12–foot wide lanes. For lane widths greater than 12 feet, use the following formulae:

Taper formula:

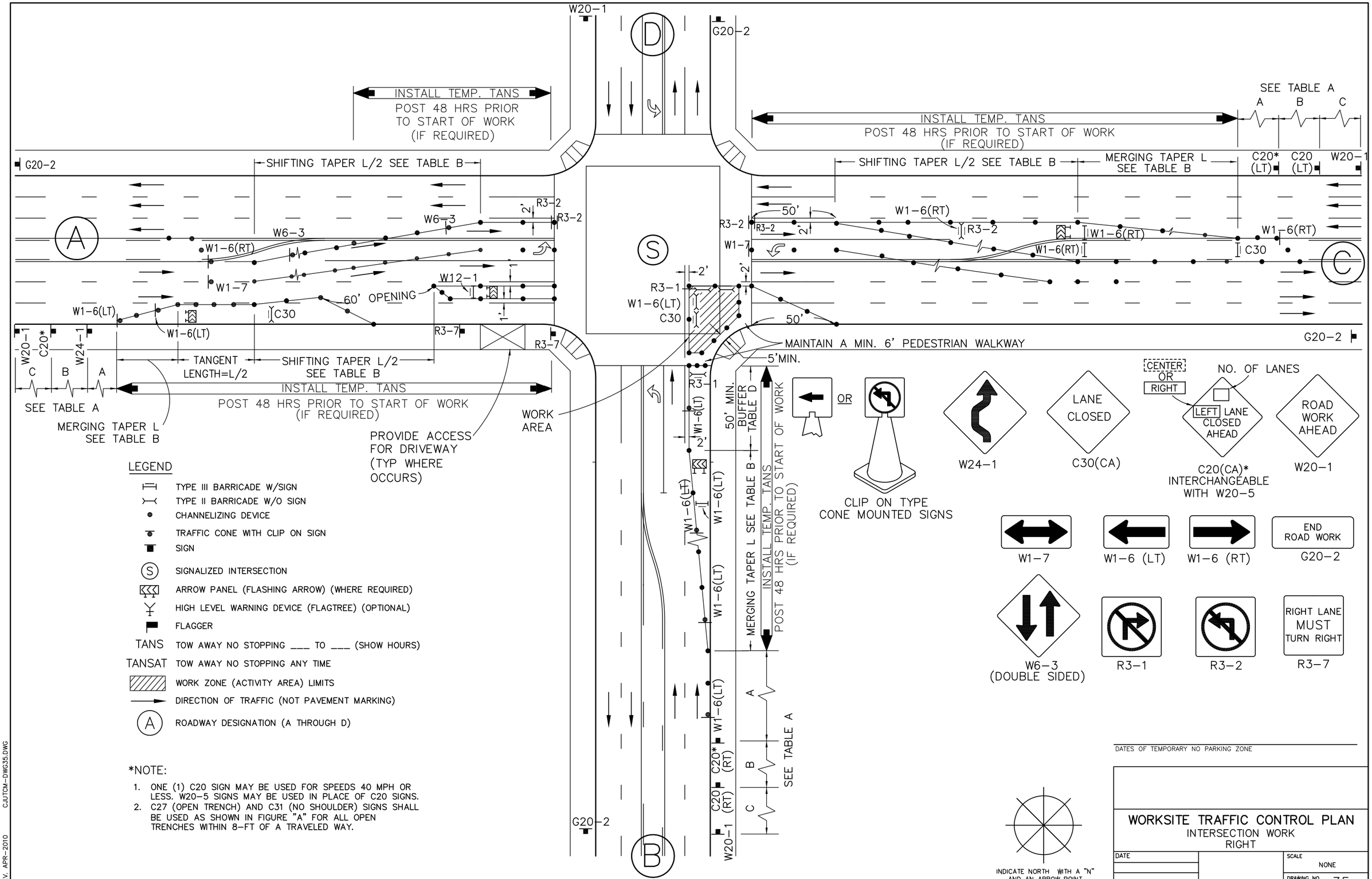
$L = S \times W$ for speeds of 45 mph or more.

$L = \frac{WS^2}{60}$ for speeds of 40 mph or less.

Where:

L = Minimum length of taper.
S = Numerical value of posted speed limit prior to work or 85 percentile speed.
W = Width of offset.

i.e.: 50 mph and 19' lane; L = 50 x 19 = 950 feet



LEGEND

- TYPE III BARRICADE W/SIGN
- TYPE II BARRICADE W/O SIGN
- CHANNELIZING DEVICE
- TRAFFIC CONE WITH CLIP ON SIGN
- SIGN
- (S) SIGNALIZED INTERSECTION
- ARROW PANEL (FLASHING ARROW) (WHERE REQUIRED)
- HIGH LEVEL WARNING DEVICE (FLAGTREE) (OPTIONAL)
- FLAGGER
- TANS TOW AWAY NO STOPPING ___ TO ___ (SHOW HOURS)
- TANSAT TOW AWAY NO STOPPING ANY TIME
- WORK ZONE (ACTIVITY AREA) LIMITS
- DIRECTION OF TRAFFIC (NOT PAVEMENT MARKING)
- (A) ROADWAY DESIGNATION (A THROUGH D)

*NOTE:

1. ONE (1) C20 SIGN MAY BE USED FOR SPEEDS 40 MPH OR LESS. W20-5 SIGNS MAY BE USED IN PLACE OF C20 SIGNS.
2. C27 (OPEN TRENCH) AND C31 (NO SHOULDER) SIGNS SHALL BE USED AS SHOWN IN FIGURE "A" FOR ALL OPEN TRENCHES WITHIN 8-FT OF A TRAVELED WAY.

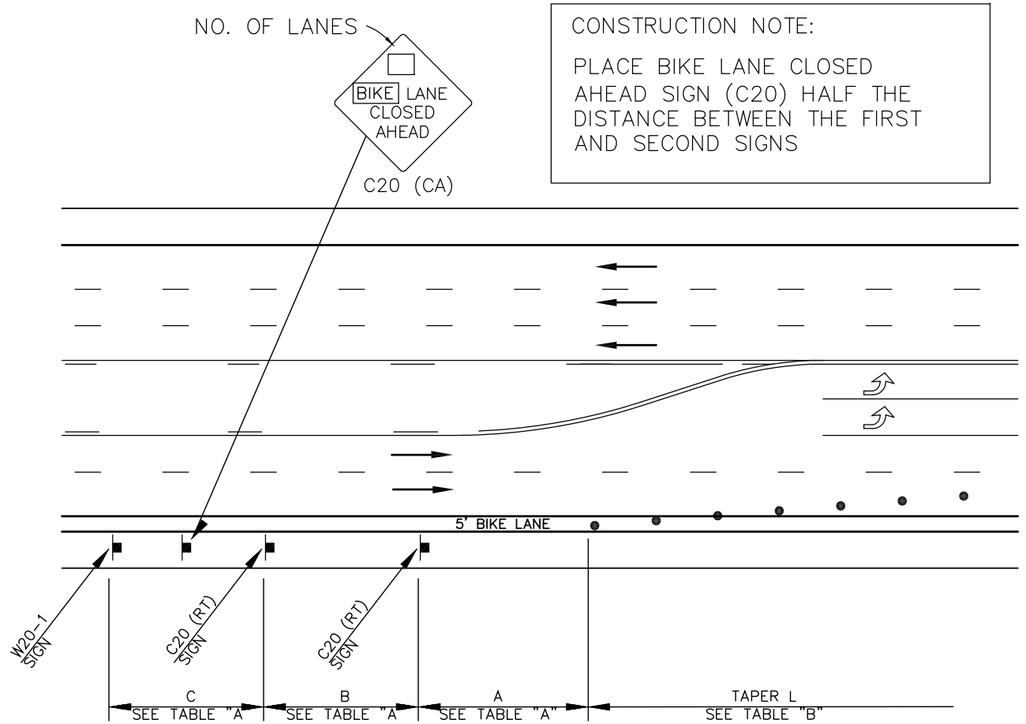
DATES OF TEMPORARY NO PARKING ZONE

INDICATE NORTH WITH A "N" AND AN ARROW POINT

WORKSITE TRAFFIC CONTROL PLAN
INTERSECTION WORK
RIGHT

DATE		SCALE NONE
		DRAWING NO. 35

REV. APR-2010 CJUTCM-DWG35.DWG



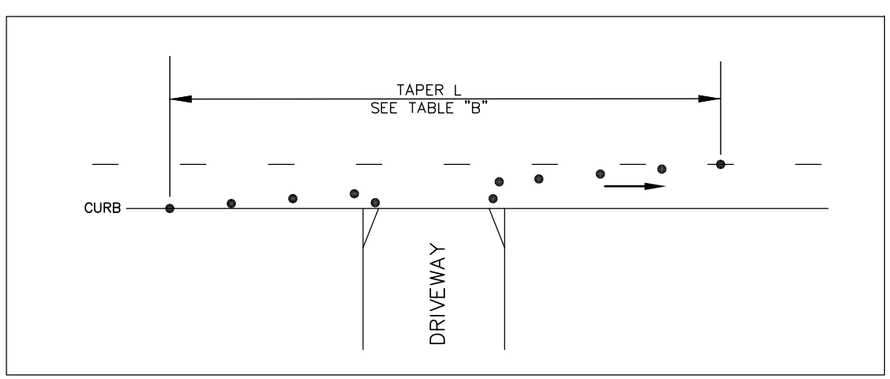
PLACEMENT OF BIKE LANE CLOSURE SIGN
(IF NECESSARY)

CONSTRUCTION NOTE:

PLACE BIKE LANE CLOSED AHEAD SIGN (C20) HALF THE DISTANCE BETWEEN THE FIRST AND SECOND SIGNS

CONSTRUCTION NOTE:

ALL DRIVEWAYS TO REMAIN OPEN (WHENEVER POSSIBLE) THROUGHOUT TRAFFIC CONTROL ZONE



SEE TABLE 'A'–'F' FOR SIGN AND CHANNELIZER DEVICE SPACING AND TAPER LENGTH

SPEED	APPROACH STREET	TAPER LENGTH	SIGN SPACING	CHANNELIZER SPACING

SEE TABLE 'A'–'F' FOR SIGN AND CHANNELIZER DEVICE SPACING AND TAPER LENGTH

SPEED	APPROACH STREET	TAPER LENGTH	SIGN SPACING	CHANNELIZER SPACING

ABBREVIATIONS:

S = Sign Spacing
Min = Minimum
LT = Left
RT = Right
LTP = Lane Traffic Panel
TANSAT = Tow Away, No Stopping Anytime
TANS = Tow Away, No Stopping

CHART A
MINIMUM RECOMMENDED DELINEATOR/CONE & SIGN PLACEMENT

POSTED SPEED LIMIT	TAPER LENGTH FOR 12–FT LANE			CHANNELIZER SPACING		SIGN SPACING (ADVANCE OF TAPER & BETWEEN SIGNS)
	MERGING	SHIFTING	SHOULDER	TAPER	TANGENT	
20 MPH	80 FT.	40 FT.	27 FT.	20 FT.	40 FT.	100 FT.
25 MPH	125 FT.	63 FT.	42 FT.	25 FT.	63 FT.	100 FT.
30 MPH	180 FT.	90 FT.	60 FT.	30 FT.	90 FT.	350 FT.
35 MPH	245 FT.	123 FT.	82 FT.	35 FT.	123 FT.	350 FT.
40 MPH	320 FT.	160 FT.	107 FT.	40 FT.	160 FT.	350 FT.
* 45 MPH	540 FT.	270 FT.	180 FT.	45 FT.	270 FT.	500 FT.
* 50 MPH	600 FT.	300 FT.	200 FT.	50 FT.	300 FT.	500 FT.
* 55+MPH	660 FT.	330 FT.	220 FT.	55 FT.	330 FT.	PER TABLE 'A'

NOTES

1. A Flashing Arrow sign shall be used for each lane closed.
*2. Two lane closure signs (C–20) shall be used on the approach to a lane closure with speeds of 45 mph or greater.

NOTE: This chart based on 12–foot wide lanes. For lane widths greater than 12 feet, use the following formulae:

Taper formula:

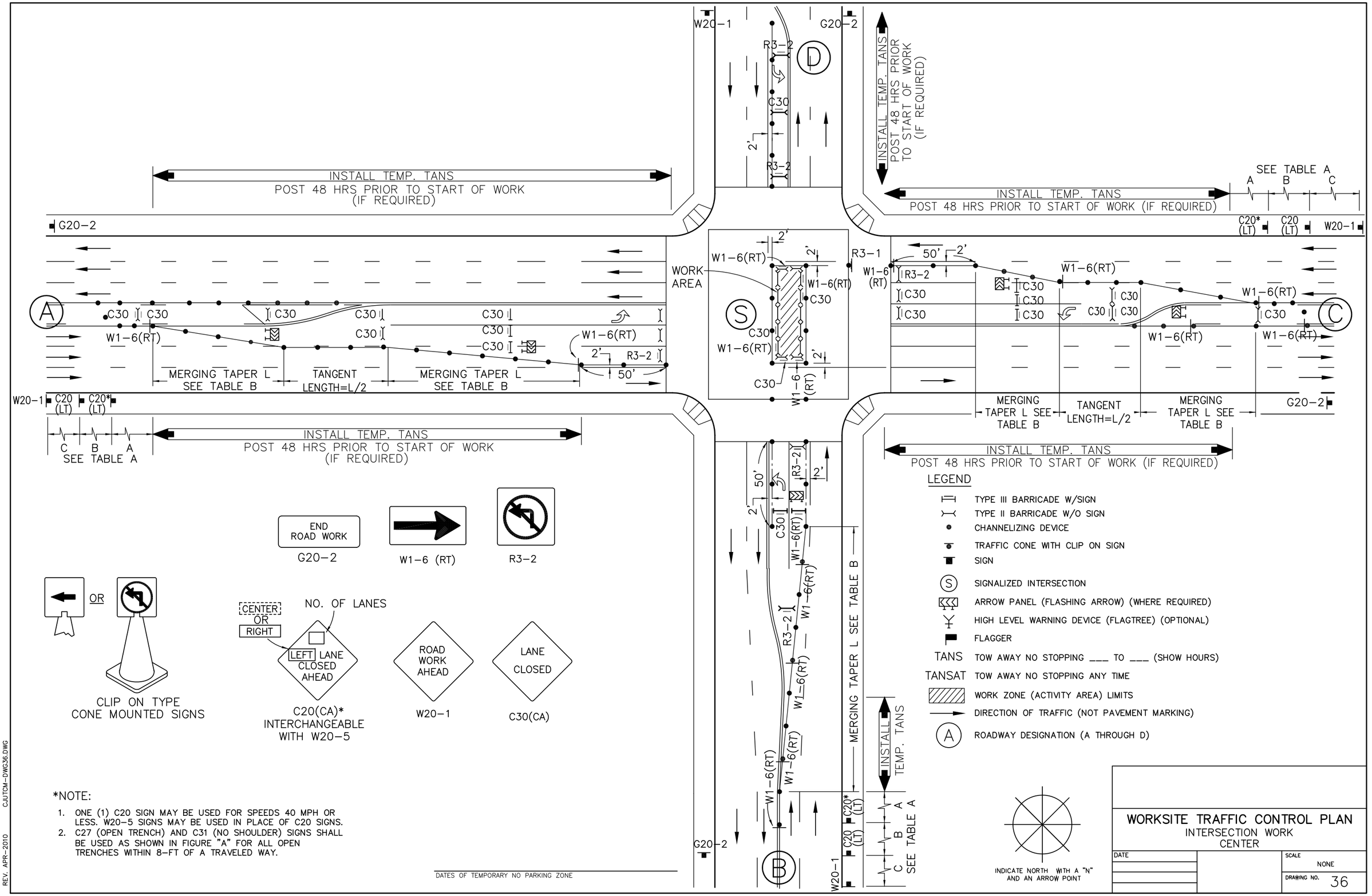
$L = S \times W$ for speeds of 45 mph or more.

$L = \frac{WS^2}{60}$ for speeds of 40 mph or less.

Where:

L = Minimum length of taper.
S = Numerical value of posted speed limit prior to work or 85 percentile speed.
W = Width of offset.

i.e.: 50 mph and 19' lane; L = 50 x 19 = 950 feet



END ROAD WORK
G20-2

W1-6 (RT)

R3-2

OR

CLIP ON TYPE
CONE MOUNTED SIGNS

CENTER
OR
RIGHT
NO. OF LANES
LEFT LANE CLOSED AHEAD

C20(CA)*
INTERCHANGEABLE
WITH W20-5

ROAD WORK AHEAD

W20-1

LANE CLOSED

C30(CA)

*NOTE:

1. ONE (1) C20 SIGN MAY BE USED FOR SPEEDS 40 MPH OR LESS. W20-5 SIGNS MAY BE USED IN PLACE OF C20 SIGNS.
2. C27 (OPEN TRENCH) AND C31 (NO SHOULDER) SIGNS SHALL BE USED AS SHOWN IN FIGURE "A" FOR ALL OPEN TRENCHES WITHIN 8-FT OF A TRAVELED WAY.

DATES OF TEMPORARY NO PARKING ZONE

LEGEND

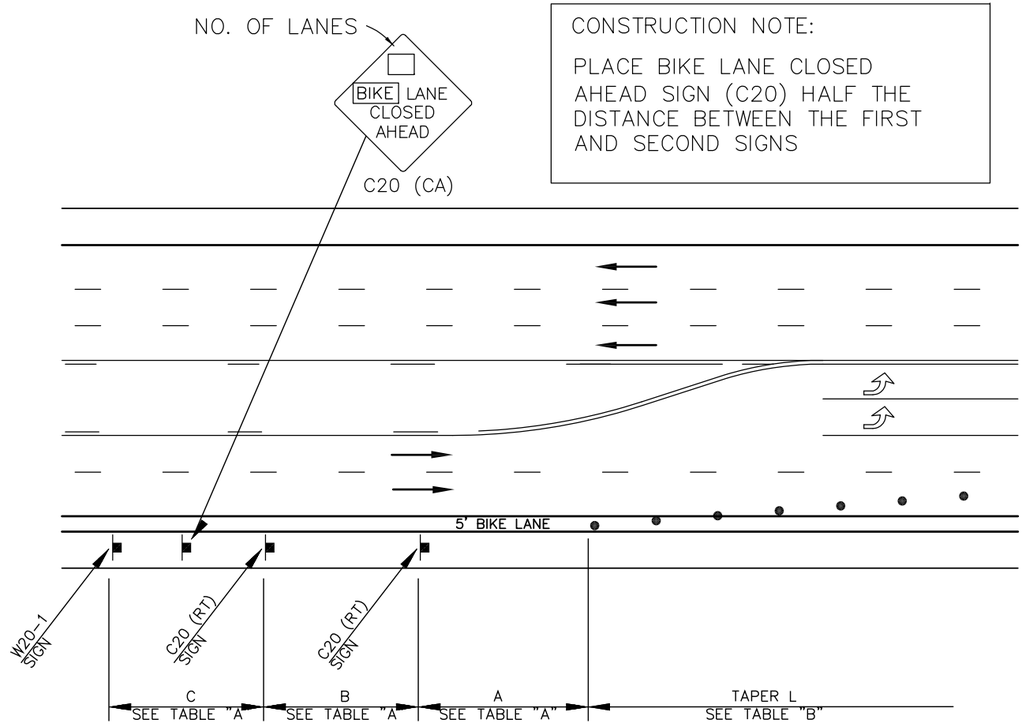
- TYPE III BARRICADE W/SIGN
- TYPE II BARRICADE W/O SIGN
- CHANNELIZING DEVICE
- TRAFFIC CONE WITH CLIP ON SIGN
- SIGN
- (S) SIGNALIZED INTERSECTION
- ARROW PANEL (FLASHING ARROW) (WHERE REQUIRED)
- HIGH LEVEL WARNING DEVICE (FLAGTREE) (OPTIONAL)
- FLAGGER
- TANS TOW AWAY NO STOPPING ___ TO ___ (SHOW HOURS)
- TANSAT TOW AWAY NO STOPPING ANY TIME
- WORK ZONE (ACTIVITY AREA) LIMITS
- DIRECTION OF TRAFFIC (NOT PAVEMENT MARKING)
- (A) ROADWAY DESIGNATION (A THROUGH D)

INDICATE NORTH WITH A "N" AND AN ARROW POINT

WORKSITE TRAFFIC CONTROL PLAN
INTERSECTION WORK CENTER

DATE		SCALE NONE
		DRAWING NO. 36

REV. APR-2010 CJUTCM-DWG36.DWG



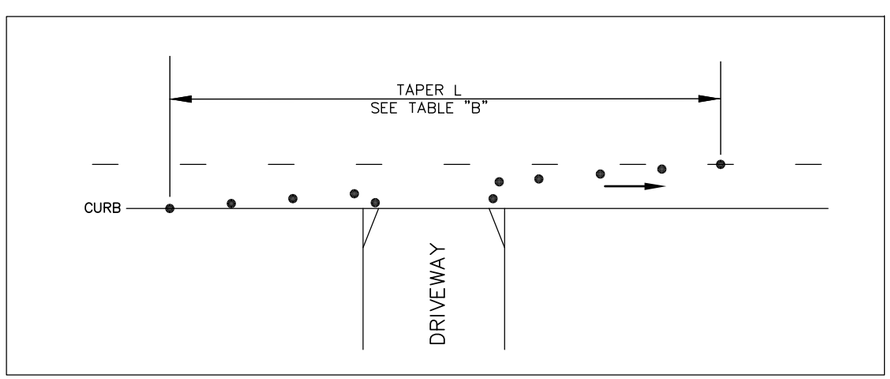
PLACEMENT OF BIKE LANE CLOSURE SIGN
(IF NECESSARY)

CONSTRUCTION NOTE:

PLACE BIKE LANE CLOSED AHEAD SIGN (C20) HALF THE DISTANCE BETWEEN THE FIRST AND SECOND SIGNS

CONSTRUCTION NOTE:

ALL DRIVEWAYS TO REMAIN OPEN (WHENEVER POSSIBLE) THROUGHOUT TRAFFIC CONTROL ZONE



SEE TABLE 'A'–'F' FOR SIGN AND CHANNELIZER DEVICE SPACING AND TAPER LENGTH

SPEED	APPROACH STREET	TAPER LENGTH	SIGN SPACING	CHANNELIZER SPACING

SEE TABLE 'A'–'F' FOR SIGN AND CHANNELIZER DEVICE SPACING AND TAPER LENGTH

SPEED	APPROACH STREET	TAPER LENGTH	SIGN SPACING	CHANNELIZER SPACING

ABBREVIATIONS:

S = Sign Spacing
Min = Minimum
LT = Left
RT = Right
LTP = Lane Traffic Panel
TANSAT = Tow Away, No Stopping Anytime
TANS = Tow Away, No Stopping

CHART A
MINIMUM RECOMMENDED DELINEATOR/CONE & SIGN PLACEMENT

POSTED SPEED LIMIT	TAPER LENGTH FOR 12–FT LANE			CHANNELIZER SPACING		SIGN SPACING (ADVANCE OF TAPER & BETWEEN SIGNS)
	MERGING	SHIFTING	SHOULDER	TAPER	TANGENT	
20 MPH	80 FT.	40 FT.	27 FT.	20 FT.	40 FT.	100 FT.
25 MPH	125 FT.	63 FT.	42 FT.	25 FT.	63 FT.	100 FT.
30 MPH	180 FT.	90 FT.	60 FT.	30 FT.	90 FT.	350 FT.
35 MPH	245 FT.	123 FT.	82 FT.	35 FT.	123 FT.	350 FT.
40 MPH	320 FT.	160 FT.	107 FT.	40 FT.	160 FT.	350 FT.
* 45 MPH	540 FT.	270 FT.	180 FT.	45 FT.	270 FT.	500 FT.
* 50 MPH	600 FT.	300 FT.	200 FT.	50 FT.	300 FT.	500 FT.
* 55+MPH	660 FT.	330 FT.	220 FT.	55 FT.	330 FT.	PER TABLE 'A'

NOTES

1. A Flashing Arrow sign shall be used for each lane closed.
*2. Two lane closure signs (C–20) shall be used on the approach to a lane closure with speeds of 45 mph or greater.

NOTE: This chart based on 12–foot wide lanes. For lane widths greater than 12 feet, use the following formulae:

Taper formula:

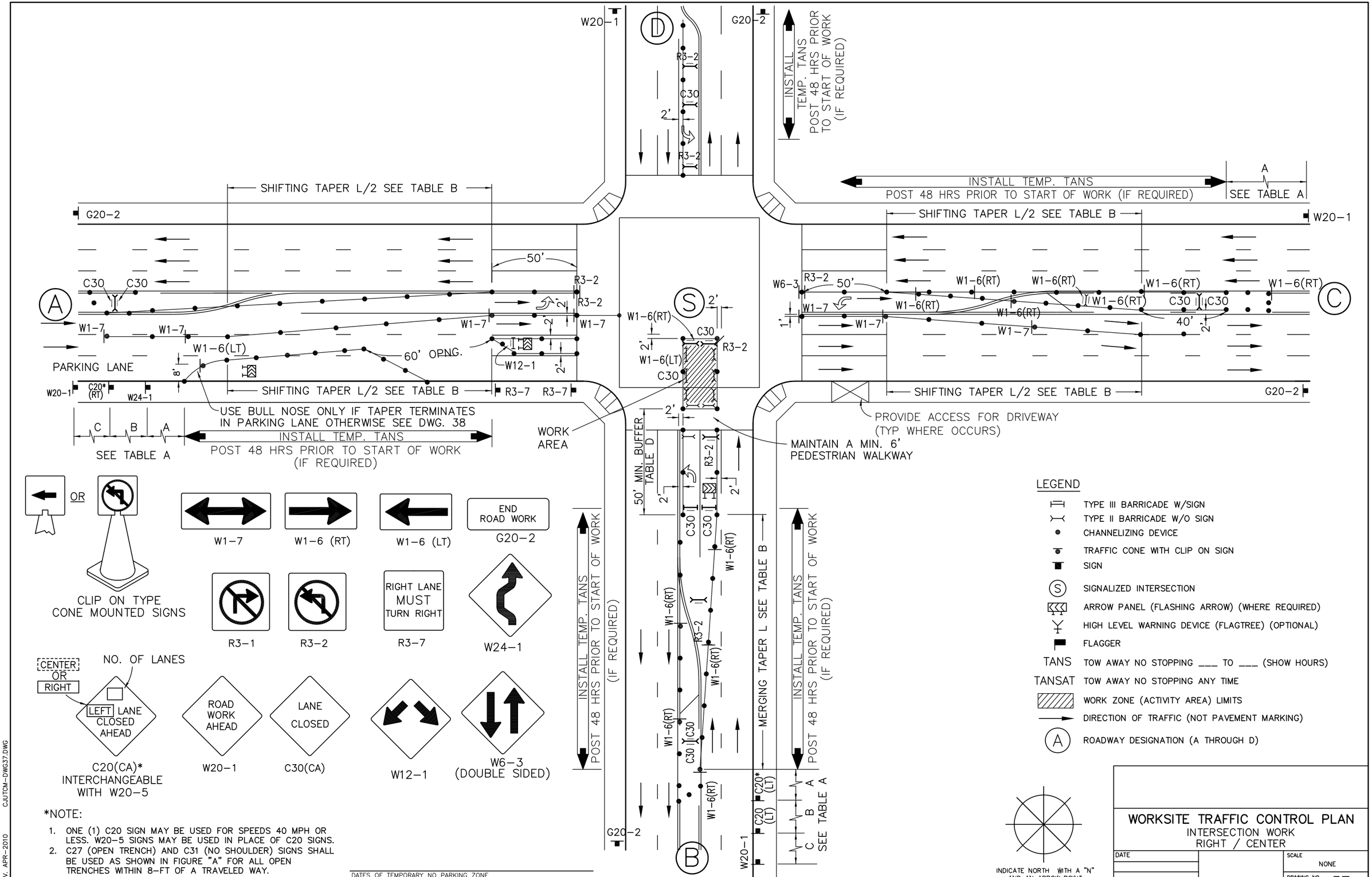
$L = S \times W$ for speeds of 45 mph or more.

$L = \frac{WS^2}{60}$ for speeds of 40 mph or less.

Where:

L = Minimum length of taper.
S = Numerical value of posted speed limit prior to work or 85 percentile speed.
W = Width of offset.

i.e.: 50 mph and 19' lane; L = 50 x 19 = 950 feet



*NOTE:

1. ONE (1) C20 SIGN MAY BE USED FOR SPEEDS 40 MPH OR LESS. W20-5 SIGNS MAY BE USED IN PLACE OF C20 SIGNS.
2. C27 (OPEN TRENCH) AND C31 (NO SHOULDER) SIGNS SHALL BE USED AS SHOWN IN FIGURE "A" FOR ALL OPEN TRENCHES WITHIN 8-FT OF A TRAVELED WAY.

DATES OF TEMPORARY NO PARKING ZONE

LEGEND

- TYPE III BARRICADE W/SIGN
- TYPE II BARRICADE W/O SIGN
- CHANNELIZING DEVICE
- TRAFFIC CONE WITH CLIP ON SIGN
- SIGN
- (S) SIGNALIZED INTERSECTION
- ARROW PANEL (FLASHING ARROW) (WHERE REQUIRED)
- HIGH LEVEL WARNING DEVICE (FLAGTREE) (OPTIONAL)
- FLAGGER
- TANS TOW AWAY NO STOPPING ___ TO ___ (SHOW HOURS)
- TANSAT TOW AWAY NO STOPPING ANY TIME
- WORK ZONE (ACTIVITY AREA) LIMITS
- DIRECTION OF TRAFFIC (NOT PAVEMENT MARKING)
- (A) ROADWAY DESIGNATION (A THROUGH D)

INDICATE NORTH WITH A "N" AND AN ARROW POINT

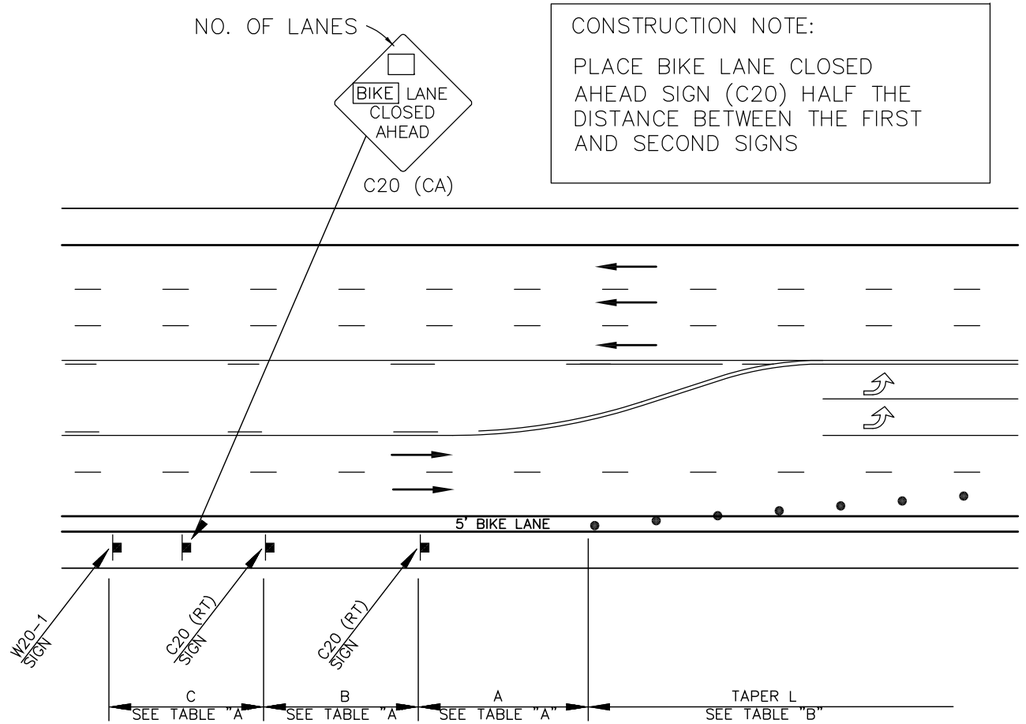
WORKSITE TRAFFIC CONTROL PLAN
INTERSECTION WORK
RIGHT / CENTER

DATE

SCALE NONE

DRAWING NO. 37

REV. APR-2010 CJUTCM-DWG37.DWG



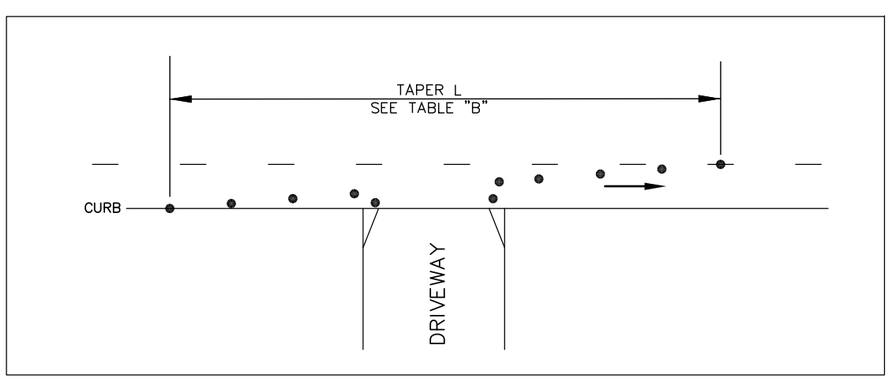
PLACEMENT OF BIKE LANE CLOSURE SIGN
(IF NECESSARY)

CONSTRUCTION NOTE:

PLACE BIKE LANE CLOSED AHEAD SIGN (C20) HALF THE DISTANCE BETWEEN THE FIRST AND SECOND SIGNS

CONSTRUCTION NOTE:

ALL DRIVEWAYS TO REMAIN OPEN (WHENEVER POSSIBLE) THROUGHOUT TRAFFIC CONTROL ZONE



SEE TABLE 'A'–'F' FOR SIGN AND CHANNELIZER DEVICE SPACING AND TAPER LENGTH

SPEED	APPROACH STREET	TAPER LENGTH	SIGN SPACING	CHANNELIZER SPACING

SEE TABLE 'A'–'F' FOR SIGN AND CHANNELIZER DEVICE SPACING AND TAPER LENGTH

SPEED	APPROACH STREET	TAPER LENGTH	SIGN SPACING	CHANNELIZER SPACING

ABBREVIATIONS:

S = Sign Spacing
Min = Minimum
LT = Left
RT = Right
LTP = Lane Traffic Panel
TANSAT = Tow Away, No Stopping Anytime
TANS = Tow Away, No Stopping

CHART A
MINIMUM RECOMMENDED DELINEATOR/CONE & SIGN PLACEMENT

POSTED SPEED LIMIT	TAPER LENGTH FOR 12–FT LANE			CHANNELIZER SPACING		SIGN SPACING (ADVANCE OF TAPER & BETWEEN SIGNS)
	MERGING	SHIFTING	SHOULDER	TAPER	TANGENT	
20 MPH	80 FT.	40 FT.	27 FT.	20 FT.	40 FT.	100 FT.
25 MPH	125 FT.	63 FT.	42 FT.	25 FT.	63 FT.	100 FT.
30 MPH	180 FT.	90 FT.	60 FT.	30 FT.	90 FT.	350 FT.
35 MPH	245 FT.	123 FT.	82 FT.	35 FT.	123 FT.	350 FT.
40 MPH	320 FT.	160 FT.	107 FT.	40 FT.	160 FT.	350 FT.
* 45 MPH	540 FT.	270 FT.	180 FT.	45 FT.	270 FT.	500 FT.
* 50 MPH	600 FT.	300 FT.	200 FT.	50 FT.	300 FT.	500 FT.
* 55+MPH	660 FT.	330 FT.	220 FT.	55 FT.	330 FT.	PER TABLE 'A'

NOTES

1. A Flashing Arrow sign shall be used for each lane closed.
*2. Two lane closure signs (C–20) shall be used on the approach to a lane closure with speeds of 45 mph or greater.

NOTE: This chart based on 12–foot wide lanes. For lane widths greater than 12 feet, use the following formulae:

Taper formula:

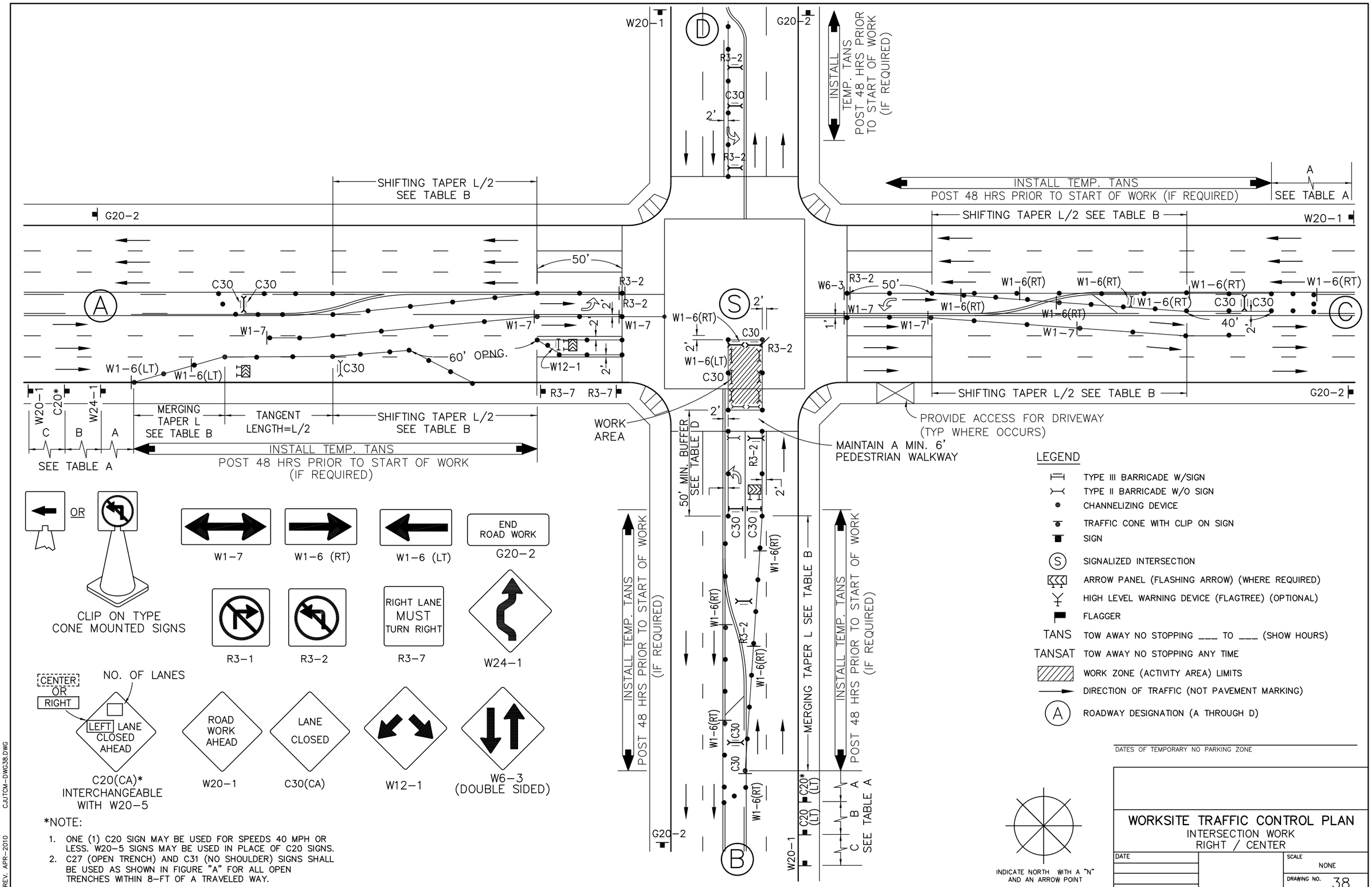
$L = S \times W$ for speeds of 45 mph or more.

$L = \frac{WS^2}{60}$ for speeds of 40 mph or less.

Where:

L = Minimum length of taper.
S = Numerical value of posted speed limit prior to work or 85 percentile speed.
W = Width of offset.

i.e.: 50 mph and 19' lane; L = 50 x 19 = 950 feet



*NOTE:

1. ONE (1) C20 SIGN MAY BE USED FOR SPEEDS 40 MPH OR LESS. W20-5 SIGNS MAY BE USED IN PLACE OF C20 SIGNS.
2. C27 (OPEN TRENCH) AND C31 (NO SHOULDER) SIGNS SHALL BE USED AS SHOWN IN FIGURE "A" FOR ALL OPEN TRENCHES WITHIN 8-FT OF A TRAVELED WAY.

LEGEND

- TYPE III BARRICADE W/SIGN
- TYPE II BARRICADE W/O SIGN
- CHANNELIZING DEVICE
- TRAFFIC CONE WITH CLIP ON SIGN
- SIGN
- (S) SIGNALIZED INTERSECTION
- ARROW PANEL (FLASHING ARROW) (WHERE REQUIRED)
- HIGH LEVEL WARNING DEVICE (FLAGTREE) (OPTIONAL)
- FLAGGER
- TANS TOW AWAY NO STOPPING ___ TO ___ (SHOW HOURS)
- TANSAT TOW AWAY NO STOPPING ANY TIME
- WORK ZONE (ACTIVITY AREA) LIMITS
- DIRECTION OF TRAFFIC (NOT PAVEMENT MARKING)
- (A) ROADWAY DESIGNATION (A THROUGH D)

DATES OF TEMPORARY NO PARKING ZONE

INDICATE NORTH WITH A "N" AND AN ARROW POINT

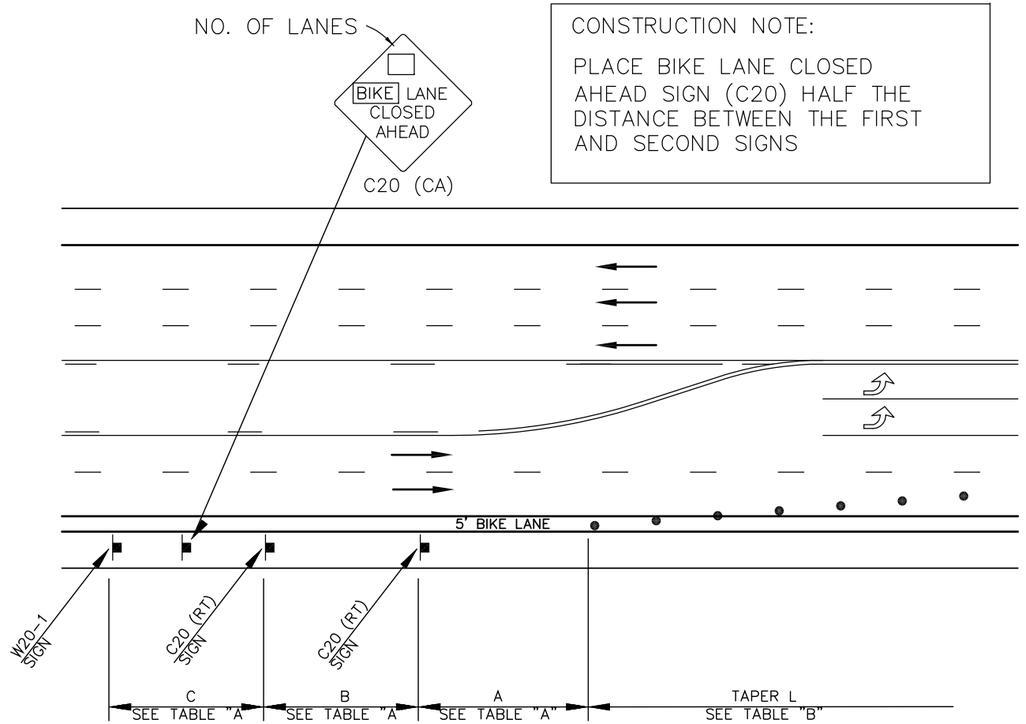
WORKSITE TRAFFIC CONTROL PLAN

INTERSECTION WORK
RIGHT / CENTER

DATE		SCALE
		NONE
		DRAWING NO. 38

REV. APR-2010

CJUTCM-DWG38.DWG



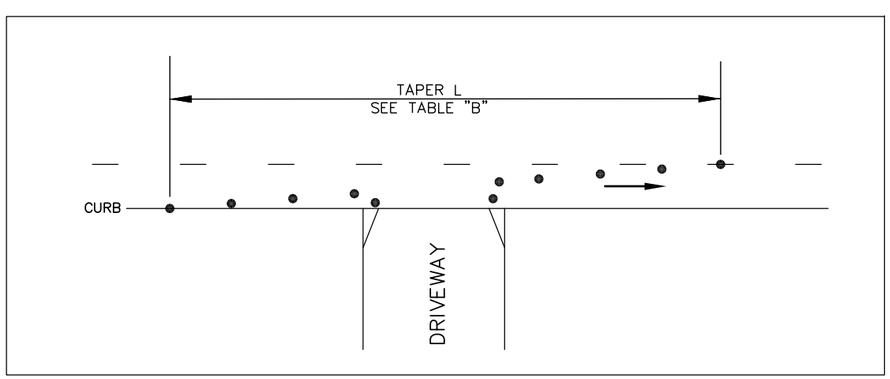
PLACEMENT OF BIKE LANE CLOSURE SIGN
(IF NECESSARY)

CONSTRUCTION NOTE:

PLACE BIKE LANE CLOSED AHEAD SIGN (C20) HALF THE DISTANCE BETWEEN THE FIRST AND SECOND SIGNS

CONSTRUCTION NOTE:

ALL DRIVEWAYS TO REMAIN OPEN (WHENEVER POSSIBLE) THROUGHOUT TRAFFIC CONTROL ZONE



SEE TABLE 'A'–'F' FOR SIGN AND CHANNELIZER DEVICE SPACING AND TAPER LENGTH

SPEED	APPROACH STREET	TAPER LENGTH	SIGN SPACING	CHANNELIZER SPACING

SEE TABLE 'A'–'F' FOR SIGN AND CHANNELIZER DEVICE SPACING AND TAPER LENGTH

SPEED	APPROACH STREET	TAPER LENGTH	SIGN SPACING	CHANNELIZER SPACING

ABBREVIATIONS:

S = Sign Spacing
Min = Minimum
LT = Left
RT = Right
LTP = Lane Traffic Panel
TANSAT = Tow Away, No Stopping Anytime
TANS = Tow Away, No Stopping

CHART A
MINIMUM RECOMMENDED DELINEATOR/CONE & SIGN PLACEMENT

POSTED SPEED LIMIT	TAPER LENGTH FOR 12–FT LANE			CHANNELIZER SPACING		SIGN SPACING (ADVANCE OF TAPER & BETWEEN SIGNS)
	MERGING	SHIFTING	SHOULDER	TAPER	TANGENT	
20 MPH	80 FT.	40 FT.	27 FT.	20 FT.	40 FT.	100 FT.
25 MPH	125 FT.	63 FT.	42 FT.	25 FT.	63 FT.	100 FT.
30 MPH	180 FT.	90 FT.	60 FT.	30 FT.	90 FT.	350 FT.
35 MPH	245 FT.	123 FT.	82 FT.	35 FT.	123 FT.	350 FT.
40 MPH	320 FT.	160 FT.	107 FT.	40 FT.	160 FT.	350 FT.
* 45 MPH	540 FT.	270 FT.	180 FT.	45 FT.	270 FT.	500 FT.
* 50 MPH	600 FT.	300 FT.	200 FT.	50 FT.	300 FT.	500 FT.
* 55+MPH	660 FT.	330 FT.	220 FT.	55 FT.	330 FT.	PER TABLE 'A'

NOTES

1. A Flashing Arrow sign shall be used for each lane closed.
*2. Two lane closure signs (C–20) shall be used on the approach to a lane closure with speeds of 45 mph or greater.

NOTE: This chart based on 12–foot wide lanes. For lane widths greater than 12 feet, use the following formulae:

Taper formula:

$L = S \times W$ for speeds of 45 mph or more.

$L = \frac{WS^2}{60}$ for speeds of 40 mph or less.

Where:

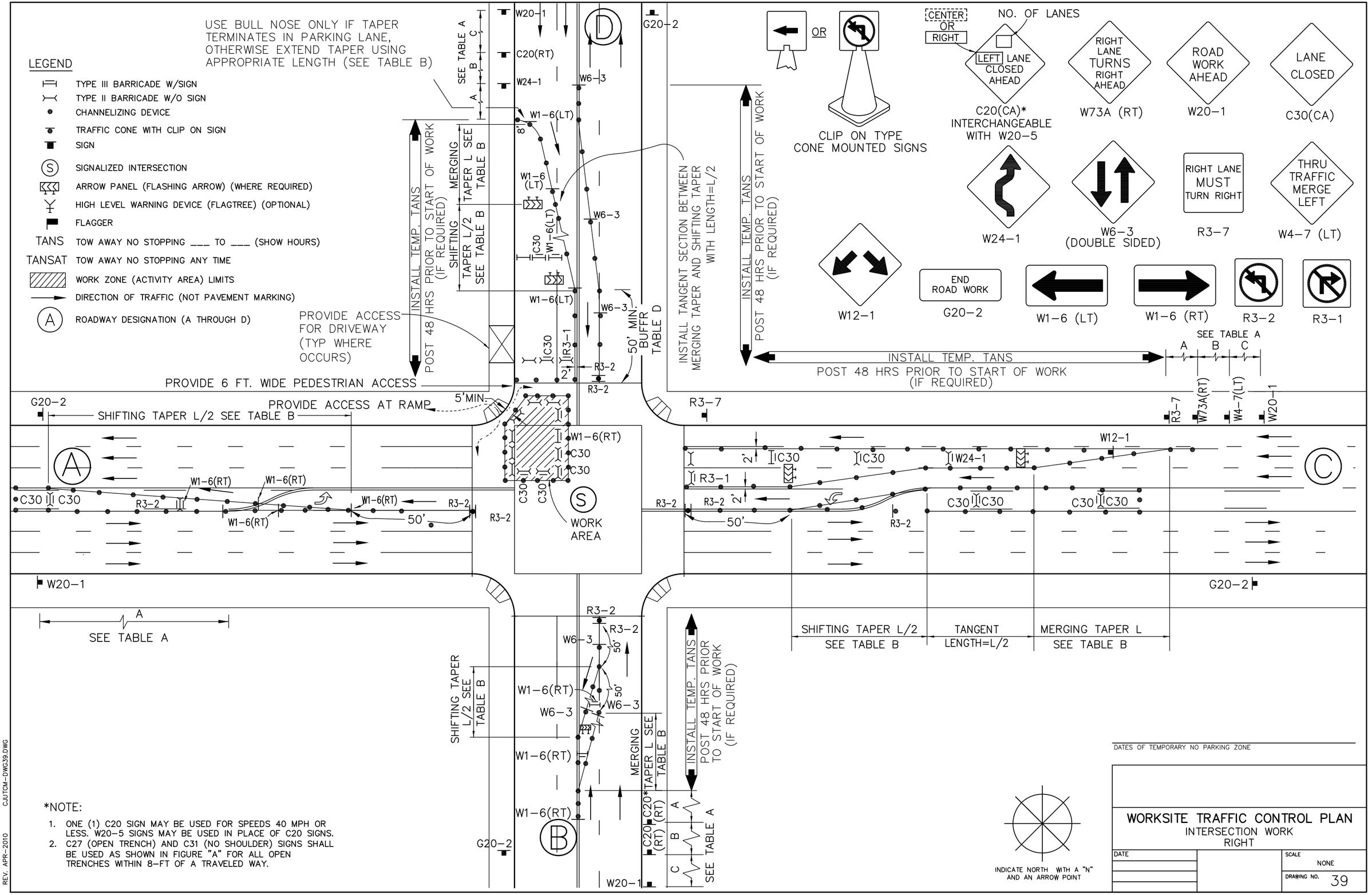
L = Minimum length of taper.
S = Numerical value of posted speed limit prior to work or 85 percentile speed.
W = Width of offset.

i.e.: 50 mph and 19' lane; L = 50 x 19 = 950 feet

USE BULL NOSE ONLY IF TAPER TERMINATES IN PARKING LANE, OTHERWISE EXTEND TAPER USING APPROPRIATE LENGTH (SEE TABLE B)

LEGEND

- TYPE III BARRICADE W/SIGN
- TYPE II BARRICADE W/O SIGN
- CHANNELIZING DEVICE
- TRAFFIC CONE WITH CLIP ON SIGN
- SIGN
- (S) SIGNALIZED INTERSECTION
- ARROW PANEL (FLASHING ARROW) (WHERE REQUIRED)
- HIGH LEVEL WARNING DEVICE (FLAGTREE) (OPTIONAL)
- FLAGGER
- TANS TOW AWAY NO STOPPING ___ TO ___ (SHOW HOURS)
- TANSAT TOW AWAY NO STOPPING ANY TIME
- WORK ZONE (ACTIVITY AREA) LIMITS
- DIRECTION OF TRAFFIC (NOT PAVEMENT MARKING)
- (A) ROADWAY DESIGNATION (A THROUGH D)



*NOTE:

1. ONE (1) C20 SIGN MAY BE USED FOR SPEEDS 40 MPH OR LESS. W20-5 SIGNS MAY BE USED IN PLACE OF C20 SIGNS.
2. C27 (OPEN TRENCH) AND C31 (NO SHOULDER) SIGNS SHALL BE USED AS SHOWN IN FIGURE "A" FOR ALL OPEN TRENCHES WITHIN 8-FT OF A TRAVELED WAY.

DATES OF TEMPORARY NO PARKING ZONE

INDICATE NORTH WITH A "N" AND AN ARROW POINT

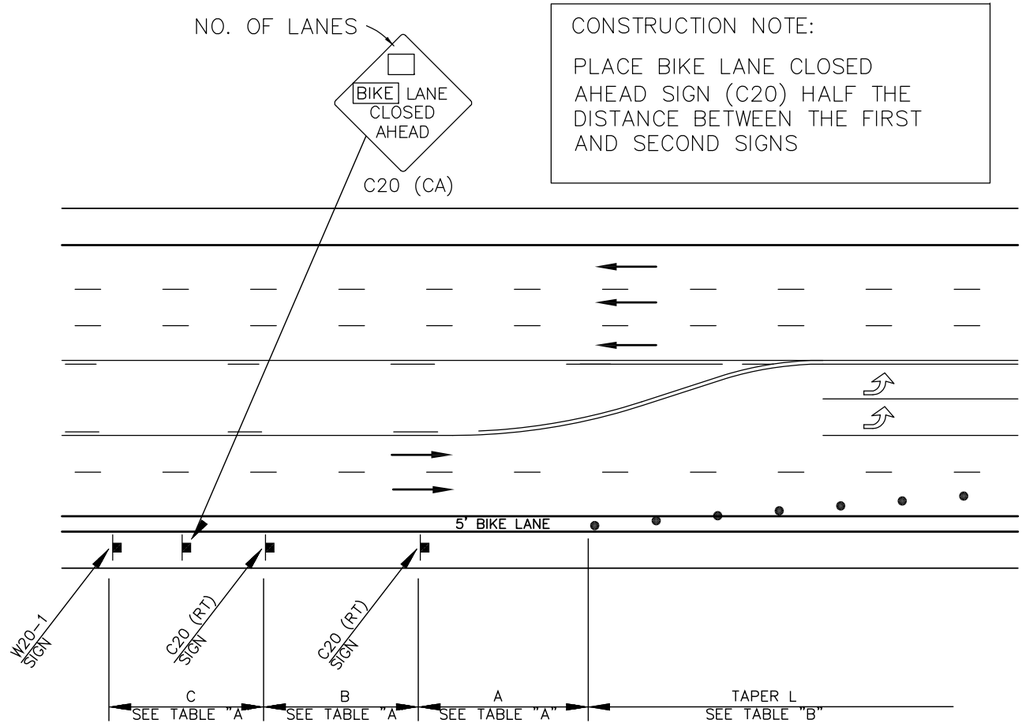
WORKSITE TRAFFIC CONTROL PLAN

INTERSECTION WORK
RIGHT

DATE		SCALE
		NONE
		DRAWING NO. 39

CJUTCM-DWG39.DWG

REV. APR-2010



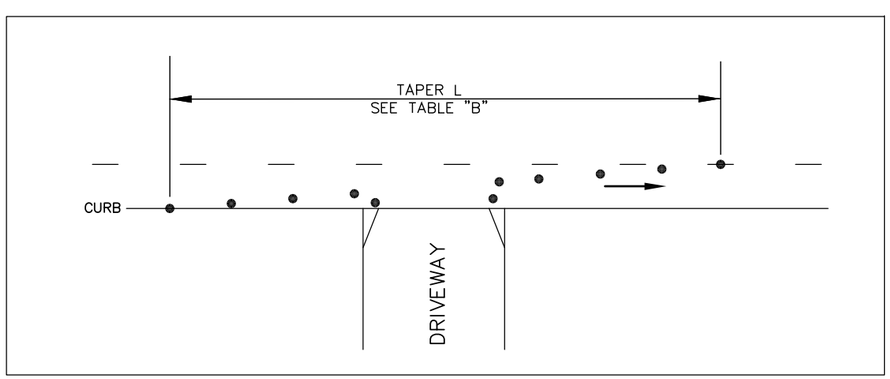
PLACEMENT OF BIKE LANE CLOSURE SIGN
(IF NECESSARY)

CONSTRUCTION NOTE:

PLACE BIKE LANE CLOSED AHEAD SIGN (C20) HALF THE DISTANCE BETWEEN THE FIRST AND SECOND SIGNS

CONSTRUCTION NOTE:

ALL DRIVEWAYS TO REMAIN OPEN (WHENEVER POSSIBLE) THROUGHOUT TRAFFIC CONTROL ZONE



SEE TABLE 'A'–'F' FOR SIGN AND CHANNELIZER DEVICE SPACING AND TAPER LENGTH

SPEED	APPROACH STREET	TAPER LENGTH	SIGN SPACING	CHANNELIZER SPACING

SEE TABLE 'A'–'F' FOR SIGN AND CHANNELIZER DEVICE SPACING AND TAPER LENGTH

SPEED	APPROACH STREET	TAPER LENGTH	SIGN SPACING	CHANNELIZER SPACING

ABBREVIATIONS:

S = Sign Spacing
Min = Minimum
LT = Left
RT = Right
LTP = Lane Traffic Panel
TANSAT = Tow Away, No Stopping Anytime
TANS = Tow Away, No Stopping

CHART A
MINIMUM RECOMMENDED DELINEATOR/CONE & SIGN PLACEMENT

POSTED SPEED LIMIT	TAPER LENGTH FOR 12–FT LANE			CHANNELIZER SPACING		SIGN SPACING (ADVANCE OF TAPER & BETWEEN SIGNS)
	MERGING	SHIFTING	SHOULDER	TAPER	TANGENT	
20 MPH	80 FT.	40 FT.	27 FT.	20 FT.	40 FT.	100 FT.
25 MPH	125 FT.	63 FT.	42 FT.	25 FT.	63 FT.	100 FT.
30 MPH	180 FT.	90 FT.	60 FT.	30 FT.	90 FT.	350 FT.
35 MPH	245 FT.	123 FT.	82 FT.	35 FT.	123 FT.	350 FT.
40 MPH	320 FT.	160 FT.	107 FT.	40 FT.	160 FT.	350 FT.
* 45 MPH	540 FT.	270 FT.	180 FT.	45 FT.	270 FT.	500 FT.
* 50 MPH	600 FT.	300 FT.	200 FT.	50 FT.	300 FT.	500 FT.
* 55+MPH	660 FT.	330 FT.	220 FT.	55 FT.	330 FT.	PER TABLE 'A'

NOTES

1. A Flashing Arrow sign shall be used for each lane closed.
*2. Two lane closure signs (C–20) shall be used on the approach to a lane closure with speeds of 45 mph or greater.

NOTE: This chart based on 12–foot wide lanes. For lane widths greater than 12 feet, use the following formulae:

Taper formula:

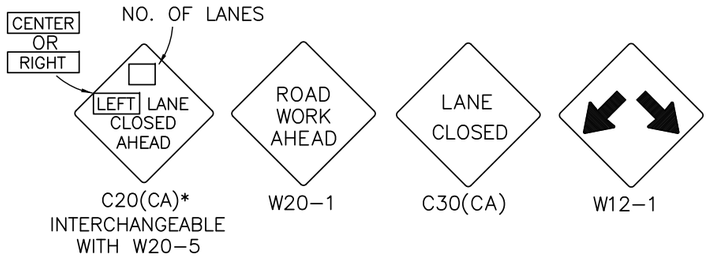
$L = S \times W$ for speeds of 45 mph or more.

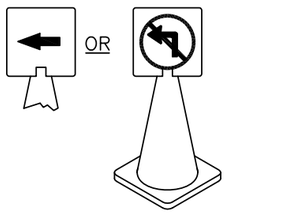
$L = \frac{WS^2}{60}$ for speeds of 40 mph or less.

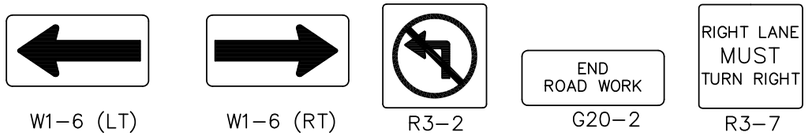
Where:

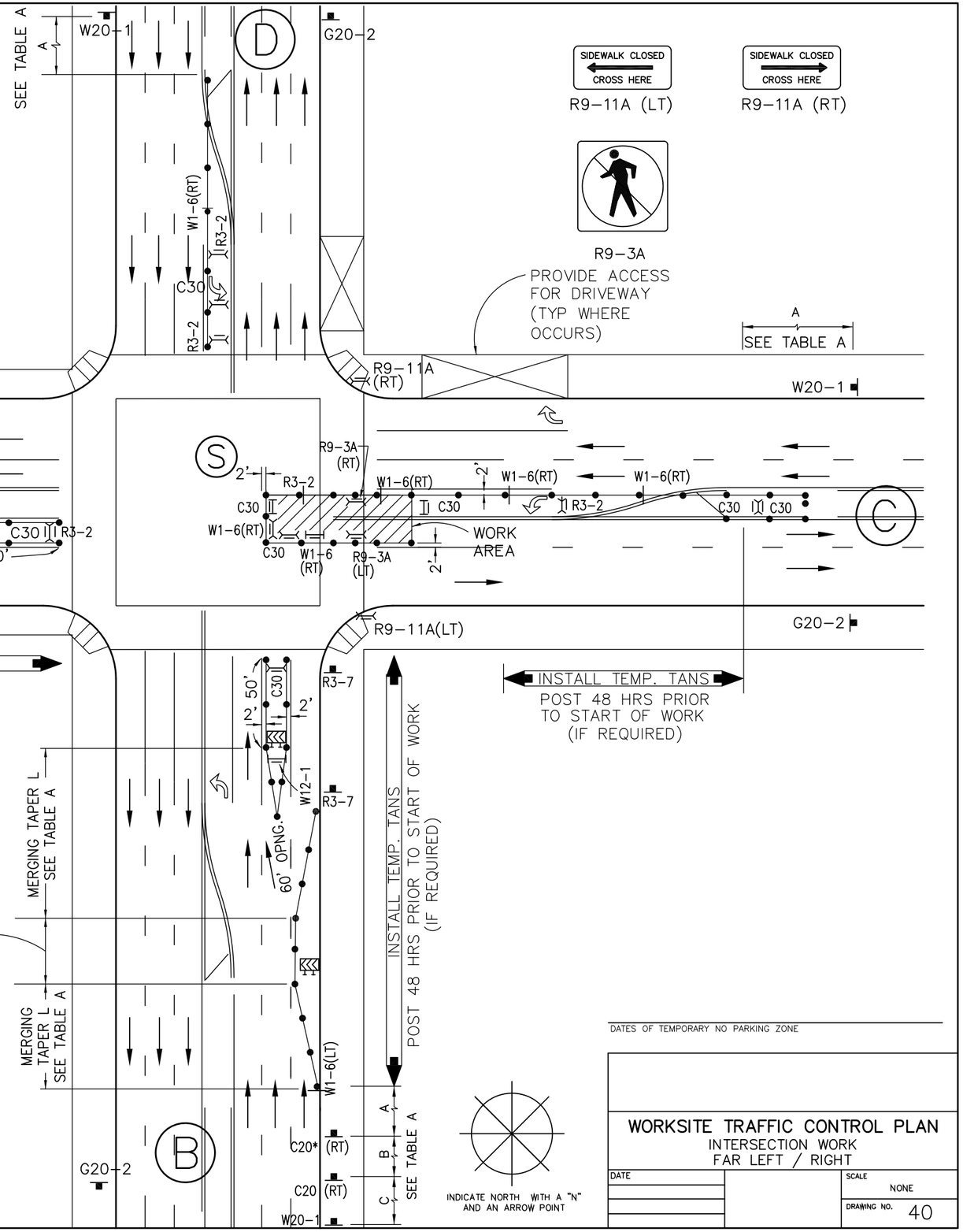
L = Minimum length of taper.
S = Numerical value of posted speed limit prior to work or 85 percentile speed.
W = Width of offset.

i.e.: 50 mph and 19' lane; L = 50 x 19 = 950 feet









LEGEND

- TYPE III BARRICADE W/SIGN
- TYPE II BARRICADE W/O SIGN
- CHANNELIZING DEVICE
- TRAFFIC CONE WITH CLIP ON SIGN
- SIGN
- (S) SIGNALIZED INTERSECTION
- ARROW PANEL (FLASHING ARROW) (WHERE REQUIRED)
- HIGH LEVEL WARNING DEVICE (FLAGTREE) (OPTIONAL)
- FLAGGER
- TANS TOW AWAY NO STOPPING ___ TO ___ (SHOW HOURS)
- TANSAT TOW AWAY NO STOPPING ANY TIME
- WORK ZONE (ACTIVITY AREA) LIMITS
- DIRECTION OF TRAFFIC (NOT PAVEMENT MARKING)
- (A) ROADWAY DESIGNATION (A THROUGH D)

*NOTE:

1. ONE (1) C20 SIGN MAY BE USED FOR SPEEDS 40 MPH OR LESS. W20-5 SIGNS MAY BE USED IN PLACE OF C20 SIGNS.
2. C27 (OPEN TRENCH) AND C31 (NO SHOULDER) SIGNS SHALL BE USED AS SHOWN IN FIGURE "A" FOR ALL OPEN TRENCHES WITHIN 8-FT OF A TRAVELED WAY.

DATES OF TEMPORARY NO PARKING ZONE

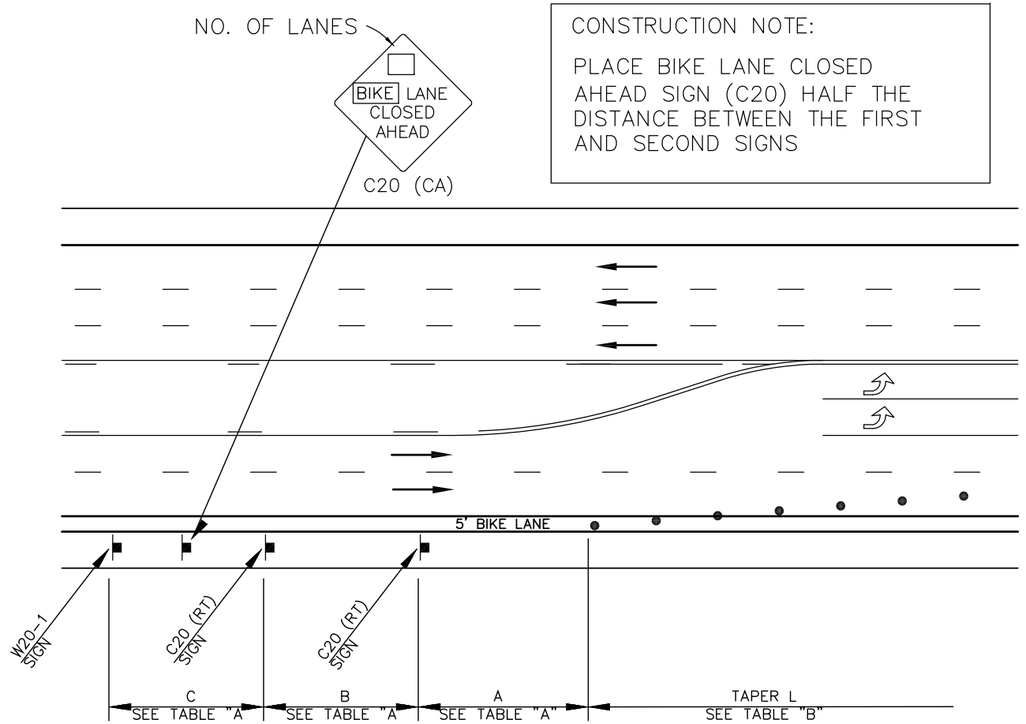
WORKSITE TRAFFIC CONTROL PLAN
INTERSECTION WORK
FAR LEFT / RIGHT

DATE

SCALE NONE

DRAWING NO. 40

REV. APR-2010 CJJTCM-DW640.DWG



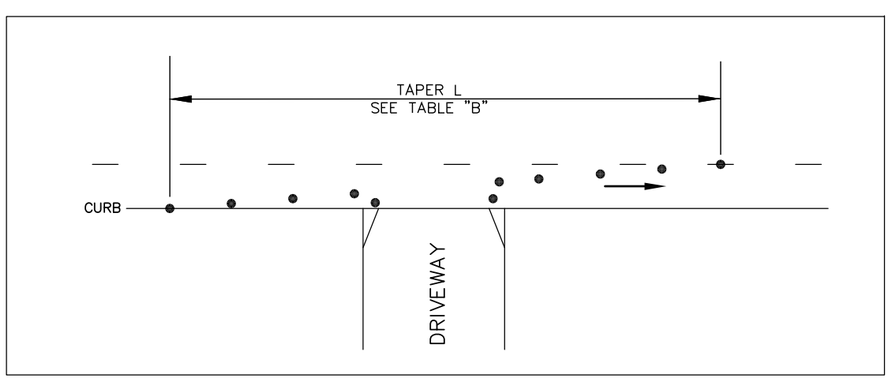
PLACEMENT OF BIKE LANE CLOSURE SIGN
(IF NECESSARY)

CONSTRUCTION NOTE:

PLACE BIKE LANE CLOSED AHEAD SIGN (C20) HALF THE DISTANCE BETWEEN THE FIRST AND SECOND SIGNS

CONSTRUCTION NOTE:

ALL DRIVEWAYS TO REMAIN OPEN (WHENEVER POSSIBLE) THROUGHOUT TRAFFIC CONTROL ZONE



SEE TABLE 'A'–'F' FOR SIGN AND CHANNELIZER DEVICE SPACING AND TAPER LENGTH

SPEED	APPROACH STREET	TAPER LENGTH	SIGN SPACING	CHANNELIZER SPACING

SEE TABLE 'A'–'F' FOR SIGN AND CHANNELIZER DEVICE SPACING AND TAPER LENGTH

SPEED	APPROACH STREET	TAPER LENGTH	SIGN SPACING	CHANNELIZER SPACING

ABBREVIATIONS:

S = Sign Spacing
Min = Minimum
LT = Left
RT = Right
LTP = Lane Traffic Panel
TANSAT = Tow Away, No Stopping Anytime
TANS = Tow Away, No Stopping

CHART A
MINIMUM RECOMMENDED DELINEATOR/CONE & SIGN PLACEMENT

POSTED SPEED LIMIT	TAPER LENGTH FOR 12–FT LANE			CHANNELIZER SPACING		SIGN SPACING (ADVANCE OF TAPER & BETWEEN SIGNS)
	MERGING	SHIFTING	SHOULDER	TAPER	TANGENT	
20 MPH	80 FT.	40 FT.	27 FT.	20 FT.	40 FT.	100 FT.
25 MPH	125 FT.	63 FT.	42 FT.	25 FT.	63 FT.	100 FT.
30 MPH	180 FT.	90 FT.	60 FT.	30 FT.	90 FT.	350 FT.
35 MPH	245 FT.	123 FT.	82 FT.	35 FT.	123 FT.	350 FT.
40 MPH	320 FT.	160 FT.	107 FT.	40 FT.	160 FT.	350 FT.
* 45 MPH	540 FT.	270 FT.	180 FT.	45 FT.	270 FT.	500 FT.
* 50 MPH	600 FT.	300 FT.	200 FT.	50 FT.	300 FT.	500 FT.
* 55+MPH	660 FT.	330 FT.	220 FT.	55 FT.	330 FT.	PER TABLE 'A'

NOTES

1. A Flashing Arrow sign shall be used for each lane closed.
*2. Two lane closure signs (C–20) shall be used on the approach to a lane closure with speeds of 45 mph or greater.

NOTE: This chart based on 12–foot wide lanes. For lane widths greater than 12 feet, use the following formulae:

Taper formula:

$L = S \times W$ for speeds of 45 mph or more.

$L = \frac{WS^2}{60}$ for speeds of 40 mph or less.

Where:

L = Minimum length of taper.
S = Numerical value of posted speed limit prior to work or 85 percentile speed.
W = Width of offset.

i.e.: 50 mph and 19' lane; L = 50 x 19 = 950 feet



W20–1



C20(CA)*
INTERCHANGEABLE
WITH W20–5



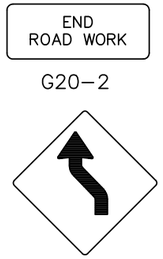
R3–7



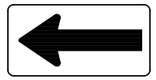
W4–7 (LT)



W6–3
(DOUBLE SIDED)



G20–2



W1–6 (LT)



W1–6 (RT)



R3–1

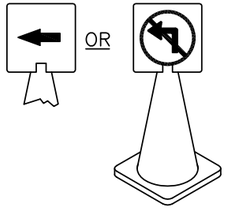


R3–2

W1–4 (LT)



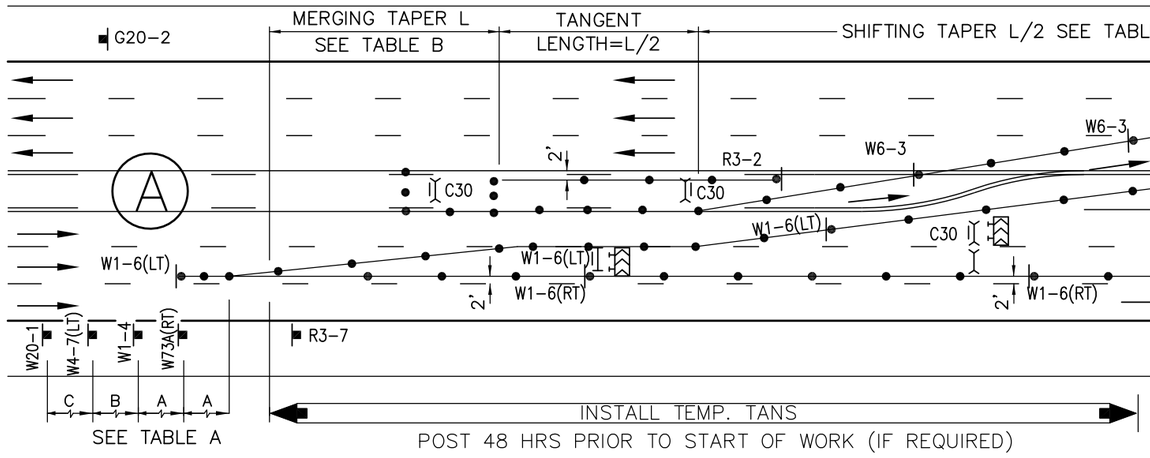
W73A (RT)



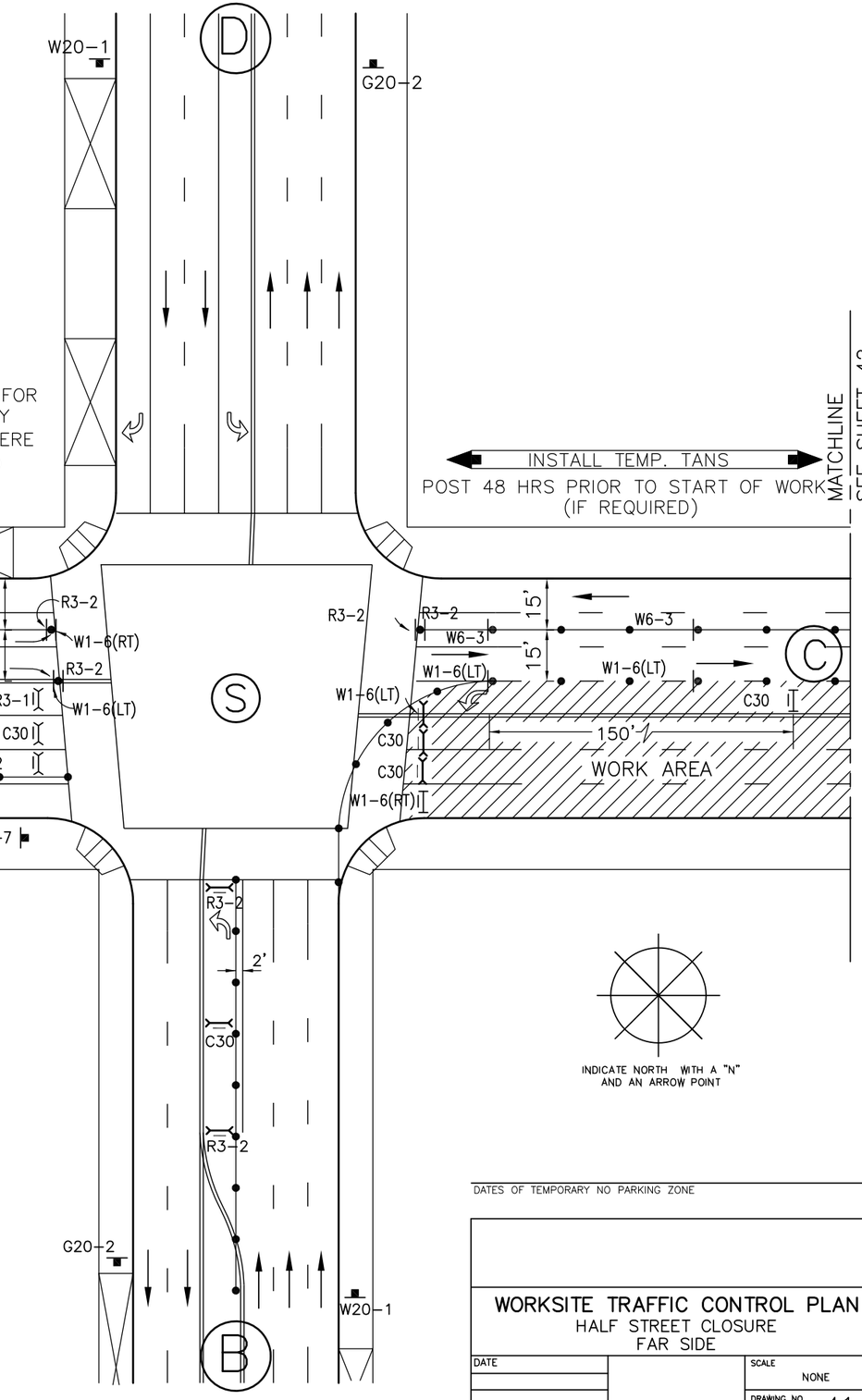
CLIP ON TYPE
CONE MOUNTED SIGNS

INSTALL TEMP. TANS
POST 48 HRS PRIOR
TO START OF WORK
(IF REQUIRED)

PROVIDE
ACCESS FOR
DRIVEWAY
(TYP WHERE
OCCURS)



INSTALL TEMP. TANS
POST 48 HRS PRIOR TO START OF WORK (IF REQUIRED)



INSTALL TEMP. TANS
POST 48 HRS PRIOR TO START OF WORK
(IF REQUIRED)

MATCHLINE
SEE SHEET 42

LEGEND

- TYPE III BARRICADE W/SIGN
- TYPE II BARRICADE W/O SIGN
- CHANNELIZING DEVICE
- TRAFFIC CONE WITH CLIP ON SIGN
- SIGN
- (S) SIGNALIZED INTERSECTION
- ARROW PANEL (FLASHING ARROW) (WHERE REQUIRED)
- HIGH LEVEL WARNING DEVICE (FLAGTREE) (OPTIONAL)
- FLAGGER
- TANS — TOW AWAY NO STOPPING ___ TO ___ (SHOW HOURS)
- TANSAT — TOW AWAY NO STOPPING ANY TIME
- WORK ZONE (ACTIVITY AREA) LIMITS
- DIRECTION OF TRAFFIC (NOT PAVEMENT MARKING)
- (A) ROADWAY DESIGNATION (A THROUGH D)

INDICATE NORTH WITH A "N"
AND AN ARROW POINT

DATES OF TEMPORARY NO PARKING ZONE

*NOTE:

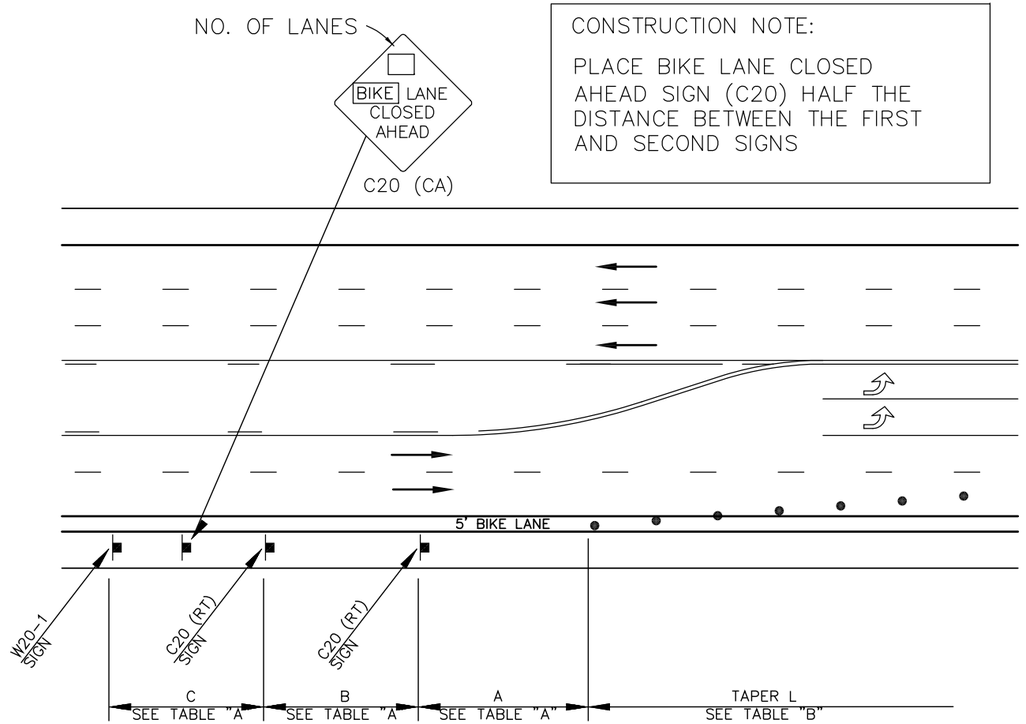
1. ONE (1) C20 SIGN MAY BE USED FOR SPEEDS 40 MPH OR LESS. W20–5 SIGNS MAY BE USED IN PLACE OF C20 SIGNS.
2. C27 (OPEN TRENCH) AND C31 (NO SHOULDER) SIGNS SHALL BE USED AS SHOWN IN FIGURE "A" FOR ALL OPEN TRENCHES WITHIN 8–FT OF A TRAVELED WAY.

WORKSITE TRAFFIC CONTROL PLAN
HALF STREET CLOSURE
FAR SIDE

DATE		SCALE
		NONE
		DRAWING NO. 41

CJUTCM–DWG41.DWG

REV. APR–2010



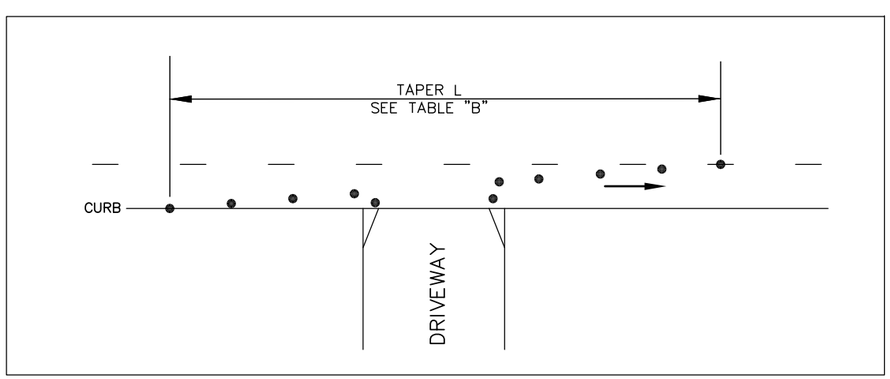
PLACEMENT OF BIKE LANE CLOSURE SIGN
(IF NECESSARY)

CONSTRUCTION NOTE:

PLACE BIKE LANE CLOSED AHEAD SIGN (C20) HALF THE DISTANCE BETWEEN THE FIRST AND SECOND SIGNS

CONSTRUCTION NOTE:

ALL DRIVEWAYS TO REMAIN OPEN (WHENEVER POSSIBLE) THROUGHOUT TRAFFIC CONTROL ZONE



SEE TABLE 'A'–'F' FOR SIGN AND CHANNELIZER DEVICE SPACING AND TAPER LENGTH

SPEED	APPROACH STREET	TAPER LENGTH	SIGN SPACING	CHANNELIZER SPACING

SEE TABLE 'A'–'F' FOR SIGN AND CHANNELIZER DEVICE SPACING AND TAPER LENGTH

SPEED	APPROACH STREET	TAPER LENGTH	SIGN SPACING	CHANNELIZER SPACING

ABBREVIATIONS:

S = Sign Spacing
Min = Minimum
LT = Left
RT = Right
LTP = Lane Traffic Panel
TANSAT = Tow Away, No Stopping Anytime
TANS = Tow Away, No Stopping

CHART A
MINIMUM RECOMMENDED DELINEATOR/CONE & SIGN PLACEMENT

POSTED SPEED LIMIT	TAPER LENGTH FOR 12–FT LANE			CHANNELIZER SPACING		SIGN SPACING (ADVANCE OF TAPER & BETWEEN SIGNS)
	MERGING	SHIFTING	SHOULDER	TAPER	TANGENT	
20 MPH	80 FT.	40 FT.	27 FT.	20 FT.	40 FT.	100 FT.
25 MPH	125 FT.	63 FT.	42 FT.	25 FT.	63 FT.	100 FT.
30 MPH	180 FT.	90 FT.	60 FT.	30 FT.	90 FT.	350 FT.
35 MPH	245 FT.	123 FT.	82 FT.	35 FT.	123 FT.	350 FT.
40 MPH	320 FT.	160 FT.	107 FT.	40 FT.	160 FT.	350 FT.
* 45 MPH	540 FT.	270 FT.	180 FT.	45 FT.	270 FT.	500 FT.
* 50 MPH	600 FT.	300 FT.	200 FT.	50 FT.	300 FT.	500 FT.
* 55+MPH	660 FT.	330 FT.	220 FT.	55 FT.	330 FT.	PER TABLE 'A'

NOTES

1. A Flashing Arrow sign shall be used for each lane closed.
*2. Two lane closure signs (C–20) shall be used on the approach to a lane closure with speeds of 45 mph or greater.

NOTE: This chart based on 12–foot wide lanes. For lane widths greater than 12 feet, use the following formulae:

Taper formula:

$L = S \times W$ for speeds of 45 mph or more.

$L = \frac{WS^2}{60}$ for speeds of 40 mph or less.

Where:

L = Minimum length of taper.
S = Numerical value of posted speed limit prior to work or 85 percentile speed.
W = Width of offset.

i.e.: 50 mph and 19' lane; L = 50 x 19 = 950 feet

LEGEND

- TYPE III BARRICADE W/SIGN
- TYPE II BARRICADE W/O SIGN
- CHANNELIZING DEVICE
- TRAFFIC CONE WITH CLIP ON SIGN
- SIGN
- (S) SIGNALIZED INTERSECTION
- ARROW PANEL (FLASHING ARROW) (WHERE REQUIRED)
- HIGH LEVEL WARNING DEVICE (FLAGTREE) (OPTIONAL)
- FLAGGER
- TANS TOW AWAY NO STOPPING ___ TO ___ (SHOW HOURS)
- TANSAT TOW AWAY NO STOPPING ANY TIME
- WORK ZONE (ACTIVITY AREA) LIMITS
- DIRECTION OF TRAFFIC (NOT PAVEMENT MARKING)
- (A) ROADWAY DESIGNATION (A THROUGH D)

MATCHLINE
SEE SHEET 41

INSTALL TEMP. TANS

W6-3 (DOUBLE SIDED)

CENTER OR RIGHT
NO. OF LANES
LEFT LANE CLOSED AHEAD
C20(CA) INTERCHANGEABLE WITH W20-5

ONE LANE ROAD AHEAD
W20-4

LANE CLOSED
C30(CA)

ROAD WORK AHEAD
W20-1

OR
CLIP ON TYPE CONE MOUNTED SIGNS

END ROAD WORK
G20-2

W1-6 (LT)

W1-6 (RT)

R3-2

D

W20-1

G20-2

SEE TABLE A
INSTALL TEMP TANS
A
B

MERGING TAPER L
SEE TABLE B

W20-4 C20(LT) W20-1

W6-3 W6-3 W6-3
15' 15' 15'
W1-6(RT)
R3-2
W1-6(LT) W1-6(LT) W1-6(LT)
R3-2
A
C30 WORK AREA C30

S

R3-2
R3-2
15'
50'
W1-6(RT)
W1-6(RT)
W1-6(RT)
W1-6(RT)
C30 W20-5
C

G20-2

150' TYPICAL
INSTALL TEMP TANS
POST 48 HOURS PRIOR TO START OF WORK (IF REQU

R3-2
2'
C30
R3-2
W1-6(RT)
B
G20-2
W20-1

MERGING TAPER L
SEE TABLE B

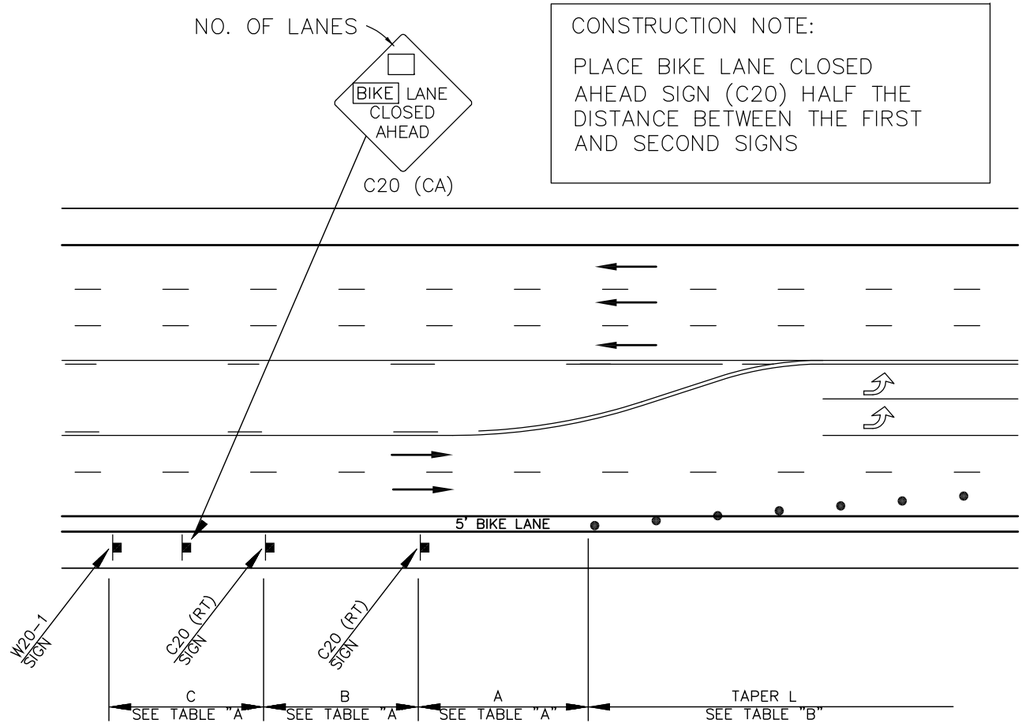
DATES OF TEMPORARY NO PARKING ZONE

INDICATE NORTH WITH A "N" AND AN ARROW POINT

WORKSITE TRAFFIC CONTROL PLAN
HALF STREET CLOSURE
NEAR SIDE

DATE		SCALE
		NONE
		DRAWING NO. 42

REV. APR-2010



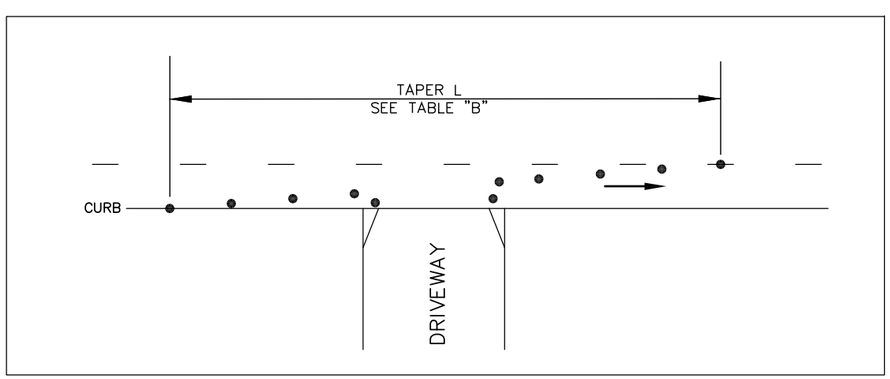
PLACEMENT OF BIKE LANE CLOSURE SIGN
(IF NECESSARY)

CONSTRUCTION NOTE:

PLACE BIKE LANE CLOSED AHEAD SIGN (C20) HALF THE DISTANCE BETWEEN THE FIRST AND SECOND SIGNS

CONSTRUCTION NOTE:

ALL DRIVEWAYS TO REMAIN OPEN (WHENEVER POSSIBLE) THROUGHOUT TRAFFIC CONTROL ZONE



SEE TABLE 'A'–'F' FOR SIGN AND CHANNELIZER DEVICE SPACING AND TAPER LENGTH

SPEED	APPROACH STREET	TAPER LENGTH	SIGN SPACING	CHANNELIZER SPACING

SEE TABLE 'A'–'F' FOR SIGN AND CHANNELIZER DEVICE SPACING AND TAPER LENGTH

SPEED	APPROACH STREET	TAPER LENGTH	SIGN SPACING	CHANNELIZER SPACING

ABBREVIATIONS:

S = Sign Spacing
Min = Minimum
LT = Left
RT = Right
LTP = Lane Traffic Panel
TANSAT = Tow Away, No Stopping Anytime
TANS = Tow Away, No Stopping

CHART A
MINIMUM RECOMMENDED DELINEATOR/CONE & SIGN PLACEMENT

POSTED SPEED LIMIT	TAPER LENGTH FOR 12–FT LANE			CHANNELIZER SPACING		SIGN SPACING (ADVANCE OF TAPER & BETWEEN SIGNS)
	MERGING	SHIFTING	SHOULDER	TAPER	TANGENT	
20 MPH	80 FT.	40 FT.	27 FT.	20 FT.	40 FT.	100 FT.
25 MPH	125 FT.	63 FT.	42 FT.	25 FT.	63 FT.	100 FT.
30 MPH	180 FT.	90 FT.	60 FT.	30 FT.	90 FT.	350 FT.
35 MPH	245 FT.	123 FT.	82 FT.	35 FT.	123 FT.	350 FT.
40 MPH	320 FT.	160 FT.	107 FT.	40 FT.	160 FT.	350 FT.
* 45 MPH	540 FT.	270 FT.	180 FT.	45 FT.	270 FT.	500 FT.
* 50 MPH	600 FT.	300 FT.	200 FT.	50 FT.	300 FT.	500 FT.
* 55+MPH	660 FT.	330 FT.	220 FT.	55 FT.	330 FT.	PER TABLE 'A'

NOTES

1. A Flashing Arrow sign shall be used for each lane closed.
*2. Two lane closure signs (C–20) shall be used on the approach to a lane closure with speeds of 45 mph or greater.

NOTE: This chart based on 12–foot wide lanes. For lane widths greater than 12 feet, use the following formulae:

Taper formula:

$L = S \times W$ for speeds of 45 mph or more.

$L = \frac{WS^2}{60}$ for speeds of 40 mph or less.

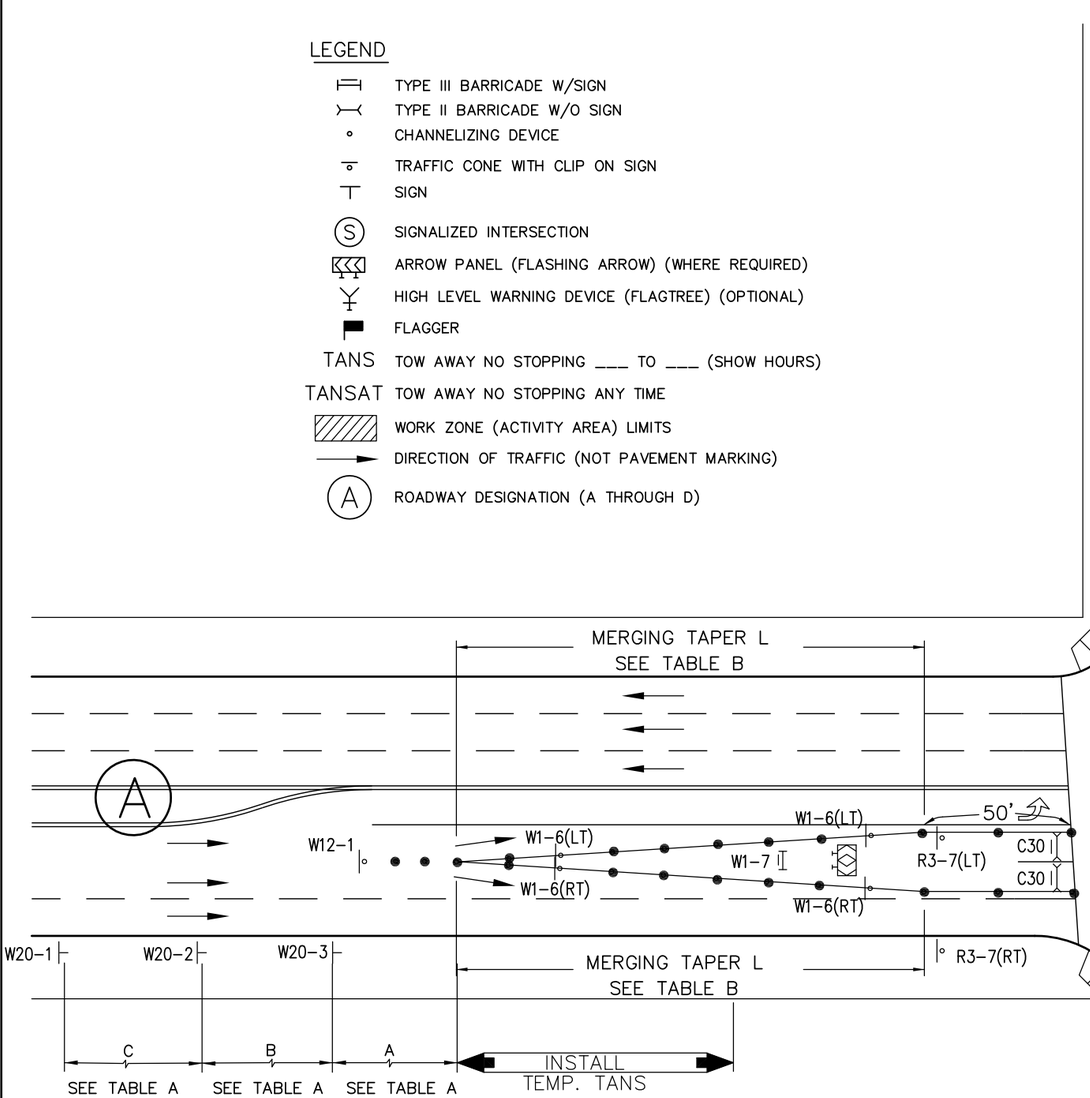
Where:

L = Minimum length of taper.
S = Numerical value of posted speed limit prior to work or 85 percentile speed.
W = Width of offset.

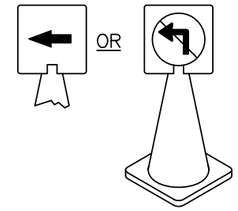
i.e.: 50 mph and 19' lane; L = 50 x 19 = 950 feet

LEGEND

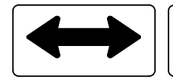
- TYPE III BARRICADE W/SIGN
- TYPE II BARRICADE W/O SIGN
- CHANNELIZING DEVICE
- TRAFFIC CONE WITH CLIP ON SIGN
- SIGN
- (S) SIGNALIZED INTERSECTION
- ARROW PANEL (FLASHING ARROW) (WHERE REQUIRED)
- HIGH LEVEL WARNING DEVICE (FLAGTREE) (OPTIONAL)
- FLAGGER
- TANS TOW AWAY NO STOPPING ___ TO ___ (SHOW HOURS)
- TANSAT TOW AWAY NO STOPPING ANY TIME
- WORK ZONE (ACTIVITY AREA) LIMITS
- DIRECTION OF TRAFFIC (NOT PAVEMENT MARKING)
- (A) ROADWAY DESIGNATION (A THROUGH D)



POST 48 HOURS PRIOR TO START OF WORK (IF REQUIRED)



CLIP ON TYPE CONE MOUNTED SIGNS



W1-7



W1-6 (RT)



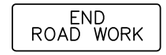
R3-1



R3-2



M4-10 (LT)



G20-2



R3-7 (RT)



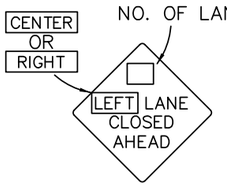
W20-3



W20-2



W20-1

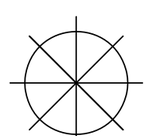


C20(CA)
INTERCHANGEABLE
WITH W20-5



C30(CA)

DATES OF TEMPORARY NO PARKING ZONE

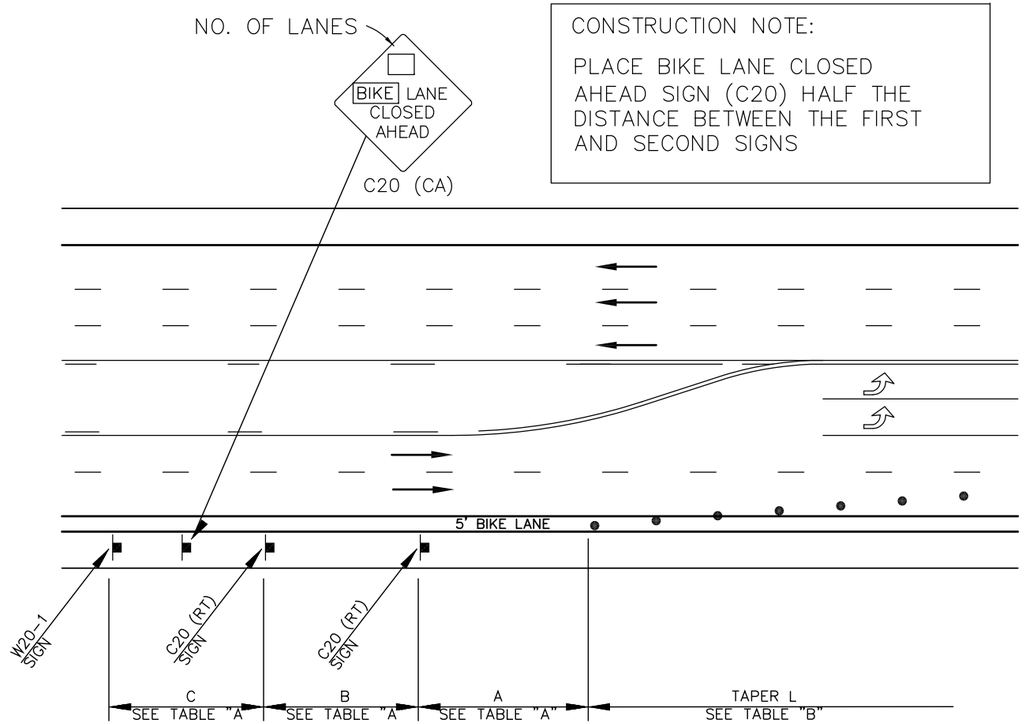


INDICATE NORTH WITH A "N" AND AN ARROW POINT

WORKSITE TRAFFIC CONTROL PLAN
FULL STREET CLOSURE
TWO WAY STREET

DATE		SCALE
		NONE
		DRAWING NO. 43

REV. APR-2010 CJUTCM-DWG43.DWG



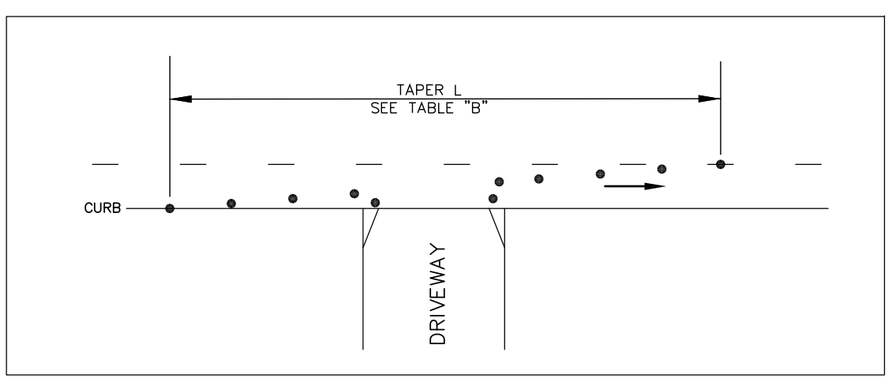
PLACEMENT OF BIKE LANE CLOSURE SIGN
(IF NECESSARY)

CONSTRUCTION NOTE:

PLACE BIKE LANE CLOSED AHEAD SIGN (C20) HALF THE DISTANCE BETWEEN THE FIRST AND SECOND SIGNS

CONSTRUCTION NOTE:

ALL DRIVEWAYS TO REMAIN OPEN (WHENEVER POSSIBLE) THROUGHOUT TRAFFIC CONTROL ZONE



SEE TABLE 'A'–'F' FOR SIGN AND CHANNELIZER DEVICE SPACING AND TAPER LENGTH

SPEED	APPROACH STREET	TAPER LENGTH	SIGN SPACING	CHANNELIZER SPACING

SEE TABLE 'A'–'F' FOR SIGN AND CHANNELIZER DEVICE SPACING AND TAPER LENGTH

SPEED	APPROACH STREET	TAPER LENGTH	SIGN SPACING	CHANNELIZER SPACING

ABBREVIATIONS:

S = Sign Spacing
Min = Minimum
LT = Left
RT = Right
LTP = Lane Traffic Panel
TANSAT = Tow Away, No Stopping Anytime
TANS = Tow Away, No Stopping

CHART A
MINIMUM RECOMMENDED DELINEATOR/CONE & SIGN PLACEMENT

POSTED SPEED LIMIT	TAPER LENGTH FOR 12–FT LANE			CHANNELIZER SPACING		SIGN SPACING (ADVANCE OF TAPER & BETWEEN SIGNS)
	MERGING	SHIFTING	SHOULDER	TAPER	TANGENT	
20 MPH	80 FT.	40 FT.	27 FT.	20 FT.	40 FT.	100 FT.
25 MPH	125 FT.	63 FT.	42 FT.	25 FT.	63 FT.	100 FT.
30 MPH	180 FT.	90 FT.	60 FT.	30 FT.	90 FT.	350 FT.
35 MPH	245 FT.	123 FT.	82 FT.	35 FT.	123 FT.	350 FT.
40 MPH	320 FT.	160 FT.	107 FT.	40 FT.	160 FT.	350 FT.
* 45 MPH	540 FT.	270 FT.	180 FT.	45 FT.	270 FT.	500 FT.
* 50 MPH	600 FT.	300 FT.	200 FT.	50 FT.	300 FT.	500 FT.
* 55+MPH	660 FT.	330 FT.	220 FT.	55 FT.	330 FT.	PER TABLE 'A'

NOTES

1. A Flashing Arrow sign shall be used for each lane closed.
*2. Two lane closure signs (C–20) shall be used on the approach to a lane closure with speeds of 45 mph or greater.

NOTE: This chart based on 12–foot wide lanes. For lane widths greater than 12 feet, use the following formulae:

Taper formula:

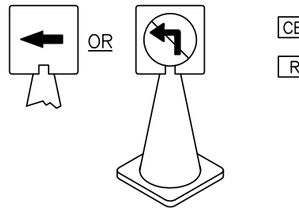
$L = S \times W$ for speeds of 45 mph or more.

$L = \frac{WS^2}{60}$ for speeds of 40 mph or less.

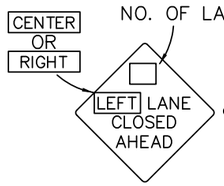
Where:

L = Minimum length of taper.
S = Numerical value of posted speed limit prior to work or 85 percentile speed.
W = Width of offset.

i.e.: 50 mph and 19' lane; L = 50 x 19 = 950 feet



CLIP ON TYPE
CONE MOUNTED SIGNS



C20(CA)
INTERCHANGEABLE
WITH W20-5



C30(CA)



W20-1



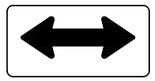
W20-3



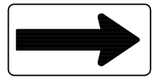
W20-2



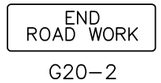
M4-10 (LT)



W1-7



W1-6 (RT)



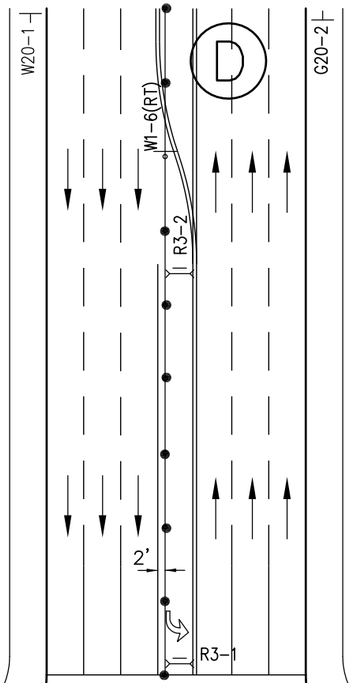
G20-2



R3-1

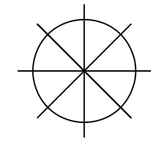


R3-2



LEGEND

- TYPE III BARRICADE W/SIGN
- TYPE II BARRICADE W/O SIGN
- CHANNELIZING DEVICE
- TRAFFIC CONE WITH CLIP ON SIGN
- SIGN
- (S) SIGNALIZED INTERSECTION
- ARROW PANEL (FLASHING ARROW) (WHERE REQUIRED)
- HIGH LEVEL WARNING DEVICE (FLAGTREE) (OPTIONAL)
- FLAGGER
- TANS TOW AWAY NO STOPPING ___ TO ___ (SHOW HOURS)
- TANSAT TOW AWAY NO STOPPING ANY TIME
- WORK ZONE (ACTIVITY AREA) LIMITS
- DIRECTION OF TRAFFIC (NOT PAVEMENT MARKING)
- (A) ROADWAY DESIGNATION (A THROUGH D)



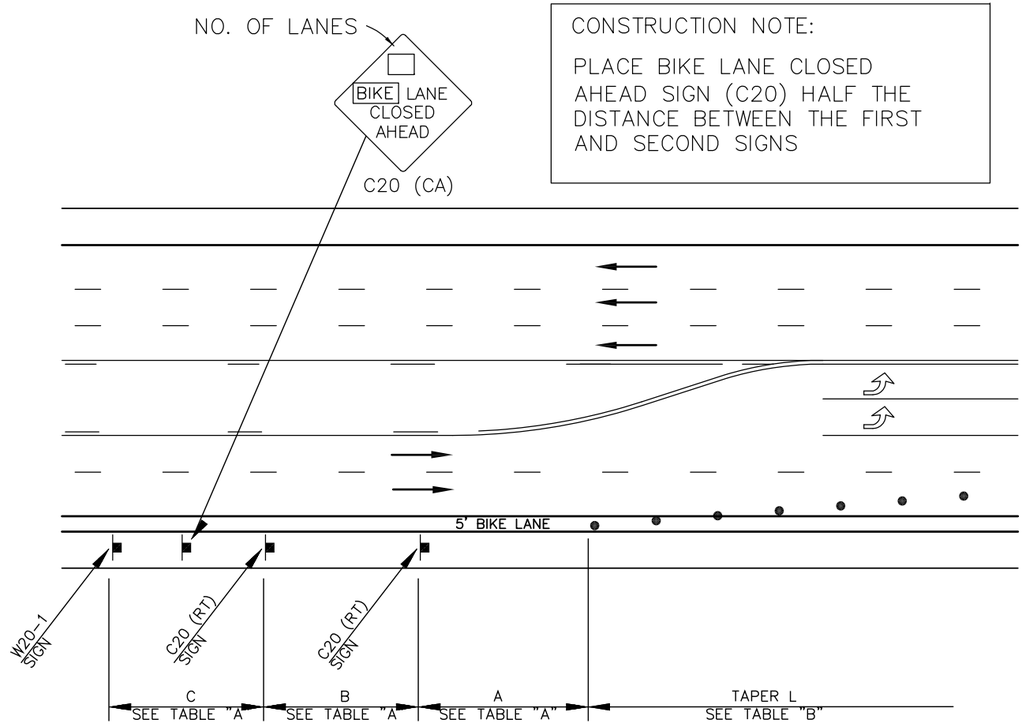
INDICATE NORTH WITH A "N"
AND AN ARROW POINT

DATES OF TEMPORARY NO PARKING ZONE

WORKSITE TRAFFIC CONTROL PLAN
FULL STREET CLOSURE
ONE WAY STREET

DATE		SCALE
		NONE
		DRAWING NO. 44

REV. APR-2010 CJUTCM-DWG44.DWG



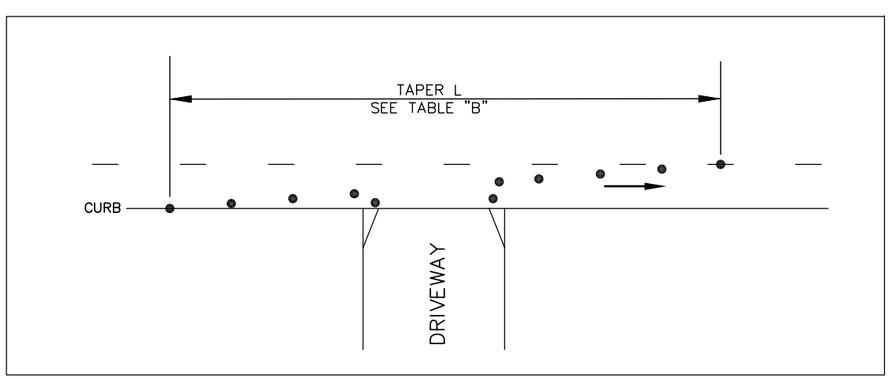
PLACEMENT OF BIKE LANE CLOSURE SIGN
(IF NECESSARY)

CONSTRUCTION NOTE:

PLACE BIKE LANE CLOSED AHEAD SIGN (C20) HALF THE DISTANCE BETWEEN THE FIRST AND SECOND SIGNS

CONSTRUCTION NOTE:

ALL DRIVEWAYS TO REMAIN OPEN (WHENEVER POSSIBLE) THROUGHOUT TRAFFIC CONTROL ZONE



SEE TABLE 'A'–'F' FOR SIGN AND CHANNELIZER DEVICE SPACING AND TAPER LENGTH

SPEED	APPROACH STREET	TAPER LENGTH	SIGN SPACING	CHANNELIZER SPACING

SEE TABLE 'A'–'F' FOR SIGN AND CHANNELIZER DEVICE SPACING AND TAPER LENGTH

SPEED	APPROACH STREET	TAPER LENGTH	SIGN SPACING	CHANNELIZER SPACING

ABBREVIATIONS:

S = Sign Spacing
Min = Minimum
LT = Left
RT = Right
LTP = Lane Traffic Panel
TANSAT = Tow Away, No Stopping Anytime
TANS = Tow Away, No Stopping

CHART A
MINIMUM RECOMMENDED DELINEATOR/CONE & SIGN PLACEMENT

POSTED SPEED LIMIT	TAPER LENGTH FOR 12–FT LANE			CHANNELIZER SPACING		SIGN SPACING (ADVANCE OF TAPER & BETWEEN SIGNS)
	MERGING	SHIFTING	SHOULDER	TAPER	TANGENT	
20 MPH	80 FT.	40 FT.	27 FT.	20 FT.	40 FT.	100 FT.
25 MPH	125 FT.	63 FT.	42 FT.	25 FT.	63 FT.	100 FT.
30 MPH	180 FT.	90 FT.	60 FT.	30 FT.	90 FT.	350 FT.
35 MPH	245 FT.	123 FT.	82 FT.	35 FT.	123 FT.	350 FT.
40 MPH	320 FT.	160 FT.	107 FT.	40 FT.	160 FT.	350 FT.
* 45 MPH	540 FT.	270 FT.	180 FT.	45 FT.	270 FT.	500 FT.
* 50 MPH	600 FT.	300 FT.	200 FT.	50 FT.	300 FT.	500 FT.
* 55+MPH	660 FT.	330 FT.	220 FT.	55 FT.	330 FT.	PER TABLE 'A'

NOTES

1. A Flashing Arrow sign shall be used for each lane closed.
*2. Two lane closure signs (C–20) shall be used on the approach to a lane closure with speeds of 45 mph or greater.

NOTE: This chart based on 12–foot wide lanes. For lane widths greater than 12 feet, use the following formulae:

Taper formula:

$L = S \times W$ for speeds of 45 mph or more.

$L = \frac{WS^2}{60}$ for speeds of 40 mph or less.

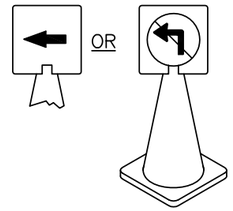
Where:

L = Minimum length of taper.
S = Numerical value of posted speed limit prior to work or 85 percentile speed.
W = Width of offset.

i.e.: 50 mph and 19' lane; L = 50 x 19 = 950 feet

LEGEND

- TYPE III BARRICADE W/SIGN
- TYPE II BARRICADE W/O SIGN
- CHANNELIZING DEVICE
- TRAFFIC CONE WITH CLIP ON SIGN
- SIGN
- (S) SIGNALIZED INTERSECTION
- ARROW PANEL (FLASHING ARROW) (WHERE REQUIRED)
- HIGH LEVEL WARNING DEVICE (FLAGTREE) (OPTIONAL)
- FLAGGER
- TANS TOW AWAY NO STOPPING ___ TO ___ (SHOW HOURS)
- TANSAT TOW AWAY NO STOPPING ANY TIME
- WORK ZONE (ACTIVITY AREA) LIMITS
- DIRECTION OF TRAFFIC (NOT PAVEMENT MARKING)
- (A) ROADWAY DESIGNATION (A THROUGH D)



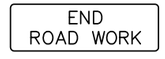
CLIP ON TYPE
CONE MOUNTED SIGNS



W20–1



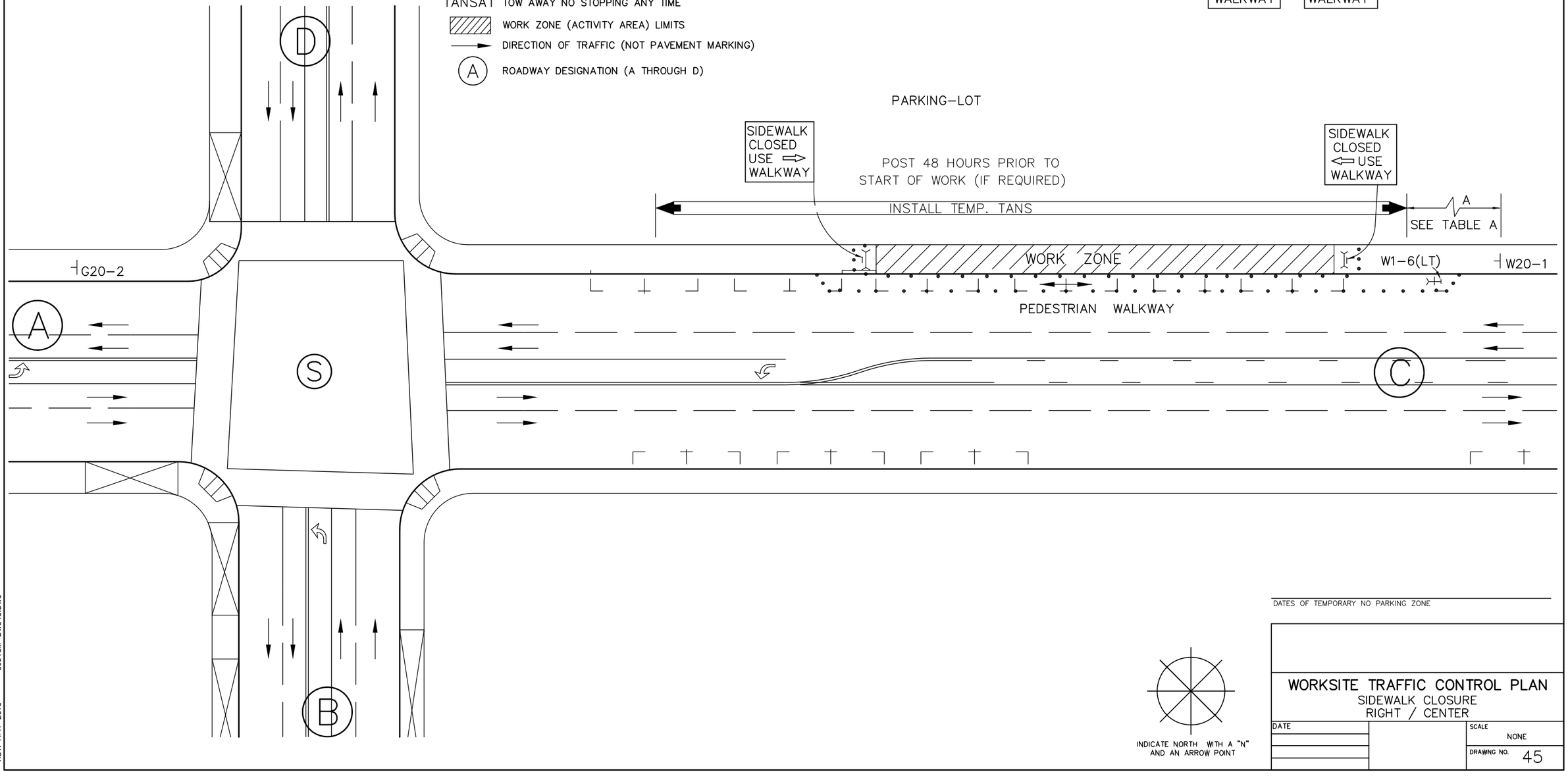
W1–6 (RT)



G20–2







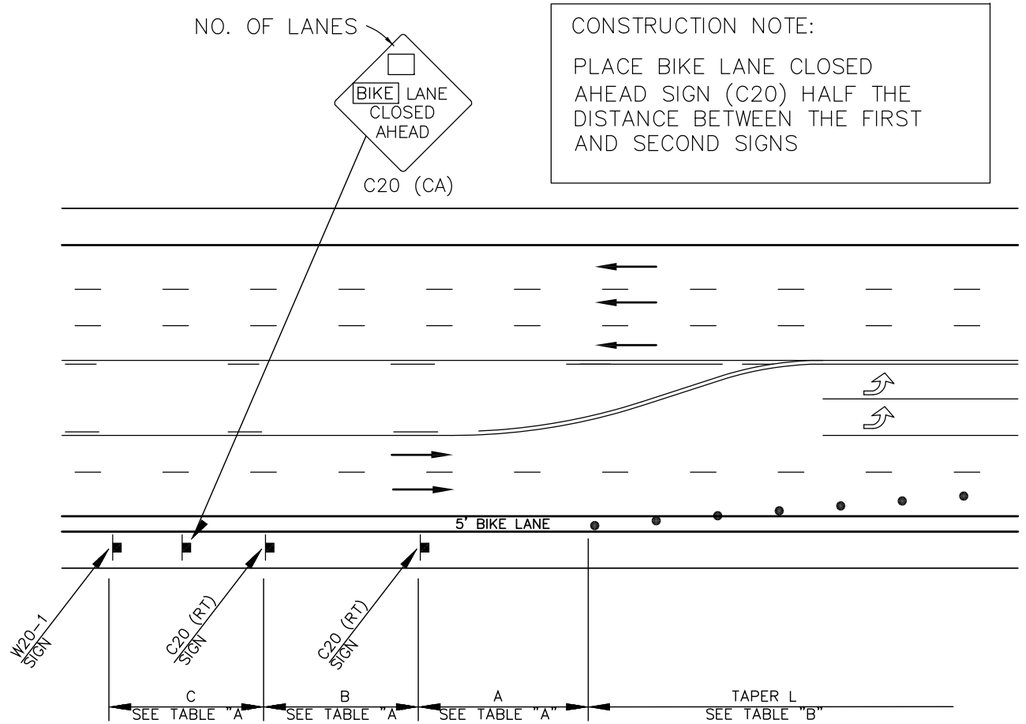
DATES OF TEMPORARY NO PARKING ZONE

INDICATE NORTH WITH A "N"
AND AN ARROW POINT

WORKSITE TRAFFIC CONTROL PLAN
SIDEWALK CLOSURE
RIGHT / CENTER

DATE		SCALE
		NONE
		DRAWING NO. 45

REV. APR–2010 CJUTCM–DW645.DWG



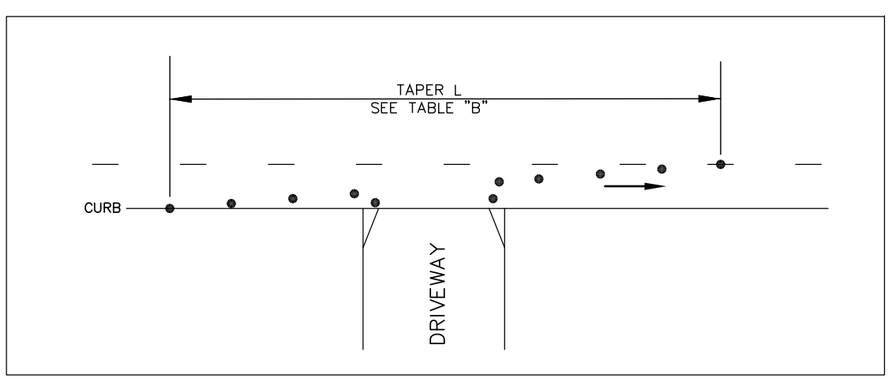
PLACEMENT OF BIKE LANE CLOSURE SIGN
(IF NECESSARY)

CONSTRUCTION NOTE:

PLACE BIKE LANE CLOSED AHEAD SIGN (C20) HALF THE DISTANCE BETWEEN THE FIRST AND SECOND SIGNS

CONSTRUCTION NOTE:

ALL DRIVEWAYS TO REMAIN OPEN (WHENEVER POSSIBLE) THROUGHOUT TRAFFIC CONTROL ZONE



SEE TABLE 'A'–'F' FOR SIGN AND CHANNELIZER DEVICE SPACING AND TAPER LENGTH

SPEED	APPROACH STREET	TAPER LENGTH	SIGN SPACING	CHANNELIZER SPACING

SEE TABLE 'A'–'F' FOR SIGN AND CHANNELIZER DEVICE SPACING AND TAPER LENGTH

SPEED	APPROACH STREET	TAPER LENGTH	SIGN SPACING	CHANNELIZER SPACING

ABBREVIATIONS:

S = Sign Spacing
Min = Minimum
LT = Left
RT = Right
LTP = Lane Traffic Panel
TANSAT = Tow Away, No Stopping Anytime
TANS = Tow Away, No Stopping

CHART A
MINIMUM RECOMMENDED DELINEATOR/CONE & SIGN PLACEMENT

POSTED SPEED LIMIT	TAPER LENGTH FOR 12–FT LANE			CHANNELIZER SPACING		SIGN SPACING (ADVANCE OF TAPER & BETWEEN SIGNS)
	MERGING	SHIFTING	SHOULDER	TAPER	TANGENT	
20 MPH	80 FT.	40 FT.	27 FT.	20 FT.	40 FT.	100 FT.
25 MPH	125 FT.	63 FT.	42 FT.	25 FT.	63 FT.	100 FT.
30 MPH	180 FT.	90 FT.	60 FT.	30 FT.	90 FT.	350 FT.
35 MPH	245 FT.	123 FT.	82 FT.	35 FT.	123 FT.	350 FT.
40 MPH	320 FT.	160 FT.	107 FT.	40 FT.	160 FT.	350 FT.
* 45 MPH	540 FT.	270 FT.	180 FT.	45 FT.	270 FT.	500 FT.
* 50 MPH	600 FT.	300 FT.	200 FT.	50 FT.	300 FT.	500 FT.
* 55+MPH	660 FT.	330 FT.	220 FT.	55 FT.	330 FT.	PER TABLE 'A'

NOTES

1. A Flashing Arrow sign shall be used for each lane closed.
*2. Two lane closure signs (C–20) shall be used on the approach to a lane closure with speeds of 45 mph or greater.

NOTE: This chart based on 12–foot wide lanes. For lane widths greater than 12 feet, use the following formulae:

Taper formula:

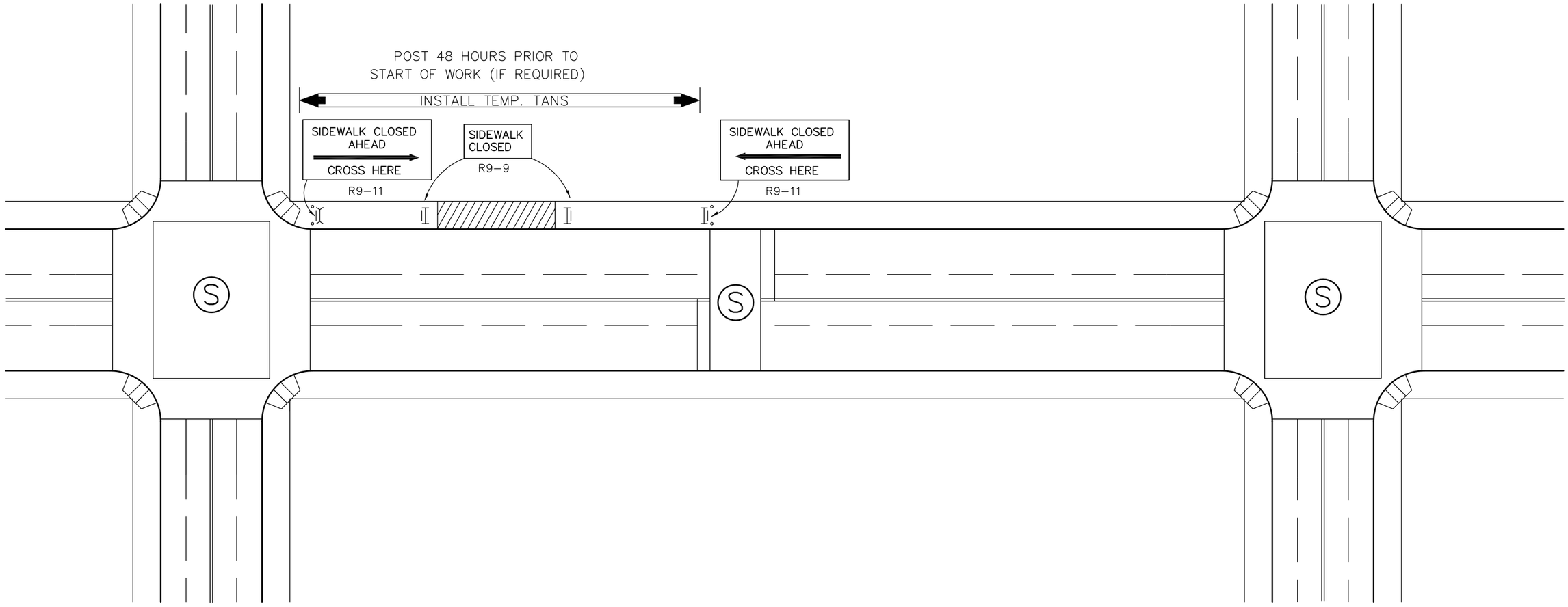
$L = S \times W$ for speeds of 45 mph or more.

$L = \frac{WS^2}{60}$ for speeds of 40 mph or less.

Where:

L = Minimum length of taper.
S = Numerical value of posted speed limit prior to work or 85 percentile speed.
W = Width of offset.

i.e.: 50 mph and 19' lane; L = 50 x 19 = 950 feet



SIDEWALK CLOSED AHEAD
CROSS HERE
R9–11

SIDEWALK CLOSED AHEAD
CROSS HERE
R9–11

SIDEWALK CLOSED
R9–9

LEGEND

- TYPE III BARRICADE W/SIGN
- TYPE II BARRICADE W/O SIGN
- CHANNELIZING DEVICE
- TRAFFIC CONE WITH CLIP ON SIGN
- SIGN
- (S) SIGNALIZED INTERSECTION
- ARROW PANEL (FLASHING ARROW) (WHERE REQUIRED)
- HIGH LEVEL WARNING DEVICE (FLAGTREE) (OPTIONAL)
- FLAGGER
- TANS TOW AWAY NO STOPPING ___ TO ___ (SHOW HOURS)
- TANSAT TOW AWAY NO STOPPING ANY TIME
- WORK ZONE (ACTIVITY AREA) LIMITS
- DIRECTION OF TRAFFIC (NOT PAVEMENT MARKING)
- (A) ROADWAY DESIGNATION (A THROUGH D)

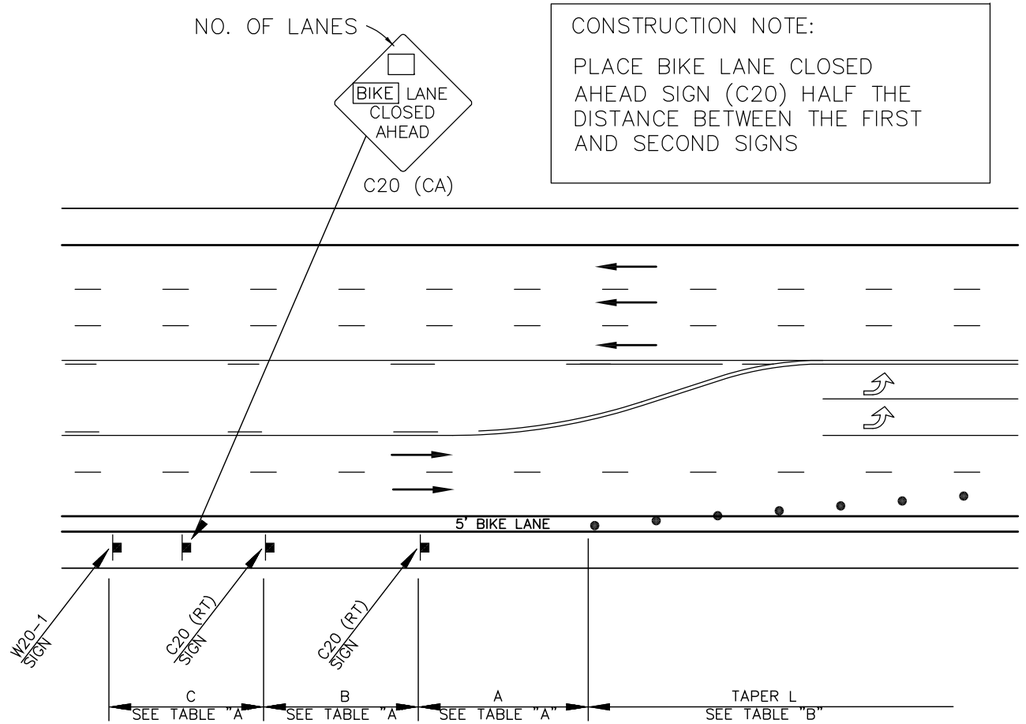
DATES OF TEMPORARY NO PARKING ZONE

INDICATE NORTH WITH A "N" AND AN ARROW POINT

WORKSITE TRAFFIC CONTROL PLAN
SIDEWALK CLOSURE

DATE		SCALE
		NONE
		DRAWING NO. 46

REV. APR-2010 CJUTCM-DWG46.DWG



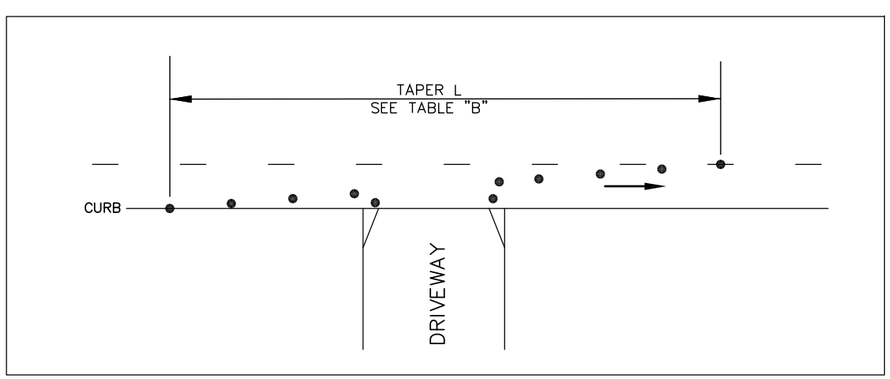
PLACEMENT OF BIKE LANE CLOSURE SIGN
(IF NECESSARY)

CONSTRUCTION NOTE:

PLACE BIKE LANE CLOSED AHEAD SIGN (C20) HALF THE DISTANCE BETWEEN THE FIRST AND SECOND SIGNS

CONSTRUCTION NOTE:

ALL DRIVEWAYS TO REMAIN OPEN (WHENEVER POSSIBLE) THROUGHOUT TRAFFIC CONTROL ZONE



SEE TABLE 'A'–'F' FOR SIGN AND CHANNELIZER DEVICE SPACING AND TAPER LENGTH

SPEED	APPROACH STREET	TAPER LENGTH	SIGN SPACING	CHANNELIZER SPACING

SEE TABLE 'A'–'F' FOR SIGN AND CHANNELIZER DEVICE SPACING AND TAPER LENGTH

SPEED	APPROACH STREET	TAPER LENGTH	SIGN SPACING	CHANNELIZER SPACING

ABBREVIATIONS:

S = Sign Spacing
Min = Minimum
LT = Left
RT = Right
LTP = Lane Traffic Panel
TANSAT = Tow Away, No Stopping Anytime
TANS = Tow Away, No Stopping

CHART A
MINIMUM RECOMMENDED DELINEATOR/CONE & SIGN PLACEMENT

POSTED SPEED LIMIT	TAPER LENGTH FOR 12–FT LANE			CHANNELIZER SPACING		SIGN SPACING (ADVANCE OF TAPER & BETWEEN SIGNS)
	MERGING	SHIFTING	SHOULDER	TAPER	TANGENT	
20 MPH	80 FT.	40 FT.	27 FT.	20 FT.	40 FT.	100 FT.
25 MPH	125 FT.	63 FT.	42 FT.	25 FT.	63 FT.	100 FT.
30 MPH	180 FT.	90 FT.	60 FT.	30 FT.	90 FT.	350 FT.
35 MPH	245 FT.	123 FT.	82 FT.	35 FT.	123 FT.	350 FT.
40 MPH	320 FT.	160 FT.	107 FT.	40 FT.	160 FT.	350 FT.
* 45 MPH	540 FT.	270 FT.	180 FT.	45 FT.	270 FT.	500 FT.
* 50 MPH	600 FT.	300 FT.	200 FT.	50 FT.	300 FT.	500 FT.
* 55+MPH	660 FT.	330 FT.	220 FT.	55 FT.	330 FT.	PER TABLE 'A'

NOTES

1. A Flashing Arrow sign shall be used for each lane closed.
*2. Two lane closure signs (C–20) shall be used on the approach to a lane closure with speeds of 45 mph or greater.

NOTE: This chart based on 12–foot wide lanes. For lane widths greater than 12 feet, use the following formulae:

Taper formula:

$L = S \times W$ for speeds of 45 mph or more.

$L = \frac{WS^2}{60}$ for speeds of 40 mph or less.

Where:

L = Minimum length of taper.
S = Numerical value of posted speed limit prior to work or 85 percentile speed.
W = Width of offset.

i.e.: 50 mph and 19' lane; L = 50 x 19 = 950 feet

POST 48 HOURS PRIOR TO
START OF WORK (IF REQUIRED)

INSTALL TEMP. TANS

SIDEWALK CLOSED

SIDEWALK CLOSED
CROSS HERE
R9–11A

R9–3A

SIDEWALK CLOSED
AHEAD
CROSS HERE
R9–11

R1–1

W11–2

W11–2
BACK TO BACK

W11–2
BACK TO BACK

R1–1

S

LEGEND

- TYPE III BARRICADE W/SIGN
- TYPE II BARRICADE W/O SIGN
- CHANNELIZING DEVICE
- TRAFFIC CONE WITH CLIP ON SIGN
- SIGN
- (S) SIGNALIZED INTERSECTION
- ARROW PANEL (FLASHING ARROW) (WHERE REQUIRED)
- HIGH LEVEL WARNING DEVICE (FLAGTREE) (OPTIONAL)
- FLAGGER
- TANS TOW AWAY NO STOPPING ___ TO ___ (SHOW HOURS)
- TANSAT TOW AWAY NO STOPPING ANY TIME
- WORK ZONE (ACTIVITY AREA) LIMITS
- DIRECTION OF TRAFFIC (NOT PAVEMENT MARKING)
- (A) ROADWAY DESIGNATION (A THROUGH D)

SIDEWALK CLOSED
AHEAD
CROSS HERE
R9–11

SIDEWALK CLOSED
CROSS HERE
R9–11A

W11–2

STOP
R1–1

R9–3A

INDICATE NORTH WITH A "N"
AND AN ARROW POINT

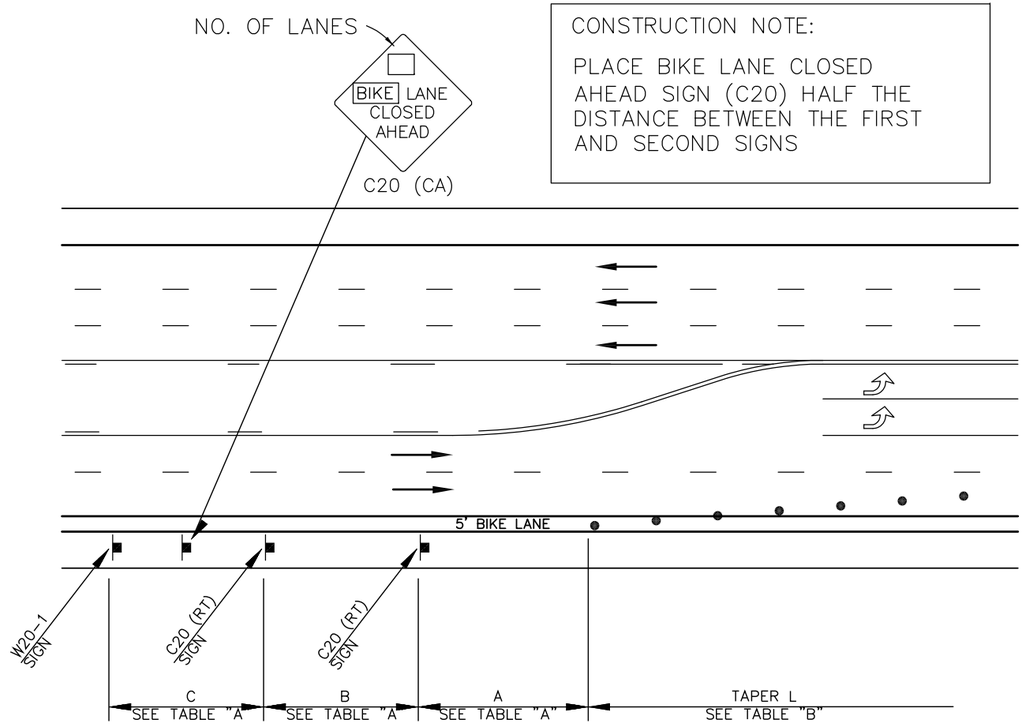
DATES OF TEMPORARY NO PARKING ZONE

WORKSITE TRAFFIC CONTROL PLAN
SIDEWALK CLOSURE

DATE		SCALE NONE
		DRAWING NO. 47

CJUTCM–DWG47.DWG

REV. APR–2010



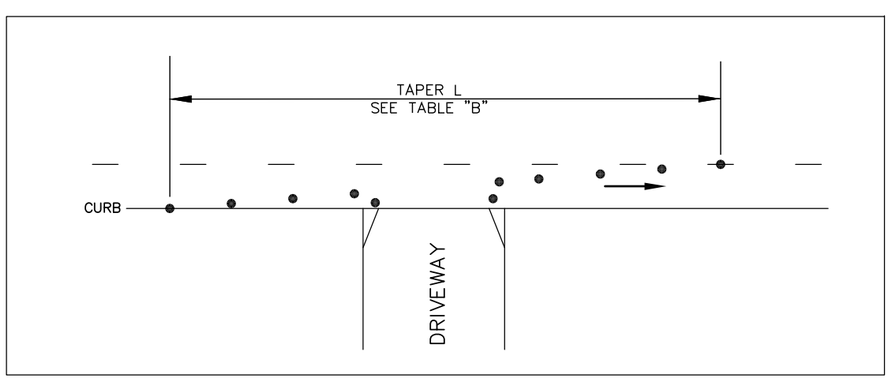
PLACEMENT OF BIKE LANE CLOSURE SIGN
(IF NECESSARY)

CONSTRUCTION NOTE:

PLACE BIKE LANE CLOSED AHEAD SIGN (C20) HALF THE DISTANCE BETWEEN THE FIRST AND SECOND SIGNS

CONSTRUCTION NOTE:

ALL DRIVEWAYS TO REMAIN OPEN (WHENEVER POSSIBLE) THROUGHOUT TRAFFIC CONTROL ZONE



SEE TABLE 'A'–'F' FOR SIGN AND CHANNELIZER DEVICE SPACING AND TAPER LENGTH

SPEED	APPROACH STREET	TAPER LENGTH	SIGN SPACING	CHANNELIZER SPACING

SEE TABLE 'A'–'F' FOR SIGN AND CHANNELIZER DEVICE SPACING AND TAPER LENGTH

SPEED	APPROACH STREET	TAPER LENGTH	SIGN SPACING	CHANNELIZER SPACING

ABBREVIATIONS:

S = Sign Spacing
Min = Minimum
LT = Left
RT = Right
LTP = Lane Traffic Panel
TANSAT = Tow Away, No Stopping Anytime
TANS = Tow Away, No Stopping

CHART A
MINIMUM RECOMMENDED DELINEATOR/CONE & SIGN PLACEMENT

POSTED SPEED LIMIT	TAPER LENGTH FOR 12–FT LANE			CHANNELIZER SPACING		SIGN SPACING (ADVANCE OF TAPER & BETWEEN SIGNS)
	MERGING	SHIFTING	SHOULDER	TAPER	TANGENT	
20 MPH	80 FT.	40 FT.	27 FT.	20 FT.	40 FT.	100 FT.
25 MPH	125 FT.	63 FT.	42 FT.	25 FT.	63 FT.	100 FT.
30 MPH	180 FT.	90 FT.	60 FT.	30 FT.	90 FT.	350 FT.
35 MPH	245 FT.	123 FT.	82 FT.	35 FT.	123 FT.	350 FT.
40 MPH	320 FT.	160 FT.	107 FT.	40 FT.	160 FT.	350 FT.
* 45 MPH	540 FT.	270 FT.	180 FT.	45 FT.	270 FT.	500 FT.
* 50 MPH	600 FT.	300 FT.	200 FT.	50 FT.	300 FT.	500 FT.
* 55+MPH	660 FT.	330 FT.	220 FT.	55 FT.	330 FT.	PER TABLE 'A'

NOTES

1. A Flashing Arrow sign shall be used for each lane closed.
*2. Two lane closure signs (C–20) shall be used on the approach to a lane closure with speeds of 45 mph or greater.

NOTE: This chart based on 12–foot wide lanes. For lane widths greater than 12 feet, use the following formulae:

Taper formula:

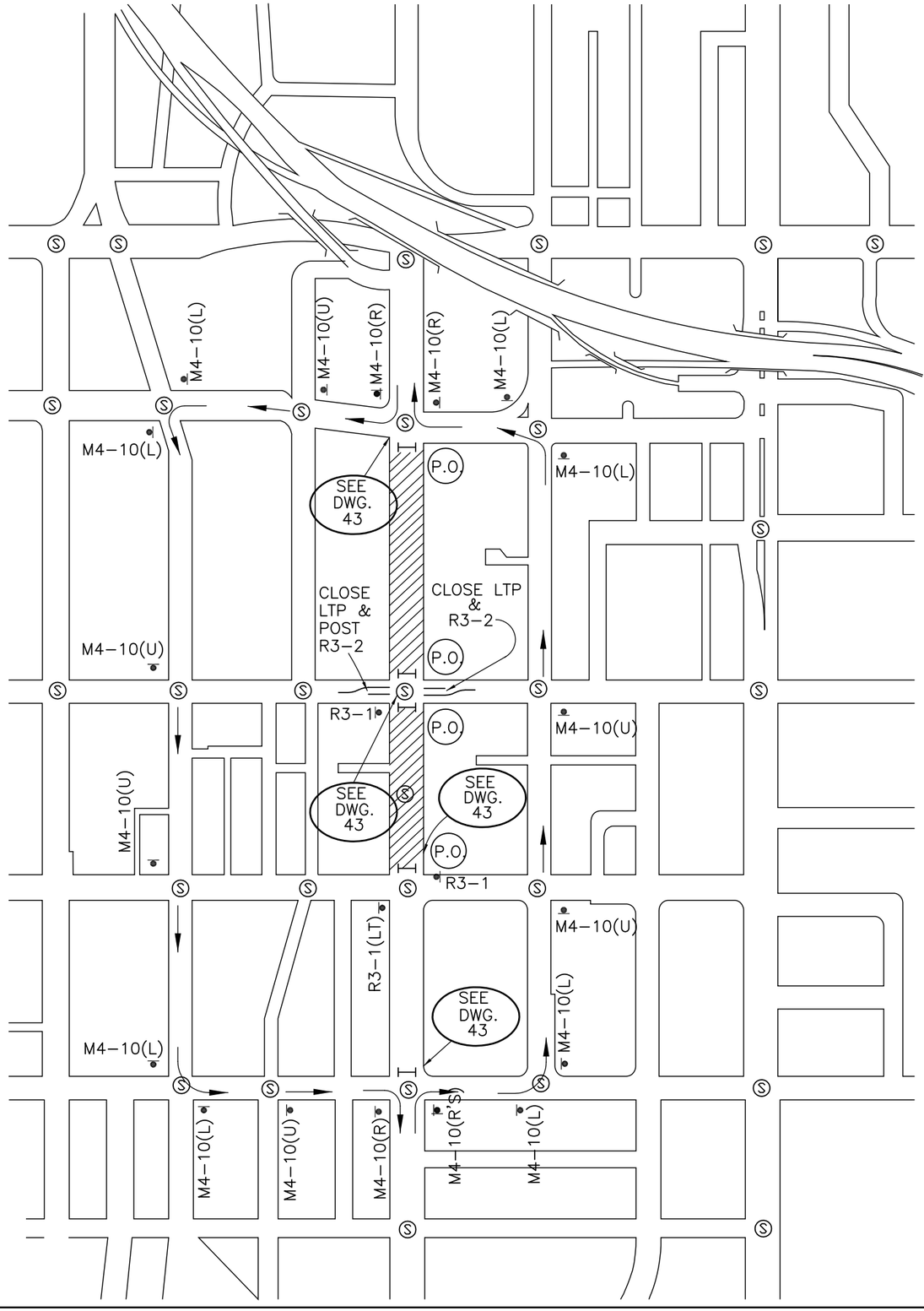
$L = S \times W$ for speeds of 45 mph or more.

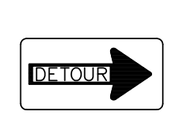
$L = \frac{WS^2}{60}$ for speeds of 40 mph or less.

Where:

L = Minimum length of taper.
S = Numerical value of posted speed limit prior to work or 85 percentile speed.
W = Width of offset.

i.e.: 50 mph and 19' lane; L = 50 x 19 = 950 feet





M4–10



R3–1



R3–2

LEGEND

P.O. – POLICE OFFICER

M4–10 – DETOUR (L–LEFT, R–RIGHT, U–UP)

– DIRECTION OF DETOUR

Ⓢ – TRAFFIC SIGNAL

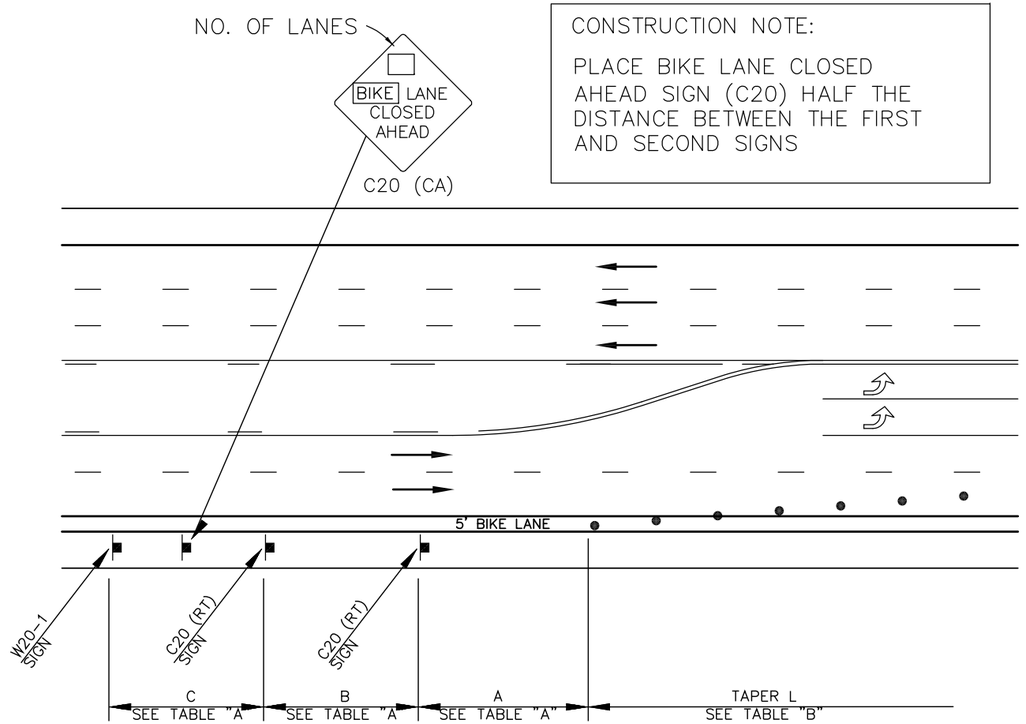
DATES OF TEMPORARY NO PARKING ZONE

INDICATE NORTH WITH A "N" AND AN ARROW POINT

WORKSITE TRAFFIC CONTROL PLAN
SAMPLE TRAFFIC CIRCULATION PLAN

DATE		SCALE
		NONE
		DRAWING NO. 48

REV. APR–2010 CJUTCM–DWG48.DWG



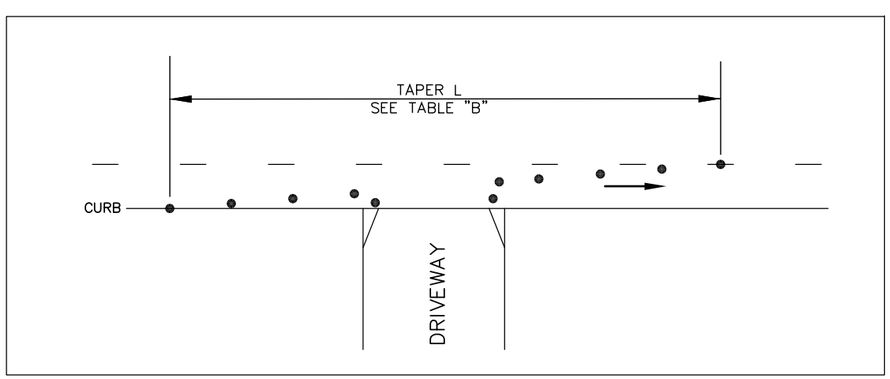
PLACEMENT OF BIKE LANE CLOSURE SIGN
(IF NECESSARY)

CONSTRUCTION NOTE:

PLACE BIKE LANE CLOSED AHEAD SIGN (C20) HALF THE DISTANCE BETWEEN THE FIRST AND SECOND SIGNS

CONSTRUCTION NOTE:

ALL DRIVEWAYS TO REMAIN OPEN (WHENEVER POSSIBLE) THROUGHOUT TRAFFIC CONTROL ZONE



SEE TABLE 'A'–'F' FOR SIGN AND CHANNELIZER DEVICE SPACING AND TAPER LENGTH

SPEED	APPROACH STREET	TAPER LENGTH	SIGN SPACING	CHANNELIZER SPACING

SEE TABLE 'A'–'F' FOR SIGN AND CHANNELIZER DEVICE SPACING AND TAPER LENGTH

SPEED	APPROACH STREET	TAPER LENGTH	SIGN SPACING	CHANNELIZER SPACING

ABBREVIATIONS:

S = Sign Spacing
Min = Minimum
LT = Left
RT = Right
LTP = Lane Traffic Panel
TANSAT = Tow Away, No Stopping Anytime
TANS = Tow Away, No Stopping

CHART A
MINIMUM RECOMMENDED DELINEATOR/CONE & SIGN PLACEMENT

POSTED SPEED LIMIT	TAPER LENGTH FOR 12–FT LANE			CHANNELIZER SPACING		SIGN SPACING (ADVANCE OF TAPER & BETWEEN SIGNS)
	MERGING	SHIFTING	SHOULDER	TAPER	TANGENT	
20 MPH	80 FT.	40 FT.	27 FT.	20 FT.	40 FT.	100 FT.
25 MPH	125 FT.	63 FT.	42 FT.	25 FT.	63 FT.	100 FT.
30 MPH	180 FT.	90 FT.	60 FT.	30 FT.	90 FT.	350 FT.
35 MPH	245 FT.	123 FT.	82 FT.	35 FT.	123 FT.	350 FT.
40 MPH	320 FT.	160 FT.	107 FT.	40 FT.	160 FT.	350 FT.
* 45 MPH	540 FT.	270 FT.	180 FT.	45 FT.	270 FT.	500 FT.
* 50 MPH	600 FT.	300 FT.	200 FT.	50 FT.	300 FT.	500 FT.
* 55+MPH	660 FT.	330 FT.	220 FT.	55 FT.	330 FT.	PER TABLE 'A'

NOTES

1. A Flashing Arrow sign shall be used for each lane closed.
*2. Two lane closure signs (C–20) shall be used on the approach to a lane closure with speeds of 45 mph or greater.

NOTE: This chart based on 12–foot wide lanes. For lane widths greater than 12 feet, use the following formulae:

Taper formula:

$L = S \times W$ for speeds of 45 mph or more.

$L = \frac{WS^2}{60}$ for speeds of 40 mph or less.

Where:

L = Minimum length of taper.
S = Numerical value of posted speed limit prior to work or 85 percentile speed.
W = Width of offset.

i.e.: 50 mph and 19' lane; L = 50 x 19 = 950 feet

District	Route	Rte Suf	County	Pre	Postmile		Description	Ba Pe Ho
05	198		MON	R	0		BEG NON ADD AT FRONT. RD	
05	198		MON		0.5		SAN LUCAS, EAST	
05	198		MON		13.995		JCT. RTE. 25 NORTH	
05	198		MON		25.786		MONTEREY FRESNO COUNTY LINE	
06	198		FRE		0		MONTEREY FRESNO COUNTY LINE	
06	198		FRE		12.33		PARKFIELD JUNCTION	
06	198		FRE		19.145		COALINGA CREEK	
06	198		FRE		21.19		FIRESTONE AVE	
06	198		FRE		21.74		COALINGA, SOUTH CITY LIMITS	
06	198		FRE		22.37		COALINGA, 8TH/POLK STS	
06	198		FRE		22.65		JCT. RTE. 33	
06	198		FRE		26.814		JCT. RTE. 5	
06	198		FRE		34.66		JCT. RTE. 269	
06	198		FRE		42.731		FRESNO/KINGS COUNTY LINE	
06	198		KIN		0		FRESNO/KINGS COUNTY LINE	
06	198		KIN		3.011		MAIN GATE LEMOORE NAVAL AIR STATION	
06	198		KIN		4.992		AVENAL CUTOFF RD	
06	198		KIN		8.897		JCT. RTE. 41	
06	198		KIN	R	10.561		18TH AVE	
06	198		KIN	R	12.106		HOUSTON AVE INTERCHANGE	
06	198		KIN	R	14.767		14TH AVE INTERCHANGE	
06	198		KIN	R	15.745		HANFORD/ARMONA RD	
06	198		KIN	R	16.91		12TH AVE INTERCHANGE	
06	198		KIN	R	17.912		HANFORD, 11TH AVE	
06	198		KIN	R	18.959		HANFORD, 10TH AVE INTERCHANGE	
06	198		KIN	R	20.975		JCT. RTE. 43	
06	198		KIN		23.32		SIXTH AVE	
06	198		KIN		28.325		KINGS/TULARE COUNTY LINE	
06	198		TUL		0		KINGS/TULARE COUNTY LINE	
06	198		TUL	R	3.835	R	JCT. RTE. 99	
06	198		TUL	R	3.711	L	JCT RTE 99	
06	198		TUL	R	4.796		ALTA AVE; COUNTY RD 80	
06	198		TUL		7.01		VISALIA, COUNTY RD 102	
06	198		TUL		8.1		VISALIA, WEST MAIN ST/ WHITNEY DR	
06	198		TUL	R	8.753		VISALIA, JCT. RTE. 63 SOUTH	
06	198		TUL	R	9.967		VISALIA, JCT. RTE. 63 NORTH	
06	198		TUL	R	10.734		BEN MADDOX WAY INTERCHANGE	
06	198		TUL	R	11.719		LOVERS LANE	
06	198		TUL	R	13.737		COUNTY RD 156 INTERCHANGE	
06	198		TUL	R	14.653		COUNTY RD 164	
06	198		TUL	R	18.761		JCT. RTE. 65 SOUTH	
06	198		TUL	R	19.762		JCT. RTE. 245 NORTH	
06	198		TUL		26.931		S LIM LEMON COVE	
06	198		TUL		27.96		JCT. RTE. 216 WEST	
06	198		TUL		30.75		LAKE KAWEAH BOAT LAUNCHING MARINA	
06	198		TUL		35.91		MORO RD (TO STIVERS RANCH)	

06	198		TUL		37.401		W LIM THREE RIVERS
06	198		TUL		38.49		THREE RIVERS, NORTH FORK DR (TO KAWEAH)
06	198		TUL		39.691		E LIM THREE RIVERS
06	198		TUL		42.35		THREE RIVERS, MINERAL KING RD
06	198		TUL		44.163		SEQUOIA NATIONAL PARK BOUNDARY
01	199		DN		4.37		JCT. RTE. 197 NORTH
01	199		DN		5.9		HIOUCHI VILLAGE, EAST
01	199		DN	T	14.636		GASQUET, EAST
01	199		DN		36.408		OREGON STATE LINE
01	200		HUM	R	0		JCT. RTE. 101
01	200		HUM		1.287		AZALEA AVE
01	200		HUM	R	2.681		JCT. RTE. 299
06	201		FRE		0		KINGSBURG, JCT. RTE. 99
06	201		FRE		0.14		KINGSBURG, SIMPSON ST
06	201		FRE		0.28		KINGSBURG, MARION ST
06	201		FRE		0.72		KINGSBURG, DRAPER ST
06	201		FRE		0.752		KINGSBURG, 18TH AVE
06	201		FRE		1.13		KINGSBURG, EAST CITY LIMITS
06	201		FRE		1.343		FRESNO/TULARE COUNTY LINE
06	201		TUL		0		FRESNO/TULARE COUNTY LINE
06	201		TUL		1.4		RD 28
06	201		TUL	R	1.746		KINGS RIVER BRIDGE
06	201		TUL		7.95		ALTA AVE
06	201		TUL		13.97		JCT. RTE. 63
06	201		TUL		16.01		YETTEM, RD 144
06	201		TUL		20.52		RD 180
06	201		TUL		23.957		JCT. RTE. 245
06	202		KER	R	1.476		TEHACHAPI MENS PRISON
06	202		KER	R	2.16		CUMMINGS VALLEY RD-W
06	202		KER	R	5.5		OLD TOWN RD
06	202		KER	R	7.4		WOODFORD RD
06	202		KER		8.87		TUCKER RD
06	202		KER		12.008		JCT. RTE. 58
09	203		MNO	L	0		MINARET SUMMIT
09	203		MNO	R	2.35		MAINTENANCE SUBSTATION RD
09	203		MNO	R	4.49		MAMMOTH, FOREST TRAIL RD
09	203		MNO	R	4.782		LAKE MARY/MINARET RDS
09	203		MNO		5.75		OLD MAMMOTH RD
09	203		MNO		6.866		MERIDIAN BLVD
09	203		MNO	R	8.56		JCT. RTE. 395
06	204		KER	R	0		BAKERSFIELD, JCT. RTE. 58
06	204		KER	R	0.098		BRUNDAGE LANE
06	204		KER		3.087		BAKERSFIELD, CALIFORNIA AVE
06	204		KER		3.76		BAKERSFIELD, 21ST ST
06	204		KER		3.827		BAKERSFIELD, 22ND ST
06	204		KER		4.057		BAKERSFIELD, 24TH ST
06	204		KER		4.235		BAKERSFIELD, JCT. RTE. 178
06	204		KER		5.137		BAKERSFIELD, F ST
06	204		KER		6.46		PIERCE RD INTERCHANGE
06	204		KER		6.752		BAKERSFIELD, JCT. RTE. 99

04	205		ALA		0.213	JCT. RTE. 580	
04	205		ALA		0.447	ALAMEDA/SAN JOAQUIN COUNTY LINE	
10	205		SJ	L	0	ALAMEDA/SAN JOAQUIN COUNTY LINE	
10	205		SJ		1.377	PATTERSON PASS RD INTERCHANGE	
10	205		SJ	R	3.369	OLD ROUTE 50	
10	205		SJ	R	8.127	TRACY, MAC ARTHUR DR	
10	205		SJ	R	12.686	JCT. RTE. 5	
10	207		ALP		0	JCT. RTE. 4	
10	207		ALP		1.36	MT. REBA SKI RESORT	
07	210	U	LA		1.81	LA VERNE, JCT. RTE. 66, FOOTHILL BLVD	
07	210	U	LA		2.541	LA VERNE, WHEELER AVE	
07	210	U	LA		3.051	LA VERNE, EMERALD AVE	
07	210	U	LA		3.431	LA VERNE, FRUIT ST	
08	210	U	SBD		15.767	SIERRA AVE	
08	210	U	SBD		19.521	RIALTO, RIVERSIDE AVE	
08	210	U	SBD		20.02	ACACIA AVE	
08	210	U	SBD		21.68	CAJON BLVD	
08	210	U	SBD		21.773	CALIFORNIA ST	
08	210	U	SBD		22	ROUTE 30 LEFT TURN HIGHLAND AVE, BEGIN	
08	210	U	SBD	R	21.872	JCT. RTE. 215	
08	210	U	SBD	R	22.944	SAN BERNARDINO, H ST	
08	210	U	SBD	R	23.095	NORTH JCT. RTE. 259	
08	210	U	SBD	R	24.215	SAN BERNARDINO, JCT. RTE. 18 NORTH	
08	210	U	SBD	R	25.718	DEL ROSA AVE	
08	210	U	SBD	R	26.729	HIGHLAND AVE	
08	210	U	SBD	R	28.664	SAN BERNARDINO, JCT. RTE. 330	
08	210	U	SBD	R	29.322	HIGHLAND, BASELINE ST	
08	210	U	SBD	R	30.232	HIGHLAND, FIFTH ST	
08	210	U	SBD	R	32.343	REDLANDS, SAN BERNARDINO AVE	
08	210	U	SBD	R	33.18	JCT. RTE. 10	
07	210		LA	R	0	LOS ANGELES, JCT. RTE. 5, GOLDEN STATE FRWY	
07	210		LA	R	0.843	LOS ANGELES, YARNELL ST INTERCHANGE	
07	210		LA	R	1.924	LOS ANGELES, ROXFORD ST INTERCHANGE	
07	210		LA	R	3.275	LOS ANGELES, POLK ST INTERCHANGE	
07	210		LA	R	4.11	LOS ANGELES, HUBBARD ST INTERCHANGE	
07	210		LA	R	4.936	LOS ANGELES, MACLAY ST INTERCHANGE	
07	210		LA	R	5.911	LOS ANGELES, JCT. RTE. 118, RONALD REAGAN	1
07	210		LA	R	7.822	LOS ANGELES, OSBORNE ST/FOOTHILL BLVD	1
07	210		LA	R	9.444	LOS ANGELES, WHEATLAND AVE INTERCHANGE	1
07	210		LA	R	11.084	LOS ANGELES, SUNLAND BLVD INTERCHANGE	1
07	210		LA	R	14.173	LOS ANGELES,LA TUNA CANYON RD	1
07	210		LA	R	15.619	GLENDALE, LOWELL AVE INTERCHANGE	1
07	210		LA	R	16.773	GLENDALE, PENNSYLVANIA AVE INTERCHANGE	1
07	210		LA	R	17.383	LA CRESCENTA AVE INTERCHANGE	1
07	210		LA	R	18.872	LA CANADA-FLINTRIDGE, W JCT. RTE. 2,	1
07	210		LA	R	19.881	LA CANADA-FLINTRIDGE, E JCT. RTE. 2, A. CREST	1
07	210		LA	R	20.6	LA CANADA-FLINTRIDGE, GOULD AVE/FOOTHILL	1
07	210		LA	R	20.854	LA CANADA-FLINTRIDGE, HAMPTON	

						AVE/FOOTHILL	
07	210		LA	R	21.532	LA CANADA-FLINTRIDGE, BERKSHIRE PLACE	1
07	210		LA	R	22.494	PASADENA, ARROYO BLVD INTERCHANGE	1
07	210		LA	R	23.191	PASADENA, LINCOLN BLVD INTERCHANGE	
07	210		LA	R	24.06	PASADENA, MOUNTAIN ST INTERCHANGE	1
07	210		LA	R	24.962	PASADENA, JCT. RTES. 134/710, VENTURA/L	1
07	210		LA	R	26.326	PASADENA, LAKE AVE INTERCHANGE	2
07	210		LA	R	26.941	PASADENA, HILL AVE INTERCHANGE	2
07	210		LA	R	27.409	PASADENA, ALLEN AVE INTERCHANGE	1
07	210		LA	R	28.249	PASADENA, ALTADENA DR INTERCHANGE	2
07	210		LA	R	28.68	PASADENA, SAN GABRIEL BLVD INTERCHANGE	1
07	210		LA	R	29.293	PASADENA, SIERRA MADRE VILLA INTERCHANGE	1
07	210		LA	L	29.795	PASADENA, ROSEMEAD BLVD INTERCHANGE	1
07	210		LA	R	30.816	ARCADIA, BALDWIN AVE INTERCHANGE	1
07	210		LA	R	31.883	ARCADIA, SANTA ANITA AVE INTERCHANGE	1
07	210		LA	R	32.89	MONROVIA, HUNTINGTON DR INTERCHANGE	1
07	210		LA	R	32.914	MONROVIA, MYRTLE AVE INTERCHANGE	1
07	210		LA	R	34.741	MONROVIA, MOUNTAIN AVE INTERCHANGE	1
07	210		LA	R	35.244	DUARTE, BUENA VISTA ST INTERCHANGE	1
07	210		LA	R	36.41	DUARTE, JCT. RTE. 605, SAN GABRIEL RIVER	1
07	210		LA	R	37.862	IRWINDALE, IRWINDALE AVE INTERCHANGE	1
07	210		LA	R	38.957	AZUSA, VERNON AVE INTERCHANGE	1
07	210		LA	R	39.6	AZUSA, AZUSA AVE INTERCHANGE	1
07	210		LA	R	40.603	AZUSA, CITRUS AVE INTERCHANGE	1
07	210		LA	R	41.594	GLENDORA, GRAND AVE INTERCHANGE	1
07	210		LA	R	43.16	GLENDORA, SUNFLOWER AVE INTERCHANGE	1
07	210		LA	R	44.377	GLENDORA, JCT RTE 57, ORANGE FRWY	1
07	210		LA	R	45.456	SAN DIMAS, SAN DIMAS AVE INTERCHANGE	1
07	210		LA	R	46.628	LA VERNE, JCT. RTE. 66, FOOTHILL BLVD	1
07	210		LA	R	48.083	LA VERNE, FRUIT ST INTERCHANGE	1
07	210		LA	R	49.533	CLAREMONT, TOWNE AVE INTERCHANGE	1
07	210		LA	R	51.849	CLAREMONT, BASELINE RD INTERCHANGE	1
07	210		LA	R	52.15	LOS ANGELES/SAN BERNARDINO COUNTY LINE	1
08	210		SBD		0	LOS ANGELES/SAN BERNARDINO COUNTY LINE	
08	210		SBD		1.497	MOUNTAIN AVE	1
08	210		SBD		3.471	CAMPUS AVE	1
08	210		SBD		4.599	CARNELIAN ST	1
08	210		SBD		5.901	ARCHIBALD AVE	1
08	210		SBD		6.913	HAVEN AVE	1
08	210		SBD		7.909	MILLIKEN AVE	1
08	210		SBD		9.138	DAY CREEK BLVD	1
08	210		SBD		11.498	JCT RTE 15	1
08	210		SBD		11.914	CHERRY AVE	
08	210		SBD		13.927	CITRUS AVE	
08	210		SBD		16.977	SIERRA AVE	
01	211		HUM		73.2	FERNDALE, OCEAN AVE	
01	211		HUM	R	74.192	FERNDALE, VAN NESS AVE	
01	211		HUM	R	75.782	SAGE RD	
01	211		HUM	R	76.688	GOBLE LN-WADDINGTON RD	

01	211		HUM		79.161		JCT. RTE. 101	
07	213		LA		0		LOS ANGELES, 25TH ST	
07	213		LA		3.458		RANCHO PALOS VERDES, AVENDIA APPRENDA RD	
07	213		LA		4.314		LOMITA, PALOS VERDES DR NORTH	
07	213		LA		5.085		LOS ANGELES, JCT. RTE. 1, PACIFIC COAST HWY	
07	213		LA		5.667		LOS ANGELES, LOMITA BLVD	
07	213		LA		6.996		LOS ANGELES, SEPULVEDA BLVD	
07	213		LA		7.983		CARSON ST	
08	215		RIV	R	8.998		MURRIETA, JCT. RTE. 15	
08	215		RIV	R	9.507		MURRIETA HOT SPRINGS RD	
08	215		RIV	R	10.652		MURRIETA, LOS ALAMOS RD INTERCHANGE	
08	215		RIV	R	12.51		MURRIETA, ANTELOPE RD INTERCHANGE	
08	215		RIV	R	15.515		SCOTT RD	
08	215		RIV	R	18.516		NEWPORT RD INTERCHANGE	
08	215		RIV	R	20.842		SUN CITY, MC CALL BLVD INTERCHANGE	
08	215		RIV		22.76		PERRIS, ETHANAC RD INTERCHANGE	
08	215		RIV		23.537		SOUTH JCT. RTE. 74	
08	215		RIV		26.308		PERRIS, NORTH JCT. RTE. 74	
08	215		RIV		27.23		PERRIS, D ST	
08	215		RIV	R	27.887		PERRIS, NUEVO RD; PERRIS INTERCHANGE	
08	215		RIV	R	30.93		RAMONA EXPRESSWAY	
08	215		RIV	R	32.33		OLEANDER AVE INTERCHANGE	
08	215		RIV	R	34.17		VAN BUREN BLVD	1
08	215		RIV	R	35.76		CACTUS AVE	
08	215		RIV	R	36.419		ALLENSANDRO BLVD	1
08	215		RIV	R	37.436		RIVERSIDE, EUCALYPTUS/EASTRIDGE AVE	1
08	215		RIV	R	38.339		JCT. RTE. 60 EAST	
08	215		RIV	R	38.915		RIVERSIDE, FAIR ISLE DR INTERCHANGE	1
08	215		RIV		39.484		RIVERSIDE, CENTRAL AVE INTERCHANGE	1
08	215		RIV		40.977		RIVERSIDE, PENNSYLVANIA AVE INTERCHANGE	1
08	215		RIV		41.488		UNIVERSITY AVE	1
08	215		RIV		42.163		RIVERSIDE, 3RD/ BLAINE STS INTERCHANGE	1
08	215		RIV		42.837		RIVERSIDE, SPRUCE ST	1
08	215		RIV		43.27		RIVERSIDE, JCT. RTES.	1
08	215		RIV		43.9		RIVERSIDE, COLUMBIA AVE INTERCHANGE	1
08	215		RIV		45.013		CENTER ST	1
08	215		RIV		45.333		RIVERSIDE/SAN BERNARDINO COUNTY LINE	1
08	215		SBD		0		RIVERSIDE/SAN BERNARDINO COUNTY LINE	
08	215		SBD		0.402		IOWA AVE	
08	215		SBD		1.312		BARTON RD INTERCHANGE	1
08	215		SBD		2.686		COLTON, MOUNT VERNON/ WASHINGTON AVES	1
08	215		SBD		4.052		COLTON, JCT. RTE. 10	1
08	215		SBD		5.025		SAN BERNARDINO, ORANGE SHOW RD	1
08	215		SBD		5.581		SAN BERNARDINO, INLAND CENTER DR	1
08	215		SBD		6.06		SAN BERNARDINO, MILL ST	1
08	215		SBD		6.787		SAN BERNARDINO, SECOND ST INTERCHANGE	1
08	215		SBD		7.183		SAN BERNARDINO, JCT. RTE. 66 WEST	1
08	215		SBD		8.083		SAN BERNARDINO, BASELINE ST	1
08	215		SBD		8.603		SAN BERNARDINO, JCT. RTE. 259 NORTH	1

08	215		SBD		9.029		SAN BERNARDINO, MASSACHUSETTS AVE
08	215		SBD		9.364		SAN BERNARDINO, HIGHLAND AVE
08	215		SBD		9.722		SAN BERNARDINO, MOUNT VERNON AVE/27TH ST
08	215		SBD		10.051		JCT. RTE. 30
08	215		SBD		11.634		UNIVERSITY PARKWAY
08	215		SBD		14.091		PALM AVE
08	215		SBD		17.323		DEVORE RD
08	215		SBD		17.753		JCT. RTE. 15
06	216		TUL	R	0		VISALIA, JCT. RTE. 198
06	216		TUL	R	0.349		MILL CREEK PARKWAY
06	216		TUL	R	0.488		VISALIA, GOSHEN AVE
06	216		TUL	R	0.824		ROOSEVELT AVE
06	216		TUL	R	0.99		LOVERS LANE
06	216		TUL		2.46		MACAULIFF AVE,RD 144
06	216		TUL		6.95		IVANHOE, AVE 328
06	216		TUL		11.732		AVE 344
06	216		TUL		12.01		RD 196
06	216		TUL		14.006		WOODLAKE, JCT. RTE. 245
06	216		TUL		14.51		WOODLAKE, RD 216
06	216		TUL		18.67		DRY CREEK RD
06	216		TUL		19.245		JCT. RTE. 198
05	217		SB		0.464		ENTRANCE, U OF CALIF SANTA BARBARA
05	217		SB		0.93		SANTA BARBARA, SANDSPIT RD
05	217		SB		2.232		HOLLISTER AVE INTERCHANGE
05	217		SB		2.756		JCT. RTE. 101
05	218		MON	R	0		SEASIDE, JCT. RTE. 1
05	218		MON		0.1		DEL REY OAKS
05	218		MON		1.956		DEL REY OAKS, JCT. RTE. 68
10	219		STA		0.116		JCT. RTE. 99
10	219		STA		4.858		JCT. RTE. 108
04	220		SOL		0		JCT. RTE. 84
04	220		SOL		3.05		RYER RD
04	220		SOL		3.2		SOLANO-SACRAMENTO COUNTY LINE
03	220		SAC		0		SOLANO-SACRAMENTO COUNTY LINE
03	220		SAC		0.44		GRAND ISLAND RD
03	220		SAC		3.114		RYDE, JCT. RTE. 160

California
Manual on Uniform
Traffic Control Devices
for Streets and Highways
**(FHWA's MUTCD 2003 Edition
including Revisions 1 and 2,
as amended for use in California)**

Temporary Traffic Control

January 21, 2010

STATE OF CALIFORNIA
BUSINESS, TRANSPORTATION AND HOUSING AGENCY
DEPARTMENT OF TRANSPORTATION

(This page left intentionally blank)

California
Manual on Uniform
Traffic Control Devices
for Streets and Highways
**(FHWA's MUTCD 2003 Edition,
including Revisions 1 and 2,
as amended for use in California)**

January 21, 2010



STATE OF CALIFORNIA
BUSINESS, TRANSPORTATION AND HOUSING AGENCY
DEPARTMENT OF TRANSPORTATION

(This page left intentionally blank)

STATE OF CALIFORNIA
BUSINESS, TRANSPORTATION AND HOUSING AGENCY
DEPARTMENT OF TRANSPORTATION

California
Manual on Uniform
Traffic Control Devices
for Streets and Highways
(FHWA's MUTCD 2003 Edition
including Revisions 1 and 2,
as amended for use in California)

Issued by:



DIVISION OF TRAFFIC OPERATIONS

January 21, 2010

ARNOLD SCHWARZENEGGER
Governor

DALE BONNER
Secretary, Business, Transportation and Housing Agency

RANDELL IWASAKI
Director, Department of Transportation

The Manual on Uniform Traffic Control Devices (MUTCD) is approved by the Federal Highway Administrator as the National Standard in accordance with Title 23 U.S. Code, Sections 109(d), 114(a), 217, 315, and 402(a), 23 CFR 655, and 49 CFR 1.48(b)(8), 1.48(b)(33), and 1.48(c)(2).

The California Manual on Uniform Traffic Control Devices (California MUTCD) is published by the State of California, Department of Transportation and is issued to adopt uniform standards and specifications for all official traffic control devices, in accordance with Section 21400 of the California Vehicle Code.

This manual is current as of the date of publication on the cover. However, it may be necessary from time to time to modify, change or adopt new standards and specifications for traffic control devices and/or issue errata or editorial changes to the manual. To ensure that the traffic control device practitioner is accessing the most current information regarding traffic control device topics for California, the practitioner is advised to always reference the California MUTCD web site.

The California MUTCD, California Sign Specifications and other publications and related current information is available on the Internet at the following web link:
http://www.dot.ca.gov/hq/traffops/signtech/mutcdsupp/

Addresses for Publications Referenced in the ~~MUTCD~~ California MUTCD

American Association of State Highway and Transportation Officials (AASHTO)
444 North Capitol Street, NW, Suite 249
Washington, DC 20001
www.transportation.org

American Railway Engineering and Maintenance-of-Way Association (AREMA)
8201 Corporate Drive, Suite 1125
Landover, MD 20785-2230
www.arema.org

California Building Standards Code
International Conference of Building Officials
5360 South Workman Mill Road
Whittier, CA 90601
www.icbo.org

California Code Publications &
California Law
http://www.leginfo.ca.gov/calaw.html

California Department of Transportation Publications
Publications Distribution Unit
1900 Royal Oaks Drive
Sacramento, CA 95815-3800
http://caltrans-opac.ca.gov/publicat.htm

California Vehicle Code
Department of Motor Vehicles
Sacramento, California
http://www.dmv.ca.gov/pubs/pubs.htm

Federal Highway Administration Report Center
Facsimile number: 301.577.1421
report.center@fhwa.dot.gov

Illuminating Engineering Society (IES)
120 Wall Street, Floor 17

New York, NY 10005
www.iesna.org

Institute of Makers of Explosives
1120 19th Street, NW, Suite 310
Washington, DC 20036-3605
www.ime.org

Institute of Transportation Engineers (ITE)
1099 14th Street, NW, Suite 300 West
Washington, DC 20005-3438
www.ite.org

International Organization for Standards
c/o Mr. Gerard Kuso
Austrian Standards Institute
Heinestrabe 38
Postfach 130
A-1021
Wien, Austria
www.iso.ch

ISEA - The Safety Equipment Association
1901 North Moore Street, Suite 808
Arlington, VA 22209
www.safetyequipment.org

National Committee on Uniform Traffic Laws and Ordinances (NCUTLO)
107 South West Street, Suite 110
Alexandria, VA 22314
www.ncutlo.org

Occupational Safety and Health Administration (OSHA)
U.S. Department of Labor
200 Constitution Avenue, NW
Washington, DC 20210
www.osha.gov

Transportation Research Board (TRB)
The National Academies
2101 Constitution Avenue, NW
Washington, DC 20418
www.nas.edu/trb

U.S. Architectural and Transportation Barriers Compliance Board (The U.S. Access Board)
1331 F Street, NW, Suite 1000
Washington, DC 20004-1111
www.access-board.gov

Acknowledgments
The Federal Highway Administration gratefully acknowledges the valuable assistance that it received from the National Committee on Uniform Traffic Control Devices and its over 200 voluntary members in the development of this Manual.

The Department of Transportation gratefully acknowledges the Federal Highway Administration's California Division, the California Traffic Control Devices Committee (CTCDC) members, staff from various cities and counties in California and the Department's headquarters and districts staff for providing guidance and direction in the development of this Manual. Information regarding the California portion (blue text and/or blue border line) of this Manual can be obtained by writing to:

State of California
Department of Transportation,
Chief, Division of Traffic Operations, MS-36
1120 N Street, Sacramento, CA 95814.

NOTE: The contents of this publication are not copyrighted. They may be reprinted freely.

The California MUTCD is available on the Department of Transportation Web Page at http://www.dot.ca.gov/hq/traffops/signtech/mutcdsupp/.

U.S. Department of Transportation
Federal Highway Administration

Federal Highway Administration
California Division

650 Capitol Mall, Suite 4-100
Sacramento CA 95814

January 21, 2010

Mr. Randell Iwasaki
California Department of Transportation
1120 N Street
Sacramento, CA 95814

Dear Mr. Iwasaki:

On January 21, 2010, the California Department of Transportation (Department) adopted the California Manual on Uniform Traffic Control Devices (MUTCD) (2003 National MUTCD Revision 2, as amended for use in California) to prescribe uniform standards and specifications for all official traffic control devices in California.

Our office has reviewed the 2010 California MUTCD and finds it to be in substantial conformance with the 2003 National MUTCD, Revision 2, per title 23, Code of Federal Regulations (23 CFR 655.603(b)(1)). In its draft form, the 2010 California MUTCD included several items which prevented us from finding substantial conformance with the national MUTCD. We commend the Department and the California Traffic Control Devices Committee for making the changes necessary to find the state document to be in substantial conformance with the national MUTCD and we look forward to continuing our partnership. Further, we continue to request that any proposed modifications to the California MUTCD gain our approval prior to incorporation and that actions of the California Traffic Control Devices Committee may not be incorporated in the California MUTCD until applicable federal approval is obtained.

Should you have questions, please do not hesitate to contact Steve Pyburn, Operations & ITS Engineer, at (916) 498-5057 or steve.pyburn@dot.gov.

Sincerely,

Stephen M Pyburn

For
Walter C. Waidelich, Jr.
Division Administrator

RECOVERY.GOV

DEPARTMENT OF TRANSPORTATION
OFFICE OF THE DIRECTOR
P.O. BOX 942873, MS-49
SACRAMENTO, CA 94273-0001
PHONE (916) 654-5266
FAX (916) 654-6608
TTY 711

Flex your power!
Be energy efficient!

January 7, 2010

Mr. Walter C. Waidelich, Jr.
Division Administrator
Federal Highway Administration
650 Capitol Mall, Suite 4-100
Sacramento, CA 95814

Dear Mr.Waidelich:

The California Department of Transportation (Department) is requesting from FHWA a letter to confirm substantial conformance of the recently revised California Manual on Uniform Traffic Control Devices (CA MUTCD). This letter is required by the Code of Federal Regulations, Title 23 (23 CFR 655.603(b)(1)). The revised CA MUTCD is on the enclosed compact disk transmitted with this letter and includes the Federal Highway Administration's 2003 MUTCD with Revision 1 dated November 20, 2004, and Revision 2 dated December 21, 2007. The revision includes all revised CA MUTCD policies related to California traffic control devices made by the Department since September 26, 2006. The revision also contains other editorial, error corrections, and format changes that were necessary to update the previous document.

A draft version of the revised CA MUTCD was made available to the Department's district staff, local agencies and the general public for review and comment during the open public comment period, which closed on September 22, 2009. The California Traffic Control Devices Committee also reviewed the revised CA MUTCD at their September 24, 2009 meeting and made a recommendation to the Department to adopt the new manual.

We would like to acknowledge the efforts of Steve Pyburn of your office for working closely with Johnny Bhullar of the Department's Division of Traffic Operations in reviewing the draft revision of the CA MUTCD. This review process was done to ensure the changes made would be in conformance with the National MUTCD.

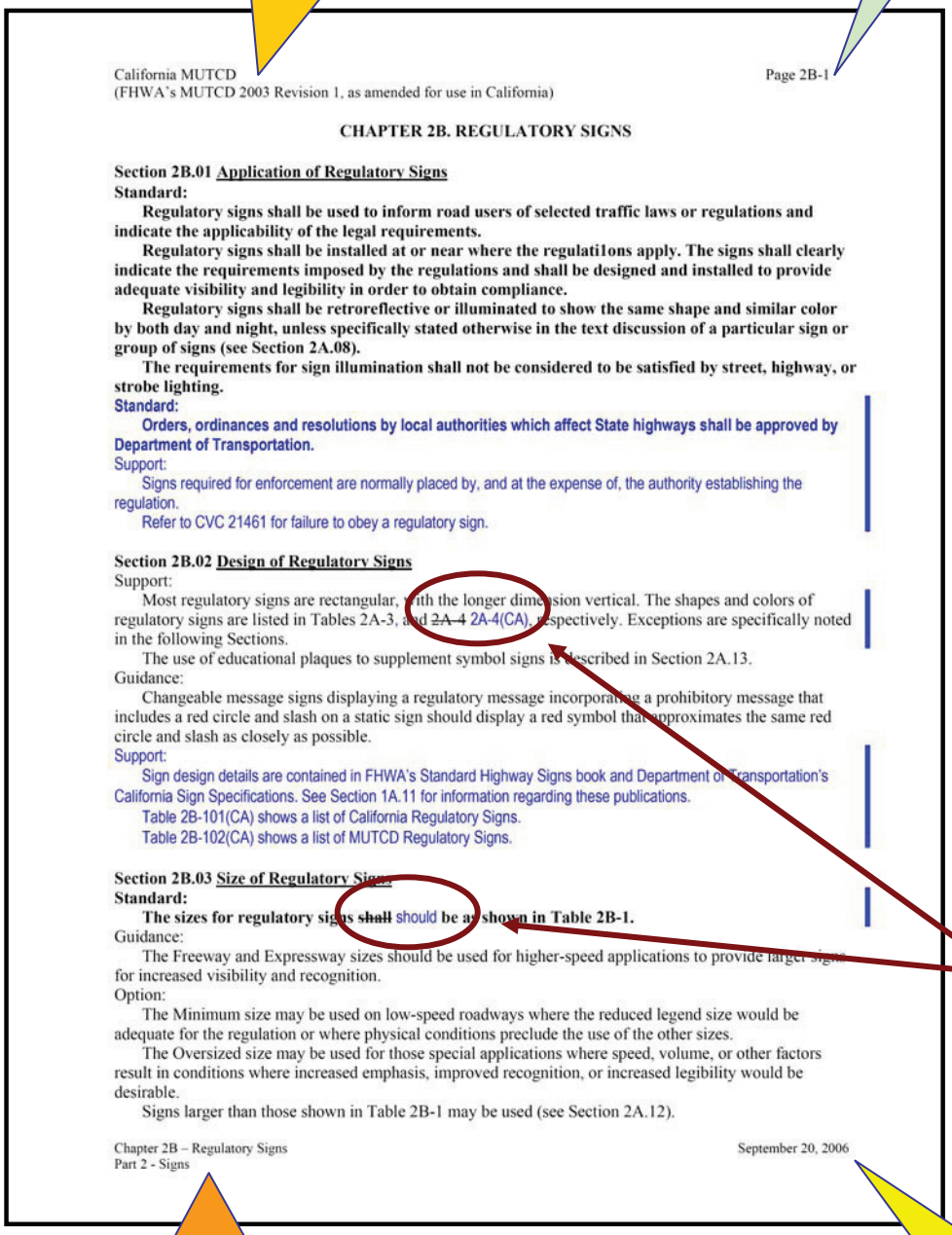
If you have any questions, please contact Johnny Bhullar at (916) 654-7312 or by e-mail at johnny_bhullar@dot.ca.gov.

Sincerely,

Cindy McKim for
RANDELL H. IWASAKI
Director

Enclosure

Sample Page Sketches Showing Format Explanations



Manual title and exact version of FHWA's MUTCD that it incorporates

Page number

California MUTCD
(FHWA's MUTCD 2003 Revision 1, as amended for use in California)

Page 2B-1

CHAPTER 2B. REGULATORY SIGNS

Section 2B.01 Application of Regulatory Signs

Standard:

Regulatory signs shall be used to inform road users of selected traffic laws or regulations and indicate the applicability of the legal requirements.

Regulatory signs shall be installed at or near where the regulati1ons apply. The signs shall clearly indicate the requirements imposed by the regulations and shall be designed and installed to provide adequate visibility and legibility in order to obtain compliance.

Regulatory signs shall be retroreflective or illuminated to show the same shape and similar color by both day and night, unless specifically stated otherwise in the text discussion of a particular sign or group of signs (see Section 2A.08).

The requirements for sign illumination shall not be considered to be satisfied by street, highway, or strobe lighting.

Standard:

Orders, ordinances and resolutions by local authorities which affect State highways shall be approved by Department of Transportation.

Support:

Signs required for enforcement are normally placed by, and at the expense of, the authority establishing the regulation.

Refer to CVC 21461 for failure to obey a regulatory sign.

Section 2B.02 Design of Regulatory Signs

Support:

Most regulatory signs are rectangular, with the longer dimension vertical. The shapes and colors of regulatory signs are listed in Tables 2A-3, and ~~2A-4~~ 2A-4(CA), respectively. Exceptions are specifically noted in the following Sections.

The use of educational plaques to supplement symbol signs is described in Section 2A.13.

Guidance:

Changeable message signs displaying a regulatory message incorporating a prohibitory message that includes a red circle and slash on a static sign should display a red symbol that approximates the same red circle and slash as closely as possible.

Support:

Sign design details are contained in FHWA's Standard Highway Signs book and Department of Transportation's California Sign Specifications. See Section 1A.11 for information regarding these publications.

Table 2B-101(CA) shows a list of California Regulatory Signs.

Table 2B-102(CA) shows a list of MUTCD Regulatory Signs.

Section 2B.03 Size of Regulatory Signs

Standard:

The sizes for regulatory signs ~~shall~~ should be as shown in Table 2B-1.

Guidance:

The Freeway and Expressway sizes should be used for higher-speed applications to provide larger signs for increased visibility and recognition.

Option:

The Minimum size may be used on low-speed roadways where the reduced legend size would be adequate for the regulation or where physical conditions preclude the use of the other sizes.

The Oversized size may be used for those special applications where speed, volume, or other factors result in conditions where increased emphasis, improved recognition, or increased legibility would be desirable.

Signs larger than those shown in Table 2B-1 may be used (see Section 2A.12).

Chapter 2B – Regulatory Signs
Part 2 - Signs

September 20, 2006

Unedited MUTCD text shown in "Times New Roman" black color font.

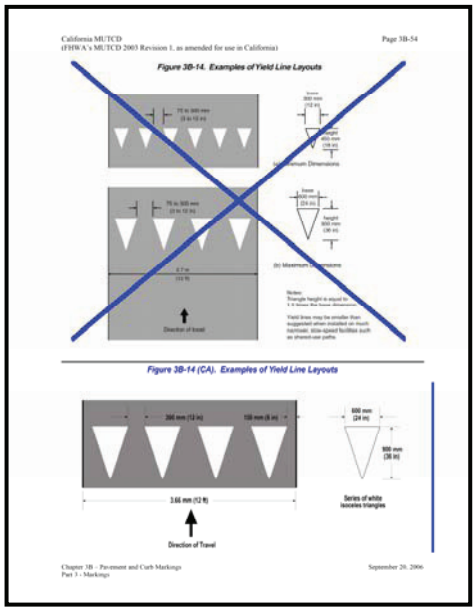
California text shown in "Arial Narrow" blue color font & blue margin line

Edited MUTCD text shown as strikethrough with blue margin line

CA MUTCD chapter number and chapter name
CA MUTCD part number and part name

Date of adoption for CA MUTCD

Sample Page Sketches Showing Format Explanations



California MUTCD
(FHWA's MUTCD 2003 Revision 1, as amended for use in California)
Page 3B-54

Figure 3B-14. Examples of Yield Line Layouts

Figure 3B-14 (CA). Examples of Yield Line Layouts

Direction of Travel

Chapter 3B – Pavement and Curb Markings
Part 3 – Markings
September 20, 2006

Entire MUTCD figure not applicable in California shown with blue X cross-out and the replacing California figure retains the same figure number but adds "(CA)" after the number and has a blue margin line.

California MUTCD
(FHWA's MUTCD 2003 Revision 1, as amended for use in California)
Page TC4-4

		Page
Section 4K.04	Speed Limit Sign Beacon	4K-2
Section 4K.05	Stop Beacon	4K-3
Section 4K.101(CA)	Warning Beacon Financing	4K-3
Section 4K.102(CA)	Signal Ahead Flashing Beacons	4K-3
Section 4K.103(CA)	Flashing Beacons at School Crossings	4K-4
Section 4K.104(CA)	Speed Limit Sign Beacon	4K-4
Section 4K.105(CA)	Flashing Beacons for Fire Stations	4K-4
Section 4K.106(CA)	Stop Sign Flashing Beacons	4K-4
Section 4K.107(CA)	Flashing Beacons for Bus Stops on Freeway Interchanges	4K-5
CHAPTER 4L.	**IN-ROADWAY LIGHTS**	
Section 4L.01	Application of In-Roadway Lights	4L-1
Section 4L.02	In-Roadway Warning Lights at Crosswalks	4L-1
Section 4L.101(CA)	In-Roadway Warning Lights at Crosswalks Financing and Maintenance-State Highways	4L-2
FIGURES		
CHAPTER 4C.	**TRAFFIC CONTROL SIGNAL NEEDS STUDIES**	
Figure 4C-1	Warrant 2, Four-Hour Vehicular Volume	4C-9
Figure 4C-2	Warrant 2, Four-Hour Vehicular Volume (70% Factor)	4C-9
Figure 4C-3	Warrant 3, Peak Hour	4C-10
Figure 4C-4	Warrant 3, Peak Hour (70% Factor)	4C-10
Figure 4C-101(CA)	Traffic Signal Warrants Worksheet	4C-11
Figure 4C-102(CA)	Traffic Count Worksheet	4C-15
Figure 4C-103(CA)	Traffic Signal Warrants Worksheet (Average Traffic Estimate Form)	4C-16
CHAPTER 4D.	**TRAFFIC CONTROL SIGNAL FEATURES**	
Figure 4D-1	Maximum Mounting Height – Signal Faces Located Between 12 Meters (4 Feet) and [illegible] Meters (53 Feet) from Stop Line	4D-30
Figure 4D-2	Horizontal Location of Signal Faces	4D-31
Figure 4D-3	Typical Arrangements of Signal Lenses in Signal Faces	4D-32
Figure 4D-3(CA)	Typical Arrangements of Signal Lenses in Signal Faces	4D-33
Figure 4D-101(CA)	Left-Turn Phasing Methods (Phase Diagrams)	4D-34
Figure 4D-102(CA)	Typical Signal Layout at Offset Intersections, Signalized and Marked as a Single Intersection	4D-35
Figure 4D-103(CA)	Typical Signal Layout (Two Phase Operation)	4D-39
Figure 4D-104(CA)	Typical Signal Layout (Three Phase Operation)	4D-40
Figure 4D-105(CA)	Typical Signal Layout (Five Phase "Dual Left" Operation)	4D-41
Figure 4D-106(CA)	Typical Signal Layout (Six Phase "Opposing" Operation)	4D-42
Figure 4D-107(CA)	Typical Signal Layout (Eight Phase "Quad Left" Operation)	4D-43
Figure 4D-108(CA)	Typical Traffic Signal Installation	4D-44

Part 4 – Highway Traffic Signals
September 20, 2006

California sections with no corresponding MUTCD sections begin with 101 and add "(CA)", increasing in sequence. The text is shown in "Arial Narrow" blue color font & blue margin line.

MUTCD Figure 4D-3 is applicable and is unedited. California figure adds to this MUTCD figure and retains the number 4D-3 adding "(CA)" with a blue margin line.

California figures with no corresponding MUTCD figures begin with 101 and add "(CA)", increasing in sequence with a blue margin line.

CALIFORNIA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES
~~MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES~~

INTRODUCTION

Support:

This California Manual on Uniform Traffic Control Devices (California MUTCD) is published by the State of California, Department of Transportation and is issued to adopt uniform standards and specifications for all official traffic control devices in California, in accordance with Section 21400 of the California Vehicle Code.

This California MUTCD incorporates Federal Highway Administration's Manual on Uniform Traffic Control Devices (2003 Edition Revision 2) dated December 21, 2007 and the previous California MUTCD dated September 26, 2006. It also incorporates all policies on traffic control devices issued by the California Department of Transportation that have been issued since September 26, 2006 and other editorial, errata and format changes that were necessary to update the previous documents.

Standard:

The California MUTCD is hereby adopted as, and shall be the standard for all official traffic control devices, under Section 11340.9(h) of California Government Code and Section 21400 of California Vehicle Code.

Support:

The California MUTCD supersedes and replaces the previously adopted (on September 26, 2006) California MUTCD as well as Chapters 4, 5, 6, 8, 10, 11, 12, and the traffic signals portion of chapter 9 of the 1996 Caltrans Traffic Manual, as amended, and all previous editions thereof. It does not supersede the Department's Standard Plans, Standard Specifications or the Standard Special Provisions publications.

Department of Transportation publishes Standard Specifications, Standard Special Provisions, Standard Plans and other manuals, which contain specifications and requirements for traffic control devices, including their use and placement, when performing work on State highways. In some cases those specifications and requirements can vary from, and be more stringent than those shown in the California MUTCD.

Standard:

Whenever there is a discrepancy between the specifications and requirements contained in the California MUTCD, and those contained in the publications noted in the previous paragraph for work on State highways, those publications shall govern.

On State highways the California MUTCD shall mean to include the Department of Transportation's Standard Plans, Standard Specifications and Standard Special Provisions publications.

Nothing contained in the California MUTCD shall prevent the Department of Transportation from modifying, changing, or adopting new specifications deemed necessary.

Whenever there is a discrepancy between the specifications and requirements incorporated from FHWA's MUTCD and the California MUTCD amendments, the California MUTCD amendments shall govern.

Traffic control devices shall be defined as all signs, signals, markings, and other devices used to regulate, warn, or guide traffic, placed on, over, or adjacent to a street, highway, pedestrian facility, or bikeway by authority of a public agency having jurisdiction.

The Manual on Uniform Traffic Control Devices (MUTCD) is incorporated by reference in 23 Code of Federal Regulations (CFR), Part 655, Subpart F and shall be recognized as the national standard for all traffic control devices installed on any street, highway, or bicycle trail open to public travel in accordance with 23 U.S.C. 109(d) and 402(a). The policies and procedures of the Federal Highway Administration (FHWA) to obtain basic uniformity of traffic control devices shall be as described in 23 CFR 655, Subpart F.

Any traffic control device design or application provision contained in this Manual shall be considered to be in the public domain. Traffic control devices contained in this Manual shall not be protected by a patent, trademark, or copyright, except for the Interstate Shield and any other items owned by FHWA. The California Department of Transportation logos consisting of the "CT" symbol and the

"Caltrans" logotype are registered service marks and when used on any traffic control device they shall be presented in a uniform and consistent manner as outlined in the Department's Deputy Directive DD-33-R1.

Support:

This Manual is not applicable to privately owned and maintained roads or commercial establishments in California, unless the particular city or county enacts an ordinance or resolution to this effect. Refer to CVC Sections 21100, 21100.1, 21107, 21107.5, 21107.6, and 21107.7. However, the use of this Manual is encouraged on all privately owned and maintained roads or commercial establishments, in general, as a good practice. See Section 1A.07 for more information.

The need for uniform standards was recognized long ago. The American Association of State Highway Officials (AASHO), now known as the American Association of State Highway and Transportation Officials (AASHTO), published a manual for rural highways in 1927, and the National Conference on Street and Highway Safety (NCSHS) published a manual for urban streets in 1930. In the early years, the necessity for unification of the standards applicable to the different classes of road and street systems was obvious. To meet this need, a joint committee of AASHO and NCSHS developed and published the original edition of this Manual on Uniform Traffic Control Devices (MUTCD) in 1935. That committee, now called the National Committee on Uniform Traffic Control Devices (NCUTCD), though changed from time to time in name, organization, and personnel, has been in continuous existence and has contributed to periodic revisions of this Manual. The FHWA has administered the MUTCD since the 1971 edition. The FHWA and its predecessor organizations have participated in the development and publishing of the previous editions. There were eight previous editions of the MUTCD, and several of those editions were revised one or more times. Table I-1 traces the evolution of the MUTCD, including the two manuals developed by AASHO and NCSHS.

Standard:

The U.S. Secretary of Transportation, under authority granted by the Highway Safety Act of 1966, decreed that traffic control devices on all streets and highways open to public travel in accordance with 23 U.S.C. 109(d) and 402(a) in each State shall be in substantial conformance with the Standards issued or endorsed by the FHWA.

Support:

23 CFR 655.603 adopts the MUTCD as the national standard for any street, highway, or bicycle trail open to public travel in accordance with 23 U.S.C. 109(d) and 402(a). The "Uniform Vehicle Code (UVC)" is one of the publications referenced in the MUTCD. The UVC contains a model set of motor vehicle codes and traffic laws for use throughout the United States. The States are encouraged to adopt Section 15-116 of the UVC, which states that, "No person shall install or maintain in any area of private property used by the public any sign, signal, marking, or other device intended to regulate, warn, or guide traffic unless it conforms with the State manual and specifications adopted under Section 15-104."

Text Headings

The Standard, Guidance, Option, and Support material described in this edition of the MUTCD provide the transportation professional with the information needed to make appropriate decisions regarding the use of traffic control devices on streets and highways. The material in this edition is organized to better differentiate between Standards that must be satisfied for the particular circumstances of a situation, Guidances that should be followed for the particular circumstances of a situation, and Options that may be applicable for the particular circumstances of a situation.

Throughout this Manual the headings Standard, Guidance, Option, and Support are used to classify the nature of the text that follows. Figures, tables, and illustrations supplement the text and might constitute a Standard, Guidance, Option, or Support. The user needs to refer to the appropriate text to classify the nature of the figure, table, or illustration.

The figures shown in the California MUTCD are typical or example applications of the traffic control devices to illustrate their use and manner. Criteria for position, location, and use of traffic control devices in the figures are furnished solely for the purpose of guidance, understanding and information, and are not a legal standard. Engineering judgment must be used to apply these guidelines to the typical or example applications, or adjust them to fit individual field site conditions. The California MUTCD is not intended to be a substitute for engineering knowledge, experience or judgment.

Standard:

When used in this Manual, the text headings shall be defined as follows:

1. **Standard—a statement of required, mandatory, or specifically prohibitive practice regarding a traffic control device. All standards are labeled, and the text appears in bold type. The verb shall is typically used. Standards are sometimes modified by Options.**
2. **Guidance—a statement of recommended, but not mandatory, practice in typical situations, with deviations allowed if engineering judgment or engineering study indicates the deviation to be appropriate. All Guidance statements are labeled, and the text appears in unbold type. The verb should is typically used. Guidance statements are sometimes modified by Options.**
3. **Option—a statement of practice that is a permissive condition and carries no requirement or recommendation. Options may contain allowable modifications to a Standard or Guidance. All Option statements are labeled, and the text appears in unbold type. The verb may is typically used.**
4. **Support—an informational statement that does not convey any degree of mandate, recommendation, authorization, prohibition, or enforceable condition. Support statements are labeled, and the text appears in unbold type. The verbs shall, should, and may are not used in Support statements.**

For all purposes, regardless of the text heading, any sentence containing the verb shall or MUTCD text edited to the verb shall, shall be considered a Standard. Similarly, any sentence containing the verb should or MUTCD text edited to the verb should, shall be considered Guidance and any sentence containing the verb may or MUTCD text edited to the verb may, shall be considered an Option.

Metric and U.S. Customary (English) System of Units

Support:

Throughout this Manual all dimensions and distances are provided in the International System of Units, a modernized version of the Metric system, and their English equivalent units are shown in parentheses.

In 1993, the Department had adopted the International System of Units as the preferred system of weights and measures to comply with federal law. The law was subsequently changed making the use of the Metric System optional. The Department made the decision in 2004 to readopt the U.S. Customary (English) system of units and measures as the preferred system. Guidance on the use of the Metric and U.S. Customary Systems of Measurement is available from Department of Transportation's Division of Design, Metric Program.

Guidance:

Before laying out distances or determining sign sizes, the public agency should decide whether to use the International System of Units (Metric) or the English equivalent units. The chosen units should be specified on plan drawings. The chosen unit of measurement should be made known to those responsible for designing, installing, or maintaining traffic control devices.

Except when a specific numeral is required by the text of a Section of this Manual, numerals shown on the sign images in the figures that specify quantities such as times, distances, speed limits, and weights should be regarded as examples only. When installing any of these signs, the numerals should be appropriately altered to fit the specific signing situation.

Format, Reference and Manual Layout

Support:

The following information will be useful when reference is being made to a specific portion of text in this Manual.

There are ten Parts in this Manual and each Part is comprised of one or more Chapters. Each Chapter is comprised of one or more Sections. Parts are given a numerical identification, such as Part 2-Signs. Chapters are identified by the Part number and a letter, such as Chapter 2B-Regulatory Signs. Sections are identified by the Chapter number and letter followed by a decimal point and a number, such as Section 2B.03-Size of Regulatory Signs.

The California MUTCD uses a format similar to the MUTCD. It incorporates FHWA's MUTCD in its entirety and explicitly shows which portions thereof are applicable or not applicable in California. The unedited MUTCD text is shown in "Times New Roman" font with black color. The California edited MUTCD text is also shown in "Times New Roman"

font with black color but with strikethrough of all text portions that are not applicable in California and a blue margin line for easier distinction between the two types of MUTCD texts. The California text additions and enhancements are incorporated into the combined document at appropriate locations and shown in an "Arial Narrow" font with blue color and a blue margin line on the right to keep them distinct from the MUTCD content, whether the pages are viewed on a computer monitor, as hard copies in color or as black photo copies.

All MUTCD figures and tables, or portions thereof, which are not applicable in California, are shown with appropriate size blue X cross-outs. The MUTCD figures and tables that have been modified or added to, in the California MUTCD retain the same MUTCD Figure or Table number but include "(CA)" to indicate that it is the California version of the MUTCD Figure or Table. For example:

- Figure 3B-14(CA) Examples of Yield Line Layouts
- Table 9B-1(CA) California Minimum Sign Sizes for Bicycle Facilities

For California topics where there is no corresponding section, figure or table in the MUTCD, the California MUTCD gives a number that begins with 101 for that section, figure or table and increases in sequence, followed with a "(CA)" to indicate that this is a California created section, figure or table number. The blue margin line on the right is also added to all California figures and tables to keep them distinct from the MUTCD figures and tables. For example:

- Section 2B.112(CA) – Daylight Headlight Signs (S30(CA) Series)
- Figure 2C-101(CA) – Determination of Comfortable Speed From Ball Bank Indicator Readings
- Table 6F-102(CA) – Maximum Spacing of Channelizing Devices.

The California MUTCD contents within each chapter (Chapter 2B shown as example below) appear in a consistent order for ease of reference. This sequence is as follows:

1. MUTCD Sections per sequential numbering. For example, Sections 2B.01 through 2B.54.
2. California Sections per sequential numbering. For example, Sections 2B.101(CA) through 2B.113(CA).
3. MUTCD Figures (including edited and deleted) per sequential numbering. For example, Figures 2B-1 through 2B-22.
4. California Figures based upon or modifying MUTCD Figures are placed immediately after the respective MUTCD figure. For example, Figure 2B-14(CA) follows immediately after the deleted MUTCD Figure 2B-14 it replaces. Another example is Figure 2B-18(CA) which immediately follows MUTCD (undeleted) Figure 2B-18 as the California figure supplements the MUTCD Figure, it does not replace it.
5. California Figures that are stand alone and not based upon MUTCD Figures follow in sequence per their numbering. For example, Figures 2B-101(CA) through 2B-106(CA) follow after the end of MUTCD numbered figures.
6. MUTCD and California Tables follow the Figures under similar rules described above for the figures.

See California MUTCD sample page sketches on the front inside cover pages which show these and other format explanations with call outs.

Each Section is comprised of one or more paragraphs. The paragraphs are indented but are not identified by a number or letter. Paragraphs are counted from the beginning of each Section without regard to the intervening text headings (Standard, Guidance, Option, or Support). Some paragraphs have lettered or numbered items. As an example of how to cite this Manual, the phrase "Not less than 12 m (40 ft) beyond the stop line" that appears on Page 4D-12 of this Manual would be referenced in writing as "Section 4D.15, P7, D1(a)," and would be verbally referenced as "Item D1(a) of Paragraph 7 of Section 4D.15."

Target Compliance Dates and Deleted Traffic Control Devices

Standard:

In accordance with 23 CFR 655.603(b)(1), States or other Federal agencies that have their own MUTCDs or Supplements shall revise these MUTCDs or Supplements to be in substantial conformance with changes to the National MUTCD within 2 years of issuance of the changes. Unless a particular device is no longer serviceable, non-compliant devices on existing highways and bikeways shall be brought into compliance with the current edition of the National MUTCD as part of the systematic upgrading of substandard traffic control devices (and installation of new required traffic control devices) required pursuant to the Highway Safety Program, 23 U.S.C. § 402(a). In cases involving Federal-aid projects for new highway or bikeway construction or reconstruction, the traffic control devices installed (temporary or permanent) shall be in conformance with the most recent

edition of the National MUTCD before that highway is opened or re-opened to the public for unrestricted travel [23 CFR 655.603(d)(2)]. The FHWA has the authority to establish other target compliance dates for implementation of particular changes to the MUTCD [23 CFR 655.603(d)(4)]. These target compliance dates established by the FHWA shall be as follows:

Section 2A.09 Maintaining Minimum Retroreflectivity—new section—from the January 22, 2008 effective date of the Final Rule for Revision 2 of the 2003 MUTCD:

- **4 years (January 22, 2012) for implementation and continued use of an assessment or management method that is designed to maintain traffic sign retroreflectivity at or above the established minimum levels;**
- **7 years (January 22, 2015) for replacement of regulatory, warning, and ground-mounted guide (except street name) signs that are identified using the assessment or management method as failing to meet the established minimum levels; and**
- **10 years (January 22, 2018) for replacement of street name signs and overhead guide signs that are identified using the assessment or management method as failing to meet the established minimum levels.**

~~**Section 2A.19 Lateral Offset—crashworthiness of sign supports—January 17, 2013 for roads with posted speed limit of 80 km/h (50 mph) or higher.**~~

~~**Section 2B.03 Size of Regulatory Signs—increased sign sizes and other changes to Table 2B-1—10 years from the effective date of the Final Rule for the 2003 MUTCD.**~~

~~**Section 2B.04 STOP Sign (R1-1)—4-WAY plaque requirement—January 17, 2004.**~~

~~**Section 2B.06 STOP Sign Placement—signs mounted on back of STOP sign—10 years from the effective date of the Final Rule for the 2003 MUTCD.**~~

~~**Section 2B.09 YIELD Sign Applications—changes in YIELD sign application criteria from the 1988 MUTCD—January 17, 2011.**~~

~~**Section 2B.10 YIELD Sign Placement—signs mounted on back of YIELD sign—10 years from the effective date of the Final Rule for the 2003 MUTCD.**~~

~~**Section 2B.11 Yield Here to Pedestrians Signs (R1-5, R1-5a)—new section—10 years from the effective date of the Final Rule for the 2003 MUTCD.**~~

~~**Section 2B.13 Speed Limit Sign (R2-1)—color of changeable message legend of YOUR SPEED—10 years from the effective date of the Final Rule for the 2003 MUTCD.**~~

~~**Section 2B.25 Reversible Lane Control Signs (R3-9d, R3-9f through R3-9i)—removal of R3-9c and R3-9e signs—10 years from the effective date of the Final Rule for the 2003 MUTCD.**~~

~~**Section 2B.26 Preferential Only Lane Signs (R3-10 through R3-15)—10 years from the effective date of the Final Rule for the 2003 MUTCD.**~~

~~**Section 2B.27 Preferential Only Lanes for High-Occupancy Vehicles (HOVs)—new section in Millennium Edition—January 17, 2007.**~~

~~**Section 2B.28 Preferential Only Lane Sign Applications and Placement—10 years from the effective date of the Final Rule for the 2003 MUTCD.**~~

~~**Section 2B.37 ONE WAY Signs (R6-1, R6-2)—placement requirement at intersecting alleys—January 17, 2008.**~~

~~**Section 2B.46 Photo Enforced Signs (R10-18, R10-19)—new section—10 years from the effective date of the Final Rule for the 2003 MUTCD.**~~

~~**Section 2B.52 Hazardous Material Signs (R14-2, R14-3)—change in sign legend—10 years from the effective date of the Final Rule for the 2003 MUTCD.**~~

~~**Section 2C.04 Size of Warning Signs—increased sizes of W4-1, W5-2, W6-3, and W12-1 signs—January 17, 2008.**~~

~~**Section 2C.04 Size of Warning Signs—sizes of W1 Series Arrows signs, W7 Series truck runaway signs, W12-2p low clearance signs, and W10-1 advance grade crossing sign—10 years from the effective date of the Final Rule for the 2003 MUTCD.**~~

~~**Section 2C.11 Truck Rollover Warning Signs (W1-13, W1-13a)—new section—10 years from the effective date of the Final Rule for the 2003 MUTCD.**~~

~~**Section 2C.16 NARROW BRIDGE Sign (W5-2)—elimination of symbol sign—10 years from the effective date of the Final Rule for the 2003 MUTCD.**~~

~~**Section 2C.25 PAVEMENT ENDS Sign (W8-3) – removal of symbol sign – January 17, 2011.**~~
~~**Section 2C.26 Shoulder Signs (W8-4, W8-9, and W8-9a) – removal of symbol signs – January 17, 2011.**~~
~~**Section 2C.30 Speed Reduction Signs (W3-5, W3-5a) – removal of R2-5 Series Reduced Speed Ahead signs and use of W3-5 or W3-5a warning signs instead – 15 years from the effective date of the Final Rule for the 2003 MUTCD.**~~
~~**Section 2C.31 Merge Signs (W4-1, W4-5) – Entering Roadway Merge sign (W4-1a) – 10 years from the effective date of the Final Rule for the 2003 MUTCD.**~~
~~**Section 2C.32 Added Lane Signs (W4-3, W4-6) – Entering Roadway Added Lane sign (W4-3a) – 10 years from the effective date of the Final Rule for the 2003 MUTCD.**~~
~~**Section 2C.33 Lane Ends Signs (W4-2, W9-1, W9-2) – new design of W4-2 sign – 10 years from the effective date of the Final Rule for the 2003 MUTCD.**~~
~~**Section 2C.34 Two-Way Traffic Sign (W6-3) – transition from one-way street – 5 years from the effective date of the Final Rule for the 2003 MUTCD.**~~
~~**Section 2C.37 Intersection Warning Signs (W2-1 through W2-6) – new design of Circular Intersection (W2-6) sign – 10 years from the effective date of the Final Rule for the 2003 MUTCD.**~~
~~**Section 2C.40 Vehicular Traffic Signs (W8-6, W11-1, W11-5, W11-5a, W11-6, W11-8, W11-10, W11-11, W11-12, W11-14) – new symbol signs W11-1, W11-5, W11-5a, W11-6, W11-11, and W11-14 – 10 years from the effective date of the Final Rule for the 2003 MUTCD.**~~
~~**Section 2C.41 Nonvehicular Signs (W11-2, W11-3, W11-4, W11-7, W11-9) – elimination of crosswalk lines from crossing signs and use of diagonal downward pointing arrow supplemental plaque (W16-7) if at the crossing – January 17, 2011.**~~
~~**Section 2C.53 PHOTO ENFORCED Plaque (W16-10) – new section – 10 years from the effective date of the Final Rule for the 2003 MUTCD.**~~
~~**Section 2D.38 Street Name Sign (D3-1) – symbol sizes, 150 mm (6 in) letter sizes for lettering on ground-mounted Street Name signs on roads that are not multi-lane streets with speed limits greater than 60 km/h (40 mph), other new provisions of Millennium Edition – January 9, 2012.**~~
~~**Section 2D.38 Street Name Sign (D3-1) – letter sizes on ground-mounted signs on multi-lane streets with speed limits greater than 60 km/h (40 mph) and letter sizes on overhead-mounted signs – 15 years from the effective date of the Final Rule of the 2003 MUTCD.**~~
~~**Section 2D.39 Advance Street Name Signs (D3-2) – new section in 2000 MUTCD and revisions in 2003 MUTCD – 15 years from the effective date of the Final Rule for the 2003 MUTCD.**~~
~~**Section 2D.45 General Service Signs (D9 Series) – Traveler Info Call 511 (D12-5) sign, Channel 9 Monitored (D12-3) sign – 10 years from the effective date of the Final Rule for the 2003 MUTCD.**~~
~~**Section 2D.46 Reference Location Signs (D10-1 through D10-3) and Intermediate Reference Location Signs (D10-1a through D10-3a) – location and spacing of Reference Location signs and design of Intermediate Reference Location signs – 10 years from the effective date of the Final Rule for the 2003 MUTCD.**~~
~~**Section 2E.28 Interchange Exit Numbering – size of exit number plaque – January 17, 2008.**~~
~~**Section 2E.28 Interchange Exit Numbering – LEFT on exit number plaques for left exits – 5 years from the effective date of the Final Rule for the 2003 MUTCD.**~~
~~**Section 2E.30 Advance Guide Signs – advance placement distance – January 17, 2008.**~~
~~**Section 2E.54 Reference Location Signs and Enhanced Reference Location Signs (D10-4, D10-5) – design of Enhanced Reference Location signs and Intermediate Enhanced Reference Location signs – 10 years from the effective date of the Final Rule for the 2003 MUTCD.**~~
~~**Section 2E.59 Preferential Only Lane Signs – new section in 2003 Edition – 10 years from the effective date of the Final Rule for the 2003 MUTCD.**~~
~~**Section 2F.05 Size of Lettering – minimum height of letters and numerals on specific service signs – January 17, 2011.**~~
~~**Section 2I.03 EVACUATION ROUTE Sign (EM-1) – new design and size of EM-1 sign – 15 years from the effective date of the Final Rule for the 2003 MUTCD.**~~
~~**Section 3B.01 Yellow Centerline Pavement Markings and Warrants – new section in Millennium Edition – January 3, 2003.**~~

~~**Section 3B.03 Other Yellow Longitudinal Pavement Markings – spacing requirements for pavement marking arrows in two-way left-turn lanes – 5 years from the effective date of the Final Rule for the 2003 MUTCD.**~~

~~**Section 3B.07 Warrants for Use of Edge Lines – new section in Millennium Edition – January 3, 2003.**~~

~~**Section 3B.17 Crosswalk Markings – gap between transverse lines of a crosswalk – 10 years from the effective date of the Final Rule for the 2003 MUTCD.**~~

~~**Section 3B.19 Pavement Word and Symbol Markings – typical spacing of lane-use arrows in two-way left-turn lanes shown in Figure 3B-7 – 5 years from the effective date of the Final Rule for the 2003 MUTCD.**~~

~~**Section 3C.01 Object Marker Design and Placement Height – width of stripes on Type 3 striped marker – 10 years from the effective date of the Final Rule for the 2003 MUTCD.**~~

~~**Section 4D.01 General – location of signalized midblock crosswalks – 10 years from the effective date of the Final Rule for the 2003 MUTCD.**~~

~~**Section 4D.05 Application of Steady Signal Indications – Item B.4 in STANDARD – 5 years from the effective date of the Final Rule for the 2003 MUTCD.**~~

~~**Section 4D.12 Flashing Operation of Traffic Control Signals – duration of steady red clearance interval in change from red-red flashing mode to steady (stop-and-go) mode – 10 years from the effective date of the Final Rule for the 2003 MUTCD.**~~

~~**Section 4E.06 Accessible Pedestrian Signals – new section in Millennium Edition – January 17, 2005.**~~

~~**Section 4E.07 Countdown Pedestrian Signals – new section – 10 years from the effective date of the Final Rule for the 2003 MUTCD for countdown pedestrian signal hardware; 3 years from the effective date of the Final Rule for the 2003 MUTCD for operational requirements of countdown pedestrian signals.**~~

~~**Section 4E.09 Accessible Pedestrian Signal Detectors – new section in Millennium Edition – January 17, 2005.**~~

~~**Section 4E.10 Pedestrian Intervals and Signal Phases – pedestrian clearance time sufficient to travel to far side of the traveled way – 5 years from the effective date of the Final Rule for the 2003 MUTCD.**~~

~~**Section 5C.05 NARROW BRIDGE Sign (W5-2) – elimination of symbol sign – 10 years from the effective date of the Final Rule for the 2003 MUTCD.**~~

~~**Section 6D.01 Pedestrian Considerations – all new provisions for pedestrian accessibility – 5 years from the effective date of the Final Rule for the 2003 MUTCD.**~~

~~**Section 6D.02 Accessibility Considerations – 5 years from the effective date of the Final Rule for the MUTCD.**~~

~~**Section 6D.03 Worker Safety Considerations – high-visibility apparel requirements – 3 years from the effective date of the Final Rule for the 2003 MUTCD.**~~

~~**Section 6E.02 High-Visibility Safety Apparel – high-visibility apparel requirements for flaggers – 3 years from the effective date of the Final Rule for the 2003 MUTCD.**~~

~~**Section 6F.03 Sign Placement – crashworthiness of sign supports – January 17, 2005.**~~

~~**Section 6F.58 Channelizing Devices – crashworthiness – January 17, 2005.**~~

~~**Section 6F.59 Cones – width of retroreflective stripes – 5 years from the effective date of the Final Rule for the 2003 MUTCD.**~~

~~**Section 6F.63 Type I, II, or III Barricades – crashworthiness – January 17, 2005.**~~

~~**Section 6F.66 Longitudinal Channelizing Barricades – crashworthiness – January 17, 2005.**~~

~~**Section 6F.82 Crash Cushions – crashworthiness – January 17, 2005.**~~

~~**Section 7B.08 School Advance Warning Assembly (S1-1 with Supplemental Plaque) – use of AHEAD plaque (W16-9p) or distance plaque (W16-2 or W16-2a) – January 17, 2011.**~~

~~**Section 7B.09 School Crosswalk Warning Assembly (S1-1 with Diagonal Arrow) – elimination of crosswalk lines from crossing signs and use of diagonal downward pointing arrow supplemental plaque (W16-7) – January 17, 2011.**~~

~~**Section 7B.12 Reduced Speed School Zone Ahead Sign (S4-5, S4-5a) – 15 years from the effective date of the Final Rule for the 2003 MUTCD.**~~

~~**Section 7E.04 Uniform of Adult Crossing Guards and Student Patrols – requirement for high-visibility apparel for adult crossing guards – 5 years from the effective date of the Final Rule for the 2003 MUTCD.**~~

~~**Section 8B.03 Highway-Rail Grade Crossing (Crossbuck) Sign (R15-1) and Number of Tracks Sign (R15-2) – retroreflective strip on crossbuck support – January 17, 2011.**~~

~~**Section 8B.04 Highway-Rail Grade Crossing Advance Warning Signs (W10 Series) – removal of existing W10-6 series signs – January 17, 2006.**~~

~~**Section 8D.07 Traffic Control Signals at or Near Highway-Rail Grade Crossings – pre-signals – 10 years from the effective date of the Final Rule for the 2003 MUTCD.**~~

~~**Section 9B.04 Bicycle Lane Signs (R3-17, R3-17a, R3-17b) – deletion of preferential lane symbol (diamond) for bicycle lane signs – January 17, 2006.**~~

~~**Section 9B.17 Bicycle Warning Sign (W11-1) – elimination of crosswalk lines from crossing signs and use of diagonal downward pointing arrow supplemental plaque (W16-7) if at the crossing – January 17, 2011.**~~

~~**Chapter 9C Markings – deletion of preferential lane symbol (diamond) for bicycle pavement markings – January 17, 2007.**~~

~~**Part 10 Traffic Controls for Highway-Light Rail Transit Grade Crossings – automatic gates, flashing-light signals, and blank-out signs – January 17, 2011.**~~

~~**Section 10C.15 Highway-Rail Grade Crossing Advance Warning Signs (W10 Series) – removal of existing W10-6 series signs – January 17, 2006.**~~

All these MUTCD target compliance dates (beginning with Section 2A.19 and ending with Section 10C.15) are deleted and shall not apply in California.

Option:

In order for maintenance personnel to understand what to do when replacing a damaged non-compliant traffic control device, agencies may establish a policy regarding whether to replace the device in kind or to replace it with a compliant device.

Support:

Often it is desirable to upgrade to a compliant device at the time of this maintenance of a damaged device. However, it might be appropriate to replace the damaged non-compliant device in kind at the time of this maintenance activity if engineering judgment indicates that:

A. One compliant device in the midst of a series of adjacent non-compliant devices could potentially be confusing to road users; and/or
B. The anticipated schedule for replacement of the whole series of non-compliant devices will result in achieving timely compliance with the MUTCD.

Standard:

Unless allowed per the Option below, in cases involving new highway or bikeway construction or reconstruction, the traffic control devices installed (temporary or permanent) shall be in conformance with the current edition of the California MUTCD before that highway is opened or re-opened to the public for unrestricted travel pursuant to the California Vehicle Code 21401.

Option:

In cases involving new highway or bikeway construction or reconstruction, the traffic control devices installed (temporary or permanent) may be in accordance with previous traffic control device standards of September 26, 2006 California MUTCD or prior to that of MUTCD 2003 and MUTCD 2003 California Supplement or Caltrans Traffic Manual, if in the judgment of the engineer, incorporating the California MUTCD standards would impose a significant delay or a significant increase in costs for the project.

Support:

Reconstruction, as used in the previous Standard and Option topics, for the purpose of a traffic control device would mean if a particular device is modified in any form or shape or is relocated. If a reconstruction project does not modify or relocate a traffic control device, although encouraged, there would be no obligation to upgrade the traffic control device per current edition of the California MUTCD standards.

Standard:

Unless allowed per the option below, non-compliant traffic control devices on existing highways and bikeways shall be brought into compliance with the California MUTCD as part of the systematic upgrading of

substandard traffic control devices (and installation of new required traffic control devices) required pursuant to the California Vehicle Code 21401.

Option:

All traffic control devices on existing highways and bikeways that have become non-compliant per California MUTCD adopted standards may remain in service through the end of their useful service life, unless identified specifically with a target compliance date per Table I-101(CA).

To limit financial impact on agencies and for fiscal responsibility reasons, existing inventory of non-compliant traffic control devices, except those identified per Table I-101(CA), may continue to be used until these inventories are depleted.

Support:

The signs listed in Table I-101(CA) are non-compliant per this California MUTCD and further; they have been singled out for specific target compliance dates by the California Traffic Control Devices Committee and California Department of Transportation.

Failure to replace a sign listed in Table I-101(CA) by its target compliance date does not reduce the effectiveness of the sign to impart information to the road user.

For ease of reference, Figure I-101(CA) shows the sign sketches of the deleted signs that have target compliance dates.

Standard:

The signs listed in Table I-101(CA), although used in the past, shall no longer be used in California. Further, any such signs on existing highways and bikeways shall be removed, and replaced if appropriate, by the target compliance dates shown in Table I-101(CA).

Support:

The signs listed in Table I-102(CA) are old California signs that have been deleted for application in the past. These signs are non-compliant per this California MUTCD but do not have any specific target compliance dates. Hence, any such signs on existing highways and bikeways can remain in service through the end of their useful service life.

Standard:

The signs listed in Table I-102(CA), although used in the past, shall no longer be used in California.

Support:

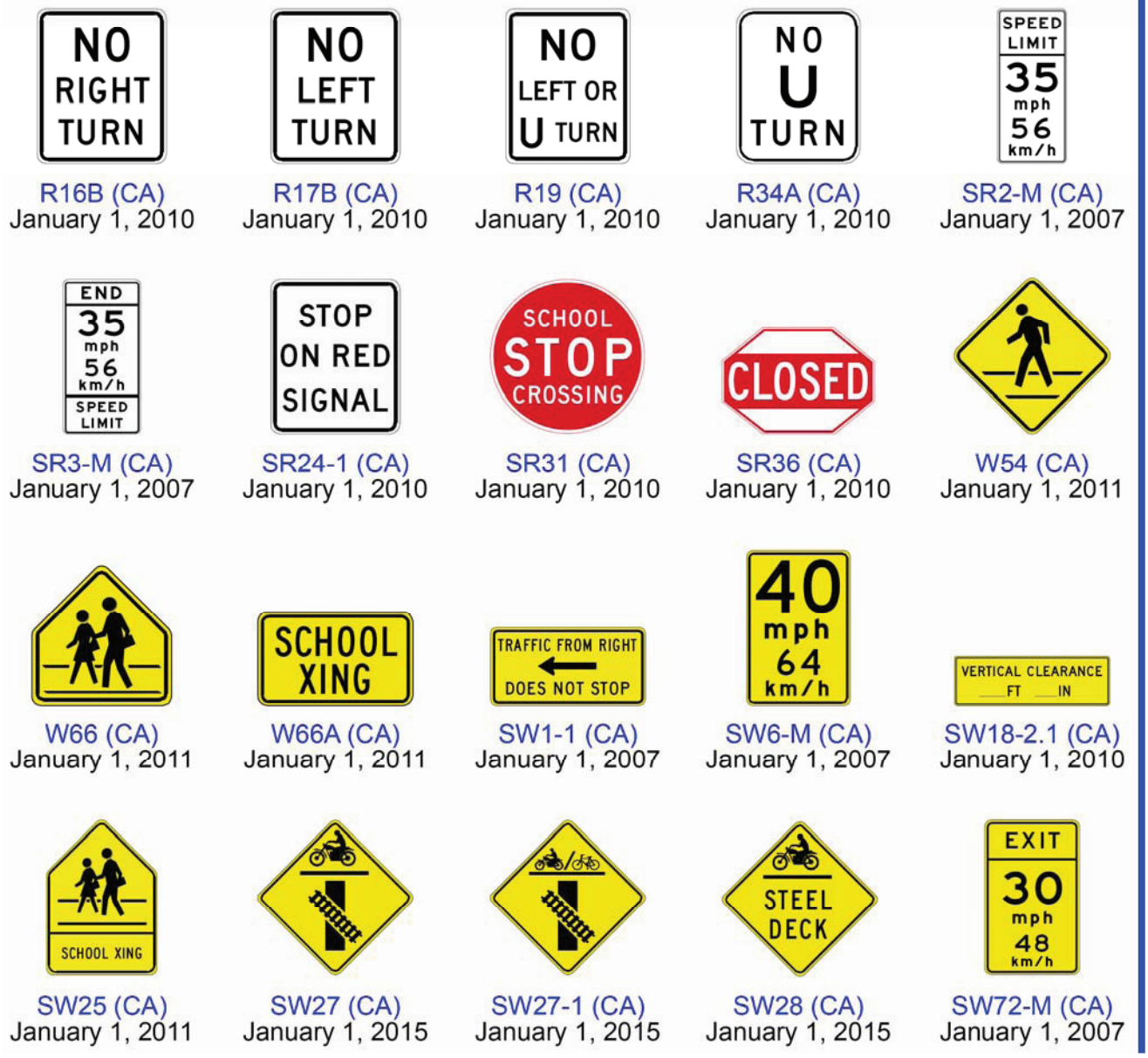
The signs listed in Table I-103(CA) are MUTCD signs that have been deleted throughout this Manual, wherever they were reference by the MUTCD. Refer to the section listed in this table for more details regarding the reason for the deletion and/or what signs they are replaced with.

Standard:

The signs listed in Table I-103(CA) shall not be used in California.

(This space left intentionally blank)

Figure I-101 (CA). Deleted California Signs with Target Compliance Dates



(This space left intentionally blank)

Year	Name	Month / Year Revised
1927	Manual and Specifications for the Manufacture, Display, and Erection of U.S. Standard Road Markers and Signs (for rural roads)	4/29, 12/31
1930	Manual on Street Traffic Signs, Signals, and Markings (for urban streets)	No revisions
1935	Manual on Uniform Traffic Control Devices for Streets and Highways (MUTCD)	2/39
1942	Manual on Uniform Traffic Control Devices for Streets and Highways — War Emergency Edition	No revisions
1948	Manual on Uniform Traffic Control Devices for Streets and Highways	9/54
1961	Manual on Uniform Traffic Control Devices for Streets and Highways	No revisions
1971	Manual on Uniform Traffic Control Devices for Streets and Highways	11/71, 4/72, 3/73, 10/73, 6/74, 6/75, 9/76, 12/77
1978	Manual on Uniform Traffic Control Devices for Streets and Highways	12/79, 12/83, 9/84, 3/86
1988	Manual on Uniform Traffic Control Devices for Streets and Highways	1/90, 3/92, 9/93, 11/94, 12/96, 6/98, 1/00
2000	Manual on Uniform Traffic Control Devices for Streets and Highways — Millennium Edition	7/02
2003	Manual on Uniform Traffic Control Devices for Streets and Highways	

Table I-1(CA) Evolution of the California MUTCD

Year	Name
1955	Planning Manual of Instructions, Part 8 – Traffic Department of Public Works, Division of Highways
1972	Traffic Manual Department of Public Works, Division of Highways
1996	Traffic Manual (Metric Version) Department of Transportation, Division of Traffic Operations
2004	FHWA's MUTCD 2003 & MUTCD 2003 California Supplement Department of Transportation, Division of Traffic Operations
2006	California MUTCD Department of Transportation, Division of Traffic Operations
2010	California MUTCD (including Revs. 1 and 2 of FHWA's MUTCD 2003) Department of Transportation, Division of Traffic Operations

Table I-101(CA) Deleted California Signs with Target Compliance Dates

Sign Code	Title/Description	Comment	Target Compliance Date
~~R16B(CA)~~	NO RIGHT TURN word message	Use No Right Turn (R3-1) symbol sign	January 1, 2010
~~R17B(CA)~~	NO LEFT TURN word message	Use No Left Turn (R3-2) symbol sign	January 1, 2010
~~R19(CA)~~	NO LEFT OR U TURN word message	Use No Left or U Turn (R3-18) symbol sign	January 1, 2010
~~R34A(CA)~~	No U TURN word message	Use No U Turn (R3-4) symbol sign	January 1, 2010
~~SR2-M(CA)~~	SPEED LIMIT 35 mph 56 km/h	1976 Metric sign never implemented	January 1, 2007
~~SR3-M(CA)~~	END 35 mph 56 km/h SPEED LIMIT	1976 Metric sign never implemented	January 1, 2007
~~SR24-1(CA)~~	STOP ON RED SIGNAL word message	Use STOP HERE ON RED with arrow (R10-6) sign	January 1, 2010
~~SR31(CA)~~	SCHOOL STOP CROSSING round shape Paddle	Use STOP (C28A(CA)) octagon shape Paddle	January 1, 2010
~~SR36(CA)~~	CLOSED Red on White octagon shape sign	Use ROAD CLOSED (R11-2) sign	January 1, 2010
~~W54(CA)~~	Pedestrian Crossing Symbol with crosswalk lines	Use Pedestrian Crossing symbol (W11-2) without crosswalk lines & diagonal downward pointing arrow (W16-7P) plaque	January 1, 2011
~~W66(CA)~~	School Crossing Symbol with crosswalk lines	Use School Crossing symbol (S1-1) without crosswalk lines & diagonal downward pointing arrow (W16-7P) plaque	January 1, 2011
~~W66A(CA)~~	SCHOOL XING word message	Use School Crossing symbol (S1-1) without crosswalk lines & diagonal downward pointing arrow (W16-7P) plaque	January 1, 2011
~~SW1-1(CA)~~	TRAFFIC FROM RIGHT(LEFT) DOES NOT STOP with arrow	Use CROSS TRAFFIC DOES NOT STOP (W4-4P) plaque, which is without the arrow	January 1, 2007
~~SW6-M(CA)~~	40 mph - 64 km/h	1976 Metric sign never implemented	January 1, 2007
~~SW18-2.1(CA)~~	VERTICAL CLEARANCE ___FT. ___IN.	Use Low Clearance (W12-2) sign or rectangular (W12-2P) plaque	January 1, 2010
~~SW25(CA)~~	School Symbol - SCHOOL XING with crosswalk lines	Use School Crossing symbol (S1-1) without crosswalk lines & diagonal downward pointing arrow (W16-7P) plaque	January 1, 2011
~~SW27(CA)~~	Skewed RR Crossing symbol with Motorcycle symbol	Use Skewed Crossing symbol (W10-12) sign	January 1, 2015
~~SW27-1(CA)~~	Skewed RR Crossing symbol with Motorcycle & Bike symbol	Use Skewed Crossing symbol (W10-12) sign	January 1, 2015
SW28(CA)	STEEL DECK with Motorcycle symbol	Use modified STEEL BRIDGE DECK (SW28 (CA)) word message sign	January 1, 2015
~~SW72-M(CA)~~	EXIT 30 mph 48 km/h	1976 Metric sign never implemented	January 1, 2007

Table I-102(CA) Deleted California Signs - No Target Compliance Dates (Sheet 1 of 5)

California Code	Title/Description	Comment
~~R6-1(CA)~~	AUTOS WITH TRAILERS - TRUCKS 55 MAXIMUM	Replaced by two separate signs: TRUCKS, 3 AXLES OR MORE 55 MAXIMUM (R6-3(CA)) & ALL VEHICLES WHEN TOWING 55 MAXIMUM (R6-4(CA))
~~R6-2(CA)~~	TRUCKS - AUTOS WITH TRAILERS RIGHT 2 LANES ONLY	Replaced by two separate signs: TRUCKS 3 AXLES OR MORE RIGHT 2 LANES ONLY (R6-3A(CA)) & ALL VEHICLES WHEN TOWING RIGHT 2 LANES ONLY (R6-4A(CA))
~~R10(CA)~~	ONE WAY (Pentagon shape)	Use ONE WAY (R6-1) (Rectangular shape)
~~R13(CA)~~	NO TURN ON RED word message	Use symbolic No Turn On Red (R10-11)
~~R20E(CA)~~	SEMI OVER 38 FT KINGPIN TO REAR AXLE	Use No Trucks Variable Message (R20-1(CA)) or TRACTOR-SEMIS OVER (X FEET) KINGPIN TO REAR AXLE NOT ADVISED (SW48(CA))
~~R25G(CA)~~	Taxicab Passenger Loading ONLY w/ Double Arrow	Use R25B(CA)
~~R26B(CA)~~	NO PARKING HERE TO CORNER	See Section 2B.39
~~R26C(CA)~~	NO PARKING HERE TO CORNER	See Section 2B.39
~~R26D(CA)~~	No Parking	See Section 2B.39
~~R26E(CA)~~	ON PAVEMENT	See Section 2B.39
~~R26E(CA)~~	ON BRIDGE	See Section 2B.39
~~R26J(CA)~~	TOW-AWAY NO PARKING ANY TIME	Use R26K(CA)
~~R28B(CA)~~	NO PARKING VEHICLES OVER 6 FT HIGH	Use R28D(CA)
~~R32A(CA)~~	Limited Minute Parking Specific Hours	See Section 2B.39
~~R41(CA)~~	RIGHT TURN ONLY	Use Right Turn Arrow ONLY (R3-5R)
~~R42(CA)~~	LEFT TURN ONLY	Use Left Turn Arrow ONLY (R3-5L)
~~R49A(CA)~~	NO PED CROSSING - CROSS HERE	Use No Pedestrian Crossing (R9-3a) & USE CROSSWALK (R9-3b)
~~R67A(CA)~~	2 WAY TURN LANE	Use Two-Way Left Turn Only (R3-9a or R3-9b) symbol signs
~~R68(CA)~~	PASSING LANE AHEAD	Use PASSING LANE (X MILES) or AHEAD G69(CA)
~~R82(CA)~~	BUS CARPOOL LANE (HOV) AHEAD	Refer Caltrans HOV Guidelines 2003 Edition
~~R83(CA)~~	(HOV) BUS CARPOOL LANE AHEAD	Refer Caltrans HOV Guidelines 2003 Edition
~~R83A(CA)~~	6AM-9AM MON-FRI	Refer Caltrans HOV Guidelines 2003 Edition
~~R84(CA)~~	BUS CARPOOL LANE (HOV) ENDS	Refer Caltrans HOV Guidelines 2003 Edition
~~R84A(CA)~~	___ MILE	Refer Caltrans HOV Guidelines 2003 Edition
~~R85(CA)~~	(HOV) BUS CARPOOL LANE ENDS	Refer Caltrans HOV Guidelines 2003 Edition
~~R86-1(CA)~~	(HOV) CENTER LANE BUSES AND CARPOOLS ONLY 6AM-9AM 3PM-6PM MON-FRI	Refer Caltrans HOV Guidelines 2003 Edition
~~R87(CA)~~	(HOV) BUSES AND CARPOOLS WITH 3 OR MORE 6AM-9AM (Down Arrow) MON-FRI	Refer Caltrans HOV Guidelines 2003 Edition
~~R91A(CA)~~	MOTORCYCLES OK	Refer Caltrans HOV Guidelines 2003 Edition
~~R93(CA)~~	CARPOOL IS 3 OR MORE PERSONS PER VEHICLE	Refer Caltrans HOV Guidelines 2003 Edition
~~R93-1(CA)~~	CARPOOL IS 3 OR MORE PERSONS PER VEHICLE	Refer Caltrans HOV Guidelines 2003 Edition

Table I-102(CA) Deleted California Signs - No Target Compliance Dates (Sheet 2 of 5)

California Code	Title/Description	Comment
~~R94A(CA)~~	MOTORCYCLES OK	Refer Caltrans HOV Guidelines 2003 Edition
~~R96A(CA)~~	NO PED XING	Use NO PEDESTRIAN CROSSING (R9-3)
~~R96C(CA)~~	PEDESTRIANS PROHIBITED	Use No Pedestrian Crossing (R9-3a)
~~R100(CA)~~	SPECIAL PLACARD OR LICENSE PLATE REQUIRED	Use TOW-AWAY SPECIAL PLACARD OR LICENSE PLATE REQUIRED (R100A(CA))
~~SR4(CA)~~	SCHOOL SPEED LIMIT 25 WHEN CHILDREN ARE PRESENT	Use School Speed Limit Assembly C – SCHOOL (S4-3), Speed Limit (R2-1) & WHEN CHILDREN ARE PRESENT (S4-2)
~~SR14(CA)~~	SPEED ENFORCED BY AIRCRAFT (Plane symbol)	Use SPEED ENFORCED BY AIRCRAFT (R48-2(CA)), word message, no symbol
~~SR21-1(CA)~~	CAMPING PROHIBITED	Miscellaneous
~~SR38(CA)~~	CARPOOL PARKING ONLY	Refer Caltrans HOV Guidelines 2003 Edition
~~SR50(CA)~~	CARPOOL VIOLATION $___ MINIMUM FINE	Refer Caltrans HOV Guidelines 2003 Edition
~~SR52A(CA)~~	NO VEHICLES ON TRACKS	Use DO NOT DRIVE ON TRACKS (R15-6a)
~~SR59(CA)~~	TRAFFIC FINES DOUBLED	CVC 42011 expired 1/1/07.
~~W16(CA)~~	GROOVED PAVEMENT	Changed to GROOVED PAVEMENT (SW45) on 6/17/87, change wasn't reflected in 1996 TM
~~W53(CA)~~	NOT A THROUGH STREET	Use DEAD END (W14-1) or NO OUTLET (W14-2)
~~W75(CA)~~	LANE ENDS MERGE LEFT (RIGHT)	Use Lane Ends (W4-2)
~~W75A(CA)~~	(HOV) LANE ENDS MERGE RIGHT	Use (HOV) LANE ENDS MERGE LEFT (RIGHT) (W75-1(CA))
~~W80(CA)~~	XING	Use Vehicular/Nonvehicular Traffic (W11 series) symbol signs and/or Diagonal Downward Pointing Arrow (W16-7p) plaque.
~~W82A(CA)~~	TROLLEY XING	Use Light Rail Transit (Trolley) Crossing W82(CA)
~~W84(CA)~~	TURNOUT 1/4 MILE	Never approved
~~SW1-2(CA)~~	OPPOSING TRAFFIC DOES NOT STOP	Use CROSS TRAFFIC DOES NOT STOP (W4-4P) with alternate message per section 2C.50.
~~SW8-1(CA)~~	TRUCKS CROSSING TO SCALES	None
~~SW14-1(CA)~~	FLOODED DURING STORM	Use SUBJECT TO FLOODING (W55B(CA))
~~SW21-1(CA)~~	FIRE STATION WATCH FOR TRUCKS	Use Emergency Vehicle (W11-8) symbol sign
~~SW21A(CA)~~	FIRE STATION	Use Emergency Vehicle (W11-8) symbol sign
~~SW21C(CA)~~	FIRE STATION	Use Emergency Vehicle (W11-8) symbol sign
~~SW24(CA)~~	School Symbol - SCHOOL	Use School Advance Warning (S1-1)
~~SW29(CA)~~	NARROW SUBWAY	Narrow application
~~SW30(CA)~~	ISLANDS	Miscellaneous
~~SW31(CA)~~	DIPS	Use DIP (W8-2) with NEXT X Miles (W7-3a) plaque
~~SW42(CA)~~	Double Head Arrow (Diamond shape)	Use Two-Direction Large Arrow (W1-7)
~~SW43(CA)~~	Single Head Arrow (Diamond shape)	Use One-Direction Large Arrow (W1-6)
~~SW53(CA)~~	___ WAY SIGNAL	Not commonly understood
~~SW56A(CA)~~	GOLF CART XING	Use Golf Cart (W11-11) symbol sign
~~G7-3(CA)~~	Street Name (FAIR OAKS BLVD)	Use Street Name (D3 or G7-1(CA))
~~G18(CA)~~	MT. WHITNEY FISH HATCHERY	Miscellaneous
~~G32-1(CA)~~	3-Head Arrow	Use Directional Arrow Auxiliary (M6 Series)
~~G62(CA)~~	SPEEDOMETER CHECK AHEAD	Miscellaneous
~~G63(CA)~~	MILE 0	Miscellaneous

Table I-102(CA) Deleted California Signs - No Target Compliance Dates (Sheet 3 of 5)

California Code	Title/Description	Comment
~~G64(CA)~~	END CHECK	Miscellaneous
~~G66-14A(CA)~~	EMERGENCY MEDICAL CARE	Use EMERGENCY MEDICAL CARE (D9-13c)
~~G66-16(CA)~~	Hospital symbol - HOSPITAL	Use Hospital (D9-2)
~~G66-20(CA)~~	NATURAL GAS	Use Compressed Natural Gas (G66-22A(CA)), Liquefied Natural Gas (G66-22B(CA)) or LP GAS (G81-52(CA))
~~G66-21B(CA)~~	NEXT EXIT	Use NEXT RIGHT/LEFT (G58(CA))
~~G70(CA)~~	PASSING LANE AHEAD	Use PASSING LANE (X MILES) or AHEAD G69(CA)
~~G70-1(CA)~~	445A	Use Single Line EXIT XXXX (G70-3(CA))
~~G70-2.2(CA)~~	EXIT 444	Use Single Line EXIT XX (G70-2(CA))
~~G70-3.2(CA)~~	EXIT 445A	Use Single Line EXIT XXXX (G70-3(CA))
~~G81-1(CA)~~	HIGHWAY PATROL	Use Highway Patrol (G66-57(CA))
~~G81-4(CA)~~	PHONE WATER	Use Telephone (D9-1) & Drinking Water (RG-050)
~~G81-7(CA)~~	HOSPITAL PHONE with Arrows	Use Telephone (D9-1) & Hospital (D9-2) with Directional Arrow Auxiliary (M6 series)
~~G81-9(CA)~~	HOSPITAL WATER PHONE with Arrows	Use Telephone (D9-1), Hospital (D9-2) & RG-050 with Directional Arrow Auxiliary (M6 series)
~~G81-11(CA)~~	HOSPITAL WATER PHONE with Arrows	Use Telephone (D9-1), Hospital (D9-2) & RG-050 with Directional Arrow Auxiliary (M6 series)
~~G81-13(CA)~~	HOSPITAL WATER PHONE with Arrows	Use Telephone (D9-1), Hospital (D9-2) & RG-050 with Directional Arrow Auxiliary (M6 series)
~~G81-15(CA)~~	HOSPITAL WATER PHONE with Arrows	Use Telephone (D9-1), Hospital (D9-2) & RG-050 with Directional Arrow Auxiliary (M6 series)
~~G81-17(CA)~~	HIGHWAY PATROL NEXT RIGHT	Use Highway Patrol (G66-57(CA)) & BRAKE CHECK AREA (G58(CA))
~~G81-27(CA)~~	CARPOOL VANPOOL INFO CALL …	Use Carpool Information (SG19(CA)) or Park & Ride Facility/Carpool Information (SG20(CA))
~~G81-58(CA)~~	HOSPITAL	Use Hospital (D9-2)
~~G91-1(CA)~~	SKIING	Use Skiing (Bobbing) (RS-030), Skiing (Cross Country) (RS-040) or Skiing (Downhill) (RS-050)
~~G91-4(CA)~~	CAMPING BOATING	Use Camping (Tent) (RM-010), Camping (Trailer) (RM-020), Motorboating (RW-070), Ramp (Launch) (RW-080), Rowboating (RW-090) or Sailboating (RW-100)
~~G91-7(CA)~~	CAMPING SKIING with Arrows	Use Skiing (Bobbing) (RS-030), Skiing (Cross Country) (RS-040), Skiing (Downhill) (RS-050), Camping (Tent) (RM-010) or Camping (Trailer) (RM-020) with Directional Arrow Auxiliary (M6 series)
~~G91-9(CA)~~	CAMPING PICNICKING BOATING with Arrow	Use Camping (Tent) (RM-010), Camping (Trailer) (RM-020), Picnic Area (RM-120), Motorboating (RW-070), Ramp (Launch) (RW-080), Rowboating (RW-090) or Sailboating (RW-100) with Directional Arrow Auxiliary (M6 series)
~~G91-11(CA)~~	SKIING BOATING CAMPING with Arrows	Use Skiing (Water) (RW-110), Camping (Tent) (RM-010), Camping (Trailer) (RM-020), Motorboating (RW-070), Ramp (Launch) (RW-080), Rowboating (RW-090) or Sailboating (RW-100) with Directional Arrow Auxiliary (M6 series)

Table I-102(CA) Deleted California Signs - No Target Compliance Dates (Sheet 4 of 5)

California Code	Title/Description	Comment
~~G91-13(CA)~~	PICNICKING BOATING CAMPING with Arrow	Use Camping (Tent) (RM-010), Camping (Trailer) (RM-020), Picnic Area (RM-120), Motorboating (RW-070), Ramp (Launch) (RW-080), Rowboating (RW-090) or Sailboating (RW-100) with Directional Arrow Auxiliary (M6 series)
~~G91-15(CA)~~	BOATING SKIING PICNICKING with Arrows	Use Skiing (Water) (RW-110), Picnic Area (RM-120), Motorboating (RW-070), Ramp (Launch) (RW-080), Rowboating (RW-090) or Sailboating (RW-100) with Directional Arrow Auxiliary (M6 series)
~~G91-17(CA)~~	PICNICKING NEXT RIGHT	Use Picnic Area (RM-120) with NEXT RIGHT/LEFT (G58(CA))
~~G91-19(CA)~~	CAMPGROUND 1/4 MILE	Use Camping (Tent) (RM-010) with Distance Ahead (W16-2 series and W16-3 series) plaques
~~G94-3(CA)~~	AIRPORT	Use Airport (I-5) or Conventional Airport (G94-1(CA))
~~G97A-2(CA)~~	CALTRAIN	Use AMTRAK (G97A(CA)) with CALTRAIN word message option
~~SG11(CA)~~	STATE FIRE STATION	Use CDF FIRE STATION NEXT RIGHT (SG38(CA))
~~SG12(CA)~~	STATE RANGER HDQTRS	Use Ranger Station (RG-170)
~~SG13(CA)~~	INTERMOUNTAIN CONSERVATION CAMP	Miscellanous
~~SG36(CA)~~	BUCKLE UP with symbol	Use Seat Belt (SR15(CA)) symbol sign
~~SG37(CA)~~	HIGHWAY MAINTENANCE COURTESY OF ---	Use Adopt-A-Highway (S32(CA) series)
~~SG40(CA)~~	CALL BOX ___ MILE SPACING NEXT ___ MILES	Obsolete
~~SG46(CA)~~	MOTORIST AID CALL BOX AHEAD	Obsolete
~~SG49(CA)~~	CALL 511 TRAVEL INFO	Use TRAVEL INFO CALL 511 (D12-5)
~~S4-1.1(CA)~~	THIS FOUNTAIN HAS BEEN CONSTRUCTED…	Miscellaneous
~~S11-1(CA)~~	LITTER REMOVAL NEXT 2 MILES (with Plaque)	Use Adopt-A-Highway (S32(CA) series)
~~S11-2(CA)~~	WILDFLOWERS (with Plaque)	Use Adopt-A-Highway (S32(CA) series)
~~S11-3(CA)~~	TREE PLANTING (with Plaque)	Use Adopt-A-Highway (S32(CA) series)
~~S11A(CA)~~	ADOPT-A-HIGHWAY	Use Adopt-A-Highway (S32(CA) series)
~~S13(CA)~~	CARE FOR CALIFORNIA with Symbol	Campaign is over
~~S14(CA)~~	CARE FOR CALIFORNIA with Symbol	Campaign is over
~~S15(CA)~~	CARE FOR CALIFORNIA with Symbol	Campaign is over
~~S31(CA)~~	HIGHWAY WORKERS - GIVE 'EM A BRAKE	Miscellaneous
~~C10(CA)~~	SLIDE AHEAD	Use ROAD WORK, ROAD CLOSED, DETOUR, ONE LANE ROAD, RIGHT LANE CLOSED (W20 series) or NARROW LANES (C12(CA)), LANE CLOSED (C30(CA)), LANE CLOSED AHEAD (SC10(CA)), etc instead of identifying condition.
~~C13(CA)~~	END CONSTRUCTION	Use END ROAD WORK (G20-2)
~~C18(CA)~~	ROAD CONSTRUCTION AHEAD	Use ROAD (STREET) WORK (W20-1)

Table I-102(CA) Deleted California Signs - No Target Compliance Dates (Sheet 5 of 5)

California Code	Title/Description	Comment
~~C21(CA)~~	SINGLE LANE AHEAD	Use RIGHT LANE CLOSED AHEAD (W20-5) or RIGHT TWO LANES CLOSED AHEAD (W20-5a)
~~C23A(CA)~~	ROAD WORK AHEAD (Square shape)	Use ROAD (STREET) WORK (W20-1)
~~C24A(CA)~~	SHOULDER WORK AHEAD (Square shape)	Use RIGHT (LEFT) SHOULDER CLOSED XXX FT (W21-5)
~~C32(CA)~~	END SURVEY WORK	Use END ROAD WORK (G20-2)
~~C33(CA)~~	BLASTING ZONE 1000 FT	Use BLASTING ZONE AHEAD (W22-1)
~~C36(CA)~~	PREPARE TO STOP	Use BE PREPARED TO STOP (W3-4)
~~C39(CA)~~	ACCIDENT AHEAD	Use ROAD WORK, ROAD CLOSED, DETOUR, ONE LANE ROAD, RIGHT LANE CLOSED (W20 series) or NARROW LANES (C12(CA)), LANE CLOSED (C30(CA)), LANE CLOSED AHEAD (SC10(CA)), etc instead of identifying condition.
~~C41(CA)~~	Uneven Lane symbol	Use UNEVEN LANES (W8-11) word message sign
~~C41A(CA)~~	UNEVEN LANES (Rectangular)	Use UNEVEN LANES (W8-11) (Diamond) word message sign
~~SC2-1(CA)~~	ONE LANE ROAD	Use ONE LANE ROAD (W20-4)
~~SC4(CA)~~	SECOND RAMP CLOSED AHEAD	Use ___ EXIT – RAMP CLOSED (SC8(CA))
~~SC6(CA)~~	NOTICE - THIS RAMP WILL BE CLOSED TEMPORARILY - (Dates & Times)	Use RAMP CLOSED (More than one day) (SC6-4(CA))
~~SC6-1(CA)~~	ON (Day - Date - Time)	Use Day/Month Plaque (SC6A(CA)) or Time Plaque (SC6B(CA))
~~SC6-2(CA)~~	WEEKDAYS (Day - Date - Time)	Use Day/Month Plaque (SC6A(CA)) or Time Plaque (SC6B(CA))
~~SC14(CA)~~	RIGHT LANE	Use DETOUR (M4-9 series) or Directional Arrow Auxiliary (M6 series)
~~SC17(CA)~~	TRAFFIC BREAK DO NOT PASS	Use DO NOT PASS (SC13(CA))

(This space left intentionally blank)

Table I-103(CA). Deleted MUTCD Signs - No Target Compliance Dates (Sheet 1 of 2)

MUTCD Code	California Code	Title of Sign	California MUTCD Section
~~M1-4~~	None	U.S. Route	2D.11, 2E.25
~~M1-5~~	None	State Route	2D.11
~~R1-6a~~	None	In-Street Pedestrian Crossing	2B.12
~~R2-2~~	None	Truck Speed Limit	2B.14
~~R2-5~~	None	Reduced Speed Ahead	Introduction, Page I-4
~~R3-1a~~	None	No Right Turn Across Tracks	8B.06, 10C.09
~~R3-2a~~	None	No Left Turn Across Tracks	8B.06, 10C.09
~~R3-9c~~	None	Reversible Lane Control	Introduction, Page I-4
~~R3-9e~~	None	Reversible Lane Control	Introduction, Page I-4
~~R3-10~~	None	Preferential Only Lane	2B.26, 2B.28
~~R3-10b~~	None	Preferential Only Lane	2B.26, 2B.28
~~R3-11~~	None	Preferential Only Lane	2B.26, 2B.28
~~R3-11a~~	None	Preferential Only Lane	2B.26, 2B.28
~~R3-11c~~	None	Preferential Only Lane	2B.26, 2B.28
~~R3-12~~	None	Preferential Only Lane	2B.26, 2B.28
~~R3-12a~~	None	Preferential Only Lane	2B.26, 2B.28
~~R3-12b~~	None	Preferential Only Lane	2B.26, 2B.28
~~R3-13~~	None	Preferential Only Lane	2B.26, 2B.28
~~R3-13a~~	None	Preferential Only Lane	2B.26, 2B.28
~~R3-14~~	None	Preferential Only Lane	2B.26, 2B.28
~~R3-14a~~	None	Preferential Only Lane	2B.26, 2B.28
~~R3-14b~~	None	Preferential Only Lane	2B.26, 2B.28
~~R3-15~~	None	Preferential Only Lane	2B.26, 2B.28
~~R3-15a~~	None	Preferential Only Lane	2B.26, 2B.28
~~R3-17~~	None	BIKE LANE	9B.04
~~R3-17a~~	None	AHEAD	9B.04
~~R3-17b~~	None	ENDS	9B.04
~~R7-1~~	None	NO PARKING ANY TIME	2B.39
~~R7-2~~	None	NO PARKING 8:30 AM TO 5:30 PM	2B.39
~~R7-2a~~	None	No Parking 8:30 AM TO 5:30 PM	2B.39
~~R7-3~~	None	NO PARKING EXCEPT SUNDAYS AND HOLIDAYS	2B.39
~~R7-4~~	None	NO STANDING ANY TIME	2B.39
~~R7-5~~	None	ONE HOUR PARKING 9 AM-7 PM	2B.39
~~R7-6~~	None	NO PARKING LOADING ZONE	2B.39
~~R7-7~~	None	NO PARKING BUS STOP	2B.39
~~R7-8~~	None	RESERVED PARKING for persons with disabilities	2B.39
~~R7-107~~	None	NO PARKING BUS STOP	2B.39
~~R7-108~~	None	2 HR PARKING 8:30 AM TO 5:30 PM	2B.39
~~R7-200~~	None	red Parking Prohibition/green Permissive Parking	2B.40
~~R7-201~~	None	TOW-AWAY ZONE	2B.40
~~R7-201a~~	None	Tow-Away Zone	2B.40
~~R7-202~~	None	THIS SIDE OF SIGN	2B.39
~~R8-1~~	None	NO PARKING ON PAVEMENT	2B.39, 2B.40
~~R8-2~~	None	NO PARKING EXCEPT ON SHOULDER	2B.39, 2B.40
~~R8-3~~	None	NO PARKING	2B.39, 2B.40

Table I-103(CA). Deleted MUTCD Signs - No Target Compliance Dates (Sheet 2 of 2)

MUTCD Code	California Code	Title of Sign	California MUTCD Section
~~R8-3a~~	~~R26D(CA)~~	No Parking	2B.39, 2B.40
~~R8-3c~~	~~R26E(CA)~~	ON PAVEMENT	2B.40
~~R8-3d~~	~~R26E(CA)~~	ON BRIDGE	2B.40
~~R8-5~~	None	NO STOPPING ON PAVEMENT	2B.39
~~R8-6~~	None	NO STOPPING EXCEPT ON SHOULDER	2B.39
~~R10-6a~~	None	STOP HERE ON RED	2B.45
~~R10-11~~	None	Symbolic NO TURN ON RED	2B.45 & 8D.07
~~R10-11a~~	~~R13(CA)~~	NO TURN ON RED	2B.45
~~R10-11b~~	None	NO TURN ON RED	2B.45
~~R10-16~~	None	U-TURN YIELD TO RIGHT TURN	2B.45
~~R10-17a~~	None	RIGHT (LEFT) ON RED ARROW AFTER STOP	2B.45
~~R12-2~~	None	AXLE WEIGHT LIMIT X t (XX TONS)	2B.49
~~R12-3~~	None	NO TRUCKS OVER X t (XX TONS) EMPTY WT	2B.49
~~R12-4~~	None	WEIGHT LIMIT X t (XX TONS) PER AXLE, X t (XX TONS) GROSS	2B.49
~~R12-6~~	None	METRIC	2B.49
~~R14-2~~	None	Hazardous Material Route	2B.52
~~R14-3~~	None	Hazardous Material Prohibition	2B.52
~~R14-4~~	None	National Network	2B.53
~~R14-5~~	None	National Network Prohibition	2B.53
~~R15-3~~	None	EXEMPT	8B.05, 10C.10
~~W1-4b~~	None	Reverse Curve (2 lanes)	6F.45
~~W1-4c~~	None	Reverse Curve (3 lanes)	6F.45
~~W1-13a~~	None	Truck Rollover Warning	Introduction, Page I-4
~~W3-1a~~	None	STOP AHEAD	2C.29
~~W3-2a~~	None	YIELD AHEAD	2C.29
~~W4-1a~~	None	Entering Roadway Merge	Introduction, Page I-4
~~W5-4~~	None	RAMP NARROWS	6F.26
~~W6-1a~~	None	DIVIDED HIGHWAY	2C.18
~~W6-1b~~	None	DIVIDED ROAD	2C.18
~~W6-2a~~	None	DIVIDED HIGHWAY ENDS	2C.19
~~W6-2b~~	None	DIVIDED ROAD ENDS	2C.19
~~W9-2~~	~~W75(CA)~~	LANE ENDS MERGE LEFT (RIGHT)	2C.33
~~W10-6~~	None	WARNING LOOK BOTH WAYS	Introduction, Page I-6
~~W13-4~~	None	ON RAMP	6F.25
~~W13-5~~	None	Curve Speed	2C.06, 2C.36
~~W16-13p~~	None	WHEN FLASHING	2C.29
~~W20-7a~~	None	Flagger	6F.29
~~W24-1a~~	None	Double Reverse Curve (2 lane)	6F.45
~~W24-1b~~	None	Double Reverse Curve (3 lane)	6F.45
~~W25-1~~	None	ONCOMING TRAFFIC HAS EXTENDED GREEN	2C.39
~~W25-2~~	None	ONCOMING TRAFFIC MAY HAVE EXTENDED GREEN	2C.39

(This page left intentionally blank)

CALIFORNIA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES
~~MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES~~

TABLE OF CONTENTS

	INTRODUCTION
PART 1	**GENERAL**
Chapter 1A	General
PART 2	**SIGNS**
Chapter 2A	General
Chapter 2B	Regulatory Signs
Chapter 2C	Warning Signs
Chapter 2D	Guide Signs – Conventional Roads
Chapter 2E	Guide Signs – Freeways and Expressways
Chapter 2F	Specific Service Signs
Chapter 2G	Tourist-Oriented Directional Signs (TODS)
Chapter 2H	Recreational and Cultural Interest Area Signs
Chapter 2I	Emergency Management Signing
PART 3	**MARKINGS**
Chapter 3A	General
Chapter 3B	Pavement and Curb Markings
Chapter 3C	Object Markers
Chapter 3D	Delineators
Chapter 3E	Colored Pavements
Chapter 3F	Barricades and Channelizing Devices
Chapter 3G	Islands
PART 4	**HIGHWAY TRAFFIC SIGNALS**
Chapter 4A	General
Chapter 4B	Traffic Control Signals - General
Chapter 4C	Traffic Control Signal Needs Studies
Chapter 4D	Traffic Control Signal Features
Chapter 4E	Pedestrian Control Features
Chapter 4F	Traffic Control Signals For Emergency Vehicle Access
Chapter 4G	Traffic Control Signals For One-Lane, Two-Way Facilities
Chapter 4H	Traffic Control Signals For Freeway Entrance Ramps
Chapter 4I	Traffic Control For Movable Bridges
Chapter 4J	Lane-Use Control Signals
Chapter 4K	Flashing Beacons
Chapter 4L	In-Roadway Lights

PART 5 TRAFFIC CONTROL DEVICES FOR LOW-VOLUME ROADS

Chapter 5A General
Chapter 5B Regulatory Signs
Chapter 5C Warning Signs
Chapter 5D Guide Signs
Chapter 5E Markings
Chapter 5F Traffic Control For Highway-Rail Grade Crossings
Chapter 5G Temporary Traffic Control Zones

PART 6 TEMPORARY TRAFFIC CONTROL

Chapter 6A General
Chapter 6B Fundamental Principles
Chapter 6C Temporary Traffic Control Elements
Chapter 6D Pedestrian And Worker Safety
Chapter 6E Flagger Control
Chapter 6F Temporary Traffic Control Zone Devices
Chapter 6G Type of Temporary Traffic Control Zone Activities
Chapter 6H Typical Applications
Chapter 6I Control of Traffic Through Traffic Incident Management Areas

PART 7 TRAFFIC CONTROL FOR SCHOOL AREAS

Chapter 7A General
Chapter 7B Signs
Chapter 7C Markings
Chapter 7D Signals
Chapter 7E Crossing Supervision
Chapter 7F Grade-Separated Crossings

PART 8 TRAFFIC CONTROLS FOR HIGHWAY-RAIL GRADE CROSSINGS

Chapter 8A General
Chapter 8B Signs and Markings
Chapter 8C Illumination
Chapter 8D Flashing-Light Signals, Gates, And Traffic Control Signals

PART 9 TRAFFIC CONTROLS FOR BICYCLE FACILITIES

Chapter 9A General
Chapter 9B Signs
Chapter 9C Markings
Chapter 9D Signals

PART 10 **TRAFFIC CONTROLS FOR HIGHWAY-LIGHT RAIL TRANSIT GRADE CROSSINGS**

Chapter 10A General
Chapter 10B Highway-Light Rail Transit Grade Crossing Control Systems
Chapter 10C Signs, Illumination, And Markings
Chapter 10D Highway-Light Rail Transit Active Traffic Control Grade Crossing Systems

APPENDIX

Appendix A1 Congressional Legislation
Appendix A101(CA) California Sign Chart (January 2010)
Appendix A102(CA) List of Acronyms & Abbreviations
Appendix A103(CA) List of Useful TCD Related Web Sites

(This page left intentionally blank)

California
Manual on Uniform
Traffic Control Devices
for Streets and Highways
**(FHWA's MUTCD 2003 Edition
including Revisions 1 and 2,
as amended for use in California)**

PART 1
General



STATE OF CALIFORNIA
BUSINESS, TRANSPORTATION AND HOUSING AGENCY
DEPARTMENT OF TRANSPORTATION

(This page left intentionally blank)

PART 1. GENERAL

TABLE OF CONTENTS

		Page
CHAPTER 1A.	**GENERAL**	
Section 1A.01	Purpose of Traffic Control Devices	1A-1
Section 1A.02	Principles of Traffic Control Devices	1A-1
Section 1A.03	Design of Traffic Control Devices	1A-1
Section 1A.04	Placement and Operation of Traffic Control Devices	1A-2
Section 1A.05	Maintenance of Traffic Control Devices	1A-2
Section 1A.06	Uniformity of Traffic Control Devices	1A-3
Section 1A.07	Responsibility for Traffic Control Devices	1A-3
Section 1A.08	Authority for Placement of Traffic Control Devices	1A-4
Section 1A.09	Engineering Study and Engineering Judgment	1A-5
Section 1A.10	Interpretations, Experimentations, Changes, and Interim Approvals	1A-5
Section 1A.11	Relation to Other Publications	1A-10
Section 1A.12	Color Code	1A-12
Section 1A.13	Definitions of Words and Phrases in This Manual	1A-13
Section 1A.14	Abbreviations Used on Traffic Control Devices	1A-19

FIGURES

CHAPTER 1A.	**GENERAL**	
Figure 1A-1	Example of Process for Requesting and Conducting Experimentations for New Traffic Control Devices	1A-20
Figure 1A-1(CA)	Example for Requesting and Conducting Experimentations for New Traffic Control Devices in California	1A-21
Figure 1A-2	Example of Process for Incorporating New Traffic Control Devices into the MUTCD	1A-22
Figure 1A-2(CA)	Example for Process for the Use of Traffic Control Devices in California Approved as Interim Approval (IA) by FHWA	1A-23

TABLES

CHAPTER 1A.	**GENERAL**	
Table 1A-1	Acceptable Abbreviations	1A-24
Table 1A-2	Abbreviations That Are Acceptable Only with a Prompt Word	1A-25
Table 1A-3	Unacceptable Abbreviations	1A-26

(This page left intentionally blank)

CHAPTER 1A. GENERAL

Section 1A.01 Purpose of Traffic Control Devices

Support:

The purpose of traffic control devices, as well as the principles for their use, is to promote highway safety and efficiency by providing for the orderly movement of all road users on streets and highways throughout the Nation.

Traffic control devices notify road users of regulations and provide warning and guidance needed for the reasonably safe, uniform, and efficient operation of all elements of the traffic stream.

Standard:

Traffic control devices or their supports shall not bear any advertising message or any other message that is not related to traffic control.

Support:

Tourist-oriented directional signs and Specific Service signs are not considered advertising; rather, they are classified as motorist service signs.

Section 1A.02 Principles of Traffic Control Devices

Support:

This Manual contains the basic principles that govern the design and use of traffic control devices for all streets and highways open to public travel regardless of type or class or the public agency having jurisdiction. This Manual's text specifies the restriction on the use of a device if it is intended for limited application or for a specific system. It is important that these principles be given primary consideration in the selection and application of each device.

Guidance:

To be effective, a traffic control device should meet five basic requirements:

A. Fulfill a need;

B. Command attention;

C. Convey a clear, simple meaning;

D. Command respect from road users; and

E. Give adequate time for proper response.

Design, placement, operation, maintenance, and uniformity are aspects that should be carefully considered by the engineer in order to maximize the ability of a traffic control device to meet the five requirements listed in the previous paragraph. Vehicle speed and geometrics should be carefully considered as an element that governs the design, operation, placement, and location of various traffic control devices.

Support:

The definition of the word "speed" varies depending on its use. The definitions of specific speed terms are contained in Section 1A.13.

Guidance:

The actions required of road users to obey regulatory devices should be specified by State statute, or in cases not covered by State statute, by local ordinance or resolution consistent with the "Uniform Vehicle Code." The proper use of traffic control devices should provide the reasonable and prudent road user with the information necessary to reasonably safely and lawfully use the streets, highways, pedestrian facilities, and bikeways.

Support:

Uniformity of the meaning of traffic control devices is vital to their effectiveness. The meanings ascribed to devices in this Manual are in general accord with the publications mentioned in Section 1A.11.

Section 1A.03 Design of Traffic Control Devices

Guidance:

Devices should be designed so that features such as size, shape, color, composition, lighting or retroreflection, and contrast are combined to draw attention to the devices; that size, shape, color, and simplicity of message combine to produce a clear meaning; that legibility and size combine with placement

to permit adequate time for response; and that uniformity, size, legibility, and reasonableness of the message combine to command respect.

Standard:

All symbols shall be unmistakably similar to or mirror images of the adopted symbol signs, all of which are shown in the "Standard Highway Signs" book (see Section 1A.11). Symbols and colors shall not be modified unless otherwise stated herein. All symbols and colors for signs not shown in the "Standard Highway Signs" book shall follow the procedures for experimentation and change described in Section 1A.10.

Guidance:

Aspects of a device's design should be modified only if there is a demonstrated need.

Support:

An example of modifying a device's design would be to modify the Side Road (W2-2) sign to show a second offset intersecting road.

Standard:

Except as noted in the Option below, highway agencies shall not develop word message signs. In accordance with CVC Section 21401, only word message signs conforming to Department of Transportation standards and specifications shall be placed on streets and highways.

Option:

~~Highway agencies may develop word message signs to notify road users of special regulations or to warn road users of a situation that might not be readily apparent. Unlike symbol signs and colors, new word message signs may be used without the need for experimentation.~~ Highway agencies may develop place/facility name or day, date, time portion of the word message on signs to notify road users of special events/circumstances or to warn road users of a situation that might not be readily apparent. Unlike symbol signs and colors, these place/facility name or day, date, time modified word message signs may be used without the need for experimentation. With the exception of symbols and colors, minor modifications in the specific design elements of a device may be made provided the essential appearance characteristics are preserved. Although the standard design of symbol signs cannot be modified, it may be appropriate to change the orientation of the symbol to better reflect the direction of travel.

Section 1A.04 Placement and Operation of Traffic Control Devices

Guidance:

Placement of a traffic control device should be within the road user's view so that adequate visibility is provided. To aid in conveying the proper meaning, the traffic control device should be appropriately positioned with respect to the location, object, or situation to which it applies. The location and legibility of the traffic control device should be such that a road user has adequate time to make the proper response in both day and night conditions.

Traffic control devices should be placed and operated in a uniform and consistent manner.

Unnecessary traffic control devices should be removed. The fact that a device is in good physical condition should not be a basis for deferring needed removal or change.

Traffic control devices, which are used on a part-time basis, should be in operation only during the time periods that they are required.

Section 1A.05 Maintenance of Traffic Control Devices

Guidance:

Functional maintenance of traffic control devices should be used to determine if certain devices need to be changed to meet current traffic conditions.

Physical maintenance of traffic control devices should be performed to retain the legibility and visibility of the device, and to retain the proper functioning of the device.

Support:

Clean, legible, properly mounted devices in good working condition command the respect of road users.

Section 1A.06 Uniformity of Traffic Control Devices

Support:

Uniformity of devices simplifies the task of the road user because it aids in recognition and understanding, thereby reducing perception/reaction time. Uniformity assists road users, law enforcement officers, and traffic courts by giving everyone the same interpretation. Uniformity assists public highway officials through efficiency in manufacture, installation, maintenance, and administration. Uniformity means treating similar situations in a similar way. The use of uniform traffic control devices does not, in itself, constitute uniformity. A standard device used where it is not appropriate is as objectionable as a nonstandard device; in fact, this might be worse, because such misuse might result in disrespect at those locations where the device is needed and appropriate.

Standard:

Any given device for the control of traffic shall have the same meaning and require the same action on the part of motorists regardless of where it is encountered.

Section 1A.07 Responsibility for Traffic Control Devices

Standard:

The responsibility for the design, placement, operation, maintenance, and uniformity of traffic control devices shall rest with the public agency or the official having jurisdiction. 23 CFR 655.603 adopts the Manual on Uniform Traffic Control Devices as the national standard for all traffic control devices installed on any street, highway, or bicycle trail open to public travel. When a State or other Federal agency manual or supplement is required, that manual or supplement shall be in substantial conformance with the national Manual on Uniform Traffic Control Devices.

This California MUTCD (including the incorporated FHWA's MUTCD) does not supersede the Department's Standard Plans, Standard Specifications or the Special Provisions publications. Nothing contained in the California MUTCD shall prevent the Department of Transportation from modifying, changing or adopting new specifications as necessary.

23 CFR 655.603 also states that traffic control devices on all streets and highways open to public travel in each State shall be in substantial conformance with standards issued or endorsed by the Federal Highway Administrator.

Support:

The "Uniform Vehicle Code" (see Section 1A.11) has the following provision in Section 15-104 for the adoption of a uniform Manual:

> "(a)The [State Highway Agency] shall adopt a manual and specification for a uniform system of traffic control devices consistent with the provisions of this code for use upon highways within this State. Such uniform system shall correlate with and so far as possible conform to the system set forth in the most recent edition of the Manual on Uniform Traffic Control Devices for Streets and Highways, and other standards issued or endorsed by the Federal Highway Administrator."
>
> "(b) The Manual adopted pursuant to subsection (a) shall have the force and effect of law."

Additionally, States are encouraged to adopt Section 15-116 of the "Uniform Vehicle Code," which states that, "No person shall install or maintain in any area of private property used by the public any sign, signal, marking or other device intended to regulate, warn, or guide traffic unless it conforms with the State manual and specifications adopted under Section 15-104."

Support:

Pursuant to the provisions in CVC Section 21400, the Department of Transportation adopts uniform standards and specifications for all traffic control devices after consultation with local agencies and public hearings. The Department of Transportation consults with local agencies and the public through the California Traffic Control Devices Committee (CTCDC). The Department of Transportation publicizes these uniform standards and specifications for traffic control devices through the California MUTCD.

Standard:

In accordance with CVC Section 21401, only traffic control devices conforming to Department of Transportation standards and specifications shall be placed on streets and highways.

Subject to the requirements in CVC Sections 21100, 21100.1, 21107, 21107.5, 21107.6, and 21107.7, no person shall install or maintain in any area of private property used by the public any sign, signal, or marking or other device intended to regulate, warn, or guide traffic unless it conforms with Department of Transportation standards and specifications.

Support:

The delegation of maintenance activities to local authorities is usually exercised under the authority of Streets and Highways Code Section 130.

The Department of Transportation standards and specifications for traffic control devices are not applicable to privately owned and maintained roads or commercial establishments, unless the particular city or county enacts an ordinance or resolution to this effect. Refer to CVC Sections 21100, 21100.1, 21107, 21107.5, 21107.6, and 21107.7. However, the use of Department of Transportation standards and specifications for traffic control devices are encouraged on all privately owned and maintained roads or commercial establishments, in general, as a good practice.

Section 1A.08 Authority for Placement of Traffic Control Devices

Standard:

Traffic control devices, advertisements, announcements, and other signs or messages within the highway right-of-way shall be placed only as authorized by a public authority or the official having jurisdiction, for the purpose of regulating, warning, or guiding traffic.

When the public agency or the official having jurisdiction over a street or highway has granted proper authority, others such as contractors and public utility companies shall be permitted to install temporary traffic control devices in temporary traffic control zones. Such traffic control devices shall conform with the Standards of this Manual.

This California MUTCD (including the incorporated FHWA's MUTCD) does not supersede the Department's Standard Plans, Standard Specifications or the Special Provisions publications. Nothing contained in the California MUTCD shall prevent the Department of Transportation from modifying, changing or adopting new specifications as necessary.

Guidance:

Any unauthorized traffic control device or other sign or message placed on the highway right-of-way by a private organization or individual constitutes a public nuisance and should be removed. All unofficial or nonessential traffic control devices, signs, or messages should be removed.

Standard:

All regulatory traffic control devices shall be supported by laws, ordinances, or regulations.

Support:

Provisions of this Manual are based upon the concept that effective traffic control depends upon both appropriate application of the devices and reasonable enforcement of the regulations.

California Vehicle Code (CVC) references are used throughout this California MUTCD when the subject matter relates to State law.

Standard:

CVC 21400 provides that the Department of Transportation shall, after consultation with local agencies and public hearings, adopt rules and regulations prescribing uniform standards and specifications for all official traffic control devices placed pursuant to the provisions of the Code.

CVC 21401 provides that only those official traffic control devices that conform to the uniform standards and specifications promulgated by the Department of Transportation shall be placed upon a street or highway.

CVC 21350 and 21351 give basic authority to the Department of Transportation and local authorities, in their respective jurisdictions, to place and maintain such official traffic control devices.

Option:

Local authorities may adopt rules and regulations by ordinance or resolution for regulating traffic by means of official traffic control devices meeting the requirements of CVC Section 21400. Refer to CVC Section 21100 (d).

Standard:

The use of unauthorized traffic control devices is prohibited by CVC 21465. Prohibited traffic control devices constitute a public nuisance and shall be removed per CVC 21467. This does not modify or limit the

authority of the Public Utilities Commission to erect or maintain traffic control devices as authorized by law. Refer to CVC 21468.

Private advertising is prohibited on any highway right-of-way by Section 5403 (a) of the Business and Professions Code. "Highway" in this context includes roads, streets, boulevards, lanes, courts, places, commons, trails, ways or other rights-of-way or easements used for or laid out and intended for the public passage of vehicles or of vehicles and persons per Section 5213 of the Business and Professions Code.

Support:

The California Public Utilities Commission is the state regulatory agency with statutory authority over highway-rail grade crossings and highway-light rail transit grade crossings. Refer to Public Utilities Code Section 1202(a).

Section 1A.09 Engineering Study and Engineering Judgment

Standard:

This Manual describes the application of traffic control devices, but shall not be a legal requirement for their installation.

Guidance:

The decision to use a particular device at a particular location should be made on the basis of either an engineering study or the application of engineering judgment. Thus, while this Manual provides Standards, Guidance, and Options for design and application of traffic control devices, this Manual should not be considered a substitute for engineering judgment.

Engineering judgment should be exercised in the selection, ~~and~~ application and replacement of traffic control devices, as well as in the location and design of the roads and streets that the devices complement. Jurisdictions with responsibility for traffic control that do not have engineers on their staffs should seek engineering assistance from others, such as the State transportation agency, their County, a nearby large City, or a traffic engineering consultant.

Support:

Refer to CVC 627 for definition and requirements of "Engineering and Traffic Survey". It is also abbreviated in this manual as E&TS.

Section 1A.10 Interpretations, Experimentations, Changes, and Interim Approvals

Standard:

Design, application, and placement of traffic control devices other than those adopted in this Manual shall be prohibited unless the provisions of this Section are followed.

Support:

Continuing advances in technology will produce changes in the highway, vehicle, and road user proficiency; therefore, portions of the system of traffic control devices in this Manual will require updating. In addition, unique situations often arise for device applications that might require interpretation or clarification of this Manual. It is important to have a procedure for recognizing these developments and for introducing new ideas and modifications into the system.

Standard:

Requests for any interpretation, permission to experiment, interim approval, or change to FHWA's MUTCD shall be sent to the Federal Highway Administration (FHWA), Office of Transportation Operations, 400 Seventh Street, SW, HOTO, Washington, DC 20590.

Support:

Requests for experimentation, interpretation, or changes relating to the California edited portion of the California MUTCD are covered later in this section.

An interpretation includes a consideration of the application and operation of standard traffic control devices, official meanings of standard traffic control devices, or the variations from standard device designs.

Guidance:

Requests for an interpretation of this Manual should contain the following information:

A. A concise statement of the interpretation being sought;

B. A description of the condition that provoked the need for an interpretation;

C. Any illustration that would be helpful to understand the request; and

D. Any supporting research data that is pertinent to the item to be interpreted.

Support:

Requests to experiment include consideration of field deployment for the purpose of testing or evaluating a new traffic control device, its application or manner of use, or a provision not specifically described in this Manual.

A request for permission to experiment will be considered only when submitted by the public agency or private toll facility responsible for the operation of the road or street on which the experiment is to take place.

A diagram indicating the process for experimenting with traffic control devices is shown in Figure 1A-1 and 1A-1(CA).

Guidance:

The request for permission to experiment should contain the following:

A. A statement indicating the nature of the problem.

B. A description of the proposed change to the traffic control device or application of the traffic control device, how it was developed, the manner in which it deviates from the standard, and how it is expected to be an improvement over existing standards.

C. Any illustration that would be helpful to understand the traffic control device or use of the traffic control device.

D. Any supporting data explaining how the traffic control device was developed, if it has been tried, in what ways it was found to be adequate or inadequate, and how this choice of device or application was derived.

E. A legally binding statement certifying that the concept of the traffic control device is not protected by a patent or copyright. (An example of a traffic control device concept would be countdown pedestrian signals in general. Ordinarily an entire general concept would not be patented or copyrighted, but if it were it would not be acceptable for experimentation unless the patent or copyright owner signs a waiver of rights acceptable to the FHWA. An example of a patented or copyrighted specific device within the general concept of countdown pedestrian signals would be a manufacturer's design for its specific brand of countdown signal, including the design details of the housing or electronics that are unique to that manufacturer's product. As long as the general concept is not patented or copyrighted, it is acceptable for experimentation to incorporate the use of one or more patented devices of one or several manufacturers.)

F. The time period and location(s) of the experiment.

G. A detailed research or evaluation plan that must provide for close monitoring of the experimentation, especially in the early stages of its field implementation. The evaluation plan should include before and after studies as well as quantitative data describing the performance of the experimental device.

H. An agreement to restore the site of the experiment to a condition that complies with the provisions of this Manual within 3 months following the end of the time period of the experiment. This agreement must also provide that the agency sponsoring the experimentation will terminate the experimentation at any time that it determines significant safety concerns are directly or indirectly attributable to the experimentation. The FHWA's Office of Transportation Operations has the right to terminate approval of the experimentation at any time if there is an indication of safety concerns. If, as a result of the experimentation, a request is made that this Manual be changed to include the device or application being experimented with, the device or application will be permitted to remain in place until an official rulemaking action has occurred.

I. An agreement to provide semiannual progress reports for the duration of the experimentation, and an agreement to provide a copy of the final results of the experimentation to the FHWA's Office of Transportation Operations within 3 months following completion of the experimentation. The FHWA's Office of Transportation Operations has the right to terminate approval of the experimentation if reports are not provided in accordance with this schedule.

Support:

A change includes consideration of a new device to replace a present standard device, an additional device to be added to the list of standard devices, or a revision to a traffic control device application or placement criteria.

Guidance:

Requests for a change to this Manual should contain the following information:

A. A statement indicating what change is proposed;

B. Any illustration that would be helpful to understand the request; and

C. Any supporting research data that is pertinent to the item to be reviewed.

Support:

Requests for interim approval include consideration of allowing interim use, pending official rulemaking, of a new traffic control device, a revision to the application or manner of use of an existing traffic control device, or a provision not specifically described in this Manual. If granted, interim approval will result in the traffic control device or application being placed into the next scheduled rulemaking process for revisions to this Manual. The device or application will be permitted to remain in place, under any conditions established in the interim approval, until an official rulemaking action has occurred.

Interim approval is considered based on the results of successful experimentation, results of analytical or laboratory studies, and/or review of non-U.S. experience with a traffic control device or application. Interim approval considerations include an assessment of relative risks, benefits, and costs. Interim approval includes conditions that jurisdictions agree to comply with in order to use the traffic control device or application until an official rulemaking action has occurred.

Guidance:

The request for permission to place a traffic control device under interim approval should contain the following:

A. A statement indicating the nature of the problem.

B. A description of the proposed change to the traffic control device or application of the traffic control device, how it was developed, the manner in which it deviates from the standard, and how it is expected to be an improvement over existing standards.

C. The location(s) where it will be used and any illustration that would be helpful to understand the traffic control device or use of the traffic control device.

D. A legally-binding statement certifying that the concept of the traffic control device is not protected by a patent or copyright. (An example of a traffic control device concept would be countdown pedestrian signals in general. Ordinarily an entire general concept would not be patented or copyrighted, but if it were it would not be acceptable for interim approval unless the patent or copyright owner signs a waiver of rights acceptable to the FHWA. An example of a patented or copyrighted specific device within the general concept of countdown pedestrian signals would be a manufacturer's design for its specific brand of countdown signal, including the design details of the housing or electronics that are unique to that manufacturer's product. Interim approval of a specific patented or copyrighted product is not acceptable.)

E. A detailed completed research or evaluation on this traffic control device.

F. An agreement to restore the site(s) of the interim approval to a condition that complies with the provisions in this Manual within 3 months following the issuance of a final rule on this traffic control device. This agreement must also provide that the agency sponsoring the interim approval will terminate use of the device or application installed under the interim approval at any time that it determines significant safety concerns are directly or indirectly attributable to the device or application. The FHWA's Office of Transportation Operations has the right to terminate the interim approval at any time if there is an indication of safety concerns.

Option:

A State may submit a request for interim approval for all jurisdictions in that State, as long as the request contains the information listed in the Guidance above.

Standard:

Once an interim approval is granted to any jurisdiction for a particular traffic control device or application, subsequent jurisdictions shall be granted interim approval for that device or application by submitting a letter to the FHWA Office of Transportation Operations indicating they will abide by Item F above and the specific conditions contained in the original interim approval.

A local jurisdiction using a traffic control device or application under an interim approval that was granted either directly to that jurisdiction or on a statewide basis based on the State's request shall inform the State of the locations of such use.

Support:

A diagram indicating the process for incorporating new traffic control devices into this Manual is shown in Figure 1A-2 and 1A-2(CA).

Procedures for revising this Manual are set out in the Federal Register of June 30, 1983 (48 FR 30145).

For additional information concerning interpretations, experimentation, changes, or interim approvals, write to the FHWA, 400 Seventh Street, SW, HOTO, Washington, DC 20590, or visit the MUTCD website at http://mutcd.fhwa.dot.gov.

Standard:

Requests shall be made to the FHWA for experimenting with any new traffic control device, its application or manner of use, or a provision not specifically described in the Manual on Uniform Traffic Control Devices.

Support:

In addition to the requirements of the FHWA, experimental traffic control devices are subject to the laws, regulations and policies of the State of California.

Standard:

The agency shall request and receive approval from the California Traffic Control Devices Committee prior to installation of experimentation devices on public roadways in California.

Support:

For information, contact:

Secretary,
California Traffic Control Devices Committee
(916) 654-4715.

The California MUTCD contains the official standards and policies of the State of California for the design, application, and placement of traffic control devices.

Experimentation is defined as research involving the acts of testing, evaluating, analyzing or discovering the effect of a specific device, principle, supposition, etc., usually carried out in an operational context. Experimentation could also be performed in a laboratory. The request for experimentation is a submission specifically requesting approval to use a non-standard device on public roadways for purposes of gathering verification data.

As used herein, the term "device" includes not only signs, signals, and markings, but also their application and manner of use.

Guidance:

Requests for experimentation, interpretation, or changes relating to the California edited portion of the California MUTCD should be sent to:

Secretary,
California Traffic Control Devices Committee – MS36
P.O. Box 942874, Sacramento, CA-94274-0001

The following procedures apply to requests for experimentation:

Submission of Projects

Guidance:

A request for permission to experiment will be considered only when submitted by the public agency or private toll facility responsible for the operation of the road or street on which the experiment is to take place.

Experimentation requests should contain the following information:

1. A statement indicating the nature of the problem.
2. A description of the proposed change, how it was developed, the manner in which it deviates from the standard, and how it is expected to be an improvement over existing standards.

3. Any illustration, photograph, or videos, which would help, explain the experimental device or use of this device.
4. Any supporting data as to how the experimental device was developed, if it has been tried, in what ways it was found to be adequate or inadequate, and how was this choice of device or application arrived at.

Requests for experimentation that are submitted without an explanation of the objective, scope, and duration will be returned to the originator for amplification.

Procedure for Processing Requests

Support:

A. All requests for experimentation will be reviewed by the Secretary of the California Traffic Control Devices Committee to determine whether other related experimentation has been scheduled, in process, or already completed.
B. The Secretary of the California Traffic Control Devices Committee will list the experimentation proposal on the next Committee agenda for review and approval. The Committee's approval would also include the specific guidelines to be followed for the experimentation.
C. Action by the California Traffic Control Devices Committee on any request for experimental use of a non-conforming device could take several forms:
    1. Approval of the device for limited use on an experimental project.
    2. Approval of the device for limited use in a formal research project.
    3. Disapproval until such time as satisfactory research or other justification is submitted.
    4. Disapproval.
D. After action by the California Traffic Control Devices Committee, the Secretary of the California Traffic Control Devices Committee will notify the originating party of it decision. If approved, the originating parties will be requested to submit a status report on the experimental testing at appropriate intervals. When the results of experimentation are completed, a final report will be prepared and forwarded to the Secretary for Committee review.
E. The agency receiving approval for experimentation must agree-to faithfully follow the specific guidelines for the experimentation, must forward reports as indicated, and must agree to terminate the experimentation upon notification.

Specific Guidelines for Experimental Proposal

Guidance:

A specific proposal should be submitted for each request.

Support:

This proposal can be submitted with the initial request or could be a follow-up to specific comments by the California Traffic Control Devices Committee. The proposal, after approval by the Committee, will become an integral part of the approved experimentation.

Guidance:

Each proposal should include:

A. Scope: A detailed description of the experimentation, locations of installation, and number of experimental projects.
B. Work Plan: A description of the proposed plan of study; the variables that are to be measured; the criteria against which the devices is to be evaluated; observations, measures and data which will be collected; whether the experimentation will be carried out in the field or under laboratory conditions; how installations of the experimental device or application will be made; the indication if any adverse effects on safety or traffic operations can be anticipated, together with the means that may be taken to minimize them; and the factors which will be held constant or measured and controlled in order to ensure that the true effects of the device are measured.
C. Time Periods: Time periods for experimentation will normally not be less than six months nor more than two years.
D. Evaluation Procedures: The California Traffic Control Devices Committee will approve criteria, which will be used to evaluate experimental devices or applications. To permit meaningful comparisons with standard installations, advice from specialists such as human factor experts, statisticians, etc., could be included.
E. Reporting: A written status report must be forwarded to the sponsor 45 days prior to each public meeting. A final report must be completed within 90 days of the terminal date of the experimentation and forwarded to the

Secretary of the California Traffic Control Devices Committee. Status reports will describe the progress of the work, any particular deviation from the work plan and anticipated time of conclusion. The final report will contain, as a minimum, the basic information on the problem, the preliminary investigations, the proposed solutions, the study procedures, the detailed analysis of the data, the results of the work, a discussion of the results, and whatever conclusions are drawn. If a change in the California MUTCD is proposed, the recommended text (wording) for the California MUTCD should be included.

F. Administration: All experimentation proposals will include the agency sponsoring the study, the agency conducting the study, and the name and titles of principal researchers. There must be proof of professional traffic engineering capabilities and other related professional expertise to perform the experimentation and related evaluation processes.

Termination of Experimentation

Standard:

The project shall terminate at the end of the approved period unless an extension is granted, and all experimental devices and applications shall be removed unless specific permission is given for continued operation.

Support:

The California Traffic Control Devices Committee could, at any time, terminate approval of experimentation if significant safety hazards are indicated to be directly or indirectly attributable to the experimentation. Approval of any experimentation could also be terminated if no status report is received 45 days prior to each public meeting or no final report is received within 90 days of the terminal date of the experimentation.

Removal of Experimentation Installations

Standard:

All experimentation installations shall be removed upon termination of the experiment when a decision is made by the California Traffic Control Devices Committee that the device is not warranted.

Support:

Authority and reference cited for removal of experimentation installation is CVC Section 21400.

Section 1A.11 Relation to Other Publications

Standard:

To the extent that they are incorporated by specific reference, the latest editions of the following publications, or those editions specifically noted, shall be a part of this Manual: "Standard Highway Signs" book (FHWA); and "Color Specifications for Retroreflective Sign and Pavement Marking Materials" (appendix to subpart F of Part 655 of Title 23 of the Code of Federal Regulations).

Support:

The "Standard Highway Signs" book includes standard alphabets and symbols for highway signs and pavement markings.

For information about the above publications, visit the Federal Highway Administration's MUTCD website at http://mutcd.fhwa.dot.gov, or write to the FHWA, 400 Seventh Street, SW, HOTO, Washington, DC 20590.

The publication entitled "Federal-Aid Highway Program Guidance on High Occupancy Vehicle (HOV) Lanes" is available at http://www.fhwa.dot.gov/operations/hovguide01.htm, or write to the FHWA, 400 Seventh Street, SW, HOTM, Washington, DC 20590.

The publication entitled "Maintaining Traffic Sign Retroreflectivity" (2007 Edition) is available at www.fhwa.dot.gov/retro, or write to the FHWA, 1200 New Jersey Avenue, SE, HSA-1, Washington, DC 20590.

Other publications that are useful sources of information with respect to use of this Manual are listed below. See Page i of this Manual for ordering information for the following publications:

1A. "AAA School Safety Patrol Operations Manual," 2006 Edition (AAA)

1. "A Policy on Geometric Design of Highways and Streets," 2001 Edition (American Association of State Highway and Transportation Officials—AASHTO)
2. "Guide for the Development of Bicycle Facilities," 1999 Edition (AASHTO)
3. "Guide to Metric Conversion," 1993 Edition (AASHTO)

4. "Guidelines for the Selection of Supplemental Guide Signs for Traffic Generators Adjacent to Freeways," 2001 Edition (AASHTO)
5. "List of Control Cities for Use in Guide Signs on Interstate Highways," 2001 Edition (AASHTO)
6. "Roadside Design Guide," 2001 Edition (AASHTO)
7. "Standard Specifications for Movable Highway Bridges," 1988 Edition (AASHTO)
8. "Traffic Engineering Metric Conversion Folders— Addendum to the Guide to Metric Conversion," 1993 Edition (AASHTO)
9. "2000 AREMA Communications & Signals Manual," American Railway Engineering & Maintenance-of- Way Association (AREMA)
10. "Designing Sidewalks and Trails for Access—Part 2—Best Practices Design Guide," 2001 Edition (FHWA) [Publication No. FHWA-EP-01-027]
11. "Practice for Roadway Lighting," RP-8, 2001, Illuminating Engineering Society (IES)
12. "Safety Guide for the Prevention of Radio Frequency Radiation Hazards in the Use of Commercial Electric Detonators (Blasting Caps)," Safety Library Publication No. 20, Institute of Makers of Explosives
13. "American National Standard for High-Visibility Public Safety Vests," (ANSI/ISEA 207-2006), 2006 Edition (International Safety Equipment Association—ISEA)

13A. "American National Standard for High-Visibility Safety Apparel and Headwear," (ANSI/ISEA 107-2004), 2004 Edition, (ISEA).

14. "Manual of Traffic Signal Design," 1998 Edition (Institute of Transportation Engineers—ITE)
15. "Manual of Transportation Engineering Studies," 1994 Edition (ITE)
16. "Pedestrian Traffic Control Signal Indications," 1985 Edition (ITE)
17. "Preemption of Traffic Signals at or Near Railroad Grade Crossings with Active Warning Devices," (ITE)
18. "Purchase Specification for Flashing and Steady Burn Warning Lights," 1981 Edition (ITE)
19. "School Trip Safety Program Guidelines," 1984 Edition (ITE)
20. "Traffic Detector Handbook," 1991 Edition (ITE)
21. "Traffic Engineering Handbook," 1999 Edition (ITE)
22. "Traffic Signal Lamps," 1980 Edition (ITE)
23. "Traffic Control Devices Handbook," 2001 Edition (ITE)
24. "Vehicle Traffic Control Signal Heads," Part 1—1985 Edition; Part 2—1998 Edition (ITE)
25. "Uniform Vehicle Code (UVC) and Model Traffic Ordinance," 2000 Edition (National Committee on Uniform Traffic Laws and Ordinances)
26. "Occupational Safety and Health Administration Regulations (Standards - 29 CFR), General Safety and Health Provisions - 1926.20," amended June 30, 1993, Occupational Safety and Health Administration (OSHA)
27. "Highway Capacity Manual," 2000 Edition (Transportation Research Board—TRB)
28. "Recommended Procedures for the Safety Performance Evaluation of Highway Features," (NCHRP Report 350), 1993 Edition (Transportation Research Board - TRB)
29. "Accessible Pedestrian Signals," A-37, 1998 Edition, U.S. Architectural and Transportation Barriers Compliance Board (The U.S. Access Board)
30. "Building a True Community—Final Report—Public Rights-of-Way Access Advisory Committee (PRWAAC)," 2001 Edition (The U.S. Access Board)
31. "The Americans with Disabilities Act Accessibility Guidelines for Buildings and Facilities (ADAAG)," July 1998 Edition (The U.S. Access Board)
32. "Highway-Rail Intersection Architecture," U.S. Department of Transportation, Federal Railroad Administration (USDOT/FRA)

Standard:

The latest edition of Department of Transportation's California Sign Specifications shall be a part of this manual.

Support:

The latest version of other documents that are useful sources of information with respect to the use of this Manual are listed below. See Appendix for a list of web sites that have direct access to some of these publications. See the Introduction Part of this California MUTCD for ordering information for the following publications:

A. "California Building Standards Code" 2001 Edition (California Building Standards Commission)
B. "California Business and Professions Code" (State of California)
C. "California Code of Regulations" (State of California)
D. "California Education Code" (State of California)
E. "California Government Code" (State of California)
F. "California Health and Safety Code" (State of California)
G. "California Streets and Highways Code" (State of California)
H. "California Vehicle Code" (CVC), 2006 Edition (Department of Motor Vehicles)
I. "Construction Manual", 2005 Edition. (Department of Transportation)
J. "Highway Design Handbook For Older Drivers And Pedestrians", 2001 Edition (Federal Highway Administration)
K. "Highway Design Manual", Fifth Edition (Department of Transportation)
L. "High-Occupancy Vehicle Guidelines", 2003 Edition (Department of Transportation)
M. "Historic Highway Bridges of California", (Department of Transportation)
N. "Maintenance Manual", 1999 Edition (Department of Transportation)
O. "Manual for Encroachment Permits on California State Highways", 2005 Edition (Department of Transportation)
P. "Plans, Specifications and Estimates Guide" (PS&E), 2006 Edition (Department of Transportation)
Q. "Project Development Procedures Manual", 2005 Edition (Department of Transportation)
R. "Ramp Meter Design Manual", 2000 Edition (Department of Transportation)
S. "Ready to List and Construction Contract Award Guide", 2009 Edition (Department of Transportation)
T. "Signal, Lighting and Electrical System Design Guide", 2007 Edition (Department of Transportation)
U. "Standard Plans", 2006 Edition (Department of Transportation)
V. "Standard Specifications", 2006 Edition (Department of Transportation)
W. "Standard Special Provisions", 2006 Edition (Department of Transportation)
X. "Traffic Engineering Metric Conversion Factors", 1993 Edition (American Association of State Highway and transportation Officials - AASHTO).
Y. "Traffic Manual", 1996 Edition (Department of Transportation)

Section 1A.12 Color Code

Support:

The following color code establishes general meanings for 10 colors of a total of 13 colors that have been identified as being appropriate for use in conveying traffic control information. Central values and tolerance limits for each color are available from the Federal Highway Administration, 400 Seventh Street, SW, HOTO, Washington, DC 20590, and at FHWA's MUTCD website at http://mutcd.fhwa.dot.gov.

The three colors for which general meanings have not yet been assigned are being reserved for future applications that will be determined only by FHWA after consultation with the States, the engineering community, and the general public. The meanings described in this Section are of a general nature. More specific assignments of colors are given in the individual Parts of this Manual relating to each class of devices.

Standard:

The general meaning of the 13 colors shall be as follows:

A. Black—regulation
B. Blue—road user services guidance, tourist information, and evacuation route
C. Brown—recreational and cultural interest area guidance
D. Coral—unassigned
E. Fluorescent Pink—incident management
F. Fluorescent Yellow-Green—pedestrian warning, bicycle warning, playground warning, school bus and school warning
G. Green—indicated movements permitted, direction guidance

H. Light Blue—unassigned
I. Orange—temporary traffic control
J. Purple—unassigned
K. Red—stop or prohibition
L. White—regulation
M. Yellow—warning

Section 1A.13 Definitions of Words and Phrases in This Manual
Standard:

Unless otherwise defined herein, or in the other Parts of this Manual, definitions contained in the most recent edition of the "Uniform Vehicle Code," "AASHTO Transportation Glossary (Highway Definitions)," "California Vehicle Code" and other publications specified in Section 1A.11 are also incorporated and adopted by reference.

The following words and phrases, when used in this Manual, shall have the following meanings:

1. Active Grade Crossing Warning System—the flashing-light signals, with or without warning gates, together with the necessary control equipment used to inform road users of the approach or presence of trains at highway-rail or highway-light rail transit grade crossings.
2. Approach—all lanes of traffic moving towards an intersection or a midblock location from one direction, including any adjacent parking lane(s).
3. Arterial Highway (Street)—a general term denoting a highway primarily used by through traffic, usually on a continuous route or a highway designated as part of an arterial system.
4. Average Day—a day representing traffic volumes normally and repeatedly found at a location. Where volumes are primarily influenced by employment, the average day is typically a weekday. When volumes are primarily influenced by entertainment or recreation, the average day is typically a weekend day.
5. Beacon—a highway traffic signal with one or more signal sections that operates in a flashing mode.
6. Bicycle—a pedal-powered vehicle upon which the human operator sits.
7. Bicycle Lane—a portion of a roadway that has been designated by signs and pavement markings for preferential or exclusive use by bicyclists.
7A. CVC – California Vehicle Code.
7B. California Sign Specifications – Detailed drawings of signs approved by the Department of Transportation for use in California.
8. Centerline Markings—the yellow pavement marking line(s) that delineates the separation of traffic lanes that have opposite directions of travel on a roadway. These markings need not be at the geometrical center of the pavement.
9. Changeable Message Sign—a sign that is capable of displaying more than one message, changeable manually, by remote control, or by automatic control. These signs are referred to as Dynamic Message Signs in the National Intelligent Transportation Systems (ITS) Architecture.
10. Channelizing Line Marking—a wide or double solid white line used to form islands where traffic in the same direction of travel is permitted on both sides of the island.
11. Circular Intersection—an intersection that has an island, generally circular in design, located in the center of the intersection where traffic passes to the right of the island. Circular intersections include roundabouts, rotaries, and traffic circles.
12. Clear Zone—the total roadside border area, starting at the edge of the traveled way, that is available for an errant driver to stop or regain control of a vehicle. This area might consist of a shoulder, a recoverable slope, and/or a nonrecoverable, traversable slope with a clear run-out area at its toe.
13. Concurrent Flow HOV Lane—an HOV lane that is operated in the same direction as the adjacent mixed flow lanes, separated from the adjacent general purpose freeway lanes by a standard lane stripe, painted buffer, or barrier.

14. Contraflow Lane—a lane operating in a direction opposite to the normal flow of traffic designated for peak direction of travel during at least a portion of the day. Contraflow lanes are usually separated from the off-peak direction lanes by plastic pylons, or by moveable or permanent barrier.

15. Conventional Road—a street or highway other than a low-volume road (as defined in Section 5A.01), expressway, or freeway.

16. Collector Highway—a term denoting a highway that in rural areas connects small towns and local highways to arterial highways, and in urban areas provides land access and traffic circulation within residential, commercial, and business areas and connects local highways to the arterial highways.

17. Crashworthy—a characteristic of a roadside appurtenance that has been successfully crash tested in accordance with a national standard such as the National Cooperative Highway Research Program Report 350, "Recommended Procedures for the Safety Performance Evaluation of Highway Features."

18. Crosswalk—(a) that part of a roadway at an intersection included within the connections of the lateral lines of the sidewalks on opposite sides of the highway measured from the curbs or in the absence of curbs, from the edges of the traversable roadway, and in the absence of a sidewalk on one side of the roadway, the part of a roadway included within the extension of the lateral lines of the sidewalk at right angles to the centerline; (b) any portion of a roadway at an intersection or elsewhere distinctly indicated as a pedestrian crossing by lines on the surface, which may be supplemented by contrasting pavement texture, style, or color.

19. Crosswalk Lines—white pavement marking lines that identify a crosswalk.

20. Delineator—a retroreflective device mounted on the roadway surface or at the side of the roadway in a series to indicate the alignment of the roadway, especially at night or in adverse weather.

20A. Department of Transportation – California Department of Transportation or Caltrans.

21. Detectable—having a continuous edge within 150 mm (6 in) of the surface so that pedestrians who have visual disabilities can sense its presence and receive usable guidance information.

21A. Divided Highway – A highway with separated roadbeds for traffic in opposing directions.

22. Dynamic Envelope—the clearance required for the train and its cargo overhang due to any combination of loading, lateral motion, or suspension failure.

23. Edge Line Markings—white or yellow pavement marking lines that delineate the right or left edge(s) of a traveled way.

24. End-of-Roadway Marker—a device used to warn and alert road users of the end of a roadway in other than temporary traffic control zones.

25. Engineering Judgment—the evaluation of available pertinent information, and the application of appropriate principles, experience, education, discretion, Standards, Guidance, and practices as contained in this Manual and other sources, for the purpose of deciding upon the applicability, design, operation, or installation of a traffic control device. Engineering judgment shall be exercised by an engineer, or by an individual working under the supervision of an engineer, through the application of procedures and criteria established by the engineer. Documentation of engineering judgment is not required.

26. Engineering Study—the comprehensive analysis and evaluation of available pertinent information, and the application of appropriate principles, engineering judgment, experience, education, discretion, Standards, Guidance, and practices as contained in this Manual and other sources, for the purpose of deciding upon the applicability, design, operation, or installation of a traffic control device. An engineering study shall be performed by an engineer, or by an individual working under the supervision of an engineer, through the application of procedures and criteria established by the engineer. An engineering study shall be documented.

27. Expressway—a divided highway with partial control of access.

28. Flashing—an operation in which a signal indication is turned on and off repetitively.

29. Freeway—a divided highway with full control of access.

30. Guide Sign—a sign that shows route designations, destinations, directions, distances, services, points of interest, or other geographical, recreational, or cultural information.
31. High Occupancy Vehicle (HOV)—a motor vehicle carrying at least two or more persons, including carpools, vanpools, and buses.
32. Highway—a general term for denoting a public way for purposes of travel by vehicular travel, including the entire area within the right-of-way.
33. Highway-Rail Grade Crossing—the general area where a highway and a railroad's right-of-way cross at the same level, within which are included the railroad tracks, highway, and traffic control devices for highway traffic traversing that area.
34. Highway Traffic Signal—a power-operated traffic control device by which traffic is warned or directed to take some specific action. These devices do not include signals at toll plazas, power operated signs, illuminated pavement markers, warning lights (see Section 6F.78), or steady burning electric lamps.
35. HOV Lane—any preferential lane designated for exclusive use by high-occupancy vehicles for all or part of a day—including a designated lane on a freeway, other highway, street, or independent roadway on a separate right-of-way.
36. Inherently Low Emission Vehicle (ILEV)—any kind of vehicle that is certified by the U.S. Environmental Protection Agency and that because of inherent properties of the fuel system design, will not have significant evaporative emissions, even if its evaporative emission control system has failed.
37. Interchange—a system of interconnecting roadways providing for traffic movement between two or more highways that do not intersect at grade.
38. Intermediate Interchange—an interchange with an urban or rural route that is not a major or minor interchange as defined herein.
39. Intersection—(a) the area embraced within the prolongation or connection of the lateral curb lines, or if none, the lateral boundary lines of the roadways of two highways that join one another at, or approximately at, right angles, or the area within which vehicles traveling on different highways that join at any other angle might come into conflict; (b) the junction of an alley or driveway with a roadway or highway shall not constitute an intersection.
40. Island—a defined area between traffic lanes for control of vehicular movements or for pedestrian refuge. It includes all end protection and approach treatments. Within an intersection area, a median or an outer separation is considered to be an island.
41. Lane Line Markings—white pavement marking lines that delineate the separation of traffic lanes that have the same direction of travel on a roadway.
42. Lane-Use Control Signal—a signal face displaying indications to permit or prohibit the use of specific lanes of a roadway or to indicate the impending prohibition of such use.
43. Legend—see Sign Legend.
44. Logo—a distinctive emblem, symbol, or trademark that identifies a product or service.
45. Longitudinal Markings—pavement markings that are generally placed parallel and adjacent to the flow of traffic such as lane lines, centerlines, edge lines, channelizing lines, and others.
46. Major Interchange—an interchange with another freeway or expressway, or an interchange with a high-volume multi-lane highway, principal urban arterial, or major rural route where the interchanging traffic is heavy or includes many road users unfamiliar with the area.
47. Major Street—the street normally carrying the higher volume of vehicular traffic.
47A. Markings – All lines, words, or symbols, except signs, officially placed within the roadway to regulate, warn or guide traffic.
48. Median—the area between two roadways of a divided highway measured from edge of traveled way to edge of traveled way. The median excludes turn lanes. The median width might be different between intersections, interchanges, and at opposite approaches of the same intersection.

49. Minor Interchange—an interchange where traffic is local and very light, such as interchanges with land service access roads. Where the sum of the exit volumes is estimated to be lower than 100 vehicles per day in the design year, the interchange is classified as local.
50. Minor Street—the street normally carrying the lower volume of vehicular traffic.
51. Object Marker—a device used to mark obstructions within or adjacent to the roadway.
52. Occupancy Requirement—any restriction that regulates the use of a facility for any period of the day based on a specified number of persons in a vehicle.
53. Occupant—a person driving or riding in a car, truck, bus, or other vehicle.
54. Paved—a bituminous surface treatment, mixed bituminous concrete, or Portland cement concrete roadway surface that has both a structural (weight bearing) and a sealing purpose for the roadway.
55. Pedestrian—a person afoot, in a wheelchair, on skates, or on a skateboard.
56. Pedestrian Facilities—a general term denoting improvements and provisions made to accommodate or encourage walking.
57. Platoon—a group of vehicles or pedestrians traveling together as a group, either voluntarily or involuntarily, because of traffic signal controls, geometrics, or other factors.
58. Principal Legend—place names, street names, and route numbers placed on guide signs.
59. Public Road—any road or street under the jurisdiction of and maintained by a public agency and open to public travel.
60. Raised Pavement Marker—a device with a height of at least 10 mm (0.4 in) mounted on or in a road surface that is intended to be used as a positioning guide or to supplement or substitute for pavement markings or to mark the position of a fire hydrant.
61. Regulatory Sign—a sign that gives notice to road users of traffic laws or regulations.
62. Retroreflectivity—a property of a surface that allows a large portion of the light coming from a point source to be returned directly back to a point near its origin.
63. Right-of-Way [Assignment]—the permitting of vehicles and/or pedestrians to proceed in a lawful manner in preference to other vehicles or pedestrians by the display of sign or signal indications.
64. Road—see Roadway.
65. Roadway—that portion of a highway improved, designed, or ordinarily used for vehicular travel and parking lanes, but exclusive of the sidewalk, berm, or shoulder even though such sidewalk, berm, or shoulder is used by persons riding bicycles or other human-powered vehicles. In the event a highway includes two or more separate roadways, the term roadway as used herein shall refer to any such roadway separately, but not to all such roadways collectively.
66. Roadway Network—a geographical arrangement of intersecting roadways.
67. Road User—a vehicle operator, bicyclist, or pedestrian within the highway, including persons with disabilities.
68. Roundabout Intersection—a circular intersection with yield control of all entering traffic, channelized approaches, and appropriate geometric curvature, such that travel speeds on the circulatory roadway are typically less than 50 km/h (30 mph).
69. Rumble Strip - a series of intermittent, narrow, transverse areas of rough-textured, slightly raised, or depressed road surface that is installed to alert road users to unusual traffic conditions.
70. Rural Highway—a type of roadway normally characterized by lower volumes, higher speeds, fewer turning conflicts, and less conflict with pedestrians.
70A. Scenic Highway – An officially designated portion of the State Highway System traversing areas of outstanding scenic beauty which together with the adjacent scenic corridors requires special scenic conservation treatment.
71. Shared Roadway—a roadway that is officially designated and marked as a bicycle route, but which is open to motor vehicle travel and upon which no bicycle lane is designated.
72. Shared-Use Path—a bikeway outside the traveled way and physically separated from motorized vehicular traffic by an open space or barrier and either within the highway right-of-way or within an independent alignment. Shared-use paths are also used by pedestrians

(including skaters, users of manual and motorized wheelchairs, and joggers) and other authorized motorized and nonmotorized users.

72A. Shoulder – The portion of the roadway contiguous with the traveled way for accommodations of stopped vehicles, for emergency use, and for lateral support of base and surface courses.

73. Sidewalk—that portion of a street between the curb line, or the lateral line of a roadway, and the adjacent property line or on easements of private property that is paved or improved and intended for use by pedestrians.

74. Sign—any traffic control device that is intended to communicate specific information to road users through a word or symbol legend. Signs do not include traffic control signals, pavement markings, delineators, or channelization devices.

75. Sign Assembly—a group of signs, located on the same support(s), that supplement one another in conveying information to road users.

76. Sign Illumination—either internal or external lighting that shows similar color by day or night. Street or highway lighting shall not be considered as meeting this definition.

77. Sign Legend—all word messages, logos, and symbol designs that are intended to convey specific meanings.

78. Sign Panel—a separate panel or piece of material containing a word or symbol legend that is affixed to the face of a sign.

79. Speed—speed is defined based on the following classifications:

(a) Advisory Speed—a recommended speed for all vehicles operating on a section of highway and based on the highway design, operating characteristics, and conditions.

(b) Average Speed—the summation of the instantaneous or spot-measured speeds at a specific location of vehicles divided by the number of vehicles observed.

(c) Design Speed—a selected speed used to determine the various geometric design features of a roadway.

(d) 85th-Percentile Speed—The speed at or below which 85 percent of the motor vehicles travel.

(e) Operating Speed—a speed at which a typical vehicle or the overall traffic operates. Operating speed might be defined with speed values such as the average, pace, or 85th-percentile speeds.

(f) Pace Speed—the highest speed within a specific range of speeds that represents more vehicles than in any other like range of speed. The range of speeds typically used is 10 km/h or 10 mph.

(g) Posted Speed—the speed limit determined by law and shown on Speed Limit signs.

(h) Statutory Speed—a speed limit established by legislative action that typically is applicable for highways with specified design, functional, jurisdictional and/or location characteristic and is not necessarily shown on Speed Limit signs.

80. Speed Limit—the maximum (or minimum) speed applicable to a section of highway as established by law.

81. Speed Measurement Marking—a white transverse pavement marking placed on the roadway to assist the enforcement of speed regulations.

82. Speed Zone—a section of highway with a speed limit that is established by law but which might be different from a legislatively specified statutory speed limit.

82A. State Highway – Any highway owned and operated by the Department of Transportation.

83. Stop Line—a solid white pavement marking line extending across approach lanes to indicate the point at which a stop is intended or required to be made. For all purposes, limit line(s) as defined per CVC 377 shall mean stop line(s).

84. Street—see Highway.

85. Temporary Traffic Control Zone—an area of a highway where road user conditions are changed because of a work zone or incident by the use of temporary traffic control devices, flaggers, uniformed law enforcement officers, or other authorized personnel.

86. Traffic—pedestrians, bicyclists, ridden or herded animals, vehicles, streetcars, and other conveyances either singularly or together while using any highway for purposes of travel.

87. Traffic Control Device—a sign, signal, marking, or other device used to regulate, warn, or guide traffic, placed on, over, or adjacent to a street, highway, pedestrian facility, or shared-use path by authority of a public agency having jurisdiction.

88. Traffic Control Signal (Traffic Signal)—any highway traffic signal by which traffic is alternately directed to stop and permitted to proceed.

89. Train—one or more locomotives coupled, with or without cars, that operates on rails or tracks and to which all other traffic must yield the right-of-way by law at highway-rail grade crossings.

90. Transverse Markings—pavement markings that are generally placed perpendicular and across the flow of traffic such as shoulder markings, word and symbol markings, stop lines, crosswalk lines, speed measurement markings, parking space markings, and others.

91. Traveled Way—the portion of the roadway for the movement of vehicles, exclusive of the shoulders, berms, sidewalks, and parking lanes.

92. Urban Street—a type of street normally characterized by relatively low speeds, wide ranges of traffic volumes, narrower lanes, frequent intersections and driveways, significant pedestrian traffic, and more businesses and houses.

93. Vehicle—every device in, upon, or by which any person or property can be transported or drawn upon a highway, except trains and light rail transit operating in exclusive or semiexclusive alignments. Light rail transit operating in a mixed-use alignment, to which other traffic is not required to yield the right-of-way by law, is a vehicle.

94. Warning Sign—a sign that gives notice to road users of a situation that might not be readily apparent.

95. Warrant—a warrant describes threshold conditions to the engineer in evaluating the potential safety and operational benefits of traffic control devices and is based upon average or normal conditions. Warrants are not a substitute for engineering judgment. The fact that a warrant for a particular traffic control device is met is not conclusive justification for the installation of the device.

95A. Worker—people on foot whose duties place them within the right-of-way of a street or highway, such as street or highway construction and maintenance forces; survey crews; utility crews; responders to incidents within the street or highway right-of-way; firefighters and other emergency responders when they are not directly exposed to flame, fire, heat, and/or hazardous materials; and law enforcement personnel when directing traffic, investigating crashes, and handling lane closures, obstructed roadways, and disasters within the right-of-way of a street or highway.

96. Wrong-Way Arrow—a slender, elongated, white pavement marking arrow placed upstream from the ramp terminus to indicate the correct direction of traffic flow. Wrong-way arrows are intended primarily to warn wrong-way road users that they are going in the wrong direction.

Support:

The following terms are defined in the California Vehicle Code:

1. Alley - Section 110.
2. Amber - Section 112.
3. Authorized Emergency Vehicle - Section 165.
4. Automated Enforcement System - Section 210.
5. Axle - Section 230.
6. Bicycle - Section 231.
7. Bus - Section 233.
8. Business District - Section 235.
9. Clean Fuel Vehicle - Section 257.
10. Commercial Vehicle - Section 260.
11. Crosswalk - Section 275.

12. Department of Transportation - Section 291.
13. Disabled Person - Section 295.5.
14. Engineering and Traffic Survey - Section 627.
15. Freeway - Section 332.
16. Golf Cart - Section 345.
17. Hazardous Material - Section 353.
18. Highway - Section 360.
19. Intersection - Section 365.
20. Limit Line - Section 377.
21. Local Authorities - Section 385.
22. Motorcycle - Section 400.
23. Motor Vehicle - Section 415.
24. Official Traffic Control Device - Section 440.
25. Official Traffic Control Signal - Section 445.
26. Park or Parking - Section 463.
27. Pedestrian - Section 467.
28. Pickup Truck - Section 471.
29. Private Road or Driveway - Section 490.
30. Private School - Section 492.
31. Road - Section 527.
32. Roadway - Section 530.
33. Schoolbus - Section 545.
34. Sidewalk - Section 555.
35. Snowmobile - Section 557.
36. Stop or Stopping - Section 587.
37. Street - Section 590.
38. Street or Highway - Section 591.
39. Street or Highway – Highway Exclusion - Section 592.
40. Through Highway - Section 600.
41. Traffic - Section 620.
42. Trailer - Section 630.
43. U-Turn - Section 665.5.
44. Vehicle - Section 670.

Section 1A.14 Abbreviations Used on Traffic Control Devices

Standard:

When the word messages shown in Table 1A-1 need to be abbreviated in connection with traffic control devices, the abbreviations shown in Table 1A-1 shall be used.

Guidance:

The abbreviations for the words listed in Table 1A-2 should not be used in connection with traffic control devices unless the prompt word shown in Table 1A-2 either precedes or follows the abbreviation.

Standard:

The abbreviations shown in Table 1A-3 shall not be used in connection with traffic control devices because of their potential to be misinterpreted by road users.

Guidance:

Where multiple abbreviations are permitted in Tables 1A-1 or 1A-2, the same abbreviation should be used throughout a single jurisdiction.

Figure 1A-1. Example of Process for Requesting and Conducting Experimentations for New Traffic Control Devices

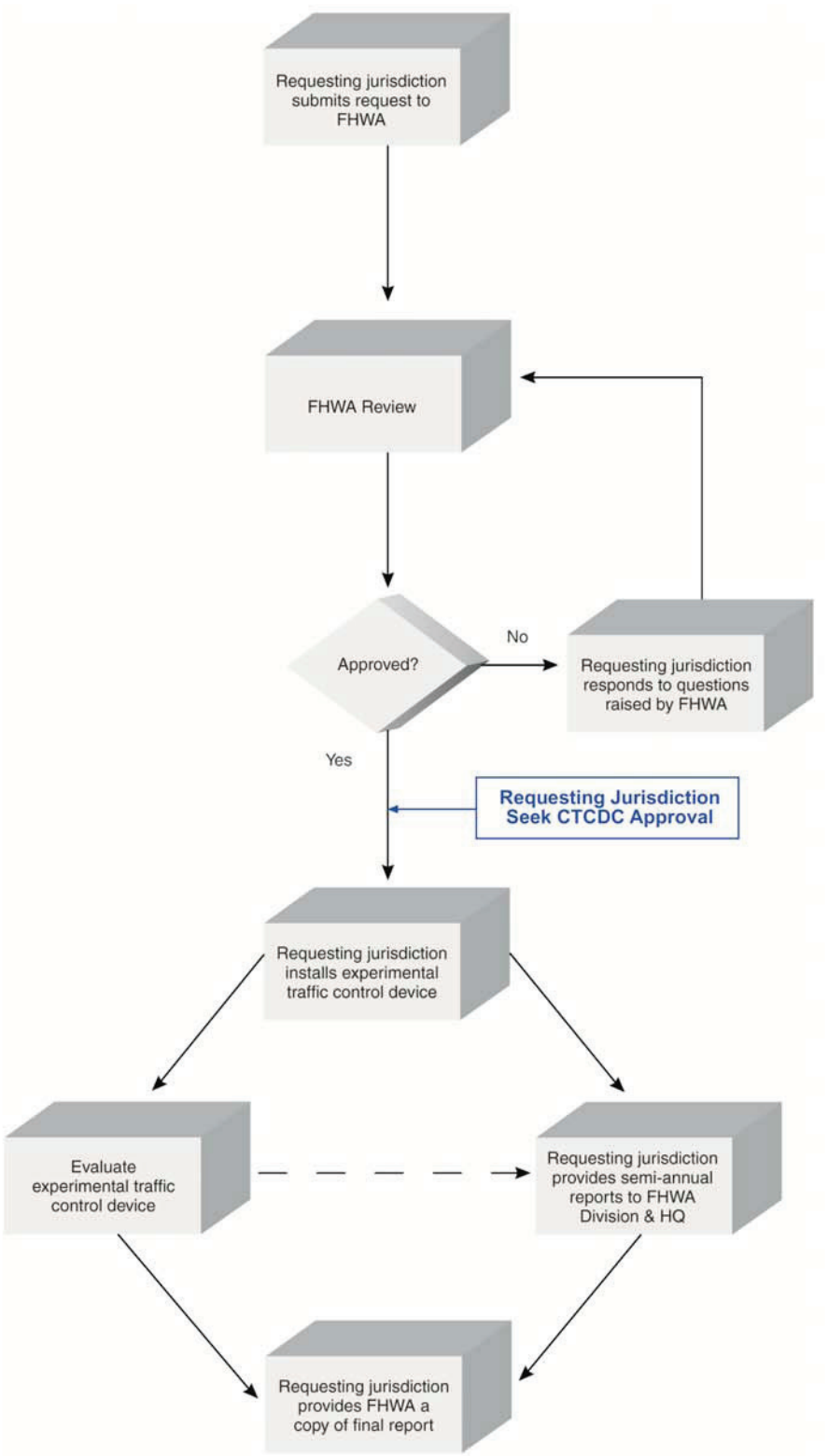


Figure 1A-1 (CA). Example for Requesting and Conducting Experimentations for New Traffic Control Devices in California

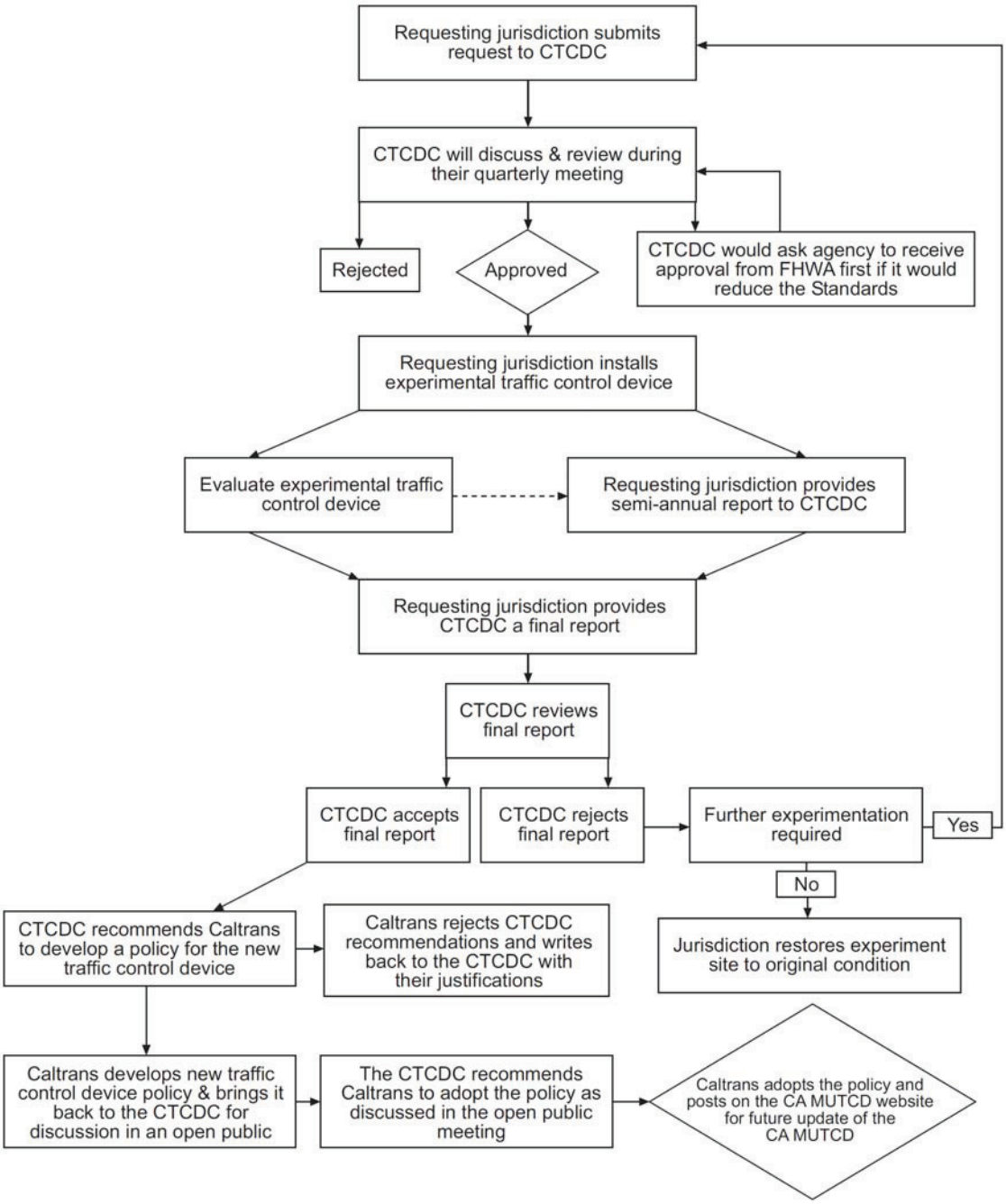


Figure 1A-2. Example of Process for Incorporating New Traffic Control Devices into the MUTCD

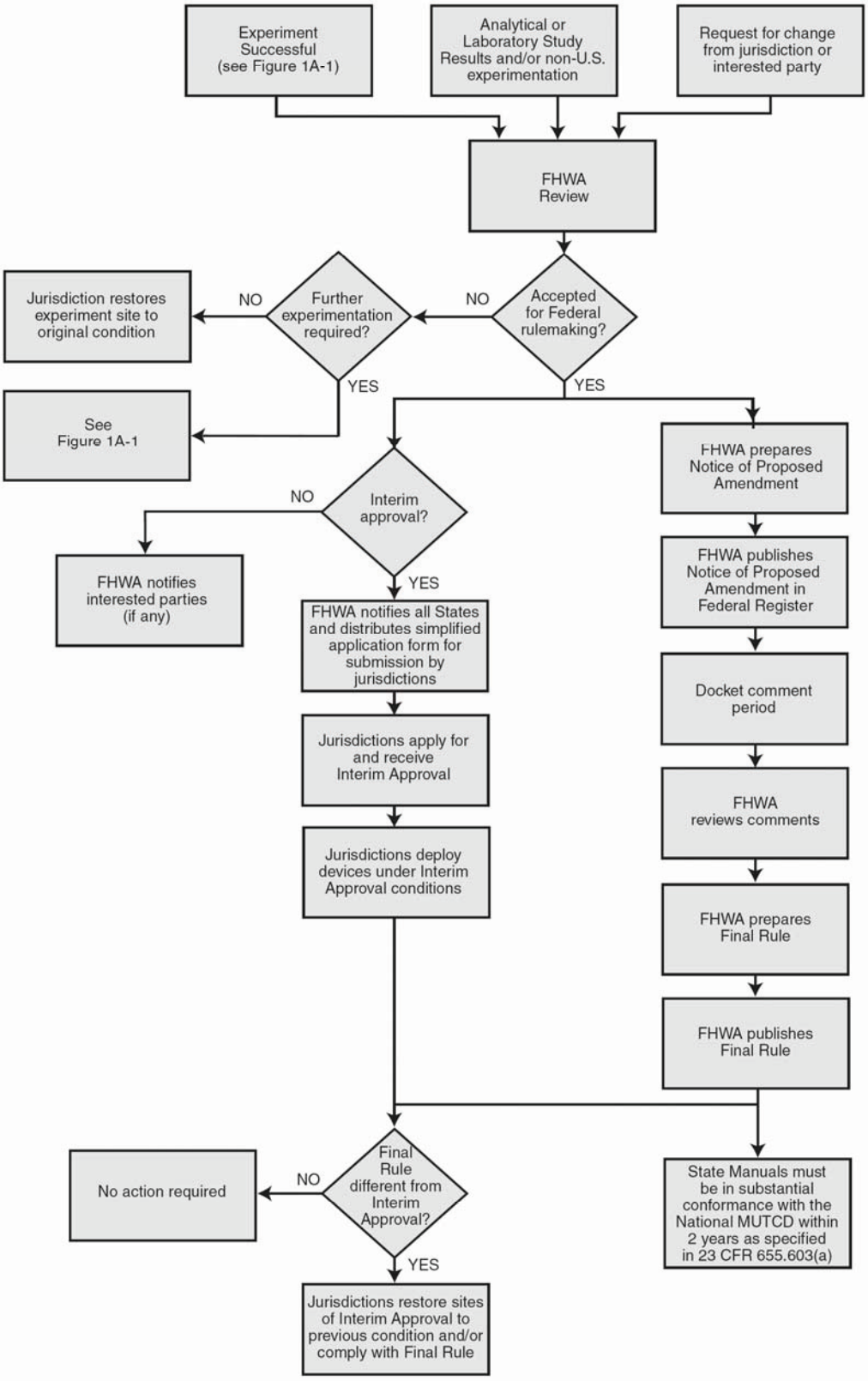
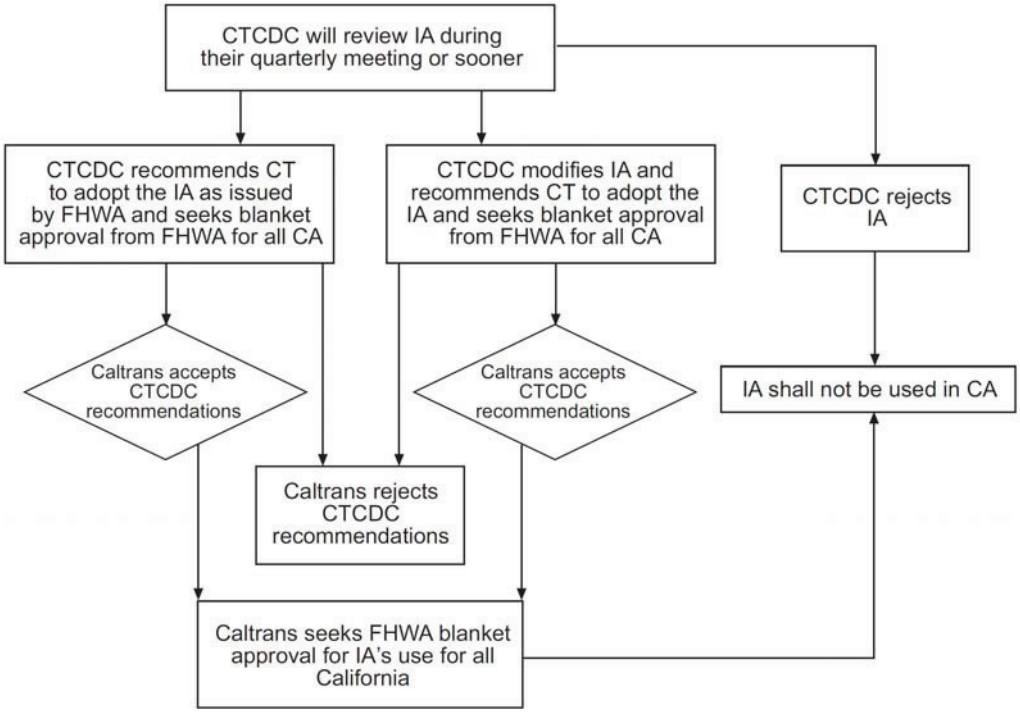


Figure 1A-2 (CA). Example for Process for the Use of Traffic Control Devices in California Approved as Interim Approval (IA) by FHWA



(This space left intentionally blank)

Table 1A-1. Acceptable Abbreviations

Word Message	Standard Abbreviation
Afternoon / Evening	PM
Alternate	ALT
Avenue	AVE, AV
Bicycle	BIKE
Boulevard	BLVD
Cannot	CANT
CB Radio	CB
Center	CNTR
Circle	CIR
Civil Defense	CD
Compressed Natural Gas	CNG
Court	CT
Crossing (other than highway-rail)	XING
Diesel Fuel	D
Do Not	DONT
Drive	DR
East	E
Eastbound	E-BND
Electric Vehicle	EV
Emergency	EMER
Entrance, Enter	ENT
Expressway	EXPWY
Feet	FT
FM Radio	FM
Freeway	FRWY, FWY
Friday	FRI
Hazardous Material	HAZMAT
High Occupancy Vehicle	HOV
Highway	HWY
Highway-Rail Grade Crossing Pavement Marking	RXR
Hospital	H
Hour(s)	HR
Information	INFO
Inherently Low Emission Vehicle	ILEV
It Is	ITS
Junction / Intersection	JCT
Kilogram	kg
Kilometer(s)	km
Kilometers Per Hour	km/h
Lane	LN
Left	LFT
Liquid Propane Gas	LP-GAS

Word Message	Standard Abbreviation
Maintenance	MAINT
Meter(s)	m
Metric Ton	t
Mile(s)	MI
Miles Per Hour	MPH
Minute(s)	MIN
Monday	MON
Morning / Late Night	AM
Normal	NORM
North	N
Northbound	N-BND
Parking	PKING
Parkway	PKWY
Pedestrian	PED
Place	PL
Pounds	LBS
Right	RHT
Road	RD
Saturday	SAT
Service	SERV
Shoulder	SHLDR
Slippery	SLIP
South	S
Southbound	S-BND
Speed	SPD
Street	ST
Sunday	SUN
Telephone	PHONE
Temporary	TEMP
Terrace	TER
Thursday	THURS
Tires With Lugs	LUGS
Tons of Weight	T
Traffic	TRAF
Trail	TR
Travelers	TRAVLRS
Tuesday	TUES
Two-Way Intersection	2-WAY
Two-Wheeled Vehicles	CYCLES
US Numbered Route	US
Vehicle(s)	VEH
Warning	WARN
Wednesday	WED
West	W
Westbound	W-BND
Will Not	WONT

Table 1A-2. Abbreviations That Are Acceptable Only with a Prompt Word

Word	Abbreviation	Prompt Word
Access	ACCS	Road
Ahead	AHD	Fog*
Blocked	BLKD	Lane*
Bridge	BRDG	[Name]*
Chemical	CHEM	Spill
Condition	COND	Traffic*
Congested	CONG	Traffic*
Construction	CONST	Ahead
Downtown	DWNTN	Traffic
Exit	EX, EXT	Next*
Express	EXP	Lane
Frontage	FRNTG	Road
Hazardous	HAZ	Driving
Interstate	I	[Number]
Local	LOC	Traffic
Lower	LWR	Level
Major	MAJ	Accident
Minor	MNR	Accident
Oversized	OVRSZ	Load
Prepare	PREP	To Stop
Pavement	PVMT	Wet*
Quality	QLTY	Air*
Roadwork	RDWK	Ahead [Distance]
Route	RT, RTE	Best*
Township	TWNSHP	Limits
Turnpike	TRNPK	[Name]*
Upper	UPR	Level

* These prompt words should precede the abbreviation

Table 1A-3. Unacceptable Abbreviations

Abbreviation	Intended Word	Common Misinterpretations
ACC	Accident	Access (Road)
CLRS	Clears	Colors
DLY	Delay	Daily
FDR	Feeder	Federal
L	Left	Lane (Merge)
LT	Light (Traffic)	Left
PARK	Parking	Park
POLL	Pollution (Index)	Poll
RED	Reduce	Red
STAD	Stadium	Standard
WRNG	Warning	Wrong

(This space left intentionally blank)

California
Manual on Uniform Traffic Control Devices
for Streets and Highways
**(FHWA's MUTCD 2003 Edition
including Revisions 1 and 2,
as amended for use in California)**

PART 6
Temporary Traffic Control



STATE OF CALIFORNIA
BUSINESS, TRANSPORTATION AND HOUSING AGENCY
DEPARTMENT OF TRANSPORTATION

(This page left intentionally blank)

PART 6. TEMPORARY TRAFFIC CONTROL

TABLE OF CONTENTS

		Page
CHAPTER 6A.	**GENERAL**	
Section 6A.01	General	6A-1
CHAPTER 6B.	**FUNDAMENTAL PRINCIPLES**	
Section 6B.01	Fundamental Principles of Temporary Traffic Control	6B-1
CHAPTER 6C.	**TEMPORARY TRAFFIC CONTROL ELEMENTS**	
Section 6C.01	Temporary Traffic Control Plans	6C-1
Section 6C.02	Temporary Traffic Control Zones	6C-3
Section 6C.03	Components of Temporary Traffic Control Zones	6C-3
Section 6C.04	Advance Warning Area	6C-4
Section 6C.05	Transition Area	6C-4
Section 6C.06	Activity Area	6C-4
Section 6C.07	Termination Area	6C-5
Section 6C.08	Tapers	6C-5
Section 6C.09	Detours and Diversions	6C-6
Section 6C.10	One-Lane, Two-Way Traffic Control	6C-7
Section 6C.11	Flagger Method of One-Lane, Two-Way Traffic Control	6C-7
Section 6C.12	Flag Transfer Method of One-Lane, Two-Way Traffic Control	6C-7
Section 6C.13	Pilot Car Method of One-Lane, Two-Way Traffic Control	6C-7
Section 6C.14	Temporary Traffic Control Signal Method of One-Lane, Two-Way Traffic Control	6C-8
Section 6C.15	Stop or Yield Control Method of One-Lane, Two-Way Traffic Control	6C-8
CHAPTER 6D.	**PEDESTRIAN AND WORKER SAFETY**	
Section 6D.01	Pedestrian Considerations	6D-1
Section 6D.02	Accessibility Considerations	6D-3
Section 6D.03	Worker Safety Considerations	6D-4
Section 6D.101(CA)	Bicycle Considerations	6D-6
CHAPTER 6E.	**FLAGGER CONTROL**	
Section 6E.01	Qualifications for Flaggers	6E-1
Section 6E.02	High-Visibility Safety Apparel	6E-1
Section 6E.03	Hand-Signaling Devices	6E-2
Section 6E.04	Flagger Procedures	6E-3
Section 6E.05	Flagger Stations	6E-4
CHAPTER 6F.	**TEMPORARY TRAFFIC CONTROL ZONE DEVICES**	
Section 6F.01	Types of Devices	6F-1

		Page
Section 6F.02	General Characteristics of Signs	6F-2
Section 6F.03	Sign Placement	6F-3
Section 6F.04	Sign Maintenance	6F-4
Section 6F.05	Regulatory Sign Authority	6F-4
Section 6F.06	Regulatory Sign Design	6F-4
Section 6F.07	Regulatory Sign Applications	6F-5
Section 6F.08	ROAD (STREET) CLOSED Sign (R11-2)	6F-5
Section 6F.09	Local Traffic Only Signs (R11-3a, R11-4)	6F-5
Section 6F.10	Weight Limit Signs (R12-1, R12-2, R12-5)	6F-5
Section 6F.11	STAY IN LANE Sign (R4-9)	6F-6
Section 6F.12	PEDESTRIAN CROSSWALK Sign (R9-8)	6F-6
Section 6F.13	SIDEWALK CLOSED Signs (R9-9, R9-10, R9-11, R9-11a)	6F-6
Section 6F.14	Special Regulatory Signs	6F-6
Section 6F.15	Warning Sign Function, Design and Application	6F-6
Section 6F.16	Position of Advance Warning Signs	6F-7
Section 6F.17	ROAD (STREET) WORK Sign (W20-1)	6F-8
Section 6F.18	DETOUR Sign (W20-2)	6F-9
Section 6F.19	RAOD (STREET) CLOSED Sign (W20-3)	6F-9
Section 6F.20	ONE LANE ROAD Sign (W20-4)	6F-9
Section 6F.21	Lane(s) Closed Signs (W20-5, W20-5a)	6F-9
Section 6F.22	CENTER LANE CLOSED AHEAD Signs (W9-3, W9-3a)	6F-9
Section 6F.23	THRU TRAFFIC MERGE LEFT (RIGHT) Sign (W4-7)	6F-10
Section 6F.24	Lane Ends Sign (W4-2)	6F-10
Section 6F.25	ON RAMP Plaque (W13-4)	6F-10
Section 6F.26	RAMP NARROWS Sign (W5-4)	6F-10
Section 6F.27	SLOW TRAFFIC AHEAD Sign (W23-1)	6F-10
Section 6F.28	EXIT OPEN, EXIT CLOSED, EXIT ONLY Signs (E5-2, E5-2a, E5-3)	6F-11
Section 6F.29	Flagger Sign (W20-7a, W20-7)	6F-11
Section 6F.30	Two-Way Traffic Sign (W6-3)	6F-12
Section 6F.31	Workers Sign (W21-1, W21-1a)	6F-12
Section 6F.32	FRESH OIL (TAR) Sign (W21-2)	6F-12
Section 6F.33	ROAD MACHINERY AHEAD Sign (W21-3)	6F-12
Section 6F.34	Motorized Traffic Signs (W8-6, W11-10)	6F-12
Section 6F.35	Shoulder Work Signs (W21-5, W21-5a, W21-5b)	6F-13
Section 6F.36	SURVEY CREW Sign (W21-6)	6F-13
Section 6F.37	UTILITY WORK Sign (W21-7).	6F-13
Section 6F.38	Signs for Blasting Areas	6F-13
Section 6F.39	BLASTING ZONE AHEAD Sign (W22-1)	6F-14
Section 6F.40	TURN OFF 2-WAY RADIO AND CELL PHONE Sign (W22-2)	6F-14
Section 6F.41	END BLASTING ZONE Sign (W22-3	6F-14
Section 6F.42	SHOULDER Signs (W8-4, W8-9, W8-9a).	6F-14
Section 6F.43	UNEVEN LANES Sign (W8-11)	6F-14
Section 6F.44	NO CENTER STRIPE Sign (W8-12)	6F-14
Section 6F.45	Double Reverse Curve Signs (W24 Series)	6F-15
Section 6F.46	Other Warning Signs	6F-15
Section 6F.47	Special Warning Signs	6F-15
Section 6F.48	Advisory Speed Plaque (W13-1)	6F-15

		Page
Section 6F.49	Supplementary Distance Plaque (W7-3a)	6F-15
Section 6F.50	Guide Signs	6F-16
Section 6F.51	ROAD WORK NEXT XX km (MILES) Sign (G20-1).	6F-16
Section 6F.52	END ROAD WORK Sign (G20-2)	6F-16
Section 6F.53	Detour Signs (M4-8, M4-8a, M4-8b, M4-9, M4-9a, M4-9b, M4-9c and M4-10)	6F-17
Section 6F.54	PILOT CAR FOLLOW ME Sign (G20-4)	6F-18
Section 6F.55	Portable Changeable Message Signs	6F-18
Section 6F.56	Arrow Panels	6F-20
Section 6F.57	High-Level Warning Devices (Flag Trees)	6F-22
Section 6F.58	Channelizing Devices	6F-22
Section 6F.59	Cones	6F-23
Section 6F.60	Tubular Markers	6F-24
Section 6F.61	Vertical Panels	6F-25
Section 6F.62	Drums	6F-25
Section 6F.63	Type I, II, or III Barricades	6F-26
Section 6F.64	Direction Indicator Barricades	6F-27
Section 6F.65	Temporary Traffic Barriers as Channelizing Devices	6F-28
Section 6F.66	Longitudinal Channelizing Barricades	6F-28
Section 6F.67	Other Channelizing Devices	6F-29
Section 6F.68	Detectable Edging for Pedestrians	6F-29
Section 6F.69	Temporary Raised Islands	6F-30
Section 6F.70	Opposing Traffic Lane Divider	6F-30
Section 6F.71	Pavement Markings	6F-30
Section 6F.72	Temporary Pavement Markings	6F-31
Section 6F.73	Raised Pavement Markers	6F-32
Section 6F.74	Delineators	6F-32
Section 6F.75	Lighting Devices	6F-33
Section 6F.76	Floodlights	6F-33
Section 6F.77	Flashing Warning Beacons	6F-34
Section 6F.78	Warning Lights	6F-34
Section 6F.79	Steady-Burn Electric Lamps	6F-35
Section 6F.80	Temporary Traffic Control Signals	6F-35
Section 6F.81	Temporary Traffic Barriers	6F-36
Section 6F.82	Crash Cushions	6F-37
Section 6F.83	Vehicle-Arresting Systems	6F-38
Section 6F.84	Rumble Strips	6F-38
Section 6F.85	Screens	6F-39
Section 6F.86	Future and Experimental Devices	6F-40
Section 6F.101(CA)	Channelizers (Permanent type, flexible post)	6F-40
Section 6F.102(CA)	LOOSE GRAVEL Sign (W8-7)	6F-40
Section 6F.103(CA)	NARROW LANE(S) Sign (C12(CA))	6F-41
Section 6F.104(CA)	Road Work/Speed Limit Sign (C17(CA)), WORK ZONE (G20-5aP) plaque and END WORK ZONE SPEED LIMIT (R2-12) sign	6F-41
Section 6F.105(CA)	OPEN TRENCH Sign (C27(CA))	6F-41
Section 6F.106(CA)	Traffic Fines Signs (C40(CA) and C40A(CA))	6F-42
Section 6F.107(CA)	Moving Lane Closure Signs (W23-1 and SC10(CA), SC11(CA), SC13(CA), SC15(CA))	6F-42
Section 6F.108(CA)	Object Markers	6F-43

		Page
Section 6F.109(CA)	Slow For The Cone Zone (SC19(CA) and SC20(CA)) Signs	6F-43
Section 6F.110(CA)	FRESH CONCRETE (C43(CA) Sign	6F-43
Section 6F.111(CA)	CAUTION FREQUENT STOPPING AND BACKING STAY BACK 100 FEET (SC21(CA)) Sign	6F-43
CHAPTER 6G.	**TYPE OF TEMPORARY TRAFFIC CONTROL ZONE ACTIVITIES**	
Section 6G.01	Typical Applications	6G-1
Section 6G.02	Work Duration	6G-1
Section 6G.03	Location of Work	6G-3
Section 6G.04	Modifications To Fulfill Special Needs	6G-3
Section 6G.05	Work Affecting Pedestrian and Bicycle Facilities	6G-4
Section 6G.06	Work Outside of Shoulder	6G-5
Section 6G.07	Work on the Shoulder with No Encroachment	6G-6
Section 6G.08	Work on the Shoulder with Minor Encroachment	6G-6
Section 6G.09	Work Within the Median	6G-7
Section 6G.10	Work Within the Traveled Way of Two-Lane Highways	6G-7
Section 6G.11	Work Within the Traveled Way of Urban Streets.	6G-7
Section 6G.12	Work Within the Traveled Way of Multi-Lane, Non-Access Controlled Highways	6G-8
Section 6G.13	Work Within the Traveled Way at an Intersection	6G-9
Section 6G.14	Work Within the Traveled Way of Expressways and Freeways	6G-11
Section 6G.15	Two-Lane, Two-Way Traffic on One Roadway of a Normally Divided Highway	6G-11
Section 6G.16	Crossovers	6G-12
Section 6G.17	Interchanges	6G-12
Section 6G.18	Movable Barriers	6G-12
Section 6G.19	Work in the Vicinity of Highway-Rail Grade Crossings	6G-12
Section 6G.20	Temporary Traffic Control During Nighttime Hours	6G-13
CHAPTER 6H.	**TYPICAL APPLICATIONS**	
Section 6H.01	Typical Applications	6H-1
CHAPTER 6I.	**CONTROL OF TRAFFIC THROUGH TRAFFIC INCIDENT MANAGEMENT AREAS**	
Section 6I.01	General	6I-1
Section 6I.02	Major Traffic Incidents	6I-2
Section 6I.03	Intermediate Traffic Incidents	6I-3
Section 6I.04	Minor Traffic Incidents	6I-3
Section 6I.05	Use of Emergency-Vehicle Lighting	6I-3

FIGURES

CHAPTER 6C.	**TEMPORARY TRAFFIC CONTROL ELEMENTS**	
Figure 6C-1	Component Parts of a Temporary Traffic Control Zone	6C-9
~~Figure 6C-2~~	~~Types of Tapers and Buffer Spaces~~	6C-10

		Page
Figure 6C-2 (CA)	Types of Tapers and Buffer Spaces	6C-11
Figure 6C-3	Example of a One-Lane, Two-Way Traffic Taper	6C-12
CHAPTER 6E.	**FLAGGER CONTROL**	
Figure 6E-1	Use of Hand-Signaling Devices by Flaggers	6E-5
CHAPTER 6F.	**TEMPORARY TRAFFIC CONTROL ZONE DEVICES**	
Figure 6F-1	Height and Lateral Location of Signs—Typical Installations	6F-44
Figure 6F-2	Methods of Mounting Signs Other Than on Posts	6F-45
Figure 6F-3	Regulatory Signs in Temporary Traffic Control Zones	6F-46
Figure 6F-4	Warning Signs in Temporary Traffic Control Zones	6F-48
Figure 6F-5	Exit Open and Closed and Detour Signs	6F-51
Figure 6F-6	Advance Warning Arrow Display Specifications	6F-52
Figure 6F-7	Channelizing Devices	6F-53
Figure 6F-101(CA)	California Temporary Traffic Control Signs	6F-55
Figure 6F-102(CA)	Channelizer	6F-56
Figure 6F-103(CA)	Examples of Object Markers in Temporary Traffic Control Zones	6F-57
CHAPTER 6H.	**TYPICAL APPLICATIONS**	
~~Figure 6H-1~~	~~Work Beyond the Shoulder (TA-1)~~	6H-7
Figure 6H-1 (CA)	Work Beyond the Shoulder (TA-1)	6H-8
Figure 6H-2	Blasting Zone (TA-2)	6H-10
Figure 6H-3	Work on Shoulders (TA-3)	6H-12
~~Figure 6H-4~~	~~Short Duration or Mobile Operation on Shoulder (TA-4)~~	6H-14
Figure 6H-4 (CA)	Short Duration or Mobile Operation on Shoulder (TA-4)	6H-15
~~Figure 6H-5~~	~~Shoulder Closure on Freeway (TA-5)~~	6H-17
Figure 6H-5 (CA)	Shoulder Closure on Freeway (TA-5)	6H-18
Figure 6H-6	Shoulder Work with Minor Encroachment (TA-6)	6H-20
~~Figure 6H-7~~	~~Road Closure with Diversion (TA-7)~~	6H-22
Figure 6H-7 (CA)	Road Closure with Diversion (TA-7)	6H-23
Figure 6H-8	Road Closure with Off-Site Detour (TA-8)	6H-25
Figure 6H-9	Overlapping Routes with Detour (TA-9)	6H-27
~~Figure 6H-10~~	~~Lane Closure on Two-Lane Road Using Flaggers (TA-10)~~	6H-29
Figure 6H-10 (CA)	Lane Closure on Two-Lane Road Using Flaggers (TA-10)	6H-30
Figure 6H-11	Lane Closure on Two-Lane Road with Low Traffic Volumes (TA-11)	6H-32
~~Figure 6H-12~~	~~Lane Closure on Two-Lane Road Using Traffic Control Signals (TA-12)~~	6H-34
Figure 6H-12 (CA)	Lane Closure on Two-Lane Road Using Traffic Control Signals (TA-12)	6H-35
~~Figure 6H-13~~	~~Temporary Road Closure (TA-13)~~	6H-37
Figure 6H-13 (CA)	Temporary Road Closure (TA-13)	6H-38
~~Figure 6H-14~~	~~Haul Road Crossing (TA-14)~~	6H-40
Figure 6H-14 (CA)	Haul Road Crossing (TA-14)	6H-41
Figure 6H-15	Work in Center of Road with Low Traffic Volumes (TA-15)	6H-43
Figure 6H-16	Surveying Along Centerline of Road with Low Traffic Volumes (TA-16)	6H-45
Figure 6H-17	Mobile Operations on Two-Lane Road (TA-17)	6H-47
Figure 6H-18	Lane Closure on Minor Street (TA-18)	6H-49

		Page
Figure 6H-19	Detour for One Travel Direction (TA-19)	6H-51
Figure 6H-20	Detour for Closed Street (TA-20)	6H-53
Figure 6H-21	Lane Closure on Near Side of Intersection (TA-21)	6H-55
Figure 6H-22	Right Lane Closure on Far Side of Intersection (TA-22)	6H-57
Figure 6H-23	Left Lane Closure on Far Side of Intersection (TA-23)	6H-59
Figure 6H-24	Half Road Closure on Far Side of Intersection (TA-24)	6H-61
Figure 6H-25	Multiple Lane Closures at Intersection (TA-25)	6H-63
Figure 6H-26	Closure in Center of Intersection (TA-26)	6H-65
Figure 6H-27	Closure at Side of Intersection (TA-27)	6H-67
Figure 6H-28	Sidewalk Detour or Diversion (TA-28)	6H-69
Figure 6H-29	Crosswalk Closures and Pedestrian Detours (TA-29)	6H-71
Figure 6H-30	Interior Lane Closure on Multi-lane Street (TA-30).	6H-73
~~Figure 6H-31~~	~~Lane Closure on Street with Uneven Directional Volumes (TA-31)~~	6H-75
Figure 6H-31 (CA)	Lane Closure on Street with Uneven Directional Volumes (TA-31)	6H-76
~~Figure 6H-32~~	~~Half Road Closure on Multi-Lane, High-Speed Highway (TA-32)~~	6H-78
Figure 6H-32 (CA)	Half Road Closure on Multi-Lane, High-Speed Highway (TA-32)	6H-79
~~Figure 6H-33~~	~~Stationary Lane Closure on Divided Highway (TA-33)~~	6H-81
Figure 6H-33(CA)	Stationary Lane Closure on Divided Highway (TA-33)	6H-82
Figure 6H-34	Lane Closure with Temporary Traffic Barrier (TA-34)	6H-84
Figure 6H-35	Mobile Operation on Multi-lane Road (TA-35)	6H-86
Figure 6H-36	Lane Shift on Freeway (TA-36)	6H-88
~~Figure 6H-37~~	~~Double Lane Closure on Freeway (TA-37).~~	6H-90
~~Figure 6H-38~~	~~Interior Lane Closure on Freeway (TA-38)~~	6H-92
Figure 6H-39	Median Crossover on Freeway (TA-39)	6H-94
Figure 6H-40	Median Crossover for Entrance Ramp (TA-40)	6H-96
Figure 6H-41	Median Crossover for Exit Ramp (TA-41)	6H-98
Figure 6H-42	Work in Vicinity of Exit Ramp (TA-42)	6H-100
Figure 6H-43	Partial Exit Ramp Closure (TA-43)	6H-102
Figure 6H-44	Work in Vicinity of Entrance Ramp (TA-44)	6H-104
Figure 6H-45	Movable Barriers (TA-45)	6H-106
Figure 6H-46	Work in Vicinity of Highway-Rail Grade Crossing (TA-46)	6H-108
CHAPTER 6I.	**CONTROL OF TRAFFIC THROUGH TRAFFIC INCIDENT MANAGEMENT AREAS**	
Figure 6I-1	Examples of Traffic Incident Management Area Signs	6I-4

TABLES

CHAPTER 6C.	**TEMPORARY TRAFFIC CONTROL ELEMENTS**	
Table 6C-1	Suggested Minimum Advance Warning Sign Spacing	6C-13
Table 6C-2	Stopping Sight Distance as a Function of Speed	6C-13
Table 6C-3	Taper Length Criteria for Temporary Traffic Control Zones	6C-14
Table 6C-4	Formulas for Determining Taper Lengths	6C-14
Table 6C-3(CA)	Taper Length Criteria for Temporary Traffic Control Zones for 3.6 m (12 ft) Offset Width	6C-15

Page

CHAPTER 6E. FLAGGER CONTROL

Table 6E-1 Stopping Sight Distance as a Function of Speed 6E-6
Table 6E-101(CA) Longitudinal Buffer Space on Downgrades 6E-7

CHAPTER 6F. TEMPORARY TRAFFIC CONTROL ZONE DEVICES

Table 6F-1 Sizes of Temporary Traffic Control Signs 6F-58
Table 6F-1(CA) Sizes of California Temporary Traffic Control Signs 6F-62
Table 6F-101(CA) California Temporary Traffic Control Signs 6F-64
Table 6F-102(CA) Maximum Spacing of Channelizing Devices 6F-66

CHAPTER 6H. TYPICAL APPLICATIONS

Table 6H-1 Index to Typical Applications. 6H-2
Table 6H-2 Meaning of Symbols on Typical Application Diagrams. 6H-4
Table 6H-3 Meaning of Letter Codes on Typical Application Diagrams. 6H-5
Table 6H-4 Formulas for Determining Taper Lengths. 6H-5

(This page left intentionally blank)

CHAPTER 6A. GENERAL

Section 6A.01 General

Support:

Whenever the acronym "TTC" is used in this Chapter, it refers to "temporary traffic control".

Standard:

The needs and control of all road users (motorists, bicyclists, and pedestrians within the highway, including persons with disabilities in accordance with the Americans with Disabilities Act of 1990 (ADA), Title II, Paragraph 35.130) through a TTC zone shall be an essential part of highway construction, utility work, maintenance operations, and the management of traffic incidents.

Support:

When the normal function of the roadway is suspended, TTC planning provides for continuity of the movement of motor vehicle, bicycle, and pedestrian traffic (including accessible passage); transit operations; and access (and accessibility) to property and utilities.

The primary function of TTC is to provide for the reasonably safe and efficient movement of road users through or around TTC zones while reasonably protecting workers, responders to traffic incidents, and equipment.

Of equal importance to the public traveling through the TTC zone is the safety of workers performing the many varied tasks within the work space. TTC zones present constantly changing conditions that are unexpected by the road user. This creates an even higher degree of vulnerability for the workers and incident management responders on or near the roadway (see Section 6D.03). At the same time, the TTC zone provides for the efficient completion of whatever activity interrupted the normal use of the roadway.

Consideration for road user safety, worker and responder safety, and the efficiency of road user flow is an integral element of every TTC zone, from planning through completion. A concurrent objective of the TTC is the efficient construction and maintenance of the highway and the efficient resolution of traffic incidents.

No one set of TTC devices can satisfy all conditions for a given project or incident. At the same time, defining details that would be adequate to cover all applications is not practical. Instead, Part 6 displays typical applications that depict common applications of TTC devices. The TTC selected for each situation depends on type of highway, road user conditions, duration of operation, physical constraints, and the nearness of the work space or incident management activity to road users.

Improved road user performance might be realized through a well-prepared public relations effort that covers the nature of the work, the time and duration of its execution, the anticipated effects upon road users, and possible alternate routes and modes of travel. Such programs have been found to result in a significant reduction in the number of road users traveling through the TTC zone, which reduces the possible number of conflicts.

Standard:

TTC plans and devices shall be the responsibility of the authority of a public body or official having jurisdiction for guiding road users. There shall be adequate statutory authority for the implementation and enforcement of needed road user regulations, parking controls, speed zoning, and the management of traffic incidents. Such statutes shall provide sufficient flexibility in the application of TTC to meet the needs of changing conditions in the TTC zone.

Support:

Temporary facilities, including reasonably safe pedestrian routes around work sites, are also covered by the accessibility requirements of the Americans with Disabilities Act of 1990 (ADA) (Public Law 101-336, 104 Stat. 327, July 26, 1990. 42 USC 12101-12213 (as amended)).

Guidance:

The TTC plan should start in the planning phase and continue through the design, construction, and restoration phases. The TTC plans and devices should follow the principles set forth in Part 6. The management of traffic incidents should follow the principles set forth in Chapter 6I.

Option:

TTC plans may deviate from the typical applications described in Chapter 6H to allow for conditions and requirements of a particular site or jurisdiction.

Support:

The criteria of Part 6 apply to both rural and urban areas. A rural highway is normally characterized by lower volumes, higher speeds, fewer turning conflicts, and less conflict with pedestrians. An urban street is typically characterized by relatively low speeds, wide ranges of road user volumes, narrower roadway lanes, frequent intersections and driveways, significant pedestrian activity, and more businesses and houses.

Per the provisions of the Construction Safety Orders in the California Code of Regulations (Title 8, Division 1, Chapter 4, Subchapter 4, Article 11, Sections 1598 and 1599), this Part of the California MUTCD is incorporated by reference as part of those regulations.

It is the responsibility of the Contractor or Organization performing work on, or adjacent to, a highway to install and maintain such devices which are necessary to provide passage for the traveling public (including pedestrians and bicyclists) through the work, as well as for the safeguard of workers.

Standard:

Before work begins, traffic control plans, when developed for handling traffic through a construction or maintenance project, shall be approved by the Engineer of the public agency or authority having jurisdiction over the highway.

Support:

The following references from the California Vehicle Code relate to TTC:

- Section 112 – Amber.
- Section 165 – Authorized Emergency Vehicle.
- Section 291 – Department of Transportation.
- Section 385 – Local Authorities.
- Section 21351.3 – Use of Metric System Designations.
- Section 21363 – Detour Signs.
- Section 21367 – Traffic Control: Highway Construction.
- Section 21466.5 – Light Impairing Driver's Vision.
- Section 22362 – Speed Limit Where Persons at Work.

(This space left intentionally blank)

CHAPTER 6B. FUNDAMENTAL PRINCIPLES

Section 6B.01 Fundamental Principles of Temporary Traffic Control

Support:

Whenever the acronym "TTC" is used in this Chapter, it refers to "temporary traffic control".

Standard:

The needs and control of all road users (motorists, bicyclists, and pedestrians within the highway, including persons with disabilities in accordance with the Americans with Disabilities Act of 1990 (ADA), Title II, Paragraph 35.130) through a TTC zone shall be an essential part of highway construction, utility work, maintenance operations, and the management of traffic incidents.

Support:

Construction, maintenance, utility, and incident zones can all benefit from TTC to compensate for the unexpected or unusual situations faced by road users. When planning for TTC in these zones, it can be assumed that it is appropriate for road users to exercise caution. Even though road users are assumed to be using caution, special care is still needed in applying TTC techniques.

Special plans preparation and coordination with transit, other highway agencies, law enforcement and other emergency units, utilities, schools, and railroad companies might be needed to reduce unexpected and unusual road user operation situations.

During TTC activities, commercial vehicles might need to follow a different route from passenger vehicles because of bridge, weight, clearance, or geometric restrictions. Also, vehicles carrying hazardous materials might need to follow a different route from other vehicles. The Hazardous Materials and National Network signs are included in Sections 2B.52 and 2B.53, respectively.

Experience has shown that following the fundamental principles of Part 6 will assist road users and help protect workers in the vicinity of TTC zones.

Guidance:

Road user and worker safety and accessibility in TTC zones should be an integral and high-priority element of every project from planning through design and construction. Similarly, maintenance and utility work should be planned and conducted with the safety and accessibility of all motorists, bicyclists, pedestrians (including those with disabilities), and workers being considered at all times. If the TTC zone includes a highway-rail grade crossing, early coordination with the railroad company should take place.

Support:

Formulating specific plans for TTC at traffic incidents is difficult because of the variety of situations that can arise.

Guidance:

General plans or guidelines should be developed to provide safety for motorists, bicyclists, pedestrians, workers, enforcement/emergency officials, and equipment, with the following factors being considered:

A. The basic safety principles governing the design of permanent roadways and roadsides should also govern the design of TTC zones. The goal should be to route road users through such zones using roadway geometrics, roadside features, and TTC devices as nearly as possible comparable to those for normal highway situations.

B. A TTC plan, in detail appropriate to the complexity of the work project or incident, should be prepared and understood by all responsible parties before the site is occupied.

Standard:

Any changes in the TTC plan ~~should~~ shall be approved by ~~an official knowledgeable (for example, trained and/or certified) in proper TTC practices~~ the Engineer of the public agency or authority having jurisdiction over the highway.

Guidance:

Road user movement should be inhibited as little as practical, based on the following considerations:

A. TTC at work and incident sites should be designed on the assumption that drivers will only reduce their speeds if they clearly perceive a need to do so (see Section 6C.01).

B. Frequent and abrupt changes in geometrics such as lane narrowing, dropped lanes, or main roadway transitions that require rapid maneuvers, should be avoided.

C. Provisions should be made for the reasonably safe operation of work, particularly on high-speed, high volume roadways.
D. Road users should be encouraged to use alternative routes that do not include TTC zones.
E. Bicyclists and pedestrians, including those with disabilities, should be provided with access and reasonably safe passage through the TTC zone.
F. Roadway occupancy should be scheduled during off-peak hours and, if necessary, night work should be considered.
G. Early coordination with officials having jurisdiction over the affected cross streets and providing emergency services should occur before roadway or ramp closings.

Motorists, bicyclists, and pedestrians should be guided in a clear and positive manner while approaching and traversing TTC zones and incident sites. The following principles should be applied:

A. Adequate warning, delineation, and channelization should be provided to assist in guiding road users in advance of and through the TTC zone or incident site by using proper pavement marking, signing, or other devices that are effective under varying conditions. Providing information that is in usable formats by pedestrians with visual disabilities should also be considered.
B. TTC devices inconsistent with intended travel paths through TTC zones should be removed or covered. However, in intermediate-term stationary, short-term, and mobile operations, where visible permanent devices are inconsistent with intended travel paths, devices that highlight or emphasize the appropriate path should be used. Providing traffic control devices that are accessible to and usable by pedestrians with disabilities should be considered.
C. Flagging procedures, when used, should provide positive guidance to road users traversing the TTC zone.

To provide acceptable levels of operations, routine day and night inspections of TTC elements should be performed as follows:

A. Individuals who are knowledgeable (for example, trained and/or certified) in the principles of proper TTC should be assigned responsibility for safety in TTC zones. The most important duty of these individuals should be to check that all TTC devices of the project are reasonably consistent with the TTC plan and are effective in providing reasonably safe conditions for motorists, bicyclists, pedestrians, and workers.
B. As the work progresses, temporary traffic controls and/or working conditions should be modified in order to provide reasonably safe and efficient road user movement and to provide worker safety. The individual responsible for TTC should have the authority to halt work until applicable or remedial safety measures are taken.
C. TTC zones should be carefully monitored under varying conditions of road user volumes, light, and weather to check that applicable TTC devices are effective, clearly visible, clean, and in compliance with the TTC plan.
D. When warranted, an engineering study should be made (in cooperation with law enforcement officials) of reported crashes occurring within the TTC zone. Crash records in TTC zones should be monitored to identify the need for changes in the TTC zone.

Attention should be given to the maintenance of roadside safety during the life of the TTC zone by applying the following principles:

A. To accommodate run-off-the-road incidents, disabled vehicles, or emergency situations, unencumbered roadside recovery areas or clear zones should be provided where practical.
B. Channelization of road users should be accomplished by the use of pavement markings, signing, and crashworthy, detectable channelizing devices.
C. Work equipment, workers' private vehicles, materials, and debris should be stored in such a manner to reduce the probability of being impacted by run-off-the-road vehicles.

Each person whose actions affect TTC zone safety, from the upper-level management through the field workers, should receive training appropriate to the job decisions each individual is required to make. Only those individuals who are trained in proper TTC practices and have a basic understanding of the principles (established by applicable standards and guidelines, including those of this Manual) should supervise the selection, placement, and maintenance of TTC devices used for TTC zones and for incident management.

Good public relations should be maintained by applying the following principles:

A. The needs of all road users should be assessed such that appropriate advance notice is given and clearly defined alternative paths are provided.

B. The cooperation of the various news media should be sought in publicizing the existence of and reasons for TTC zones because news releases can assist in keeping the road users well informed.

C. The needs of abutting property owners, residents, and businesses should be assessed and appropriate accommodations made.

D. The needs of emergency service providers (law enforcement, fire, and medical) should be assessed and appropriate coordination and accommodations made.

E. The needs of railroads and transit should be assessed and appropriate coordination and accommodations made.

F. The needs of operators of commercial vehicles such as buses and large trucks should be assessed and appropriate accommodations made.

Standard:

Before any new detour or temporary route is opened to traffic, all necessary signs shall be in place. All TTC devices shall be removed as soon as practical when they are no longer needed. When work is suspended for short periods of time, TTC devices that are no longer appropriate shall be removed or covered.

Support:

Refer to Department of Transportation's Highway Design Manual Section 110.7 for Traffic Control Plans. See Section 1A.11 for information regarding this publication.

Standard:

On State highways, covers for TTC signs shall be of sufficient size and density to completely block out the message so that it is not visible either during the day or at night. Covers shall be fastened securely to prevent movement caused by wind action. Refer to Department of Transportation's Standard Specifications Section 12-3.06. See Section 1A.11 for information regarding this publication.

(This space left intentionally blank)

(This page left intentionally blank)

CHAPTER 6C. TEMPORARY TRAFFIC CONTROL ELEMENTS

Section 6C.01 Temporary Traffic Control Plans

Support:

Whenever the acronym "TTC" is used in this Chapter, it refers to "temporary traffic control".

Standard:

The needs and control of all road users (motorists, bicyclists, and pedestrians within the highway, including persons with disabilities in accordance with the Americans with Disabilities Act of 1990 (ADA), Title II, Paragraph 35.130) through a TTC zone shall be an essential part of highway construction, utility work, maintenance operations, and the management of traffic incidents.

Support:

A TTC plan describes TTC measures to be used for facilitating road users through a work zone or an incident area. TTC plans play a vital role in providing continuity of reasonably safe and efficient road user flow when a work zone, incident, or other event temporarily disrupts normal road user flow. Important auxiliary provisions that cannot conveniently be specified on project plans can easily be incorporated into Special Provisions within the TTC plan.

TTC plans range in scope from being very detailed to simply referencing typical drawings contained in this Manual, standard approved highway agency drawings and manuals, or specific drawings contained in the contract documents. The degree of detail in the TTC plan depends entirely on the nature and complexity of the situation.

Guidance:

TTC plans should be prepared by persons knowledgeable (for example, trained and/or certified) about the fundamental principles of TTC and work activities to be performed. The design, selection and placement of TTC devices for a TTC plan should be based on engineering judgment.

Coordination should be made between adjacent or overlapping projects to check that duplicate signing is not used and to check compatibility of traffic control between adjacent or overlapping projects.

Traffic control planning should be completed for all highway construction, utility work, maintenance operations, and incident management including minor maintenance and utility projects prior to occupying the TTC zone. Planning for all road users should be included in the process.

Provisions for effective continuity of accessible circulation paths for pedestrians should be incorporated into the TTC process. Where existing pedestrian routes are blocked or detoured, information should be provided about alternative routes that are usable by pedestrians with disabilities, particularly those who have visual disabilities. Access to temporary bus stops, reasonably safe travel across intersections with accessible pedestrian signals (see Section 4E.06), and other routing issues should be considered where temporary pedestrian routes are channelized. Barriers and channelizing devices that are detectable by people with visual disabilities should be provided.

Option:

Provisions may be incorporated into the project bid documents that enable contractors to develop an alternate TTC plan.

Modifications of TTC plans may be necessary because of changed conditions or a determination of better methods of safely and efficiently handling road users.

Guidance:

This alternate or modified plan should have the approval of the responsible highway agency prior to implementation.

Provisions for effective continuity of transit service should be incorporated into the TTC planning process because often public transit buses cannot efficiently be detoured in the same manner as other vehicles (particularly for short-term maintenance projects). Where applicable, the TTC plan should provide for features such as accessible temporary bus stops, pull-outs, and satisfactory waiting areas for transit patrons, including persons with disabilities, if applicable (see Section 10A.05 for additional light rail transit issues to consider for TTC).

Provisions for effective continuity of railroad service and acceptable access to abutting property owners and businesses should also be incorporated into the TTC planning process.

Reduced speed limits should be used only in the specific portion of the TTC zone where conditions or restrictive features are present. However, frequent changes in the speed limit should be avoided. A TTC plan should be designed so that vehicles can reasonably safely travel through the TTC zone with a speed limit reduction of no more than 16 km/h (10 mph).

A reduction of more than 16 km/h (10 mph) in the speed limit should be used only when required by restrictive features in the TTC zone. Where restrictive features justify a speed reduction of more than 16 km/h (10 mph), additional driver notification should be provided. The speed limit should be stepped down in advance of the location requiring the lowest speed, and additional TTC warning devices should be used.

Reduced speed zoning (lowering the regulatory speed limit) should be avoided as much as practical because drivers will reduce their speeds only if they clearly perceive a need to do so.

Standard:

The justification for the reduced speed limit shall be documented in writing, in satisfaction of the E&TS requirement.

Support:

Research has demonstrated that large reductions in the speed limit, such as a 50 km/h (30 mph) reduction, increase speed variance and the potential for crashes. Smaller reductions in the speed limit of up to 16 km/h (10 mph) cause smaller changes in speed variance and lessen the potential for increased crashes. A reduction in the regulatory speed limit of only up to 16 km/h (10 mph) from the normal speed limit has been shown to be more effective.

Support:

See Section 2B.13 for permanent Speed Limit and Speed Zone signs.

See Section 6F.104(CA) for Road Work/Speed Zone (C17(CA)) sign, WORK ZONE (G20-5aP) plaque and END WORK ZONE SPEED LIMIT (R2-12) sign.

Construction Speed Zones:

Construction speed zones are established on roads under construction where reduced speed is necessary to limit the risk of an accident to workers and the traveling public during all hours of the day and night. Refer to CVC Section 21367. Protection of workers during working hours is provided for under CVC Section 22362.

Guidance:

Construction speed zones should be avoided if traffic can be controlled by other means. Speed restrictions should be imposed on the public only when necessary for worker or public safety.

Standard:

Where traffic obstructions exist only during the hours of construction, the speed zone signs shall be covered during non-working hours.

Support:

CVC 22362 applies to "When Workers are Present" condition and signs need to be covered or removed when no work is in progress. As per CVC 21367, agency can "...regulate the movement of traffic...whenever the traffic would endanger the safety of workers or the work would interfere with or endanger the movement of traffic through the area." If obstructions would be present throughout the project duration the signs would not need to be covered or removed. This would also apply to situations where the construction work changes the highway configuration, curvature or elevation, making it necessary to post reduced speed limits.

Guidance:

The traveled way should be signed and delineated to communicate physical conditions to the motorists such as curvature, narrow roadways, detours, rough roads, dips or humps, etc.

Option:

The Advisory Speed (W13-1) plaque may be used in combination with various warning type signs to decrease speed at a particular location.

Guidance:

To preserve the effectiveness of the W13-1 plaque, it should not be used unless the condition to which it applies is immediate and will be experienced by all motorists.

Option:

Reduced speed limits in construction zones may be established by an engineering analysis, which may include a traffic and engineering survey.

Guidance:

Construction zone speed limits should be reduced in sequential stages and where overall reduction of 24 km/h (15 mph) or more is required. The first stage of the sequence should be a reduction of 16 km/h (10 mph) and the final stage reduction should be 16 km/h (10 mph) or 8 km/h (5 mph), as necessary.

Standard:

The reduced speed limit shall not be less than 40km/h (25 mph). Refer to CVC 22362.

Option:

As an example, if the project falls within an established 90 km/h (55 mph) zone, and a 65 km/h (40 mph) speed limit is considered necessary, it may be posted only if the approaching speed limits are lowered in two stages (i.e., first to a 70 km/h (45 mph) speed limit followed by a reduction to the desired 65 km/h (40 mph).

Guidance:

Speed Limit and End Zone signs should be installed at locations jointly agreed upon by the Traffic Engineer and the Construction Engineer.

Support:

Orders for construction speed zones are ordinarily issued for the entire length of the construction project. This avoids the necessity and resulting delay of obtaining a new order each time the speed restriction signs require relocation to fit the conditions. It is not the intention, however, that the entire length be posted for the duration of the contract.

Standard:

Speed restriction signs shall be posted only in areas where the traveling public is affected by construction operations.

Guidance:

As the construction progresses, signs should be moved as appropriate.

Standard:

Signs shall be used only during working hours and removed, or covered during non-working hours unless the movement of traffic through the TTC zone is affected during non-working hours as well. Refer to CVC 21367.

Signs shall be removed immediately following completion of the construction or change in the conditions for which they were installed. When the construction is completed or the speed restriction is no longer necessary, the formal speed zone orders shall be revoked.

Section 6C.02 Temporary Traffic Control Zones

Support:

A TTC zone is an area of a highway where road user conditions are changed because of a work zone or an incident through the use of TTC devices, uniformed law enforcement officers, or other authorized personnel.

A work zone is an area of a highway with construction, maintenance, or utility work activities. A work zone is typically marked by signs, channelizing devices, barriers, pavement markings, and/or work vehicles. It extends from the first warning sign or high-intensity rotating, flashing, oscillating, or strobe lights on a vehicle to the END ROAD WORK sign or the last TTC device.

An incident area is an area of a highway where temporary traffic controls are imposed by authorized officials in response to a traffic incident, natural disaster, or special event. It extends from the first warning device (such as a sign, light, or cone) to the last TTC device or to a point where road users return to the original lane alignment and are clear of the incident.

Section 6C.03 Components of Temporary Traffic Control Zones

Support:

Most TTC zones are divided into four areas: the advance warning area, the transition area, the activity area, and the termination area. Figure 6C-1 illustrates these four areas. These four areas are described in Sections 6C.04 through 6C.07.

Section 6C.04 Advance Warning Area

Support:

The advance warning area is the section of highway where road users are informed about the upcoming work zone or incident area.

Option:

The advance warning area may vary from a single sign or high-intensity rotating, flashing, oscillating, or strobe lights on a vehicle to a series of signs in advance of the TTC zone activity area.

Guidance:

Typical distances for placement of advance warning signs on freeways and expressways should be longer because drivers are conditioned to uninterrupted flow. Therefore, the advance warning sign placement should extend on these facilities as far as 800 m (0.5 mi) or more.

On urban streets, the effective placement of the first warning sign in meters (feet) should range from 0.75 to 1.5 times the speed limit in km/h (4 to 8 times the speed limit in mph), with the high end of the range being used when speeds are relatively high. When a single advance warning sign is used (in cases such as low-speed residential streets), the advance warning area can be as short as 30 m (100 ft). When two or more advance warning signs are used on higher-speed streets, such as major arterials, the advance warning area should extend a greater distance (see Table 6C-1).

Since rural highways are normally characterized by higher speeds, the effective placement of the first warning sign in meters (feet) should be substantially longer—from 1.5 to 2.25 times the speed limit in km/h (8 to 12 times the speed limit in mph). Since two or more advance warning signs are normally used for these conditions, the advance warning area should extend 450 m (1,500 ft) or more for open highway conditions (see Table 6C-1).

Option:

Advance warning may be eliminated when the activity area is ~~sufficiently removed from the road users' path~~ behind a barrier, more than 600 mm (24 in) behind the curb, or 4.6 m (15 ft) or more from the edge of any roadway so that it does not interfere with the normal flow.

Section 6C.05 Transition Area

Support:

The transition area is that section of highway where road users are redirected out of their normal path. Transition areas usually involve strategic use of tapers, which because of their importance are discussed separately in detail.

Standard:

When redirection of the road users' normal path is required, they shall be channelized from the normal path to a new path.

Support:

In mobile operations, the transition area moves with the work space.

Section 6C.06 Activity Area

Support:

The activity area is the section of the highway where the work activity takes place. It is comprised of the work space, the traffic space, and the buffer space.

The work space is that portion of the highway closed to road users and set aside for workers, equipment, and material, and a shadow vehicle if one is used upstream. Work spaces are usually delineated for road users by channelizing devices or, to exclude vehicles and pedestrians, by temporary barriers.

Option:

The work space may be stationary or may move as work progresses.

Guidance:

Since there might be several work spaces (some even separated by several kilometers or miles) within the project limits, each work space should be adequately signed to inform road users and reduce confusion.

Support:

The traffic space is the portion of the highway in which road users are routed through the activity area.

The buffer space is a lateral and/or longitudinal area that separates road user flow from the work space or an unsafe area, and might provide some recovery space for an errant vehicle.

Guidance:

Neither work activity nor storage of equipment, vehicles, or material should occur within a buffer space.

Option:

Buffer spaces may be positioned either longitudinally or laterally with respect to the direction of road user flow. The activity area may contain one or more lateral or longitudinal buffer spaces.

A longitudinal buffer space may be placed in advance of a work space.

The longitudinal buffer space ~~may also~~ should be used to separate opposing road user flows that use portions of the same traffic lane, as shown in Figure ~~6C-2~~ 6C-2(CA).

If a longitudinal buffer space is used, the values shown in Table 6C-2 may be used to determine the length of the longitudinal buffer space.

Support:

Typically, the buffer space is formed as a traffic island and defined by channelizing devices.

When a shadow vehicle, arrow panel, or changeable message sign is placed in a closed lane in advance of a work space, only the area upstream of the vehicle, arrow panel, or changeable message sign constitutes the buffer space.

Option:

The lateral buffer space may be used to separate the traffic space from the work space, as shown in Figures 6C-1 and ~~6C-2~~ 6C-2(CA), or such areas as excavations or pavement-edge drop-offs. A lateral buffer space also may be used between two travel lanes, especially those carrying opposing flows.

Guidance:

The width of a lateral buffer space should be determined by engineering judgment.

Option:

When work occurs on a high-volume, highly congested facility, a vehicle storage or staging space may be provided for incident response and emergency vehicles (for example, tow trucks and fire apparatus) so that these vehicles can respond quickly to road user incidents.

Guidance:

If used, an incident response and emergency-vehicle storage area should not extend into any portion of the buffer space.

Section 6C.07 Termination Area

Standard:

The termination area shall be used to return road users to their normal path. The termination area shall extend from the downstream end of the work area to the last TTC device such as END ROAD WORK signs, if posted.

Option:

An END ROAD WORK sign, a Speed Limit sign, or other signs may be used to inform road users that they can resume normal operations.

A longitudinal buffer space may be used between the work space and the beginning of the downstream taper.

Section 6C.08 Tapers

Option:

Tapers may be used in both the transition and termination areas. Whenever tapers are to be used in close proximity to an interchange ramp, crossroads, curves, or other influencing factors, the length of the tapers may be adjusted.

Support:

Tapers are created by using a series of channelizing devices and/or pavement markings to move traffic out of or into the normal path. Types of tapers are shown in Figure ~~6C-2~~ 6C-2(CA).

Longer tapers are not necessarily better than shorter tapers (particularly in urban areas with characteristics such as short block lengths or driveways) because extended tapers tend to encourage sluggish

operation and to encourage drivers to delay lane changes unnecessarily. The test concerning adequate lengths of tapers involves observation of driver performance after TTC plans are put into effect.

Guidance:

The appropriate taper length (L) should be determined using the criteria shown in Tables 6C-3, ~~and~~ 6C-4 or 6C-3(CA).

The maximum distance in meters (feet) between devices in a taper should not exceed 0.2 times the speed limit in km/h (1.0 times the speed limit in mph).

Support:

A merging taper requires the longest distance because drivers are required to merge into common road space.

Guidance:

A merging taper should be long enough to enable merging drivers to have adequate advance warning and sufficient length to adjust their speeds and merge into a single lane before the end of the transition.

Support:

A shifting taper is used when a lateral shift is needed. When more space is available, a longer than minimum taper distance can be beneficial. Changes in alignment can also be accomplished by using horizontal curves designed for normal highway speeds.

Guidance:

A shifting taper should have a length of approximately 0.5 L (see Tables 6C-3, ~~and~~ 6C-4 or 6C-3(CA)).

Support:

A shoulder taper may be beneficial on a high-speed roadway where shoulders are part of the activity area and are closed, or when improved shoulders might be mistaken as a driving lane. In these instances, the same type, but abbreviated, closure procedures used on a normal portion of the roadway can be used.

Guidance:

If used, shoulder tapers should have a length of approximately 0.33 L (see Tables 6C-3, ~~and~~ 6C-4 or 6C-3(CA).). If a shoulder is used as a travel lane, either through practice or during a TTC activity, a normal merging or shifting taper should be used.

Option:

A downstream taper may be useful in termination areas to provide a visual cue to the driver that access is available back into the original lane or path that was closed.

Guidance:

When used, a downstream taper should have a length of approximately 30 m (100 ft) per lane with devices placed at a spacing of approximately 6.1 m (20 ft).

Support:

The one-lane, two-way taper is used in advance of an activity area that occupies part of a two-way roadway in such a way that a portion of the road is used alternately by traffic in each direction.

Guidance:

Traffic should be controlled by a flagger or temporary traffic control signal (if sight distance is limited), or a STOP or YIELD sign. A short taper having a maximum length of 30 m (100 ft) with channelizing devices at approximately 6.1 m (20 ft) spacings should be used to guide traffic into the one-way section.

Support:

An example of a one-lane, two-way traffic taper is shown in Figure 6C-3.

Standard:

On State highways, Department of Transportation's Standard Plans for Traffic Control Systems (Standard Plans T10 through T17) shall be used. See Section 1A.11 for information regarding this publication.

Section 6C.09 Detours and Diversions

Support:

A detour is a temporary rerouting of road users onto an existing highway in order to avoid a TTC zone.

Guidance:

Detours should be clearly signed over their entire length so that road users can easily use existing highways to return to the original highway.

Support:

A diversion is a temporary rerouting of road users onto a temporary highway or alignment placed around the work area.

Standard:

The detour route shall be evaluated for height, weight, and size restrictions. Appropriate signs shall be posted along the route to advise motorists of any restrictions. Refer to CVC 21363 for detour signs.

Option:

Advance signs may be necessary to give trucks an opportunity to turn around and retrace their path or select another route.

Section 6C.10 One-Lane, Two-Way Traffic Control

Standard:

When traffic in both directions must use a single lane for a limited distance, movements from each end shall be coordinated.

Guidance:

Provisions should be made for alternate one-way movement through the constricted section via methods such as flagger control, a flag transfer, a pilot car, traffic control signals, or stop or yield control.

Control points at each end should be chosen to permit easy passing of opposing lanes of vehicles.

If traffic on the affected one-lane roadway is not visible from one end to the other, then flagging procedures, a pilot car with a flagger used as described in Section 6F.54, or a traffic control signal should be used to control opposing traffic flows.

Support:

At a spot constriction, such as an isolated pavement patch on highways with lower speeds and adequate sight distance, the movement of traffic through one-lane, two-way constrictions tends to be self-regulating.

Section 6C.11 Flagger Method of One-Lane, Two-Way Traffic Control

Option:

When a one-lane, two-way TTC zone is short enough to allow a flagger to see from one end of the zone to the other, traffic may be controlled by either a single flagger or by a flagger at each end of the section.

Guidance:

When a single flagger is used, the flagger should be stationed on the shoulder opposite the constriction or work space, or in a position where good visibility and traffic control can be maintained at all times. When good visibility and traffic control cannot be maintained by one flagger station, traffic should be controlled by a flagger at each end of the section. One of the flaggers should be designated as the coordinator. Flaggers should be able to communicate with each other orally, electronically, or with manual signals. These manual signals should not be mistaken for flagging signals.

Section 6C.12 Flag Transfer Method of One-Lane, Two-Way Traffic Control

Support:

The driver of the last vehicle proceeding into the one-lane section is given a red flag (or other token) and instructed to deliver it to the flagger at the other end. The opposite flagger, upon receipt of the flag, then knows that it is reasonably safe to allow traffic to move in the other direction. A variation of this method is to replace the use of a flag with an official pilot car that always follows the last road user vehicle proceeding through the section.

Guidance:

The flag transfer method should be employed only where the one-way traffic is confined to a relatively short length of a road, usually not more than 1.6 km (1 mi) in length.

Section 6C.13 Pilot Car Method of One-Lane, Two-Way Traffic Control

Option:

A pilot car may be used to guide a queue of vehicles through the TTC zone or detour.

Guidance:

The operation of the pilot vehicle should be coordinated with flagging operations or other controls at each end of the one-lane section. The pilot car should have the name of the contractor or contracting authority prominently displayed.

Standard:

The PILOT CAR FOLLOW ME (G20-4) sign (see Figure 6F-4, Sheet 4 of 4) shall be mounted at a conspicuous location on the rear of the vehicle.

Option:

Two or more pilot cars may be used to guide two-way traffic through a particularly complex detour.

Section 6C.14 Temporary Traffic Control Signal Method of One-Lane, Two-Way Traffic Control

Option:

Traffic control signals may be used to control vehicular traffic movements in one-lane, two-way TTC zones (see Figure ~~6H-12~~ 6H-12(CA) and Chapter 4G).

Section 6C.15 Stop or Yield Control Method of One-Lane, Two-Way Traffic Control

Option:

STOP or YIELD signs may be used to control traffic on low-volume roads at a one-lane, two-way TTC zone when drivers are able to see the other end of the one-lane, two-way operation and have sufficient visibility of approaching vehicles.

Guidance:

If the STOP or YIELD sign is installed for only one direction, then the STOP or YIELD sign should face road users who are driving on the side of the roadway that is closed for the work activity area.

Standard:

The approach to the side that is not closed shall be visible (for a distance equal to the safe passing sight distance for that approach) to the driver who must yield or stop.

Support:

See Section 3B.02 and Figure 6H-11.

(This space left intentionally blank)

Figure 6C-1. Component Parts of a Temporary Traffic Control Zone

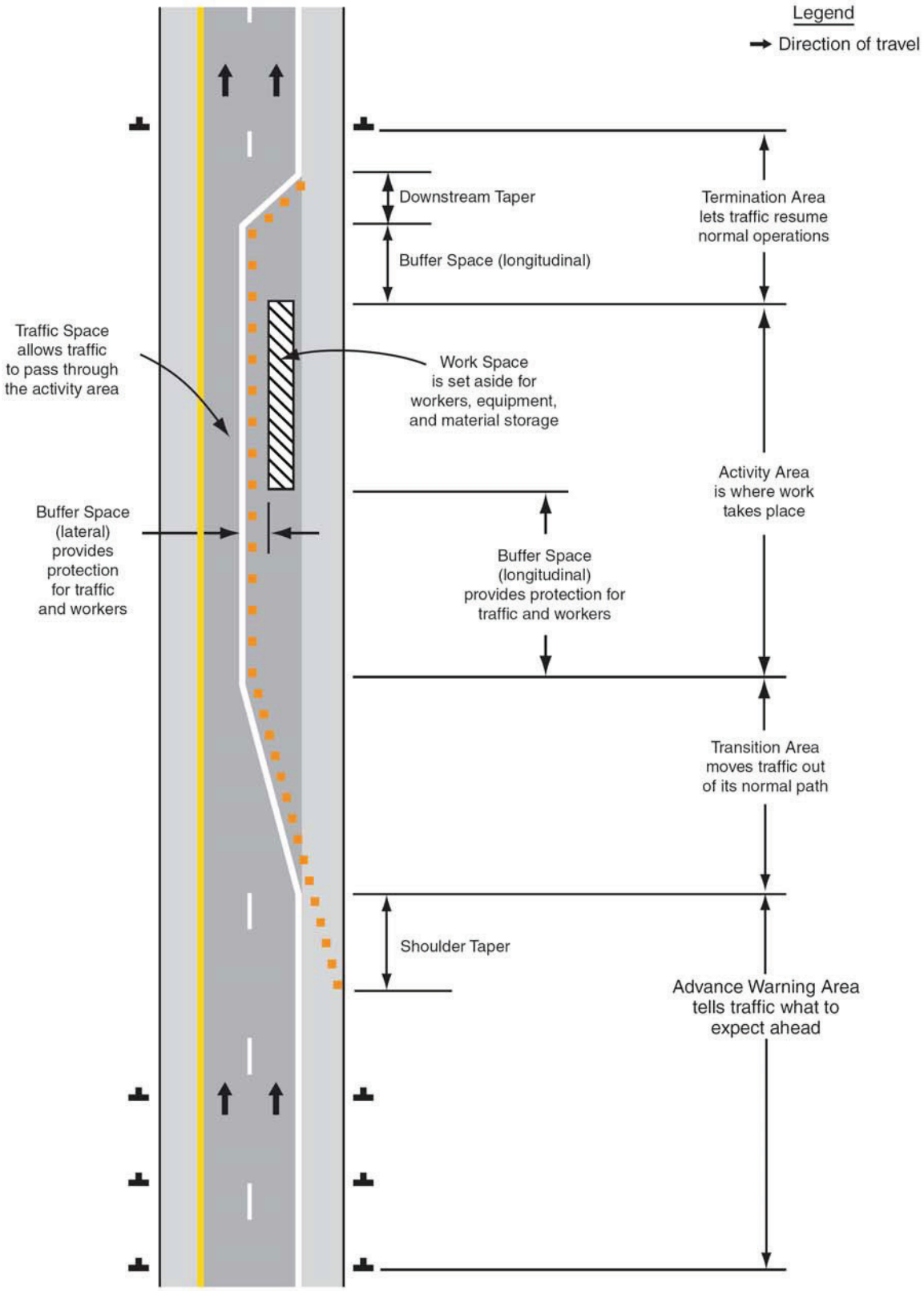


Figure 6C-2. Types of Tapers and Buffer Spaces

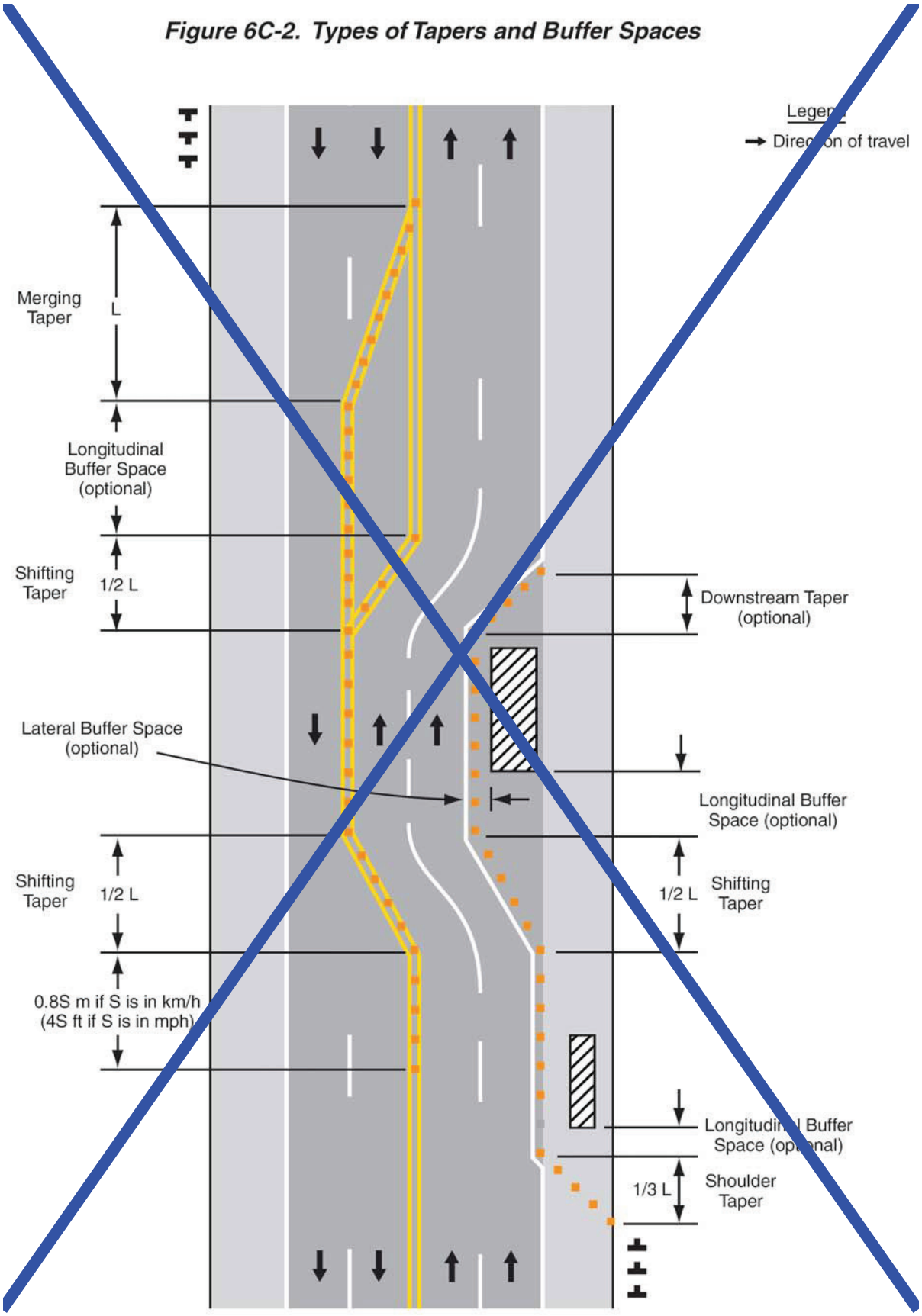


Figure 6C-2 (CA). Types of Tapers and Buffer Spaces

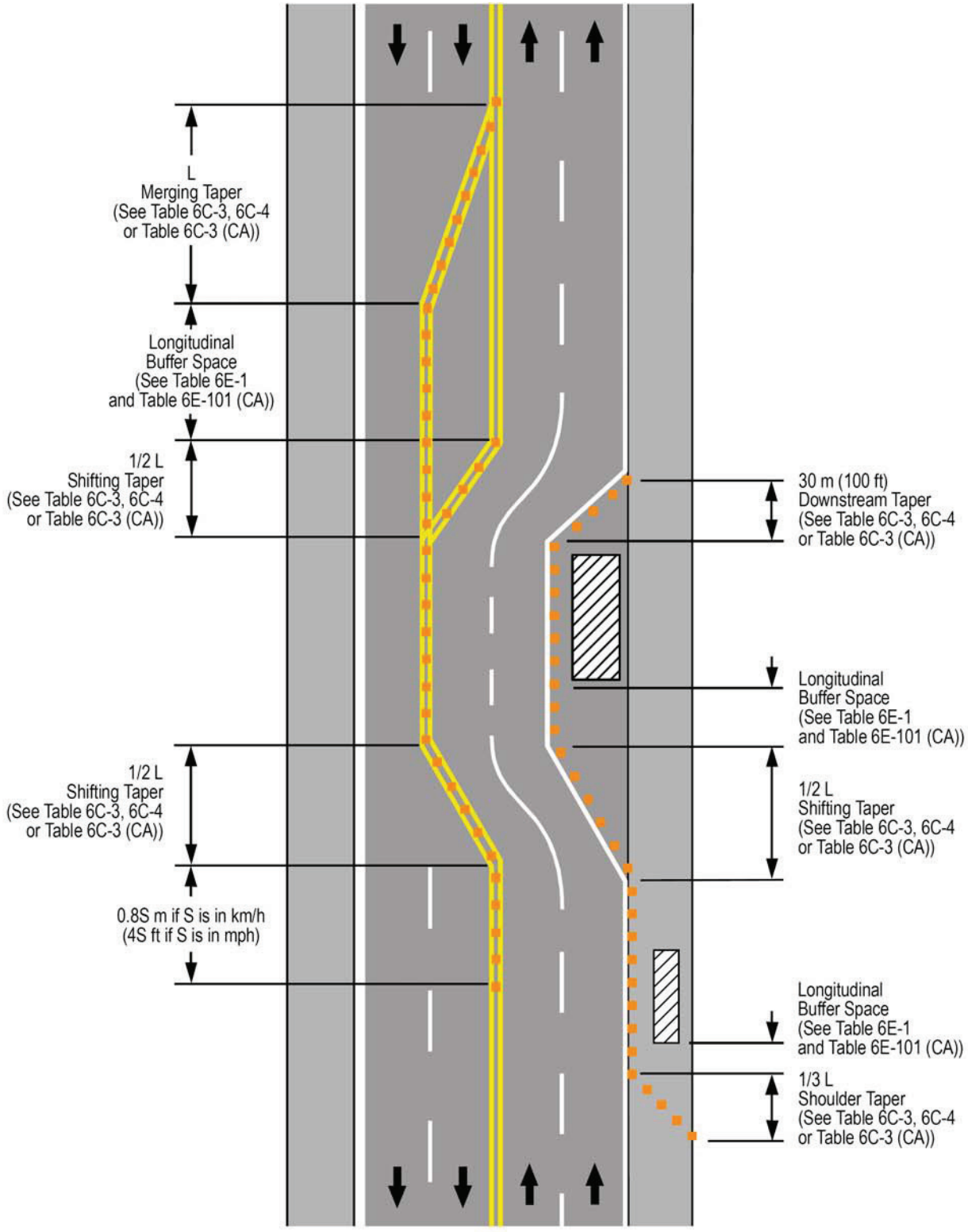


Figure 6C-3. Example of a One-Lane, Two-Way Traffic Taper

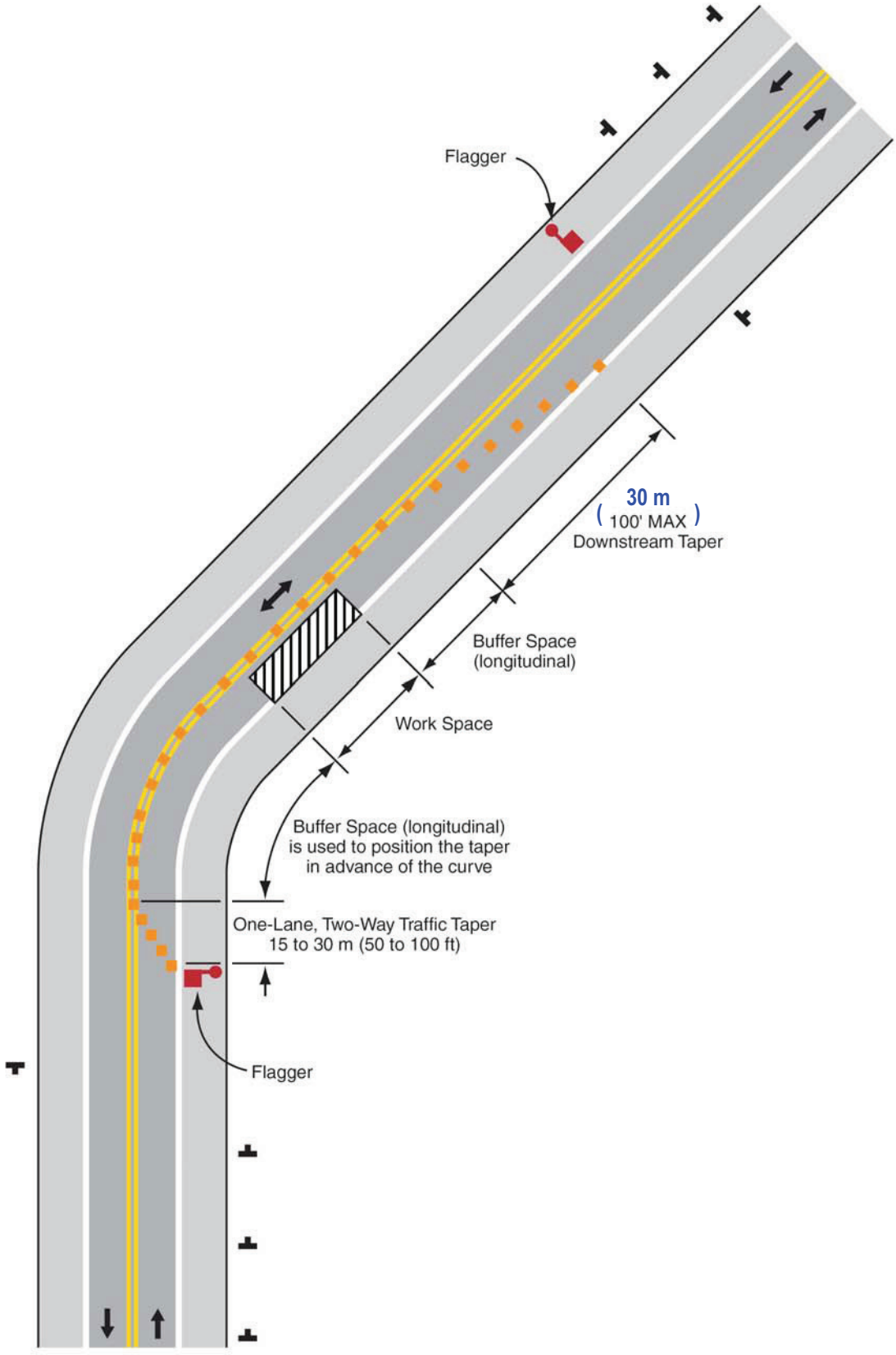


Table 6C-1. ~~Suggested Advance Warning Sign Spacing~~
Suggested Minimum Advance Warning Sign Spacing

Road Type	Distance Between Signs**		
	A	B	C
Urban (low speed)* 25 mph or less	30 (100)	30 (100)	30 (100)
Urban (high speed)* 30 mph or more	100 (350)	100 (350)	100 (350)
Rural	150 (500)	150 (500)	150 (500)
Expressway / Freeway	300 (1,000)	450 (1,500)	800 (2,640)

* Speed category to be determined by highway agency

** Distances are shown in meters (feet). The column headings A, B, and C are the dimensions shown in Figures 6H-1 through 6H-46. The A dimension is the distance from the transition or point of restriction to the first sign. The B dimension is the distance between the first and second signs. The C dimension is the distance between the second and third signs. (The third sign is the first one in a three-sign series encountered by a driver approaching a TTC zone.)

Table 6C-2. Stopping Sight Distance as a Function of Speed

Speed* (km/h)	Distance (m)
30	35
40	50
50	65
60	85
70	105
80	130
90	160
100	185
110	220
120	250

Speed* (mph)	Distance (ft)
20	115
25	155
30	200
35	250
40	305
45	360
50	425
55	495
60	570
65	645
70	730
75	820

* Posted speed, off-peak 85th-percentile speed prior to work starting, or the anticipated operating speed

Table 6C-3. Taper Length Criteria for Temporary Traffic Control Zones

Type of Taper	Taper Length (L)*
Merging Taper	at least L
Shifting Taper	at least 0.5L
Shoulder Taper	at least 0.33L
One-Lane, Two-Way Traffic Taper	30 m (100 ft) maximum
Downstream Taper	30 m (100 ft) per lane

Table 6C-4. Formulas for Determining Taper Lengths

Speed Limit (S)	Taper Length (L) Meters
60 km/h or less	$L = \frac{WS^2}{155}$
70 km/h or more	$L = \frac{WS}{1.6}$

Speed Limit (S)	Taper Length (L) Feet
40 mph or less	$L = \frac{WS^2}{60}$
45 mph or more	$L = WS$

Where: L = taper length in meters (feet)
W = width of offset in meters (feet)
S = posted speed limit, or off-peak 85th-percentile speed prior to work starting, or the anticipated operating speed in km/h (mph)

(This space left intentionally blank)

Table 6C-3(CA). Taper Length Criteria for Temporary Traffic Control Zones for 3.6 m (12 ft) Offset Width

Speed* S (km/h)	Minimum Taper Length** for Width of Offset 3.6 m (W)			
	Merging L (m)	Shifting L/2 (m)	Shoulder L/3 (m)	Down Stream (m)
30	21	10	7	30
40	37	19	12	30
50	58	29	19	30
60	84	42	28	30
70	158	79	53	30
80	180	90	60	30
90	203	101	68	30
100	225	113	75	30
110	248	124	83	30

Speed* S (mph)	Minimum Taper Length** for Width of Offset 12 ft (W)			
	Merging L (ft)	Shifting L/2 (ft)	Shoulder L/3 (ft)	Down Stream (ft)
20	80	40	27	100
25	125	63	42	100
30	180	90	60	100
35	245	123	82	100
40	320	160	107	100
45	540	270	180	100
50	600	300	200	100
55	660	330	220	100
60	720	360	240	100
65	780	390	260	100
70	840	420	280	100

* - Posted Speed, off-peak 85th percentile speed prior to work starting, or the anticipated operating speed.

** - For other offsets use the following merging taper length formula for L:

For speeds of 65 km/h (40 mph) or less, L=WSS/155 (L=WSS/60)

For speeds of 70 km/h (45 mph) or more, L=WS/1.6 (L=WS)

(This page left intentionally blank)

CHAPTER 6D. PEDESTRIAN AND WORKER SAFETY

Section 6D.01 Pedestrian Considerations

Support:

Whenever the acronym "TTC" is used in this Chapter, it refers to "temporary traffic control".

Standard:

The needs and control of all road users (motorists, bicyclists, and pedestrians within the highway, including persons with disabilities in accordance with the Americans with Disabilities Act of 1990 (ADA), Title II, Paragraph 35.130) through a TTC zone shall be an essential part of highway construction, utility work, maintenance operations, and the management of traffic incidents.

Support:

A wide range of pedestrians might be affected by TTC zones, including the young, elderly, and people with disabilities such as hearing, visual, or mobility. These pedestrians need a clearly delineated and usable travel path. Considerations for pedestrians with disabilities are addressed in Section 6D.02.

The most desirable way to provide information to pedestrians with visual disabilities that is equivalent to visual signage for notification of sidewalk closures is a speech message provided by an audible information device. Devices that provide speech messages in response to passive pedestrian actuation are the most desirable. Other devices that continuously emit a message, or that emit a message in response to use of a pushbutton, are also acceptable. Signage information can also be transmitted to personal receivers, but currently such receivers are not likely to be carried or used by pedestrians with visual disabilities in TTC zones. Audible information devices might not be needed if detectable channelizing devices make an alternate route of travel evident to pedestrians with visual disabilities.

Guidance:

If a pushbutton is used to provide equivalent TTC information to pedestrians with visual disabilities, the pushbutton should be equipped with a locator tone to notify pedestrians with visual disabilities that a special accommodation is available, and to help them locate the pushbutton.

Standard:

The various TTC provisions for pedestrian and worker safety set forth in Part 6 shall be applied by knowledgeable (for example, trained and/or certified) persons after appropriate evaluation and engineering judgment.

Advance notification of sidewalk closures shall be provided ~~to~~ by the maintaining agency. Where pedestrians with visual disabilities normally use the closed sidewalk, a barrier that is detectable by a person with a visual disability traveling with the aid of a long cane shall be placed across the full width of the closed sidewalk.

Support:

It must be recognized that pedestrians are reluctant to retrace their steps to a prior intersection for a crossing or to add distance or out-of-the-way travel to a destination.

Guidance:

Adequate provisions should be made for persons with disabilities as determined by an engineering study or by engineering judgment. Because printed signs and surface delineation are not usable by pedestrians with visual disabilities, blocked routes, alternate crossings, and sign and signal information should be communicated to pedestrians with visual disabilities by providing audible information devices, accessible pedestrian signals, and barriers and channelizing devices that are detectable to pedestrians traveling with the aid of a long cane or who have low vision.

The following three items should be considered when planning for pedestrians in TTC zones:

A. Pedestrians should not be led into conflicts with work site vehicles, equipment, and operations.
B. Pedestrians should not be led into conflicts with vehicles moving through or around the work site.
C. Pedestrians should be provided with a reasonably safe, convenient, and accessible path that replicates as nearly as practical the most desirable characteristics of the existing sidewalk(s) or footpath(s). Where pedestrians who have visual disabilities encounter work sites that require them to cross the roadway to find an accessible route, instructions should be provided using an audible information device. Accessible pedestrian signals (see Section 4E.06) with accessible pedestrian detectors (see

Section 4E.09) might be needed to enable pedestrians with visual disabilities to cross wide or heavily traveled roadways.

A pedestrian route should not be severed and/or moved for nonconstruction activities such as parking for vehicles and equipment.

Consideration should be made to separate pedestrian movements from both work site activity and vehicular traffic. Unless a reasonably safe route that does not involve crossing the roadway can be provided, pedestrians should be appropriately directed with advance signing that encourages them to cross to the opposite side of the roadway. In urban and suburban areas with high vehicular traffic volumes, these signs should be placed at intersections (rather than midblock locations) so that pedestrians are not confronted with midblock work sites that will induce them to attempt skirting the work site or making a midblock crossing.

Support:

Figures 6H-28 and 6H-29 show typical TTC device usage and techniques for pedestrian movement through work zones.

Guidance:

When pedestrian movement through or around a work site is necessary, a separate usable footpath should be provided. If the previous pedestrian facility was accessible to pedestrians with disabilities, the footpath provided during temporary traffic control should also be accessible. There should not be any abrupt changes in grade or terrain that could cause a tripping hazard or could be a barrier to wheelchair use. Barriers and channelizing devices should be detectable to pedestrians who have visual disabilities (see Section 6F.68).

Option:

Whenever it is feasible, closing off the work site from pedestrian intrusion may be preferable to channelizing pedestrian traffic along the site with TTC devices.

Support:

Maintaining a detectable, channelized pedestrian route is much more useful to pedestrians who have visual disabilities than closing a walkway and providing audible directions to an alternate route involving additional crossings and a return to the original route. Braille is not useful in conveying such information because it is difficult to find. Audible instructions might be provided, but the extra distance and additional street crossings might add complexity to a trip.

Guidance:

Fencing should not create sight distance restrictions for road users. Fences should not be constructed of materials that would be hazardous if impacted by vehicles.

Wooden railing, fencing, and similar systems placed immediately adjacent to motor vehicle traffic should not be used as substitutes for crashworthy temporary traffic barriers.

Standard:

TTC devices used to delineate a TTC zone pedestrian walkway shall be crashworthy and, when struck by vehicles, present a minimum threat to pedestrians, workers, and occupants of impacting vehicles.

Guidance:

Ballast for TTC devices should be kept to the minimum amount needed and should be mounted low to prevent penetration of the vehicle windshield.

Movement by work vehicles and equipment across designated pedestrian paths should be minimized and, when necessary, should be controlled by flaggers or TTC. Staging or stopping of work vehicles or equipment along the side of pedestrian paths should be avoided, since it encourages movement of workers, equipment, and materials across the pedestrian path.

Access to the work space by workers and equipment across pedestrian walkways should be minimized because the access often creates unacceptable changes in grade, and rough or muddy terrain, and pedestrians will tend to avoid these areas by attempting nonintersection crossings where no curb ramps are available.

Option:

A canopied walkway may be used to protect pedestrians from falling debris, and to provide a covered passage for pedestrians.

Guidance:

Covered walkways should be sturdily constructed and adequately lighted for nighttime use.

When pedestrian and vehicle paths are rerouted to a closer proximity to each other, consideration should be given to separating them by a temporary traffic barrier.

If a temporary traffic barrier is used to shield pedestrians, it should be designed to accommodate site conditions.

Support:

Depending on the possible vehicular speed and angle of impact, temporary traffic barriers might deflect upon impact by an errant vehicle. Guidance for locating and designing temporary traffic barriers can be found in Chapter 9 of AASHTO's "Roadside Design Guide" (see Section 1A.11).

Standard:

Short intermittent segments of temporary traffic barrier shall not be used because they nullify the containment and redirective capabilities of the temporary traffic barrier, increase the potential for serious injury both to vehicle occupants and pedestrians, and encourage the presence of blunt, leading ends. All upstream leading ends that are present shall be appropriately flared or protected with properly installed and maintained crashworthy cushions. Adjacent temporary traffic barrier segments shall be properly connected in order to provide the overall strength required for the temporary traffic barrier to perform properly.

Normal vertical curbing shall not be used as a substitute for temporary traffic barriers when temporary traffic barriers are clearly needed.

Option

Temporary traffic barriers or longitudinal channelizing devices may be used to discourage pedestrians from unauthorized movements into the work space. They may also be used to inhibit conflicts with vehicular traffic by minimizing the possibility of midblock crossings.

Support:

A major concern for pedestrians is urban and suburban building construction encroaching onto the contiguous sidewalks, which forces pedestrians off the curb into direct conflict with moving vehicles.

Guidance:

If a significant potential exists for vehicle incursions into the pedestrian path, pedestrians should be rerouted or temporary traffic barriers should be installed.

Support:

TTC devices, jersey barriers, and wood or chainlink fencing with a continuous detectable edging can satisfactorily delineate a pedestrian path.

Guidance:

Tape, rope, or plastic chain strung between devices are not detectable, do not comply with the design standards in the "Americans with Disabilities Act Accessibility Guidelines for Buildings and Facilities (ADAAG)" (see Section 1A.11), and should not be used as a control for pedestrian movements.

The extent of pedestrian needs should be determined through engineering judgment for each TTC zone situation. In general, pedestrian routes should be preserved in urban and commercial suburban areas. Alternative routing should be discouraged.

The highway agency in charge of the TTC zone should regularly inspect the activity area so that effective pedestrian TTC is maintained.

Section 6D.02 Accessibility Considerations

Support:

Additional information on the design and construction of accessible temporary facilities is found in publications listed in Section 1A.11 (see Documents 10 and 29 through 31).

Guidance:

The extent of pedestrian needs should be determined through engineering judgment or by the individual responsible for each TTC zone situation. This individual should be aware that the absence of a continuous pathway, including curb ramps and other accessible features, might preclude the use of the facility by pedestrians with disabilities.

Standard:

When existing pedestrian facilities are disrupted, closed, or relocated in a TTC zone, the temporary facilities shall be detectable and include accessibility features consistent with the features present in the existing pedestrian facility.

Guidance:

To accommodate the needs of pedestrians, including those with disabilities, the following considerations should be addressed when temporary pedestrian pathways in TTC zones are designed or modified:

A. Provisions for continuity of accessible paths for pedestrians should be incorporated into the TTC process. Pedestrians should be provided with a reasonably safe, convenient, and accessible path that replicates as much as practical the desirable characteristics of the existing pedestrian facilities.
B. Access to temporary transit stops should be provided.
C. Blocked routes, alternate crossings, and sign and signal information should be communicated to pedestrians with visual disabilities by providing devices such as audible information devices, accessible pedestrian signals, or barriers and channelizing devices that are detectable to the pedestrians traveling with the aid of a long cane or who have low vision. Where pedestrian traffic is detoured to a TTC signal, engineering judgment should be used to determine if pedestrian signals or accessible pedestrian signals should be considered for crossings along an alternate route.
D. When channelization is used to delineate a pedestrian pathway, a continuous detectable edging should be provided throughout the length of the facility such that pedestrians using a long cane can follow it. These detectable edgings should adhere to the provisions of Section 6F.68.
E. A smooth, continuous hard surface should be provided throughout the entire length of the temporary pedestrian facility. There should be no curbs or abrupt changes in grade or terrain that could cause tripping or be a barrier to wheelchair use. The geometry and alignment of the facility should meet the applicable requirements of the "Americans with Disabilities Act Accessibility Guidelines for Buildings and Facilities (ADAAG)" (see Section 1A.11).
F. The width of the existing pedestrian facility should be provided for the temporary facility if practical. Traffic control devices and other construction materials and features should not intrude into the usable width of the sidewalk, temporary pathway, or other pedestrian facility. When it is not possible to maintain a minimum width of 1500 mm (60 in) throughout the entire length of the pedestrian pathway, a 1500 x 1500 mm (60 x 60 in) passing space should be provided at least every 60 m (200 ft), to allow individuals in wheelchairs to pass.
G. Signs and other devices mounted lower than 2.1 m (7 ft) above the temporary pedestrian pathway should not project more than 100 mm (4 in) into accessible pedestrian facilities.

Section 6D.03 Worker Safety Considerations

Support:

Equally as important as the safety of road users traveling through the TTC zone is the safety of workers. TTC zones present temporary and constantly changing conditions that are unexpected by the road user. This creates an even higher degree of vulnerability for workers on or near the roadway.

Maintaining TTC zones with road user flow inhibited as little as possible, and using TTC devices that get the road user's attention and provide positive direction are of particular importance. Likewise, equipment and vehicles moving within the activity area create a risk to workers on foot. When possible, the separation of moving equipment and construction vehicles from workers on foot provides the operator of these vehicles with a greater separation clearance and improved sight lines to minimize exposure to the hazards of moving vehicles and equipment.

Guidance:

The following are the key elements of worker safety and TTC management that should be considered to improve worker safety:

A. Training—all workers should be trained on how to work next to motor vehicle traffic in a way that minimizes their vulnerability. Workers having specific TTC responsibilities should be trained in TTC techniques, device usage, and placement.

B. ~~Worker Safety Apparel—all workers exposed to the risks of moving roadway traffic or construction equipment should wear high-visibility safety apparel meeting the requirements of ISEA "American National Standard for High-Visibility Safety Apparel" (see Section 1A.11), or equivalent revisions, and labeled as ANSI 107-1999 standard performance for Class 1, 2, or 3 risk exposure. A competent person designated by the employer to be responsible for the worker safety plan within the activity area of the job site should make the selection of the appropriate class of garment.~~

C. Temporary Traffic Barriers—temporary traffic barriers should be placed along the work space depending on factors such as lateral clearance of workers from adjacent traffic, speed of traffic, duration and type of operations, time of day, and volume of traffic.

D. Speed Reduction—reducing the speed of vehicular traffic, mainly through regulatory speed zoning, funneling, lane reduction, or the use of uniformed law enforcement officers or flaggers, should be considered. The use of regulatory speed zone signing tends to be more effective when law enforcement is present.

E. Activity Area—planning the internal work activity area to minimize backing-up maneuvers of construction vehicles should be considered to minimize the exposure to risk.

F. Worker Safety Planning—a competent person designated by the employer should conduct a basic hazard assessment for the work site and job classifications required in the activity area. This safety professional should determine whether engineering, administrative, or personal protection measures should be implemented. This plan should be in accordance with the Occupational Safety and Health Act of 1970, as amended, "General Duty Clause" Section 5(a)(1) - Public Law 91-596, 84 Stat. 1590, December 29, 1970, as amended, and with the requirement to assess worker risk exposures for each job site and job classification, as per 29 CFR 1926.20 (b)(2) of "Occupational Safety and Health Administration Regulations, General Safety and Health Provisions " (see Section 1A.11).

Standard:

All workers within the right-of-way who are exposed either to traffic (vehicles using the highway for purposes of travel) or to construction equipment within the TTC zone shall wear high-visibility safety apparel that meets the Performance Class 2 or 3 requirements of the ANSI/ISEA 107–2004 publication entitled "American National Standard for High-Visibility Safety Apparel and Headwear" (see Section 1A.11), or equivalent revisions, and labeled as meeting the ANSI 107-2004 standard performance for Class 2 or 3 risk exposure. A person designated by the employer to be responsible for the worker safety plan shall make the selection of the appropriate class of garment.

When uniformed law enforcement personnel are used to direct traffic, to investigate crashes, or to handle lane closures, obstructed roadways, and disasters, safety apparel as described in this Section shall 1 be worn by the law enforcement personnel.

Firefighters or other emergency responders working within the TTC zone and not engaged in emergency operations that directly expose them to flame, fire, heat, and/or hazardous materials shall wear safety apparel as described in this Section.

Refer to Construction Safety Order in the California Code of Regulations (Title 8, Division 1, Chapter 4, Subchapter 4, Article 3, Section 1523 - Illumination). See Section 1A.11 for information regarding this publication.

Option:

Emergency and incident responders and law enforcement personnel within the TTC zone may wear high visibility safety apparel that meets the performance requirements of the ANSI/ISEA 207-2006 publication entitled "American National Standard for High-Visibility Public Safety Vests" (see Section 1A.11), or equivalent revisions, and labeled as ANSI 207-2006, in lieu of ANSI/ISEA 107-2004 apparel.

Firefighters or other emergency responders working within the TTC zone and engaged in emergency operations that directly expose them to flame, fire, heat, and/or hazardous materials may wear retroreflective turn-out gear that is specified and regulated by other organizations, such as the National Fire Protection Association.

Option:

The following are additional elements of TTC management that may be considered to improve worker safety:

A. Shadow Vehicle—in the case of mobile and constantly moving operations, such as pothole patching and striping operations, a shadow vehicle, equipped with appropriate lights and warning signs, may be used to protect the workers from impacts by errant vehicles. The shadow vehicle may be equipped with a rear-mounted impact attenuator.

B. Road Closure—if alternate routes are available to handle road users, the road may be closed temporarily. This may also facilitate project completion and thus further reduce worker vulnerability.

C. Law Enforcement Use—in highly vulnerable work situations, particularly those of relatively short duration, law enforcement units may be stationed to heighten the awareness of passing vehicular traffic and to improve safety through the TTC zone.

D. Lighting—for nighttime work, the TTC zone and approaches may be lighted. Care should be taken to ensure that the lighting used for nighttime work does not cause blinding. Refer to CVC 21466.5 for light impairing driver's vision.

E. Special Devices—these include rumble strips, changeable message signs, hazard identification beacons, flags, and warning lights. Intrusion warning devices may be used to alert workers to the approach of errant vehicles.

F. Public Information - Improved driver performance may be realized through a well-prepared and complete public relations effort that covers the nature of the work, the time and duration of its execution, its anticipated effects on traffic, and possible alternate routes and modes of travel. Such programs can encourage the use of alternate routes, thus allowing consideration of temporary lane closures for additional buffer space.

Support:

Judicious use of the special devices described in Item E above might be helpful for certain difficult TTC situations, but misuse or overuse of special devices or techniques might lessen their effectiveness.

Section 6D.101(CA) Bicycle Considerations

Support:

There are several considerations in planning for bicyclists in TTC zones on highways and streets:

- A travel route that replicates the most desirable characteristics of a wide paved shoulder or bikeway through or around the traffic control zone is desirable for bicyclists.
- If the traffic control zone interrupts the continuity of an existing bikeway system, signs directing bicyclists through or around the zone and back to the bikeway is desirable.
- Unless a separate bike path through or around the traffic control zone is provided, adequate roadway lane width to allow bicyclists and motor vehicles to travel side by side through or around the zone is desirable.
- Bicyclists should not be led into direct conflicts with mainline traffic, work site vehicles, or equipment moving through or around the traffic control zone.

(This space left intentionally blank)

CHAPTER 6E. FLAGGER CONTROL

Section 6E.01 Qualifications for Flaggers

Support:

Whenever the acronym "TTC" is used in this Chapter, it refers to "temporary traffic control".

Standard:

A flagger shall be a person who provides TTC.

Guidance:

Because flaggers are responsible for public safety and make the greatest number of contacts with the public of all highway workers, they should be trained in safe traffic control practices and public contact techniques. Flaggers should be able to satisfactorily demonstrate the following abilities:

A. Ability to receive and communicate specific instructions clearly, firmly, and courteously;
B. Ability to move and maneuver quickly in order to avoid danger from errant vehicles;
C. Ability to control signaling devices (such as paddles and flags) in order to provide clear and positive guidance to drivers approaching a TTC zone in frequently changing situations;
D. Ability to understand and apply safe traffic control practices, sometimes in stressful or emergency situations; and
E. Ability to recognize dangerous traffic situations and warn workers in sufficient time to avoid injury.

Standard:

Flaggers shall be trained in the proper fundamentals of flagging moving traffic before being assigned as flaggers. Signaling directions used by flaggers shall conform to Figure 6E-1. The training and instructions shall be based on this Manual and work site conditions and also include the following:

(1) flagger equipment which must be used,
(2) layout of the work zone and flagging station,
(3) methods to signal traffic to stop, proceed or slow down,
(4) methods of one-way traffic control,
(5) trainee demonstration of proper flagging methodology and operations,
(6) emergency vehicles traveling through the work zone,
(7) handling emergency situations,
(8) methods of dealing with hostile drivers,
(9) flagging procedures when a single flagger is used (when applicable),

Documentation of the training shall be maintained as required by Injury Illness and Prevention Program of the General Industry Safety Order in the California Code of Regulations (Title 8, Division 1, Chapter 4, Subchapter 7, Section 3203).

Flaggers shall be trained by persons with the qualifications and experience necessary to effectively instruct the employee in the proper fundamentals of flagging moving traffic.

Support:

Refer to Construction Safety Order in the California Code of Regulations (Title 8, Division 1, Chapter 4, Subchapter 4, Article 11, Section 1599 - Flaggers) for flagger training. See Section 1A.11 for information regarding this publication.

Section 6E.02 High-Visibility Safety Apparel

Standard:

For daytime and nighttime activity, flaggers shall wear high-visibility safety apparel that meets the Performance Class 2 or 3 requirements of the ANSI/ISEA 107-2004 publication entitled "American National Standard for High-Visibility Apparel and Headwear" (see Section 1A.11), or equivalent revisions, and labeled as meeting the ANSI 107-2004 standard performance for Class 2 risk exposure. The apparel background (outer) material color shall be either fluorescent orange-red or fluorescent yellow-green as defined in the standard. The retroreflective material shall be orange, yellow, white, silver, yellow-green, or a fluorescent version of these colors, and shall be visible at a minimum distance of 300 m (1,000 ft). The retroreflective safety apparel shall be designed to clearly identify the wearer as a person.

Guidance:

For nighttime activity, high-visibility safety apparel that meets the Performance Class 3 requirements of the ANSI/ISEA 107-2004 publication entitled "American National Standard for High-Visibility Apparel and Headwear" (see Section 1A.11), or equivalent revisions, and labeled as meeting the ANSI 107-2004 standard performance for Class 3 risk exposure should be considered for flagger wear.

Standard:

When uniformed law enforcement officers are used to direct traffic within a TTC zone, they shall wear high-visibility safety apparel as described in this Section.

Option:

Law enforcement personnel within the TTC zone may wear high-visibility safety apparel that meets the performance requirements of the ANSI/ISEA 207-2006 publication entitled "American National Standard for High-Visibility Public Safety Vests" (see Section 1A.11), or equivalent revisions, and labeled as ANSI 207-2006, in lieu of ANSI/ISEA 107-2004 apparel.

Section 6E.03 Hand-Signaling Devices

Support:

Hand-signaling devices, such as STOP/SLOW paddles, lights, and red flags, are used to control road users through TTC zones.

~~Guidance:~~

Standard:

The STOP/SLOW paddle ~~should~~ shall be the primary and preferred hand-signaling device because the STOP/SLOW paddle gives road users more positive guidance than red flags. Use of flags ~~should~~ shall be limited to emergency situations.

~~**Standard:**~~

The STOP/SLOW paddle shall have an octagonal shape on a rigid handle. STOP/SLOW paddles shall be at least 450 mm (18 in) wide with letters at least 150 mm (6 in) high and should be fabricated from light semirigid material. The background of the STOP face shall be red with white letters and border. The background of the SLOW face shall be orange with black letters and border. When used at night, the STOP/SLOW paddle shall be retroreflectorized.

Option:

The STOP/SLOW paddle may be modified to improve conspicuity by incorporating ~~either white or~~ red flashing lights on the STOP face, and ~~either white or~~ yellow flashing lights on the SLOW face. The flashing lights may be arranged in any of the following patterns:

A. Two ~~white or~~ red lights, one centered vertically above and one centered vertically below the STOP legend; and/or two ~~white or~~ yellow lights, one centered vertically above and one centered vertically below the SLOW legend; or
B. Two ~~white or~~ red lights, one centered horizontally on each side of the STOP legend; and/or two ~~white or~~ yellow lights, one centered horizontally on each side of the SLOW legend; or
C. One ~~white or~~ red light centered below the STOP legend; and/or one ~~white or~~ yellow light centered below the SLOW legend; or
D. A series of eight or more small ~~white or~~ red lights no larger than 6 mm (0.25 in) in diameter along the outer edge of the paddle, arranged in an octagonal pattern at the eight corners of the border of the STOP face; and/or a series of eight or more small ~~white or~~ yellow lights no larger than 6 mm (0.25 in) in diameter along the outer edge of the paddle, arranged in a diamond pattern along the border of the SLOW face.

~~E. A series of white lights forming the shapes of the letters in the legend.~~

Standard:

If flashing lights are used on the STOP face of the paddle, their colors shall be ~~all white or~~ all red. If flashing lights are used on the SLOW face of the paddle, their colors shall be ~~all white or~~ all yellow.

If more than eight flashing lights are used, the lights shall be arranged such that they clearly convey the octagonal shape of the STOP face of the paddle and/or the diamond shape of the SLOW face of the paddle.

If flashing lights are used on the STOP/SLOW paddle, the flash rate shall be at least 50, but not more than 60, flashes per minute.

Flags, when used, shall be a minimum of 600 mm (24 in) square, made of a good grade of red material, and securely fastened to a staff that is approximately 900 mm (36 in) in length.

Guidance:

The free edge of a flag should be weighted so the flag will hang vertically, even in heavy winds.

Standard:

When used at nighttime, flags shall be retroreflectorized red.

Option:

The STOP/SLOW (C28A(CA) and C28B(CA)) paddle may be used with either a 300 mm (12 in) short handle or 1650 mm (66 in) long handle.

The 600 x 600 mm (24 x 24 in) size of the STOP/SLOW paddle may be used where greater emphasis is needed and speeds are 50 km/h (30 mph) or more.

Support:

Details for the short and long handle of the STOP/SLOW paddle are shown in Department of Transportation's California Sign Specifications under C28C(CA) code.

Section 6E.04 Flagger Procedures

Support:

The use of paddles and flags by flaggers is illustrated in Figure 6E-1.

Standard:

The following methods of signaling with paddles shall be used:

A. To stop road users, the flagger shall face road users and aim the STOP paddle face toward road users in a stationary position with the arm extended horizontally away from the body. The free arm shall be held with the palm of the hand above shoulder level toward approaching traffic.

B. To direct stopped road users to proceed, the flagger shall face road users with the SLOW paddle face aimed toward road users in a stationary position with the arm extended horizontally away from the body. The flagger shall motion with the free hand for road users to proceed.

C. To alert or slow traffic, the flagger shall face road users with the SLOW paddle face aimed toward road users in a stationary position with the arm extended horizontally away from the body.

Option:

To further alert or slow traffic, the flagger holding the SLOW paddle face toward road users may motion up and down with the free hand, palm down.

Standard:

The following methods of signaling with a flag shall be used:

A. To stop road users, the flagger shall face road users and extend the flag staff horizontally across the road users' lane in a stationary position so that the full area of the flag is visibly hanging below the staff. The free arm shall be held with the palm of the hand above the shoulder level toward approaching traffic.

B. To direct stopped road users to proceed, the flagger shall stand parallel to the road user movement and with flag and arm lowered from the view of the road users, and shall motion with the free hand for road users to proceed. Flags shall not be used to signal road users to proceed.

C. To alert or slow traffic, the flagger shall face road users and slowly wave the flag in a sweeping motion of the extended arm from shoulder level to straight down without raising the arm above a horizontal position. The flagger shall keep the free hand down.

Section 6E.05 Flagger Stations

Standard:

Flagger stations shall be located such that approaching road users will have sufficient distance to stop at an intended stopping point.

Option:

The distances shown in Table 6E-1, which provides information regarding the stopping sight distance as a function of speed, may be used for the location of a flagger station. These distances may be increased for downgrades and other conditions that affect stopping distance.

Guidance:

Flagger stations should be located such that an errant vehicle has additional space to stop without entering the work space.

Standard:

Except in emergency situations, flagger stations shall be preceded by an advance warning sign or signs. Except in emergency situations, flagger stations shall be illuminated at night.

Support:

Refer to Construction Safety Orders in the California Code of Regulations (Title 8, Division 1, Chapter 4, Subchapter 4, Article 3, Section 1523 – Illumination and Section 1599 - Flaggers). See Section 1A.11 for information regarding this publication.

Guidance:

The flagger should stand either on the shoulder adjacent to the road user being controlled or in the closed lane prior to stopping road users. A flagger should only stand in the lane being used by moving road users after road users have stopped. The flagger should be clearly visible to the first approaching road user at all times. The flagger also should be visible to other road users. The flagger should be stationed sufficiently in advance of the workers to warn them (for example, with audible warning devices such as horns or whistles) of approaching danger by out-of-control vehicles. The flagger should stand alone, never permitting a group of workers to congregate around the flagger station.

Option:

At a spot constriction, the flagger may have to take a position on the shoulder opposite the closed section in order to operate effectively.

At spot lane closures where adequate sight distance is available for the reasonably safe handling of traffic, the use of one flagger may be sufficient.

Option:

The distances shown in Table 6E-1 may be increased for downgrades, as shown in Table 6E-101(CA).

(This space left intentionally blank)

Figure 6E-1. Use of Hand-Signaling Devices by Flaggers

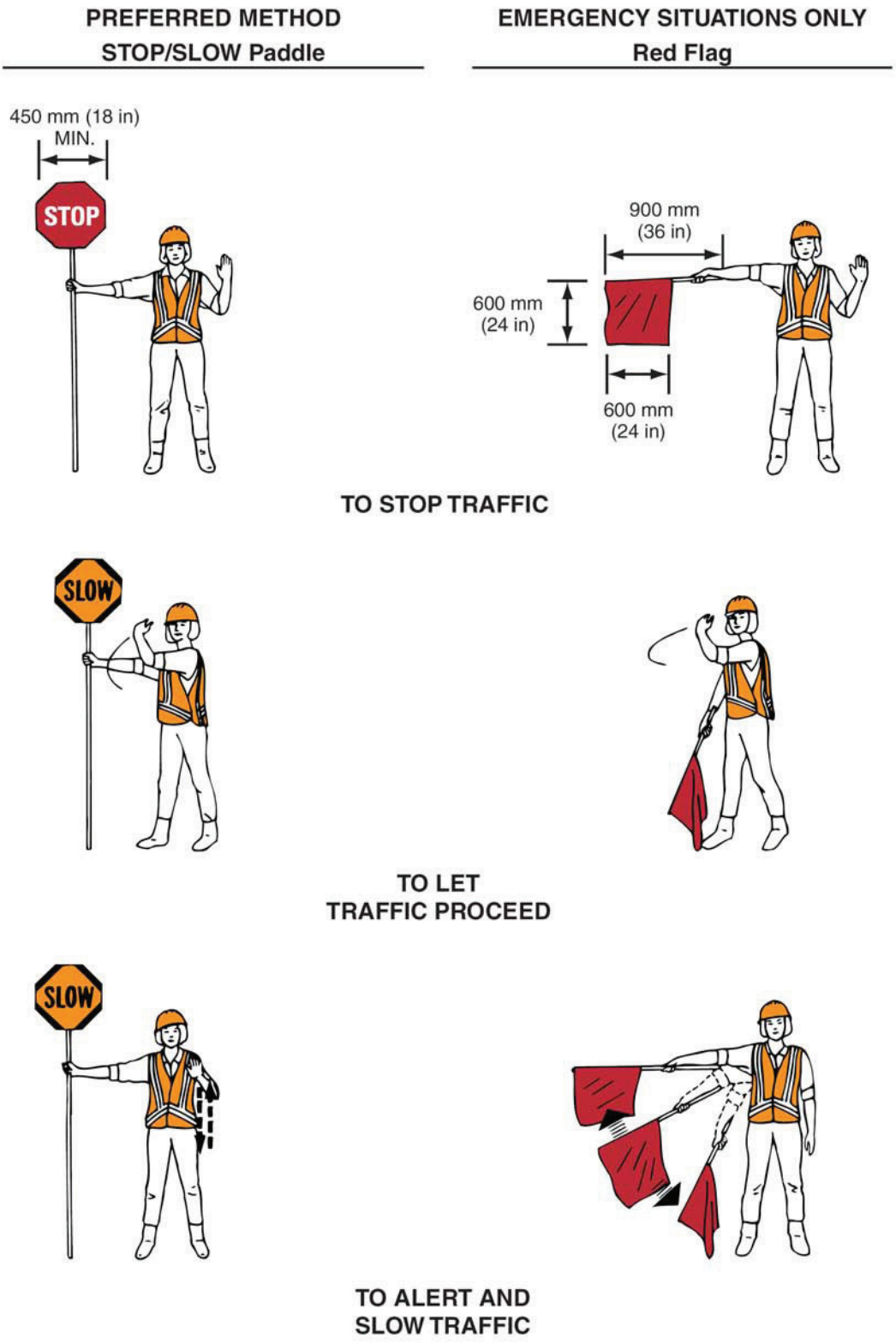


Table 6E-1. Stopping Sight Distance as a Function of Speed

Speed* (km/h)	Distance (m)
30	35
40	50
50	65
60	85
70	105
80	130
90	160
100	185
110	220
120	250

Speed* (mph)	Distance (ft)
20	115
25	155
30	200
35	250
40	305
45	360
50	425
55	495
60	570
65	645
70	730
75	820

* Posted speed, off-peak 85th-percentile speed prior to work starting, or the anticipated operating speed

(This space left intentionally blank)

Table 6E-101(CA). Longitudinal Buffer Space on Downgrades*

Speed (km/h)	% Downgrade (Buffer Space)		
	-3% (m)	-6% (m)	-9% (m)
30	35	35	35
40	50	50	53
50	66	70	74
60	87	92	97
70	110	116	124
80	136	144	154
90	164	174	187
100	194	207	223
110	227	243	262

Speed (mph)	% Downgrade (Buffer Space)		
	-3% (ft)	-6% (ft)	-9% (ft)
20	116	120	126
25	158	165	173
30	205	215	227
35	257	271	287
40	315	333	354
45	378	400	427
50	446	474	507
55	520	553	593
60	598	638	686
65	682	728	785
70	771	825	891

* Exhibit 3-2. A Policy on Geometric Design of Highways and Streets, AASHTO, 2001, p.115.

(This page left intentionally blank)

CHAPTER 6F. TEMPORARY TRAFFIC CONTROL ZONE DEVICES

Section 6F.01 Types of Devices

Support:

Whenever the acronym "TTC" is used in this Chapter, it refers to "temporary traffic control".

Standard:

The needs and control of all road users (motorists, bicyclists, and pedestrians within the highway, including persons with disabilities in accordance with the Americans with Disabilities Act of 1990 (ADA), Title II, Paragraph 35.130) through a TTC zone shall be an essential part of highway construction, utility work, maintenance operations, and the management of traffic incidents.

Guidance:

The design and application of TTC devices used in TTC zones should consider the needs of all road users (motorists, bicyclists, and pedestrians), including those with disabilities.

Support:

FHWA policy requires that all roadside appurtenances such as traffic barriers, barrier terminals and crash cushions, bridge railings, sign and light pole supports, and work zone hardware used on the National Highway System meet the crashworthy performance criteria contained in the National Cooperative Highway Research Program (NCHRP) Report 350, "Recommended Procedures for the Safety Performance Evaluation of Highway Features". The FHWA website at "http://safety.fhwa.dot.gov/programs/roadside_hardware.htm" identifies all such hardware and includes copies of FHWA acceptance letters for each of them. In the case of proprietary items, links are provided to manufacturers' websites as a source of detailed information on specific devices. The website also contains an "Ask the Experts" section where questions on roadside design issues can be addressed. State Departments of Transportation and local agencies might also have expanded the NCHRP Report 350 crashworthy criteria to apply to other highways in addition to the National Highway System.

Crashworthiness and crash testing information on devices described in Part 6 are found in AASHTO's "Roadside Design Guide" (see Section 1A.11).

As stated in Definition 17 in Section 1A.13, "crashworthy" is a characteristic of a roadside appurtenance that has been successfully crash tested in accordance with a national standard such as the National Cooperative Highway Research Program Report 350, "Recommended Procedures for the Safety Performance Evaluation of Highway Features."

Standard:

Traffic control devices shall be defined as all signs, signals, markings, and other devices used to regulate, warn, or guide road users, placed on, over, or adjacent to a street, highway, pedestrian facility, or bikeway by authority of a public body or official having jurisdiction.

All traffic control devices used on street and highway construction, maintenance, utility, or incident management operations shall conform to the applicable provisions of this Manual.

The Department of Transportation shall implement NCHRP 350 criteria for crashworthy TTC devices in TTC zones on all State highways effective as of December 1, 2005. Crashworthiness of TTC devices shall be substantiated. When no longer needed, TTC devices shall be removed from the TTC zone.

Crashworthiness of TTC devices shall be substantiated as follows:

Category 1 devices purchased after October 1, 1998 shall be employed based on the vendor's self-certification. Self-certification shall be based on crash testing, crash testing of similar devices, or years of demonstrable safe performance.

Category 2 devices shall be on FHWA's list of Acceptable Crashworthy Category 2 Hardware for Work Zones which meet NCHRP Report 350 criteria for crashworthiness. Category 2 devices that have not received FHWA acceptance and were purchased before October 1, 2000, shall not be used. Category 2 devices in use that have received FHWA acceptance shall be labeled with the FHWA acceptance letter number and the name of the manufacturer by the start of the project. The label shall be readable and permanently affixed by the manufacturer. Category 2 devices without a label shall not be used in highway work zones.

Category 3 devices shall be crash tested in accordance with NCHRP Report 350 criteria. The Department shall include Standard Special Provision (SSP) 12-000, Standard Plans and construction details in all contract documents.

Support:

For Category 3, the compliance date was October 1, 1998 for truck mounted attenuators and work zone crash cushions. The compliance date for other Category 3 devices was October 1, 2002.

Option:

Type III barricades may be used as sign supports if the barricades have been successfully crash tested as one unit with a construction area sign attached.

Support:

Category 1 self-certification form can be obtained at the following Internet address (see last page):
http://www.dot.ca.gov/hq/traffops/signtech/signdel/policy/05-09.pdf

Category 2 devices are listed on the "Acceptable Crashworthy Category 2 Hardware for Work Zones" list maintained by both, FHWA and Department of Transportation, available at the following internet addresses:
http://safety.fhwa.dot.gov/fourthlevel/hardware/listing.cfm?code=workzone
http://www.dot.ca.gov/hq/traffops/signtech/signdel/pdf/Category2.pdf .

Category 3 TTC devices are shown in the Standard Plans, on project plans or listed on the Department's Highway Safety Features list at the following Internet address:
http://www.dot.ca.gov/hq/esc/approved_products_list/pdf/highway_safety_features.pdf

Section 6F.02 General Characteristics of Signs

Support:

TTC zone signs convey both general and specific messages by means of words or symbols and have the same three categories as all road user signs: regulatory, warning, and guide.

Standard:

The colors for regulatory signs shall follow the Standards for regulatory signs in Table ~~2A-5~~ 2A-5(CA) and Chapter 2B. Warning signs in TTC zones shall have a black legend and border on an orange background, except for the Highway-Rail Grade Crossing Advance Warning (W10-1) sign which shall have a black legend and border on a yellow background, and except for signs that are permitted in Parts 2 or 7 to have fluorescent yellow-green backgrounds. Colors for guide signs shall follow the Standards in Table ~~2A-5~~ 2A-5(CA) and Chapter 2D, except for guide signs as noted in Section 6F.50.

Option:

Where the color orange is required, fluorescent red-orange or fluorescent yellow-orange colors may also be used.

Support:

The fluorescent versions of orange provide higher conspicuity than standard orange, especially during twilight.

Option:

Warning and guide signs used for ~~TCC~~ TTC incident management situations (see Chapter 6I) may have a black legend and border on a fluorescent pink background.

Existing warning signs that are still applicable may remain in place.

In order to maintain the systematic use of yellow or fluorescent yellow-green background for pedestrian, bicycle, and school warning signs in a jurisdiction, the yellow or fluorescent yellow-green background for pedestrian, bicycle, and school warning signs may be used in TTC zones.

Standard orange flags or flashing warning lights may be used in conjunction with signs.

Standard:

When standard orange flags or flashing warning lights are used in conjunction with signs, they shall not block the sign face.

The sizes for TTC signs shall be as shown in Table 6F-1 or 6F-1(CA).

Option:

The dimensions of signs shown in Table 6F-1 or 6F-1(CA) may be increased wherever necessary for greater legibility or emphasis, such as on freeways and expressways.

Standard:

Deviations from standard sizes as prescribed herein shall be in 150 mm (6 in) increments.

Support:

Sign design details are contained in the "Standard Highway Signs" book (see Section 1A.11).

Standard:

All signs used at night shall be either retroreflective with a material that has a smooth, sealed outer surface or illuminated to show the same shape and similar color both day and night.

The requirement for sign illumination shall not be considered to be satisfied by street, highway, or strobe lighting.

Option:

Sign illumination may be either internal or external.

Signs may be made of rigid or flexible material.

Support:

Sign design details are contained in FHWA's Standard Highway Signs book and Department of Transportation's California Sign Specifications. See Section 1A.11 for information regarding these publications.

Table 6F-101(CA) shows a list of California TTC Signs.

Figure 6F-101(CA) shows California TTC Signs.

Section 6F.03 Sign Placement

Guidance:

Signs should be located on the right side of the roadway unless otherwise specified in this Manual.

Option:

Where special emphasis is needed, signs may be placed on both the left and right sides of the roadway. Signs mounted on portable supports may be placed within the roadway itself. Signs may also be mounted on or above barricades.

Support:

The Provisions of this section regarding mounting height apply unless specifically stated otherwise for a particular sign elsewhere in this Manual.

Guidelines for height and lateral clearance of temporary ground-mounted signs are shown in Figure 6F-1.

Standard:

Ground-mounted signs installed at the side of the road in rural areas shall be mounted at a height at least 1.5 m (5 ft), measured from the bottom of the sign to the near edge of the pavement. In business, commercial, and residential districts where parking and/or bicycle or pedestrian movement is likely to occur, or where there are other obstructions to view, the distance between the bottom of the sign and the top of the near edge of the traveled way shall be at least 2.1 m (7 ft).

Signs mounted on barricades and barricade/sign combinations shall be crashworthy.

Where it has been determined that the accommodation of pedestrians with disabilities is necessary, signs shall be mounted and placed in accordance with Section 4.4 of the "Americans with Disabilities Act Accessibility Guidelines for Buildings and Facilities (ADAAG)" (see Section 1A.11).

Guidance:

~~Neither portable nor permanent sign supports should be located on sidewalks, bicycle facilities, or areas designated for pedestrian or bicycle traffic.~~ Sign supports should be located so as to accommodate pedestrians and bicyclists in areas designated for their use. A minimum lateral width of 1.2 m (4 ft) should be maintained for pedestrian pathways. Signs mounted lower than 2.1 m (7 ft) should not project more than 100 mm (4 in) into pedestrian facilities.

Option:

A 2.1 m (7 ft) mounting height may be used in rural areas for increased visibility.

The height to the bottom of a secondary sign mounted below another sign may be 0.3 m (1 ft) less than the appropriate height specified above.

Guidance:

Except as noted in the Option, signs mounted on portable supports should not be used for a duration of more than 3 days.

Option:

The R9-8 through R9-11a series, R11 series, W1-6 through W1-8 series, M4-10, E5-1, or other similar type signs (see Figures 6F-3, 6F-4, and 6F-5) may be used on portable supports for longer than 3 days.

Support:

Methods of mounting signs other than on posts are illustrated in Figure 6F-2.

Guidance:

Signs mounted on Type III barricades should not cover more than 50 percent of the top two rails or 33 percent of the total area of the three rails.

Standard:

Sign supports shall be crashworthy. Large signs having an area exceeding 5 square meters (50 square feet) that are installed on multiple breakaway posts shall be mounted a minimum of 2.1 m (7 ft) above the ground.

Signs mounted on barricades, or other portable supports, shall be no less than 0.3 m (1 ft) above the traveled way.

Option:

For mobile operations, a sign may be mounted on a work vehicle, a shadow vehicle, or a trailer stationed in advance of the TTC zone or moving along with it. The work vehicle, the shadow vehicle, or the trailer may or may not have an impact attenuator.

Guidance:

Unshielded sign posts placed in the clear zone should yield or breakaway upon impact to minimize obstructions to road users.

Support:

If alterations are made to specific traffic control device supports that have been successfully crash tested in accordance with NCHRP Report 350 (see Section 1A.11), the altered supports might not be considered to be crashworthy.

Refer to Section 2A.21 for mounting of small plastic signs on channelizers, cones or portable delineators.

Section 6F.04 Sign Maintenance

Standard:

Signs shall be properly maintained for cleanliness, visibility, and correct positioning.

Signs that have lost significant legibility shall be promptly replaced.

Section 6F.05 Regulatory Sign Authority

Support:

Regulatory signs such as those shown in Figure 6F-3 inform road users of traffic laws or regulations and indicate the applicability of legal requirements that would not otherwise be apparent.

Standard:

Regulatory signs shall be authorized by the public agency or official having jurisdiction and shall conform with Chapter 2B.

Support:

Some of the California regulatory signs used in TTC zones are shown in Figure 6F-101(CA) and Table 6F-101(CA).

Section 6F.06 Regulatory Sign Design

Standard:

TTC regulatory signs shall conform to the Standards for regulatory signs presented in Part 2 and in the FHWA's "Standard Highway Signs" book (see Section 1A.11).

Support:

Regulatory signs are generally rectangular with a black legend and border on a white background. Exceptions include the STOP, YIELD, DO NOT ENTER, WRONG WAY, and ONE WAY signs.

Option:
The ONE WAY sign may be either a horizontal or vertical rectangular sign.

Section 6F.07 Regulatory Sign Applications
Standard:
If a TTC zone requires regulatory measures different from those existing, the existing permanent regulatory devices shall be removed or covered and superseded by the appropriate temporary regulatory signs. This change shall be made in conformance with applicable ordinances or statutes of the jurisdiction.

Section 6F.08 ROAD (STREET) CLOSED Sign (R11-2)
Guidance:
The ROAD (STREET) CLOSED (R11-2) sign (see Figure 6F-3, Sheet 2 of 2) should be used when the roadway is closed to all road users except contractors' equipment or officially authorized vehicles. The R11-2 sign should be accompanied by appropriate warning and detour signing.
Option:
The ~~words BRIDGE OUT (or BRIDGE CLOSED)~~ word BRIDGE CLOSED may be substituted for ROAD (STREET) CLOSED where applicable.
Guidance:
The ROAD (STREET) CLOSED sign should be installed at or near the center of the roadway on or above a Type III barricade that closes the roadway (see Section 6F.63).
Standard:
The ROAD (STREET) CLOSED sign shall not be used where road user flow is maintained or where the actual closure is some distance beyond the sign.
Option:
The word RAMP may be substituted for ROAD or STREET where applicable.

Section 6F.09 Local Traffic Only Signs (R11-3a, R11-4)
Guidance:
The Local Traffic Only signs (see Figure 6F-3, Sheet 2 of 2) should be used where road user flow detours to avoid a closure some distance beyond the sign, but where local road users can use the roadway to the point of closure. These signs should be accompanied by appropriate warning and detour signing.
In rural applications, the Local Traffic Only sign should have the legend ROAD CLOSED XX ~~km~~ (MILES)AHEAD, LOCAL TRAFFIC ONLY (R11-3a).
Option:
In urban areas, the legend ROAD (STREET) CLOSED TO THRU TRAFFIC (R11-4) or ROAD CLOSED, LOCAL TRAFFIC ONLY may be used.
The words BRIDGE OUT (or BRIDGE CLOSED) may be substituted for the words ROAD (STREET) CLOSED on the R11-3a or R11-4 sign where applicable.
Option:
The word RAMP may be substituted for ROAD or STREET where applicable.

Section 6F.10 Weight Limit Signs (R12-1, R12-2, R12-5)
Standard:
A Weight Limit sign (see Figure 6F-3, Sheet 2 of 2), which shows the gross weight ~~or axle weight~~ that is permitted on the roadway or bridge, shall be consistent with State or local regulations and shall not be installed without the approval of the authority having jurisdiction over the highway.
When weight restrictions are imposed because of the activity in a TTC zone, a marked detour shall be provided for vehicles weighing more than the posted limit.

Section 6F.11 STAY IN LANE Sign (R4-9)

Option:

A STAY IN LANE (R4-9) sign (see Figure 6F-3, Sheet 1 of 2) may be used where a multi-lane shift has been incorporated as part of the TTC on a highway to direct road users around road work that occupies part of the roadway on a multi-lane highway.

Section 6F.12 PEDESTRIAN CROSSWALK Sign (R9-8)

Option:

The PEDESTRIAN CROSSWALK (R9-8) sign (see Figure 6F-3, Sheet 1 of 2) may be used to indicate where a temporary crosswalk has been established.

Standard:

If a temporary crosswalk is established, it shall be accessible to pedestrians with disabilities in accordance with Section 6D.02.

Section 6F.13 SIDEWALK CLOSED Signs (R9-9, R9-10, R9-11, R9-11a)

Guidance:

SIDEWALK CLOSED signs (see Figure 6F-3, Sheet 2 of 2) should be used where pedestrian flow is restricted. Bicycle/Pedestrian Detour (M4-9a) signs or Pedestrian Detour (M4-9b) signs should be used where pedestrian flow is rerouted (see Section 6F.53).

The SIDEWALK CLOSED (R9-9) sign should be installed at the beginning of the closed sidewalk, at the intersections preceding the closed sidewalk, and elsewhere along the closed sidewalk as needed.

The SIDEWALK CLOSED, (ARROW) USE OTHER SIDE (R9-10) sign should be installed at the beginning of the restricted sidewalk when a parallel sidewalk exists on the other side of the roadway.

The SIDEWALK CLOSED AHEAD, (ARROW) CROSS HERE (R9-11) sign should be used to indicate to pedestrians that sidewalks beyond the sign are closed and to direct them to open crosswalks, sidewalks, or other travel paths.

The SIDEWALK CLOSED, (ARROW) CROSS HERE (R9-11a) sign should be installed just beyond the point to which pedestrians are being redirected.

Support:

These signs are typically mounted on a detectable barricade to encourage compliance and to communicate with pedestrians that the sidewalk is closed. Printed signs are not useful to many pedestrians with visual disabilities. A barrier or barricade detectable by a person with a visual disability is sufficient to indicate that a sidewalk is closed. If the barrier is continuous with detectable channelizing devices for an alternate route, accessible signage might not be necessary. An audible information device is needed when the detectable barricade or barrier for an alternate channelized route is not continuous.

Section 6F.14 Special Regulatory Signs

Option:

Special regulatory signs may be used based on engineering judgment consistent with regulatory requirements.

Guidance:

Special regulatory signs should conform to the general requirements of color, shape, and alphabet size and series. The sign message should be brief, legible, and clear.

Support:

Section 2B.17 contains information regarding the use of FINES HIGHER signs (see Figure 6F-3, Sheet 1 of 2).

See Section 6F.106(CA) for Traffic Fines Signs.

Section 6F.15 Warning Sign Function, Design, and Application

Support:

TTC zone warning signs (see Figure 6F-4) notify road users of specific situations or conditions on or adjacent to a roadway that might not otherwise be apparent.

Standard:

TTC warning signs shall conform to the Standards for warning signs presented in Part 2 and in FHWA's "Standard Highway Signs" book (see Section 1A.11). Except as noted in the Option below, TTC warning signs shall be diamond-shaped with a black legend and border on an orange background, except for the W10-1 sign which shall have a black legend and border on a yellow background, and except for signs that are permitted in Parts 2 or 7 to have fluorescent yellow-green backgrounds.

Option:

Warning signs used for TCC incident management situations may have a black legend and border on a fluorescent pink background.

Mounting or space considerations may justify a change from the standard diamond shape.

In emergencies, available warning signs having yellow backgrounds may be used if signs with orange or fluorescent pink backgrounds are not at hand.

Guidance:

Where roadway or road user conditions require greater emphasis, larger than standard size warning signs should be used, with the symbol or legend enlarged approximately in proportion to the outside dimensions.

Where any part of the roadway is obstructed or closed by work activities or incidents, advance warning signs should be installed to alert road users well in advance of these obstructions or restrictions.

Where road users include pedestrians, the provision of supplemental audible information or detectable barriers or barricades should be considered for people with visual disabilities.

Support:

Detectable barriers or barricades communicate very clearly to pedestrians who have visual disabilities that they can no longer proceed in the direction that they are traveling.

Option:

Advance warning signs may be used singly or in combination.

~~**Standard:**~~

~~**Because of their importance, advance warning signs for higher-speed locations shall have a size of 1200 x 1200 mm (48 x 48 in) (see Part 2).**~~

~~**For freeways and expressways, the size of diamond shaped TTC warning signs shall be a minimum of 1200 x 1200 mm (48 x 48 in).**~~

~~Option:~~

~~Where speeds and volumes are moderately low, a minimum size of 900 x 900 mm (36 x 36 in) may be used for advance warning signs.~~

~~On secondary roads or City streets where speeds are very low, signs smaller than the standard size, but not less than 600 x 600 mm (24 x 24 in), may be used for warning signs having short word messages or clear symbols.~~

Standard:

The previous paragraphs are deleted for application and shall not be used in California as "higher-speed", "moderately low" and "very low" are not defined in the MUTCD. Use Table 2C-2 in Part 2 for size of warning signs.

Option:

Advance warning signs larger than the minimum standards may be used for additional emphasis of the TTC zone (see Part 2).

Where distances are not shown on warning signs as part of the message, a supplemental plaque with the distance legend may be mounted immediately below the sign on the same support.

Support:

Some of the California warning signs used in TTC zones are shown in Figure 6F-101(CA) and Table 6F-101(CA).

Section 6F.16 Position of Advance Warning Signs

Guidance:

Where highway conditions permit, warning signs should be placed in advance of the TTC zone at varying distances depending on roadway type, condition, and posted speed. Table 6C-1 contains information

regarding the spacing of advance warning signs. Where a series of two or more advance warning signs is used, the closest sign to the TTC zone should be placed approximately 30 m (100 ft) for low-speed urban streets to 300 m (1,000 ft) or more for freeways and expressways.

Support:

Various conditions, such as limited sight distance or obstructions that might require a driver to reduce speed or stop, might require additional advance warning signs.

Option:

As an alternative to a specific distance on advance warning signs, the word AHEAD may be used.

Support:

At TTC zones on lightly-traveled roads, all of the advance warning signs prescribed for major construction might not be needed.

Option:

Utility work, maintenance, or minor construction can occur within the TTC zone limits of a major construction project, and additional warning signs may be needed.

Guidance:

Utility, maintenance, and minor construction signing and TTC should be coordinated with appropriate authorities so that road users are not confused or misled by the additional TTC devices.

Section 6F.17 ROAD (STREET) WORK Sign (W20-1)

Guidance:

The ROAD (STREET) WORK (W20-1) sign (see Figure 6F-4, Sheet 3 of 4), which serves as a general warning of obstructions or restrictions, should be located in advance of the work space or any detour, on the road where the work is taking place.

Where traffic can enter a TTC zone from a crossroad or a major (high-volume) driveway, an advance warning sign should be used on the crossroad or major driveway.

Standard:

The ROAD (STREET) WORK (W20-1) sign shall have the legend ROAD (STREET) WORK, XX ~~m~~ (FT), XX ~~km~~ (MILES), or AHEAD.

Option:

The word RAMP may be substituted for ROAD or STREET where applicable.

The ROAD (STREET) WORK Informational Plaque (C23B(CA)) may be used with ROAD (STREET) WORK (W20-1) sign.

Standard:

The message displayed on the ROAD (STREET) WORK Informational Plaque (C23B(CA)) shall be worded in terms common to motorists, as shown in examples below. The height and width of the plate will vary according to the lettering size and message. The width of the plate shall not exceed the overall width of the W20-1 sign.

Support:

Following are some example messages:

- BRIDGE REPLACEMENT
- BRIDGE WIDENING
- BRIDGE REPAIR
- CURVE IMPROVEMENT
- HIGHWAY REALIGNMENT
- HIGHWAY WIDENING
- HIGHWAY WIDENING AND PAVING
- HIGHWAY REHABILITATION
- STORM REPAIR
- PAVING
- SIGNING IMPROVEMENT
- PAVEMENT MAINTENANCE
- SAFETY IMPROVEMENT

Guidance:

The SPECIAL EVENT AHEAD (SC5(CA)) sign should be used in lieu of the ROAD (STREET) WORK (W20-1) sign for special events, such as bike races, movie filming, etc., where the event is on the travel way or close enough or of such a nature as to cause a potential danger to motorists.

Section 6F.18 DETOUR Sign (W20-2)

~~Guidance:~~

Standard:

The DETOUR (W20-2) sign (see Figure 6F-4, Sheet 3 of 4) ~~should~~ shall be used in advance of a road user detour over a different roadway or route. Refer to CVC 21363 for detour signs.

~~**Standard:**~~

The DETOUR sign shall have the legend DETOUR, XX ~~m~~ (FT), XX ~~km~~ (MILES), or AHEAD.

Section 6F.19 ROAD (STREET) CLOSED Sign (W20-3)

Guidance:

The ROAD (STREET) CLOSED (W20-3) sign (see Figure 6F-4, Sheet 3 of 4) should be used in advance of the point where a highway is closed to all road users, or to all but local road users.

Standard:

The ROAD (STREET) CLOSED sign shall have the legend ROAD (STREET) CLOSED, XX ~~m~~ (FT), XX ~~km~~ (MILES), or AHEAD.

Option:

The word RAMP may be substituted for ROAD or STREET, where applicable.

Section 6F.20 ONE LANE ROAD Sign (W20-4)

Standard:

The ONE LANE ROAD (W20-4) sign (see Figure 6F-4, Sheet 3 of 4) shall be used only in advance of that point where motor vehicle traffic in both directions must use a common single lane (see Section 6C.10). It shall have the legend ONE LANE ROAD, XX ~~m~~ (FT), XX ~~km~~ (MILES), or AHEAD.

Section 6F.21 Lane(s) Closed Signs (W20-5, W20-5a)

Standard:

The Lane(s) Closed sign (see Figure 6F-4, Sheet 3 of 4) shall be used in advance of that point where one or more through lanes of a multi-lane roadway are closed.

For a single lane closure, the Lane Closed (W20-5) sign (see Figure 6F-4, Sheet 3 of 4) shall have the legend RIGHT (LEFT) LANE CLOSED, XX ~~m~~ (FT), XX ~~km~~ (MILES), or AHEAD. Where two adjacent lanes are closed, the W20-5a sign (see Figure 6F-4, Sheet 3 of 4) shall have the legend RIGHT (LEFT) TWO LANES CLOSED, XX ~~m~~ (FT), XX ~~km~~ (MILES), or AHEAD.

Option:

The Lane Closed (W20-5 or C20(CA)) sign by itself, or in combination with LEFT (C20A(CA)) plaque and/or Numeral (C20B(CA)) plaque may be used.

The LANE CLOSED (C30(CA)) sign may be used within a closed lane of a multilane highway as follow-up information to the appropriate advance warning signs. The C30(CA) sign may be repeated at intervals, throughout long lane closures, as a reminder to motorists.

The words RAMP CLOSED may be used as an alternate message on the C30(CA) signs on surface streets to warn that the upcoming freeway/expressway on ramp is closed.

Section 6F.22 CENTER LANE CLOSED AHEAD Signs (W9-3, W9-3a)

Guidance:

The CENTER LANE CLOSED AHEAD (W9-3) sign (see Figure 6F-4, Sheet 2 of 4) should be used in advance of that point where work occupies the center lane(s) and approaching motor vehicle traffic is directed to the right or left of the work zone in the center lane.

Option:

The Center Lane Closed Ahead (W9-3a) symbol sign ~~(see Figure 6H-38)~~ may be substituted for the CENTER LANE CLOSED AHEAD (W9-3) word message sign.

Support:

For moving lane closures on State highways, see Department of Transportation's Standard Plan T-16. See Section 1A.11 for information regarding this publication.

Do not use the CENTER LANE CLOSED AHEAD (W9-3) and Center Lane Closed Ahead (W9-3a) signs for moving lane closures on State highways.

Section 6F.23 THRU TRAFFIC MERGE LEFT (RIGHT) Sign (W4-7)

Guidance:

The THRU TRAFFIC MERGE LEFT (RIGHT) (W4-7) sign (see Figure 6F-4, Sheet 1 of 4) should be used in advance of an intersection where one or more lane closures on the far side of a multi-lane intersection require through vehicular traffic on the approach to the intersection to use the left (right) lane to proceed through the intersection.

Support:

Refer to Section 2C.33 for Lane Ends (W4-2, W9-1) signs and 2C.109 for Lane Drop (W73(CA), W73A(CA) and W4-7) signs.

Section 6F.24 Lane Ends Sign (W4-2)

~~Option:~~

Guidance:

The Lane Ends (W4-2) symbol sign (see Figure 6F-4, Sheet 1 of 4) ~~may~~ should be used to warn drivers of the reduction in the number of lanes for moving motor vehicle traffic in the direction of travel on a multi-lane roadway.

Section 6F.25 ON RAMP Plaque (W13-4)

~~Guidance:~~

~~When work is being done on a ramp, but the ramp remains open, the ON RAMP (W13-4) plaque (see Figure 6F-4, Sheet 3 of 4) should be used to supplement the advance ROAD WORK sign.~~

Standard:

The ON RAMP (W13-4) plaque shall not be used in California due to the potential for conflict if it is used when the work is being done on an off ramp.

Section 6F.26 RAMP NARROWS Sign (W5-4)

~~Guidance:~~

~~The RAMP NARROWS (W5-4) sign (see Figure 6F-4, Sheet 1 of 4) should be used in advance of the point where work on a ramp reduces the normal width of the ramp along a part or all of the ramp.~~

Standard:

The RAMP NARROWS (W5-4) sign shall not be used in California. The ROAD NARROWS (W5-1) sign or NARROW LANE(S) (C12(CA)) sign, as appropriate, shall be used instead. See Sections 2C.15 and 6F.103(CA).

Section 6F.27 SLOW TRAFFIC AHEAD Sign (W23-1)

Option:

The SLOW TRAFFIC AHEAD (W23-1) sign (see Figure 6F-4, Sheet 4 of 4) may be used on a shadow vehicle, usually mounted on the rear of the most upstream shadow vehicle, along with other appropriate signs for mobile operations to warn of slow moving work vehicles. A ROAD (STREET) WORK (W20-1) sign may also be used with the SLOW TRAFFIC AHEAD sign.

Section 6F.28 EXIT OPEN, EXIT CLOSED, EXIT ONLY Signs (E5-2, E5-2a, E5-3)

Option:

An EXIT OPEN (E5-2), EXIT CLOSED (E5-2a), or EXIT ONLY (E5-3) sign (see Figure 6F-5) may be used to supplement other warning signs where work is being conducted in the vicinity of an exit ramp and where the exit maneuver for motor vehicle traffic using the ramp is different from the normal condition.

Guidance:

When an exit ramp is closed, an EXIT CLOSED panel with a black legend and border on an orange background should be placed diagonally across the interchange/intersection guide signs.

Option:

The USE NEXT EXIT (C38(CA)) sign may be used with the RAMP CLOSED (R11-2, alternate message per Section 6F.08) sign on freeways if the next exit provides access to destinations from the closed ramp.

Guidance:

The RAMP CLOSED (Not more than one day) (SC6-3(CA)) sign should be used to inform motorists of the temporary closing of a freeway or expressway entrance or exit ramp for not more than one day.

The RAMP CLOSED (More than one day) (SC6-4(CA)) sign should be used to inform motorists of the temporary closing of a freeway or expressway entrance or exit ramp for more than one day.

The SC6-3(CA) and SC6-4(CA) signs should be removed when the ramp is reopened to traffic.

Standard:

The SC6-3(CA) and SC6-4(CA) signs shall display the correct day of the week, month, calendar day and times the ramp is closed.

Support:

The Day/Month (SC6A(CA)) plaque is used on the RAMP CLOSED (SC6-3(CA) and SC6-4(CA)) signs, to provide the appropriate day of the week and month a freeway or expressway entrance or exit ramp is closed.

The Time (SC6B(CA)) plaque is used on the RAMP CLOSED (SC6-3(CA) and SC6-4(CA)) signs, to provide the appropriate time of the day a freeway or expressway entrance or exit ramp is closed.

Option:

The RAMP CLOSED, USE RAMP AT ___ (SC7(CA)) sign may be used in lieu of the RAMP CLOSED (R11-2 sign, alternate message per Section 6F.08) sign and USE NEXT EXIT (C38(CA)) signs as shown on Department of Transportation's Standard Plan T-14 to inform motorists of a closed entrance or exit ramp and to provide an alternate route. See Section 1A.11 for information regarding these publication.

Guidance:

The ___ EXIT – RAMP CLOSED (SC8(CA)) sign should be used to inform motorists of a closed exit ramp.

Standard:

The SC8(CA) sign shall be placed on the right shoulder, upstream of the preceding exit ramp.

Guidance:

The EXIT with Arrow (SC18(CA)) sign should be used to inform motorists of the direction to follow for a freeway exit within a work zone.

Section 6F.29 Flagger Sign (W20-7a, W20-7)

Guidance:

The ~~Flagger (20-7a) symbol sign (see Figure 6F-4, Sheet 3 of 4)~~ California Flagger symbol (C9A(CA)) sign should be used in advance of any point where a flagger is stationed to control road users.

Option:

A distance legend may be displayed on a supplemental plaque below the Flagger sign. The sign may be used with appropriate legends or in conjunction with other warning signs, such as the BE PREPARED TO STOP (W3-4) sign (see Figure 6F-4, Sheet 1 of 4).

The FLAGGER (W20-7) word message sign with distance legends may be substituted for the ~~Flagger (W20-7a) symbol sign~~ California Flagger symbol (C9A(CA)) sign.

Standard:

The Flagger sign shall be removed, covered, or turned away from road users when the flagging operations are not occurring.

The MUTCD Flagger symbol (W20-7a) sign shall not be used, the California Flagger symbol (C9A(CA)) sign shall be used, instead.

Section 6F.30 Two-Way Traffic Sign (W6-3)

Guidance:

When one roadway of a normally divided highway is closed, with two-way vehicular traffic maintained on the other roadway, the Two-Way Traffic (W6-3) sign (see Figure 6F-4, Sheet 2 of 4) should be used at the beginning of the two-way vehicular traffic section and at intervals to remind road users of opposing vehicular traffic.

Guidance:

The Two-Way Traffic (W6-3) sign should also be used at locations where motorists could perceive that they are on a one-way roadway when, in fact, they are on a two lane, two-way highway.

Support:

Following are some typical situations:

- Construction sites where a two-lane highway is being converted to a freeway or an expressway.
- Two-lane, two-way highways where ultimate freeway or expressway right-of-way has been purchased and grading for the full width has been completed.
- Two-lane, two-way highways following long sections of multi-lane freeway or expressway.

Section 6F.31 Workers Sign (W21-1, W21-1a)

Option:

A Workers (W21-1a) symbol sign (see Figure 6F-4, Sheet 3 of 4) may be used to alert road users of workers in or near the roadway.

Guidance:

In the absence of other warning devices, a Workers symbol sign should be used when workers are in the roadway.

Option:

The WORKERS (W21-1) word message sign may be used as an alternate to the Workers (W21-1a) symbol sign.

Section 6F.32 FRESH OIL (TAR) Sign (W21-2)

Guidance:

The FRESH OIL (TAR) (W21-2) sign (see Figure 6F-4, Sheet 3 of 4) should be used to warn road users of the surface treatment.

Section 6F.33 ROAD MACHINERY AHEAD Sign (W21-3)

Option:

The ROAD MACHINERY AHEAD (W21-3) sign (see Figure 6F-4, Sheet 3 of 4) may be used to warn of machinery operating in or adjacent to the roadway.

Section 6F.34 Motorized Traffic Signs (W8-6, W11-10)

Option:

Motorized Traffic (W8-6, W11-10 or C44(CA)) signs may be used to alert road users to locations where unexpected travel on the roadway or entries into or departures from the roadway by construction vehicles might occur. The TRUCK CROSSING (W8-6) or TRUCKS ENTERING EXITING (C44(CA)) word message signs may be used as an alternate to the Truck Crossing symbol (W11-10) sign (see Figure 6F-4, Sheet 2 of 4) where there is an established construction vehicle crossing of the roadway.

Support:

These locations might be relatively confined or might occur randomly over a segment of roadway.

Section 6F.35 Shoulder Work Signs (W21-5, W21-5a,)

Support:

Shoulder Work signs (see Figure 6F-4, Sheets 3 and 4 of 4) warn of maintenance, reconstruction, or utility operations on the highway shoulder where the roadway is unobstructed.

Standard:

The Shoulder Work sign shall have the legend SHOULDER WORK (W21-5), RIGHT (LEFT) SHOULDER CLOSED (W21-5a), or RIGHT (LEFT) SHOULDER CLOSED XXX ~~m~~ (FT) or AHEAD (W21-5b) or SHOULDER WORK AHEAD (C24(CA)).

Option:

The Shoulder Work sign may be used in advance of the point on a nonlimited access highway where there is shoulder work. It may be used singly or in combination with a ROAD WORK NEXT X ~~km~~ (MILES) or ROAD WORK AHEAD sign.

Guidance:

On freeways and expressways, the RIGHT (LEFT) SHOULDER CLOSED XXX ~~m~~ (FT) or AHEAD (W21-5b) sign followed by RIGHT (LEFT) SHOULDER CLOSED (W21-5a) sign should be used in advance of the point where the shoulder work occurs and should be preceded by a ROAD WORK AHEAD sign.

Option:

The SHOULDER WORK AHEAD (C24(CA)) sign may be used in advance of the point where maintenance, reconstruction, or utility operations involve the shoulder but the roadway is unobstructed.

The SHOULDER CLOSED (C30A(CA)) sign may be used within a shoulder area that has been closed due to work near the traveled way. The C30A(CA) sign is supplemental to appropriate advance warning signs.

Section 6F.36 SURVEY CREW Sign (W21-6)

Guidance:

The SURVEY CREW (W21-6) sign (see Figure 6F-4, Sheet 4 of 4) should be used to warn of surveying crews working in or adjacent to the roadway.

Section 6F.37 UTILITY WORK Sign (W21-7)

Option:

The UTILITY WORK (W21-7) sign (see Figure 6F-4, Sheet 4 of 4) may be used as an alternate to the ROAD (STREET) WORK (W20-1) sign for utility operations on or adjacent to a highway.

Support:

Typical examples of where the UTILITY WORK sign is used appear in Figures ~~6H-4~~ 6H-4(CA), 6H-6, ~~6H-10~~ 6H-10(CA), 6H-15, 6H-18, 6H-21, 6H-22, 6H-26, and 6H-33.

Standard:

The UTILITY WORK sign shall carry the legend UTILITY WORK, XX ~~m~~ (FT), XX ~~km~~ (MILES), or AHEAD.

Section 6F.38 Signs for Blasting Areas

Support:

Radio-Frequency (RF) energy can cause the premature firing of electric detonators (blasting caps) used in TTC zones.

Standard:

Road users shall be warned to turn off mobile radio transmitters and cellular telephones where blasting operations occur. A sequence of signs shall be prominently displayed to direct operators of mobile radio equipment, including cellular telephones, to turn off transmitters in a blasting area. These signs shall be covered or removed when there are no explosives in the area or the area is otherwise secured.

Section 6F.39 BLASTING ZONE AHEAD Sign (W22-1)

Standard:

The BLASTING ZONE AHEAD (W22-1) sign (see Figure 6F-4, Sheet 4 of 4) shall be used in advance of any TTC zone where explosives are being used. The TURN OFF 2-WAY RADIO AND CELL PHONE and END BLASTING ZONE signs shall be used in sequence with this sign.

Section 6F.40 TURN OFF 2-WAY RADIO AND CELL PHONE Sign (W22-2)

Standard:

The TURN OFF 2-WAY RADIO AND CELL PHONE (W22-2) sign (see Figure 6F-4, Sheet 4 of 4) shall follow the BLASTING ZONE AHEAD sign and shall be placed at least 300 m (1,000 ft) before the beginning of the blasting zone.

Section 6F.41 END BLASTING ZONE Sign (W22-3)

Standard:

The END BLASTING ZONE (W22-3) sign (see Figure 6F-4, Sheet 4 of 4) shall be placed a minimum of 300 m (1,000 ft) past the blasting zone.

Option:

The END BLASTING ZONE sign may be placed either with or preceding the END ROAD WORK sign.

Section 6F.42 Shoulder Signs (W8-4, W8-9, W8-9a)

Option:

The SOFT SHOULDER (W8-4) sign (see Figure 6F-4, Sheet 2 of 4) may be used to warn of a soft shoulder condition.

The LOW SHOULDER (W8-9) sign (see Figure 6F-4, Sheet 2 of 4) may be used to warn of a shoulder condition where there is an elevation difference of less than 75 mm (3 in) between the shoulder and the travel lane.

Guidance:

The SHOULDER DROP OFF (W8-9a) sign (see Figure 6F-4, Sheet 2 of 4) should be used when an unprotected shoulder drop-off, adjacent to the travel lane, exceeds 75 mm (3 in) in depth for a continuous length along the roadway, based on engineering judgment.

Option:

The NO SHOULDER (C31A(CA)) sign may be used where no earth, gravel or paved shoulders are available for vehicles to pull off the roadway.

Section 6F.43 UNEVEN LANES Sign (W8-11)

Guidance:

The UNEVEN LANES (W8-11) sign (see Figure 6F-4, Sheet 2 of 4) should be used during operations that create a difference in elevation between adjacent lanes that are open to travel of 50 mm (2 in) or more.

Section 6F.44 NO CENTER STRIPE Sign (W8-12)

Guidance:

The NO CENTER STRIPE (W8-12) sign (see Figure 6F-4, Sheet 2 of 4) should be used when the work obliterates the centerline pavement markings. This sign should be placed at the beginning of the TTC zone and repeated at 3.2 km (2 mi) intervals in long TTC zones.

Standard:

The NO CENTER STRIPE (W8-12) sign shall not be used on State highways. Whenever construction or maintenance work causes obliteration of center stripe, temporary or permanent center stripe shall be in place prior to opening the State highway to public traffic.

Section 6F.45 Double Reverse Curve Signs (W24 Series)

Option:

The Double Reverse Curve (W24-1, ~~W24-1a, or W24-1b~~) sign (see Figure 6F-4, Sheet 4 of 4) may be used when the tangent distance between two reverse curves is less than 180 m (600 ft), thus making it difficult for a second Reverse Curve (W1-4 ~~Series~~) sign to be placed between the curves.

Standard:

If a Double Reverse Curve sign is used, ~~the number of lanes illustrated on the sign shall be the same as the number of through lanes available to road users~~, and the direction of the double reverse curve shall be appropriately illustrated.

Section 6F.46 Other Warning Signs

Option:

Advance warning signs may be used by themselves or with other advance warning signs.

Besides the warning signs specifically related to TTC zones, several other warning signs in Part 2 may apply in TTC zones.

Standard:

Except as noted in Section 6F.02, other warning signs that are used in TTC zones shall have black legends and borders on an orange background.

Section 6F.47 Special Warning Signs

Option:

Special warning signs may be used based on engineering judgment.

Guidance:

Special warning signs should conform to the general requirements of color, shape, and alphabet size and series. The sign message should be brief, legible, and clear.

Section 6F.48 Advisory Speed Plaque (W13-1)

Option:

In combination with a warning sign, an Advisory Speed (W13-1) plaque (see Figure 6F-4, Sheet 2 of 4) may be used to indicate a recommended safe speed through the TTC zone.

Standard:

The Advisory Speed plaque shall not be used in conjunction with any sign other than a warning sign, nor shall it be used alone. When used with orange TTC zone signs, this plaque shall have a black legend and border on an orange background. The sign shall be at least 600 x 600 mm (24 x 24 in) in size when used with a sign that is 900 x 900 mm (36 x 36 in) or larger. Except in emergencies, an Advisory Speed plaque shall not be mounted until the recommended speed is determined by the highway agency.

Section 6F.49 Supplementary Distance Plaque (W7-3a)

Option:

In combination with a warning sign, a Supplementary Distance (W7-3a) plaque with the legend NEXT XX ~~km~~ (MILES) may be used to indicate the length of highway over which a work activity is being conducted, or over which a condition exists in the TTC zone.

In long TTC zones, Supplementary Distance plaques with the legend NEXT XX ~~km~~ (MILES) may be placed in combination with warning signs at regular intervals within the zone to indicate the remaining length of highway over which the TTC work activity or condition exists.

Standard:

The Supplementary Distance plaque with the legend NEXT XX ~~km~~ (MILES) shall not be used in conjunction with any sign other than a warning sign, nor shall it be used alone. When used with orange TTC zone signs, this plaque shall have a black legend and border on an orange background. The sign shall be at least 750 x 600 mm (30 x 24 in) in size when used with a sign that is 900 x 900 mm (36 x 36 in) or larger.

Guidance:

When used in TTC zones, the Supplementary Distance plaque with the legend NEXT XX ~~km~~ (MILES) should be placed below the initial warning sign designating that, within the approaching zone, a temporary work activity or condition exists.

Option:

The XXX FT (C29(CA)) plaque may be used on the face of a warning sign to indicate the length of highway over which a work activity is being conducted, or over which a condition exists in the TTC zone.

Section 6F.50 Guide Signs

Support:

Guide signs along highways provide road users with information to help them along their way through the TTC zone. The design of guide signs is presented in Part 2.

Guidance:

The following guide signs should be used in TTC zones as needed:

A. Standard route markings, where temporary route changes are necessary;

B. Directional signs and street name signs; and

C. Special guide signs relating to the condition or work being done.

Standard:

If additional temporary guide signs are used in TTC zones, they shall have a black legend and border on an orange background.

Option:

Guide signs used in TTC incident management situations may have a black legend and border on a fluorescent pink background.

When directional signs and street name signs are used in conjunction with detour routing, these signs may have a black legend and border on an orange background.

When permanent directional signs or permanent street name signs are used in conjunction with detour signing, they may have a white legend on a green background.

Section 6F.51 ROAD WORK NEXT XX km (MILES) Sign (G20-1)

Guidance:

The ROAD WORK NEXT XX ~~km~~ (MILES) (G20-1) sign (see Figure 6F-4, Sheet 4 of 4) should be installed in advance of TTC zones that are more than 3.2 km (2 mi) in length.

Option:

The ROAD WORK NEXT XX ~~km~~ (MILES) sign may be mounted on a Type III barricade. The sign may also be used for TTC zones of shorter length.

Standard:

The distance shown on the ROAD WORK NEXT XX ~~km~~ (MILES) sign shall be stated to the nearest whole ~~kilometer~~ (or mile).

Option:

The word STATE HIGHWAY may be substituted for ROAD, where applicable.

The word CONSTRUCTION may be substituted for WORK, where applicable.

Section 6F.52 END ROAD WORK Sign (G20-2)

Guidance:

When used, the END ROAD WORK (G20-2) sign (see Figure 6F-4, Sheet 4 of 4) should be placed near the end of the termination area, as determined by engineering judgment.

Option:

The END ROAD WORK sign may be installed on the back of a warning sign facing the opposite direction of road users or on the back of a Type III barricade.

Option:

The END ROAD WORK (G20-2) sign may not be used if the end of the work zone is obvious to motorists or falls within a larger project's limits.

Conditions may be such that posting of END ROAD WORK (G20-2) signs is not helpful. For example, they should normally not be used if other TTC zones begin within 1.6 km (1 mi) of the end of the workspace in rural areas, or about 0.4 km (0.25 mi) within urban areas. For normal daytime maintenance operations, the G20-2 sign is optional.

Section 6F.53 Detour Signs (M4-8, M4-8a, M4-8b, M4-9, M4-9a, M4-9b, M4-9c, and M4-10)

Standard:

Each detour shall be adequately marked with standard temporary route signs and destination signs.

Option:

Detour signs in TTC incident management situations may have a black legend and border on a fluorescent pink background.

The Detour Arrow (M4-10) sign (see Figure 6F-5) may be used where a detour route has been established.

The DETOUR (M4-8) sign (see Figure 6F-5) may be mounted at the top of a route sign assembly to mark a temporary route that detours from a highway, bypasses a section closed by a TTC zone, and rejoins the highway beyond the TTC zone.

Guidance:

The Detour Arrow (M4-10) sign should normally be mounted just below the ROAD CLOSED (R11-2, R11-3a, or R11-4) sign. The Detour Arrow sign should include a horizontal arrow pointed to the right or left as required.

The DETOUR (M4-9) sign (see Figure 6F-5) should be used for unnumbered highways, for emergency situations, for periods of short durations, or where, over relatively short distances, road users are guided along the detour and back to the desired highway without route signs.

A Street Name sign should be placed above, or the street name should be incorporated into, a DETOUR (M4-9) sign to indicate the name of the street being detoured.

Option:

The END DETOUR (M4-8a) or END (M4-8b) sign (see Figure 6F-5) may be used to indicate that the detour has ended.

Guidance:

When the END DETOUR sign is used on a numbered highway, the sign should be mounted above a sign after the end of the detour.

The Pedestrian/Bicycle Detour (M4-9a) sign (see Figure 6F-5) should be used where a pedestrian/bicycle detour route has been established because of the closing of a pedestrian/bicycle facility to through traffic.

Standard:

If used, the Pedestrian/Bicycle Detour sign shall have an arrow pointing in the appropriate direction.

Option:

The arrow on a Pedestrian/Bicycle Detour sign may be on the sign face or on a supplemental plaque.

The Pedestrian Detour (M4-9b) sign or Bicycle Detour (M4-9c) sign (see Figure 6F-5) may be used where a pedestrian or bicycle detour route (not both) has been established because of the closing of the pedestrian or bicycle facility to through traffic.

Guidance:

The DETOUR (M4-8) sign should be placed on tangent sections at intervals not to exceed 400 m (1300 ft) and at major intersections.

Option:

In urban areas, the M4-8 signs may be placed at every intersection.

Guidance:

The DETOUR with Arrow (SC3(CA)) sign should be used for unnumbered highways, for emergency situations, for periods of short duration, or where, over relatively short distances, road users are guided along the detour and back to the desired highway without route markers.

The DETOUR with Arrow (SC9(CA)) sign should be used to inform motorists of the direction to follow for a detour. The words FWY DETOUR may be substituted for DETOUR, where applicable.

Section 6F.54 PILOT CAR FOLLOW ME Sign (G20-4)

Standard:

The PILOT CAR FOLLOW ME (G20-4) sign (see Figure 6F-4, Sheet 4 of 4) shall be mounted in a conspicuous position on the rear of a vehicle used for guiding one-way vehicular traffic through or around a TTC zone. A flagger shall be stationed on the approach to the activity area to stop vehicular traffic until the pilot vehicle is available.

Guidance:

The TRAFFIC CONTROL – WAIT AND FOLLOW PILOT CAR (C37(CA)) sign should be used at intersecting approaches to a work zone when pilot cars are controlling reversible lane traffic.

Section 6F.55 Portable Changeable Message Signs

Standard:

Portable Changeable Message signs shall be TTC devices with the flexibility to display a variety of messages. Each message shall consist of either one or two phases. A phase shall consist of up to three lines of eight characters per line. Each character module shall use at least a five wide and seven high pixel matrix.

Support:

Portable Changeable Message signs are used most frequently on high-density urban freeways, but have applications on all types of highways where highway alignment, road user routing problems, or other pertinent conditions require advance warning and information.

Portable Changeable Message signs have a wide variety of applications in TTC zones including: roadway, lane, or ramp closures, crash or emergency incident management, width restriction information, speed control or reductions, advisories on work scheduling, road user management and diversion, warning of adverse conditions or special events, and other operational control.

The primary purpose of Portable Changeable Message signs in TTC zones is to advise the road user of unexpected situations. Some typical applications include the following:

A. Where the speed of vehicular traffic is expected to drop substantially;
B. Where significant queuing and delays are expected;
C. Where adverse environmental conditions are present;
D. Where there are changes in alignment or surface conditions;
E. Where advance notice of ramp, lane, or roadway closures is needed;
F. Where crash or incident management is needed; and/or
G. Where changes in the road user pattern occur.

Guidance:

The components of a Portable Changeable Message sign should include: a message sign panel, control systems, a power source, and mounting and transporting equipment.

Portable Changeable Message signs should subscribe to the principles established in Section 2A.07 and other sections of this Manual and, to the extent practical, with the design (that is, color, letter size and shape, and borders) and applications prescribed in this Manual, except that the reverse colors for the letters and the background are considered acceptable.

The front face of the sign should be covered with a protective material. The color of the elements should be yellow or orange on a black background.

Portable Changeable Message signs should be visible from 800 m (0.5 mi) under both day and night conditions. For a trailer or large truck mounted sign, the letter height should be a minimum of 450 mm (18 in). For Changeable Message signs mounted on service patrol trucks, the letter height should be a minimum of 250 mm (10 in).

The message panel should have adjustable display rates (minimum of 3 seconds per phase), so that the entire message can be read at least twice at the posted speed, the off-peak 85th-percentile speed prior to work starting, or the anticipated operating speed.

Messages should be designed taking into account the following factors:

A. Each phase should convey a single thought.

B. If the message can be displayed in one phase, the top line should present the problem, the center line should present the location or distance ahead, and the bottom line should present the recommended driver action.
C. The message should be as brief as possible.
D. When a message is longer than two phases, additional Portable Changeable Message signs should be used.
E. When abbreviations are used, they should be easily understood (see Section 1A.14).

Option:

The message sign panel may vary in size.

Smaller letter sizes may be used on a Portable Changeable Message sign mounted on a trailer or large truck provided that the message is legible from at least 200 m (650 ft), or mounted on a service patrol truck provided that the message is legible from at least 100 m (330 ft).

Two Portable Changeable Message signs may be used for the purpose of allowing the entire message to be read twice at the posted speed.

Standard:

Portable Changeable Message signs shall automatically adjust their brightness under varying light conditions, to maintain legibility.

The control system shall include a display screen upon which messages can be reviewed before being displayed on the message sign. The control system shall be capable of maintaining memory when power is unavailable.

Portable Changeable Message signs shall be equipped with a power source and a battery back-up to provide continuous operation when failure of the primary power source occurs.

The mounting of Portable Changeable Message signs on a trailer, a large truck, or a service patrol truck shall be such that the bottom of the message sign panel shall be a minimum of 2.1 m (7 ft) above the roadway in urban areas and 1.5 m (5 ft) above the roadway in rural areas when it is in the operating mode.

The text of the messages shall not scroll or travel horizontally or vertically across the face of the sign.

Guidance:

Portable Changeable Message signs should be used as a supplement to and not as a substitute for conventional signs and pavement markings.

When Portable Changeable Message signs are used for route diversion, they should be placed far enough in advance of the diversion to allow road users ample opportunity to perform necessary lane changes, to adjust their speed, or to exit the affected highway.

The Portable Changeable Message signs should be sited and aligned to provide maximum legibility. Multiple Portable Changeable Message signs should be placed on the same side of the roadway, separated from each other at distances based on Table 6C-1.

Portable Changeable Message signs should be placed on the shoulder of the roadway or, if practical, further from the traveled lane. They should be delineated with retroreflective TTC devices. When Portable Changeable Message signs are not being used, they should be removed; if not removed, they should be shielded; or if the previous two options are not feasible, they should be delineated with retroreflective TTC devices.

Portable Changeable Message sign trailers should be delineated on a permanent basis by affixing retroreflective material, known as conspicuity material, in a continuous line on the face of the trailer as seen by oncoming road users. If the sign trailer is located within 4.6 m (15 ft) of the edge of the traveled way, it should be delineated with a taper consisting of 9 cones placed at a spacing of 7.5 m (25 ft) apart.

Standard:

On State highways, the message displayed on Portable Changeable Message signs shall be visible from a distance of 460 m (1500 ft) and shall be legible from a distance of 230 m (750 ft), at noon on a cloudless day, by persons with vision of or corrected to 20/20.

Guidance:

On local roads, the message displayed on Portable Changeable Message signs should be visible from a distance of 460 m (1500 ft) and shall be legible from a distance of 230 m (750 ft), at noon on a cloudless day, by persons with vision of or corrected to 20/20.

Support:

Refer to Department of Transportation's Standard Specifications Section 12-3.12 for visibility criteria cited. See Section 1A.11 for information regarding this publication.

Refer to Section 2B.13 for Vehicle Speed Feedback Signs.

Section 6F.56 Arrow Panels

Standard:

An arrow panel shall be a sign with a matrix of elements capable of either flashing or sequential displays. This sign shall provide additional warning and directional information to assist in merging and controlling road users through or around a TTC zone.

Guidance:

An arrow panel in the arrow or chevron mode should be used to advise approaching traffic of a lane closure along major multi-lane roadways in situations involving heavy traffic volumes, high speeds, and/or limited sight distances, or at other locations and under other conditions where road users are less likely to expect such lane closures.

If used, an arrow panel should be used in combination with appropriate signs, channelizing devices, or other TTC devices.

An arrow panel should be placed on the shoulder of the roadway or, if practical, further from the traveled lane. It should be delineated with retroreflective TTC devices. When an arrow panel is not being used, it should be removed; if not removed, it should be shielded; or if the previous two options are not feasible, it should be delineated with retroreflective TTC devices.

Standard:

Arrow panels shall meet the minimum size, legibility distance, number of elements, and other specifications shown on Figure 6F-6.

Support:

Type A arrow panels are appropriate for use on low-speed urban streets. Type B or II arrow panels are appropriate for intermediate-speed facilities and for maintenance or mobile operations on high-speed roadways. Type C or I arrow panels are intended to be used on high-speed, high-volume motor vehicle traffic control projects. Type D arrow panels are intended for use on authorized vehicles.

Standard:

Type A, B or II, and C or I arrow panels shall have solid rectangular appearances. A Type D arrow panel shall conform to the shape of the arrow.

All arrow panels shall be finished in nonreflective black. The arrow panel shall be mounted on a vehicle, a trailer, or other suitable support.

Guidance:

The minimum mounting height of an arrow panel should be 2.1 m (7 ft) from the roadway to the bottom of the panel, except on vehicle-mounted panels, which should be as high as practical.

A vehicle-mounted arrow panel should be provided with remote controls.

Standard:

Arrow panel elements shall be capable of at least a 50 percent dimming from full brilliance. The dimmed mode shall be used for nighttime operation of arrow panels.

Guidance:

Full brilliance should be used for daytime operation of arrow panels.

Standard:

The arrow panel shall have suitable elements capable of the various operating modes. The color presented by the elements shall be yellow.

Guidance:

If an arrow panel consisting of a bulb matrix is used, the elements should be recess-mounted or equipped with an upper hood of not less than 180 degrees.

Standard:

The minimum element on-time shall be 50 percent for the flashing mode, with equal intervals of 25 percent for each sequential phase. The flashing rate shall be not less than 25 nor more than 40 flashes per minute.

An arrow panel shall have the following three mode selections:

A. A Flashing Arrow, Sequential Arrow, or Sequential Chevron mode; and

B. A flashing Double Arrow mode; and

C. A flashing Caution mode.

An arrow panel in the arrow or chevron mode shall be used only for stationary or moving lane closures on multi-lane roadways.

For shoulder work, blocking the shoulder, for roadside work near the shoulder, or for temporarily closing one lane on a two-lane, two-way roadway, an arrow panel shall be used only in the caution mode.

Guidance:

For a stationary lane closure, the arrow panel should be located on the shoulder at the beginning of the merging taper.

Where the shoulder is narrow, the arrow panel should be located in the closed lane.

Standard:

When arrow panels are used to close multiple lanes, a separate arrow panel shall be used for each closed lane.

Guidance:

When arrow panels are used to close multiple lanes, if the first arrow panel is placed on the shoulder, the second arrow panel should be placed in the first closed lane at the beginning of the second merging taper ~~(see Figure 6H-37)~~. When the first arrow panel is placed in the first closed lane, the second arrow panel should be placed in the second closed lane at the downstream end of the second merging taper.

For mobile operations where a lane is closed, the arrow panel should be located to provide adequate separation from the work operation to allow for appropriate reaction by approaching drivers.

Standard:

A vehicle displaying an arrow panel shall be equipped with high-intensity rotating, flashing, oscillating, or strobe lights.

Arrow panel(s) shall not be used to laterally shift traffic.

Option:

A portable changeable message sign may be used to simulate an arrow panel display.

Standard:

The arrow panel shall be located behind any channelizing devices used to transition traffic from the closed lane.

Support:

Department of Transportation's Standard Specifications for flashing arrow panels are in Section 12-3.03. See Section 1A.11 for information regarding this publication.

Standard:

The minimum legibility distance is the distance at which flashing arrow panels shall be legible at noon on a cloudless day and at night by persons with vision of or corrected to 20/20.

Support:

Refer to Department of Transportation's Standard Specifications Section 12-3.03 for visibility criteria cited. See Section 1A.11 for information regarding this publication.

Section 6F.57 High-Level Warning Devices (Flag Trees)

Option:

A high-level warning device (flag tree) may supplement other TTC devices in TTC zones.

Support:

A high-level warning device is designed to be seen over the top of typical passenger cars. A typical high-level warning device is shown in Figure 6F-2.

Standard:

A high-level warning device shall consist of a minimum of two flags with or without a Type B high-intensity flashing warning light. The distance from the roadway to the bottom of the lens of the light and to the lowest point of the flag material shall be not less than 2.4 m (8 ft). The flag shall be 400 mm (16 in) square or larger and shall be orange or fluorescent red-orange in color.

Option:

An appropriate warning sign may be mounted below the flags.

Support:

High-level warning devices are most commonly used in high-density road user situations to warn road users of short-term operations.

Section 6F.58 Channelizing Devices

Standard:

Designs of various channelizing devices shall be as shown in Figure 6F–7.

Support:

The function of channelizing devices is to warn road users of conditions created by work activities in or near the roadway and to guide road users. Channelizing devices include cones, tubular markers, vertical panels, drums, barricades, and temporary raised islands.

Channelizing devices provide for smooth and gradual vehicular traffic flow from one lane to another, onto a bypass or detour, or into a narrower traveled way. They are also used to separate vehicular traffic from the work space, pavement drop-offs, pedestrian or shared-use paths, or opposing directions of vehicular traffic.

Standard:

Devices used to channelize pedestrians shall be detectable to users of long canes and visible to persons having low vision.

Where barricades are used to channelize pedestrians, there shall be continuous detectable bottom and top rails with no gaps between individual barricades to be detectable to users of long canes. The bottom of the bottom rail shall be no higher than 150 mm (6 in) above the ground surface. The top of the top rail shall be no lower than 900 mm (36 in) above the ground surface.

Option:

A gap not exceeding 150 mm (6 in) between the bottom rail and the ground surface may be used to facilitate drainage.

Standard:

If drums, cones, or tubular markers are used to channelize pedestrians, they shall be located such that there are no gaps between the bases of the devices, in order to create a continuous bottom, and the height of each individual drum, cone, or tubular marker shall be no less than 900 mm (36 in) to be detectable to users of long canes.

Guidance:

Channelizing devices should be constructed and ballasted to perform in a predictable manner when inadvertently struck by a vehicle. Channelizing devices should be crashworthy. Fragments or other debris from the device or the ballast should not pose a significant hazard to road users or workers.

The spacing of channelizing devices should not exceed a distance in meters (feet) equal to 0.2 times the speed limit in km/h (1.0 times the speed limit in mph) when used for taper channelization, and a distance in meters (feet) equal to 0.4 times the speed limit in km/h (2.0 times the speed limit in mph) when used for tangent channelization.

When channelizing devices have the potential of leading vehicular traffic out of the intended vehicular traffic space as shown in Figure 6H-39, the channelizing devices should be extended a distance in meters (feet) of 0.4 times the speed limit in km/h (2.0 times the speed limit in mph) beyond the end of the transition area.

The spacing of channelizing devices should not exceed the maximum distances shown in Table 6F-102(CA).

Option:

Warning lights may be added to channelizing devices in areas with frequent fog, snow, or severe roadway curvature, or where visual distractions are present.

Standard:

Warning lights shall flash when placed on channelizing devices used alone or in a cluster to warn of a condition. Warning lights placed on channelizing devices used in a series to channelize road users shall be steady-burn.

The retroreflective material used on channelizing devices shall have a smooth, sealed outer surface that will display a similar color day or night.

Option:

The name and telephone number of the highway agency, contractor, or supplier may be shown on the nonretroreflective surface of all types of channelizing devices.

Standard:

The letters and numbers of the name and telephone number shall be nonretroreflective and not over 50 mm (2 in) in height.

Guidance:

Particular attention should be given to maintaining the channelizing devices to keep them clean, visible, and properly positioned at all times.

Standard:

Devices that are damaged or have lost a significant amount of their retroreflectivity and effectiveness shall be replaced.

Section 6F.59 Cones

Standard:

Cones (see Figure 6F-7, Sheet 1 of 2) shall be predominantly orange and shall be made of a material that can be struck without causing damage to the impacting vehicle. For daytime and low-speed roadways, cones shall be not less than 450 mm (18 in) in height. When cones are used on freeways and other high-speed highways or at night on all highways, or when more conspicuous guidance is needed, cones shall be a minimum of 700 mm (28 in) in height.

For nighttime use, cones shall be retroreflectorized or equipped with lighting devices for maximum visibility. Retroreflectorization of cones that are 700 to 900 mm (28 to 36 in) in height shall be provided by a 150 mm (6 in) wide white band located 75 to 100 mm (3 to 4 in) from the top of the cone and an additional 100 mm (4 in) wide white band located approximately 50 mm (2 in) below the 150 mm (6 in) band.

Retroreflectorization of cones that are more than 900 mm (36 in) in height shall be provided by horizontal, circumferential, alternating orange and white retroreflective stripes that are 100 to 150 mm (4 to 6 in) wide. Each cone shall have a minimum of two orange and two white stripes with the top stripe being orange. Any nonretroreflective spaces between the orange and white stripes shall not exceed 75 mm (3 in) in width.

Support:

The 900 mm (36 in) and 1050 mm (42 in) high cones provide additional conspicuity in visually complex environments and for older road users.

Option:

Traffic cones may be used to channelize road users, divide opposing vehicular traffic lanes, divide lanes when two or more lanes are kept open in the same direction, and delineate short duration maintenance and utility work.

Guidance:

Steps should be taken to minimize the possibility of cones being blown over or displaced by wind or moving vehicular traffic.

Cones should not be used for pedestrian channelization or as pedestrian barriers in TTC zones on or along sidewalks unless they are continuous between individual devices and detectable to users of long canes.

Option:

Cones may be doubled up to increase their weight.

Support:

Some cones are constructed with bases that can be filled with ballast. Others have specially weighted bases, or weight such as sandbag rings that can be dropped over the cones and onto the base to provide added stability.

Guidance:

Ballast should be kept to the minimum amount needed.

Option:

Retroreflectorization of 700 mm (28 in) or larger cones may be provided by a 325 mm (13 in) band (sleeve).

Standard:

On State highways, the retroreflectorized bands shall be visible at 300 m (1000 ft) at night under illumination of legal high beam headlights, by persons with vision of or corrected to 20/20.

Guidance:

On local roads, the retroreflectorized bands should be visible at 300 m (1000 ft) at night under illumination of legal high beam headlights, by persons with vision of or corrected to 20/20.

Support:

Refer to Department of Transportation's Standard Specifications Section 12-3.10 for visibility criteria cited. See Section 1A.11 for information regarding this publication.

Section 6F.60 Tubular Markers

Standard:

Tubular markers (see Figure 6F-7, Sheet 1 of 2) shall be predominantly orange and shall be not less than 450 mm (18 in) high and 50 mm (2 in) wide facing road users. They shall be made of a material that can be struck without causing damage to the impacting vehicle.

Tubular markers shall be a minimum of 700 mm (28 in) in height when they are used on freeways and other high-speed highways, on all highways during nighttime, or whenever more conspicuous guidance is needed.

For nighttime use, tubular markers shall be retroreflectorized. Retroreflectorization of 700 mm (28 in) or larger tubular markers shall be provided by two 75 mm (3 in) wide white bands placed a maximum of 50 mm (2 in) from the top with a maximum of 150 mm (6 in) between the bands.

Support:

The 1050 mm (42 in) high tubular markers provide additional conspicuity in visually complex environments and for older road users.

Guidance:

Tubular markers should not be used for pedestrian channelization or as pedestrian barriers in TTC zones on or along sidewalks unless they are continuous between individual devices and detectable to users of long canes.

Tubular markers have less visible area than other devices and should be used only where space restrictions do not allow for the use of other more visible devices.

Tubular markers should be stabilized by affixing them to the pavement, by using weighted bases, or weights such as sandbag rings that can be dropped over the tubular markers and onto the base to provide added stability. Ballast should be kept to the minimum amount needed.

Option:

Tubular markers may be used effectively to divide opposing lanes of road users, divide vehicular traffic lanes when two or more lanes of moving motor vehicle traffic are kept open in the same direction, and to delineate the edge of a pavement drop off where space limitations do not allow the use of larger devices.

Standard:

When a noncylindrical tubular marker is used, it shall be attached to the pavement in a manner such that the width facing road users meets the minimum requirements.

A tubular marker shall be attached to the pavement to display the minimum 50 mm (2 in) width to the approaching road users.

On State highways, the retroreflectorized bands shall be visible at 300 m (1000 ft) at night under illumination of legal high beam headlights, by persons with vision of or corrected to 20/20.

Guidance:

On local roads, the retroreflectorized bands should be visible at 300 m (1000 ft) at night under illumination of legal high beam headlights, by persons with vision of or corrected to 20/20.

Support:

Refer to Department of Transportation's Standard Specifications Section 12-3.04 for visibility criteria cited. See Section 1A.11 for information regarding this publication.

Section 6F.61 Vertical Panels

Standard:

Vertical panels (see Figure 6F-7, Sheet 1 of 2) shall be 200 to 300 mm (8 to 12 in) in width and at least 600 mm (24 in) in height. They shall have orange and white diagonal stripes and be retroreflectorized.

Vertical panels shall be mounted with the top a minimum of 900 mm (36 in) above the roadway.

Where the height of the vertical panel itself is 900 mm (36 in) or greater, a panel stripe width of 150 (6 in) shall be used.

Guidance:

Vertical panels should be a minimum of 300 mm (12 in) in width.

Option:

Where the height of the vertical panel itself is less than 900 mm (36 in), a panel stripe width of 100 mm (4 in) may be used.

Standard:

Markings for vertical panels shall be alternating orange and white retroreflective stripes, sloping downward at an angle of 45 degrees in the direction vehicular traffic is to pass. Vertical panels used on freeways, expressways, and other high-speed roadways shall have a minimum of 169,000 mm^2 (270 in^2) retroreflective area facing vehicular traffic.

Option:

Where space is limited, vertical panels may be used to channelize vehicular traffic, divide opposing lanes, or replace barricades.

Section 6F.62 Drums

Standard:

Drums (see Figure 6F-7, Sheet 1 of 2) used for road user warning or channelization shall be constructed of lightweight, deformable materials. They shall be a minimum of 900 mm (36 in) in height and have at least a 450 mm (18 in) minimum width regardless of orientation. Metal drums shall not be used. The markings on drums shall be horizontal, circumferential, alternating orange and white retroreflective stripes 100 to 150 mm (4 to 6 in) wide. Each drum shall have a minimum of two orange and two white stripes with the top stripe being orange. Any nonretroreflectorized spaces between the orizontal orange and white stripes shall not exceed 75 mm (3 in) wide. Drums shall have closed tops that will not allow collection of construction debris or other debris.

Support:

Drums are highly visible, have good target value, give the appearance of being formidable obstacles and, therefore, command the respect of road users. They are portable enough to be shifted from place to place within a TTC zone in order to accommodate changing conditions, but are generally used in situations where they will remain in place for a prolonged period of time.

Option:

Although drums are most commonly used to channelize or delineate road user flow, they may also be used alone or in groups to mark specific locations.

Guidance:

Drums should not be used for pedestrian channelization or as pedestrian barriers in TTC zones on or along sidewalks unless they are continuous between individual devices and detectable to users of long canes.

Drums should not be weighted with sand, water, or any material to the extent that would make them hazardous to road users or workers when struck. Drums used in regions susceptible to freezing should have drain holes in the bottom so that water will not accumulate and freeze causing a hazard if struck by a road user.

Standard:

Ballast shall not be placed on the top of a drum.

On State highways, the retroreflectorized bands shall be visible at 300 m (1000 ft) at night under illumination of legal high beam headlights, by persons with vision of or corrected to 20/20.

Guidance:

On local roads, the retroreflectorized bands should be visible at 300 m (1000 ft) at night under illumination of legal high beam headlights, by persons with vision of or corrected to 20/20.

Support:

Refer to Department of Transportation's Standard Specifications Section 12-3.04 for visibility criteria cited. See Section 1A.11 for information regarding this publication.

Section 6F.63 Type I, II, or III Barricades

Support:

A barricade is a portable or fixed device having from one to three rails with appropriate markings and is used to control road users by closing, restricting, or delineating all or a portion of the right-of-way.

As shown in Figure 6F-7, Sheet 2 of 2, barricades are classified as either Type I, Type II, or Type III.

Standard:

Stripes on barricade rails shall be alternating orange and white retroreflective stripes sloping downward at an angle of 45 degrees in the direction road users are to pass. Except as noted in the Option, the stripes shall be 150 mm (6 in) wide.

Option:

When rail lengths are less than 900 mm (36 in), 100 mm (4 in) wide stripes may be used.

Standard:

The minimum length for Type I and Type II Barricades shall be 600 mm (24 in), and the minimum length for Type III Barricades shall be 1200 mm (48 in). Each barricade rail shall be 200 to 300 mm (8 to 12 in) wide. Barricades used on freeways, expressways, and other high-speed roadways shall have a minimum of 169,000 mm^2 (270 in^2) of retroreflective area facing road users.

Support:

The Type I and Type II Barricades, 900 mm (36 in) in length with each rail 300 mm (12 in) wide, provide additional conspicuity in visually complex environments and for older road users.

Guidance:

Where barricades extend entirely across a roadway, the stripes should slope downward in the direction toward which road users must turn.

Where both right and left turns are provided, the barricade stripes should slope downward in both directions from the center of the barricade or barricades.

Where no turns are intended, the stripes should be positioned to slope downward toward the center of the barricade or barricades.

Barricade rails should be supported in a manner that will allow them to be seen by the road user, and in a manner that provides a stable support that is not easily blown over or displaced.

The width of the existing pedestrian facility should be provided for the temporary facility if practical. Traffic control devices and other construction materials and features should not intrude into the usable width of the sidewalk, temporary pathway, or other pedestrian facility. When it is not possible to maintain a

minimum width of 1500 mm (60 in) throughout the entire length of the pedestrian pathway, a 1500 x 1500 mm (60 x 60 in) passing space should be provided at least every 60 m (200 ft) to allow individuals in wheelchairs to pass.

Barricade rail supports should not project into pedestrian circulation routes more than 100 mm (4 in) from the support between 675 mm (27 in) and 2000 mm (80 in) from the surface as described in Section 4.4.1 of the "Americans with Disabilities Act Accessibility Guidelines for Buildings and Facilities (ADAAG)" (see Section 1A.11).

Option:

For Type I Barricades, the support may include other unstriped horizontal panels necessary to provide stability.

Guidance:

Barricades should be crashworthy as they are located adjacent to vehicular traffic flow and are subject to impact by errant vehicles.

On high-speed expressways or in other situations where barricades may be susceptible to overturning in the wind, ballasting should be used.

Option:

Sandbags may be placed on the lower parts of the frame or the stays of barricades to provide the required ballast.

Standard:

Ballast shall not be placed on top of any striped rail. Barricades shall not be ballasted by nondeformable objects such as rocks or chunks of concrete. Ballast shall not extend into the accessible passage width of 1500 mm (60 in).

Support:

Type I or Type II Barricades are intended for use in situations where road user flow is maintained through the TTC zone.

Option:

Barricades may be used alone or in groups to mark a specific condition or they may be used in a series for channelizing road users.

Type I Barricades may be used on conventional roads or urban streets.

Guidance:

Type II or Type III Barricades should be used on freeways and expressways or other high-speed roadways. Type III Barricades should be used to close or partially close a road.

Option:

Type III Barricades used at a road closure may be placed completely across a roadway or from curb to curb.

Guidance:

Where provision is made for access of authorized equipment and vehicles, the responsibility for Type III Barricades should be assigned to a person who will provide proper closure at the end of each work day.

Support:

When a highway is legally closed but access must still be allowed for local road users, barricades usually are not extended completely across the roadway.

Standard:

A sign (see Section 6F.09) shall be installed with the appropriate legend concerning permissible use by local road users. Adequate visibility of the barricades from both directions shall be provided.

Option:

Signs may be installed on barricades (see Section 6F.03).

Section 6F.64 Direction Indicator Barricades

Standard:

The Direction Indicator Barricade (see Figure 6F-7, Sheet 2 of 2) shall consist of a One-Direction Large Arrow (W1-6) sign mounted above a diagonal striped, horizontally aligned, retroreflective rail.

The One-Direction Large Arrow (W1-6) sign shall be black on an orange background. The stripes on the bottom rail shall be alternating orange and white retroreflective stripes sloping downward at an angle of 45 degrees in the direction road users are to pass. The stripes shall be 100 mm (4 in) wide. The One- Direction Large Arrow (W1-6) sign shall be 600 x 300 mm (24 x 12 in). The bottom rail shall have a length of 600 mm (24 in) and a height of 200 mm (8 in).

Guidance:

The Direction Indicator Barricade, including any associated ballast or lights, should be crashworthy.

Option:

The Direction Indicator Barricade may be used in tapers, transitions, and other areas where specific directional guidance to drivers is necessary.

Guidance:

If used, Direction Indicator Barricades should be used in series to direct the driver through the transition and into the intended travel lane.

Section 6F.65 Temporary Traffic Barriers as Channelizing Devices

Support:

Temporary traffic barriers are not TTC devices in themselves; however, when placed in a position identical to a line of channelizing devices and marked and/or equipped with appropriate channelization features to provide guidance and warning both day and night, they serve as TTC devices.

Standard:

Temporary traffic barriers serving as TTC devices shall conform to requirements for such devices as set forth throughout Part 6.

Temporary traffic barriers shall not be used solely to channelize road users, but also to protect the work space (see Section 6F.81). If used to channelize vehicular traffic, the temporary traffic barrier shall be supplemented with delineation, pavement markings, or channelizing devices for improved daytime and nighttime visibility.

Guidance:

Temporary traffic barriers should not be used for a merging taper except in low-speed urban areas. Temporary traffic barriers should not be used for a constricted/restricted TTC zone.

When it is necessary to use a temporary traffic barrier for a merging taper in low-speed urban areas or for a constricted/restricted TTC zone, the taper shall be delineated and the taper length should be designed to optimize road user operations considering the available geometric conditions.

When used for channelization, temporary traffic barriers should be of a light color for increased visibility.

Option:

Side reflectors with cube-corner lenses or top mounted reflectors (facing the driver) may be used on temporary traffic barriers.

Guidance:

If used, the spacing of these reflectors should not exceed a distance in meters (feet) equal to 0.2 times the speed limit in km/h (1.0 times the speed limit in mph) through the TTC zone.

Section 6F.66 Longitudinal Channelizing Barricades

Support:

Longitudinal channelizing barricades are lightweight, deformable channelizing devices that can be used singly as Type I, II, or III barricades, or connected so they are highly visible and have good target value.

Guidance:

When used as a barricade, longitudinal channelizing barricades should conform to the general size, color, stripe pattern, retroreflectivity, and placement characteristics established for the devices described in Chapter 6F.

Option:

Longitudinal channelizing barricades may be used instead of a line of cones, drums, or barricades.

Longitudinal channelizing barricades may be hollow and filled with water as a ballast.

Guidance:

If used, longitudinal channelizing barricades should be interlocked to delineate or channelize flow including pedestrian traffic control. The interlocking barricade wall should not have gaps that allow pedestrians or vehicles to stray from the channelizing path.

Support:

Longitudinal channelizing barricades are often located adjacent to traffic and therefore are subject to impact by errant vehicles.

Guidance:

Because of their vulnerable position, longitudinal channelizing barricades should be constructed of lightweight materials and be crashworthy.

Although longitudinal channelizing barricades might give the appearance of being formidable obstacles, they have not met the crashworthy requirements for temporary traffic barriers and, therefore, should not be used to shield pedestrians, including workers, from vehicle impacts or obstacles.

Option:

Longitudinal channelizing barricades may be used to channelize pedestrians.

Section 6F.67 Other Channelizing Devices

Option:

Channelizing devices other than those described in this Chapter may be used in special situations based on an engineering study.

Guidance:

Other channelizing devices should conform to the general size, color, stripe pattern, retroreflection, and placement characteristics established for the devices described in this Chapter.

Section 6F.68 Detectable Edging for Pedestrians

Support:

Individual channelizing devices, tape or rope used to connect individual devices, other discontinuous barriers and devices, and pavement markings are not detectable by persons with visual disabilities and are incapable of providing detectable path guidance on temporary or realigned sidewalks or other pedestrian facilities.

Guidance:

When it is determined that a facility should be accessible to and detectable by pedestrians with visual disabilities, a continuously detectable edging should be provided throughout the length of the facility such that it can be followed by pedestrians using long canes for guidance. This edging should protrude at least 150 mm (6 in) above the surface of the sidewalk or pathway, with the bottom of the edging a maximum of 62 mm (2.5 in) above the surface. This edging should be continuous throughout the length of the facility except for gaps at locations where pedestrians or vehicles will be turning or crossing. This edging should consist of a prefabricated or formed-in-place curbing or other continuous device that is placed along the edge of the sidewalk or walkway. This edging should be firmly attached to the ground or to other devices. Adjacent sections of this edging should be interconnected such that the edging is not displaced by pedestrian or vehicular traffic or work operations, and such that it does not constitute a hazard to pedestrians, workers, or other road users.

Support:

Examples of detectable edging for pedestrians include:

A. Prefabricated lightweight sections of plastic, metal, or other suitable materials that are interconnected and fixed in place to form a continuous edge.
B. Prefabricated lightweight sections of plastic, metal, or other suitable materials that are interconnected, fixed in place, and placed at ground level to provide a continuous connection between channelizing devices located at intervals along the edge of the sidewalk or walkway.
C. Sections of lumber interconnected and fixed in place to form a continuous edge.
D. Formed-in-place asphalt or concrete curb.

E. Prefabricated concrete curb sections that are interconnected and fixed in place to form a continuous edge.
F. Continuous temporary traffic barrier or longitudinal channelizing barricades placed along the edge of the sidewalk or walkway that provides a pedestrian edging at ground level.
G. Chain link or other fencing equipped with a continuous bottom rail.

Guidance:

Detectable pedestrian edging should be orange, white, or yellow and should match the color of the adjacent channelizing devices or traffic control devices, if any are present.

Section 6F.69 Temporary Raised Islands

Standard:

Temporary raised islands shall be used only in combination with pavement striping and other suitable channelizing devices.

Option:

A temporary raised island may be used to separate vehicular traffic flows in two-lane, two-way operations on roadways having a vehicular traffic volume range of 4,000 to 15,000 average daily traffic (ADT) and on freeways having a vehicular traffic volume range of 22,000 ADT to 60,000 ADT.

Temporary raised islands also may be used in other than two-lane, two-way operations where physical separation of vehicular traffic from the TTC zone is not required.

Guidance:

Temporary raised islands should have the basic dimensions of 100 mm (4 in) high by at least 450 mm (18 in) wide and have rounded or chamfered corners.

The temporary raised islands should not be designed in such a manner that they would cause a motorist to lose control of the vehicle if the vehicle inadvertently strikes the temporary raised island. If struck, pieces of the island should not be dislodged to the extent that they could penetrate the occupant compartment or involve other vehicles.

Standard:

At pedestrian crossing locations, temporary raised islands shall have an opening or be shortened to provide at least a 1500 mm (60 in) wide pathway for the crossing pedestrian.

Section 6F.70 Opposing Traffic Lane Divider

Support:

Opposing traffic lane dividers are delineation devices used as center lane dividers to separate opposing vehicular traffic on a two-lane, two-way operation.

Standard:

Opposing traffic lane dividers shall not be placed across pedestrian crossings.

The Opposing Traffic Lane Divider (W6-4) sign (see Figure 6F-4, Sheet 2 of 4) is an upright, retroreflective orange-colored sign placed on a flexible support and sized at least 300 mm (12 in) wide by 450 mm (18 in) high.

Guidance:

The Opposing Traffic Lane Divider (W6-4) sign should only be used to supplement a channelizing device that is being used to separate opposing traffic in a maintenance or construction work zone.

Section 6F.71 Pavement Markings

Standard:

The provisions of this Section shall not be considered applicable for short-term, mobile, or incident management TTC zones.

Pavement markings shall be maintained along paved streets and highways in all long- and intermediate-term stationary (see Section 6G.02) TTC zones. All pavement markings shall be in accordance with Chapters 3A and 3B, except as indicated in Section 6F.72. Pavement markings shall match the markings in place at both ends of the TTC zone. Pavement markings shall be placed along

the entire length of any surfaced detour or temporary roadway prior to the detour or roadway being opened to road users.

Warning signs, channelizing devices, and delineation shall be used to indicate required road user paths in TTC zones where it is not possible to provide a clear path by pavement markings. All pavement markings and devices used to delineate road user paths shall be carefully reviewed during daytime and nighttime periods.

For long-term stationary operations, pavement markings in the temporary traveled way that are no longer applicable shall be removed or obliterated as soon as practical. Pavement marking obliteration shall leave a minimum of pavement scars and shall remove old marking material. Painting over existing pavement markings with black paint or spraying with asphalt shall not be accepted as a substitute for removal or obliteration.

Guidance:

Road users should be provided pavement markings within a TTC zone comparable to the pavement markings normally maintained along such roadways, particularly at either end of the TTC zone.

The intended vehicle path should be defined in day, night, and twilight periods under both wet and dry pavement conditions.

The work should be planned and staged to provide for the placement and removal of the pavement markings.

Markings should be provided in intermediate-term stationary work zones.

Option:

Removable, nonreflective, preformed tape may be used where markings need to be covered temporarily.

Guidance:

Centerlines and lane lines should be placed, replaced, or delineated where appropriate before the roadway is opened to traffic.

Section 6F.72 Temporary Pavement Markings

Support:

Temporary pavement markings are those that are allowed to remain in place until the earliest date when it is practical and possible to install pavement markings that meet the Part 3 standards for pavement markings.

Guidance:

Temporary pavement markings should not be in place for more than 2 weeks unless justified by an engineering study.

Standard:

All temporary pavement markings, including pavement markings for no-passing zones, shall conform to the requirements of Chapters 3A and 3B. All temporary broken-line pavement markings shall use the same cycle length as permanent markings and be at least 0.6 m (2 ft) long.

Option:

Half-cycle lengths with a minimum of 0.6 m (2 ft) stripes may be used on roadways with severe curvature (see Section 3A.05) for centerlines in passing zones and for lane lines.

For temporary situations of 3 calendar days or less, for a two- or three-lane road, no-passing zones may be identified by using DO NOT PASS (R4-1), PASS WITH CARE (R4-2), and NO PASSING ZONE (W14-3) signs (see Sections 2B.29, 2B.30, and 2C.35) rather than pavement markings. Also, DO NOT PASS, PASS WITH CARE, and NO PASSING ZONE signs may be used instead of pavement markings on roads with low volumes for longer periods in accordance with the State's or highway agency's policy.

Guidance:

If used, the DO NOT PASS, PASS WITH CARE, and NO PASSING ZONE signs should be placed in accordance with Sections 2B.29, 2B.30, and 2C.35.

The temporary use of edge lines, channelizing lines, lane reduction transitions, gore markings, and other longitudinal markings, and the various nonlongitudinal markings (such as stop lines, railroad crossings, crosswalks, words or symbols) should be in accordance with the State's or highway agency's policy.

Standard:

Temporary lane lines and/or centerlines shall consist of retroreflectorized lines approximately 600 mm (24 in) long, 100 mm (4 in) wide, spaced approximately 7.3 m (24 ft) apart.

Option:

Day/night raised retroreflectorized pavement markers, approved by the Department of Transportation, may be used in lieu of 600 mm (24 in) lines, spaced approximately 7.3 m (24 ft) apart.

Guidance:

Right edge lines should not be simulated with dashed lines or raised pavement markers because they could confuse motorists.

Option:

Portable delineators, permanent type delineators, etc., may be used where it is considered desirable to enhance the edge of traveled way due to curvilinear alignment, narrowing pavement, etc.

Standard:

Locations on two-lane conventional highways where no-passing zone centerline delineation has been obliterated shall be posted with a sign package consisting of a ROAD (STREET) WORK (W20-1) sign and a DO NOT PASS (R4-1) sign.

Guidance:

The R4-1 sign should be posted at 600 m (2000 ft) intervals throughout the extended no-pass zone. A PASS WITH CARE (R4-2) sign should also be placed at the end of the zone.

Section 6F.73 Raised Pavement Markers

Standard:

~~**If raised pavement markers are used to substitute for broken line segments, at least two retroreflective markers shall be placed, one at each end of a segment of 0.6 to 1.5 m (2 to 5 ft) in length. For segments longer than 1.5 m (5 ft), a group of at least three retroreflective markers shall be equally spaced at no greater than N/8 (see Section 3B.11). The value of N for a broken or dotted line shall equal the length of one line segment plus one gap. The value of N referenced for solid lines shall equal the N for the broken or dotted lines that might be adjacent to or might extend the solid lines (see Sections 3B.13 and 3B.14).**~~

If raised pavement markers are used to substitute for broken line segments, at least two retroreflective markers shall be placed, one at each end of a segment of 0.9 m (3 ft). For segments over 2.4 m (8 ft), a group of at least three retroreflective markers shall be equally spaced at no greater than 1.2 m (4 ft). See Section 3A.05 for more details.

Guidance:

Raised pavement markers should be considered for use along surfaced detours or temporary roadways, and other changed or new travel-lane alignments.

Option:

Retroreflective or internally illuminated raised pavement markers, or nonretroreflective raised pavement markers supplemented by retroreflective or internally illuminated markers, may replace or supplement markings prescribed in Chapters 3A and 3B.

Section 6F.74 Delineators

Standard:

When used, delineators shall combine with or supplement other TTC devices. They shall be mounted on crashworthy supports so that the reflecting unit is approximately 1.2 m (4 ft) above the near roadway edge. The standard color for delineators used along both sides of two-way streets and highways and the right side of one-way roadways shall be white. Delineators used along the left side of one-way roadways shall be yellow.

Guidance:

Spacing along roadway curves should be as set forth in Section 3D.04 and should be such that several delineators are always visible to the driver.

Option:

Delineators may be used in TTC zones to indicate the alignment of the roadway and to outline the required vehicle path through the TTC zone.

Standard:

On State highways, the retroreflectorized bands shall be visible at 300 m (1000 ft) at night under illumination of legal high beam headlights, by persons with vision of or corrected to 20/20.

The delineators shall be placed 0.6 m (2 ft) to 1.8 m (6 ft) outside the outer edge of the shoulder. They shall be 75 x 300 mm (3 x 12 in) minimum size.

Guidance:

On local roads, the retroreflectorized bands should be visible at 300 m (1000 ft) at night under illumination of legal high beam headlights, by persons with vision of or corrected to 20/20.

Support:

Refer to Department of Transportation's Standard Specifications Section 12-3.04 for visibility criteria cited. See Section 1A.11 for information regarding this publication.

Section 6F.75 Lighting Devices

Guidance:

Lighting devices should be provided in TTC zones based on engineering judgment.

When used to supplement channelization, the maximum spacing for warning lights should be identical to the channelizing device spacing requirements.

Support:

Four types of lighting devices are commonly used in TTC zones. They are floodlights, flashing warning beacons, warning lights, and steady-burn electric lamps.

Option:

Lighting devices may be used to supplement retroreflectorized signs, barriers, and channelizing devices.

During normal daytime maintenance operations, the functions of flashing warning beacons may be provided by high-intensity rotating, flashing, oscillating, or strobe lights on a maintenance vehicle.

Standard:

Although vehicle hazard warning lights are permitted to be used to supplement high-intensity rotating, flashing, oscillating, or strobe lights, they shall not be used instead of high-intensity rotating, flashing, oscillating, or strobe lights.

Section 6F.76 Floodlights

Support:

Utility, maintenance, or construction activities on highways are frequently conducted during nighttime periods when vehicular traffic volumes are lower. Large construction projects are sometimes operated on a double-shift basis requiring night work (see Section 6G.20).

Guidance:

When nighttime work is being performed, floodlights should be used to illuminate the ~~work area~~, equipment crossings, and other areas.

Standard:

When nighttime work is being performed, floodlights shall be used to illuminate the work area.

Except in emergency situations, flagger stations shall be illuminated at night.

Floodlighting shall not produce a disabling glare condition for approaching road users, flaggers, or workers.

Guidance:

The adequacy of the floodlight placement and elimination of potential glare should be determined by driving through and observing the floodlighted area from each direction on all approaching roadways after the initial floodlight setup, at night, and periodically.

Support:

Desired illumination levels vary depending upon the nature of the task involved. An average horizontal luminance of ~~50 lux (5 foot candles)~~ 108 lux (10 foot candles) can be adequate for general activities. Tasks

requiring high levels of precision and extreme care can require an average horizontal luminance of 216 lux (20 foot candles).

Refer to Construction Safety Orders in the California Code of Regulations (Title 8, Division 1, Chapter 4, Subchapter 4, Article 3, Section 1523 – Illumination and Section 1599 - Flaggers) for the above modifications. See See Section 1A.11 for information regarding this publication.

Section 6F.77 Flashing Warning Beacons

Support:

Flashing warning beacons are often used to supplement a TTC device.

Standard:

Flashing warning beacons shall comply with the provisions of Chapter 4K. A flashing warning beacon shall be a flashing yellow light with a minimum nominal diameter of ~~200 mm (8 in)~~ 300 mm (12 in).

Guidance:

Flashing warning beacons should be operated 24 hours per day.

Support:

The temporary terminus of a freeway is an example of a location where flashing warning beacons alert drivers to the changing roadway conditions and the need to reduce speed in transitioning from the freeway to another roadway type.

Standard:

The beacon lens shall have a visible diameter of 300 mm (12 in) and shall conform to Department of Transportation's standards for signal lenses, and the lighting unit shall have a visor and back plate or other suitable means of providing adequate contrast.

The mounting height shall be between 1.8 m (6 ft) and 3 m (10 ft), measured from the bottom of the base to the center of the lens.

Section 6F.78 Warning Lights

Support:

Type A, Type B, Type C, and Type D 360-degree warning lights are portable, powered, yellow, lens-directed, enclosed lights.

Standard:

Warning lights shall be in accordance with the current ITE "Purchase Specification for Flashing and Steady-Burn Warning Lights" (see Section 1A.11).

When warning lights are used, they shall be mounted on signs or channelizing devices in a manner that, if hit by an errant vehicle, they will not be likely to penetrate the windshield.

Guidance:

The maximum spacing for warning lights should be identical to the channelizing device spacing requirements.

Support:

The light weight and portability of warning lights are advantages that make these devices useful as supplements to the retroreflectorization on signs and channelizing devices. The flashing lights are effective in attracting road users' attention.

Option:

Warning lights may be used in either a steady-burn or flashing mode.

Standard:

Flashing warning lights shall not be used for delineation, as a series of flashers fails to identify the desired vehicle path.

Type A Low-Intensity Flashing warning lights, Type C Steady-Burn warning lights, and Type D 360- degree Steady-Burn warning lights shall be maintained so as to be capable of being visible on a clear night from a distance of 900 m (3,000 ft). Type B High-Intensity Flashing warning lights shall be maintained so as to be capable of being visible on a sunny day when viewed without the sun directly on or behind the device from a distance of 300 m (1,000 ft).

Warning lights shall have a minimum mounting height of 750 mm (30 in) to the bottom of the lens.

Support:

Type A Low-Intensity Flashing warning lights are used to warn road users during nighttime hours that they are approaching or proceeding in a potentially hazardous area.

Option:

Type A warning lights may be mounted on channelizing devices.

Support:

Type B High-Intensity Flashing warning lights are used to warn road users during both daylight and nighttime hours that they are approaching a potentially hazardous area.

Option:

Type B warning lights are designed to operate 24 hours per day and may be mounted on advance warning signs or on independent supports.

Type C Steady-Burn warning lights and Type D 360-degree Steady-Burn warning lights may be used during nighttime hours to delineate the edge of the traveled way.

Guidance:

When used to delineate a curve, Type C and Type D 360-degree warning lights should only be used on devices on the outside of the curve, and not on the inside of the curve.

Section 6F.79 Steady-Burn Electric Lamps

Support:

Steady-Burn electric lamps are a series of low-wattage, yellow, electric lamps, generally hard-wired to a 110-volt external power source.

Option:

Steady-Burn electric lamps may be used in place of Type C Steady-Burn warning lights (see Section 6F.78).

Section 6F.80 Temporary Traffic Control Signals

Standard:

Temporary traffic control signals (see Section 4D.20) used to control road user movements through TTC zones and in other TTC situations shall meet the applicable provisions of Part 4 and for State highways, the Department of Transportation's Standard Plans and/or Special Provisions. See Section 1A.11 for information regarding this publication.

Support:

Temporary traffic control signals are typically used in TTC zones such as temporary haul road crossings; temporary one-way operations along a one-lane, two-way highway; temporary one-way operations on bridges, reversible lanes, and intersections.

Standard:

One-lane, two-way vehicular traffic flow (see Chapter 4G) requires an all-red interval of sufficient duration for road users to clear the portion of the TTC zone controlled by the traffic control signals. Safeguards shall be incorporated to avoid the possibility of conflicting signal indications at each end of the TTC zone.

Guidance:

Where pedestrian traffic is detoured to a temporary traffic control signal, engineering judgment should be used to determine if pedestrian signals or accessible pedestrian signals (see Section 4E.06) are needed for crossing along an alternate route.

When temporary traffic control signals are used, conflict monitors typical of traditional traffic control signal operations should be used.

Option:

Temporary traffic control signals may be portable or temporarily mounted on fixed supports.

Standard:

The supports for temporary traffic control signals shall not encroach into the minimum required width of a "pedestrian access route" of 1200 mm (48 in) or an "alternate circulation path" of 900 mm (36 in).

Guidance:

Temporary traffic control signals should only be used in situations where temporary traffic control signals are preferable to other means of traffic control, such as changing the work staging or work zone size to eliminate one-way vehicular traffic movements, using flaggers to control one-way or crossing movements, using STOP or YIELD signs, and using warning devices alone.

Support:

Factors related to the design and application of temporary traffic control signals include the following:

A. Safety and road user needs;
B. Work staging and operations;
C. The feasibility of using other TTC strategies (for example, flaggers, providing space for two lanes, or detouring road users, including bicyclists and pedestrians);
D. Sight distance restrictions;
E. Human factors considerations (for example, lack of driver familiarity with temporary traffic control signals);
F. Road-user volumes including roadway and intersection capacity;
G. Affected side streets and driveways;
H. Vehicle speeds;
I. The placement of other TTC devices;
J. Parking;
K. Turning restrictions;
L. Pedestrians;
M. The nature of adjacent land uses (such as residential or commercial);
N. Legal authority;
O. Signal phasing and timing requirements;
P. Full-time or part-time operation;
Q. Actuated, fixed-time, or manual operation;
R. Power failures or other emergencies;
S. Inspection and maintenance needs;
T. Need for detailed placement, timing, and operation records; and
U. Operation by contractors or by others.

Although temporary traffic control signals can be mounted on trailers or lightweight portable supports, fixed supports offer superior resistance to displacement or damage by severe weather, vehicle impact, and vandalism.

Guidance:

Other TTC devices should be used to supplement temporary traffic control signals, including warning and regulatory signs, pavement markings, and channelizing devices.

The design and placement of temporary traffic control signals should include interconnection to other traffic control signals along the subject roadway.

Temporary traffic control signals not in use should be covered or removed.

Section 6F.81 Temporary Traffic Barriers

Support:

Temporary traffic barriers are devices designed to help prevent penetration by vehicles while minimizing injuries to vehicle occupants, and are designed to protect workers, bicyclists, and pedestrians.

The four primary functions of temporary traffic barriers are:

A. To keep vehicular traffic from entering work areas, such as excavations or material storage sites;
B. To separate workers, bicyclists, and pedestrians from motor vehicle traffic;
C. To separate opposing directions of vehicular traffic; and

D. To separate vehicular traffic, bicyclists, and pedestrians from the work area such as false work for bridges and other exposed objects.

Option:

Temporary traffic barriers, including shifting portable or movable barrier installations to accommodate varying directional vehicular traffic demands, may be used to separate two-way vehicular traffic.

Guidance:

Because the protective requirements of a TTC situation have priority in determining the need for temporary traffic barriers, their use should be based on an engineering study. When serving the additional function of channelizing vehicular traffic (see Section 6F.65), temporary traffic barriers should be a light color for increased visibility.

Standard:

Temporary traffic barriers shall be supplemented with standard delineation, pavement markings, or channelizing devices for improved daytime and nighttime visibility if they are used to channelize vehicular traffic. The delineation color shall match the applicable pavement marking color.

In order to mitigate the effect of striking the end of a temporary traffic barrier, the end shall be installed in accordance with AASHTO's "Roadside Design Guide" (see Section 1A.11) by flaring until the end is outside the acceptable clear zone or by providing crashworthy end treatments.

Option:

Warning lights or steady-burn electric lamps may be mounted on temporary traffic barrier installations.

Side reflectors with cube-corner lenses or top mounted reflectors (facing the driver) may be used on temporary traffic barriers.

Guidance:

If used, the spacing of these reflectors should not exceed a distance in meters (feet) equal to 0.2 times the speed limit in km/h (1.0 times the speed limit in mph) through the TTC zone.

Support:

A movable barrier is a linear system of connected barrier segments that can rapidly be shifted laterally by using a specially designed transfer vehicle. The transfer is accomplished in a manner that does not interfere with vehicular traffic in adjacent lanes. Applications of movable barriers include the following:

A. Closing an additional lane during work periods while maintaining the advantage of having the travel way separated from the work space by a barrier;
B. Closing an additional lane during off-peak periods to provide extra space for work activities without adversely impacting vehicular traffic flow; and
C. Creating a temporary reversible lane, thus providing unbalanced capacity favoring the major direction of vehicular traffic flow.

More specific information on the use of temporary traffic barriers is contained in Chapters 8 and 9 of AASHTO's "Roadside Design Guide" (see Section 1A.11).

Support:

More specific information on the use of portable barriers and crash cushions can be obtained from the Department of Transportation's Standard Plans and Standard Specifications. See Section 1A.11 for information regarding this publication.

Section 6F.82 Crash Cushions

Support:

Crash cushions are systems that mitigate the effects of errant vehicles that strike obstacles, either by smoothly decelerating the vehicle to a stop when hit head-on, or by redirecting the errant vehicle. The two types of crash cushions that are used in TTC zones are stationary crash cushions and truck-mounted attenuators. Crash cushions in TTC zones help protect the drivers from the exposed ends of barriers, fixed objects, shadow vehicles, and other obstacles. Specific information on the use of crash cushions can be found in AASHTO's "Roadside Design Guide" (see Section 1A.11).

Standard:

Crash cushions shall be crashworthy. They shall also be designed for each application to stop or redirect errant vehicles under prescribed conditions. Crash cushions shall be periodically inspected to

verify that they have not been hit or damaged. Damaged crash cushions shall be promptly repaired or replaced to maintain their crashworthiness.

Support:

Stationary crash cushions are used in the same manner as permanent highway installations to protect drivers from the exposed ends of barriers, fixed objects, and other obstacles.

Standard:

Stationary crash cushions shall be designed for the specific application intended.

Truck-mounted attenuators shall be energy-absorbing devices attached to the rear of shadow trailers or trucks. If used, the shadow vehicle with the attenuator shall be located in advance of the work area, workers, or equipment to reduce the severity of rear-end crashes from errant vehicles.

Support:

Trucks or trailers are often used as shadow vehicles to protect workers or work equipment from errant vehicles. These shadow vehicles are normally equipped with flashing arrows, changeable message signs, and/or high-intensity rotating, flashing, oscillating, or strobe lights located properly in advance of the workers and/or equipment that they are protecting. However, these shadow vehicles might themselves cause injuries to occupants of the errant vehicles if they are not equipped with truck-mounted attenuators.

Guidance:

The shadow truck should be positioned a sufficient distance in advance of the workers or equipment being protected so that there will be sufficient distance, but not so much so that errant vehicles will travel around the shadow truck and strike the protected workers and/or equipment.

Support:

Chapter 9 of AASHTO's "Roadside Design Guide" (see Section 1A.11) contains additional information regarding the use of shadow vehicles.

Guidance:

If used, the truck-mounted attenuator should be used in accordance with the manufacturer's specifications.

Support:

Information about designs and types of crash cushions currently approved for use on State highways is available from Department of Transportation's Division of Traffic Operations in Sacramento. A list of approved products is available on the Internet at the following web address:

http://www.dot.ca.gov/hq/esc/approved_products_list/pdf/highway_safety_features.pdf

Section 6F.83 Vehicle-Arresting Systems

Support:

Vehicle-arresting systems are designed to prevent penetration into activity areas while providing for smooth, reasonably safe deceleration for the errant vehicles. They can consist of portable netting, cables, and energy absorbing anchors.

Guidance:

When used, a vehicle-arresting system should be used in accordance with the manufacturer's specifications, and should be located so that vehicles are not likely to penetrate the location that the system is designed to protect.

Section 6F.84 Rumble Strips

Support:

Transverse rumble strips consist of intermittent narrow, transverse areas of rough-textured or slightly raised or depressed road surface that extend across the travel lanes to alert drivers to unusual vehicular traffic conditions. Through noise and vibration they attract the driver's attention to such features as unexpected changes in alignment and to conditions requiring a stop.

Longitudinal rumble strips consist of a series of rough-textured or slightly raised or depressed road surfaces located along the shoulder to alert road users that they are leaving the travel lanes.

Standard:

If it is desirable to use a color other than the color of the pavement for a longitudinal rumble strip, the color of the rumble strip shall be the same color as the longitudinal line the rumble strip supplements.

If the color of a transverse rumble strip used within a travel lane is not the color of the pavement, the color of the rumble strip shall be white.

Option:

Intervals between transverse rumble strips may be reduced as the distance to the approached conditions is diminished in order to convey an impression that a closure speed is too fast and/or that an action is imminent. A sign warning drivers of the onset of rumble strips may be placed in advance of any transverse rumble strip installation.

Guidance:

Transverse rumble strips should be placed transverse to vehicular traffic movement. They should not adversely affect overall pavement skid resistance under wet or dry conditions.

In urban areas, even though a closer spacing might be warranted, transverse rumble strips should be designed in a manner that does not promote unnecessary braking or erratic steering maneuvers by road users.

Transverse rumble strips should not be placed on sharp horizontal or vertical curves.

Rumble strips should not be placed through pedestrian crossings or on bicycle routes.

Transverse rumble strips should not be placed on roadways used by bicyclists unless a minimum clear path of 1.2 m (4 ft) is provided at each edge of the roadway or on each paved shoulder as described in AASHTO's "Guide to the Development of Bicycle Facilities" (see Section 1A.11).

Longitudinal rumble strips should not be placed on the shoulder of a roadway that is used by bicyclists unless a minimum clear path of 1.2 m (4 ft) is also provided on the shoulder.

Support:

Rumble strips are not suitable as a riding surface for bicycles and motorcycles.

Refer to Section 3B.106(CA) for more details on rumble strips.

Guidance:

Where cyclists are permitted, provisions should be made to allow passage through or around the rumble strips.

Section 6F.85 Screens

Support:

Screens are used to block the road users' view of activities that can be distracting. Screens might improve safety and motor vehicle traffic flow where volumes approach the roadway capacity because they discourage gawking and reduce headlight glare from oncoming motor vehicle traffic.

Guidance:

Screens should not be mounted where they could adversely restrict road user visibility and sight distance and adversely affect the reasonably safe operation of vehicles.

Option:

Screens may be mounted on the top of temporary traffic barriers that separate two-way motor vehicle traffic.

Temporary traffic screen may be mounted on top of temporary traffic barriers, when barriers are used in transition and crossover areas for glare-control on high-volume roadways.

Guidance:

If used, temporary traffic screen panels should be contiguous without gaps, minimum 813 mm (32 in) in height, and orange or red-orange in color.

Guidance:

Design of screens should be in accordance with Chapter 9 of AASHTO's "Roadside Design Guide" (see Section 1A.11).

Section 6F.86 Future and Experimental Devices

Support:

The States, FHWA, AASHTO, the Transportation Research Board, and other organizations conduct research and experimentation on new traffic control and safety devices. Users of this Manual are encouraged to stay abreast of these current efforts and to use such devices with care so as to avoid presenting road users with unusual or confusing situations that might be abnormal or unexpected.

Standard:

New traffic control devices shall conform to the provisions for design, use, and application set forth in this Manual. New traffic control devices that do not conform with the provisions in this Manual shall be subject to experimentation, documentation, and adoption following the provisions of Section 1A.10.

Section 6F.101(CA) Channelizers (Permanent type, flexible post)

Support:

Channelizers are implanted in the ground or affixed to the pavement, and are not susceptible to displacement, and are capable of normally withstanding numerous vehicular impacts.

Channelizers are generally used in series to create a visual fence/barrier, to provide additional guidance and/or restriction to traffic.

Option:

They also may be used in lieu of cones, portable delineators, or drums, to channelize traffic, divide opposing lanes of traffic, etc.

Standard:

The design of a channelizer shall be as shown in Figure 6F-102(CA).

The height shall be 900 mm (36 in) minimum (700 mm (28 in) where speeds are 65 km/h (40 mph) or less), the width of the post shall be 56 mm (2 ¼ in) minimum and the color predominantly orange. The 75 x 300 mm (3 x 12 in) minimum retroreflective unit shall be visible at 300 m (1000 ft) at night under illumination of legal high beam headlights, by persons with vision of or corrected to 20/20.

The color of the channelizer retroreflective unit shall be white and posts shall be orange.

Support:

Refer to Department of Transportation's Standard Specifications Section 12-3.07 for visibility criteria cited. See Section 1A.11 for information regarding this publication.

Refer Chapter 3F for other details and requirements of channelizers.

Section 6F.102(CA) LOOSE GRAVEL Sign (W8-7)

Guidance:

The LOOSE GRAVEL (W8-7) sign should be used on chip seal jobs or other areas to warn motorists that there is loose gravel on the roadway.

Standard:

When used, the W8-7 sign shall be placed at the beginning of work and at maximum 610 m (2000 ft) intervals.

Option:

The Advisory Speed (W13-1) plaque may be used in combination with the W8-7 sign to indicate the need to decrease speed at a particular location.

Guidance:

The advisory speed should be reasonable or prudent, considering weather, visibility, traffic, surface condition and width of the roadway.

Standard:

On State highways for seal coat projects, the W13-1 (35) plaque shall supplement the W8-7 sign during placing and/or brooming of screenings.

Section 6F.103(CA) NARROW LANE(S) Sign (C12(CA))

Option:

The NARROW LANE(S) (C12(CA)) sign may be used, when appropriate, to warn the approaching motorist of a narrow lane condition.

Guidance:

When used, the C12(CA) sign should be used in conjunction with an Advisory Speed (W13-1) plaque. See Section 2C.46.

Section 6F.104(CA) Road Work/Speed Limit Sign (C17(CA)), WORK ZONE (G20-5aP) plaque and END WORK ZONE SPEED LIMIT (R2-12) sign

Support:

CVC 22362 applies to "When Workers are Present" condition and signs need to be covered or removed when no work is in progress. However, per CVC 21367, agency can "...regulate the movement of traffic...whenever the traffic would endanger the safety of workers or the work would interfere with or endanger the movement of traffic through the area." If obstructions would be present throughout the project duration the signs would not need to be covered or removed. This would also apply to situations where the construction work changes the highway configuration, curvature or elevation, making it necessary to post reduced speed limits.

Option:

A WORK ZONE (G20-5aP) plaque may be mounted above a Speed Limit sign to emphasize that a permanent (24 hours a day, 7 days a week) reduced speed limit is in effect within a TTC zone. An END WORK ZONE SPEED LIMIT (R2-12) sign (see Figure 6F-3) may be installed at the downstream end of the reduced speed limit zone.

The Road Work/Speed Limit (C17(CA)) sign may be used for the protection of workers during working hours to reduce speed limit within a TTC zone.

Standard:

The C17(CA) sign shall only be used in conjunction with appropriate advance warning signs.

The C17(CA) signs shall be removed or covered promptly when no longer applicable.

Support:

The C17(CA) sign is authorized for use by CVC Section 22362. This section provides authority to post a speed limit of not less than 40 km/h (25 mph) at locations where employees of any contractor, or of the agency in charge of the job, are engaged in work upon the roadway.

Posting unrealistically low speed limits will result in loss of sign credibility and a high violation rate.

Guidance:

Before using a C17(CA) sign, work zone conditions should be analyzed to determine what maximum speed limit would be appropriate for that particular location.

The C17(CA) sign should be placed within 120 m (400 ft) of the zone where workers are on the roadway or so nearly adjacent as to be endangered by traffic.

Option:

The C17(CA) sign may be provided by the agency having jurisdiction over the street or road.

Guidance:

The C17(CA) should be posted a minimum distance of 120 m (400 ft) in advance of where, and when workers are present; and the Speed Reduction (W3-5) sign or Speed Zone Ahead (R2-4(CA)) sign informs road users of the reduced speed limit TTC zone.

Section 6F.105(CA) OPEN TRENCH Sign (C27(CA))

Standard:

The OPEN TRENCH (C27(CA)) sign shall be used in advance of open trenches in/or adjacent to roadway.

The edge of the traveled way shall be defined by edge line delineation consisting of appropriate markers or striping. Edge line delineation shall be white when located on the right of traffic and yellow when located on the left of traffic.

Support:

The 900 x 900 mm (36 x 36 in) size is for conventional state highways and the 1200 x 1200 mm (48 x 48 in) size is for use on freeways and expressways.

Guidance:

Trenches in excess of 46 mm (0.15 ft) in depth but not exceeding 76 mm (0.25 ft) in depth that are less than 2.4 m (8 ft) from the edge of traveled way should be identified by LOW SHOULDER (W8-9) portable signs on Type II barricades set in the trench adjacent to the edge of pavement at intervals not to exceed 610 m (2,000 ft).

Option:

Portable delineators may be placed at intervals not to exceed 30 m (100 ft) in lieu of edge line delineation.

Standard:

Trenches in excess of 76 mm (0.25 ft) in depth that are less than 2.4 m (8 ft) from the edge of traveled way shall be identified by C27(CA) and NO SHOULDER (C31A(CA)) portable signs on Type II or Type III barricades alternately set in the trench at intervals not to exceed 610 m (2,000 ft).

Guidance:

Channelizers or delineators should be placed 0.6 m (2 ft) to 1.8 m (6 ft) outside of the edge line at 30 m (100 ft) intervals.

Trenches in excess of 76 mm (0.25 ft) in depth but not exceeding 762 mm (2.5 ft) in depth that are 2.4 m (8 ft) to 4.6 m (15 ft) from the edge of traveled way should be identified by C27(CA) portable signs on Type II or Type III barricades set in the trench at intervals not to exceed 610 m (2,000 ft). Delineators should be placed at 60 m (200 ft) intervals within 0.6 m (2 ft) from the edge of the trench and at 30 m (100 ft) intervals for edge conditions exceeding 152 mm (0.5 ft) in depth.

Trenches in excess of 152 mm (0.5 ft) in depth but not exceeding 762 mm (2.5 ft) in depth that are more than 4.6 m (15 ft) from the edge of traveled way at locations where a recovery area was available prior to construction should be identified by placing delineators at 60 m (200 ft) intervals within 0.6 m (2 ft) from the edge of the trench and by placing C27(CA) signs in the trench at intervals not to exceed 610 m (2,000 ft).

Standard:

Signing for trenches in excess of 762 mm (2.5 ft) in depth shall be based upon engineering judgment or studies (as noted in Section 1A.09) to ensure proper visibility of barricades and signing.

Section 6F.106(CA) Traffic Fines Signs (C40(CA) and C40A(CA))

Option:

The TRAFFIC FINES DOUBLED IN CONSTRUCTION ZONES (C40(CA)) and TRAFFIC FINES DOUBLED IN WORK ZONES (C40A(CA)) signs may be placed approximately 150 m (500 ft) in advance of the first required TTC sign(s). The placement of the C40(CA) and C40A(CA) signs is at the discretion of the responsible person(s) in charge of the work zone.

Guidance:

The C40A(CA) sign is intended to be manufactured as a fabric sign and should be used on a short term (daily) basis only. Longer term situations should use the C40(CA) sign.

Section 6F.107(CA) Moving Lane Closure Signs (W23-1 and SC10(CA), SC11(CA), SC13(CA), SC15(CA))

Standard:

On State highways, the following signs shall be used as shown in the Department of Transportation's Standard Plans T15, T16 and T17 for moving lane closures. See Section 1A.11 for information regarding this publication.

LANE CLOSED AHEAD or ROAD WORK AHEAD (SC10(CA)).
LANE CLOSED (SC11(CA)).
SLOW TRAFFIC AHEAD (W23-1).
DO NOT PASS (SC13(CA)).
CAUTION (SC15(CA)).

The Moving Lane Closure signs shall have a black legend on either a white or an orange background.

If used, the SC10(CA) sign and a Type II flashing arrow sign shall be mounted on the rear of the designated sign vehicle.

The SC11(CA) sign and a Type II flashing arrow sign shall be mounted on the rear of the designated sign vehicle.

If used, the W23-1 sign shall be mounted on the rear of the designated sign vehicle.

The SC13(CA) sign shall be mounted on the rear and/or the front of the designated sign vehicle.

If used, the SC15(CA) sign shall be mounted on the front of the designated sign vehicle.

Section 6F.108(CA) Object Markers

Standard:

When used in work zones, the Type N-3(CA) or OM1-3 object markers shall have an orange retroreflective background.

When used in work zones, the Type P(CA), R(CA), OM-3L, OM-3R and OM-3C object marker shall have alternating retroreflective orange and white stripes.

Support:

Figure 6F-103(CA) shows examples of object markers in TTC zones.

See Chapter 3C for more details.

Section 6F.109(CA) Slow For The Cone Zone (SC19(CA) and SC20(CA)) Signs

Option:

The Slow For The Cone Zone (SC19(CA)) and SLOW FOR THE CONE ZONE (SC20(CA)) signs (see Figures 6H-32(CA), 6H-33(CA) & 6H-36(CA)) may be used to remind motorists to slow down when entering a temporary traffic control (TTC) zone to improve worker and road user safety.

Guidance:

If used, the Slow For The Cone Zone (SC19(CA)) Sign should be located after the ROAD (STREET) WORK, XX FT, XX MILES, or AHEAD (W20-1) sign.

If used, the SLOW FOR THE CONE ZONE (SC20(CA)) Sign should be located in the portion of the TTC zone where channelizing devices are being used.

Option:

A pictograph may be used on the SC19(CA) sign to identify a governmental jurisdiction, an area of jurisdiction, a governmental agency, a military base or branch of service, a governmental-approved university or college, or a governmental-approved institution.

Standard:

If a pictograph is used on the SC19(CA) sign, the maximum dimension (height or width) of a pictograph shall not exceed two times the letter height of the largest legend used on the sign.

Section 6F.110(CA) FRESH CONCRETE (C43(CA) Sign

Option:

The FRESH CONCRETE (C43(CA)) sign (see Figure 6F-101(CA)) may be used to warn road users of the surface treatment

Standard:

When used, the FRESH CONCRETE (C43(CA)) sign shall be placed at the beginning of the pavement slab replacement work area

Guidance:

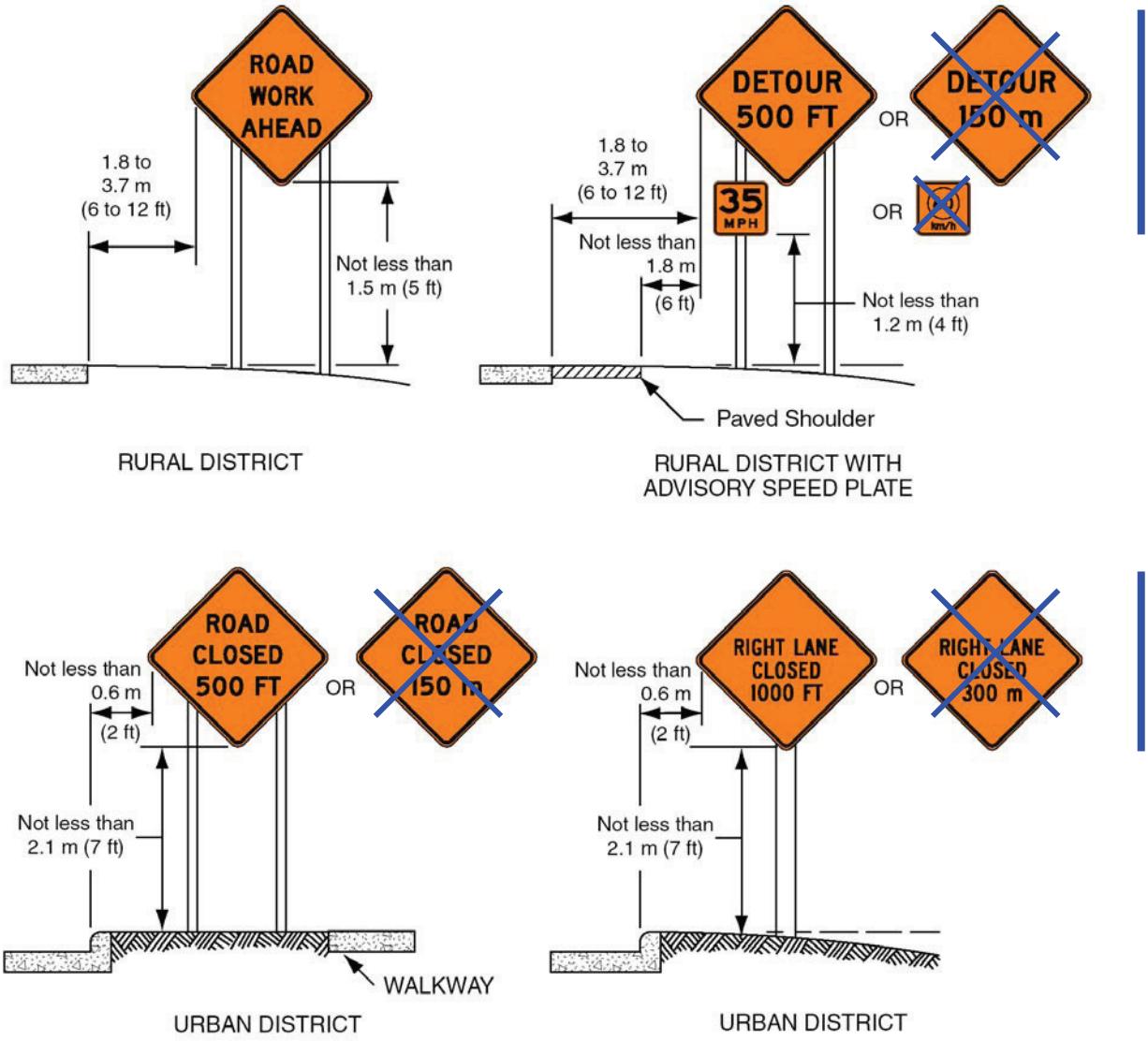
The FRESH CONCRETE (C43(CA)) sign should remain in place during the entire curing period.

Section 6F.111(CA) CAUTION FREQUENT STOPPING AND BACKING STAY BACK 100 FEET (SC21(CA)) Sign

Option:

For mobile operations, CAUTION FREQUENT STOPPING AND BACKING STAY BACK 100 FEET (SC21(CA)) Sign may be mounted on a work vehicle to warn road users and workers of the frequent stopping and backing maneuvers made by the vehicle.

Figure 6F-1. Height and Lateral Location of Signs—Typical Installations



(This space left intentionally blank)

Figure 6F-2. Methods of Mounting Signs Other Than on Posts

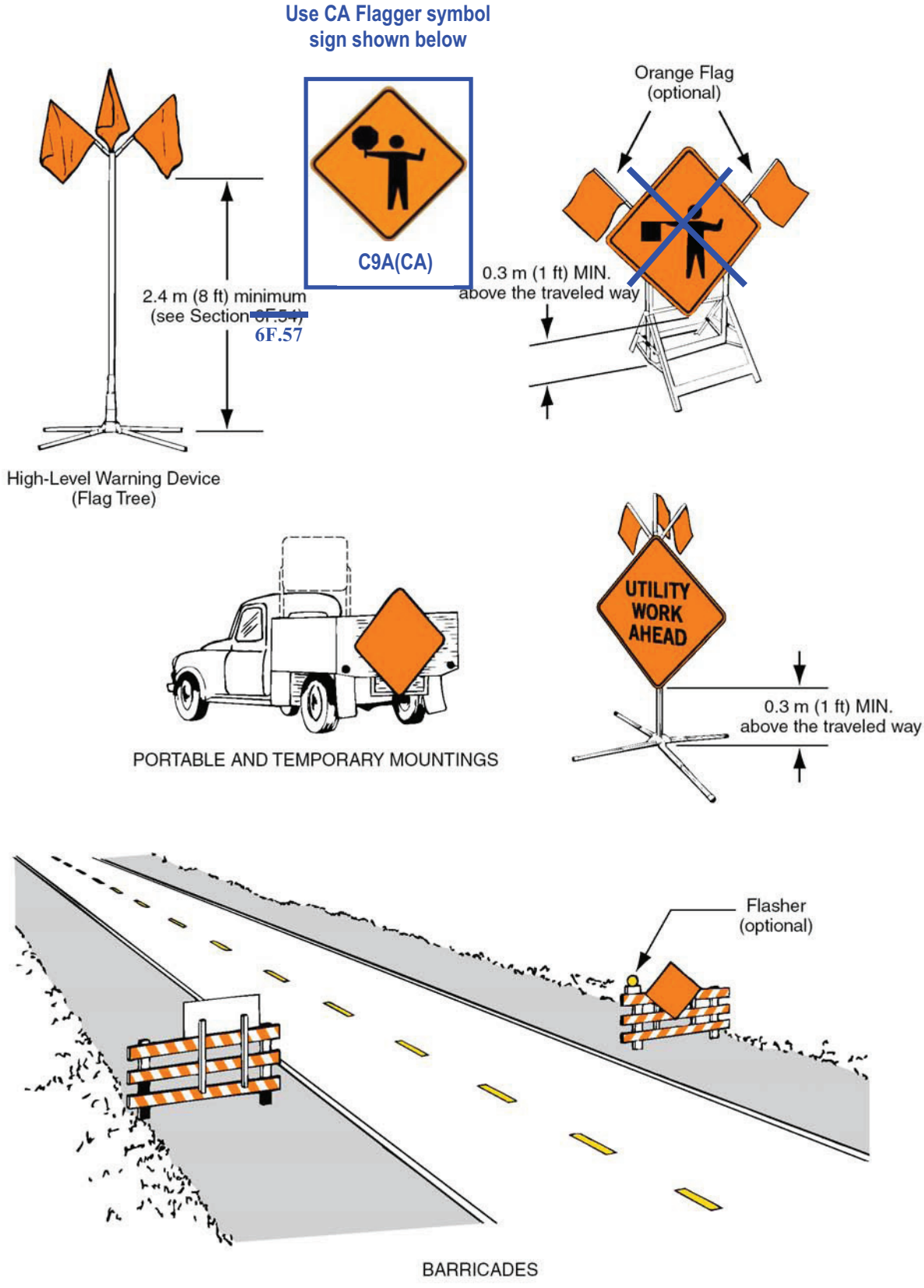
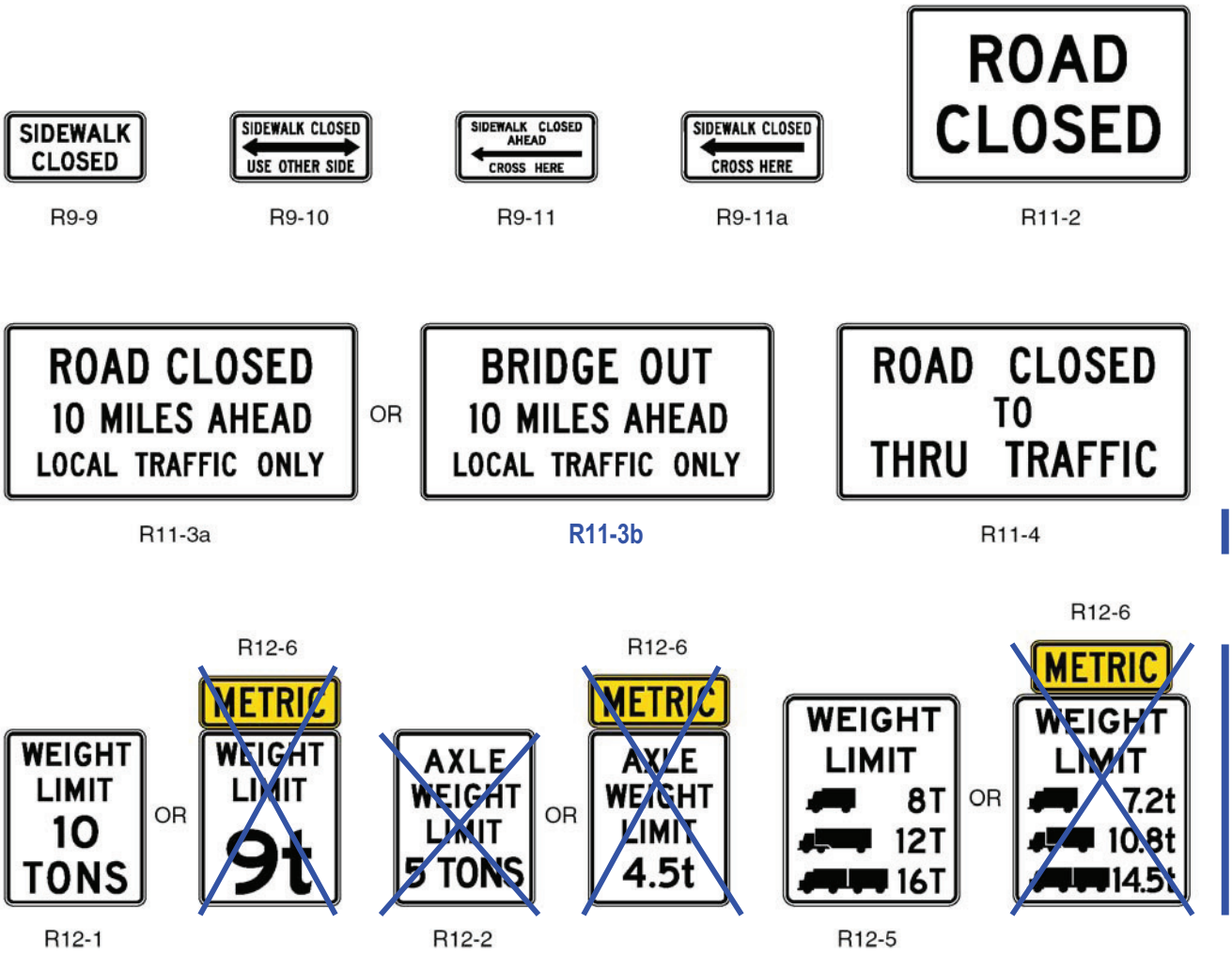


Figure 6F-3. Regulatory Signs in Temporary Traffic Control Zones
(Sheet 1 of 2)



Figure 6F-3. Regulatory Signs in Temporary Traffic Control Zones
(Sheet 2 of 2)



(This space left intentionally blank)

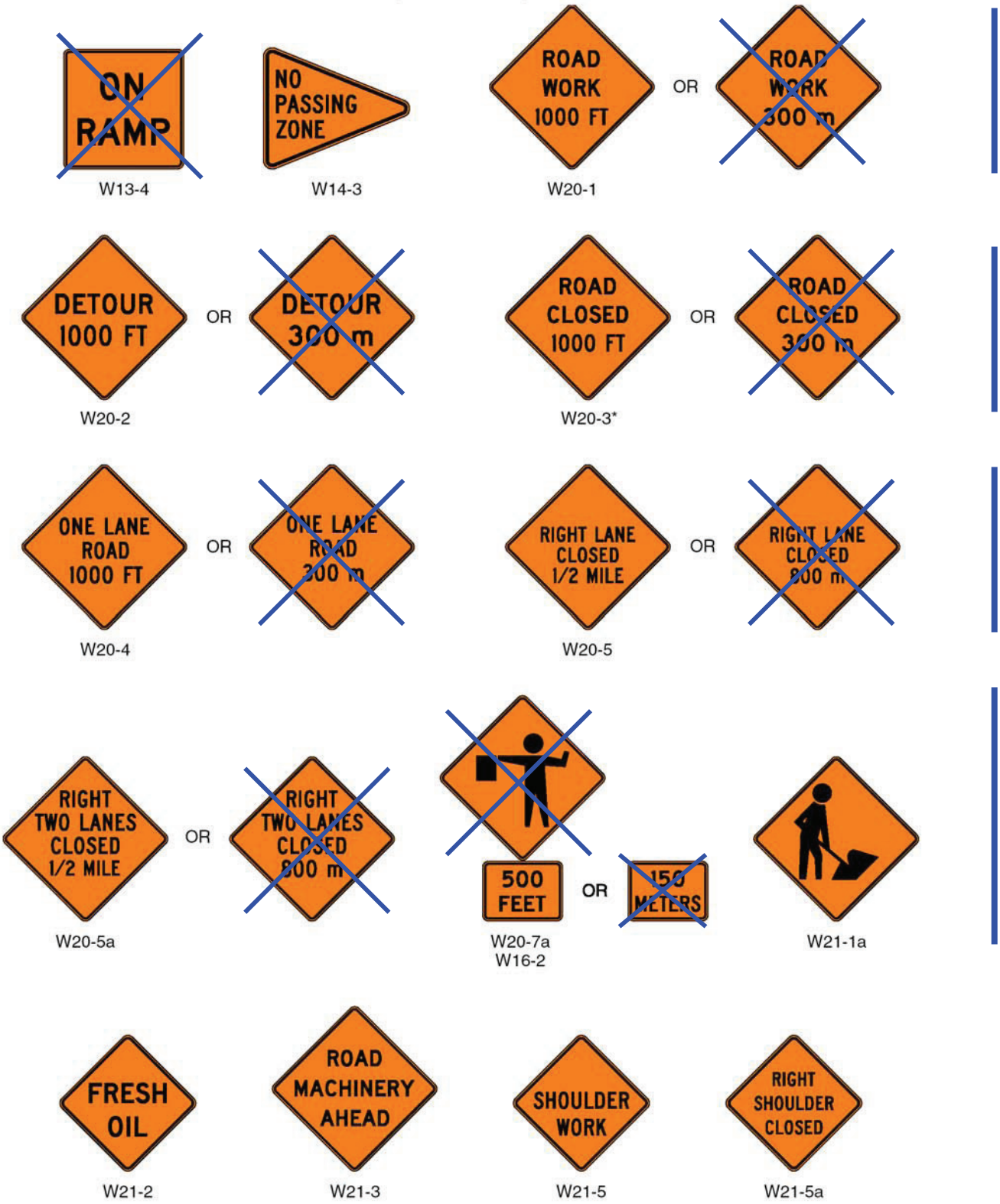
Figure 6F-4. Warning Signs in Temporary Traffic Control Zones
(Sheet 1 of 4)



Figure 6F-4. Warning Signs in Temporary Traffic Control Zones
(Sheet 2 of 4)



Figure 6F-4. Warning Signs in Temporary Traffic Control Zones
(Sheet 3 of 4)



* An optional STREET CLOSED word message sign is shown in the "Standard Highway Signs" book.

Figure 6F-4. Warning Signs in Temporary Traffic Control Zones
(Sheet 4 of 4)

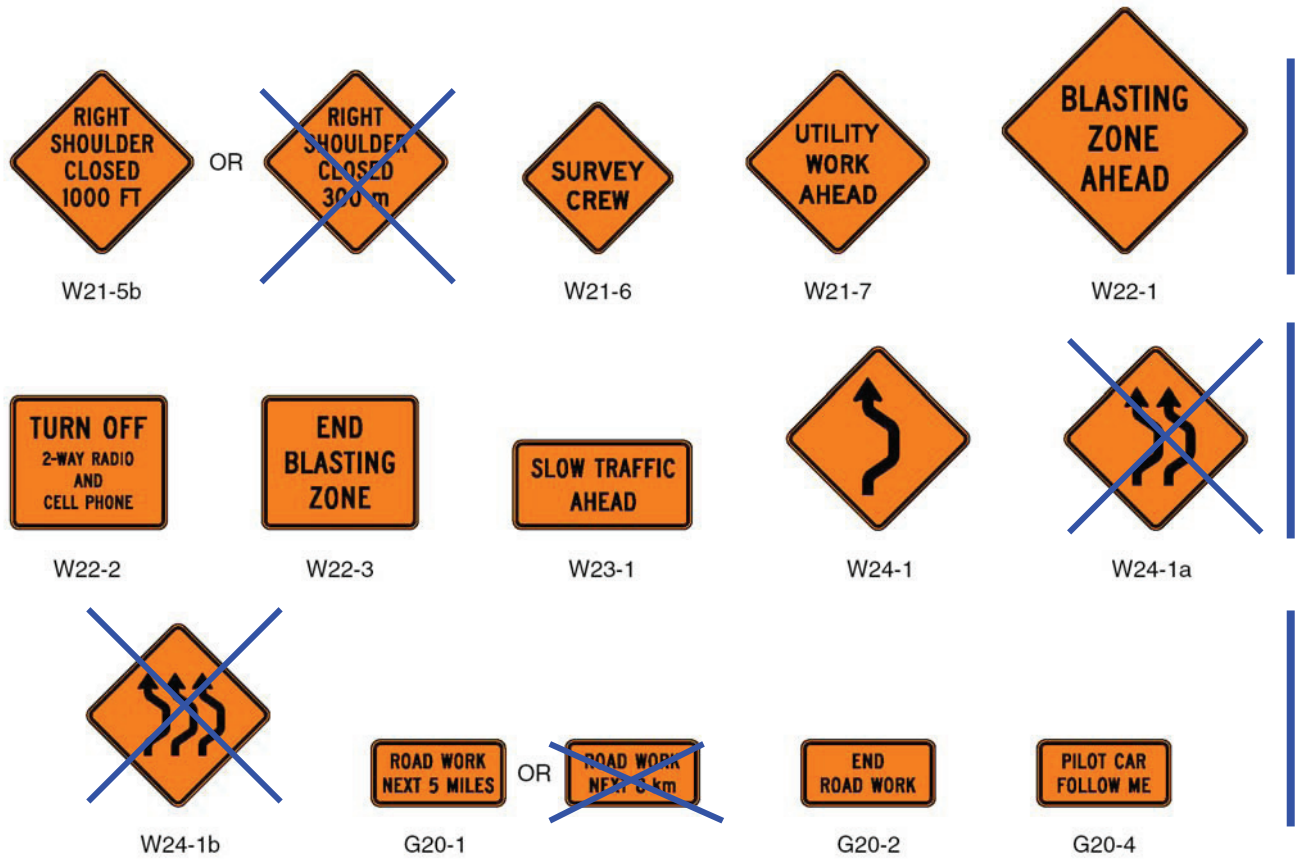


Figure 6F-5. Exit Open and Closed and Detour Signs

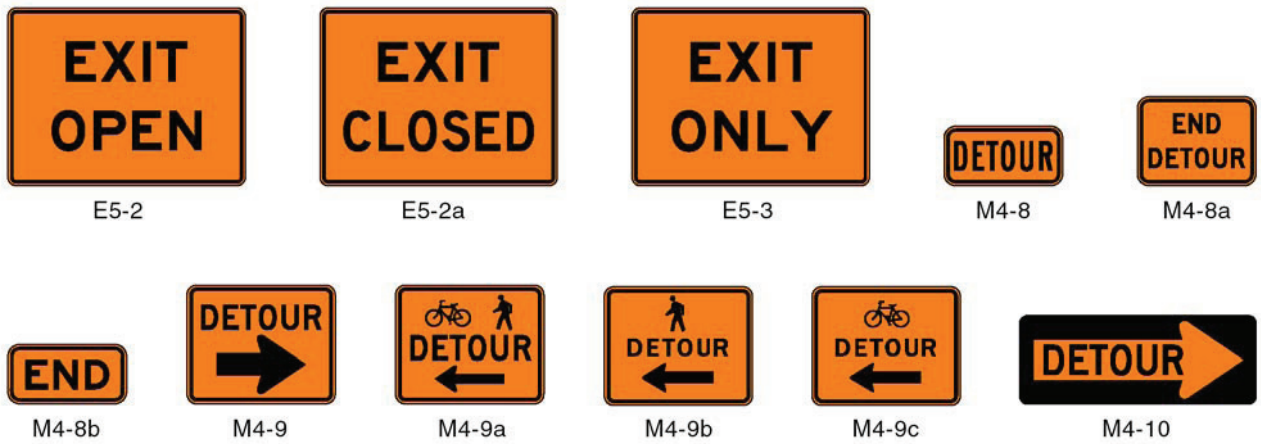


Figure 6F-6. Advance Warning Arrow Display Specifications

Operating Mode	Panel Display (Type C panel illustrated)
I. At least one of the three following modes shall be provided:	(Right arrow shown; left is similar)
Flashing Arrow	 Move/Merge Right
Sequential Arrow	 Move/Merge Right
Sequential Chevron	 Move/Merge Right
II. The following mode shall be provided: Flashing Double Arrow	 Move/Merge Right or Left
III. The following mode shall be provided: Flashing Caution	 Caution or  Caution

Panel Type	Minimum Size	Minimum Legibility Distance	Minimum Number of Elements
A	1200 x 600 mm (48 x 24 in)	0.8 km (1/2 mi)	12
B or II**	~~1500 x 750 mm (60 x 30 in)~~ 1800 x 900 mm (72 x 36 in)*	1.2 km (3/4 mi)	13
C or I**	2400 x 1200 mm (96 x 48 in)	1.6 km (1 mi)	15
D	None*	0.8 km (1/2 mi)	12

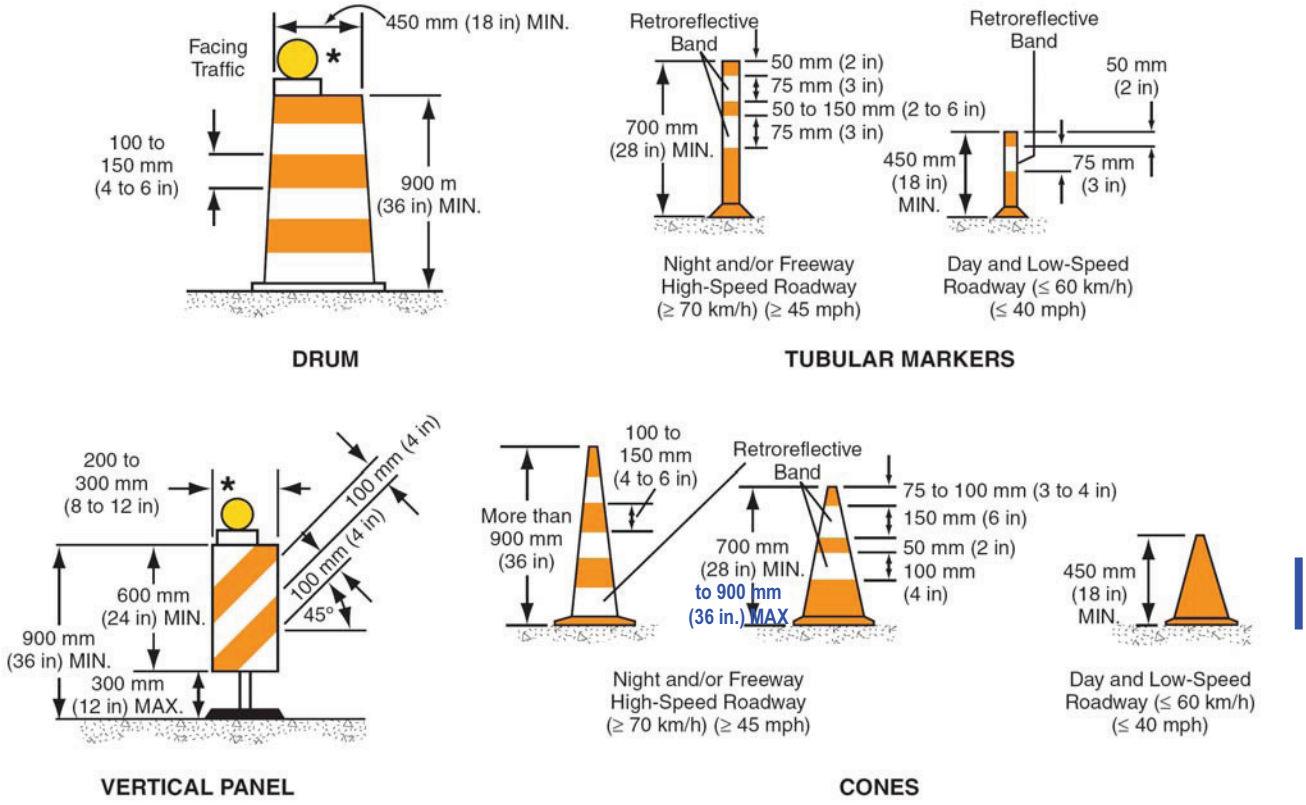
*Length of arrow equals 1200 mm (48 in), width of arrowhead equals 600 mm (24 in)

Standard:

*** - For State highways, the panel type B (or type II) shall have a minimum size of 1800 x 900 mm (72 x 36 in).**

**** - For State highways, the panel type B shall mean type II and the panel type C shall mean type I.**

Figure 6F-7. Channelizing Devices (Sheet 1 of 2)

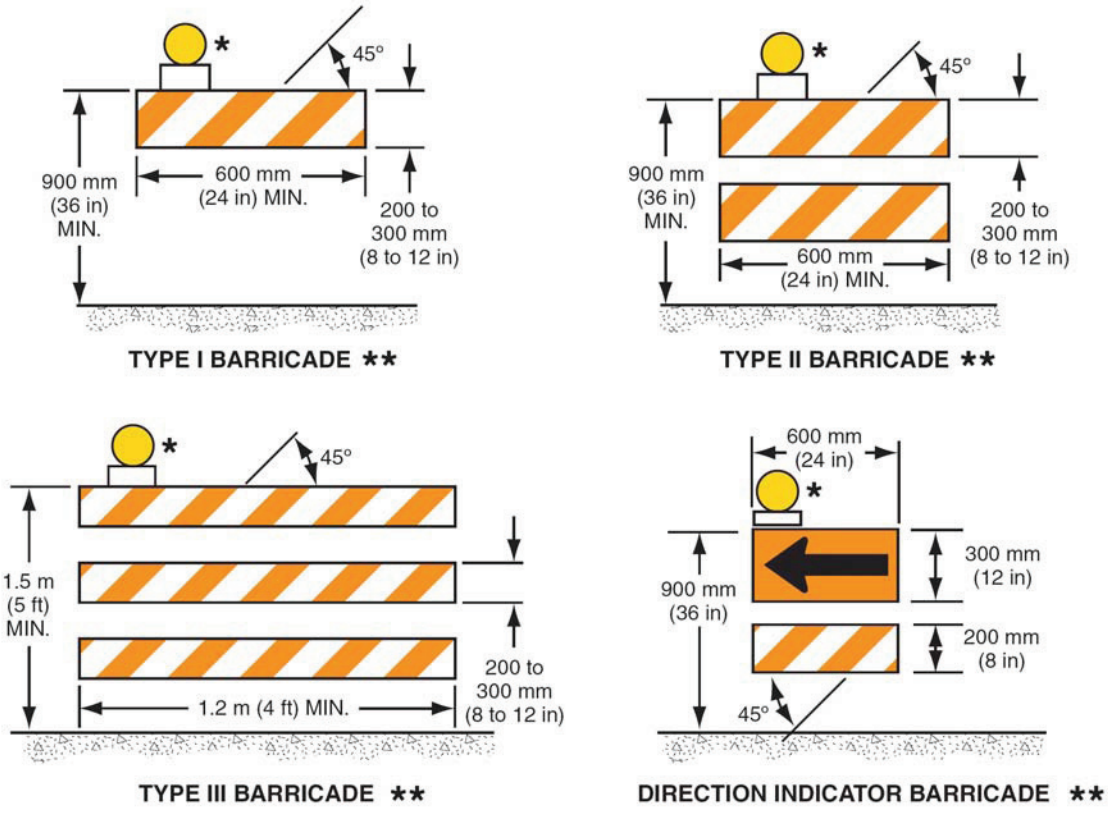


* Warning lights (optional)

Note: If drums, cones, or tubular markers are used to channelize pedestrians, they shall be located such that there are no gaps between the bases of the devices, in order to create a continuous bottom, and the height of each individual drum, cone, or tubular marker shall be no less than 900 mm (36 in) to be detectable to users of long canes.

(This space left intentionally blank)

Figure 6F-7. Channelizing Devices (Sheet 2 of 2)



* Warning lights (optional)
** Rail stripe widths shall be 150 mm (6 in), except that 100 mm (4 in) wide stripes may be used if rail lengths are less than 900 mm (36 in). The sides of barricades facing traffic shall have retroreflective rail faces.

Note: If barricades are used to channelize pedestrians, there shall be continuous detectable bottom and top rails with no gaps between individual barricades to be detectable to users of long canes. The bottom of the bottom rail shall be no higher than 150 mm (6 in) above the ground surface. The top of the top rail shall be no lower than 900 mm (36 in) above the ground surface.

(This space left intentionally blank)

Figure 6F-101 (CA). California Temporary Traffic Control Signs (Sheet 1 of 2)



C9A (CA)



C12 (CA)



C17 (CA) (Front)



C17 (CA) (Back)



C20A (CA)



C20B (CA)



C23B (CA)



C24 (CA)



C27 (CA)



C29 (CA)



C30 (CA)



C30A (CA)



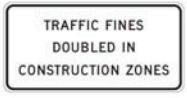
C31A (CA)



C37 (CA)



C38 (CA)



C40 (CA)



C40A (CA)



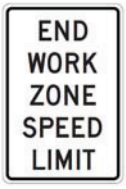
C43 (CA)



C44 (CA)



G20-5aP



R2-12



SC3 (CA)



SC5 (CA)



SC6A (CA)



SC6B (CA)

Figure 6F-101 (CA). California Temporary Traffic Control Signs (Sheet 2 of 2)

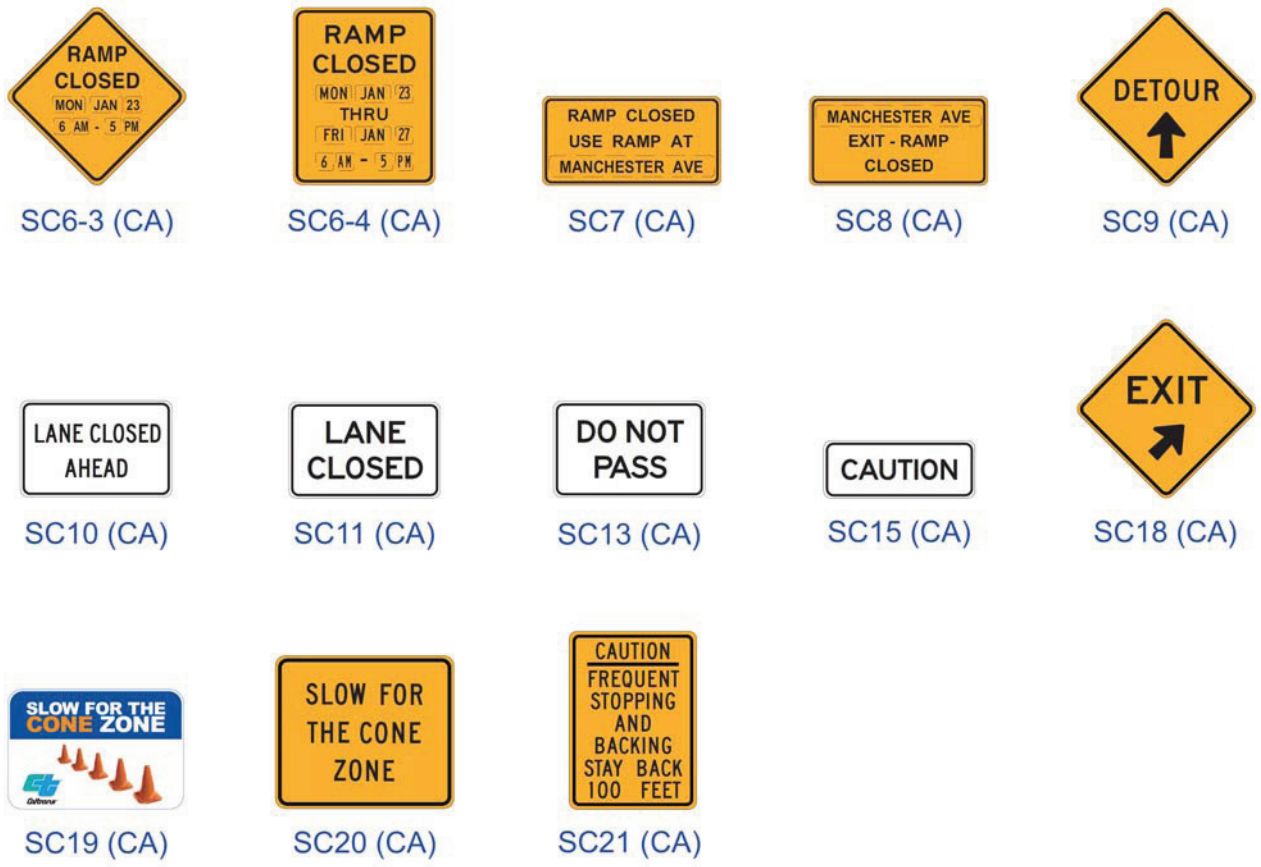


Figure 6F-102 (CA). Channelizer

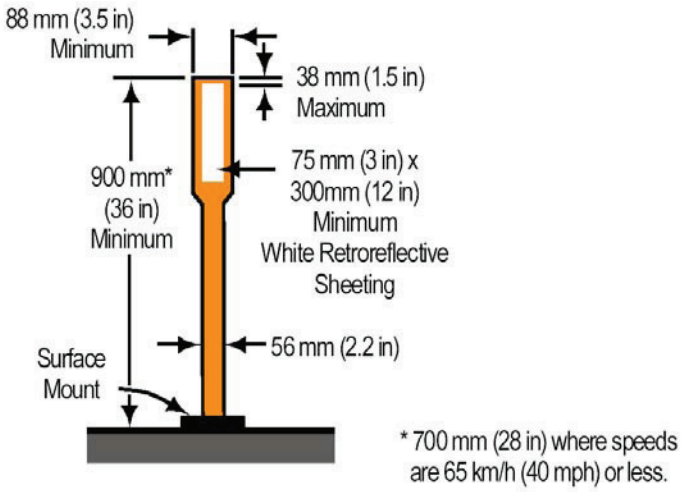
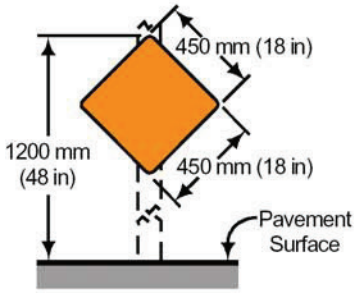
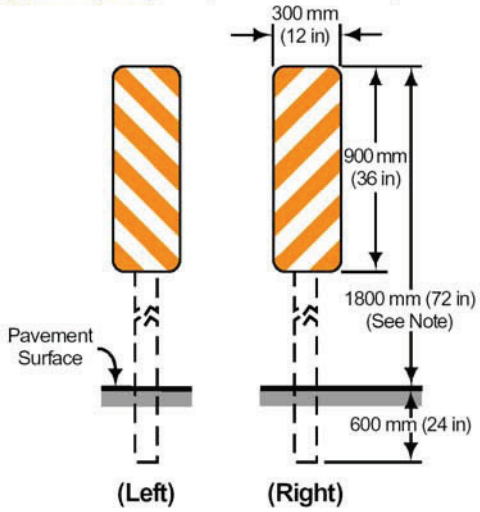


Figure 6F-103 (CA). Examples of Object Markers in Temporary Traffic Control Zones

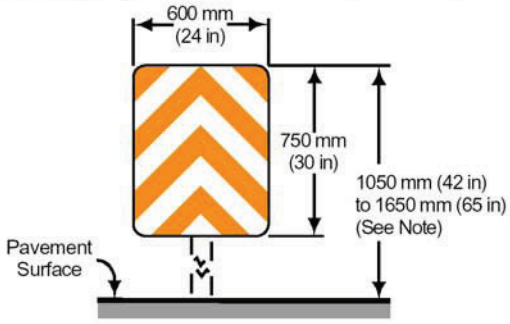
Type N-3 (CA) Object Marker (OM1-3)



Type P (CA) Object Markers (OM-3L&R)



Type R (CA) Object Marker (OM-3C)



Note:
The bottom of the marker is normally mounted 0.3 m (1 ft) above the pavement surface.

Table 6F-1. Sizes of Temporary Control Signs (Sheet 1 of 4)

Sign	MUTCD Code	Conventional Road	Expressway	Freeway	Minimum	Oversized
Stop	R1-1	750 x 750 (30 x 30)	—	—	—	—
Yield	R1-2	900 x 900 x 900 (36 x 36 x 36)	—	—	—	—
To Oncoming Traffic	R1-2a	1200 x 600 (48 x 24)	—	—	—	—
Speed Limit	R2-1	600 x 750 (24 x 30)	—	—	—	—
~~Speed Limit (metric)~~	~~R2-1~~	~~600 x 900 (24 x 36)~~	—	—	—	—
Fines Higher	R2-6	600 x 600 (24 x 24)	—	—	—	—
Turn Prohibition	R3-1,2,3, 4,18	600 x 600 (24 x 24)	—	—	—	—
Mandatory Movement (1 lane)	R3-5	750 x 900 (30 x 36)	—	—	—	—
Optional Movement (1 lane)	R3-6	750 x 900 (30 x 36)	—	—	—	—
Mandatory Movement (text)	R3-7	750 x 750 (30 x 30)	—	—	—	—
Lane Use (2 lanes)	R3-8	750 x 750 (30 x 30)	—	—	—	—
Do Not Pass	R4-1	600 x 750 (24 x 30)	—	—	—	—
Pass With Care	R4-2	600 x 750 (24 x 30)	—	—	—	—
Keep Right	R4-7	600 x 750 (24 x 30)	—	—	—	—
Stay in Lane	R4-9	600 x 750 (24 x 30)	—	—	—	—
Do Not Enter	R5-1	750 x 750 (30 x 30)	—	—	—	—
Wrong Way	R5-1a	900 x 600 (36 x 24)	—	—	—	—
One Way (inside arrow)	R6-1	900 x 300 (36 x 12)	—	—	—	—
One Way (with arrow)	R6-2	450 x 600 (18 x 24)	—	—	—	—
No Parking (symbol)	R8-3a	600 x 600 (24 x 24)	—	—	—	—
Pedestrian Crosswalk	R9-8	900 x 450 (36 x 18)	—	—	—	—
Sidewalk Closed	R9-9	600 x 300 (24 x 12)	—	—	—	—
Sidewalk Closed, Use Other Side	R9-10	600 x 300 (24 x 12)	—	—	—	—
Sidewalk Closed Ahead, Cross Here	R9-11	600 x 300 (24 x 12)	—	—	—	—
Sidewalk Closed, Cross Here	R9-11a	600 x 300 (24 x 12)	—	—	—	—
Road Closed	R11-2	1200 x 750 (48 x 30)	—	— (Also see C2(CA) Sign Size)	—	—
Road Closed - Local Traffic Only	R11-3a,4	1500 x 750 (60 X 30)	—	—	—	—
Weight Limit	R12-1,~~2~~	600 x 750 (24 x 30)	—	—	—	—
Weight Limit (with symbols)	R12-5	750 x ~~900~~ 1050 (30 x ~~36~~) 42	—	—	—	—
Turn and Curve Signs	W1-1,2,3,4	750 x 750 (30 x 30)	—	—	—	—
~~Reverse Curve (2 or more lanes)~~	~~W1-4b,4c~~	~~900 x 900 (36 x 36)~~	—	(~~See~~ W1-4 Sign Size)		—

Table 6F-1. Sizes of Temporary Control Signs (Sheet 2 of 4)

Sign	MUTCD Code	Conventional Road	Expressway	Freeway	Minimum	Oversized
One-Direction Large Arrow	W1-6	1200 x 600 (48 x 24)	—	—	—	—
Chevron	W1-8	900 x 1200 (36 x 48)	—	—	—	—
Stop Ahead (symbol)	W3-1	900 x 900 (36 x 36)	—	—	—	—
Yield Ahead (symbol)	W3-2	900 x 900 (36 x 36)	—	—	—	—
Signal Ahead (symbol)	W3-3	900 x 900 (36 x 36)	—	—	—	—
Be Prepared to Stop	W3-4	900 x 900 (36 x 36)	—	—	—	—
Speed Limit XX Ahead (symbol)	W3-5	900 x 900 (36 x 36)	—	—	—	—
Reduced Speed Zone Ahead	W3-5a	900 x 900 (36 x 36)	—	—	—	—
Merging Traffic	W4-1,5	900 x 900 (36 x 36)	—	—	—	—
Lane Ends (symbol)	W4-2	900 x 900 (36 x 36)	—	—	—	—
Added Lane	W4-3,6	900 x 900 (36 x 36)	—	—	—	—
Thru Traffic Merge Left	W4-7	900 x 900 (36 x 36)	—	—	—	—
Road Narrows	W5-1	900 x 900 (36 x 36)	—	—	—	—
Narrow Bridge	W5-2	900 x 900 (36 x 36)	—	—	—	—
One Lane Bridge	W5-3	900 x 900 (36 x 36)	—	—	—	—
~~Ramp Narrows~~	~~W5-4~~	~~900 x 900 (36 x 36)~~	—	(See W5-1 or C12(CA) Sign Sizes)		—
Divided Highway (symbol)	W6-1	900 x 900 (36 x 36)	—	—	—	—
Divided Highway Ends (symbol)	W6-2	900 x 900 (36 x 36)	—	—	—	—
Two-Way Traffic	W6-3	750 x 750 (30 x 30)	—	—	—	—
Two-Way Traffic (plaque)	W6-4	300 x 450 (12 x 18)	—	—	—	—
Hill (symbol)	W7-1	750 x 750 (30 x 30)	—	—	—	—
Bump	W8-1	750 x 750 (30 x 30)	—	—	—	—
Dip	W8-2	750 x 750 (30 x 30)	—	—	—	—
Pavement Ends	W8-3	750 x 750 (30 x 30)	—	—	—	—
Soft Shoulder	W8-4	750 x 750 (30 x 30)	—	—	—	—
Slippery When Wet (symbol)	W8-5	750 x 750 (30 x 30)	—	—	—	—
Truck Crossing	W8-6	750 x 750 (30 x 30)	—	—	—	—
Loose Gravel	W8-7	750 x 750 (30 x 30)	—	—	—	—
Rough Road	W8-8	750 x 750 (30 x 30)	—	—	—	—
Low Shoulder	W8-9	750 x 750 (30 x 30)	—	—	—	—
Shoulder Drop-Off	W8-9a	750 x 750 (30 x 30)	—	—	—	—

Table 6F-1. Sizes of Temporary Control Signs (Sheet 3 of 4)

Sign	MUTCD Code	Conventional Road	Expressway	Freeway	Minimum	Oversized
Uneven Lanes	W8-11	900 x 900 (36 x 36)	—	—	—	—
No Center Stripe	W8-12	900 x 900 (36 x 36)	—	—	—	—
Lane Ends	W9-1,2	900 x 900 (36 x 36)	—	—	—	—
Lane Closed Ahead	W9-3	900 x 900 (36 x 36)	—	—	—	—
Center Lane Closed Ahead (symbol)	W9-3a	900 x 900 (36 x 36)	—	—	—	—
Railroad Advance Warning (circular)	W10-1	900 dia. (36 dia.)	—	—	—	—
Truck (symbol)	W11-10	750 x 750 30 x 30	—	—	—	—
Two Arrow	W12-1	600 x 600 (24 x 24)	—	—	—	—
Low Clearance	W12-2	900 x 900 (36 x 36)	—	—	—	—
Advisory Speed (plaque)	W13-1	450 x 450 or 600 x 600 (18 x 18 or 24 x 24)	—	—	—	—
~~On Ramp (plaque)~~	~~W13-4~~	~~900 x 900 (36 x 36)~~	—	—	—	—
No Passing Zone (pennant)	W14-3	900 x 1200 x 1200 (36 x 48 x 48)	—	—	—	—
XX ~~Meters or~~ Feet (plaque)	W16-2	600 x 450 (24 x 18)	—	—	—	—
Road Work (with distance)	W20-1	900 x 900 (36 x 36)	—	(Also See C23(CA) Sign Size)		—
Detour (with distance)	W20-2	900 x 900 (36 x 36)	—	—	—	—
Road (Street) Closed (with distance)	W20-3	900 x 900 (36 x 36)	—	(Also See C19(CA) Sign Size)		—
One Lane Road (with distance)	W20-4	900 x 900 (36 x 36)	—	—	—	—
Lane(s) Closed (with distance)	W20-5,5a	900 x 900 (36 x 36)	—	(Also See C20(CA) Sign Size)		—
~~Flagger (symbol)~~	~~W20-7a~~	~~900 x 900 (36 x 36)~~	—	(See ~~C9A(CA)~~ Sign Size)		—
Workers	W21-1	900 x 900 (36 x 36)	—	—	—	—
Workers (symbol)	W21-1a	900 x 900 (36 x 36)	—	—	—	—
Fresh Oil	W21-2	750 x 750 (30 x 30)	—	—	—	—
Road Machinery Ahead	W21-3	900 x 900 (36 x 36)	—	—	—	—
Shoulder Work	W21-5	750 x 750 (30 x 30)	—	—	—	—
Shoulder Closed	W21-5a	750 x 750 (30 x 30)	—	—	—	—
Shoulder Closed (with distance)	W21-5b	900 x 900 (36 x 36)	—	—	—	—
Survey Crew	W21-6	750 x 750 (30 x 30)	—	—	—	—
Utility Work Ahead	W21-7	900 x 900 (36 x 36)	—	—	—	—
Blasting Zone Ahead	W22-1	1200 x 1200 (48 x 48)	—	—	—	—
Turn Off 2-Way Radio and Cell Phone	W22-2	1050 x 900 (42 x 36)	—	—	—	—
End Blasting Zone	W22-3	1050 x 900 (42 x 36)	—	—	—	—

Table 6F-1. Sizes of Temporary Control Signs (Sheet 4 of 4)

Sign	MUTCD Code	Conventional Road	Expressway	Freeway	Minimum	Oversized
Slow Traffic Ahead	W23-1	1200 x 600 (48 x 24)	—	(Also See SC12(CA) Sign Size)		—
Double Reverse Curve (1 lane)	W24-1	900 x 900 (36 x 36)	—	—	—	—
~~Double Reverse Curve (2 lanes)~~	~~W24-1a~~	~~900 x 900 (36 x 36)~~	—	(See W24-1 Sign Size)		—
~~Double Reverse Curve (3 lanes)~~	~~W24-1b~~	~~900 x 900 (36 x 36)~~	—	(See W24-1 Sign Size)		—
Road Work Next XX ~~km~~ or Miles	G20-1	900 x 450 (36 x 18)	—	(Also See C11(CA) Sign Size)		—
End Road Work	G20-2	900 x 450 (36 x 18)	—	(Also See C14(CA) Sign Size)		—
Pilot Car Follow Me	G20-4	900 x 450 (36 x 18)	—	—	—	—
Exit Open	E5-2	1200 x 900 (48 x 36)	—	—	—	—
Exit Closed	E5-2a	1200 x 900 (48 x 36)	—	—	—	—
Exit Only	E5-3	1200 x 900 (48 x 36)	—	—	—	—
Detour (plaque)	M4-8	600 x 300 (24 x 12)	—	—	—	—
End Detour	M4-8a	600 x 450 (24 x 18)	—	—	—	—
End (plaque)	M4-8b	600 x 300 (24 x 12)	—	—	—	—
Detour (with arrow)	M4-9	750 x 600 (30 x 24)	—	—	—	—
Bike/Pedestrian Detour (with arrow)	M4-9a	750 x 600 (30 x 24)	—	—	—	—
Pedestrian Detour (with arrow)	M4-9b	750 x 600 (30 x 24)	—	—	—	—
Bike Detour (with arrow)	M4-9c	750 x 600 (30 x 24)	—	—	—	—
Detour (inside arrow)	M4-10	1200 x 450 (48 x 18)	—	—	—	—

Notes:
1. Larger signs may be used wherever necessary for greater legibility or emphasis.
2. Dimensions are shown in millimeters followed by inches in parentheses and are shown as width x height.
3. For freeways and expressways, the size of diamond shaped TTC warning signs shall be a minimum of 1200 x 1200 mm (48 x 48 in).

(This space left intentionally blank)

Table 6F-1(CA). Sizes of California Temporary Traffic Control Signs(Sheet 1 of 2)

Sign (MUTCD Code, if any)	California Code	Conventional Road	Expressway	Freeway	Minimum	Oversized
Flagger Symbol	C9A(CA)	36 x 36	48 x 48	48 x 48	---	---
NARROW LANE(S)	C12(CA)	36 x 36	48 x 48	48 x 48	---	---
Road Work/Speed Limit	C17(CA)	24 x 24	24 x 24	24 x 24	---	---
RIGHT LANE CLOSED AHEAD	C20(CA)	36 x 36	48 x 48	48 x 48	---	72 x 72
LEFT Plaque	C20A(CA)	16 x 7	19 x 8	19 x 8	---	33 x 10
Numeral Plaque	C20B(CA)	6 x 8	8 x 10	8 x 10	---	10 x 12
ROAD (STREET) WORK Informational Plaque	C23B(CA)	Var x 18	Var x 24	Var x 24	---	---
SHOULDER WORK AHEAD	C24(CA)	30 x 30	48 x 48	48 x 48	---	---
OPEN TRENCH	C27(CA)	36 x 36	48 x 48	48 x 48	---	---
XXXX FT	C29(CA)	20 x 7	36 x 9	36 x 9	---	---
LANE CLOSED	C30(CA)	30 x 30	48 x 48	48 x 48	---	---
SHOULDER CLOSED	C30A(CA)	30 x 30	48 x 48	48 x 48	---	---
NO SHOULDER	C31A(CA)	36 x 36	48 x 48	48 x 48	---	---
TRAFFIC CONTROL - WAIT AND FOLLOW PILOT CAR	C37(CA)	36 x 42	36 x 42	36 x 42	---	---
USE NEXT EXIT	C38(CA)	48 x 36	48 x 36	48 x 36	---	---
TRAFFIC FINES DOUBLED IN CONSTRUCTION ZONES	C40(CA)	108 x 42	144 x 60	144 x 60	---	---
TRAFFIC FINES DOUBLED IN WORK ZONES	C40A(CA)	36 x 36	48 x 48	48 x 48	---	---
FRESH CONCRETE	C43(CA)	48 x 48	48 x 48	48 x 48	---	---
TRUCKS ENTERING EXITING	C44(CA)	36 x 36	48 x 48	48 x 48	---	---
DETOUR with Arrow	SC3(CA)	36 x 12	---	---	---	48 x 18
SPECIAL EVENT AHEAD	SC5(CA)	36 x 36	48 x 48	48 x 48	---	---
RAMP CLOSED (Not more than one day)	SC6-3(CA)	48 x 48	48 x 48	48 x 48	---	---
RAMP CLOSED (More than one day)	SC6-4(CA)	48 x 60	48 x 60	48 x 60	---	---
XXX month	SC6A(CA)	12 x 6	12 x 6	12 x 6	---	---
XX day	SC6B(CA)	6 x 6	6 x 6	6 x 6	---	---
RAMP CLOSED, USE RAMP AT ___	SC7(CA)	84 x 42	84 x 42	84 x 42	---	---
___ EXIT - RAMP CLOSED	SC8(CA)	84 x 42	84 x 42	84 x 42	---	---
DETOUR with Arrow	SC9(CA)	36 x 36	48 x 48	48 x 48	---	---
LANE CLOSED AHEAD	SC10(CA)	48 x 30	66 x 36	66 x 36	---	---
LANE CLOSED	SC11(CA)	42 x 30	54 x 42	54 x 42	---	---
DO NOT PASS	SC13(CA)	42 x 30	54 x 42	54 x 42	---	---
CAUTION	SC15(CA)	42 x 18	54 x 24	54 x 24	---	---
EXIT with Arrow	SC18(CA)	48 x 48	48 x 48	48 x 48	---	---
Slow For The Cone Zone	SC19(CA)	114 x 78	114 x 78	114 x 78		
SLOW FOR THE CONE ZONE	SC20(CA)	36 x 36	48 x 48	48 x 48	---	---

Table 6F-1(CA). Sizes of California Temporary Traffic Control Signs (Sheet 2 of 2)

Sign (MUTCD Code, if any)	California Code	Conventional Road	Expressway	Freeway	Minimum	Oversized
RAMP CLOSED (R11-2)	~~C2(CA)~~	48 x 30	48 x 30	48 x 30	---	---
ROAD CONSTRUCTION NEXT XX MILES (G20-1)	~~C11(CA)~~	60 x 36	90 x 48	90 x 48	---	---
END ROAD WORK (G20-2)	~~C14(CA)~~	36 x 18	48 x 24	48 x 24	---	---
RAMP CLOSED AHEAD (W20-3)	~~C19(CA)~~	36 x 36	48 x 48	48 x 48	---	---
RAMP WORK AHEAD (W20-1)	~~C23(CA)~~	36 x 36	48 x 48	48 x 48	---	---
SLOW TRAFFIC AHEAD (W23-1)	~~SC12(CA)~~	54 x 30	72 x 42	72 x 42	---	---

(This space left intentionally blank)

Table 6F-101(CA). California Temporary Traffic Control Signs (Sheet 1 of 2)

California Code	MUTCD Code	Title of Sign	California MUTCD Section
~~C1(CA)~~	W20-2	DETOUR	6F.18
~~C2(CA)~~	R11-2	ROAD (STREET) CLOSED	6F.08, 6F.28, 6F.53, 2B.48
~~C3(CA)~~	R11-3a	ROAD CLOSED XX MILES AHEAD, LOCAL TRAFFIC ONLY	6F.09, 6F.53, 2B.48
~~C3A(CA)~~	R11-4	ROAD (STREET) CLOSED TO THRU TRAFFIC	6F.09, 6F.53, 2B.48
~~C4(CA)~~	W21-2	FRESH OIL (TAR)	6F.32
~~C5(CA)~~	M4-10	Detour Arrow	6F.03, 6F.53
~~C5A(CA)~~	M4-8	DETOUR	6F.53, 6G.10
~~C6(CA)~~	W8-7	LOOSE GRAVEL	6F.102(CA)
~~C7(CA)~~	M4-8a	END DETOUR	6F.53
~~C8(CA)~~	W21-3	ROAD MACHINERY AHEAD	6F.33
C9A(CA)	None	Flagger Symbol	6F.29
~~C11(CA)~~	G20-1	ROAD WORK NEXT XX MILES	6F.51
C12(CA)	None	NARROW LANE(S)	6F.26, 6F.103(CA)
~~C14(CA)~~	G20-2	END ROAD WORK	6F.52
~~C16(CA)~~	W20-4	ONE LANE ROAD	6F.20
C17(CA)	None	Road Work/Speed Limit	6F.104(CA)
~~C19(CA)~~	W20-3	ROAD (STREET) CLOSED	6F.19
C20(CA)	None	RIGHT LANE CLOSED AHEAD	6F.21
C20A(CA)	None	LEFT Plaque	6F.21
C20B(CA)	None	Numeral Plaque	6F.21
~~C22B(CA)~~	W21-1a	Workers	6F.31, 6G.06
~~C22C(CA)~~	W21-1	WORKERS	6F.31
~~C23(CA)~~	W20-1	ROAD (STREET) WORK	6F.17, 6F.27, 6F.37, 6F.72
C23B(CA)	None	ROAD (STREET) WORK Informational Plaque	6F.17
C24(CA)	None	SHOULDER WORK AHEAD	6F.35
~~C25(CA)~~	W21-6	SURVEY CREW	6F.36
~~C26(CA)~~	G20-4	PILOT CAR FOLLOW ME	6C.13, 6F.54
C27(CA)	None	OPEN TRENCH	6F.105(CA)
C28A(CA)	Not Assigned	STOP Paddle	6E.03, 6E.04, 7E.05, 7E.09
C28B(CA)	Not Assigned	SLOW Paddle	6E.03, 6E.04
C28C(CA)	None	Short and Long Handle (for STOP/SLOW Paddle) Details	6E.03, 7E.05
C29(CA)	None	XXX FT	6F.49
C30(CA)	None	LANE CLOSED	6F.21
C30A(CA)	None	SHOULDER CLOSED	6F.35
~~C30B(CA)~~	W21-5b	RIGHT (LEFT) SHOULDER CLOSED XXX FT	6F.35
~~C31(CA)~~	W8-9	LOW SHOULDER	6F.42, 6F.105(CA), 2C.26
C31A(CA)	None	NO SHOULDER	6F.42, 6F.105(CA)
~~C33(CA)~~	W22-1	BLASTING ZONE AHEAD	6F.39
~~C34(CA)~~	W22-2	TURN OFF 2-WAY RADIO AND PHONE	6F.40
~~C35(CA)~~	W22-3	END BLASTING ZONE	6F.41
~~C36(CA)~~	W3-4	BE PREPARED TO STOP	6F.29, 2C.29
C37(CA)	None	TRAFFIC CONTROL – WAIT AND FOLLOW PILOT CAR	6F.54
C38(CA)	None	USE NEXT EXIT	6F.28

Table 6F-101(CA). California Temporary Traffic Control Signs (Sheet 2 of 2)

California Code	MUTCD Code	Title of Sign	California MUTCD Section
C40(CA)	None	TRAFFIC FINES DOUBLED IN CONSTRUCTION ZONES	6F.106(CA)
C40A(CA)	None	TRAFFIC FINES DOUBLED IN WORK ZONES	6F.106(CA)
~~C42(CA)~~	R9-11a	SIDEWALK CLOSED, (ARROW) CROSS HERE	6F.103(CA), 6F.13
C43(CA)	None	FRESH CONCRETE	6F.110(CA)
C44(CA)	None	TRUCKS ENTERING EXITING	6F.34
SC3(CA)	None	DETOUR with Arrow	6F.53
SC5(CA)	None	SPECIAL EVENT AHEAD	6F.17
SC6-3(CA)	None	RAMP CLOSED (Not more than one day)	6F.28
SC6-4(CA)	None	RAMP CLOSED (More than one day)	6F.28
SC6A(CA)	None	Day/Month Plaque	6F.28
SC6B(CA)	None	Time Plaque	6F.28
SC7(CA)	None	RAMP CLOSED, USE RAMP AT ___	6F.28
SC8(CA)	None	___ EXIT – RAMP CLOSED	6F.28
SC9(CA)	None	DETOUR with Arrow	6F.53
SC10(CA)	None	LANE CLOSED AHEAD	6F.107(CA)
SC11(CA)	None	LANE CLOSED	6F.107(CA)
~~SC12(CA)~~	W23-1	SLOW TRAFFIC AHEAD	6F.107(CA), 6F.27
SC13(CA)	None	DO NOT PASS	6F.107(CA)
SC15(CA)	None	CAUTION	6F.107(CA)
~~SC16(CA)~~	W8-12	NO CENTER STRIPE	6F.44
SC18(CA)	None	EXIT with Arrow	6F.28
SC19(CA)	None	Slow For The Cone Zone	6F.109(CA)
SC20(CA)	None	SLOW FOR THE CONE ZONE	6F.109(CA)
SC21(CA)	None	CAUTION FREQUENT STOPPING AND BACKING STAY BACK 100 FEET	6F.111(CA)

(This space left intentionally blank)

Table 6F-102(CA). Maximum Spacing of Channelizing Devices

Speed (km/h)	Maximum Channelizer Spacing		
	Taper* (m)	Tangent (m)	Conflict** (m)
30	6	12	3
40	8	16	4
50	10	20	5
60	12	24	6
70	14	28	7
80	16	32	8
90	18	36	9
100	20	40	10
110	22	44	11

Speed (mph)	Maximum Channelizer Spacing		
	Taper* (ft)	Tangent (ft)	Conflict** (ft)
20	20	40	10
25	25	50	12
30	30	60	15
35	35	70	17
40	40	80	20
45	45	90	22
50	50	100	25
55	55	110	27
60	60	120	30
65	65	130	32
70	70	140	35

* Maximum channelizer spacing for all speeds on one-lane/two-way tapers is 6.1 m (20 ft).

Maximum channelizer spacing for all speeds on downstream tapers is 6.1 m (20 ft).

All other tapers are as shown.

** Use on intermediate and short-term projects for taper and tangent sections where there are no pavement markings or where there is a conflict between existing pavement markings and channelizers

CHAPTER 6G. TYPE OF TEMPORARY TRAFFIC CONTROL ZONE ACTIVITIES

Section 6G.01 Typical Applications

Support:

Whenever the acronym "TTC" is used in this Chapter, it refers to "temporary traffic control".

Standard:

The needs and control of all road users (motorists, bicyclists, and pedestrians within the highway, including persons with disabilities in accordance with the Americans with Disabilities Act of 1990 (ADA), Title II, Paragraph 35.130) through a TTC zone shall be an essential part of highway construction, utility work, maintenance operations, and the management of traffic incidents.

Support:

Each TTC zone is different. Many variables, such as location of work, highway type, geometrics, vertical and horizontal alignment, intersections, interchanges, road user volumes, road vehicle mix (buses, trucks, and cars), and road user speeds affect the needs of each zone. The goal of TTC in work zones is safety with minimum disruption to road users. The key factor in promoting TTC zone safety is proper judgment.

Typical applications (TAs) of TTC zones are organized according to duration, location, type of work, and highway type. Table 6H-1 is an index of these typical applications. These typical applications include the useof various TTC methods, but do not include a layout for every conceivable work situation.

Guidance:

Typical applications should be altered, when necessary, to fit the conditions of a particular TTC zone.

Option:

Other devices may be added to supplement the devices shown in the typical applications, while others may be deleted. The sign spacings and taper lengths may be increased to provide additional time or space for driver response.

Support:

Decisions regarding the selection of the most appropriate typical application to use as a guide for a specific TTC zone require an understanding of each situation. Although there are many ways of categorizing TTC zone applications, the four factors mentioned earlier (work duration, work location, work type, and highway type) are used to characterize the typical applications illustrated in Chapter 6H.

Section 6G.02 Work Duration

Support:

Chapter 6D and Sections 6F.68 and 6G.05 contain additional information regarding the steps to follow when pedestrian or bicycle facilities are affected by the worksite.

Work duration is a major factor in determining the number and types of devices used in TTC zones. The duration of a TTC zone is defined relative to the length of time a work operation occupies a spot location.

Standard:

The five categories of work duration and their time at a location shall be:

A. Long-term stationary is work that occupies a location more than 3 days.

B. Intermediate-term stationary is work that occupies a location more than one daylight period up to 3 days, or nighttime work lasting more than 1 hour.

C. Short-term stationary is daytime work that occupies a location for more than 1 hour within a single daylight period.

D. Short duration is work that occupies a location up to 1 hour.

E. Mobile is work that moves intermittently or continuously.

Support:

At long-term stationary TTC zones, there is ample time to install and realize benefits from the full range of TTC procedures and devices that are available for use. Generally, larger channelizing devices, temporary roadways, and temporary traffic barriers are used.

Standard:

Since long-term operations extend into nighttime, retroreflective and/or illuminated devices shall be used in long-term stationary TTC zones.

Guidance:

Inappropriate markings in long-term stationary TTC zones should be removed and replaced with temporary markings.

Support:

In intermediate-term stationary TTC zones, it might not be feasible or practical to use procedures or devices that would be desirable for long-term stationary temporary traffic control zones, such as altered pavement markings, temporary traffic barriers, and temporary roadways. The increased time to place and remove these devices in some cases could significantly lengthen the project, thus increasing exposure time. In other instances, there might be insufficient pay-back time to economically justify more elaborate TTC measures.

Standard:

Since intermediate-term operations extend into nighttime, retroreflective and/or illuminated devices shall be used in intermediate-term stationary TTC zones.

Support:

Most maintenance and utility operations are short-term stationary work.

As compared to stationary operations, mobile and short-duration operations are activities that might involve different treatments. Devices having greater mobility might be necessary such as signs mounted on trucks. Devices that are larger, more imposing, or more visible can be used effectively and economically. The mobility of the TTC zone is important.

Maintaining reasonably safe work and road user conditions is a paramount goal in carrying out mobile operations.

Guidance:

Safety in short-duration or mobile operations should not be compromised by using fewer devices simply because the operation will frequently change its location.

Option:

Appropriately colored or marked vehicles with high-intensity rotating, flashing, oscillating, or strobe lights may be used in place of signs and channelizing devices for short-duration or mobile operations. These vehicles may be augmented with signs or arrow panels.

Support:

During short-duration work, it often takes longer to set up and remove the TTC zone than to perform the work. Workers face hazards in setting up and taking down the TTC zone. Also, since the work time is short, delays affecting road users are significantly increased when additional devices are installed and removed.

Option:

Considering these factors, simplified control procedures may be warranted for short-duration work. A reduction in the number of devices may be offset by the use of other more dominant devices such as high-intensity rotating, flashing, oscillating, or strobe lights on work vehicles.

Support:

Mobile operations often involve frequent short stops for activities such as litter cleanup, pothole patching, or utility operations, and are similar to short-duration operations.

Guidance:

Warning signs, high-intensity rotating, flashing, oscillating, or strobe lights on a vehicle, flags, and/or channelizing devices should be used and moved periodically to keep them near the mobile work area.

Option:

Flaggers may be used for mobile operations that often involve frequent short stops.

Support:

Mobile operations also include work activities where workers and equipment move along the road without stopping, usually at slow speeds. The advance warning area moves with the work area.

Guidance:

When mobile operations are being performed, a shadow vehicle equipped with an arrow panel or a sign should follow the work vehicle, especially when vehicular traffic speeds or volumes are high. Where feasible, warning signs should be placed along the roadway and moved periodically as work progresses.

Under high-volume conditions, consideration should be given to scheduling mobile operations work during off-peak hours.

If there are mobile operations on a high-speed travel lane of a multi-lane divided highway, arrow panels should be used.

Option:

For mobile operations that move at speeds less than 5 km/h (3 mph), mobile signs or stationary signing that is periodically retrieved and repositioned in the advance warning area may be used.

At higher speeds, vehicles may be used as components of the TTC zones for mobile operations. Appropriately colored and marked vehicles with signs, flags, high-intensity rotating, flashing, oscillating, or strobe lights, truck-mounted attenuators, and arrow panels or portable changeable message signs may follow a train of moving work vehicles.

For some continuously moving operations, such as street sweeping and snow removal, a single work vehicle with appropriate warning devices on the vehicle may be used to provide warning to approaching road users.

Standard:

Mobile operations that move at speeds greater than 30 km/h (20 mph), such as pavement marking operations, shall have appropriate devices on the equipment (that is, high-intensity rotating, flashing, oscillating, or strobe lights, signs, or special lighting), or shall use a separate vehicle with appropriate warning devices.

Section 6G.03 Location of Work

Support:

Chapter 6D and Sections 6F.68 and 6G.05 contain additional information regarding the steps to follow when pedestrian or bicycle facilities are affected by the worksite.

The choice of TTC needed for a TTC zone depends upon where the work is located. As a general rule, the closer the work is to road users (including bicyclists and pedestrians), the greater the number of TTC devices that are needed. Procedures are described later in this Chapter for establishing TTC zones in the following locations:

A. Outside the shoulder;
B. On the shoulder with no encroachment;
C. On the shoulder with minor encroachment;
D. Within the median; and
E. Within the traveled way.

Standard:

When the work space is within the traveled way, except for short-duration and mobile operations, advance warning shall provide a general message that work is taking place and shall supply information about highway conditions. TTC devices shall indicate how vehicular traffic can move through the TTC zone.

Section 6G.04 Modifications To Fulfill Special Needs

Support:

Chapter 6D and Sections 6F.68 and 6G.05 contain additional information regarding the steps to follow when pedestrian or bicycle facilities are affected by the worksite.

The typical applications in Chapter 6H illustrate commonly encountered situations in which TTC devices are employed.

Option:

Other devices may be added to supplement the devices indicated in the typical applications, and device spacing may be adjusted to provide additional reaction time. When conditions are less complex than those depicted in the typical applications, fewer devices may be needed.

Guidance:

When conditions are more complex, typical applications should be modified by giving particular attention to the provisions set forth in Chapter 6B and by incorporating appropriate devices and practices from the following list:

A. Additional devices:
   1. Signs
   2. Arrow panels
   3. More channelizing devices at closer spacing (see Section 6F.68 for information regarding detectable edging for pedestrians)
   4. Temporary raised pavement markers
   5. High-level warning devices
   6. Portable changeable message signs
   7. Temporary traffic control signals (including pedestrian signals and accessible pedestrian signals).
   8. Temporary traffic barriers
   9. Crash cushions
   10. Screens
   11. Rumble strips
   12. More delineation
B. Upgrading of devices:
   1. A full complement of standard pavement markings
   2. Brighter and/or wider pavement markings
   3. Larger and/or brighter signs
   4. Channelizing devices with greater conspicuity
   5. Temporary traffic barriers in place of channelizing devices
C. Improved geometrics at detours or crossovers
D. Increased distances:
   1. Longer advance warning area
   2. Longer tapers
E. Lighting:
   1. Temporary roadway lighting
   2. Steady-burn lights used with channelizing devices
   3. Flashing lights for isolated hazards
   4. Illuminated signs
   5. Floodlights

Where pedestrian or bicycle usage is high, typical applications should also be modified by giving particular attention to the provisions set forth in Chapter 6D, Section 6F.68, and other Sections of Part 6 related to accessibility and detectability provisions in TTC zones.

Section 6G.05 Work Affecting Pedestrian and Bicycle Facilities

Support:

It is not uncommon, particularly in urban areas, that road work and the associated TTC will affect existing pedestrian or bicycle facilities. It is essential that the needs of all road users, including pedestrians with disabilities, are considered in TTC zones.

In addition to specific provisions identified in Sections 6G.06, 6G.07, 6G.08, 6G.10, 6G.11, 6G.12, and 6G.13, there are a number of provisions that might be applicable for all of the types of activities identified in this Chapter.

Guidance:

Where pedestrian or bicycle usage is high, the typical applications should be modified by giving particular attention to the provisions set forth in Chapters 6D and 6G, Section 6F.68, and in other Sections of Part 6 related to accessibility and detectability provisions in TTC zones.

Pedestrians should be separated from the worksite by appropriate devices that maintain the accessibility and detectability for pedestrians with disabilities.

Bicyclists and pedestrians should not be exposed to unprotected excavations, open utility access, overhanging equipment, or other such conditions.

Except for short duration and mobile operations, when a highway shoulder is occupied, a SHOULDER WORK sign should be placed in advance of the activity area. When work is performed on a paved shoulder 2.4 m (8 ft) or more in width, channelizing devices should be placed on a taper having a length that conforms to the requirements of a shoulder taper. Signs should be placed such that they do not narrow any existing pedestrian passages to less than 1200 mm (48 in).

Pedestrian detours should be avoided since pedestrians rarely observe them and the cost of providing accessibility and detectability might outweigh the cost of maintaining a continuous route. Whenever possible, work should be done in a manner that does not create a need to detour pedestrians from existing routes or crossings.

Standard:

Where pedestrian routes are closed, alternate pedestrian routes shall be provided.

When existing pedestrian facilities are disrupted, closed, or relocated in a TTC zone, the temporary facilities shall be detectable and shall include accessibility features consistent with the features present in the existing pedestrian facility.

Section 6G.06 Work Outside of Shoulder

Support:

Chapter 6D and Sections 6F.68 and 6G.05 contain additional information regarding the steps to follow when pedestrian or bicycle facilities are affected by the worksite.

When work is being performed off the roadway (beyond the shoulders, but within the right-of-way), little or no TTC might be needed. TTC generally is not needed where work is confined to an area 4.6 m (15 ft) or more from the edge of the traveled way. However, TTC is appropriate where distracting situations exist, such as vehicles parked on the shoulder, vehicles accessing the work site via the highway, and equipment traveling on or crossing the roadway to perform the work operations (for example, mowing). For work beyond the shoulder, see Figure ~~6H-1~~ 6H-1(CA).

Guidance:

Where the above situations exist, a single warning sign, such as ~~ROAD WORK AHEAD,~~ Workers (W21-1a) sign, should be used. If the equipment travels on the roadway, the equipment should be equipped with appropriate flags, high-intensity rotating, flashing, oscillating, or strobe lights, and/or a SLOW MOVING VEHICLE sign.

Support:

Refer to Section 6F.31 for Workers (W21-1a) sign.

Option:

If work vehicles are on the shoulder, a SHOULDER WORK sign may be used. For mowing operations, the sign MOWING AHEAD may be used.

Where the activity is spread out over a distance of more than 3.2 km (2 mi), the SHOULDER WORK sign may be repeated every 1.6 km (1 mi).

A supplementary plaque with the message NEXT X ~~km~~ (MILES) may be used.

Guidance:

A general warning sign like ROAD MACHINERY AHEAD should be used if workers and equipment must occasionally move onto the shoulder.

Section 6G.07 Work on the Shoulder with No Encroachment

Support:

Chapter 6D and Sections 6F.68 and 6G.05 contain additional information regarding the steps to follow when pedestrian or bicycle facilities are affected by the worksite.

The provisions of this Section apply to short-term through long-term stationary operations.

Standard:

When paved shoulders having a width of 2.4 m (8 ft) or more are closed, at least one advance warning sign shall be used. In addition, channelizing devices shall be used to close the shoulder in advance to delineate the beginning of the work space and direct motor vehicle traffic to remain within the traveled way.

Guidance:

When paved shoulders having a width of 2.4 m (8 ft) or more are closed on freeways and expressways, road users should be warned about potential disabled vehicles that cannot get off the traveled way. An initial general warning sign (such as ROAD WORK AHEAD) should be used, followed by a RIGHT or LEFT SHOULDER CLOSED sign. Where the end of the shoulder closure extends beyond the distance which can be perceived by road users, a supplementary plaque bearing the message NEXT X ~~METERS~~ (FEET) or ~~km~~ (MILES) should be placed below the SHOULDER CLOSED sign. On multi-lane, divided highways, signs advising of shoulder work or the condition of the shoulder should be placed only on the side of the affected shoulder.

When an improved shoulder is closed on a high-speed roadway, it should be treated as a closure of a portion of the road system because road users expect to be able to use it in emergencies. Road users should be given ample advance warning that shoulders are closed for use as refuge areas throughout a specified length of the approaching TTC zone. The sign(s) should read SHOULDER CLOSED with distances indicated. The work space on the shoulder should be closed off by a taper or channelizing devices with a length of 0.33 L using the formulas in Table 6C-3.

When the shoulder is not occupied but work has adversely affected its condition, the LOW SHOULDER or SOFT SHOULDER sign should be used, as appropriate.

Where the condition extends over a distance in excess of 1.6 km (1 mi), the sign should be repeated at 1.6 km (1 mi) intervals.

Option:

In addition, a supplementary plaque bearing the message NEXT X ~~km~~ (MILES) may be used. Temporary traffic barriers may be needed to inhibit encroachment of errant vehicles into the work space and to protect workers.

Standard:

When used for shoulder work, arrow panels shall operate only in the caution mode.

Support:

A typical application for stationary work operations on shoulders is shown in Figure 6H-3. Short duration or mobile work on shoulders is shown in Figure ~~6H-4~~ 6H-4(CA). Work on freeway shoulders is shown in Figure ~~6H-5~~ 6H-5(CA).

Section 6G.08 Work on the Shoulder with Minor Encroachment

Support:

Chapter 6D and Sections 6F.68 and 6G.05 contain additional information regarding the steps to follow when pedestrian or bicycle facilities are affected by the worksite.

Guidance:

When work takes up part of a lane, vehicular traffic volumes, vehicle mix (buses, trucks, cars, and bicycles), speed, and capacity should be analyzed to determine whether the affected lane should be closed. Unless the lane encroachment permits a remaining lane width of 3 m (10 ft), the lane should be closed.

Truck off-tracking should be considered when determining whether the minimum lane width of 3 m (10 ft) is adequate.

Option:

A lane width of 2.7 m (9 ft) may be used for short-term stationary work on low-volume, low-speed roadways when vehicular traffic does not include longer and wider heavy commercial vehicles.

Support:

Figure 6H-6 illustrates a method for handling vehicular traffic where the stationary or short duration work space encroaches slightly into the traveled way.

Section 6G.09 Work Within the Median

Support:

Chapter 6D and Sections 6F.68 and 6G.05 contain additional information regarding the steps to follow when pedestrian or bicycle facilities are affected by the worksite.

Guidance:

If work in the median of a divided highway is within 4.6 m (15 ft) from the edge of the traveled way for either direction of travel, TTC should be used through the use of advance warning signs and channelizing devices.

Section 6G.10 Work Within the Traveled Way of Two-Lane Highways

Support:

Chapter 6D and Sections 6F.68 and 6G.05 contain additional information regarding the steps to follow when pedestrian or bicycle facilities are affected by the worksite.

Detour signs are used to direct road users onto another roadway. At diversions, road users are directed onto a temporary roadway or alignment placed within or adjacent to the right-of-way. Typical applications for detouring or diverting road users on two-lane highways are shown in Figures ~~6H-7~~ 6H-7(CA), 6H-8, and 6H-9. Figure ~~6H-7~~ 6H-7(CA) illustrates the controls around an area where a section of roadway has been closed and a diversion has been constructed. Channelizing devices and pavement markings are used to indicate the transition to the temporary roadway.

Guidance:

When a detour is long, Detour (M4-8, M4-9) signs should be installed to remind and reassure road users periodically that they are still successfully following the detour.

When an entire roadway is closed, as illustrated in Figure 6H-8, a detour should be provided and road users should be warned in advance of the closure, which in this example is a closure 16 km (10 mi) from the intersection. If local road users are allowed to use the roadway up to the closure, the ROAD CLOSED AHEAD, LOCAL TRAFFIC ONLY sign should be used. The portion of the road open to local road users should have adequate signing, marking, and delineation.

Detours should be signed so that road users will be able to traverse the entire detour route and back to the original roadway as shown in Figure 6H-9.

Support:

Techniques for controlling vehicular traffic under one-lane, two-way conditions are described in Section 6C.10.

Option:

Flaggers may be used as shown in Figure ~~6H-10~~ 6H-10(CA).

STOP/YIELD sign control may be used on roads with low traffic volumes as shown in Figure 6H-11.

A temporary traffic control signal may be used as shown in Figure ~~6H-12~~ 6H-12(CA).

Support:

Refer to CVC 21363 for detour signs.

Section 6G.11 Work Within the Traveled Way of Urban Streets

Support:

Chapter 6D and Sections 6F.68 and 6G.05 contain additional information regarding the steps to follow when pedestrian or bicycle facilities are affected by the worksite.

In urban TTC zones, decisions are needed on how to control vehicular traffic, such as how many lanes are required, whether any turns need to be prohibited at intersections, and how to maintain access to business, industrial, and residential areas.

Pedestrian traffic needs separate attention. Chapter 6D contains information regarding pedestrian movements near TTC zones.

Standard:

If the TTC zone affects the movement of pedestrians, adequate pedestrian access and walkways shall be provided. If the TTC zone affects an accessible and detectable pedestrian facility, the accessibility and detectability shall be maintained along the alternate pedestrian route.

If the TTC zone affects the movement of bicyclists, adequate access to the roadway or shared-use paths shall be provided (see Part 9).

Where transit stops are affected or relocated because of work activity, access to temporary transit stops shall be provided.

Guidance:

If a designated bicycle route is closed because of the work being done, a signed alternate route should be provided. Bicyclists should not be directed onto the path used by pedestrians.

Work sites within the intersection should be protected against inadvertent pedestrian incursion by providing detectable channelizing devices.

Support:

Utility work takes place both within and outside the roadway to construct and maintain services such as power, gas, light, water, or telecommunications. Operations often involve intersections, since that is where many of the network junctions occur. The work force is usually small, only a few vehicles are involved, and the number and types of TTC devices placed in the TTC zone is usually minimal.

Standard:

All TTC devices shall be retroreflective or illuminated if utility work is performed during nighttime hours.

Guidance:

As discussed under short-duration projects, however, the reduced number of devices in utility work zones should be offset by the use of high-visibility devices, such as high-intensity rotating, flashing, oscillating, or strobe lights on work vehicles or high-level warning devices.

Support:

Figures 6H-6, ~~6H-10~~ 6H-10(CA), 6H-15, 6H-18, 6H-21, 6H-22, 6H-23, 6H-26, and 6H-33 are examples of typical applications for utility operations. Other typical applications might apply as well.

Section 6G.12 Work Within the Traveled Way of Multi-lane, Nonaccess Controlled Highways

Support:

Chapter 6D and Sections 6F.68 and 6G.05 contain additional information regarding the steps to follow when pedestrian or bicycle facilities are affected by the worksite.

Work on multi-lane (two or more lanes of moving motor vehicle traffic in one direction) highways is divided into right-lane closures, left-lane closures, interior-lane closures, multiple-lane closures, and closures on five-lane roadways.

Standard:

When a lane is closed on a multi-lane road for other than a mobile operation, a transition area containing a merging taper shall be used.

Guidance:

When justified by an engineering study, temporary traffic barriers should be used to prevent incursions of errant vehicles into hazardous areas or work space.

Standard:

When temporary traffic barriers are placed immediately adjacent to the traveled way, they shall be equipped with appropriate channelizing devices, delineation, and/or other TTC devices. For lane closures, the merging taper shall use channelizing devices and the temporary traffic barrier shall be placed beyond the transition area.

Support:

It must be recognized that although temporary traffic barriers are shown in several of the typical applications of Chapter 6H, they are not considered to be TTC devices in themselves.

Figure 6H-34 illustrates a lane closure in which temporary traffic barriers are used.

Option:

When the right lane is closed, TTC similar to that shown in Figure 6H-33 may be used for undivided or divided four-lane roads.

Guidance:

If morning and evening peak hour vehicular traffic volumes in the two directions are uneven and the greater volume is on the side where the work is being done in the right lane, consideration should be given to closing the inside lane for opposing vehicular traffic and making the lane available to the side with heavier vehicular traffic, as shown in Figure ~~6H-31~~ 6H-31(CA).

If the larger vehicular traffic volume changes to the opposite direction at a different time of the day, the TTC should be changed to allow two lanes for opposing vehicular traffic by moving the devices from the opposing lane back to the centerline. When it is necessary to create a temporary centerline that is not consistent with the pavement markings, channelizing devices should be used and closely spaced.

Option:

When closing a left lane on a multi-lane undivided road, as vehicular traffic flow permits, the two interior lanes may be closed, as shown in Figure 6H-30, to provide drivers and workers additional lateral clearance and to provide access to the work space.

Standard:

When only the left lane is closed on undivided roads, channelizing devices shall be placed along the centerline as well as along the adjacent lane.

Guidance:

When an interior lane is closed, an adjacent lane should also be considered for closure to provide additional space for vehicles and materials and to facilitate the movement of equipment within the work space.

When multiple lanes in one direction are closed, a capacity analysis should be made to determine the number of lanes needed to accommodate motor vehicle traffic needs. Vehicular traffic should be moved over one lane at a time. ~~As shown in Figure 6H-37~~, ~~t~~The tapers should be separated by a distance of 2L, with L being determined by the formulas in Table 6C-3.

Standard:

When a directional roadway is closed, inapplicable WRONG WAY signs and markings, and other existing traffic control devices at intersections within the temporary two-lane, two-way operations section shall be covered, removed, or obliterated.

Option:

When half the road is closed on an undivided highway, both directions of vehicular traffic may be accommodated as shown in Figure ~~6H-32~~ 6H-32(CA). When both interior lanes are closed, temporary traffic controls may be used as indicated in Figure 6H-30. When a roadway must be closed on a divided highway, a median crossover may be used (see Section ~~6G.15~~ 6G.16).

Support:

TTC for lane closures on five-lane roads is similar to other multi-lane undivided roads. Figure ~~6H-32~~ 6H-32(CA) can be adapted for use on five-lane roads. Figure 6H-35 can be used on a five-lane road for short duration and mobile operations.

Guidance:

When multiple lanes in one direction are closed, traffic should be moved over one lane at a time as shown in Department of Transportation's Standard Plan T10. See Section 1A.11 for information regarding this publication.

Section 6G.13 Work Within the Traveled Way at an Intersection

Support:

Chapter 6D and Sections 6F.68 and 6G.05 contain additional information regarding the steps to follow when pedestrian or bicycle facilities are affected by the worksite.

The typical applications for intersections are classified according to the location of the work space with respect to the intersection area (as defined by the extension of the curb or edge lines). The three classifications are near side, far side, and in-the-intersection. Work spaces often extend into more than one portion of the intersection. For example, work in one quadrant often creates a near-side work space on one street and a far-side work space on the cross street. In such instances, an appropriate TTC plan is obtained by combining features shown in two or more of the intersection and pedestrian typical applications.

TTC zones in the vicinity of intersections might block movements and interfere with normal road user flows. Such conflicts frequently occur at more complex signalized intersections having such features as traffic signal heads over particular lanes, lanes allocated to specific movements, multiple signal phases, signal detectors for actuated control, and accessible pedestrian signals and detectors.

Guidance:

The effect of the work upon signal operation should be considered, such as signal phasing for ensuring adequate capacity, maintaining or adjusting signal detectors, and ensuring the appropriate visibility of signal heads.

Standard:

When work will occur near an intersection where operational, capacity, or pedestrian accessibility problems are anticipated, the highway agency having jurisdiction shall be contacted.

Guidance:

For work at an intersection, advance warning signs, devices, and markings should be used on all cross streets, as appropriate. The typical applications depict urban intersections on arterial streets. Where the posted speed limit, the off-peak 85th-percentile speed prior to the work starting, or the anticipated speed exceeds 60 km/h (40 mph), additional warning signs should be used in the advance warning area.

Pedestrian crossings near TTC sites should be separated from the worksite by appropriate barriers that maintain the accessibility and detectability for pedestrians with disabilities.

Support:

Near-side work spaces, as depicted in Figure 6H-21, are simply handled as a midblock lane closure. A problem that might occur with near-side lane closure is a reduction in capacity, which during certain hours of operation could result in congestion and backups.

Option:

When near-side work spaces are used, an exclusive turn lane may be used for through vehicular traffic.

Where space is restricted in advance of near-side work spaces, as with short block spacings, two warning signs may be used in the advance warning area, and a third action-type warning or a regulatory sign (such as Keep Left) may be placed within the transition area.

Support:

Far-side work spaces, as depicted in Figures 6H-22 through 6H-25, involve additional treatment because road users typically enter the activity area by straight-through and left- or right-turning movements.

Guidance:

When a lane through an intersection must be closed on the far side, it should also be closed on the near-side approach to preclude merging movements within the intersection.

Option:

If there are a significant number of vehicles turning from a near-side lane that is closed on the far side, the near-side lane may be converted to an exclusive turn lane.

Support:

Figures 6H-26 and 6H-27 provide guidance on applicable procedures for work performed within the intersection.

Option:

If the work is within the intersection, any of the following strategies may be used:

A. A small work space so that road users can move around it, as shown in Figure 6H-26;

B. Flaggers or uniformed law enforcement officers to direct road users, as shown in Figure 6H-27;

C. Work in stages so the work space is kept to a minimum; and

D. Road closures or upstream diversions to reduce road user volumes.

Guidance:

Depending on road user conditions, a flagger(s) and/or a uniformed law enforcement officer(s) should be used to control road users.

Section 6G.14 Work Within the Traveled Way of Freeways and Expressways

Support:

Problems of TTC might occur under the special conditions encountered where vehicular traffic must be moved through or around TTC zones on high-speed, high-volume roadways. Although the general principles outlined in the previous Sections of this Manual are applicable to all types of highways, high-speed, access-controlled highways need special attention in order to reasonably safely and efficiently accommodate vehicular traffic while also protecting work forces. The road user volumes, road vehicle mix (buses, trucks, cars, and bicycles, if permitted), and speed of vehicles on these facilities require that careful TTC procedures be implemented, for example, to induce critical merging maneuvers well in advance of work spaces and in a manner that creates minimum turbulence and delay in the vehicular traffic stream. These situations often require more conspicuous devices than specified for normal rural highway or urban street use. However, the same important basic considerations of uniformity and standardization of general principles apply for all roadways.

Work under high-speed, high-volume vehicular traffic on a controlled access highway is complicated by the roadway design and operational features. The presence of a median that establishes separate roadways for directional vehicular traffic flow might prohibit the closing of one of the roadways or the diverting of vehicular traffic to the other roadway. Lack of access to and from adjacent roadways prohibits rerouting of vehicular traffic away from the work space in many cases. Other conditions exist where work must be limited to night hours, thereby necessitating increased use of warning lights, illumination of work spaces, and advance warning systems.

TTC for a typical lane closure on a divided highway is shown in Figure 6H-33. Temporary traffic controls for short duration and mobile operations on freeways are shown in Figure 6H-35. A typical application for shifting vehicular traffic lanes around a work space is shown in Figure 6H-36. TTC for multiple and interior lane closures on a freeway is shown in ~~Figures 6H-37 and 6H-38~~ Department of Transportation's Standard Plan T10. See Section 1A.11 for information regarding this publication.

~~Guidance:~~

~~The method for closing an interior lane when the open lanes have the capacity to carry vehicular traffic should be as shown in Figure 6H-37. When the capacity of the other lanes is needed, the method shown in Figure 6H-38 should be used.~~

Support:

The temporary traffic controls for short duration and mobile operations on State highways are shown in Department of Transportation's Standard Plans T15, T16 and T17.

A typical layout of closing lanes to direct traffic around a workspace is shown in Department of Transportation's Standard Plan T10.

See Section 1A.11 for information regarding this publication.

Section 6G.15 Two-Lane, Two-Way Traffic on One Roadway of a Normally Divided Highway

Support:

Two-lane, two-way operation on one roadway of a normally divided highway is a typical procedure that requires special consideration in the planning, design, and work phases, because unique operational problems (for example, increasing the risk of head-on crashes) can arise with the two-lane, two-way operation.

Standard:

When two-lane, two-way traffic control must be maintained on one roadway of a normally divided highway, opposing vehicular traffic shall be separated with either temporary traffic barriers (concrete safety-shape or approved alternate) or with channelizing devices throughout the length of the two-way operation. The use of markings and complementary signing, by themselves, shall not be used.

Support:

Figure 6H-39 shows the procedure for two-lane, two-way operation. Treatments for entrance and exit ramps within the two-way roadway segment of this type of work are shown in Figures 6H-40 and 6H-41.

Support:

Treatments for entrance and exit ramps within the two-way roadway segment of this type of work are shown in Department of Transportation's Standard Plans T10 and T14. See Section 1A.11 for information regarding this publication.

Section 6G.16 Crossovers

Guidance:

The following are considered good guiding principles for the design of crossovers:

A. Tapers for lane drops should be separated from the crossovers, as shown in Figure 6H-39.
B. Crossovers should be designed for speeds no lower than 16 km/h (10 mph) below the posted speed, the off-peak 85th-percentile speed prior to the work starting, or the anticipated operating speed of the roadway, unless unusual site conditions require that a lower design speed be used.
C. A good array of channelizing devices, delineators, and full-length, properly placed pavement markings should be used to provide drivers with a clearly defined travel path.
D. The design of the crossover should accommodate all vehicular traffic, including trucks and buses.

Support:

Temporary traffic barriers and the excessive use of TTC devices cannot compensate for poor geometric and roadway cross-section design of crossovers.

Section 6G.17 Interchanges

Guidance:

Access to interchange ramps on limited-access highways should be maintained even if the work space is in the lane adjacent to the ramps. Access to exit ramps should be clearly marked and delineated with channelizing devices. For long-term projects, conflicting pavement markings should be removed and new ones placed. Early coordination with officials having jurisdiction over the affected cross streets and providing emergency services should occur before ramp closings.

Option:

If access is not possible, ramps may be closed by using signs and Type III barricades. As the work space changes, the access area may be changed, as shown in Figure 6H-42. A TTC zone in the exit ramp may be handled as shown in Figure 6H-43.

When a work space interferes with an entrance ramp, a lane may need to be closed on the freeway (see Figure 6H-44). A TTC zone in the entrance ramp may require shifting ramp vehicular traffic (see Figure 6H-44).

Option:

A temporary traffic control zone in the entrance and exit ramps may be handled as shown in Department of Transportation's Standard Plans T10 and T14. See Section 1A.11 for information regarding this publication.

Section 6G.18 Movable Barriers

Support:

Figure 6H-45 shows a temporary reversible lane using movable barriers.

Option:

If the work activity in Figure 6H-34 permits, a movable barrier may be used and relocated to the shoulder during nonwork periods or peak-period vehicular traffic conditions.

Section 6G.19 Work in the Vicinity of Highway-Rail Grade Crossings

Standard:

When highway-rail grade crossings exist either within or in the vicinity of a TTC zone, lane restrictions, flagging, or other operations shall not create conditions where vehicles can be queued across the railroad tracks. If the queuing of vehicles across the tracks cannot be avoided, a uniformed

law enforcement officer or flagger shall be provided at the crossing to prevent vehicles from stopping on the tracks, even if automatic warning devices are in place.

Support:

Figure 6H-46 shows work in the vicinity of a highway-rail grade crossing.

Guidance:

Early coordination with the railroad company should occur before work starts.

Section 6G.20 Temporary Traffic Control During Nighttime Hours

Standard:

Highway construction work lighting shall be as per Construction Safety Order 1523 (California Code of Regulations Title 8, Division 1, Chapter 4, Subchapter 4, Article 3, Section 1523 - Illumination). See See Section 1A.11 for information regarding this publication.

Support:

Chapter 6D and Sections 6F.68 and 6G.05 contain additional information regarding the steps to follow when pedestrian or bicycle facilities are affected by the worksite.

Conducting highway construction and maintenance activities during night hours could provide an advantage when traditional daytime traffic control strategies cannot achieve an acceptable balance between worker and public safety, traffic and community impact, and constructability. The two basic advantages of working at night are reduced traffic congestion and less involvement with business activities. However, the two basic conditions that must normally be met for night work to offer any advantage are reduced traffic volumes and easy set up and removal of the traffic control patterns on a nightly basis.

Shifting work activities to night hours, when traffic volumes are lower and normal business is less active, might offer an advantage in some cases, as long as the necessary work can be completed and the work site restored to essentially normal operating conditions to carry the higher traffic volume during non-construction hours.

Although working at night might offer advantages, it also includes safety issues. Reduced visibility inherent in night work impacts the performance of both drivers and workers. Because traffic volumes are lower and congestion is minimized, speeds are often higher at night necessitating greater visibility at a time when visibility is reduced. Finally, the incidence of impaired (alcohol or drugs), fatigued, or drowsy drivers might be higher at night.

Working at night also involves other factors, including construction productivity and quality, social impacts, economics, and environmental issues. A decision to perform construction or maintenance activities at night normally involves some consideration of the advantages to be gained compared to the safety and other issues that might be impacted.

Guidance:

Considering the safety issues inherent to night work, consideration should be given to enhancing traffic controls (see Section 6G.04) to provide added visibility and driver guidance, and increased protection for workers.

In addition to the enhancements listed in Section 6G.04, consideration should be given to providing additional lights and retroreflective markings to workers, work vehicles, and equipment.

Option:

Where reduced traffic volumes at night make it feasible, the entire roadway may be closed by detouring traffic to alternate facilities, thus removing the traffic risk from the activity area.

Guidance:

Because typical street and highway lighting is rarely adequate to provide sufficient levels of illumination for work tasks, temporary lighting should be provided where workers are active to supply sufficient illumination to reasonably safely perform the work tasks.

Temporary lighting for night work should be designed such that glare does not interfere with driver visibility, or create visibility problems for truck drivers, equipment operators, flaggers, or other workers.

Consideration should also be given to stationing uniformed law enforcement officers and lighted patrol cars at night work locations where there is a concern that high speeds or impaired drivers might result in undue risks for workers or other drivers.

Standard:

Except in emergencies, temporary lighting shall be provided at all flagger stations.

Support:

Refer to Construction Safety Order in the California Code of Regulations (Title 8, Division 1, Chapter 4, Subchapter 4, Article 11, Section 1599 - Flaggers). See See Section 1A.11 for information regarding this publication.

Desired illumination levels vary depending upon the nature of the task involved. An average horizontal luminance of 50 lux (5 foot candles) can be adequate for general activities. An average horizontal luminance of 108 lux (10 foot candles) can be adequate for activities around equipment. Tasks requiring high levels of precision and extreme care can require an average horizontal luminance of 216 lux (20 foot candles).

(This space left intentionally blank)

CHAPTER 6H. TYPICAL APPLICATIONS

Section 6H.01 Typical Applications

Support:

Whenever the acronym "TTC" is used in this Chapter, it refers to "temporary traffic control".

Standard:

The needs and control of all road users (motorists, bicyclists, and pedestrians within the highway, including persons with disabilities in accordance with the Americans with Disabilities Act of 1990 (ADA), Title II, Paragraph 35.130) through a TTC zone shall be an essential part of highway construction, utility work, maintenance operations, and the management of traffic incidents.

Support:

Chapter 6G contains discussions of typical TTC activities. Chapter 6H presents typical applications for a variety of situations commonly encountered. While not every situation is addressed, the information illustrated can generally be adapted to a broad range of conditions. In many instances, an appropriate TTC plan is achieved by combining features from various typical applications. For example, work at an intersection might present a near-side work zone for one street and a far-side work zone for the other street. These treatments are found in two different typical applications, while a third typical application shows how to handle pedestrian crosswalk closures. For convenience in using the typical application diagrams, Tables 6C-1 and 6C-4 are reproduced in this Chapter as Tables 6H-3 and 6H-4, respectively.

Procedures for establishing TTC zones vary with such conditions as road configuration, location of the work, work activity, duration of work, road user volumes, road vehicle mix (buses, trucks, cars, motorcycles, and bicycles), and road user speeds. Examples are presented in this Chapter showing how to apply principles and standards. Applying these guidelines to actual situations and adjusting to field conditions requires judgment. In general, the procedures illustrated represent minimum solutions for the situations depicted.

Option:

Other devices may be added to supplement the devices and device spacing may be adjusted to provide additional reaction time or delineation. Fewer devices may be used based on field conditions.

Support:

Figures and tables found throughout Part 6 provide information for the development of TTC plans. Also, Table 6H-3 is used for the determination of sign spacing and other dimensions for various area and roadway types.

Table 6H-1 is an index of the 46 typical applications. Typical applications are shown on the right page with notes on the facing page to the left. The legend for the symbols used in the typical applications is provided in Table 6H-2. In many of the typical applications, sign spacings and other dimensions are indicated by letters using the criteria provided in Table 6H-3. The formulas for determining taper lengths are provided in Table 6H-4.

Most of the typical applications show TTC devices for only one direction.

Guidance:

The spacing of channelizing devices should not exceed the maximum distances shown in Table 6F-102(CA).

(This space left intentionally blank)

Table 6H-1. Index to Typical Applications (Sheet 1 of 2)

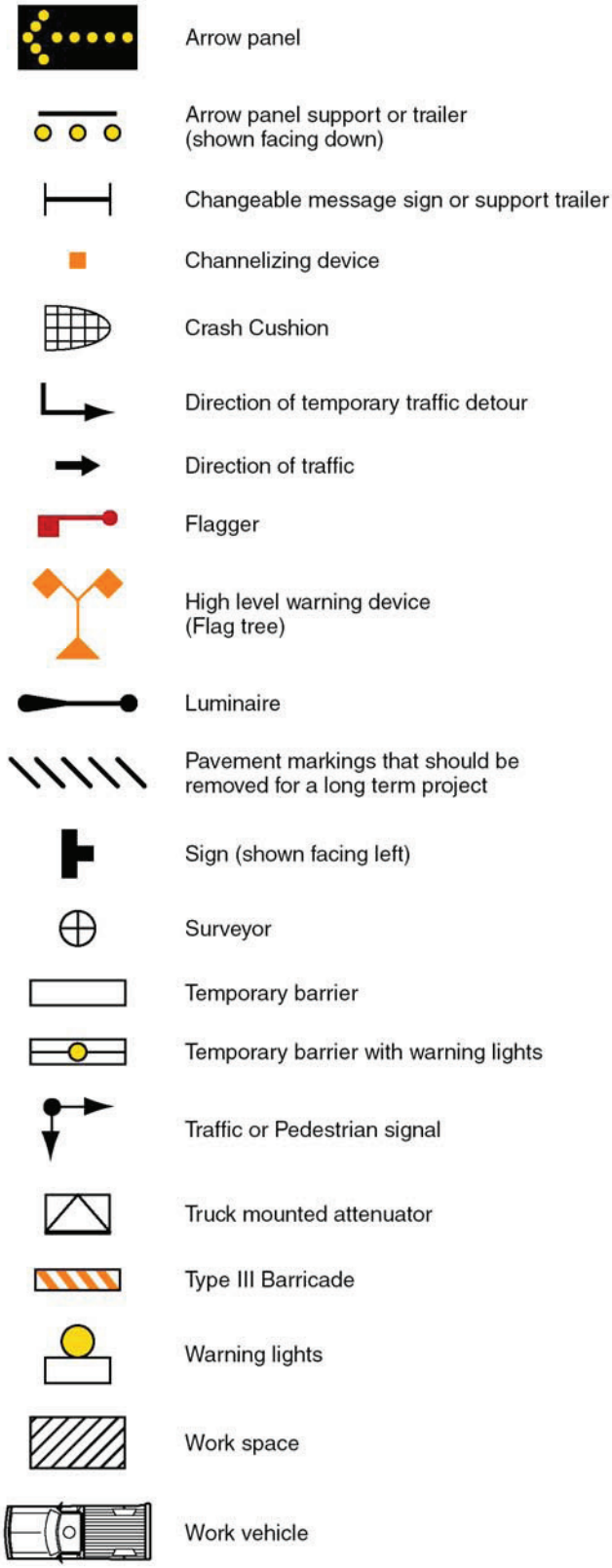
Typical Application Description	Typical Application Number
Work Outside of Shoulder (see Section 6G.06)	
Work Beyond the Shoulder	TA-1
Blasting Zone	TA-2
Work on the Shoulder (see Sections 6G.07 and 6G.08)	
Work on Shoulders	TA-3
Short Duration or Mobile Operation on Shoulder	TA-4
Shoulder Closure on Freeway	TA-5
Shoulder Work with Minor Encroachment	TA-6
Work Within the Traveled Way of Two-Lane Highways (see Section 6G.10)	
Road Closed with Diversion	TA-7
Roads Closed with Off-Site Detour	TA-8
Overlapping Routes with Detour	TA-9
Lane Closure on Two-Lane Road Using Flaggers	TA-10
Lane Closure on Two-Lane Road with Low Traffic Volumes	TA-11
Lane Closure on Two-Lane Road Using Traffic Control Signals	TA-12
Temporary Road Closure	TA-13
Haul Road Crossing	TA-14
Work in Center of Road with Low Traffic Volumes	TA-15
Surveying Along Centerline of Road with Low Traffic Volumes	TA-16
Mobile Operations on Two-Lane Road	TA-17
Work Within the Traveled Way of Urban Streets (see Section 6G.11)	
Lane Closure on Minor Street	TA-18
Detour for One Travel Direction	TA-19
Detour for Closed Street	TA-20
Work Within the Traveled Way at an Intersection and Sidewalks (see Section 6G.13)	
Lane Closure on Near Side of Intersection	TA-21
Right Lane Closure on Far Side of Intersection	TA-22
Left Lane Closure on Far Side of Intersection	TA-23
Half Road Closure on Far Side of Intersection	TA-24
Multiple Lane Closures at Intersection	TA-25
Closure in Center of Intersection	TA-26
Closure at Side of Intersection	TA-27
Sidewalk Closures and Bypass Sidewalks	TA-28
Crosswalk Closures and Pedestrian Detours	TA-29

Table 6H-1. Index to Typical Applications (Sheet 2 of 2)

Typical Application Description	Typical Application Number
Work Within the Traveled Way of Multi-lane, Nonaccess Controlled Highways (see Section 6G.12)	
Interior Lane Closure on Multi-lane Street	TA-30
Lane Closure on Street with Uneven Directional Volumes	TA-31
Half Road Closure on Multi-lane, High-Speed Highway	TA-32
Lane Closure on Divided Highway	TA-33
Lane Closure with Temporary Traffic Barrier	TA-34
Mobile Operation on Multi-lane Road	TA-35
Work Within the Traveled Way of Expressways and Freeways (see Section 6G.14)	
Lane Shift on Freeway	TA-36
Double Lane Closure on Freeway	TA-37
Interior Lane Closure on Freeway	TA-38
Median Crossover on Freeway	TA-39
Median Crossover for Entrance Ramp	TA-40
Median Crossover for Exit Ramp	TA-41
Work in Vicinity of Exit Ramp	TA-42
Partial Exit Ramp Closure	TA-43
Work in Vicinity of Entrance Ramp	TA-44
Temporary Reversible Lane Using Movable Barriers	TA-45
Work in the Vicinity of Highway-Rail Grade Crossings (see Section 6G.19)	
Work in Vicinity of Highway-Rail Grade Crossing	TA-46

(This space left intentionally blank)

Table 6H-2. Meaning of Symbols on Typical Application Diagrams



Arrow panel

Arrow panel support or trailer (shown facing down)

Changeable message sign or support trailer

Channelizing device

Crash Cushion

Direction of temporary traffic detour

Direction of traffic

Flagger

High level warning device (Flag tree)

Luminaire

Pavement markings that should be removed for a long term project

Sign (shown facing left)

Surveyor

Temporary barrier

Temporary barrier with warning lights

Traffic or Pedestrian signal

Truck mounted attenuator

Type III Barricade

Warning lights

Work space

Work vehicle

Table 6H-3. Meaning of Letter Codes on Typical Application Diagrams

Road Type	Distance Between Signs**		
	A	B	C
Urban (low speed)* 25 mph or less	30 (100)	30 (100)	30 (100)
Urban (high speed)* 30 mph or more	100 (350)	100 (350)	100 (350)
Rural	150 (500)	150 (500)	150 (500)
Expressway / Freeway	300 (1,000)	450 (1,500)	800 (2,640)

* Speed category to be determined by highway agency

** Distances are shown in meters (feet). The column headings A, B, and C are the dimensions shown in Figures 6H-1 through 6H-46. The A dimension is the distance from the transition or point of restriction to the first sign. The B dimension is the distance between the first and second signs. The C dimension is the distance between the second and third signs. (The third sign is the first one in a three-sign series encountered by a driver approaching a TTC zone.)

Table 6H-4. Formulas for Determining Taper Lengths

Speed Limit (S)	Taper Length (L) Meters
60 km/h or less	$L = \frac{WS^2}{155}$
70 km/h or more	$L = \frac{WS}{1.6}$

Speed Limit (S)	Taper Length (L) Feet
40 mph or less	$L = \frac{WS^2}{60}$
45 mph or more	$L = WS$

Where: L = taper length in meters (feet)

W = width of offset in meters (feet)

S = posted speed limit, or off-peak 85th-percentile speed prior to work starting, or the anticipated operating speed in km/h (mph)

(This space left intentionally blank)

Notes for Figure ~~6H-1~~ 6H-1(CA)—Typical Application 1

Work Beyond the Shoulder

Guidance:

1. If the work space is in the median of a divided highway, an advance warning sign should also be placed on the left side of the directional roadway.

Option:

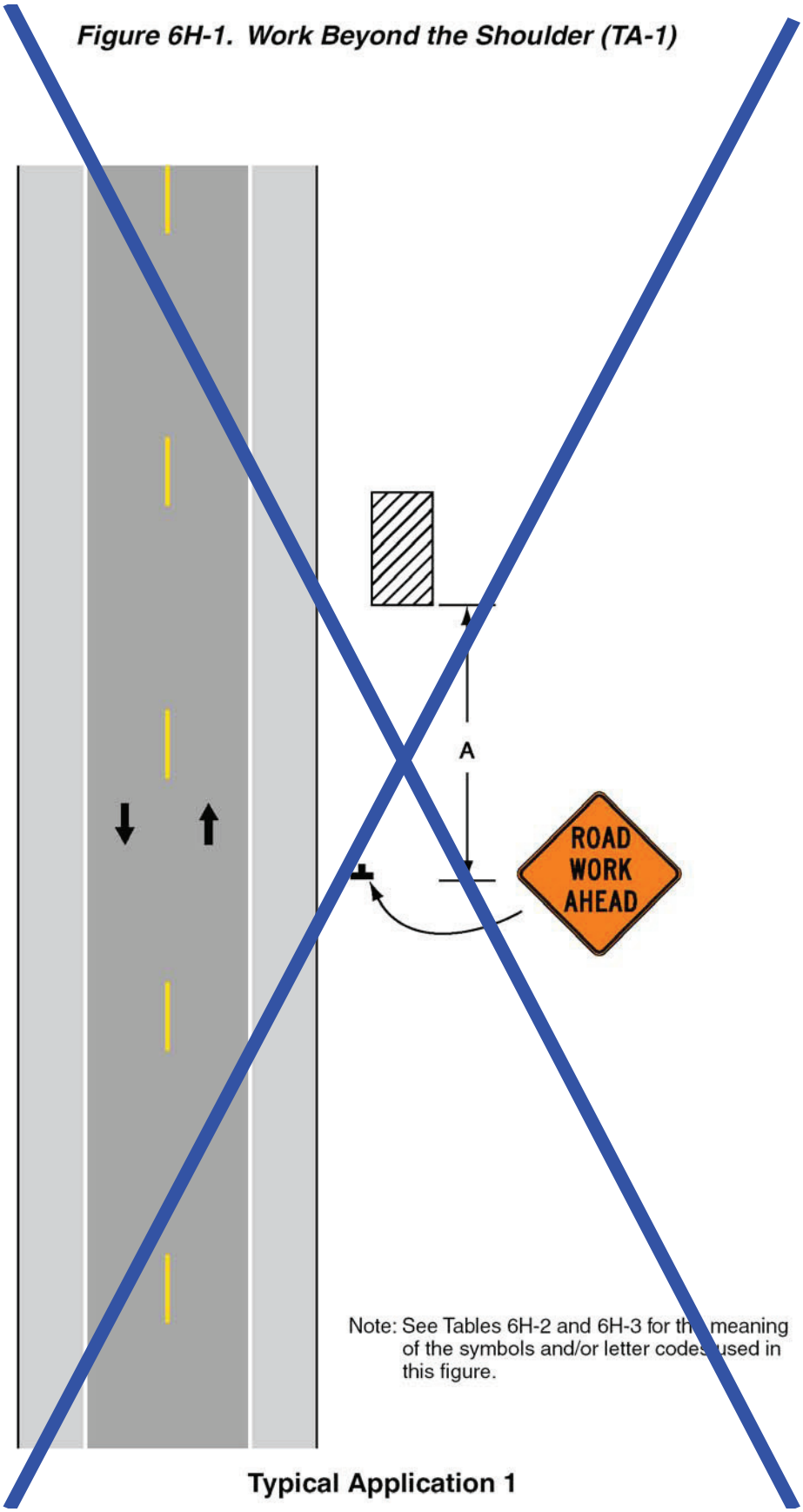
2. The ~~ROAD WORK AHEAD sign~~ Workers (W21-1a) sign may be replaced with other appropriate signs such as the SHOULDER WORK sign. The SHOULDER WORK sign may be used for work adjacent to the shoulder.
3. The ~~ROAD WORK AHEAD sign~~ Workers (W21-1a) sign may be omitted where the work space is behind a barrier, more than 600 mm (24 in) behind the curb, or 4.6 m (15 ft) or more from the edge of any roadway.
4. For short-term, short-duration or mobile operation, all signs and channelizing devices may be eliminated if a vehicle with activated high-intensity rotating, flashing, oscillating, or strobe lights is used.
5. Vehicle hazard warning signals may be used to supplement high-intensity rotating, flashing, oscillating, or strobe lights.

Standard:

6. Vehicle hazard warning signals shall not be used instead of the vehicle's high-intensity rotating, flashing, oscillating, or strobe lights.

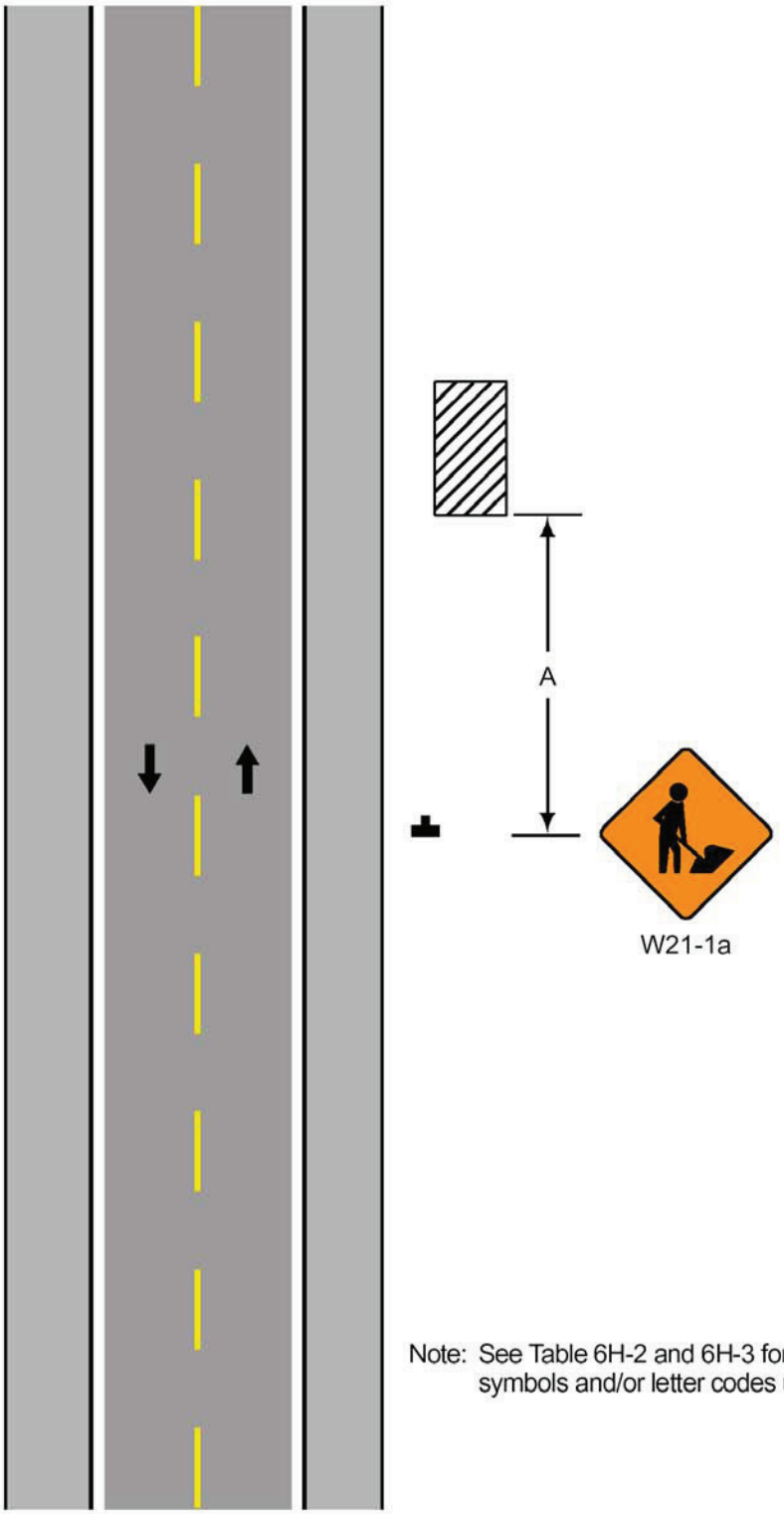
(This space left intentionally blank)

Figure 6H-1. Work Beyond the Shoulder (TA-1)



Typical Application 1

Figure 6H-1 (CA). Work Beyond the Shoulder (TA-1)



Typical Application 1

Note: See Table 6H-2 and 6H-3 for the meaning of the symbols and/or letter codes used in this figure.

Notes for Figure 6H-2—Typical Application 2

Blasting Zone

Standard:

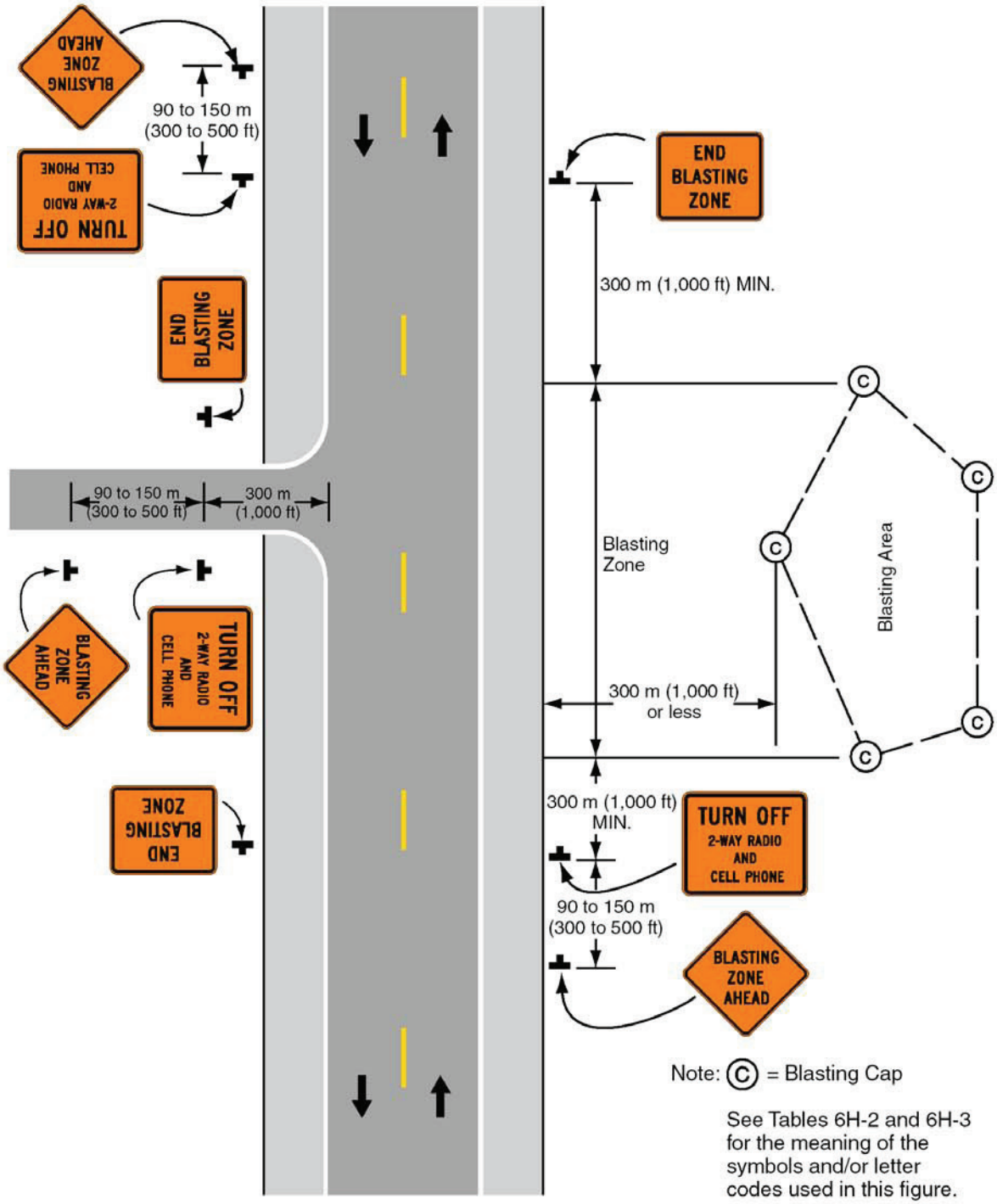
1. **Whenever blasting caps are used within 300 m (1,000 ft) of a roadway, the signing shown shall be used.**
2. **The signs shall be covered or removed when there are no explosives in the area or the area is otherwise secure.**
3. **Whenever a side road intersects the roadway between the BLASTING ZONE AHEAD sign and the END BLASTING ZONE sign, or a side road is within 300 m (1,000 ft) of any blasting cap, similar signing, as on the mainline, shall be installed on the side road.**
4. **Prior to blasting, the blaster in charge shall determine whether road users in the blasting zone will be endangered by the blasting operation. If there is danger, road users shall not be permitted to pass through the blasting zone during blasting operations.**

Guidance:

5. On a divided highway, the signs should be mounted on both sides of the directional roadways.

(This space left intentionally blank)

Figure 6H-2. Blasting Zone (TA-2)



Typical Application 2

Notes for Figure 6H-3—Typical Application 3

Work on Shoulders

Guidance:

1. A SHOULDER WORK sign should be placed on the left side of the roadway for a divided or one-way street only if the left shoulder is affected.

Option:

2. The Workers symbol signs may be used instead of SHOULDER WORK signs.
3. The SHOULDER WORK AHEAD sign on an intersecting roadway may be omitted where drivers emerging from that roadway will encounter another advance warning sign prior to this activity area.
4. For short-duration operations of 60 minutes or less, all signs and channelizing devices may be eliminated if a vehicle with activated high-intensity rotating, flashing, oscillating, or strobe lights is used.
5. Vehicle hazard warning signals may be used to supplement high-intensity rotating, flashing, oscillating, or strobe lights.

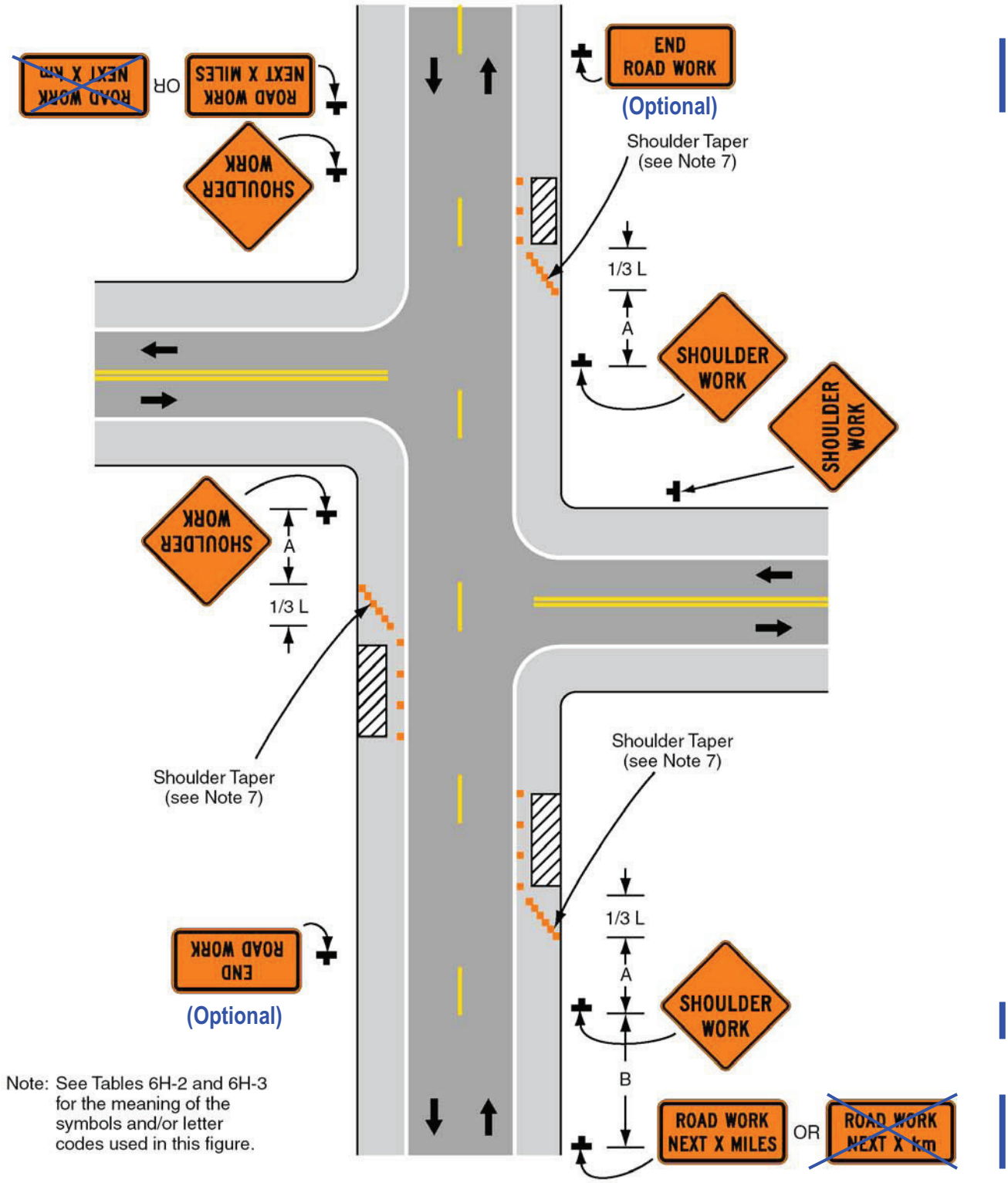
Standard:

6. Vehicle hazard warning signals shall not be used instead of the vehicle's high-intensity rotating, flashing, oscillating, or strobe lights.

7. When paved shoulders having a width of 2.4 m (8 ft) or more are closed, at least one advance warning sign shall be used. In addition, channelizing devices shall be used to close the shoulder in advance to delineate the beginning of the work space and direct vehicular traffic to remain within the traveled way.

(This space left intentionally blank)

Figure 6H-3. Work on Shoulders (TA-3)



Typical Application 3

Notes for Figure ~~6H-4~~ 6H-4(CA)—Typical Application 4

Short-Duration or Mobile Operation on Shoulder

Guidance:

1. In those situations where multiple work locations within a limited distance make it practical to place stationary signs, the distance between the advance warning sign and the work should not exceed 8 km (5 mi).
2. In those situations where the distance between the advance signs and the work is 3.2 km (2 mi) to 8 km (5 mi), a Supplemental Distance plaque should be used with the ~~ROAD WORK AHEAD~~ SHOULDER WORK (W21-5) sign.

Option:

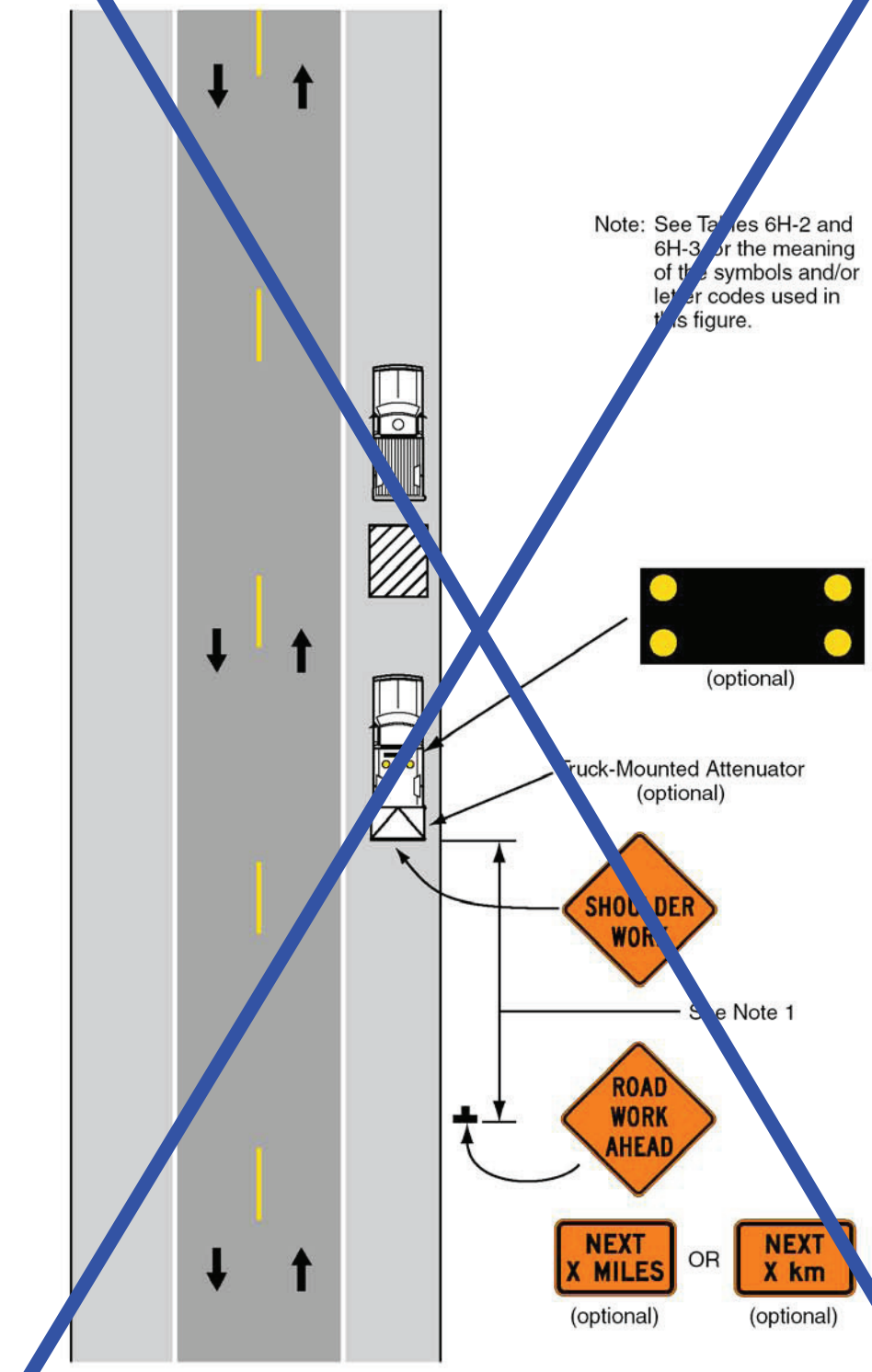
3. ~~The ROAD WORK NEXT XX km (MILES) sign may be used instead of the ROAD WORK AHEAD sign~~ The Next Distance (W7-3a) plaque may be used with the SHOULDER WORK (W21-5) sign if the work locations occur over a distance of more than 3.2 km (2 mi).
4. Warning signs may be omitted when the work vehicle displays high-intensity rotating, flashing, oscillating, or strobe lights if the distance between work locations is 1.6 km (1 mile) or more, and if the work vehicle travels at vehicular traffic speeds between locations.
5. Vehicle hazard warning signals may be used to supplement high-intensity rotating, flashing, oscillating, or strobe lights.

Standard:

6. **Vehicle hazard warning signals shall not be used instead of the vehicle's high-intensity rotating, flashing, oscillating, or strobe lights.**
7. **If an arrow panel is used for an operation on the shoulder, the caution mode shall be used.**

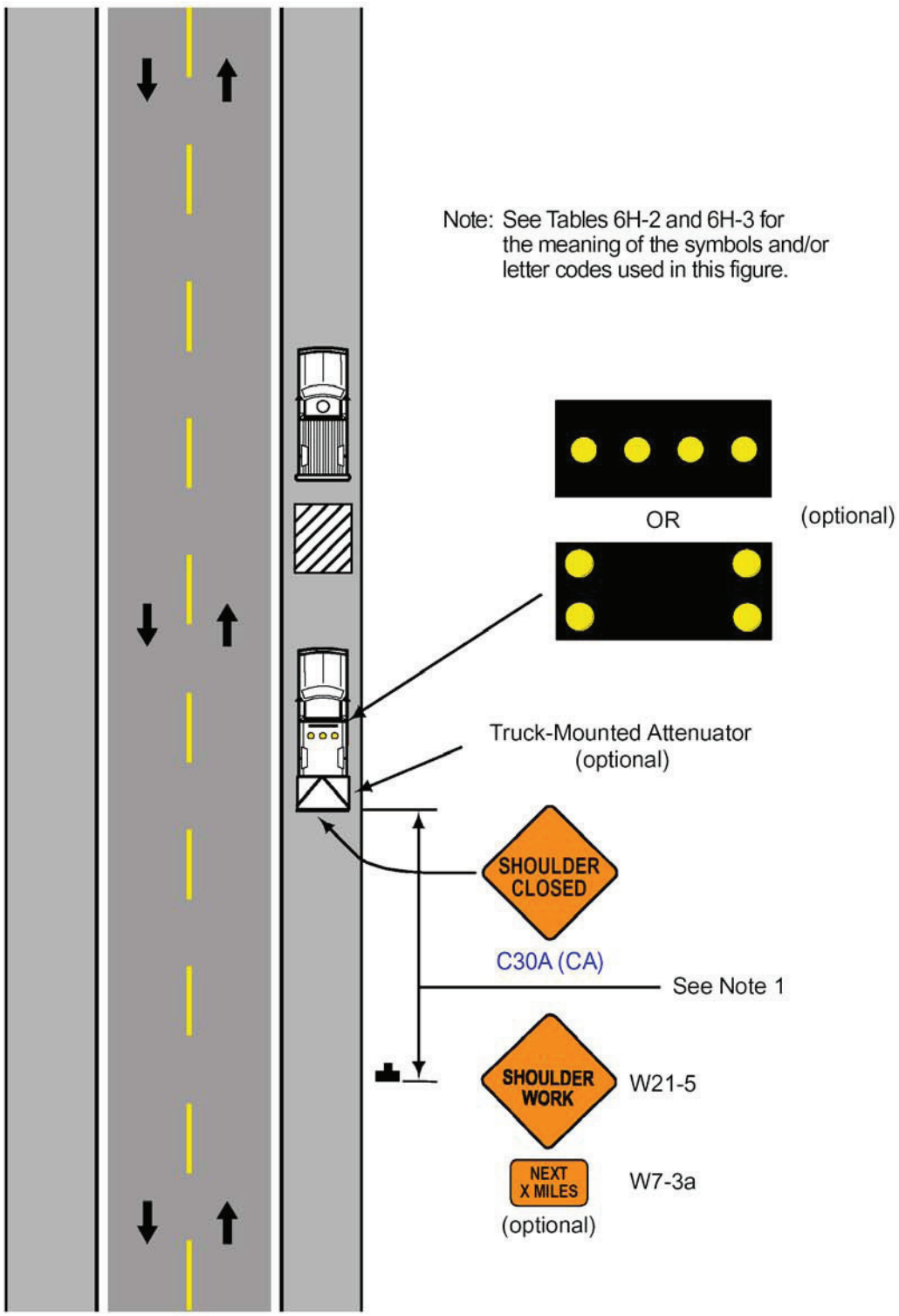
(This space left intentionally blank)

Figure 6H-4. Short-Duration or Mobile Operation on Shoulder (TA-4)



Typical Application 4

Figure 6H-4 (CA). Short-Duration or Mobile Operation on Shoulder (TA-4)



Typical Application 4

Notes for Figure ~~6H-5~~ 6H-5(CA)—Typical Application 5

Shoulder Closure on Freeway

Guidance:

1. SHOULDER CLOSED signs should be used on limited-access highways where there is no opportunity for disabled vehicles to pull off the roadway.
2. If drivers cannot see a pull-off area beyond the closed shoulder, information regarding the length of the shoulder closure should be provided in ~~meters or kilometers~~ (feet or miles), as appropriate.
3. The use of a temporary traffic barrier should be based on engineering judgment.

Standard:

4. Where temporary traffic barriers are installed, the ends of the barrier shall be treated in accordance with the provisions of Section 6F.81.

Option:

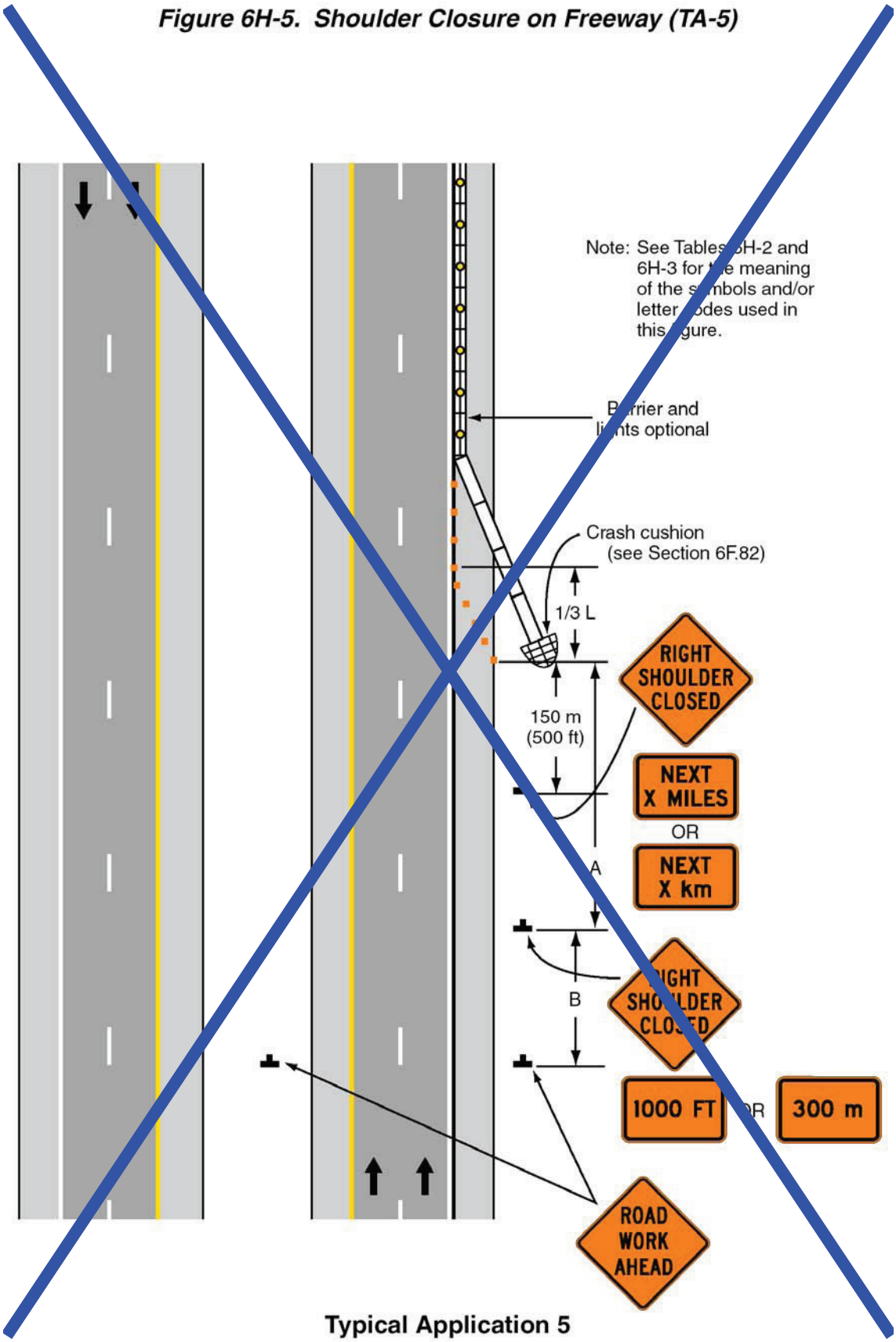
5. The barrier shown in this typical application is an example of one method that may be used to close a shoulder of a long-term project.
6. The warning lights shown on the barrier may be used.

Standard:

7. The minimum offset from the upstream end of the barrier to the edge of the traveled way shall be at least 4.6 m (15 ft) unless shielded by a crash cushion.

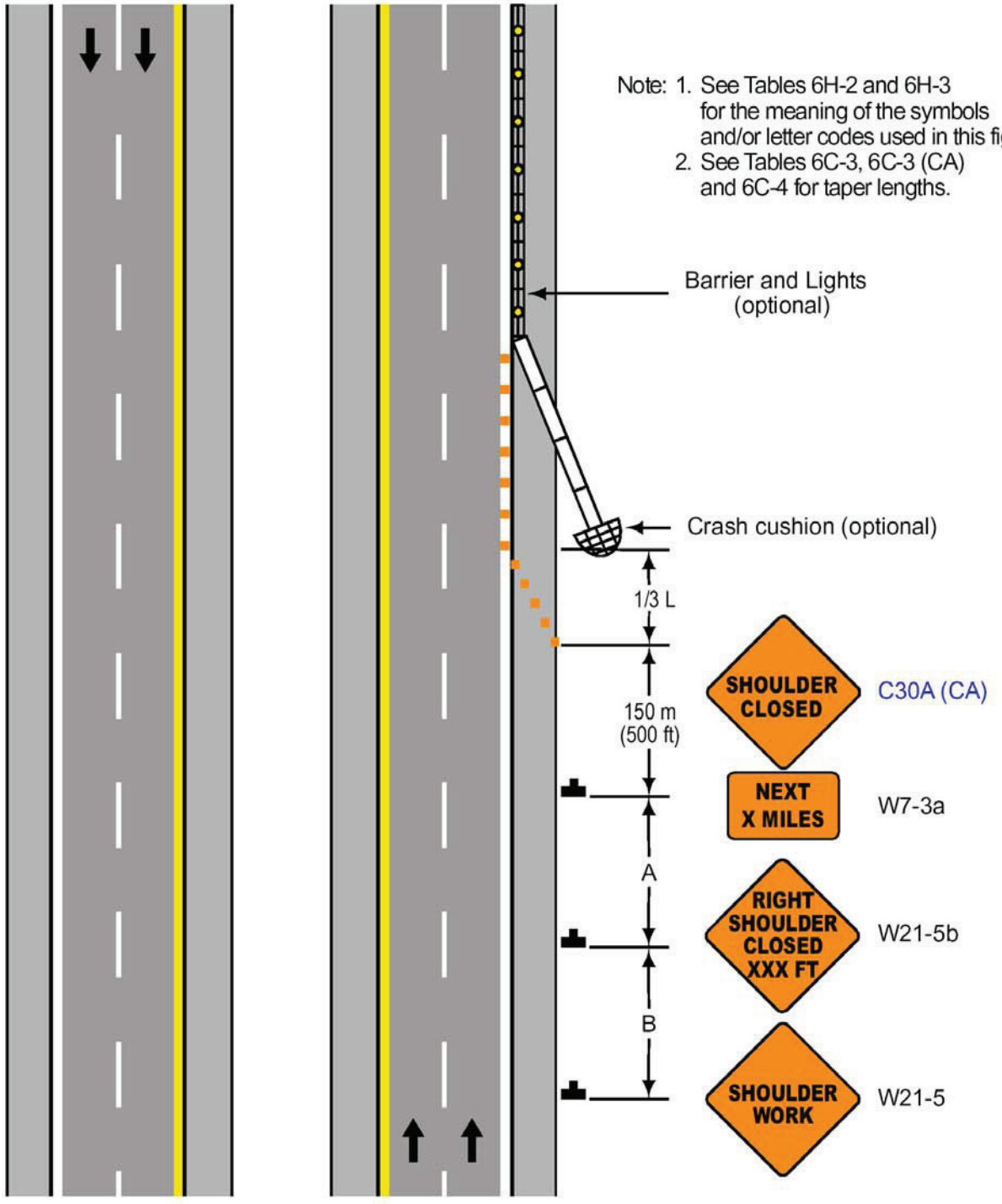
(This space left intentionally blank)

Figure 6H-5. Shoulder Closure on Freeway (TA-5)



Typical Application 5

Figure 6H-5 (CA). Shoulder Closure on Freeway (TA-5)



Typical Application 5

Notes for Figure 6H-6—Typical Application 6

Shoulder Work with Minor Encroachment

Guidance:

1. All lanes should be a minimum of 3 m (10 ft) in width as measured to the near face of the channelizing devices.
2. The treatment shown should be used on a minor road having low speeds. For higher-speed traffic conditions, a lane closure should be used.

Option:

3. For short-term use on low-volume, low-speed roadways with vehicular traffic that does not include longer and wider heavy commercial vehicles, a minimum lane width of 2.7 m (9 ft) may be used.
4. Where the opposite shoulder is suitable for carrying vehicular traffic and of adequate width, lanes may be shifted by use of closely spaced channelizing devices, provided that the minimum lane width of 3 m (10 ft) is maintained.
5. Additional advance warning may be appropriate, such as a ROAD NARROWS sign.
6. Temporary traffic barriers may be used along the work space.
7. The shadow vehicle may be omitted if a taper and channelizing devices are used.
8. A truck-mounted attenuator may be used on the shadow vehicle.
9. For short-duration work, the taper and channelizing devices may be omitted if a shadow vehicle with activated high-intensity rotating, flashing, oscillating, or strobe lights is used.
10. Vehicle hazard warning signals may be used to supplement high-intensity rotating, flashing, oscillating, or strobe lights.

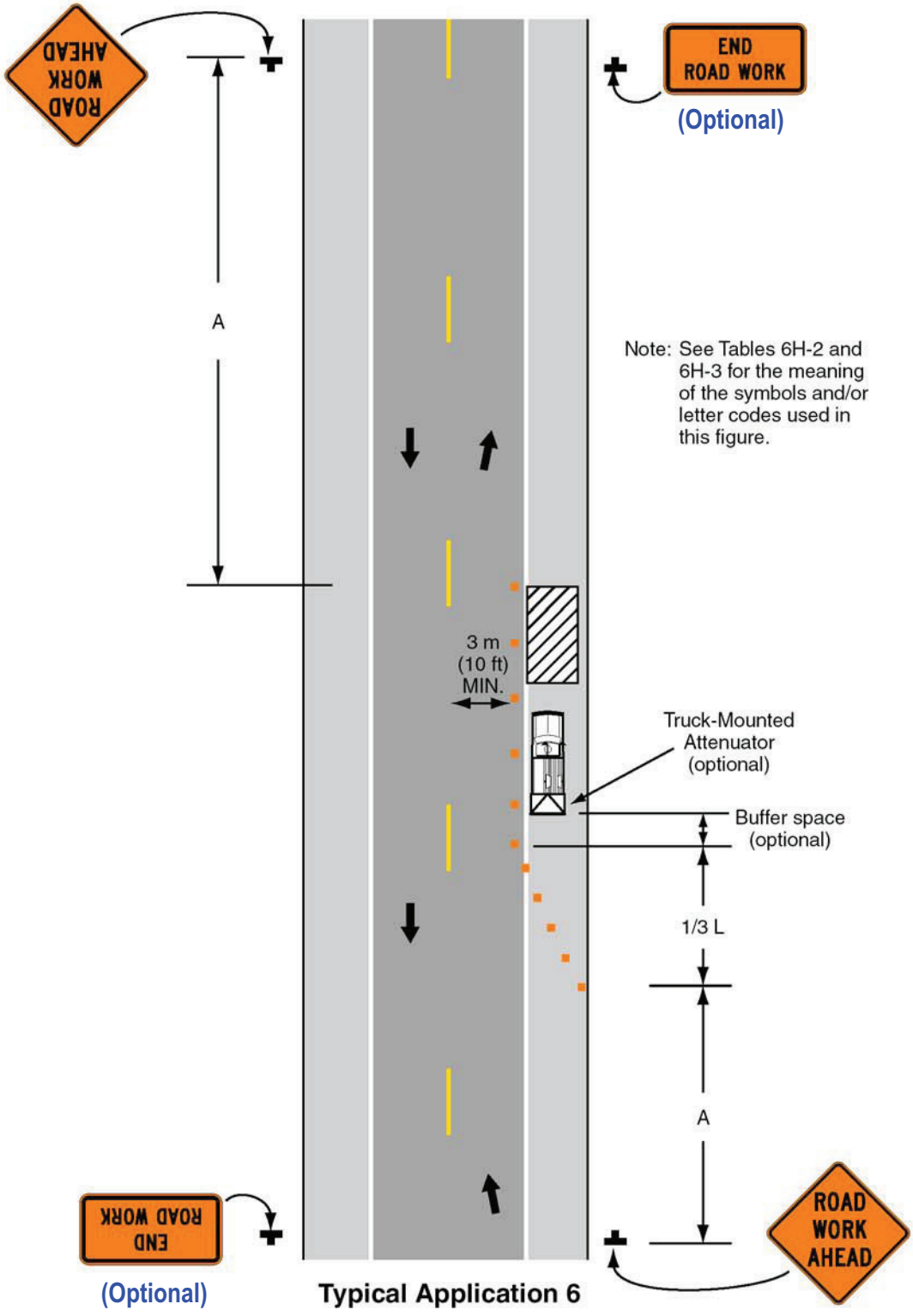
Standard:

11. Vehicle hazard warning signals shall not be used instead of the vehicle's high-intensity rotating, flashing, oscillating, or strobe lights.

12. Note 3 shall not be applicable to State highways. Note 1 shall be used instead for State highways.

(This space left intentionally blank)

Figure 6H-6. Shoulder Work with Minor Encroachment (TA-6)



Notes for Figure ~~6H-7~~ 6H-7(CA)—Typical Application 7

Road Closure with Diversion

Support:

1. Signs and object markers are shown for one direction of travel only.

Standard:

2. Devices similar to those depicted shall be placed for the opposite direction of travel.

3. Pavement markings no longer applicable shall be removed or obliterated as soon as practicable.

4. Temporary barriers and end treatments shall be crashworthy.

Guidance:

5. If the tangent distance along the temporary diversion is more than 180 m (600 ft), a Reverse Curve sign, left first, should be used instead of the Double Reverse Curve sign, and a second Reverse Curve sign, right first, should be placed in advance of the second reverse curve back to the original alignment.
6. When the tangent section of the diversion is more than 180 m (600 ft), and the diversion has sharp curves with recommended speeds of 50 km/h (30 mph) or less, Reverse Turn signs should be used.
7. Where the temporary pavement and old pavement are different colors, the temporary pavement should start on the tangent of the existing pavement and end on the tangent of the existing pavement.

Option:

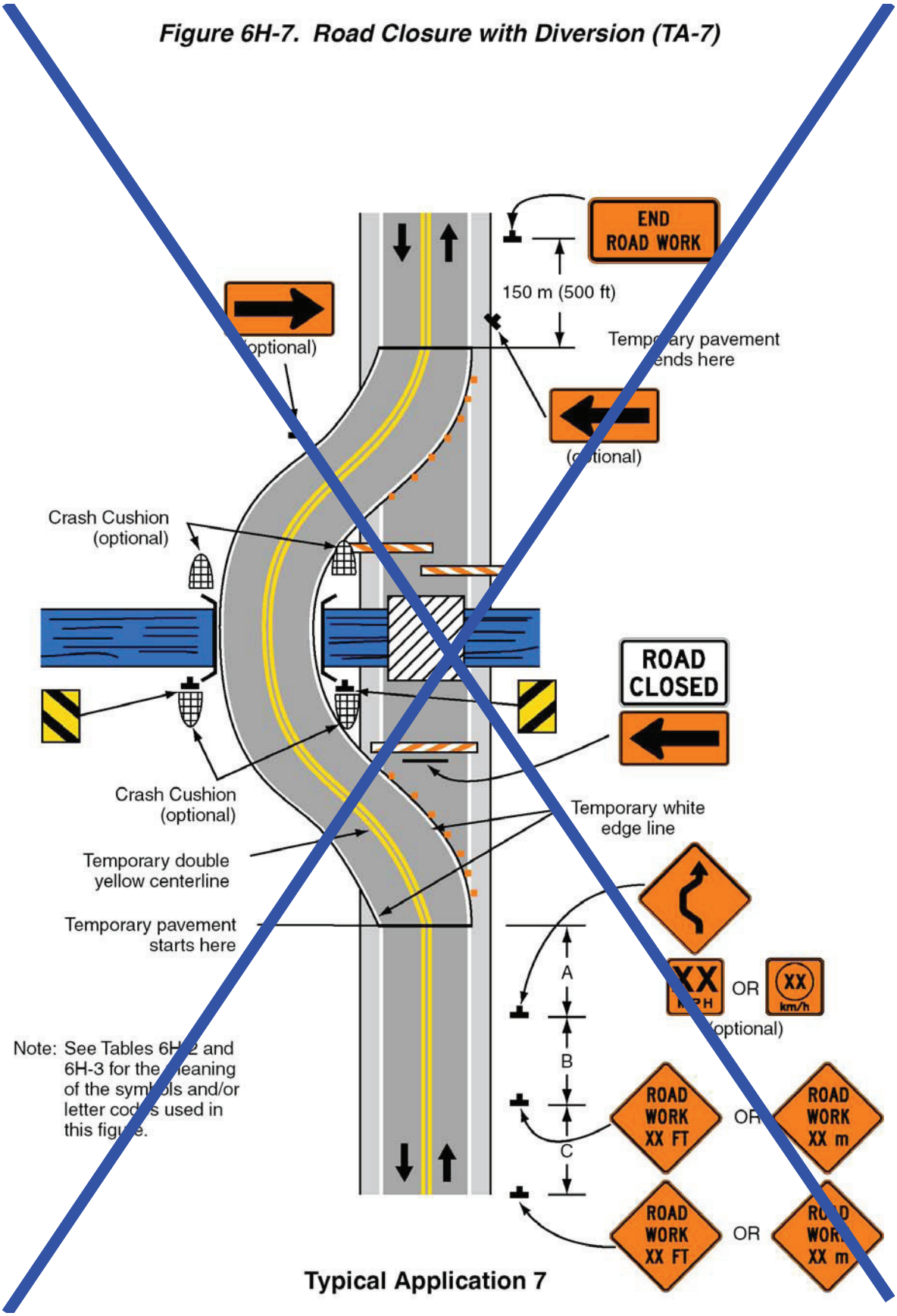
8. Flashing warning lights and/or flags may be used to call attention to the warning signs.
9. On sharp curves, large arrow signs may be used in addition to other advance warning signs.
10. Delineators or channelizing devices may be used along the diversion.
11. If the tangent distance along the temporary diversion is less than 180 m (600 ft), additional One-Direction Large Arrow (W1-6) and Chevron Alignment (W1-8) signs may be used.
12. When recommended speeds are the same for each curve, one Double Reverse Curve (W24-1) sign may be used, instead of two Reverse Curve (W1-4) signs, in advance of the first curve.

Support:

13. Use crash cushions, wherever applicable.

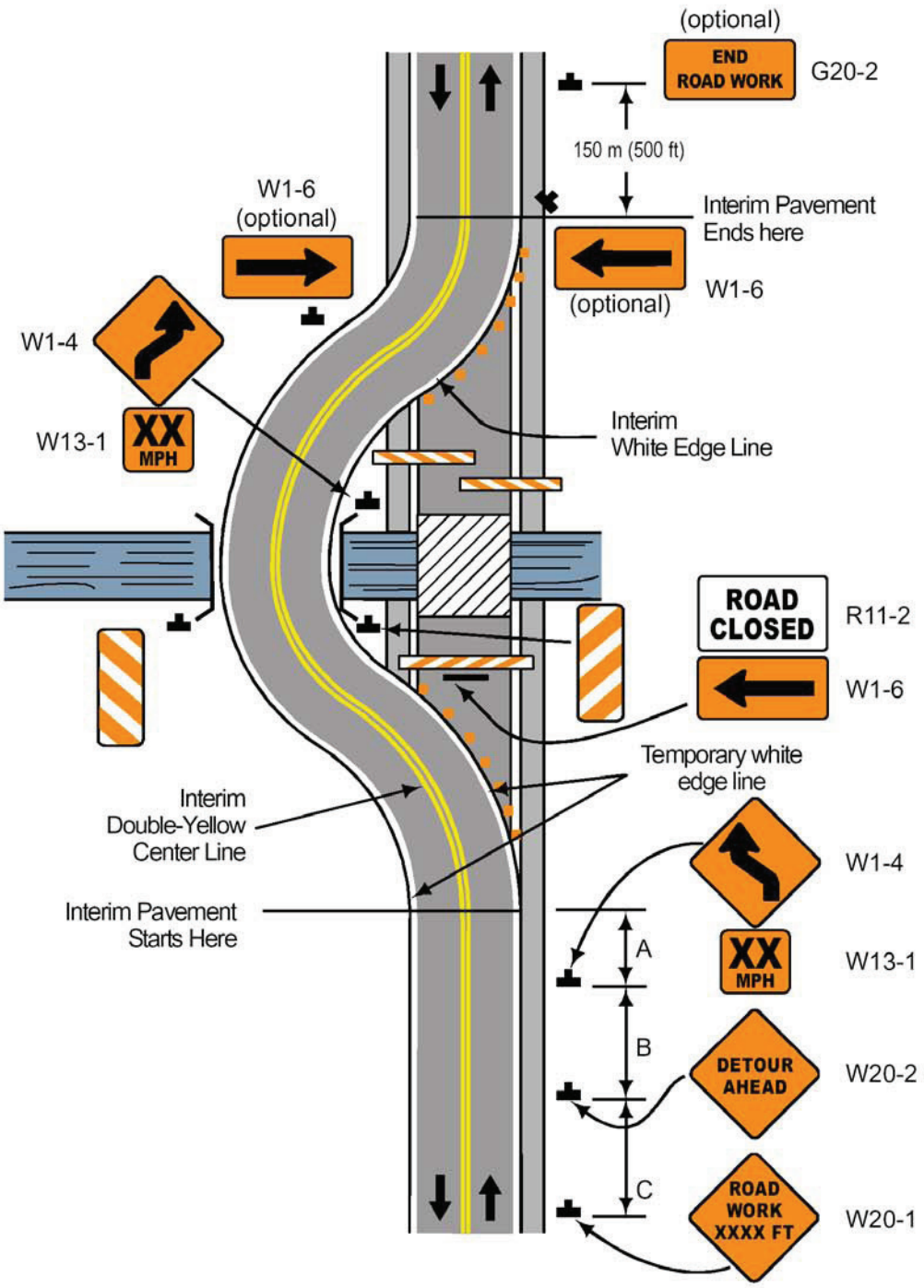
(This space left intentionally blank)

Figure 6H-7. Road Closure with Diversion (TA-7)



Typical Application 7

Figure 6H-7 (CA). Road Closure with Diversion (TA-7)



Typical Application 7

Note: See Tables 6H-2 and 6H-3 for the meaning of the symbols and/or letter codes used in this figure.

Notes for Figure 6H-8—Typical Application 8

Road Closure with Off-Site Detour

Guidance:

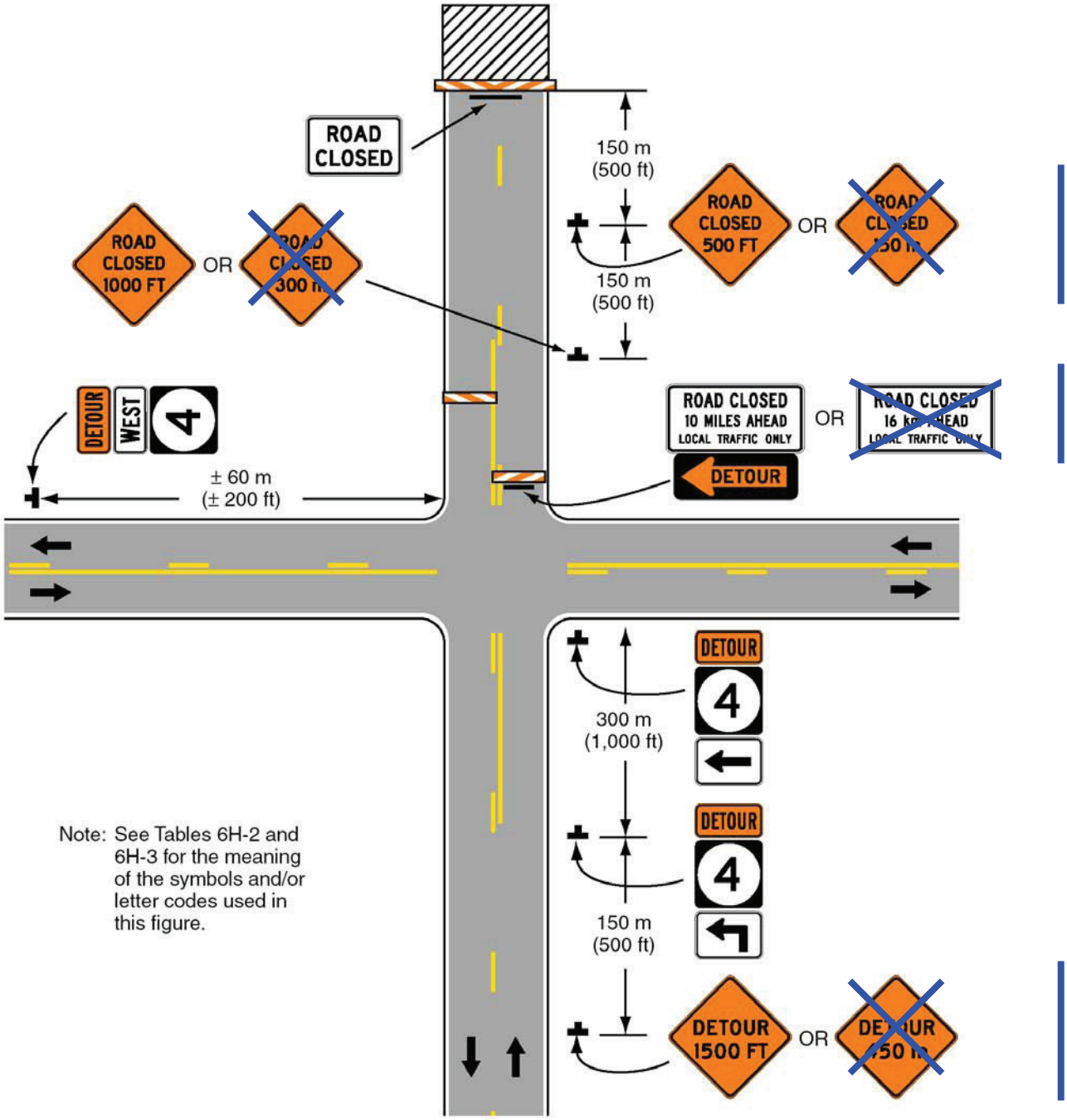
1. Regulatory traffic control devices should be modified as needed for the duration of the detour.

Option:

2. If the road is opened for some distance beyond the intersection and/or there are significant origin/destination points beyond the intersection, the ROAD CLOSED and DETOUR signs on Type III Barricades may be located at the edge of the traveled way.
3. A Route Sign Directional assembly may be placed on the far left corner of the intersection to augment or replace the one shown on the near right corner.
4. Flashing warning lights and/or flags may be used to call attention to the advance warning signs.
5. Cardinal direction plaques may be used with route signs.

(This space left intentionally blank)

Figure 6H-8. Road Closure with Off-Site Detour (TA-8)



Note: See Tables 6H-2 and 6H-3 for the meaning of the symbols and/or letter codes used in this figure.

Typical Application 8

Notes for Figure 6H-9—Typical Application 9

Overlapping Routes with Detour

Support:

1. TTC devices are shown for one direction of travel only.

Standard:

2. Devices similar to those depicted shall be placed for the opposite direction of travel.

Guidance:

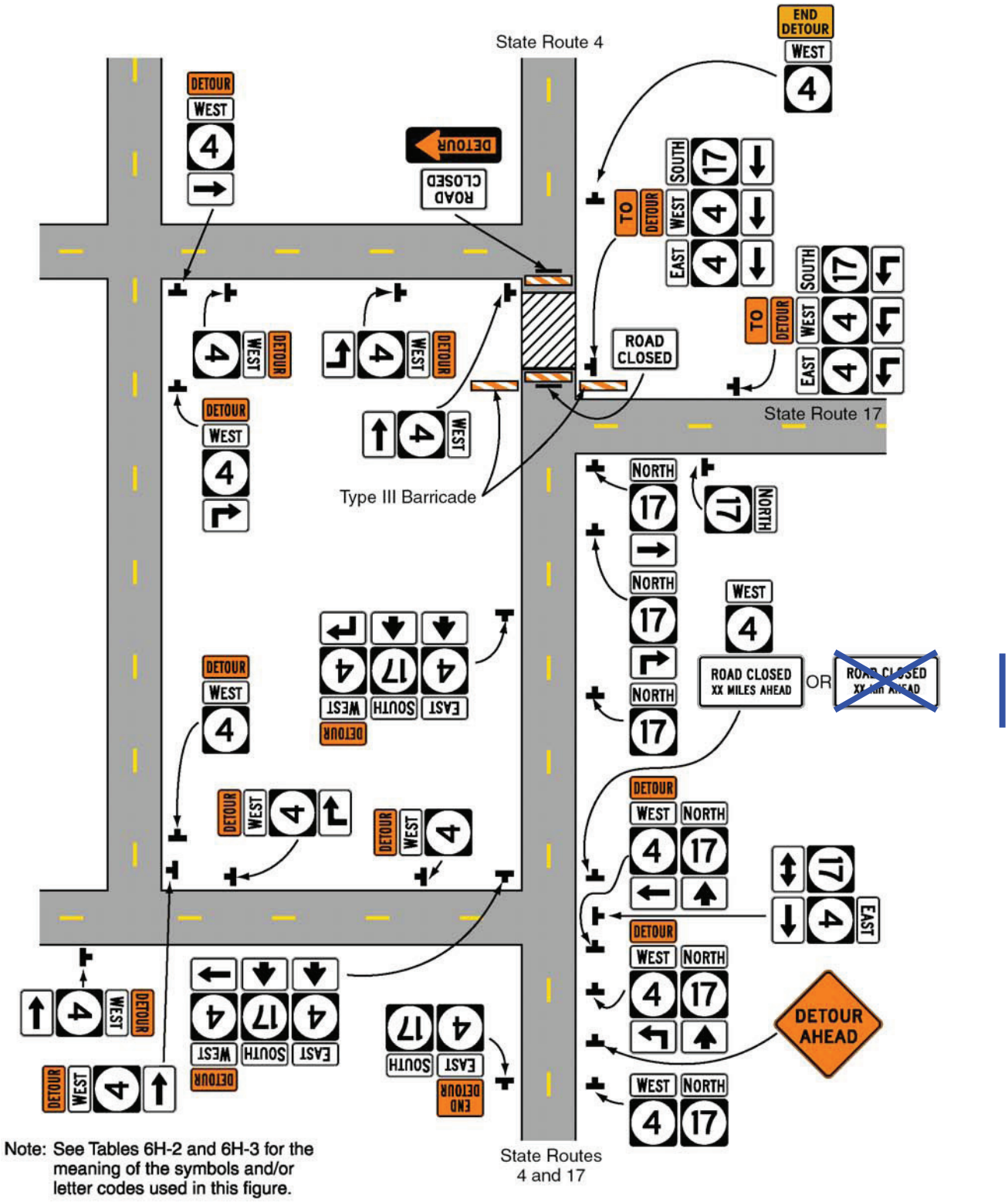
3. STOP signs displayed to side roads should be installed as needed along the temporary route.

Option:

4. Flashing warning lights and/or flags may be used to call attention to the advance warning signs.
5. Flashing warning lights may be used on the Type III Barricades.
6. Cardinal direction plaques may be used with route signs.

(This space left intentionally blank)

Figure 6H-9. Overlapping Routes with Detour (TA-9)



Typical Application 9

Notes for Figure ~~6H-10~~ 6H-10(CA)—Typical Application 10

Lane Closure on Two-Lane Road Using Flaggers

Option:

1. For low-volume situations with short work zones on straight roadways where the flagger is visible to road users approaching from both directions, a single flagger, positioned to be visible to road users approaching from both directions, may be used (see Chapter 6E).
2. The ROAD WORK AHEAD and the END ROAD WORK signs may be omitted for short-duration operations.
3. Flashing warning lights and/or flags may be used to call attention to the advance warning signs. A BE PREPARED TO STOP sign may be added to the sign series.

Guidance:

4. The buffer space should be extended so that the two-way traffic taper is placed before a horizontal (or crest vertical) curve to provide adequate sight distance for the flagger and a queue of stopped vehicles.

Standard:

5. At night, flagger stations shall be illuminated, except in emergencies.

Guidance:

6. When used, the BE PREPARED TO STOP sign should be located ~~between~~ after the Flagger sign and the ONE LANE ROAD sign.
7. When a highway-rail grade crossing exists within or upstream of the transition area and it is anticipated that queues resulting from the lane closure might extend through the highway-rail grade crossing, the TTC zone should be extended so that the transition area precedes the highway-rail grade crossing.
8. When a highway-rail grade crossing equipped with active warning devices exists within the activity area, provisions should be made for keeping flaggers informed as to the activation status of these warning devices.
9. When a highway-rail grade crossing exists within the activity area, drivers operating on the left side of the normal centerline should be provided with comparable warning devices as for drivers operating on the right side of the normal centerline.
10. Early coordination with the railroad company should occur before work starts.

Option:

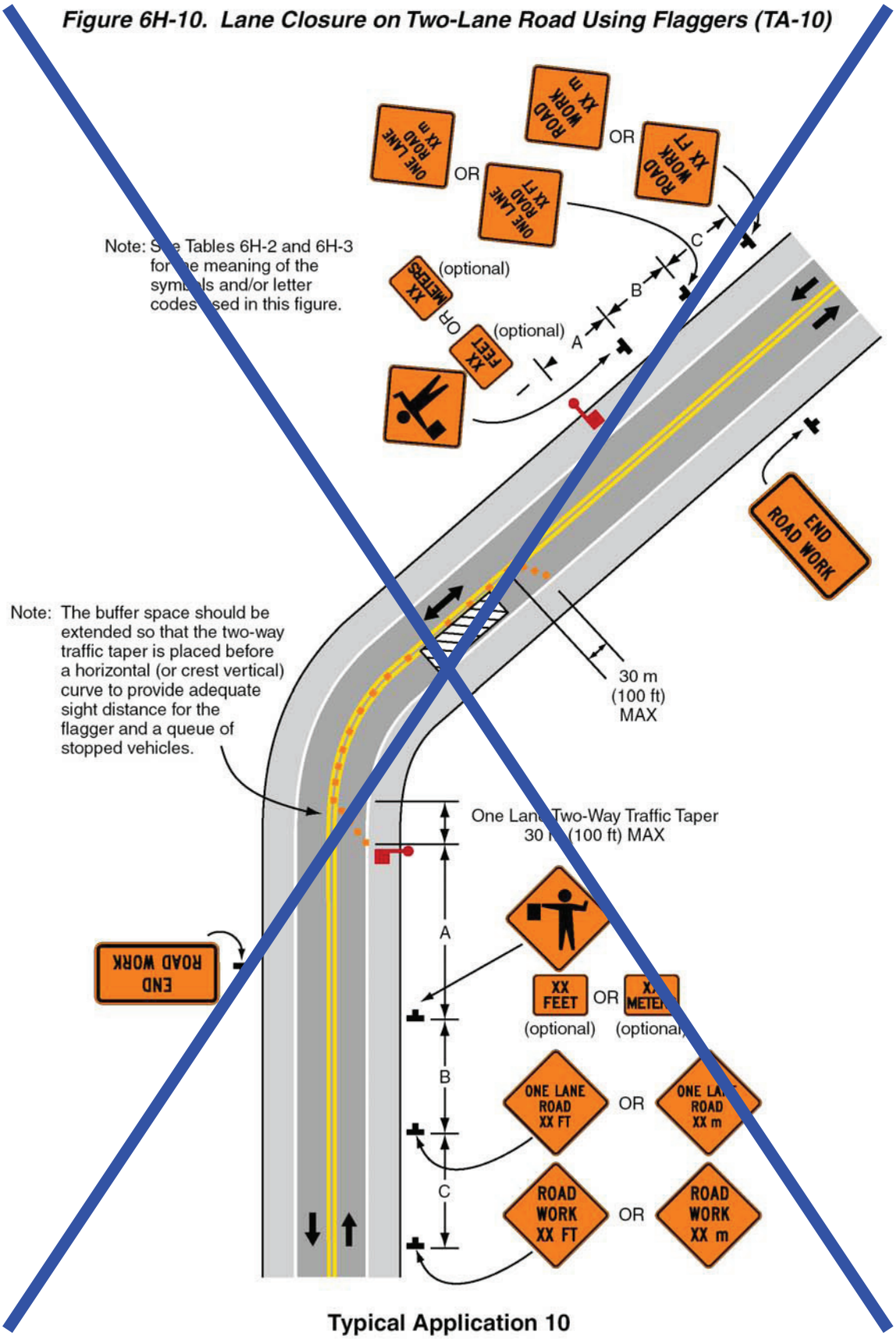
11. A flagger or a uniformed law enforcement officer may be used at the highway-rail grade crossing to minimize the probability that vehicles are stopped within 4.6 m (15 ft) of the highway-rail grade crossing, measured from both sides of the outside rails.

Support:

12. For State highways, see Department of Transportation's Standard Plan T13. See Section 1A.11 for information regarding this publication.

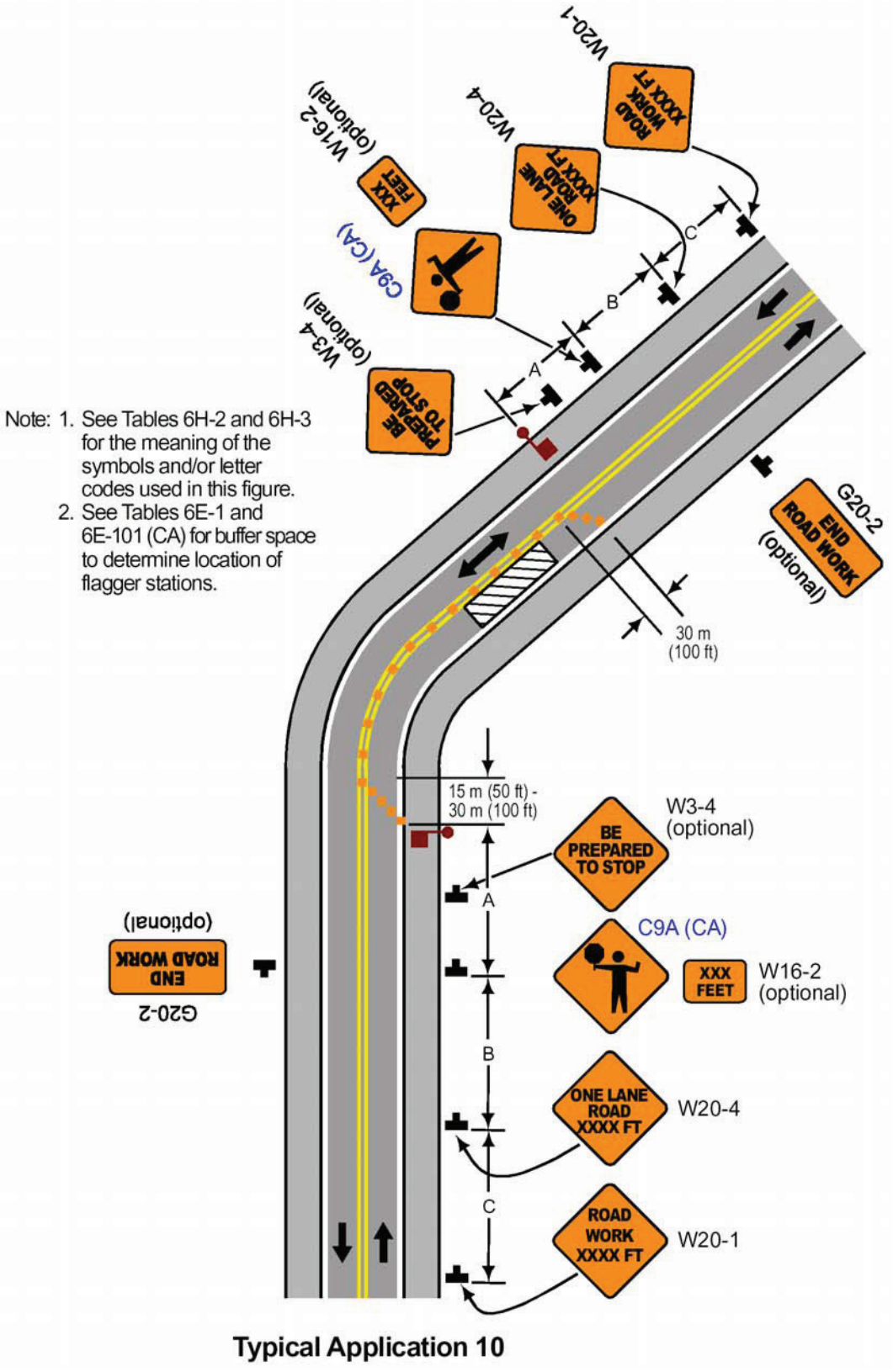
(This space left intentionally blank)

Figure 6H-10. Lane Closure on Two-Lane Road Using Flaggers (TA-10)



Typical Application 10

Figure 6H-10 (CA). Lane Closure on Two-Lane Road Using Flaggers (TA-10)



Typical Application 10

Notes for Figure 6H-11—Typical Application 11

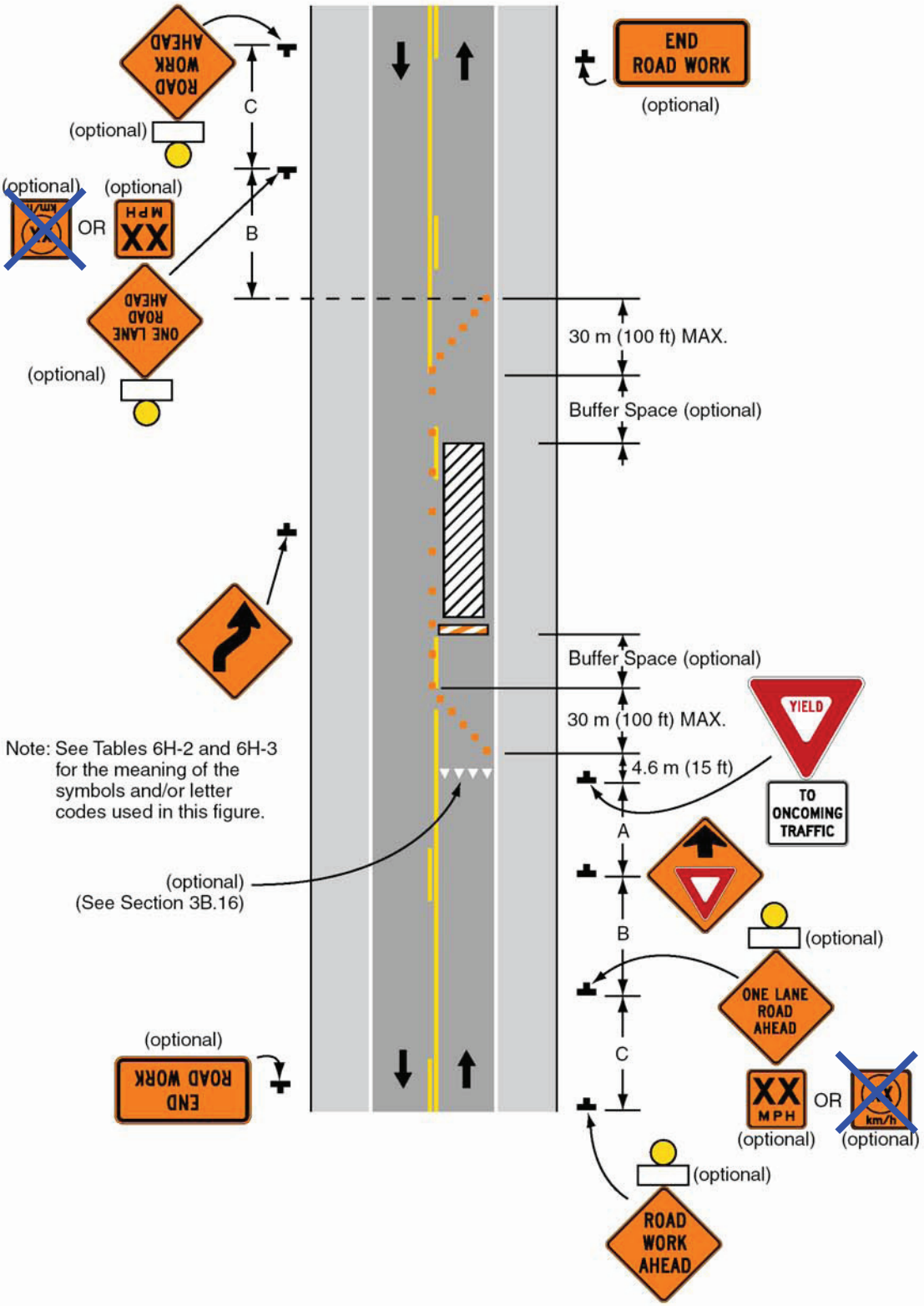
Lane Closure on Two-Lane Road with Low Traffic Volumes

Option:

1. This TTC zone application may be used as an alternate to the TTC application shown in Figure ~~6H-10~~ 6H-10(CA) (using flaggers) when the following conditions exist:
   a. Vehicular traffic volume is such that sufficient gaps exist for vehicular traffic that must yield.
   b. Road users from both directions are able to see approaching vehicular traffic through and beyond the work site and have sufficient visibility of approaching vehicles.
2. The Type B flashing warning lights may be placed on the ROAD WORK AHEAD and the ONE LANE ROAD AHEAD signs whenever a night lane closure is necessary.

(This space left intentionally blank)

Figure 6H-11. Lane Closure on Two-Lane Road with Low Traffic Volumes



Typical Application 11

Notes for Figure ~~6H-12~~ 6H-12(CA)—Typical Application 12

Lane Closure on Two-Lane Road Using Traffic Control Signals

Standard:

1. **TTC signals shall be installed and operated in accordance with the provisions of Part 4. TTC signals shall meet the physical display and operational requirements of conventional traffic control signals.**
2. **TTC signal timing shall be established by authorized officials. Durations of red clearance intervals shall be adequate to clear the one-lane section of conflicting vehicles.**
3. **When the TTC signal is changed to the flashing mode, either manually or automatically, red signal indications shall be flashed to both approaches.**
4. **Stop lines shall be installed with TTC signals for intermediate and long-term closures. Existing conflicting pavement markings and raised pavement marker reflectors between the activity area and the stop line shall be removed. After the TTC signal is removed, the stop lines and other temporary pavement markings shall be removed and the permanent pavement markings restored.**
5. **Safeguards shall be incorporated to avoid the possibility of conflicting signal indications at each end of the TTC zone.**

Guidance:

6. Where no-passing lines are not already in place, they should be added.
7. Adjustments in the location of the advance warning signs should be made as needed to accommodate the horizontal or vertical alignment of the roadway, recognizing that the distances shown for sign spacings are minimums. Adjustments in the height of the signal heads should be made as needed to conform to the vertical alignment.

Option:

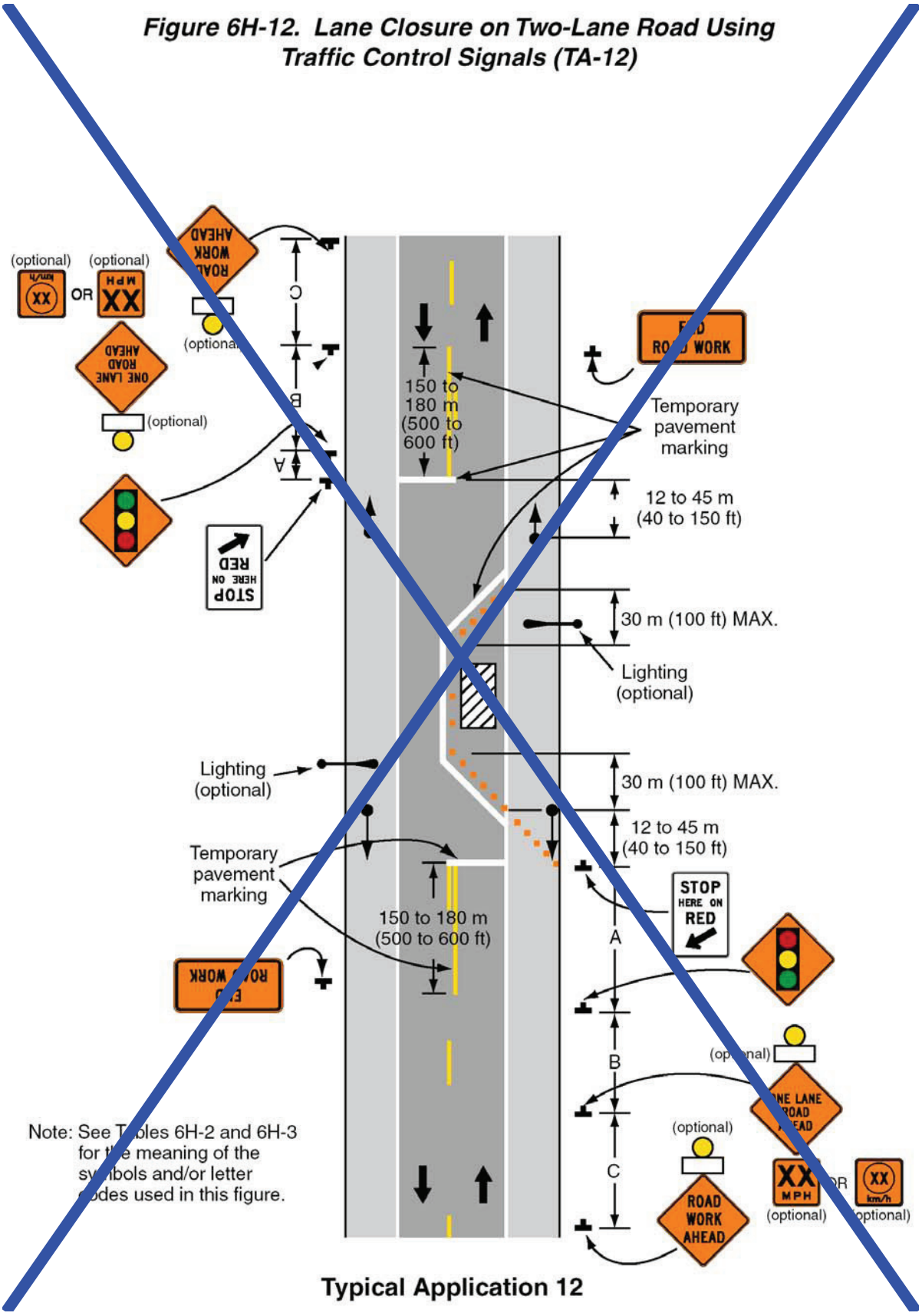
8. Flashing warning lights shown on the ROAD WORK AHEAD and the ONE LANE ROAD AHEAD signs may be used.
9. Removable pavement markings may be used.

Support:

10. TTC signals are preferable to flaggers for long-term projects and other activities that would require flagging at night.
11. The maximum length of activity area for one-way operation under TTC signal control is determined by the capacity required to handle the peak demand.

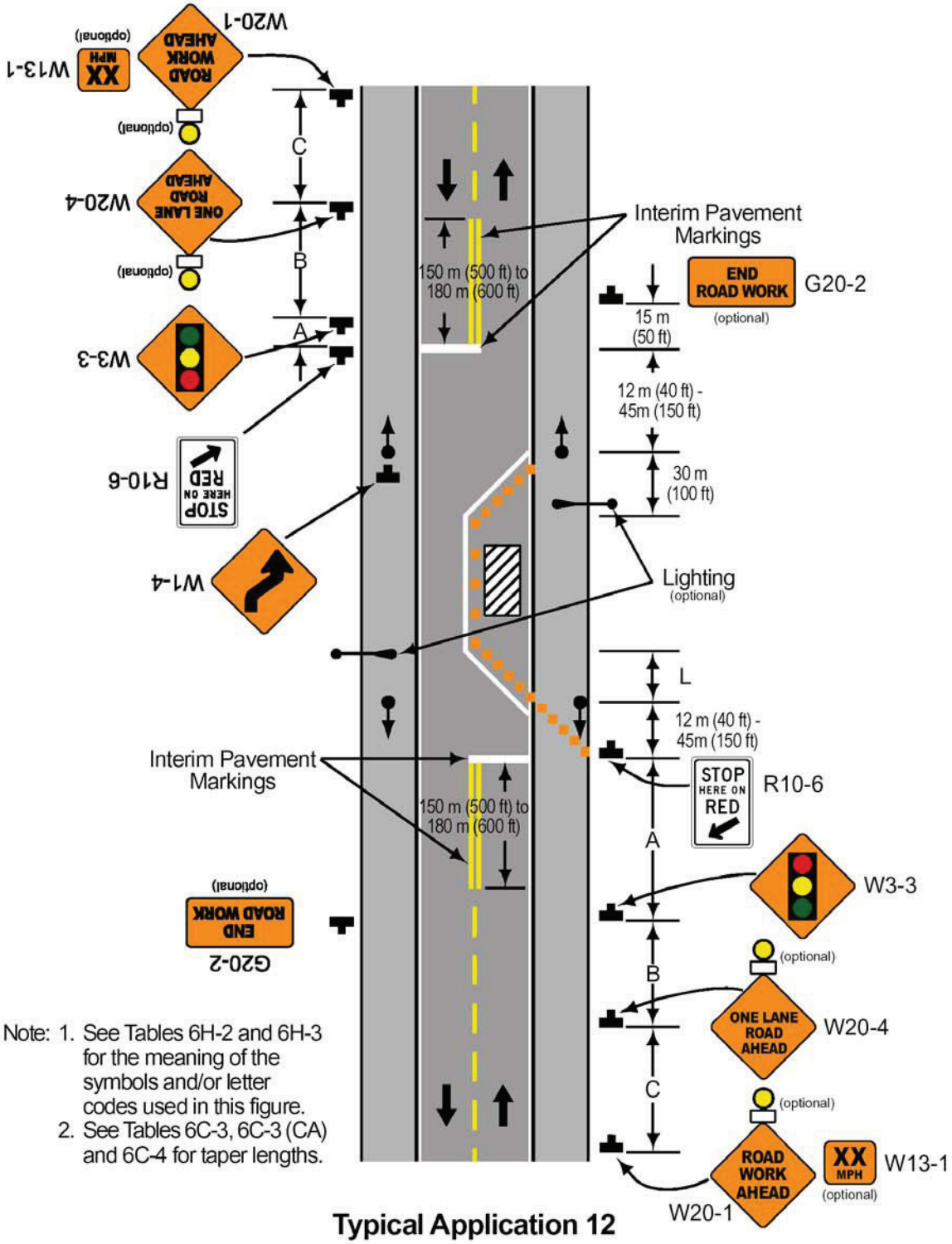
(This space left intentionally blank)

Figure 6H-12. Lane Closure on Two-Lane Road Using Traffic Control Signals (TA-12)



Typical Application 12

Figure 6H-12 (CA). Lane Closure on Two-Lane Road Using Traffic Control Signals (TA-12)



Typical Application 12

Notes for Figure ~~6H-13~~ 6H-13(CA)—Typical Application 13

Temporary Road Closure

Support:

1. Conditions represented are a planned closure not exceeding 20 minutes during the daytime.

Standard:

2. A flagger or uniformed law enforcement officer shall be used for this application. The flagger, if used for this application, shall follow the procedures noted in Sections 6E.04 and 6E.05.

Guidance:

3. The uniformed law enforcement officer, if used for this application, should follow the procedures noted in Sections 6E.04 and 6E.05.

Option:

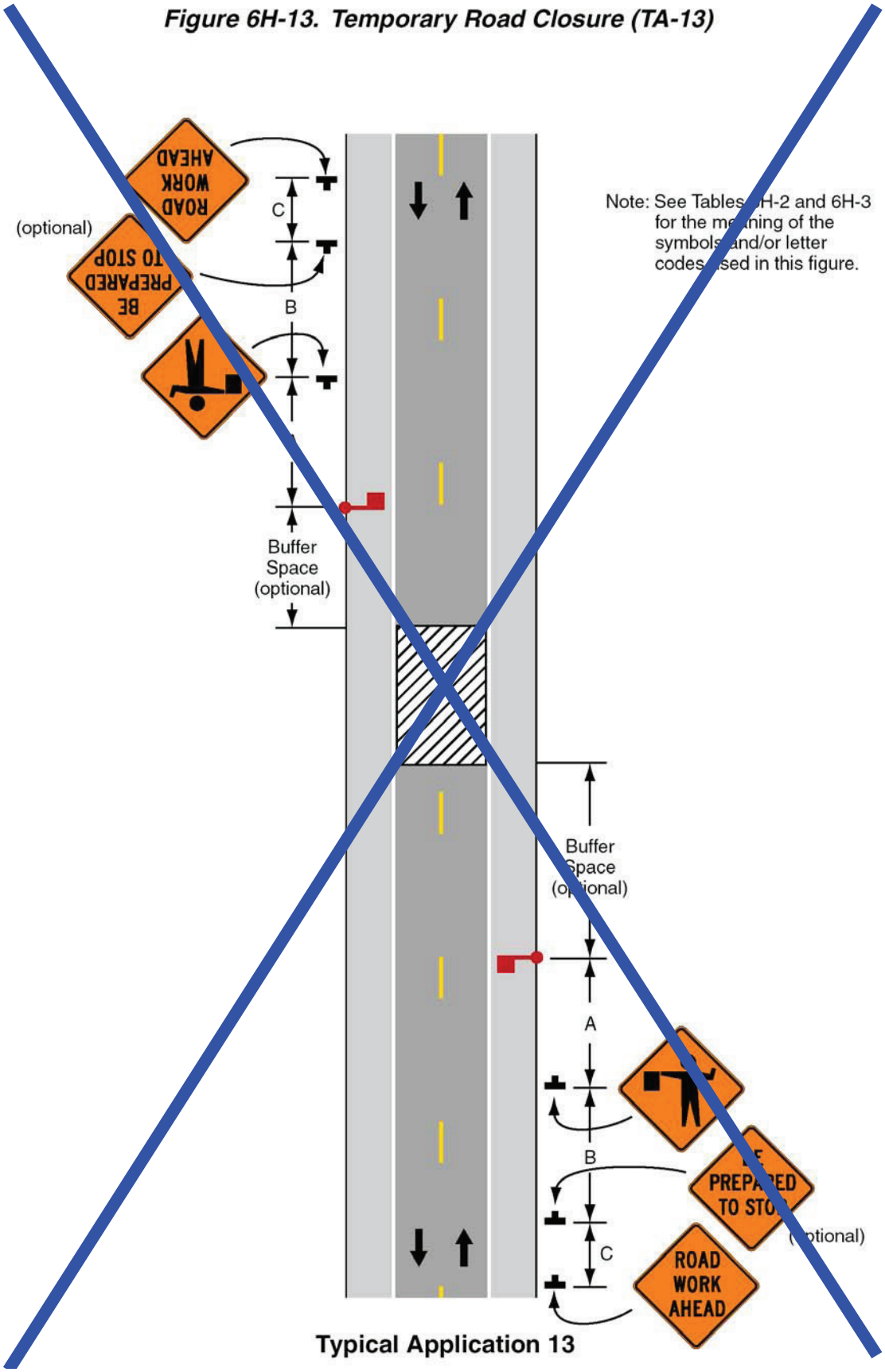
4. A BE PREPARED TO STOP sign may be added to the sign series.

Guidance:

5. When used, the BE PREPARED TO STOP sign should be located ~~before~~ after the Flagger symbol sign.

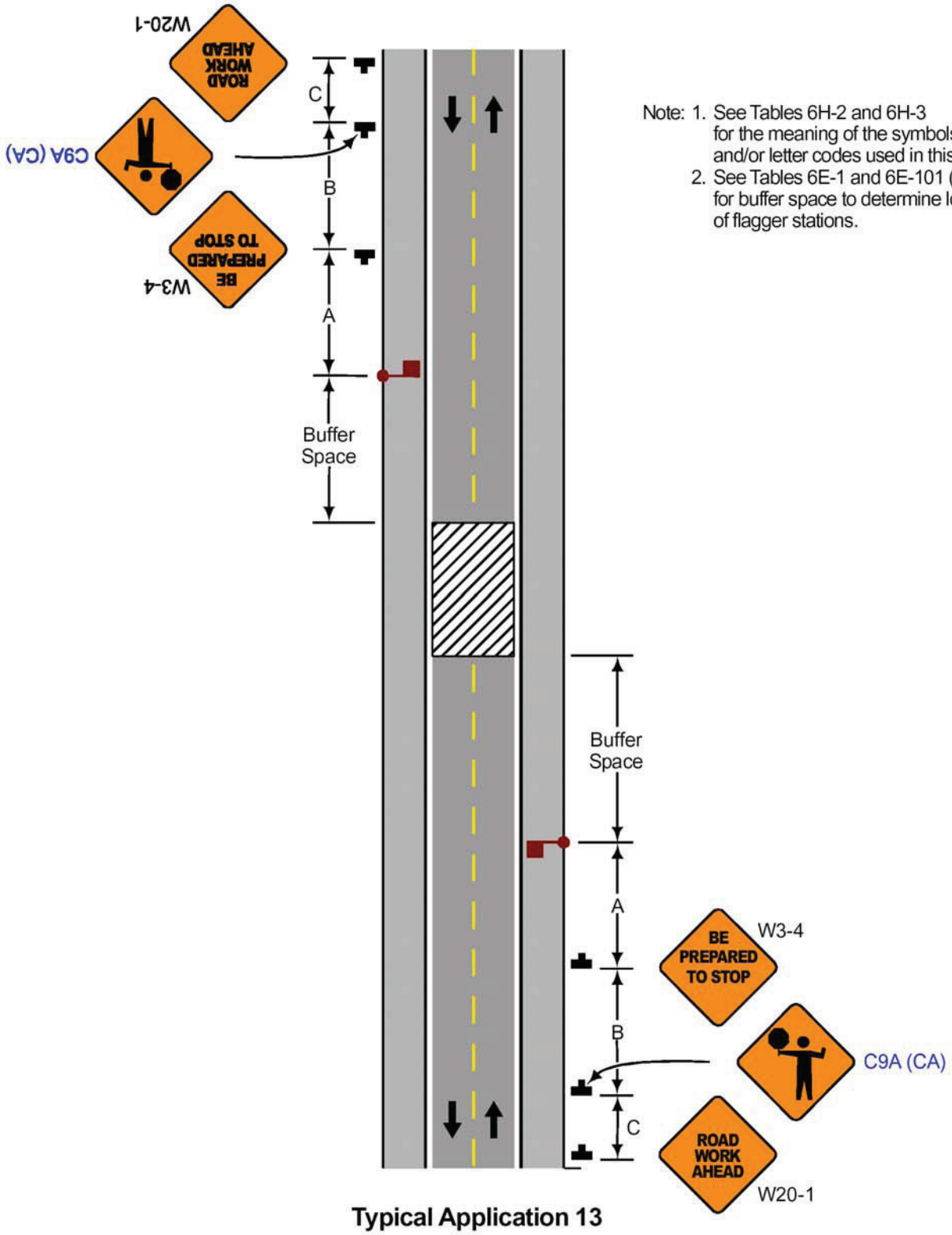
(This space left intentionally blank)

Figure 6H-13. Temporary Road Closure (TA-13)



Typical Application 13

Figure 6H-13 (CA). Temporary Road Closure (TA-13)



Note: 1. See Tables 6H-2 and 6H-3 for the meaning of the symbols and/or letter codes used in this figure.
2. See Tables 6E-1 and 6E-101 (CA) for buffer space to determine location of flagger stations.

Typical Application 13

Notes for Figure ~~6H-14~~ 6H-14(CA)—Typical Application 14

Haul Road Crossing

Guidance:

1. Floodlights should be used to illuminate haul road crossings where existing light is inadequate.
2. Where no passing lines are not already in place, they should be added.

Standard:

3. The traffic control method selected shall be used in both directions.

Flagging Method

4. When a road used exclusively as a haul road is not in use, the haul road shall be closed with Type III barricades and the Flagger symbol signs covered.

5. The flagger shall follow the procedures noted in Sections 6E.04 and 6E.05.

6. At night, flagger stations shall be illuminated, except in emergencies.

Signalized Method

7. When a road used exclusively as a haul road is not in use, Type III barricades shall be in place. The signals shall either flash yellow on the main road or be covered, and the Signal Ahead and STOP HERE ON RED signs shall be covered or hidden from view.

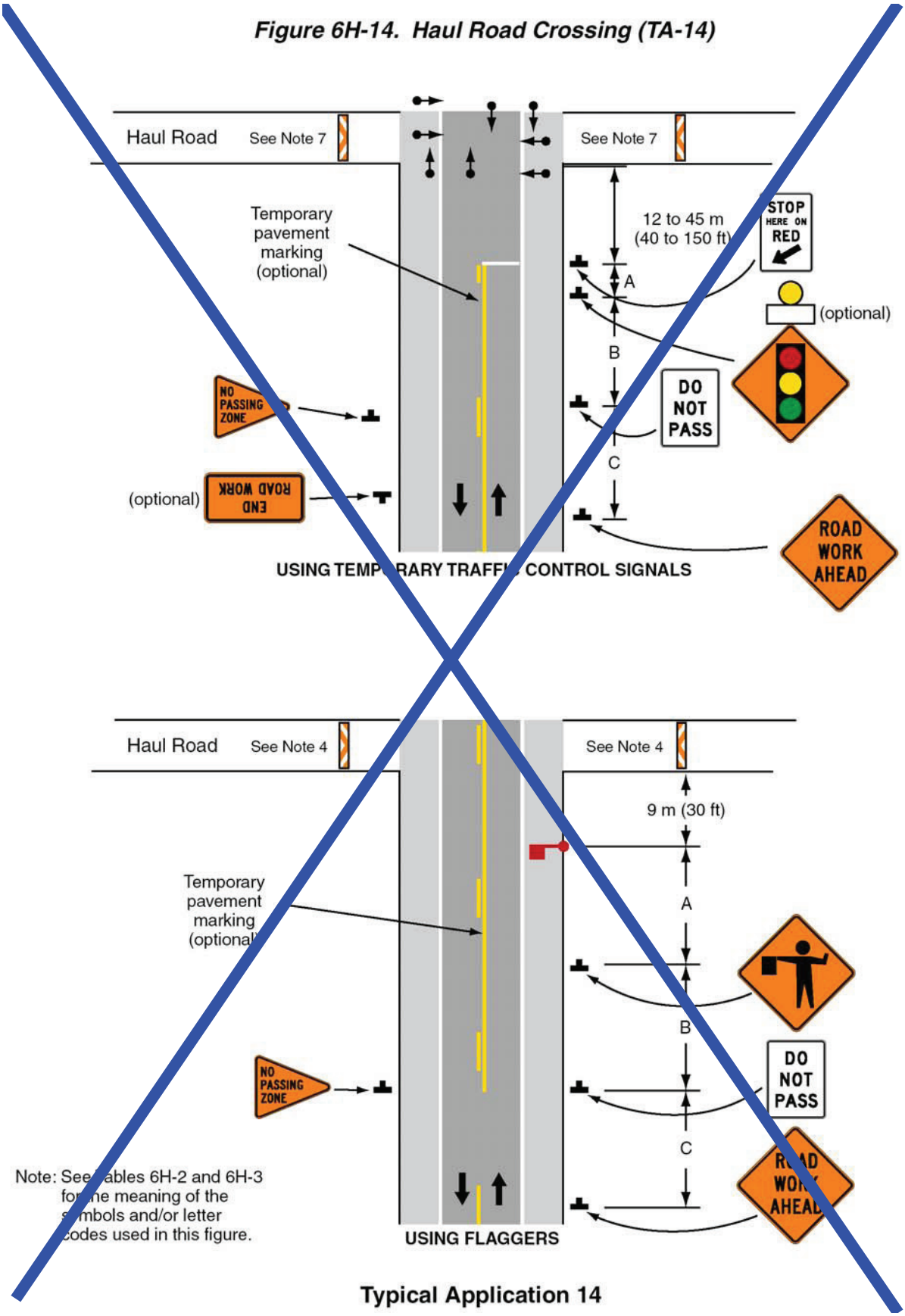
8. The TTC signals shall control both the highway and the haul road and shall meet the physical display and operational requirements of conventional traffic control signals as described in Part 4. Traffic control signal timing shall be established by authorized officials.

9. Stop lines shall be used on existing highway with TTC signals.

10. Existing conflicting pavements markings between the stop lines shall be removed. After the TTC signal is removed, the stop lines and other temporary pavement markings shall be removed and the permanent pavement markings restored.

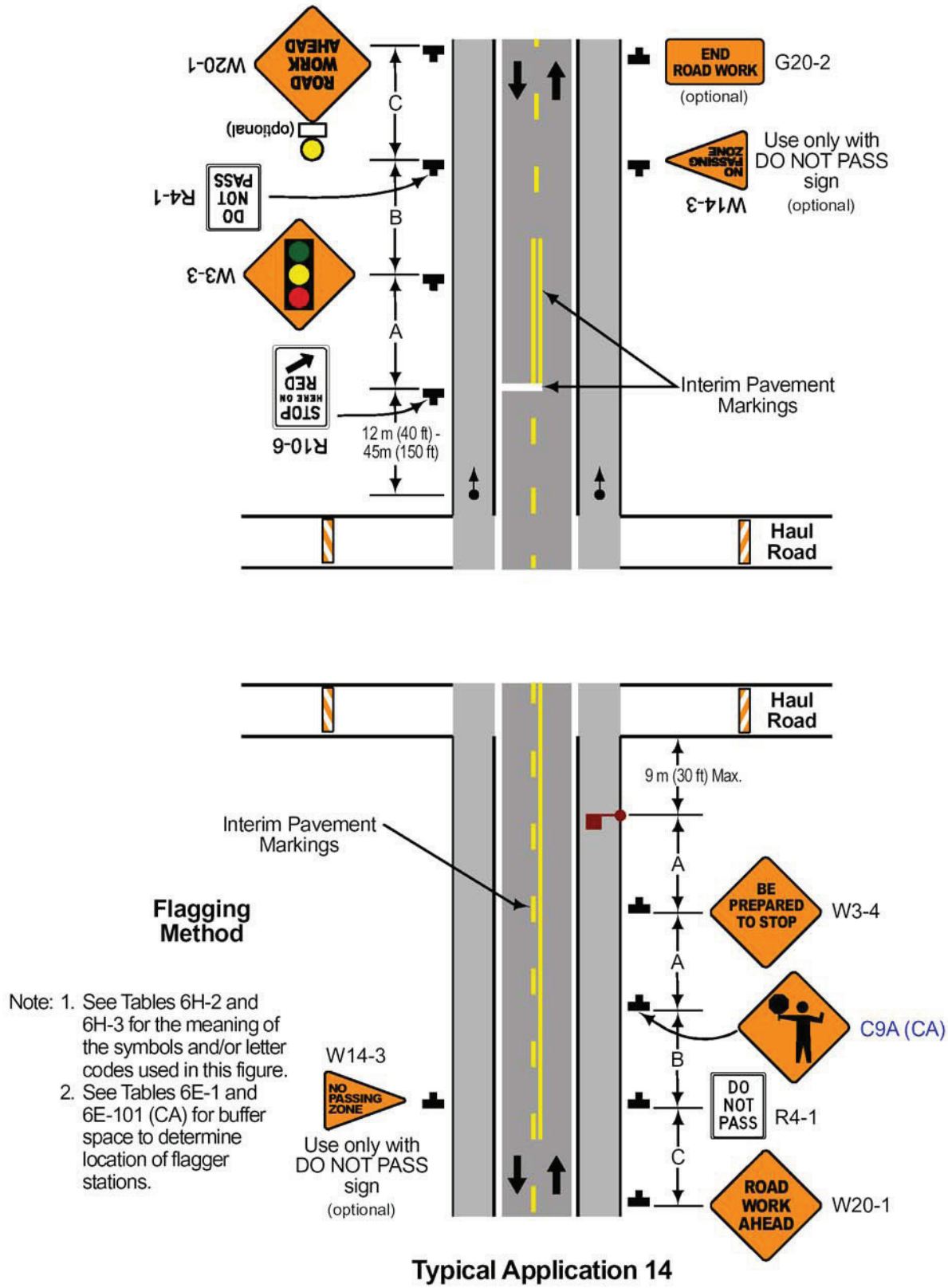
(This space left intentionally blank)

Figure 6H-14. Haul Road Crossing (TA-14)



Typical Application 14

Figure 6H-14 (CA). Haul Road Crossing (TA-14)



Typical Application 14

Notes for Figure 6H-15—Typical Application 15

Work in Center of Road with Low Traffic Volumes

Guidance:

1. The lanes on either side of the center work space should have a minimum width of 3 m (10 ft) as measured from the near edge of the channelizing devices to the edge of pavement or the outside edge of paved shoulder.

Standard:

2. Workers in the roadway shall wear high-visibility safety apparel as described in Section 6D.03.

Option:

3. Flashing warning lights and/or flags may be used to call attention to the advance warning signs.
4. If the closure continues overnight, warning lights may be used on the channelizing devices.
5. A lane width of 2.7 m (9 ft) may be used for short-term stationary work on low-volume, low-speed roadways when motor vehicle traffic does not include longer and wider heavy commercial vehicles.

Standard:

Note 5 is not applicable for State highways. Note #1 shall be used instead for State highways.

Option:

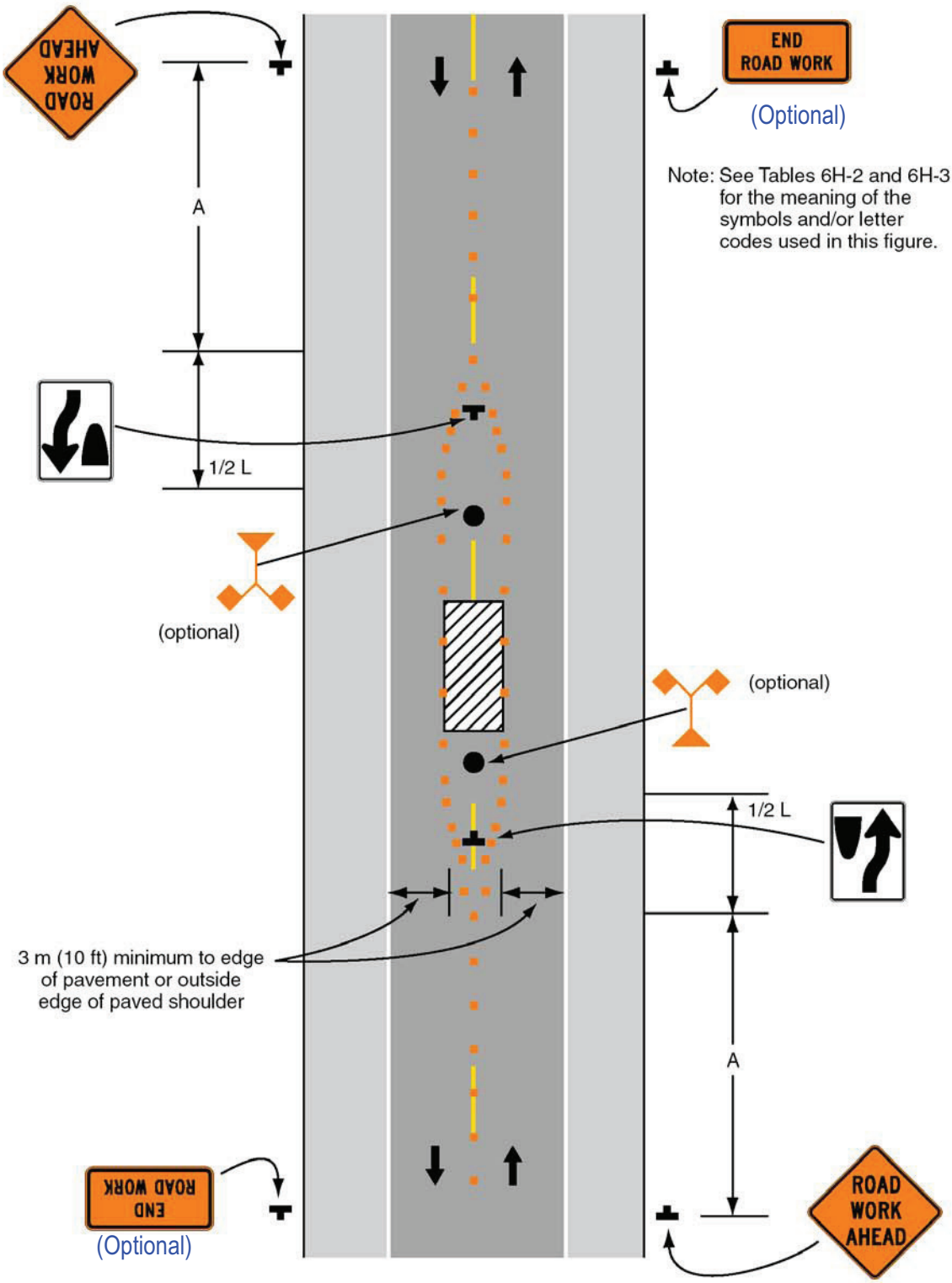
6. A work vehicle displaying high-intensity rotating, flashing, oscillating, or strobe lights may be used instead of the channelizing devices forming the tapers or the high-level warning devices.
7. Vehicle hazard warning signals may be used to supplement high-intensity rotating, flashing, oscillating, or strobe lights.

Standard:

8. Vehicle hazard warning signals shall not be used instead of the vehicle's high-intensity rotating, flashing, oscillating, or strobe lights.

(This space left intentionally blank)

Figure 6H-15. Work in Center of Road with Low Traffic Volumes (TA-15)



Typical Application 15

Notes for Figure 6H-16—Typical Application 16

Surveying Along Centerline of Road with Low Traffic Volumes

Guidance:

1. Cones should be placed 150 mm (6 in) to 300 mm (12 in) on either side of the centerline.
2. When using metric units, spacing of channelizing devices should not exceed a distance in meters equal to 1/5 of the speed limit (km/h) when used for taper channelization and a distance in meters equal to 2/5 of the speed limit (km/h) when used for tangent channelization. When using English units, spacing of channelizing devices should not exceed a distance in feet equal to the speed limit (mph) when used for the taper channelization and a distance in feet of 2 times the speed limit (mph) when used for tangent channelization.
3. A flagger should be used to warn workers who cannot watch road users.

Standard:

4. Workers in the roadway shall wear high-visibility safety apparel as described in Section 6D.03.

5. For surveying on the centerline of a high-volume road, one lane shall be closed using the information illustrated in Figure ~~6H-10~~ 6H-10(CA).

Option:

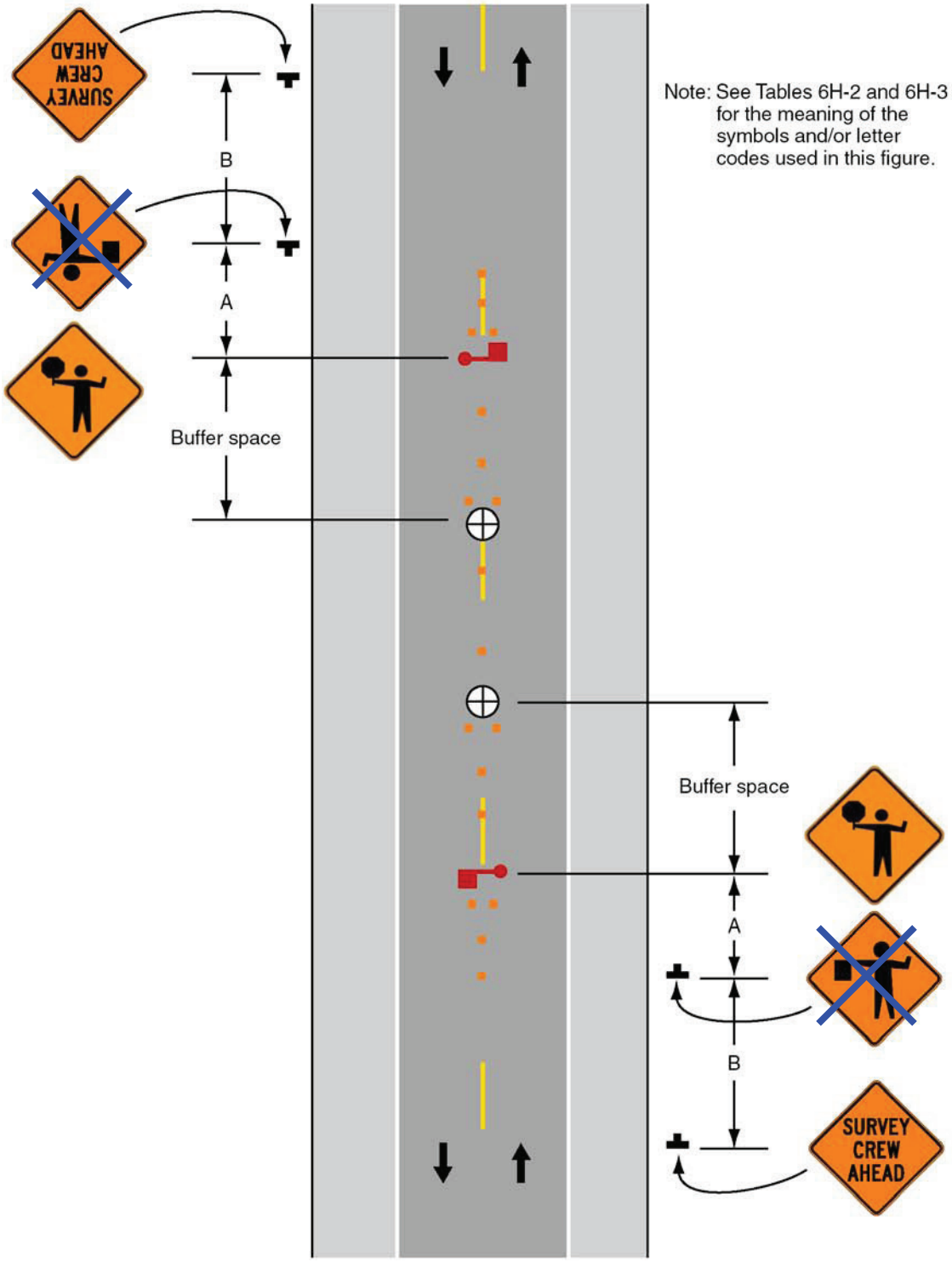
6. A high-level warning device may be used to protect a surveying device, such as a target on a tripod.
7. Cones may be omitted for a cross-section survey.
8. ROAD WORK AHEAD signs may be used in place of the SURVEY CREW AHEAD signs.
9. Flags may be used to call attention to the advance warning signs.
10. If the work is along the shoulder, the flagger may be omitted.
11. For a survey along the edge of the road or along the shoulder, cones may be placed along the edge line.
12. A BE PREPARED TO STOP sign may be added to the sign series.

Guidance:

13. When used, the BE PREPARED TO STOP sign should be located ~~before~~ after the Flagger symbol sign.

(This space left intentionally blank)

Figure 6H-16. Surveying Along Centerline of Road with Low Traffic Volumes (TA-16)



Typical Application 16

Notes for Figure 6H-17—Typical Application 17

Mobile Operations on Two-Lane Road

Standard:

1. Vehicle-mounted signs shall be mounted in a manner such that they are not obscured by equipment or supplies. Sign legends on vehicle-mounted signs shall be covered or turned from view when work is not in progress.

2. Shadow and work vehicles shall display high-intensity rotating, flashing, oscillating, or strobe lights.

3. If an arrow panel is used, it shall be used in the caution mode.

Guidance:

4. Where practical and when needed, the work and shadow vehicles should pull over periodically to allow vehicular traffic to pass.
5. Whenever adequate stopping sight distance exists to the rear, the shadow vehicle should maintain the minimum distance from the work vehicle and proceed at the same speed. The shadow vehicle should slow down in advance of vertical or horizontal curves that restrict sight distance.
6. The shadow vehicles should also be equipped with two high-intensity flashing lights mounted on the rear, adjacent to the sign.

Option:

7. The distance between the work and shadow vehicles may vary according to terrain, paint drying time, and other factors.
8. Additional shadow vehicles to warn and reduce the speed of oncoming or opposing vehicular traffic may be used. Law enforcement vehicles may be used for this purpose.
9. A truck-mounted attenuator may be used on the shadow vehicle or on the work vehicle.
10. If the work and shadow vehicles cannot pull over to allow vehicular traffic to pass frequently, a DO NOT PASS sign may be placed on the rear of the vehicle blocking the lane.

Support:

11. Shadow vehicles are used to warn motor vehicle traffic of the operation ahead.

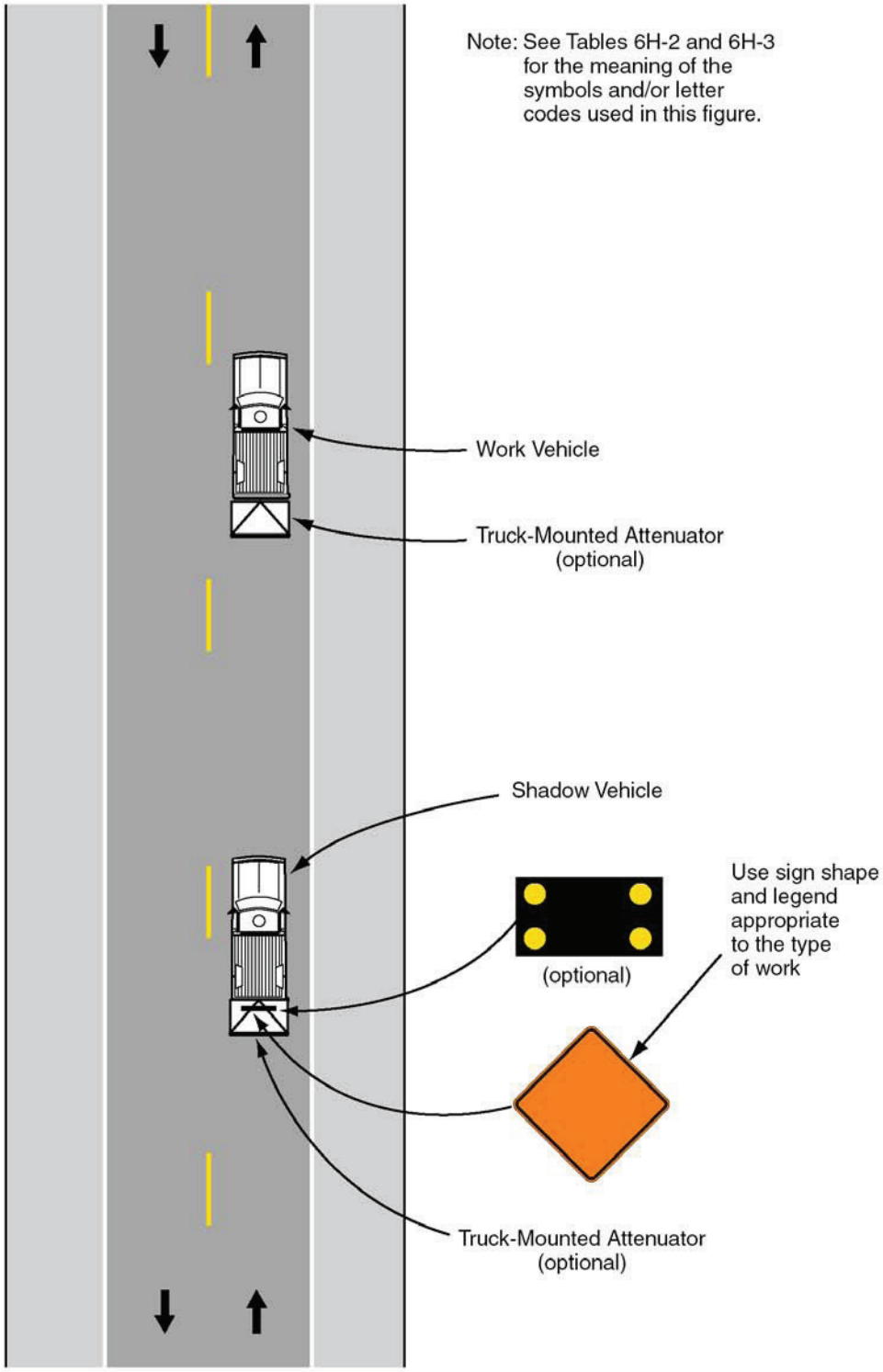
Standard:

12. Vehicle hazard warning signals shall not be used instead of the vehicle's high-intensity rotating, flashing, oscillating, or strobe lights.

13. This typical application shall not be used on State highways, Department of Transportation's Standard Plan T17 for moving lane closure shall be used instead. See Section 1A.11 for information regarding this publication.

(This space left intentionally blank)

Figure 6H-17. Mobile Operations on Two-Lane Road (TA-17)



Typical Application 17

Notes for Figure 6H-18—Typical Application 18

Lane Closure on Minor Street

Standard:

1. This TTC shall be used only for low-speed facilities having low traffic volumes.

Option:

2. Where the work space is short, where road users can see the roadway beyond, and where volume is low, vehicular traffic may be self-regulating.

Standard:

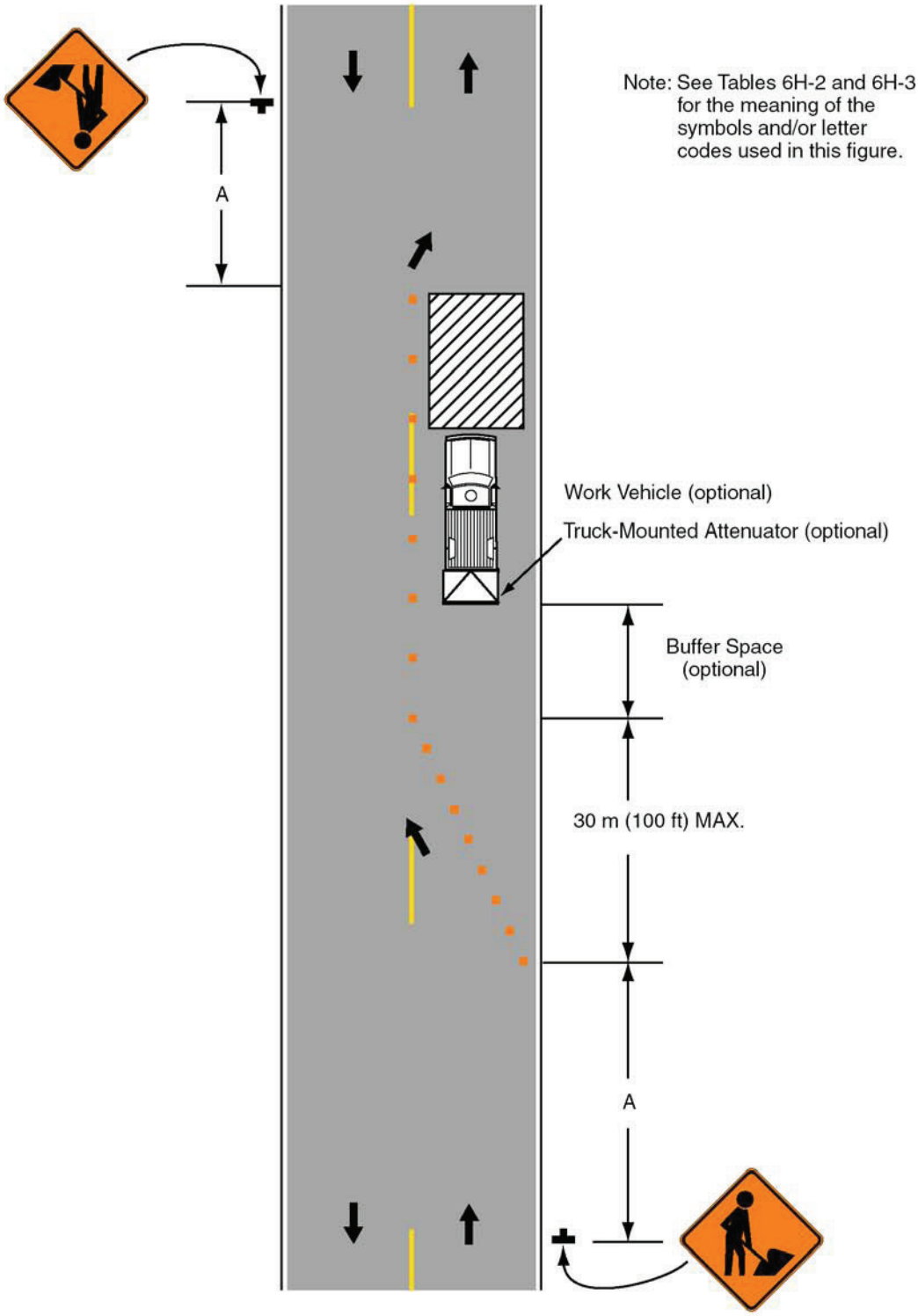
3. Where vehicular traffic cannot effectively self-regulate, one or two flaggers shall be used as illustrated in Figure ~~6H-10~~ 6H-10(CA).

Option:

4. Flashing warning lights and/or flags may be used to call attention to the advance warning signs.
5. A truck-mounted attenuator may be used on the work vehicle and the shadow vehicle.

(This space left intentionally blank)

Figure 6H-18. Lane Closure on Minor Street (TA-18)



Typical Application 18

Notes for Figure 6H-19—Typical Application 19

Detour for One Travel Direction

Guidance:

1. This plan should be used for streets without posted route numbers.
2. On multi-lane streets, Detour signs with an Advance Turn Arrow should be used in advance of a turn.

Option:

3. The STREET CLOSED legend may be used in place of ROAD CLOSED.
4. Additional DO NOT ENTER signs may be used at intersections with intervening streets.
5. Warning lights may be used on Type III Barricades.
6. Detour signs may be located on the far side of intersections.
7. A Street Name sign may be mounted with the Detour sign. The Street Name sign may be either white on green or black on orange.

Standard:

8. When used, the Street Name sign shall be placed above the Detour sign.

Guidance:

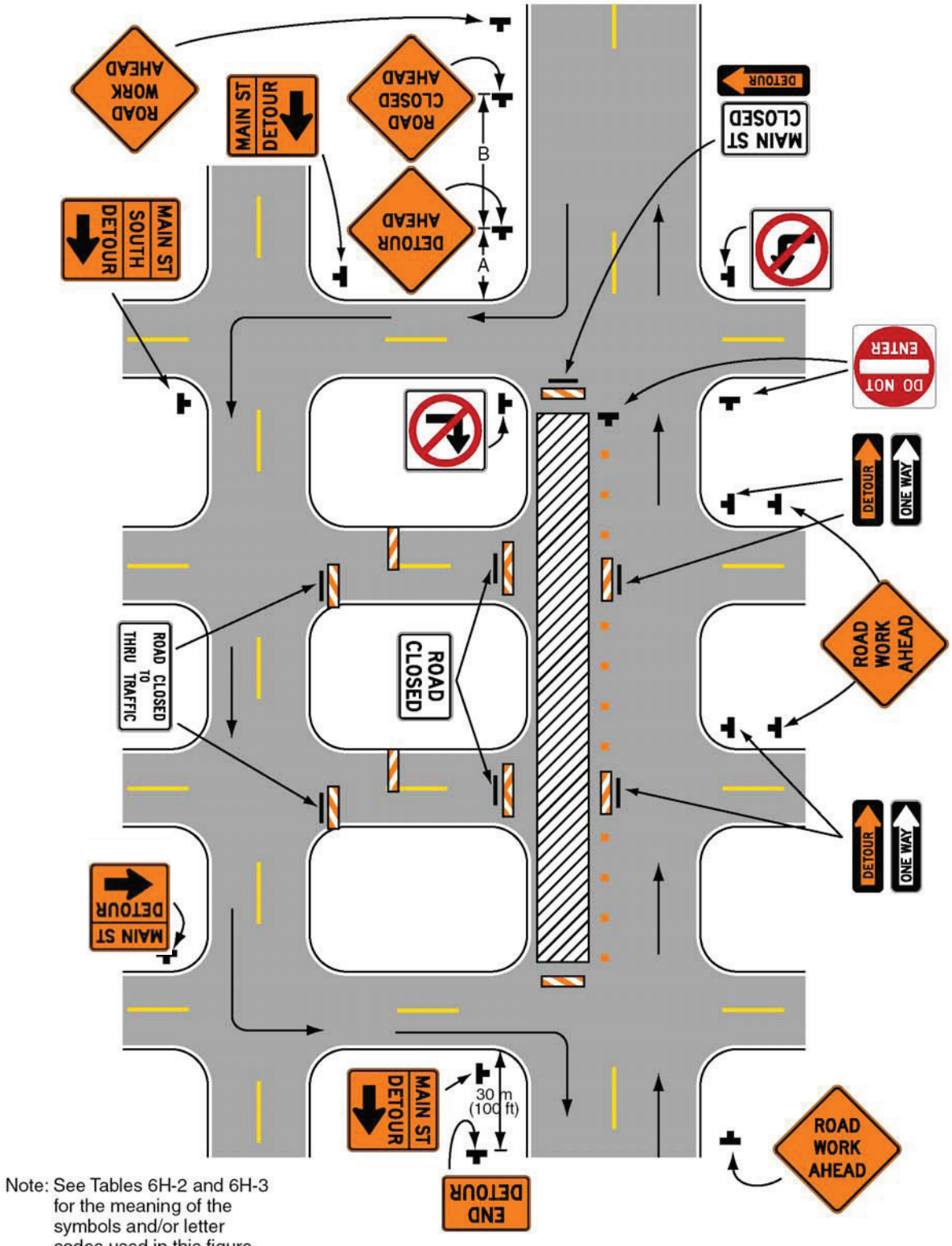
9. The DETOUR (M4-8) sign should be placed on tangent sections at intervals not to exceed 400 m (1300 ft) and at major intersections.

Option:

10. In urban areas, the M4-8 signs may be placed at every intersection.

(This space left intentionally blank)

Figure 6H-19. Detour for One Travel Direction (TA-19)



Note: See Tables 6H-2 and 6H-3 for the meaning of the symbols and/or letter codes used in this figure.

Typical Application 19

Notes for Figure 6H-20—Typical Application 20

Detour for Closed Street

Guidance:

1. This plan should be used for streets without posted route numbers.
2. On multi-lane streets, Detour signs with an Advance Turn Arrow should be used in advance of a turn.

Option:

3. Flashing warning lights and/or flags may be used to call attention to the advance warning signs.
4. Flashing warning lights may be used on Type III Barricades.
5. Detour signs may be located on the far side of intersections. A Detour sign with an advance arrow may be used in advance of a turn.
6. A Street Name sign may be mounted with the Detour sign. The Street Name sign may be either white on green or black on orange.

Standard:

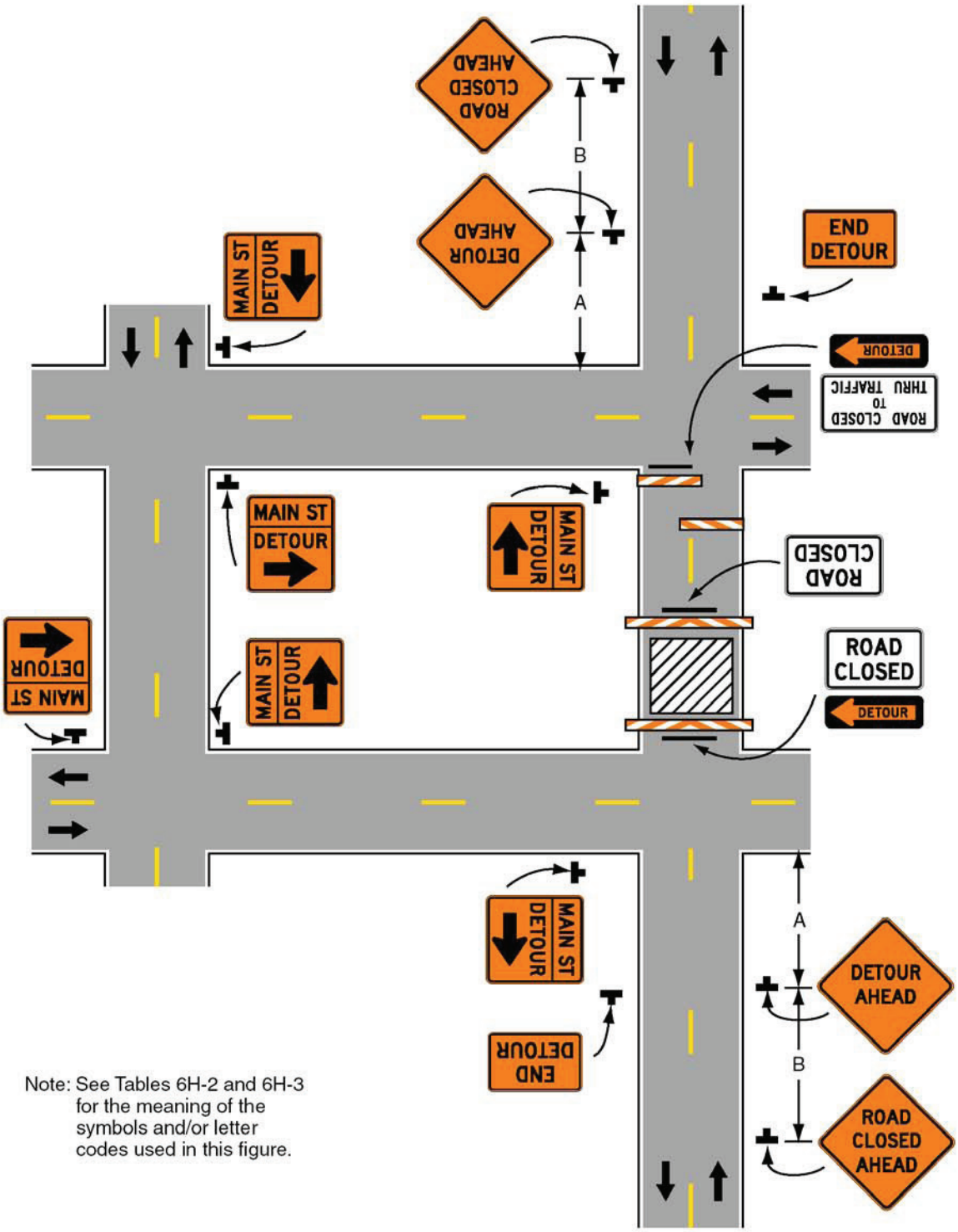
7. When used, the Street Name sign shall be placed above the Detour sign.

Support:

8. See Figure 6H-9 for the information for detouring a numbered highway.

(This space left intentionally blank)

Figure 6H-20. Detour for Closed Street (TA-20)



Typical Application 20

Notes for Figure 6H-21—Typical Application 21

Lane Closure on Near Side of Intersection

Standard:

1. The merging taper shall direct vehicular traffic into either the right or left lane, but not both.

Guidance:

2. In this typical application, a left taper should be used so that right-turn movements will not impede through motor vehicle traffic. However, the reverse should be true for left-turn movements.
3. If the work space extends across a crosswalk, the crosswalk should be closed using the information and devices shown in Figure 6H-29.

Option:

4. Flashing warning lights and/or flags may be used to call attention to the advance warning signs.
5. A shadow vehicle with a truck-mounted attenuator may be used.
6. A work vehicle with high-intensity rotating, flashing, oscillating, or strobe lights may be used with the high-level warning device.
7. Vehicle hazard warning signals may be used to supplement high-intensity rotating, flashing, oscillating, or strobe lights.

Standard:

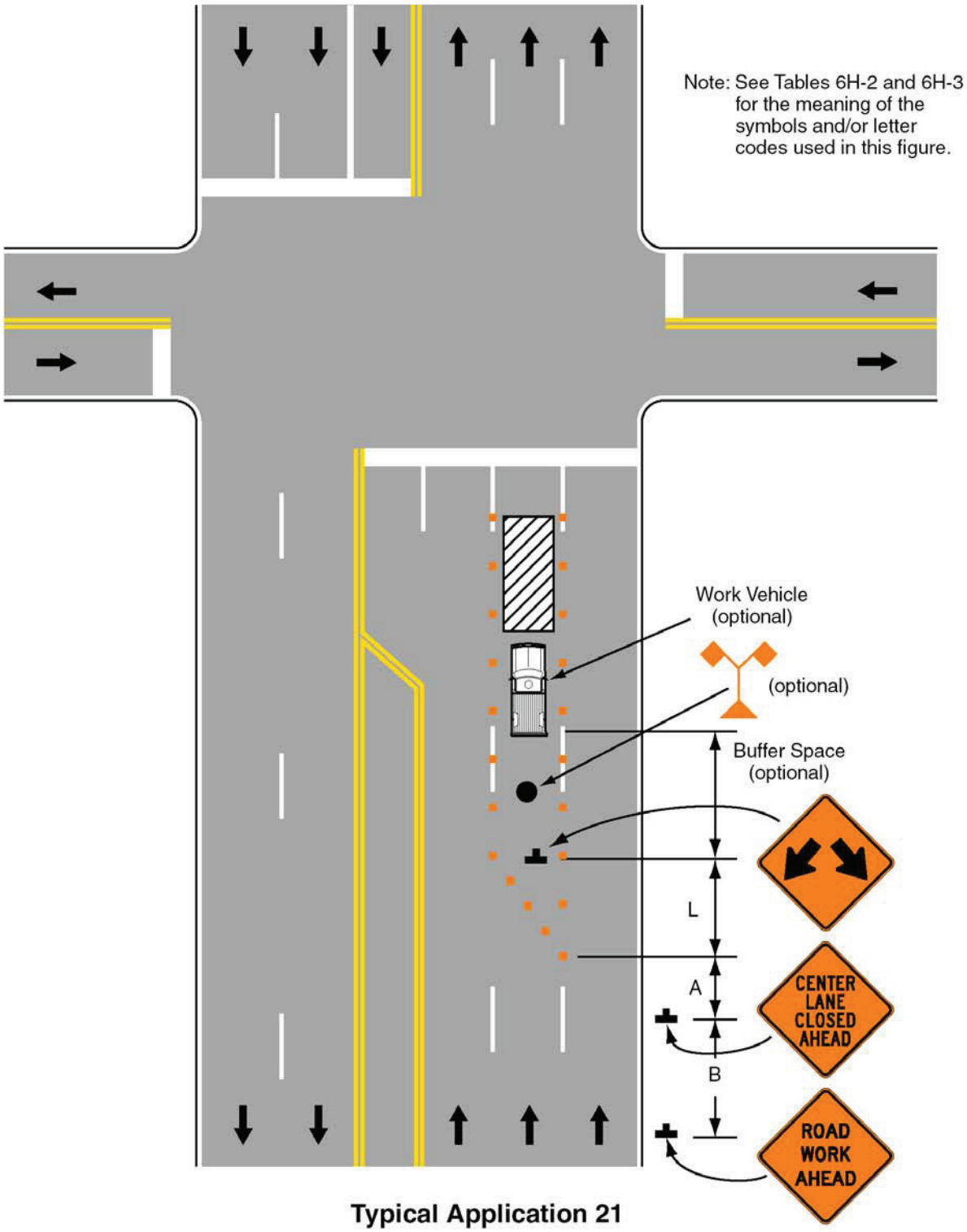
8. Vehicle hazard warning signals shall not be used instead of the vehicle's high-intensity rotating, flashing, oscillating, or strobe lights.

Option:

9. A vehicle-mounted arrow panel may be used to supplement this package.

(This space left intentionally blank)

Figure 6H-21. Lane Closure on Near Side of Intersection (TA-21)



Typical Application 21

Notes for Figure 6H-22—Typical Application 22

Right Lane Closure on Far Side of Intersection

Guidance:

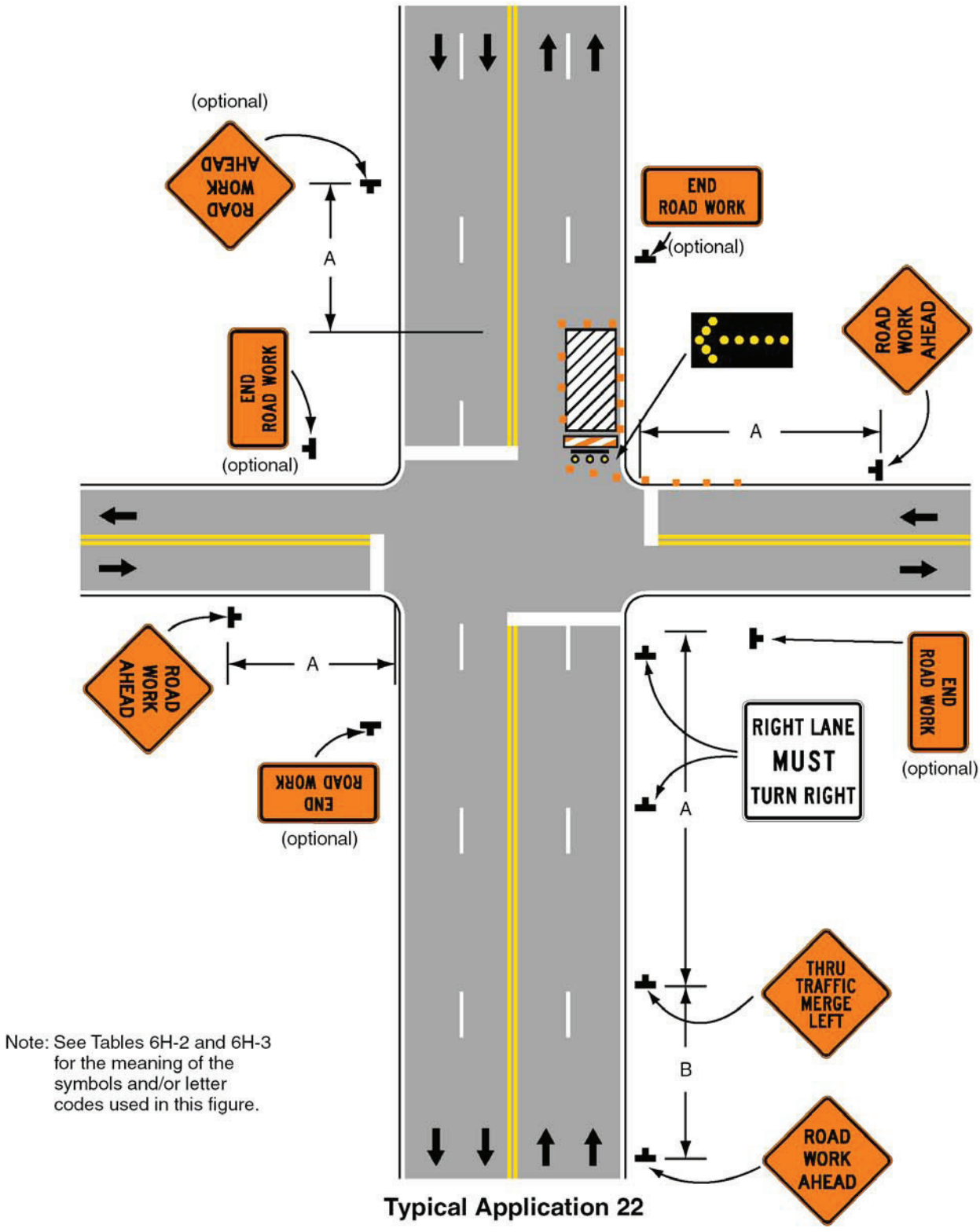
1. If the work space extends across a crosswalk, the crosswalk should be closed using the information and devices shown in Figure 6H-29.

Option:

2. The normal procedure is to close on the near side of the intersection any lane that is not carried through the intersection. However, when this results in the closure of a right lane having significant right turning movements, then the right lane may be restricted to right turns only, as shown. This procedure increases the through capacity by eliminating right turns from the open through lane.
3. For intersection approaches reduced to a single lane, left-turning movements may be prohibited to maintain capacity for through vehicular traffic.
4. Flashing warning lights and/or flags may be used to call attention to the advance warning signs.
5. Where the turning radius is large, it may be possible to create a right-turn island using channelizing devices or pavement markings.

(This space left intentionally blank)

Figure 6H-22. Right Lane Closure on Far Side of Intersection (TA-22)



Typical Application 22

Notes for Figure 6H-23—Typical Application 23

Left Lane Closure on Far Side of Intersection

Guidance:

1. If the work space extends across a crosswalk, the crosswalk should be closed using the information and devices shown in Figure 6H-29.

Option:

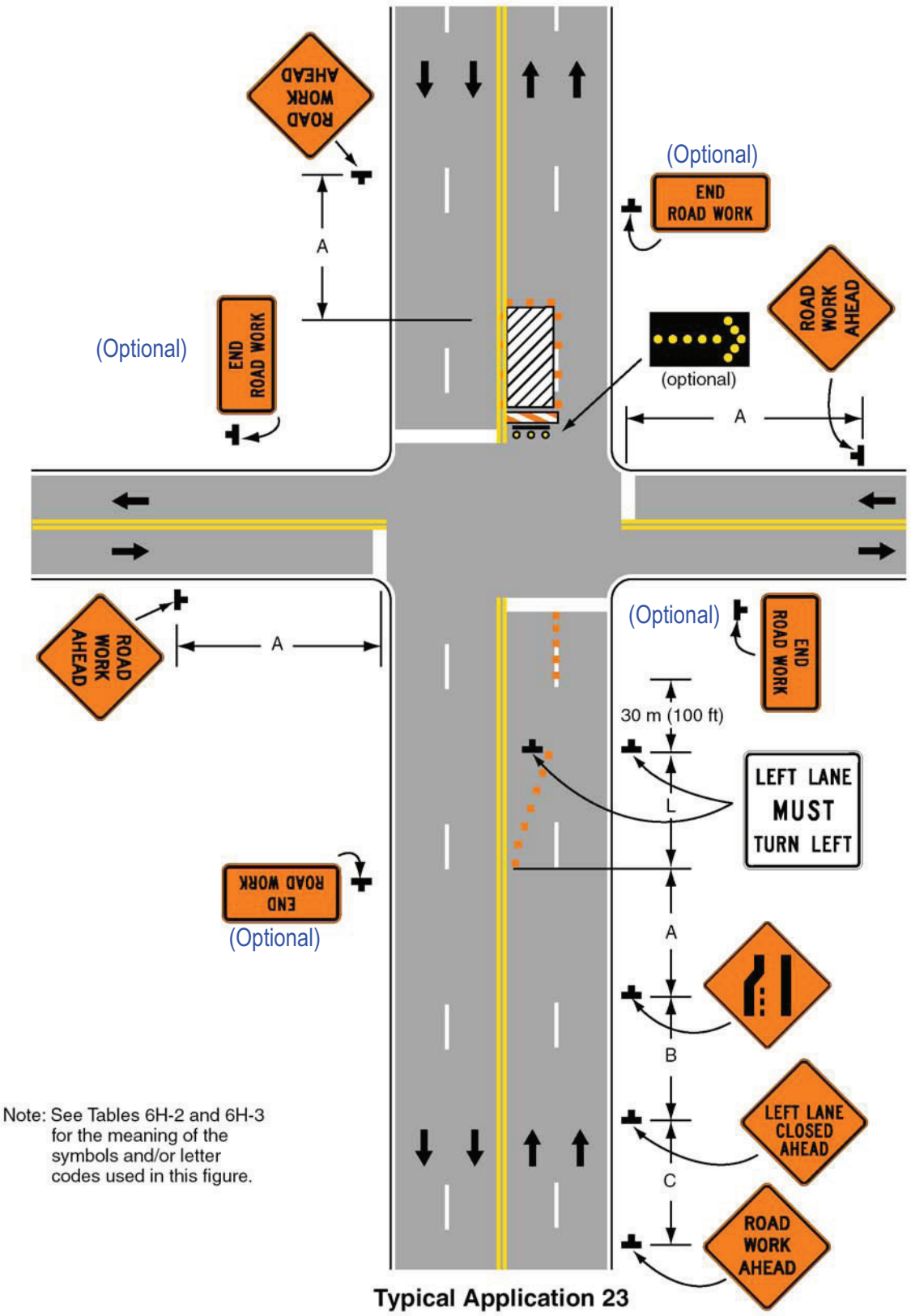
2. Flashing warning lights and/or flags may be used to call attention to the advance warning signs.
3. The normal procedure is to close on the near side of the intersection any lane that is not carried through the intersection. However, when this results in the closure of a left lane having significant left-turning movements, then the left lane may be reopened as a turn bay for left turns only, as shown.

Support:

4. By first closing off the left lane and then reopening it as a turn bay, an island is created with channelizing devices that allows the LEFT LANE MUST TURN LEFT sign to be repeated on the left adjacent to the lane that it controls.

(This space left intentionally blank)

Figure 6H-23. Left Lane Closure on Far Side of Intersection (TA-23)



Note: See Tables 6H-2 and 6H-3 for the meaning of the symbols and/or letter codes used in this figure.

Typical Application 23

Notes for Figure 6H-24—Typical Application 24

Half Road Closure on Far Side of Intersection

Guidance:

1. If the work space extends across a crosswalk, the crosswalk should be closed using the information and devices shown in Figure 6H-29.
2. When turn prohibitions are implemented, two turn prohibition signs should be used, one on the near side and, space permitting, one on the far side of the intersection.

Option:

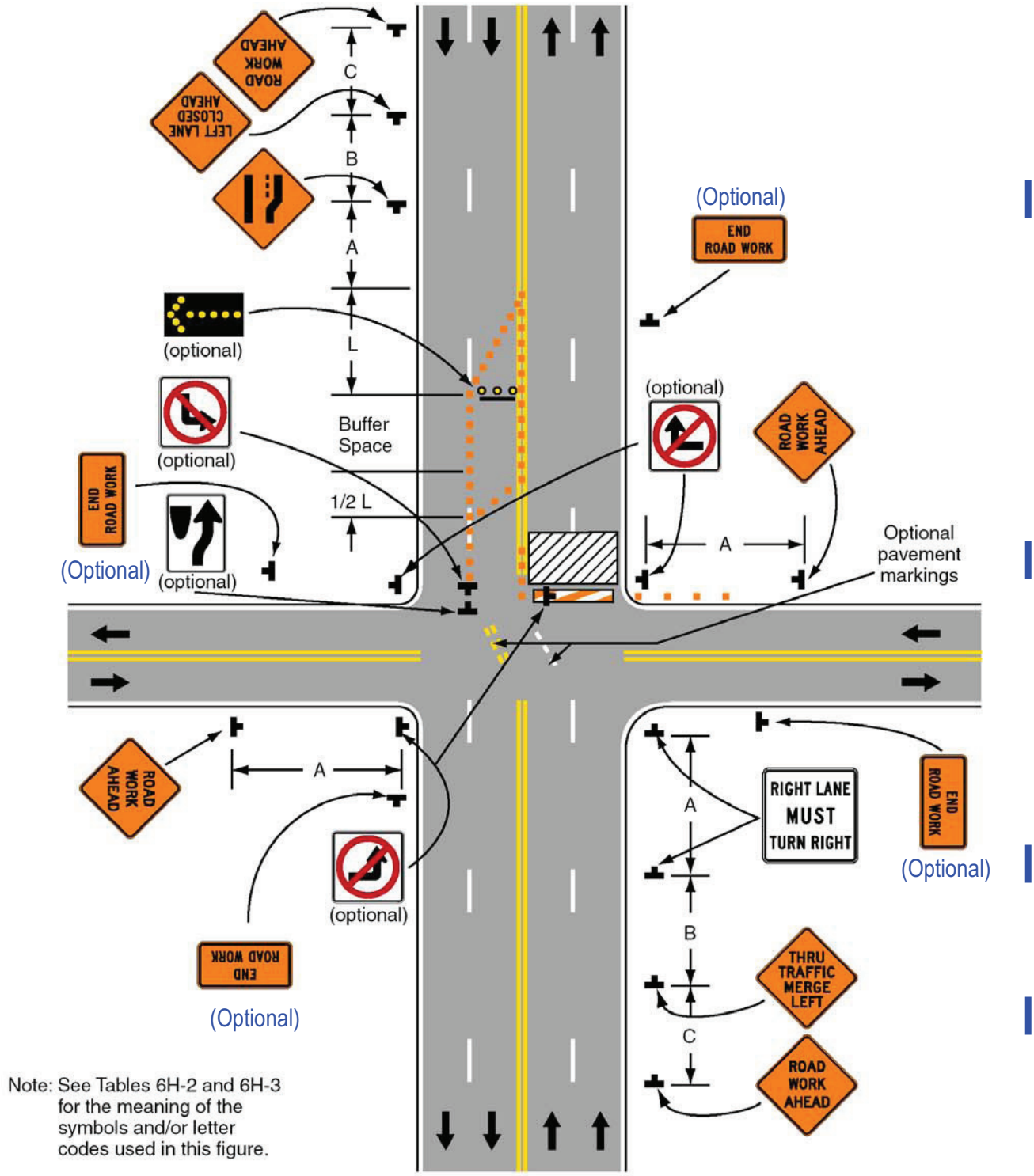
3. A buffer space may be used between opposing directions of vehicular traffic as shown in this application.
4. The normal procedure is to close on the near side of the intersection any lane that is not carried through the intersection. However, if there is a significant right-turning movement, then the right lane may be restricted to right turns only, as shown.
5. Where the turning radius is large, a right-turn island using channelizing devices or pavement markings may be used.
6. There may be insufficient space to place the back-to-back Keep Right sign and No Left Turn symbol signs at the end of the row of channelizing devices separating opposing vehicular traffic flows. In this situation, the No Left Turn symbol sign may be placed on the right and the Keep Right sign may be omitted.
7. For intersection approaches reduced to a single lane, left-turning movements may be prohibited to maintain capacity for through vehicular traffic.
8. Flashing warning lights and/or flags may be used to call attention to advance warning signs.
9. Temporary pavement markings may be used to delineate the travel path through the intersection.

Support:

10. Keeping the right lane open increases the through capacity by eliminating right turns from the open through lane.
11. A temporary turn island reinforces the nature of the temporary exclusive right-turn lane and enables a second RIGHT LANE MUST TURN RIGHT sign to be placed in the island.

(This space left intentionally blank)

Figure 6H-24. Half Road Closure on Far Side of Intersection (TA-24)



Note: See Tables 6H-2 and 6H-3 for the meaning of the symbols and/or letter codes used in this figure.

Typical Application 24

Notes for Figure 6H-25—Typical Application 25

Multiple Lane Closures at Intersection

Guidance:

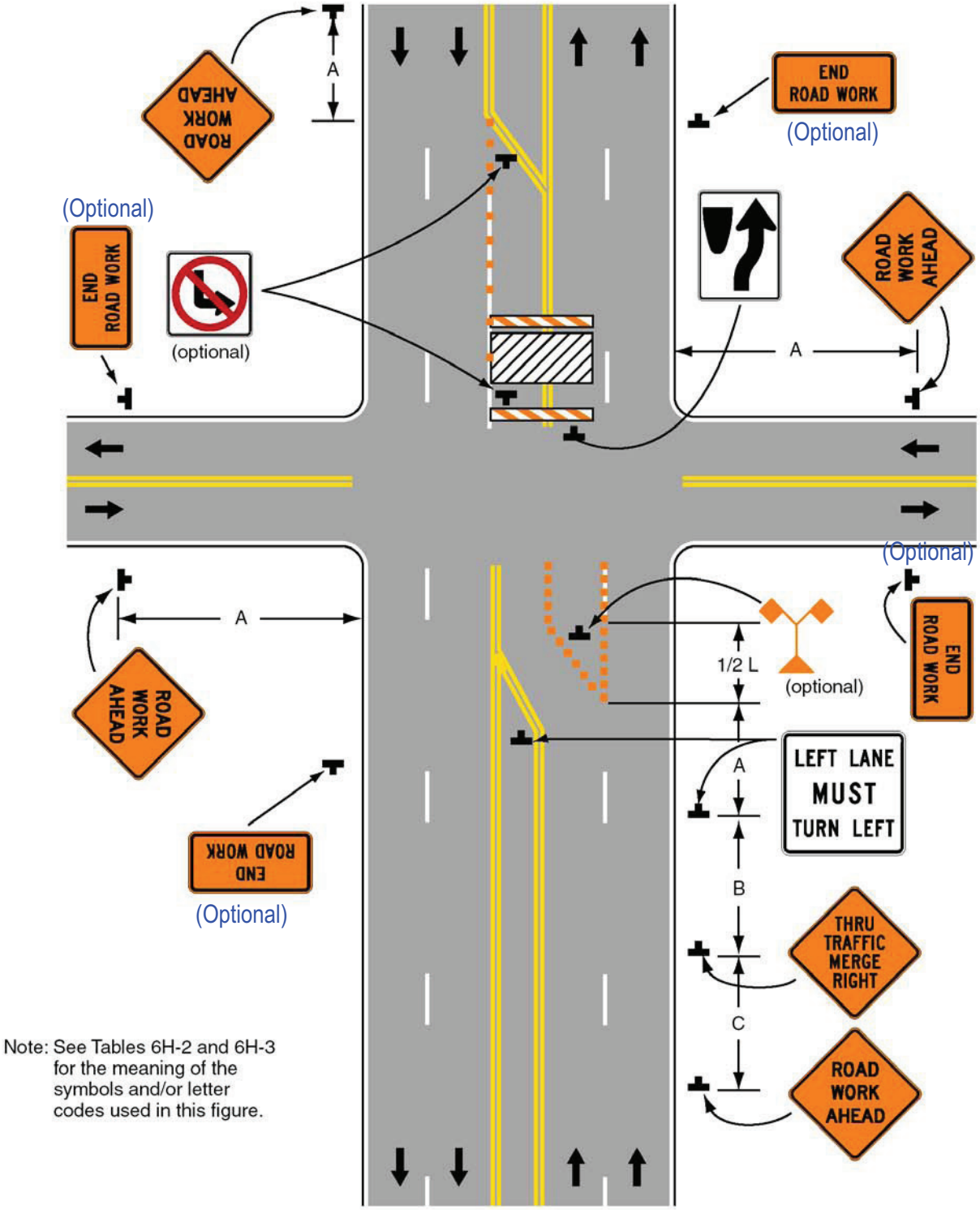
1. If the work space extends across a crosswalk, the crosswalk should be closed using the information and devices shown in Figure 6H-29.
2. If the left through lane is closed on the near-side approach, the LEFT LANE MUST TURN LEFT sign should be placed in the median to discourage through vehicular traffic from entering the left-turn bay.

Option:

3. The normal procedure is to close on the near side of the intersection any lane that is not carried through the intersection. If the left-turning movement that normally uses the closed turn bay is small and/or the gaps in opposing vehicular traffic are frequent, left turns may be permitted on that approach.
4. Flashing warning lights and/or flags may be used to call attention to the advance warning signs.

(This space left intentionally blank)

Figure 6H-25. Multiple Lane Closures at Intersection (TA-25)



Note: See Tables 6H-2 and 6H-3 for the meaning of the symbols and/or letter codes used in this figure.

Typical Application 25

Notes for Figure 6H-26—Typical Application 26

Closure in Center of Intersection

Guidance:

1. All lanes should be a minimum of 3 m (10 ft) in width as measured to the near face of the channelizing devices.

Option:

2. A high-level warning device may be placed in the work space, if there is sufficient room.
3. For short-term use on low-volume, low-speed roadways with vehicular traffic that does not include longer and wider heavy commercial vehicles, a minimum lane width of 2.7 m (9 ft) may be used.

Standard:

Note #3 is not applicable for State highways. Note #1 shall be used instead for State highways.

Option:

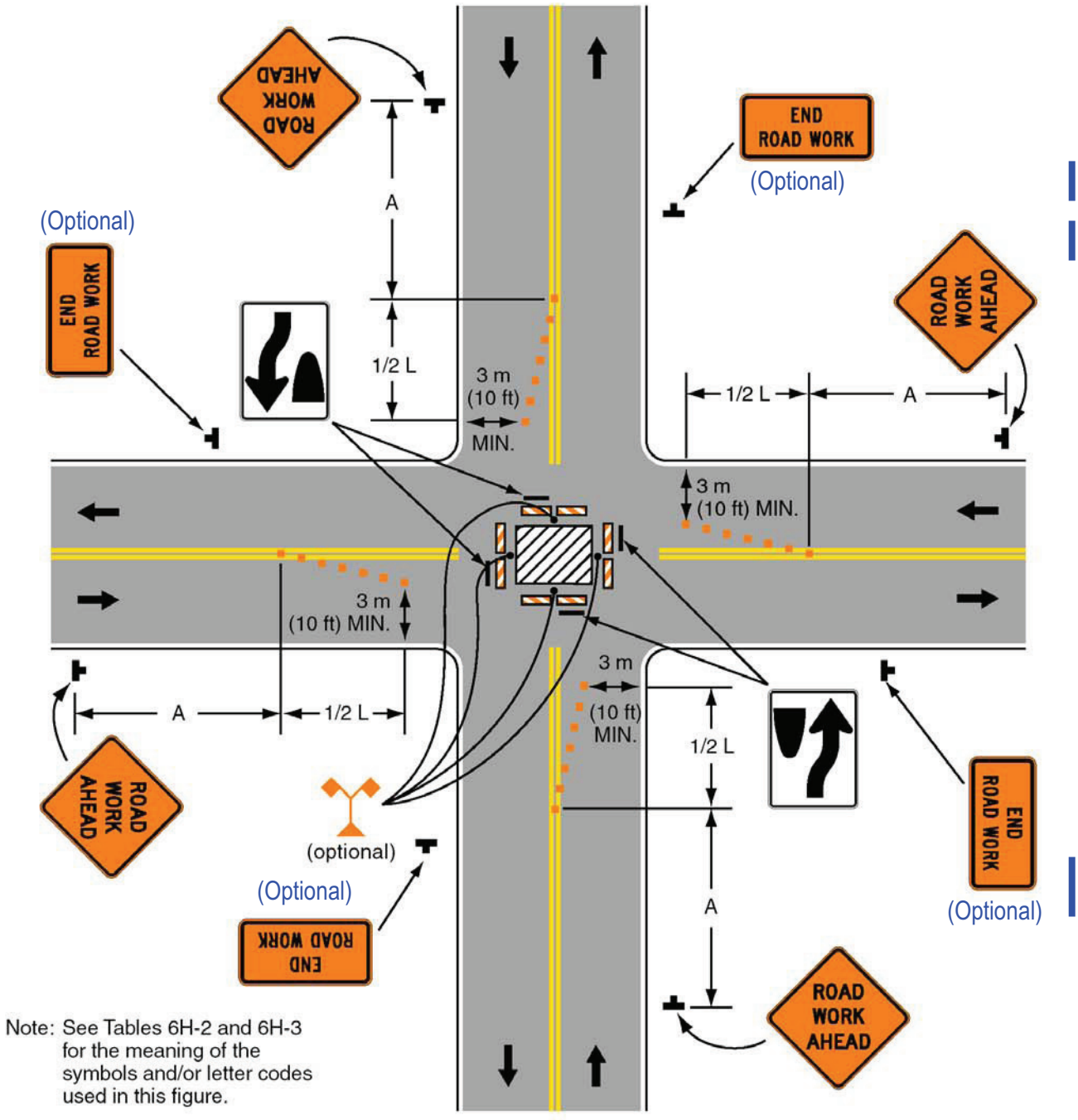
4. Flashing warning lights and/or flags may be used to call attention to advance warning signs.
5. Unless the streets are wide, it may be physically impossible to turn left, especially for large vehicles. Left turns may be prohibited as required by geometric conditions.
6. For short-duration work operations, the channelizing devices may be eliminated if a vehicle displaying high-intensity rotating, flashing, oscillating, or strobe lights is positioned in the work space.
7. Vehicle hazard warning signals may be used to supplement high-intensity rotating, flashing, oscillating, or strobe lights.

Standard:

8. Vehicle hazard warning signals shall not be used instead of the vehicle's high-intensity rotating, flashing, oscillating, or strobe lights.

(This space left intentionally blank)

Figure 6H-26. Closure in Center of Intersection (TA-26)



Typical Application 26

Notes for Figure 6H-27—Typical Application 27

Closure at Side of Intersection

Guidance:

1. The situation depicted can be simplified by closing one or more of the intersection approaches. If this cannot be done, and/or when capacity is a problem, through vehicular traffic should be directed to other roads or streets.
2. Depending on road user conditions, flagger(s) or uniformed law enforcement officer(s) should be used to direct road users within the intersection.

Standard:

3. At night, flagger stations shall be illuminated, except in emergencies.

Option:

4. ONE LANE ROAD AHEAD signs may also be used to provide adequate advance warning.
5. Flashing warning lights and/or flags may be used to call attention to the advance warning signs.
6. For short-duration work operations, the channelizing devices may be eliminated if a vehicle displaying high-intensity rotating, flashing, oscillating, or strobe lights is positioned in the work space.
7. A BE PREPARED TO STOP sign may be added to the sign series.

Guidance:

8. When used, the BE PREPARED TO STOP sign should be located ~~before~~ after the Flagger symbol sign.

Support:

9. Turns can be prohibited as required by vehicular traffic conditions. Unless the streets are wide, it might be physically impossible to make certain turns, especially for large vehicles.

Option:

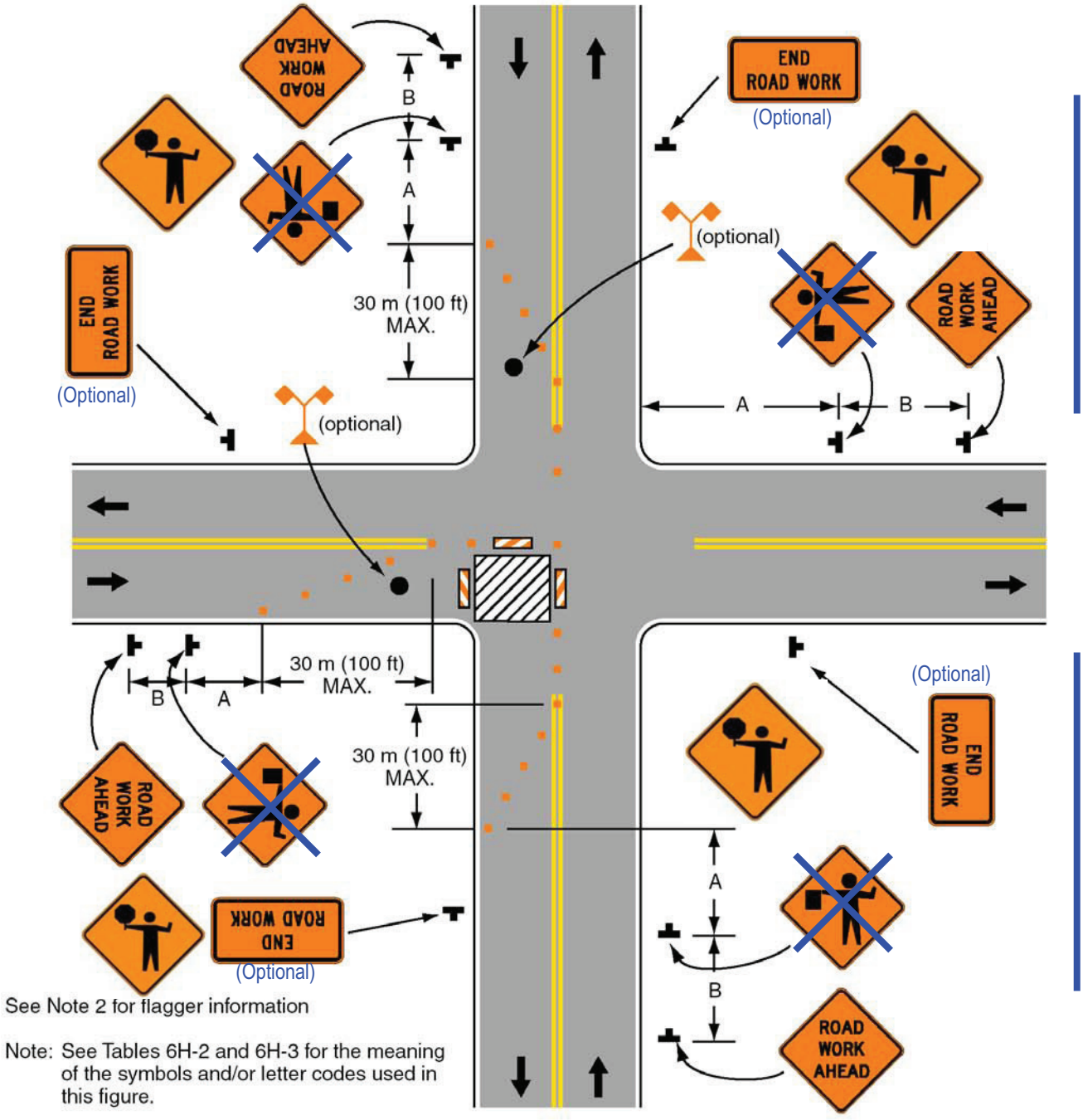
10. Vehicle hazard warning signals may be used to supplement high-intensity rotating, flashing, oscillating, or strobe lights.

Standard:

11. Vehicle hazard warning signals shall not be used instead of the vehicle's high-intensity rotating, flashing, oscillating, or strobe lights.

(This space left intentionally blank)

Figure 6H-27. Closure at Side of Intersection (TA-27)



Typical Application 27

Notes for Figure 6H-28—Typical Application 28

Sidewalk Closures and Bypass Sidewalks

Standard:

1. When crosswalks or other pedestrian facilities are closed or relocated, temporary facilities shall be detectable and shall include accessibility features consistent with the features present in the existing pedestrian facility.

Guidance:

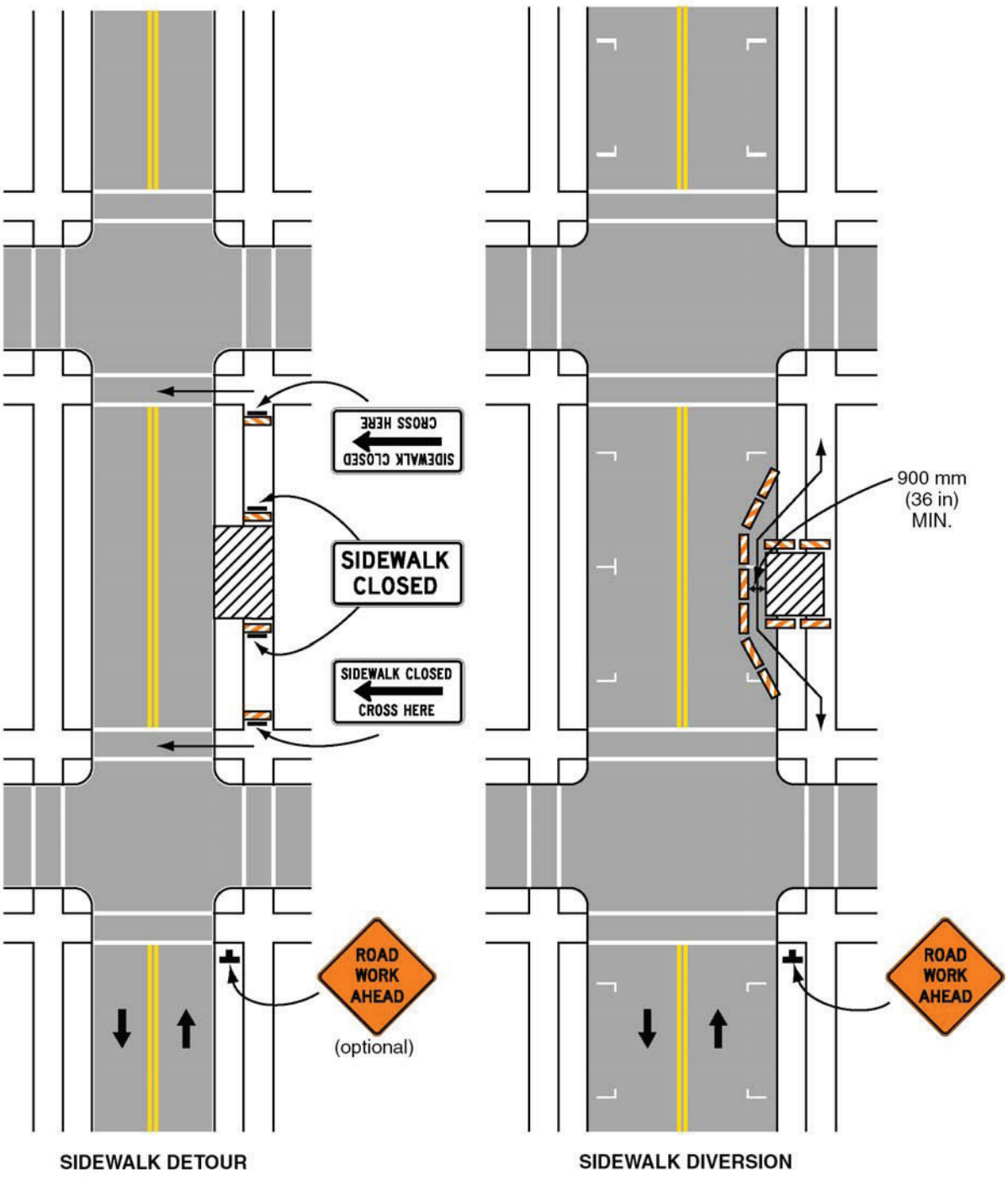
2. Where high speeds are anticipated, a temporary traffic barrier and, if necessary, a crash cushion should be used to separate the temporary sidewalks from vehicular traffic.
3. Audible information devices should be considered where midblock closings and changed crosswalk areas cause inadequate communication to be provided to pedestrians who have visual disabilities.

Option:

4. Street lighting may be considered.
5. Only the TTC devices related to pedestrians are shown. Other devices, such as lane closure signing or ROAD NARROWS signs, may be used to control vehicular traffic.
6. For nighttime closures, Type A Flashing warning lights may be used on barricades that support signs and close sidewalks.
7. Type C Steady-Burn or Type D 360-degree Steady-Burn warning lights may be used on channelizing devices separating the temporary sidewalks from vehicular traffic flow.
8. Signs, such as KEEP RIGHT (LEFT), may be placed along a temporary sidewalk to guide or direct pedestrians.

(This space left intentionally blank)

Figure 6H-28. Sidewalk Detour or Diversion (TA-28)



Typical Application 28

Note: See Tables 6H-2 and 6H-3 for the meaning of the symbols and/or letter codes used in this figure.

Notes for Figure 6H-29—Typical Application 29

Crosswalk Closures and Pedestrian Detours

Standard:

1. When crosswalks or other pedestrian facilities are closed or relocated, temporary facilities shall be detectable and shall include accessibility features consistent with the features present in the existing pedestrian facility.

~~**2. Curb parking shall be prohibited for at least 15 m (50 ft) in advance of the midblock crosswalk.**~~

Guidance:

2. Parking should be prohibited in advance of mid-block crosswalks. Mid-block crosswalks should be avoided, when possible. See Section 3B.17.

3. Audible information devices should be considered where midblock closings and changed crosswalk areas cause inadequate communication to be provided to pedestrians who have visual disabilities.

4. Pedestrian traffic signal displays controlling closed crosswalks should be covered or deactivated.

Option:

5. Street lighting may be considered.

6. Only the TTC devices related to pedestrians are shown. Other devices, such as lane closure signing or ROAD NARROWS signs, may be used to control vehicular traffic.

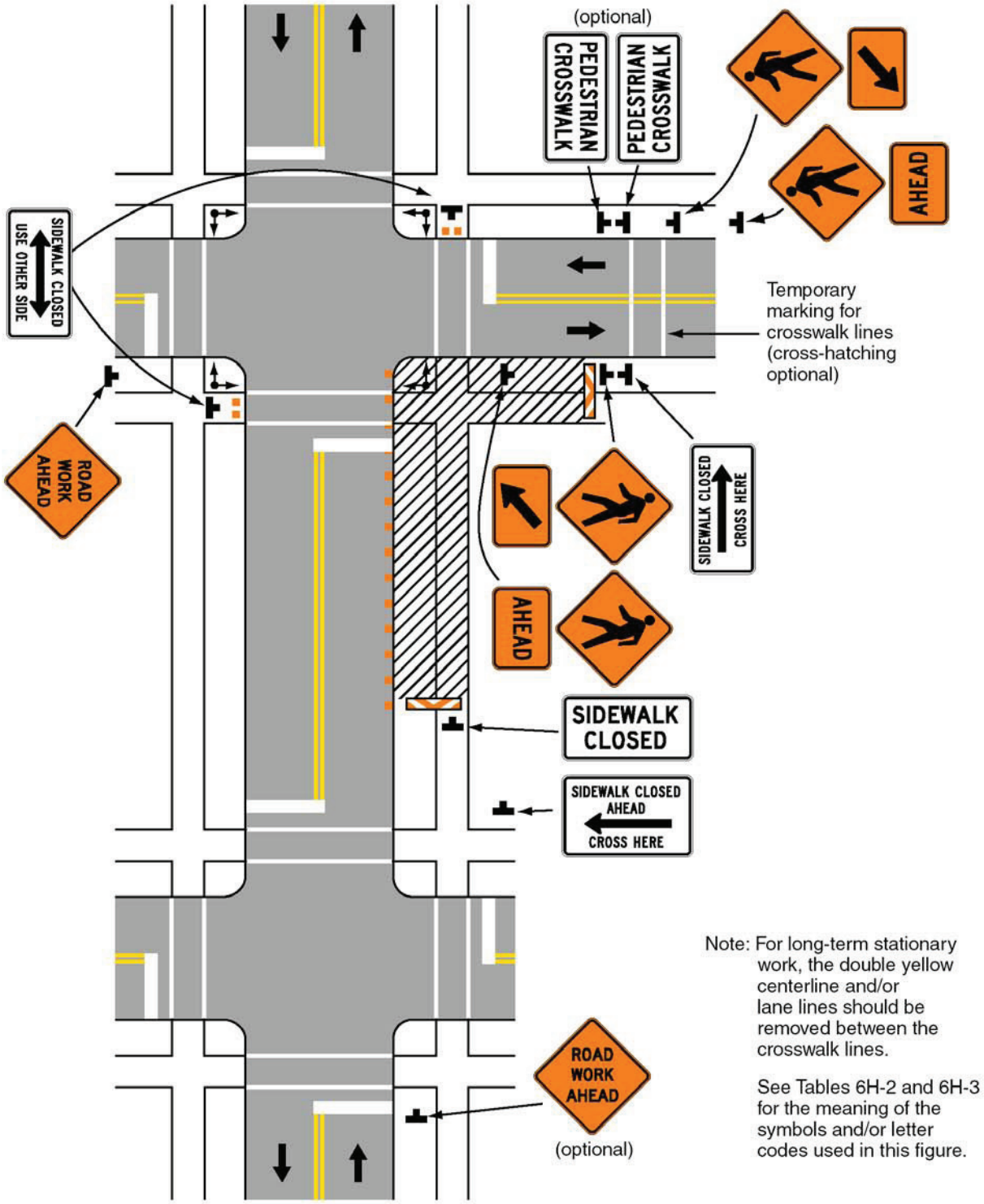
7. For nighttime closures, Type A Flashing warning lights may be used on barricades supporting signs and closing sidewalks.

8. Type C Steady-Burn warning lights may be used on channelizing devices separating the work space from vehicular traffic.

9. In order to maintain the systematic use of the fluorescent yellow-green background for pedestrian, bicycle, and school warning signs in a jurisdiction, the fluorescent yellow-green background for pedestrian, bicycle, and school warning signs may be used in TTC zones.

(This space left intentionally blank)

Figure 6H-29. Crosswalk Closures and Pedestrian Detours (TA-29)



Typical Application 29

Notes for Figure 6H-30—Typical Application 30

Interior Lane Closure on Multi-lane Street

Guidance:

1. This information applies to low-speed, low-volume urban streets. Where speed or volume is higher, additional signing such as LEFT LANE CLOSED XX ~~m~~ (FT) should be used between the signs shown.

Option:

2. The closure of the adjacent interior lane in the opposing direction may not be necessary, depending upon the activity being performed and the work space needed for the operation.
3. Shadow vehicles with a truck-mounted attenuator may be used.

Guidance:

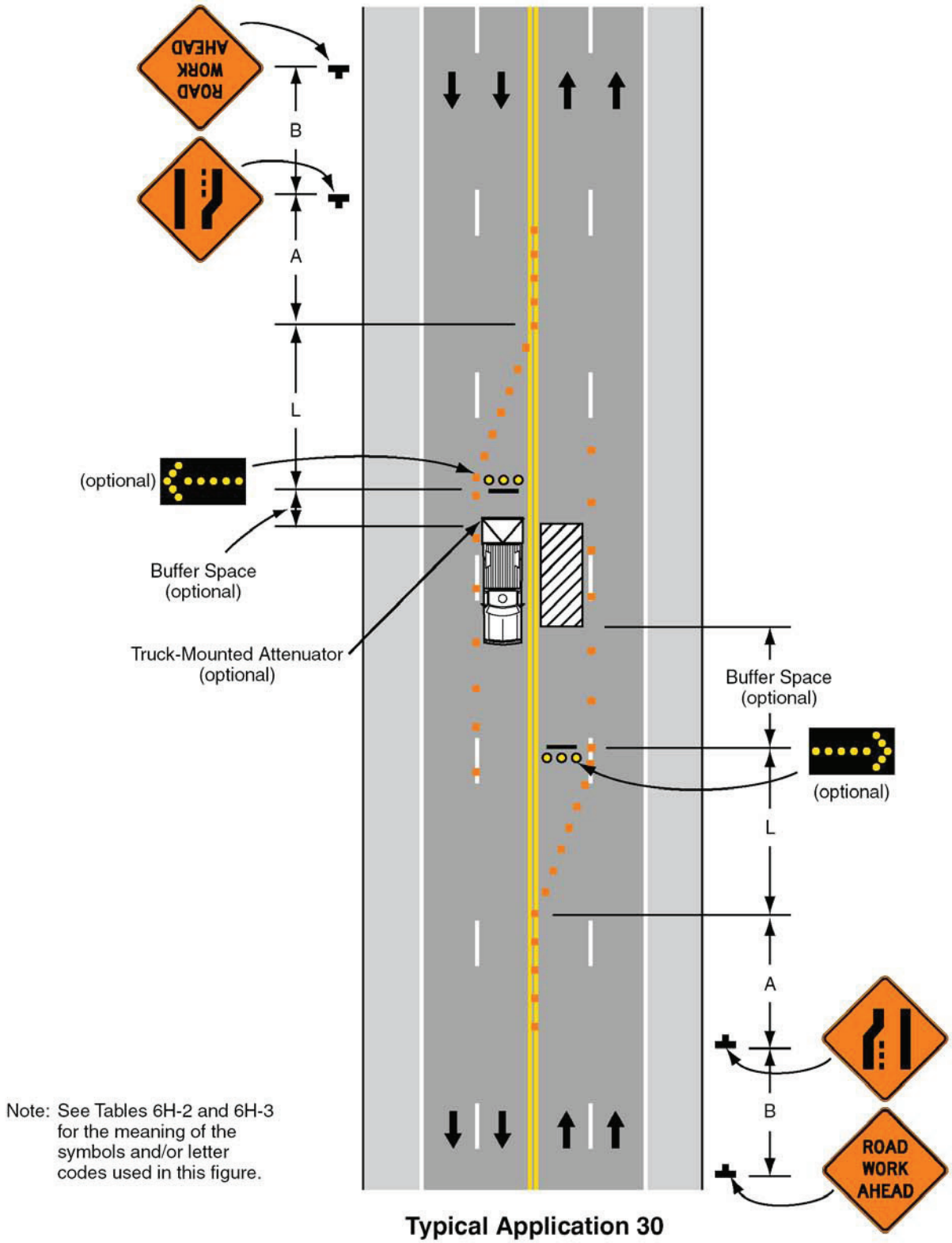
4. When a highway-rail grade crossing exists within or upstream of the transition area and it is anticipated that backups resulting from the lane closure might extend through the highway-rail grade crossing, the TTC zone should be extended so that the transition area precedes the highway-rail grade crossing.
5. Early coordination with the railroad company should occur before work starts.

Option:

6. The RIGHT (LEFT) LANE(S) CLOSED (W20-5) sign may be used instead of the Lane Reduction (W4-2) sign.

(This space left intentionally blank)

Figure 6H-30. Interior Lane Closure on Multi-lane Street (TA-30)



Note: See Tables 6H-2 and 6H-3 for the meaning of the symbols and/or letter codes used in this figure.

Typical Application 30

Notes for Figure ~~6H-31~~ 6H-31(CA)—Typical Application 31

Lane Closure on Street with Uneven Directional Volumes

Standard:

1. The illustrated information shall be used only when the vehicular traffic volume indicates that two lanes of vehicular traffic shall be maintained in the direction of travel for which one lane is closed.

Option:

2. The procedure may be used during a peak period of vehicular traffic and then changed to provide two lanes in the other direction for the other peak.

Guidance:

3. For high speeds, a LEFT LANE CLOSED XX ~~m~~ (FT) sign should be added for vehicular traffic approaching the lane closure, as shown in Figure ~~6H-32~~ 6H-32(CA).
4. Conflicting pavement markings should be removed for long-term projects. For short-term and intermediate-term projects where this is not practical, the channelizing devices in the area where the pavement markings conflict should be placed at a maximum spacing of 0.1 S m (0.5 S ft) where S is the speed in km /h (mph). Temporary markings should be installed where needed. The spacing of channelizing devices should not exceed the maximum distances shown in Table 6F-102(CA). Refer to Section 6F.58 for spacing of channelizing devices.
5. If the lane shift has curves with recommended speeds of 50 km/h (30 mph) or less, Reverse Turn signs should be used.
6. Where the shifted section is long, a Reverse Curve sign should be used to show the initial shift and a second sign should be used to show the return to the normal alignment.
7. If the tangent distance along the temporary diversion is less than 180 m (600 ft), the Double Reverse Curve sign should be used at the location of the first Two Lane Reverse Curve sign. The second Two Lane Reverse Curve sign should be omitted. Use the Reverse Curve (W1-4) signs for both locations instead of the Double Reverse Curve or Two Lane Reverse Curve signs.

Option:

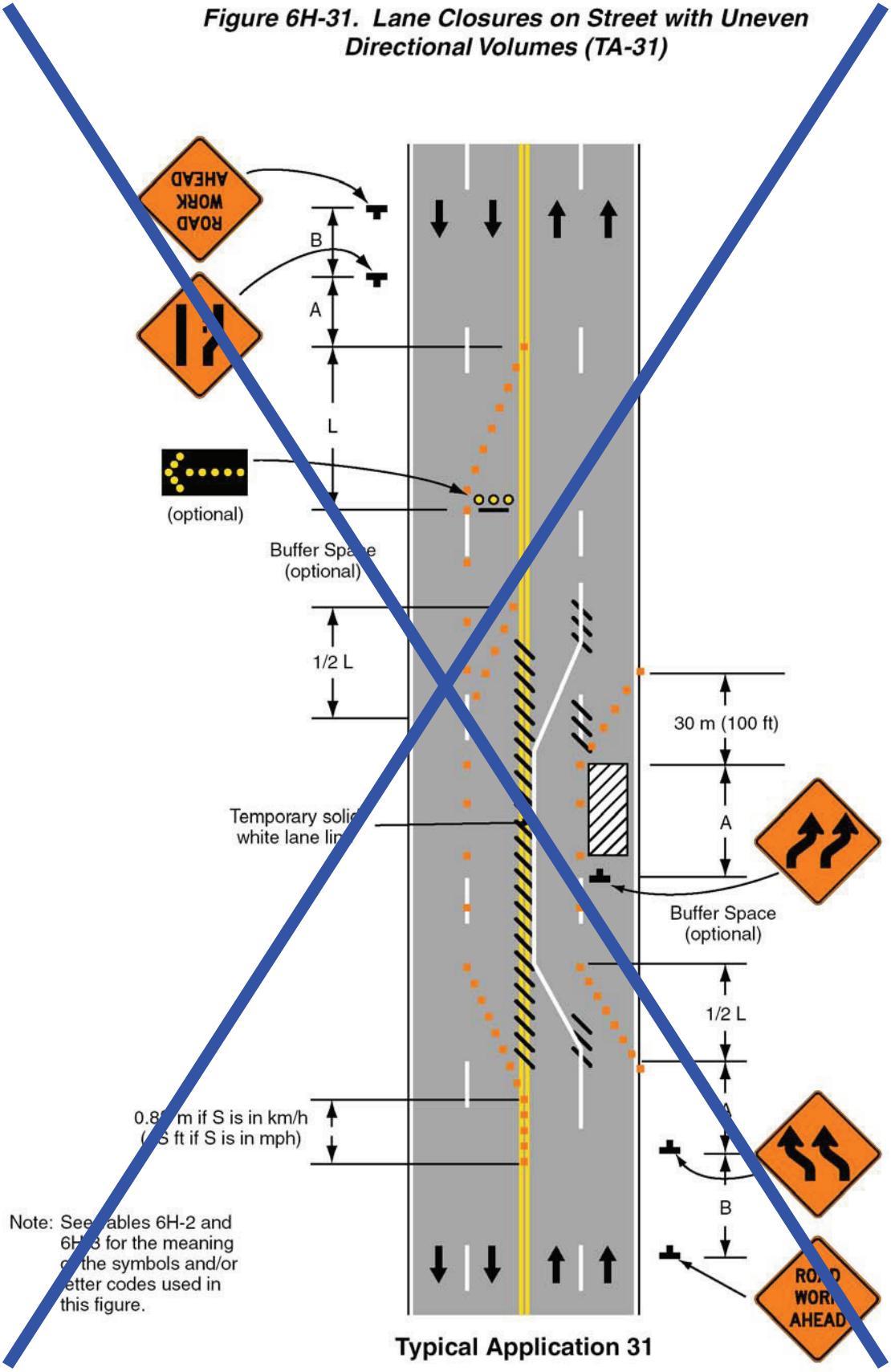
8. A longitudinal buffer space may be used in the activity area to separate opposing vehicular traffic.
9. An ALL LANES THRU supplemental plaque may be used to emphasize the point that all lanes shift and no lanes are closed. Use Reverse Curve (W1-4) sign instead of ALL LANES THRU Plaque.
10. A work vehicle or a shadow vehicle may be equipped with a truck-mounted attenuator.

Guidance:

11. On State highways a spacing of 3 m (10 ft) should be used for taper and tangent sections.

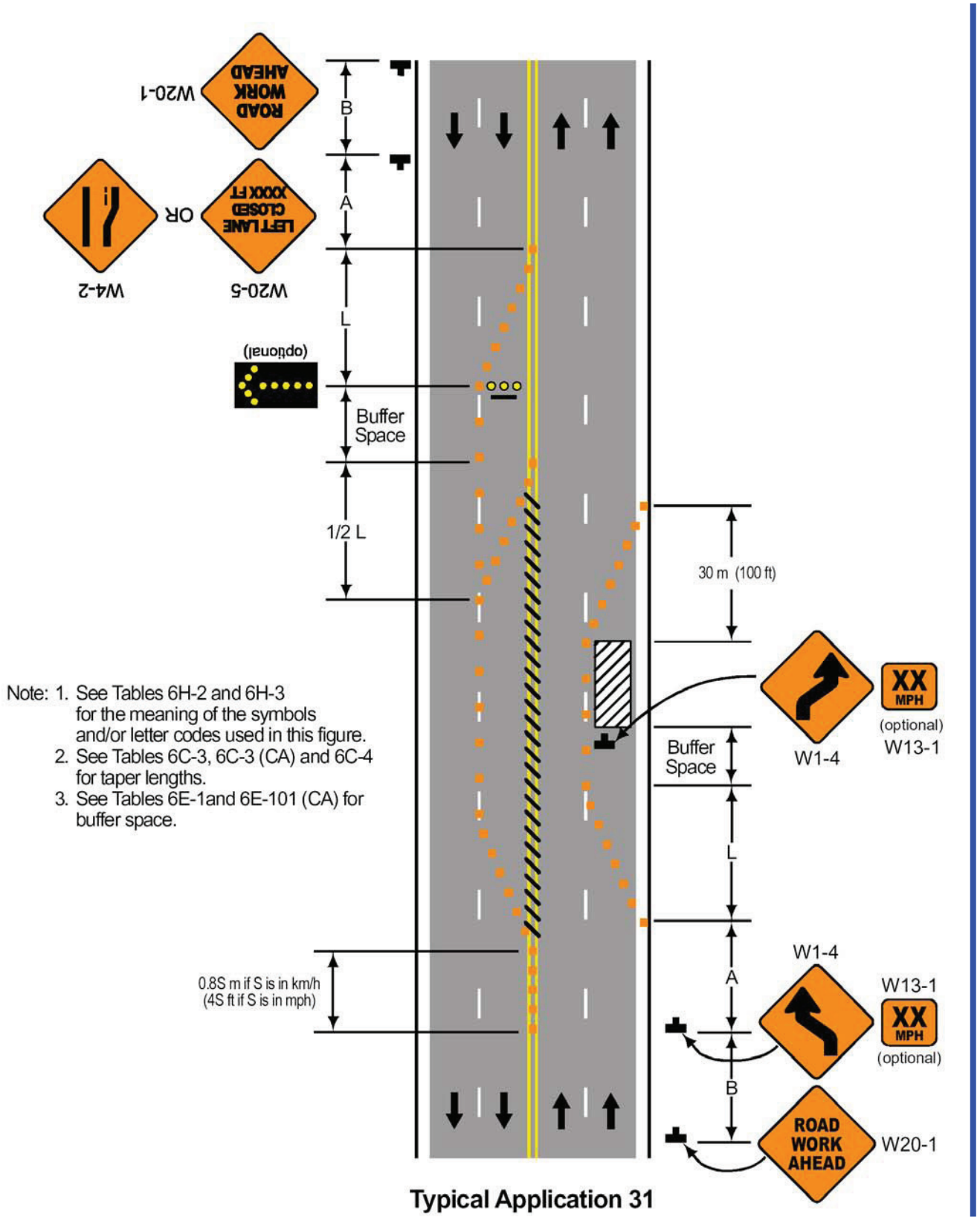
(This space left intentionally blank)

Figure 6H-31. Lane Closures on Street with Uneven Directional Volumes (TA-31)



Typical Application 31

Figure 6H-31 (CA). Lane Closures on Street with Uneven Directional Volumes (TA-31)



Typical Application 31

Notes for Figure ~~6H-32~~ 6H-32(CA)—Typical Application 32

Half Road Closure on Multi-lane, High-Speed Highway

Standard:

1. Pavement markings no longer applicable shall be removed or obliterated as soon as practical. Except for intermediate-term and short-term situations, temporary markings shall be provided to clearly delineate the temporary travel path. For short-term and intermediate-term situations where it is not feasible to remove and restore pavement markings, channelization shall be made dominant by using a very close device spacing.

Guidance:

2. When paved shoulders having a width of 2.4 m (8 ft) or more are closed, channelizing devices should be used to close the shoulder in advance of the merging taper to direct vehicular traffic to remain within the traveled way.
3. Where channelizing devices are used instead of pavement markings, the maximum spacing should be 0.1 S meters where S is the speed in km/h (0.5 S feet where S is the speed in mph). The spacing of channelizing devices should not exceed the maximum distances shown in Table 6F-102(CA). Refer to Section 6F.58 for spacing of channelizing devices.
4. If the tangent distance along the temporary diversion is more than 180 m (600 ft), a Reverse Curve sign, left first, should be used instead of the Double Reverse Curve sign, and a second Reverse Curve sign, right first, should be placed in advance of the second reverse curve back to the original alignment.

Option:

5. Warning lights may be used to supplement channelizing devices at night.

Guidance:

6. When a highway-rail grade crossing exists within or upstream of the merging taper and it is anticipated that backups resulting from the lane closure might extend through the highway-rail grade crossing, the TTC zone should be extended so that the merging taper precedes the highway-rail grade crossing.
7. When a highway-rail grade crossing exists within the activity area, provisions should be made to provide road users operating on the left side of the normal centerline with comparable warning devices as supplied for road users operating on the right side of the normal centerline.
8. When a highway-rail grade crossing exists within the activity area, early coordination with the railroad company should occur before work starts.

Option:

9. When a highway-rail grade crossing exists within the activity area, a flagger may be used at the highway-rail grade crossing to minimize the probability that vehicles are stopped within 4.6 m (15 ft) of the highway-rail grade crossing, measured from both sides of the outside rails.
10. A truck-mounted attenuator may be used on the work vehicle and/or the shadow vehicle.

Guidance:

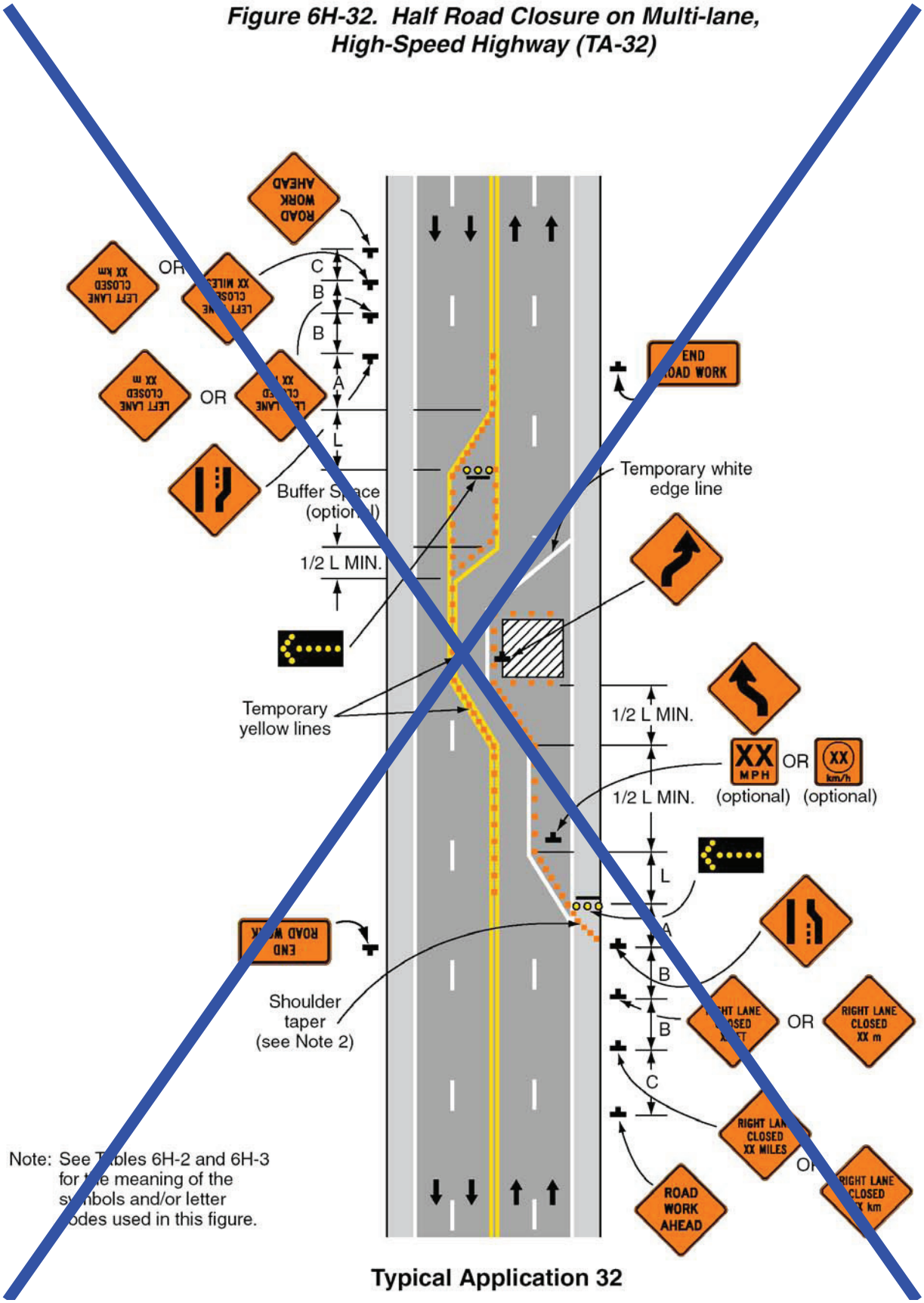
11. On State highways a spacing of 3 m (10 ft) should be used for taper and tangent sections.

Support:

12. See Section 6F.109(CA) for use of the Slow For The Cone Zone (SC19(CA) and SC20(CA)) Signs.

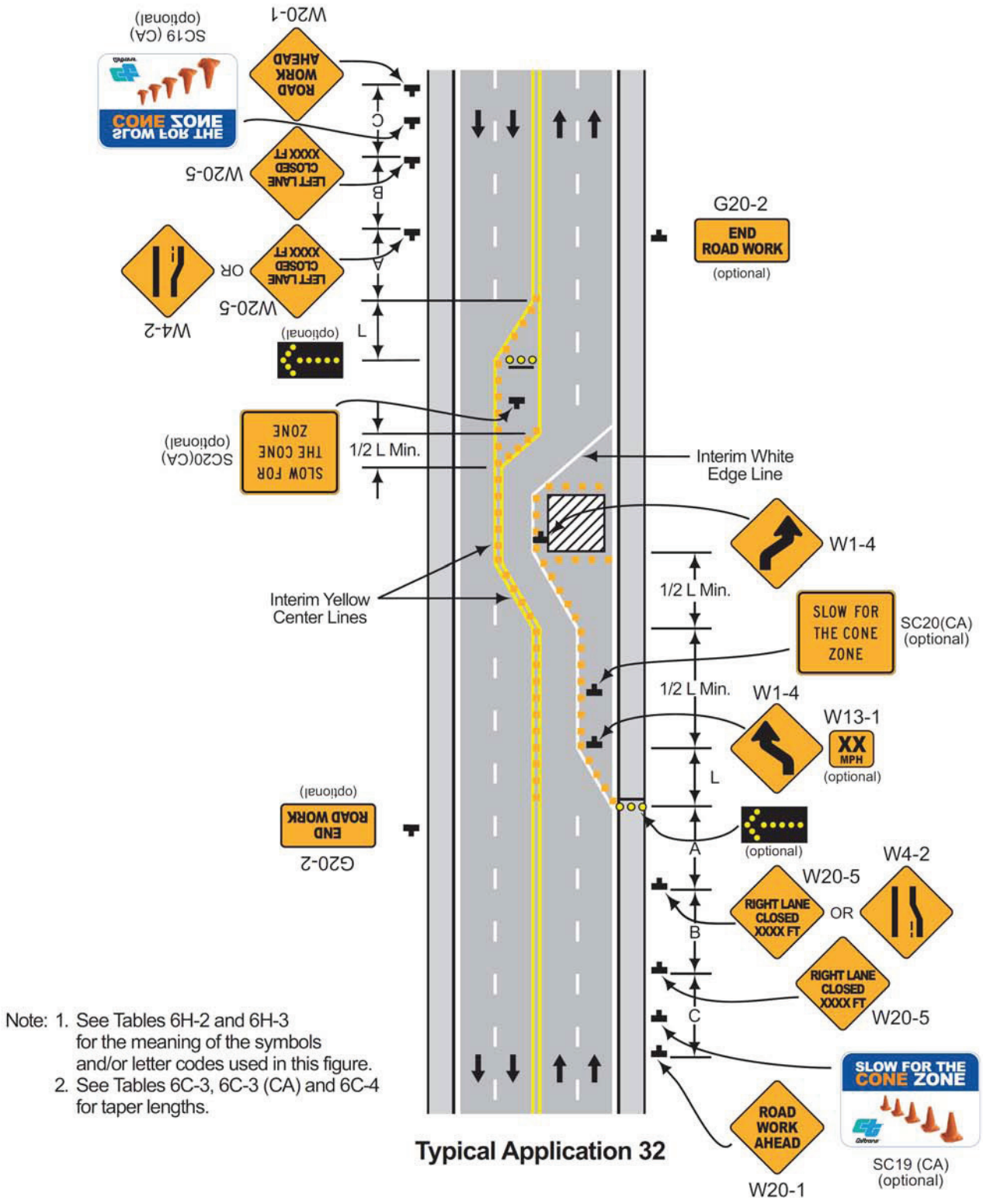
(This space left intentionally blank)

Figure 6H-32. Half Road Closure on Multi-lane, High-Speed Highway (TA-32)



Typical Application 32

Figure 6H-32 (CA). Half Road Closure on Multilane, High-Speed Highway (TA-32)



Note: 1. See Tables 6H-2 and 6H-3 for the meaning of the symbols and/or letter codes used in this figure.
2. See Tables 6C-3, 6C-3 (CA) and 6C-4 for taper lengths.

Typical Application 32

Notes for Figure 6H-33—Typical Application 33

Stationary Lane Closure on Divided Highway

Standard:

1. This information also shall be used when work is being performed in the lane adjacent to the median on a divided highway. In this case, the LEFT LANE CLOSED signs and the corresponding Lane Ends signs shall be substituted.

2. When a side road intersects the highway within the TTC zone, additional TTC devices shall be placed as needed.

Guidance:

3. When paved shoulders having a width of 2.4 m (8 ft) or more are closed, channelizing devices should be used to close the shoulder in advance of the merging taper to direct vehicular traffic to remain within the traveled way.

Option:

4. A truck-mounted attenuator may be used on the work vehicle and/or shadow vehicle.

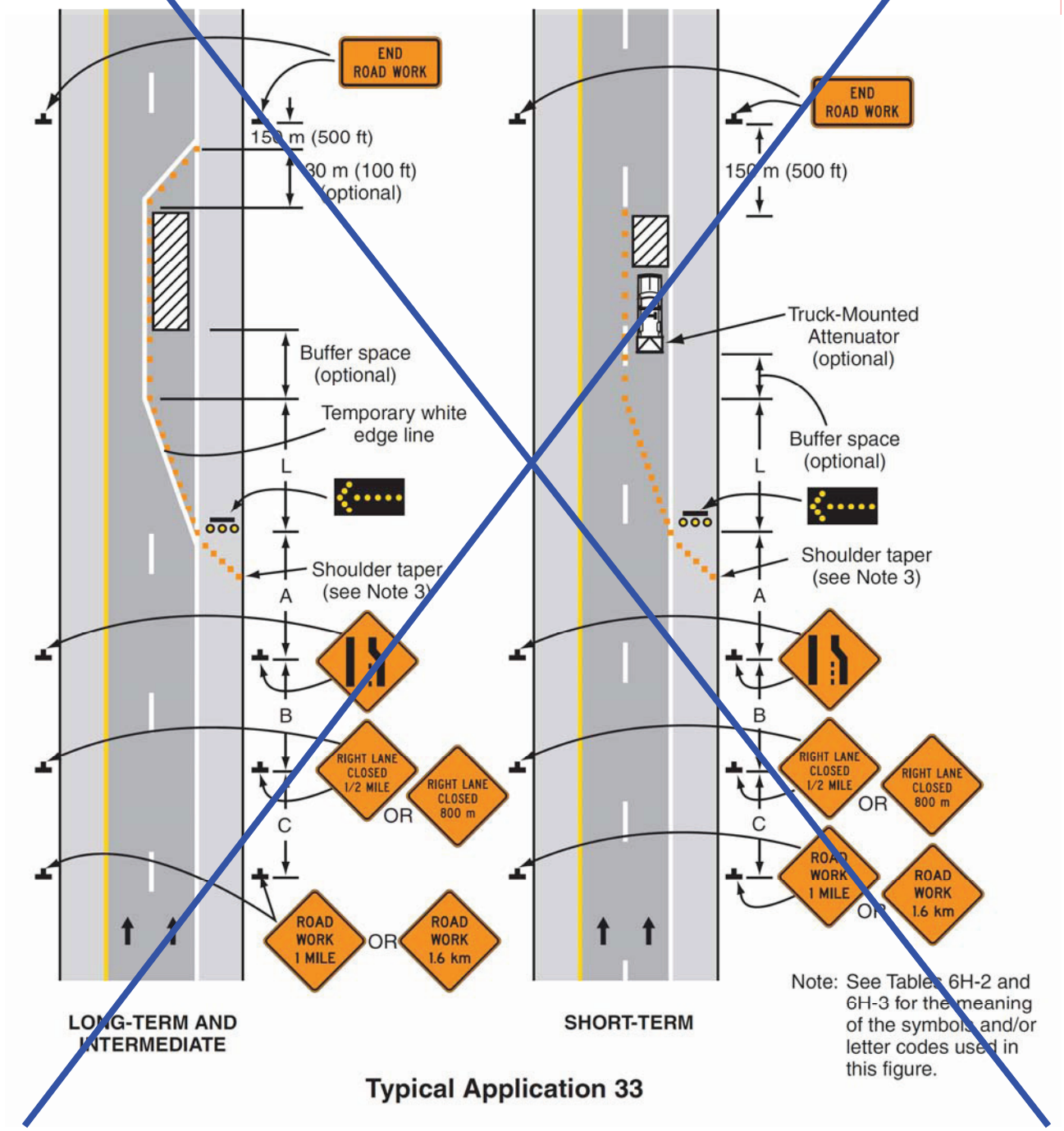
Support:

5. Where conditions permit, restricting all vehicles, equipment, workers, and their activities to one side of the roadway might be advantageous.

6. See Section 6F.109(CA) for use of the Slow For The Cone Zone (SC19(CA) and SC20(CA)) Signs.

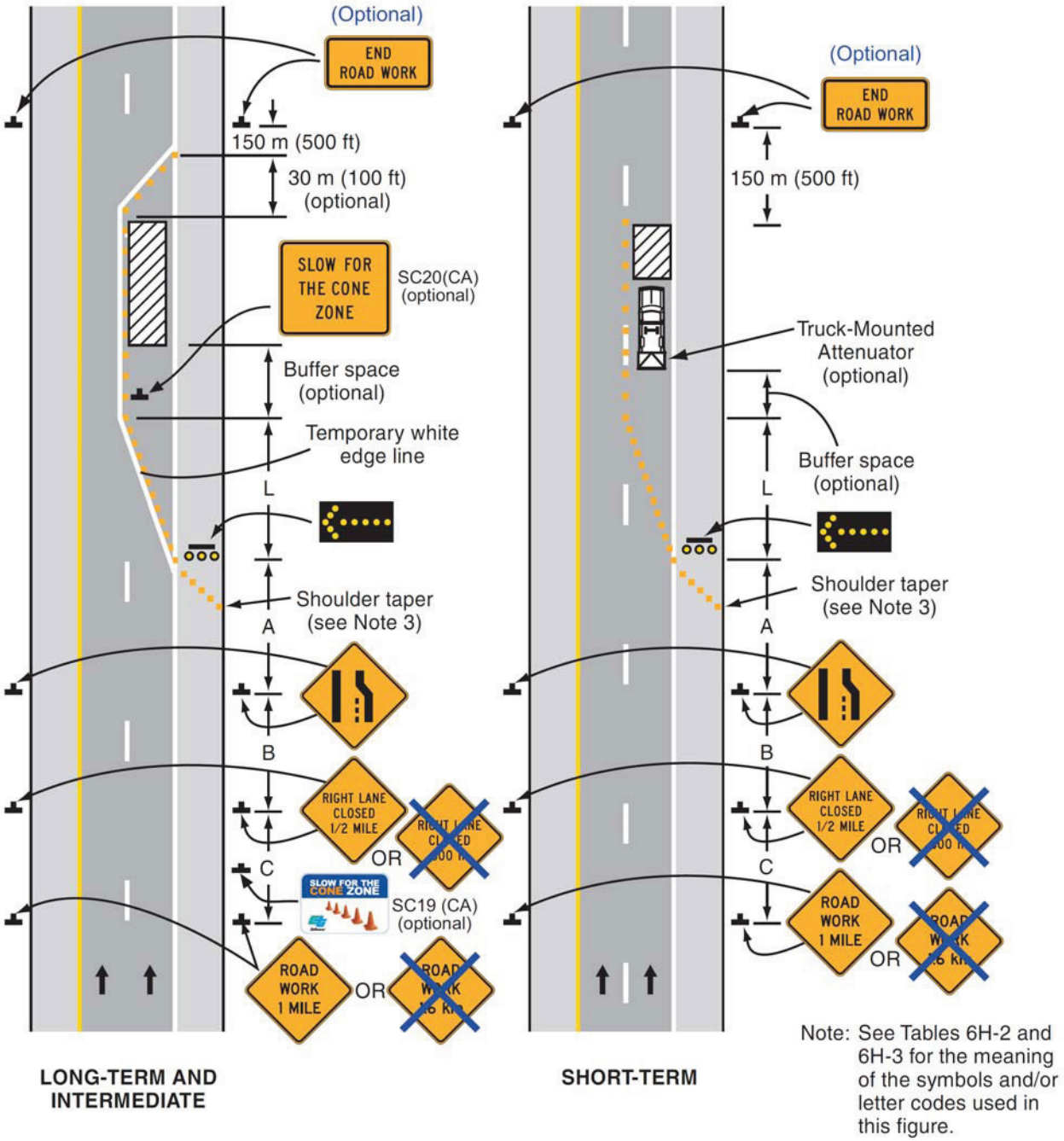
(This space left intentionally blank)

Figure 6H-33. Stationary Lane Closure on Divided Highway (TA-33)



Typical Application 33

Figure 6H-33 (CA). Stationary Lane Closure on Divided Highway (TA-33)



Typical Application 33

Notes for Figure 6H-34—Typical Application 34

Lane Closure with Temporary Traffic Barrier

Standard:

1. This information also shall be used when work is being performed in the lane adjacent to the median on a divided highway. In this case, the LEFT LANE CLOSED signs and the corresponding Lane Ends signs shall be substituted.

Guidance:

2. For long-term lane closures on facilities with permanent edge lines, a temporary edge line should be installed from the start of the merging taper to the far end of the downstream taper, and conflicting pavement markings should be removed.
3. The use of a barrier should be based on engineering judgment.

Standard:

4. Where temporary traffic barriers are installed, the ends of the barrier shall be treated in accordance with the provisions of Section 6F.81

5. The barrier shall not be placed along the merging taper. The lane shall first be closed using channelizing devices and pavement markings.

Option:

6. The barrier shown in this typical application is an example of one method that may be used to close a lane for a long-term project. If the work activity permits, a movable barrier may be used and relocated to the shoulder during nonwork periods or peak-period vehicular traffic conditions, as appropriate.
7. Type C Steady-Burn warning lights may be placed on channelizing devices and the barrier parallel to the edge of pavement for nighttime lane closures.

Standard:

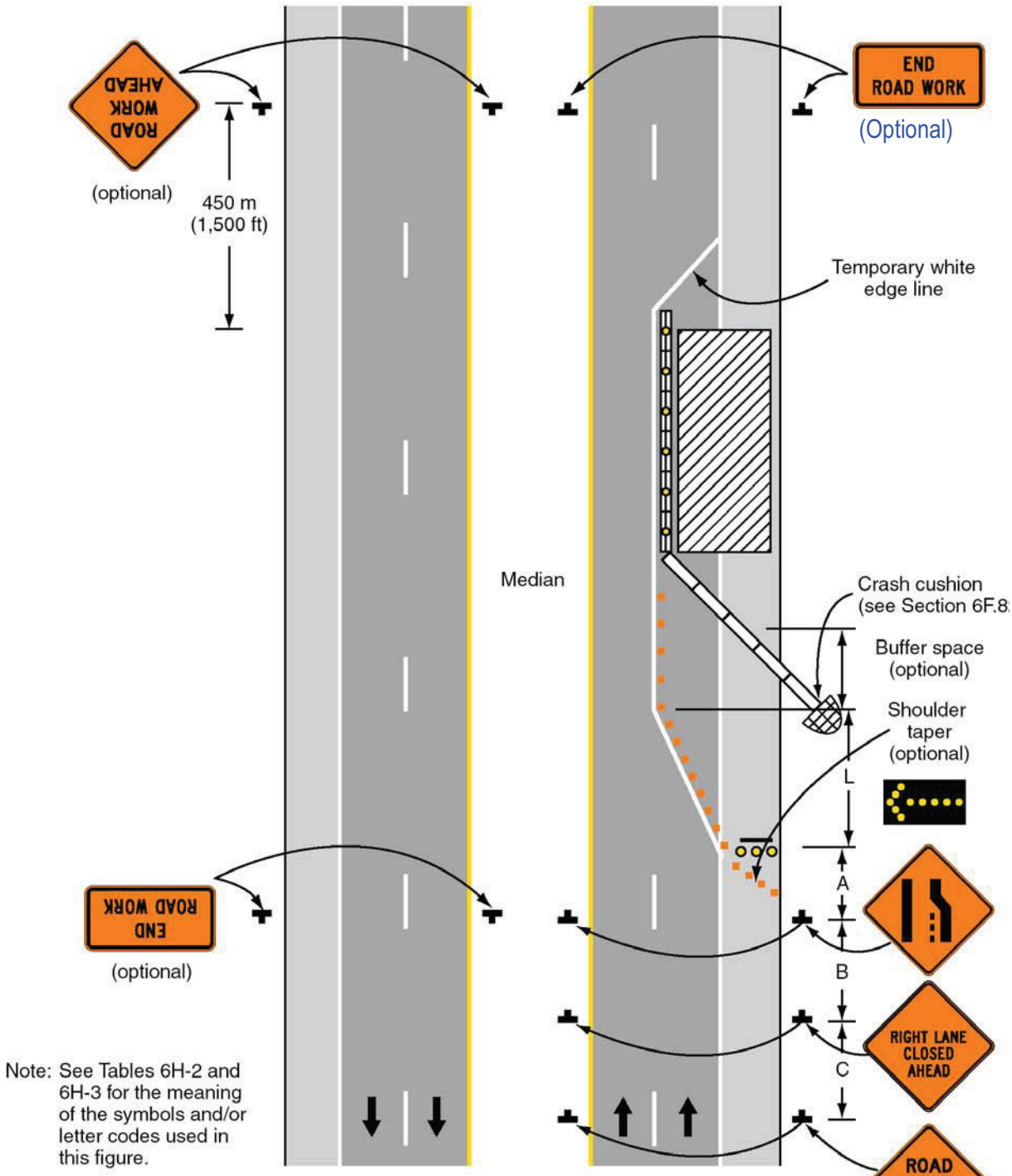
8. If a movable barrier is used, the temporary white edge line shown in the typical application shall not be used. During the period when the right lane is opened, the sign legends and the channelization shall be changed to indicate that only the shoulder is closed, as illustrated in Figure ~~6H-5~~ 6H-5(CA). The arrow panel, if used, shall be placed at the end of the shoulder taper and shall display the caution mode.

Guidance:

9. If a movable barrier is used, the shift should be performed in the following manner. When closing the lane, the lane should be initially closed with channelizing devices placed along a merging taper using the same information employed for a stationary lane closure. The lane closure should then be extended with the movable-barrier transfer vehicle moving with vehicular traffic. When opening the lane, the movablebarrier transfer vehicle should travel against vehicular traffic from the termination area to the transition area. The merging taper should then be removed using the same information employed for a stationary lane closure.

(This space left intentionally blank)

Figure 6H-34. Lane Closure with Temporary Traffic Barrier (TA-34)



Typical Application 34

Notes for Figure 6H-35—Typical Application 35

Mobile Operation on Multi-lane Road

Standard:

1. Arrow panels shall, as a minimum, be Type B, with a size of 1500 x 750 mm (60 x 30 in). For State highways, the arrow panels shall, as a minimum, be type B (or type II), with a size of 1800 x 900 mm (72 x 36 in). Refer to Department of Transportation's Standard Specifications Section 12-3.03 for minimum size and type of arrow panels cited above. See Section 1A.11 for information regarding this publication.

Guidance:

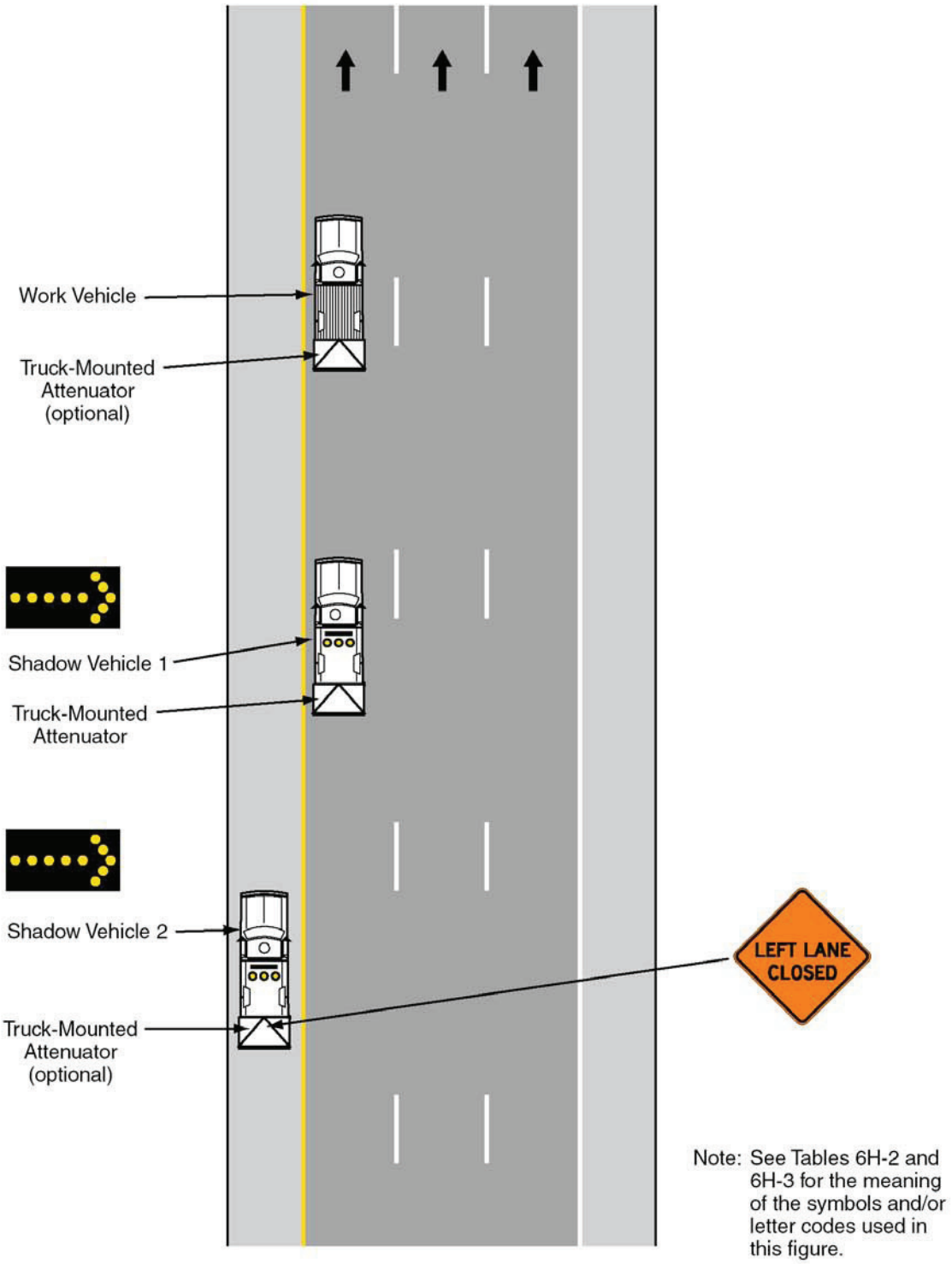
2. Vehicles used for these operations should be made highly visible with appropriate equipment, such as: high-intensity rotating, flashing, oscillating, or strobe lights, flags, signs, or arrow panels.
3. Shadow Vehicle 1 should be equipped with an arrow panel and truck-mounted attenuator.
4. Shadow Vehicle 2 should be equipped with an arrow panel. An appropriate lane closure sign should be placed on Shadow Vehicle 2 so as not to obscure the arrow panel.
5. Shadow Vehicle 2 should travel at a varying distance from the work operation so as to provide adequate sight distance for vehicular traffic approaching from the rear.
6. The spacing between the work vehicles and the shadow vehicles, and between each shadow vehicle should be minimized to deter road users from driving in between.
7. Work should normally be accomplished during off-peak hours.
8. When the work vehicle occupies an interior lane (a lane other than the far right or far left) of a directional roadway having a right shoulder 3 m (10 ft) or more in width, Shadow Vehicle 2 should drive the right shoulder with a sign indicating that work is taking place in the interior lane.

Option:

9. A truck-mounted attenuator may be used on Shadow Vehicle 2.
10. On high-speed roadways, a third shadow vehicle (not shown) may be used with Shadow Vehicle 1 in the closed lane, Shadow Vehicle 2 straddling the edge line, and Shadow Vehicle 3 on the shoulder.
11. Where adequate shoulder width is not available, Shadow Vehicle 3 may drive partially in the lane.

(This space left intentionally blank)

Figure 6H-35. Mobile Operation on Multi-lane Road (TA-35)



Typical Application 35

Notes for Figure 6H-36—Typical Application 36

Lane Shift on Freeway

Guidance:

1. The lane shift should be used when the work space extends into either the right or left lane of a divided highway and it is not practical, for capacity reasons, to reduce the number of available lanes.
2. When a lane shift is accomplished by using (1) geometry that meets the design speed at which the permanent highway was designed, (2) full normal cross-section (full lane width and full shoulders), and (3) complete pavement markings, then only the initial general work-zone warning sign is required.
3. When the conditions in Note 2 are not met, the information shown in the typical application should be employed and all the following notes apply.

Standard:

4. Where temporary traffic barriers are installed, the ends of the barrier shall be treated in accordance with the provisions of Section 6F.81.

5. A warning sign shall be used to show the changed alignment.

Guidance:

6. Where the shifted section is longer than 180 m (600 ft), one set of Reverse Curve signs should be used to show the initial shift and a second set should be used to show the return to the normal alignment. If the tangent distance along the temporary diversion is less than 180 m (600 ft), the Double Reverse Curve sign should be used instead of the first Reverse Curve sign. The second Reverse Curve sign should be omitted. Use the Reverse Curve (W1-4) signs for both locations instead of the Double Reverse Curve (W24-1) sign.
7. If a STAY IN LANE sign is used, then solid white lane lines should be used.

Standard:

8. The minimum width of the shoulder lane shall be 3 m (10 ft).

9. For long-term stationary work, existing conflicting pavement markings shall be removed and temporary markings shall be installed before traffic patterns are changed.

Option:

10. For short-term stationary work, lanes may be delineated by channelizing devices or removable pavement markings instead of temporary pavement markings.
11. ~~Three Lane Reverse Curve signs may be used in place of the Reverse Curve signs.~~ ALL LANES THRU supplemental plaques may be used to emphasize the point that all lanes shift and no lanes are closed. Use the Reverse Curve (W1-4) signs instead of the Reverse Curve (W1-4a & W1-4b) signs which show the number of lanes or ALL LANES THRU Plaque.
12. If the shoulder cannot adequately accommodate trucks, trucks may be directed to use the travel lanes.
13. The barrier shown in this typical application is one method that may be used to close a lane for a long term project.

Guidance:

14. The use of a barrier should be based on engineering judgment.

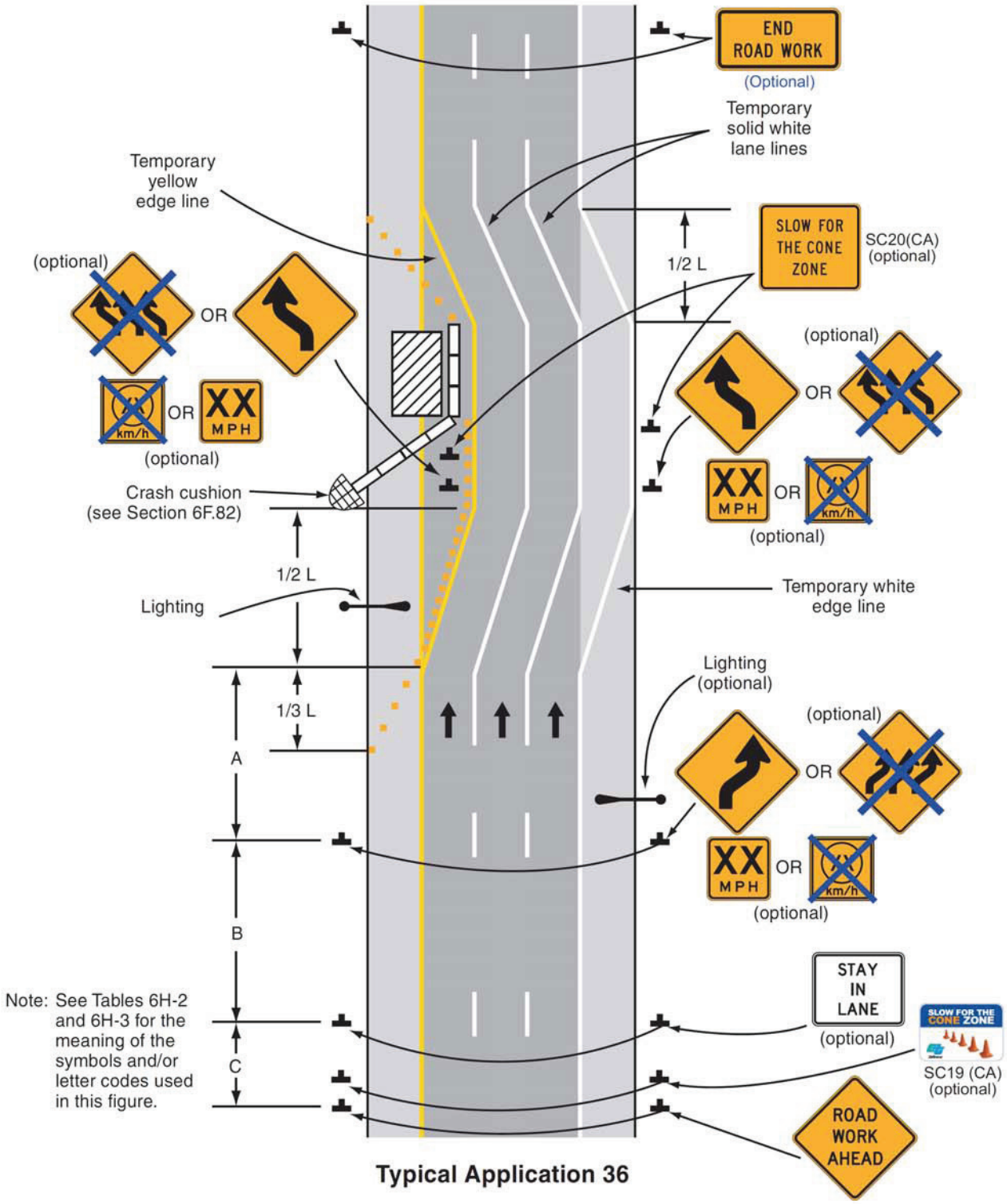
Option:

15. Type C Steady-Burn warning lights may be placed on channelizing devices and the barrier parallel to the edge of pavement for nighttime lane closures.
16. Detail 11 (see Figure 3A-102(CA)) may be used instead of the temporary solid white lane line, which is shown in Figure 6H-36.

Support:

17. See Section 6F.109(CA) for use of the Slow For The Cone Zone (SC19(CA) and SC20(CA)) Signs.

Figure 6H-36 (CA). Lane Shift on Freeway (TA-36)



Typical Application 36

~~**Notes for Figure 6H-37 Typical Application 37**~~

~~**Double Lane Closure on Freeway**~~

~~Guidance:~~

~~1. Ordinarily, the preferred position for the second arrow panel is in the closed exterior lane at the beginning of the second merging taper. However, the second arrow panel should be placed in the closed interior lane at the end of the second merging taper in the following situations:~~

~~a. When a shadow vehicle is used in the interior closed lane, and the second arrow panel is mounted on the shadow vehicle;~~

~~b. If alignment or other conditions create any confusion as to which lane is closed by the second arrow panel; and~~

~~c. When the first arrow panel is placed in the closed exterior lane at the end of the first merging taper (the alternative position when the shoulder is narrow).~~

~~Option:~~

~~2. Flashing warning lights and/or flags may be used to call attention to the initial warning signs.~~

~~3. A truck-mounted attenuator may be used on the shadow vehicle.~~

~~4. If a paved shoulder having a minimum width of 3 m (10 ft) and sufficient strength is available, the left and adjacent interior lanes may be closed and vehicular traffic carried around the work space on the right lane and a right shoulder.~~

~~5. When a shoulder lane is used that cannot adequately accommodate trucks, trucks may be directed to use the normal travel lanes~~.

Standard:

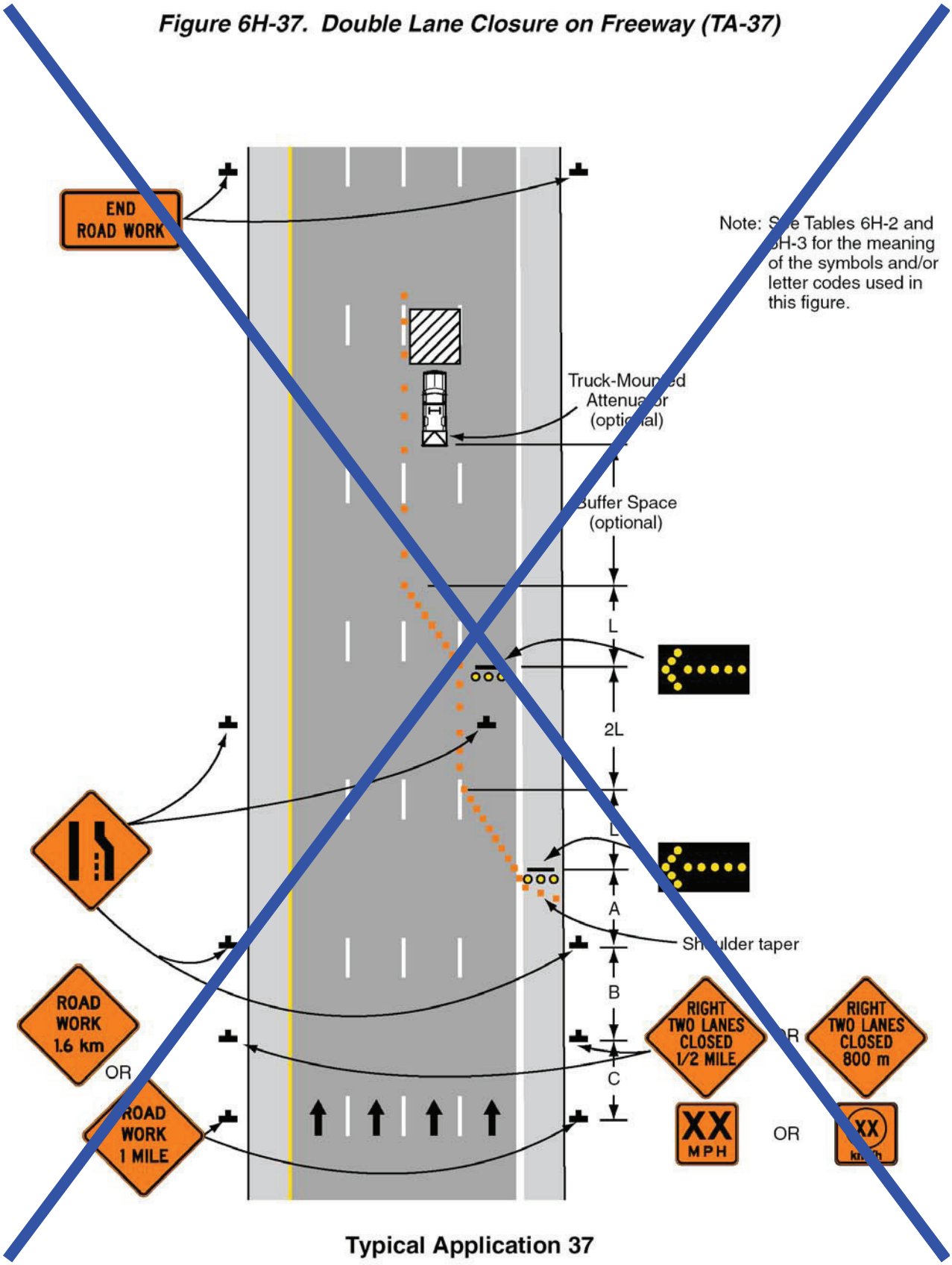
This typical application is deleted for application and shall not be used in California. Department of Transportation's Standard Plan T10 shall be used instead.

Support:

See Section 1A.11 for information regarding this publication.

(This space left intentionally blank)

Figure 6H-37. Double Lane Closure on Freeway (TA-37)



Typical Application 37

~~Notes for Figure 6H-38 Typical Application 38~~

~~Interior Lane Closure on Freeway~~

~~Guidance:~~

~~1. For a long-term closure, a barrier should be used to provide additional safety to the operation in the closed interior lane. A buffer space should be used at the upstream end of the closed interior lane.~~

~~2. The first arrow panel displaying a right arrow should be on the left shoulder at the beginning of the taper. The arrow panel displaying a double arrow should be centered in the closed interior lane and placed at the downstream end of the shifting taper.~~

~~3. The placement of signs should not obstruct or obscure arrow panels.~~

~~4. For long-term use, the dashed lane lines should be made solid white in the two-lane section.~~

~~Option:~~

~~5. As the arrow panel with a double arrow displayed is key, the arrow panel closing the exterior lane may be moved or omitted if the alignment is such that the two panels create confusion.~~

~~6. As an alternative to initially closing the left lane, as shown in the typical application, the right lane may be closed in advance of the interior lane closure with appropriate channelization and signs.~~

~~7. A short, single row of channelizing devices in advance of the vehicular traffic split to restrict vehicular traffic to their respective lanes may be added.~~

~~8. DO NOT PASS signs may be used.~~

~~9. If a paved shoulder having a minimum width of 3 m (10 ft) and sufficient strength is available, the left and center lanes may be closed and motor vehicle traffic carried around the work space on the right lane and a right shoulder.~~

~~10. When a shoulder lane is used that cannot adequately accommodate trucks, trucks may be directed to use the normal travel lanes~~.

Standard:

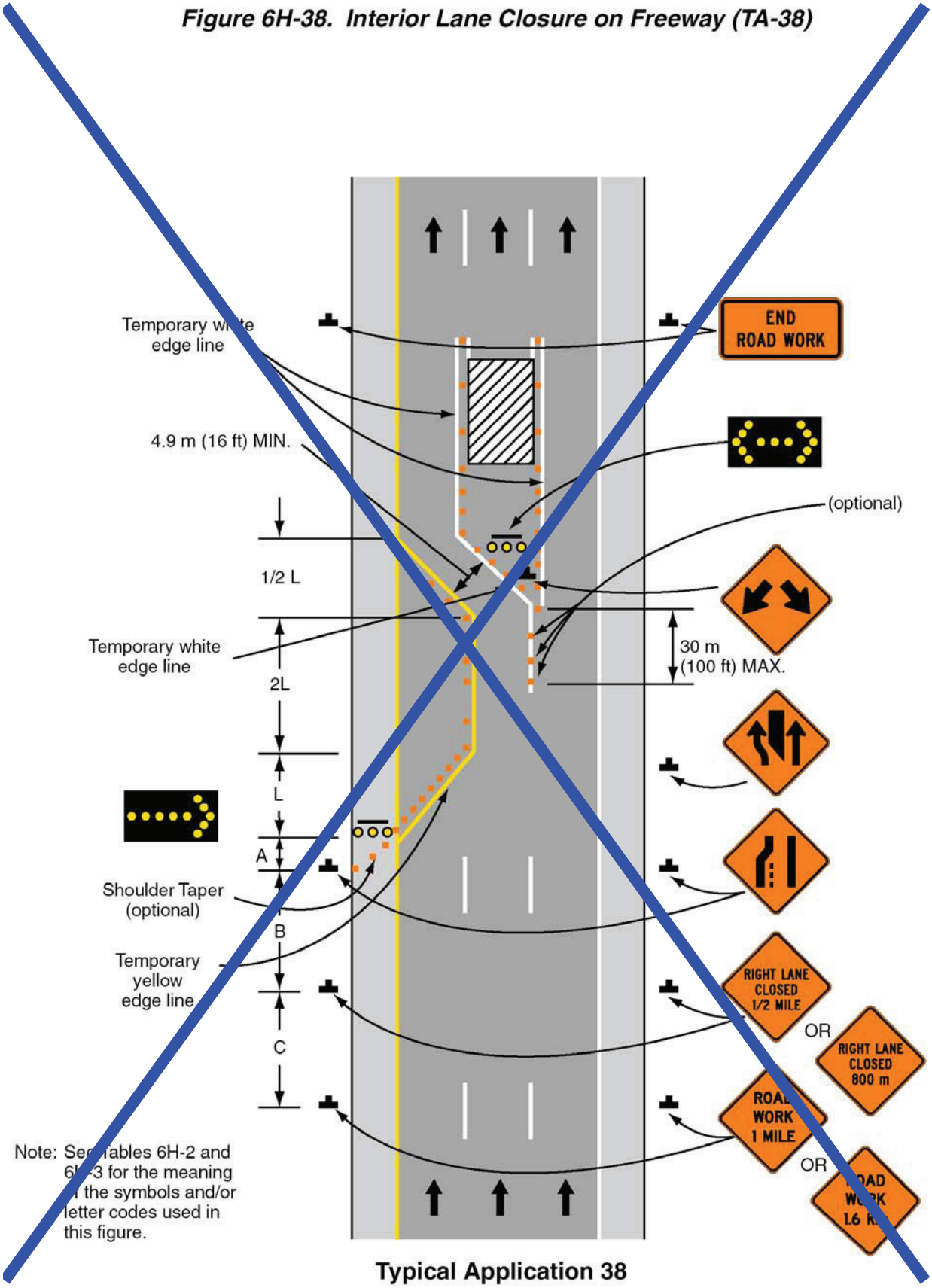
This typical application is deleted for application and shall not be used on freeways in California. Department of Transportation's Standard Plan T-16 for moving lane closures shall be used instead.

Support:

See Section 1A.11 for information regarding this publication.

(This space left intentionally blank)

Figure 6H-38. Interior Lane Closure on Freeway (TA-38)



Typical Application 38

Notes for Figure 6H-39—Typical Application 39

Median Crossover on Freeway

Standard:

1. Channelizing devices or temporary traffic barriers shall be used to separate opposing vehicular traffic.

Guidance:

2. For long-term work on high-speed, high-volume highways, consideration should be given to using a temporary traffic barrier to separate opposing vehicular traffic.

Option:

3. When a temporary traffic barrier is used to separate opposing vehicular traffic, the Two-Way Traffic, DO NOT PASS, KEEP RIGHT, and DO NOT ENTER signs may be eliminated.
4. The alignment of the crossover may be designed as a reverse curve.

Guidance:

5. When the crossover follows a curved alignment, the design criteria contained in the AASHTO "Policy on the Geometric Design of Highways and Streets" should be used (see Section 1A.11).
6. When channelizing devices have the potential of leading vehicular traffic out of the intended traffic space, the channelizing devices should be extended a distance in meters (feet) of 0.4 times the speed limit in km/h (2 times the speed limit in mph) beyond the end of the transition area as depicted.
7. Where channelizing devices are used, the Two-Way Traffic signs should be repeated every 1.6 km (1 mi).

Option:

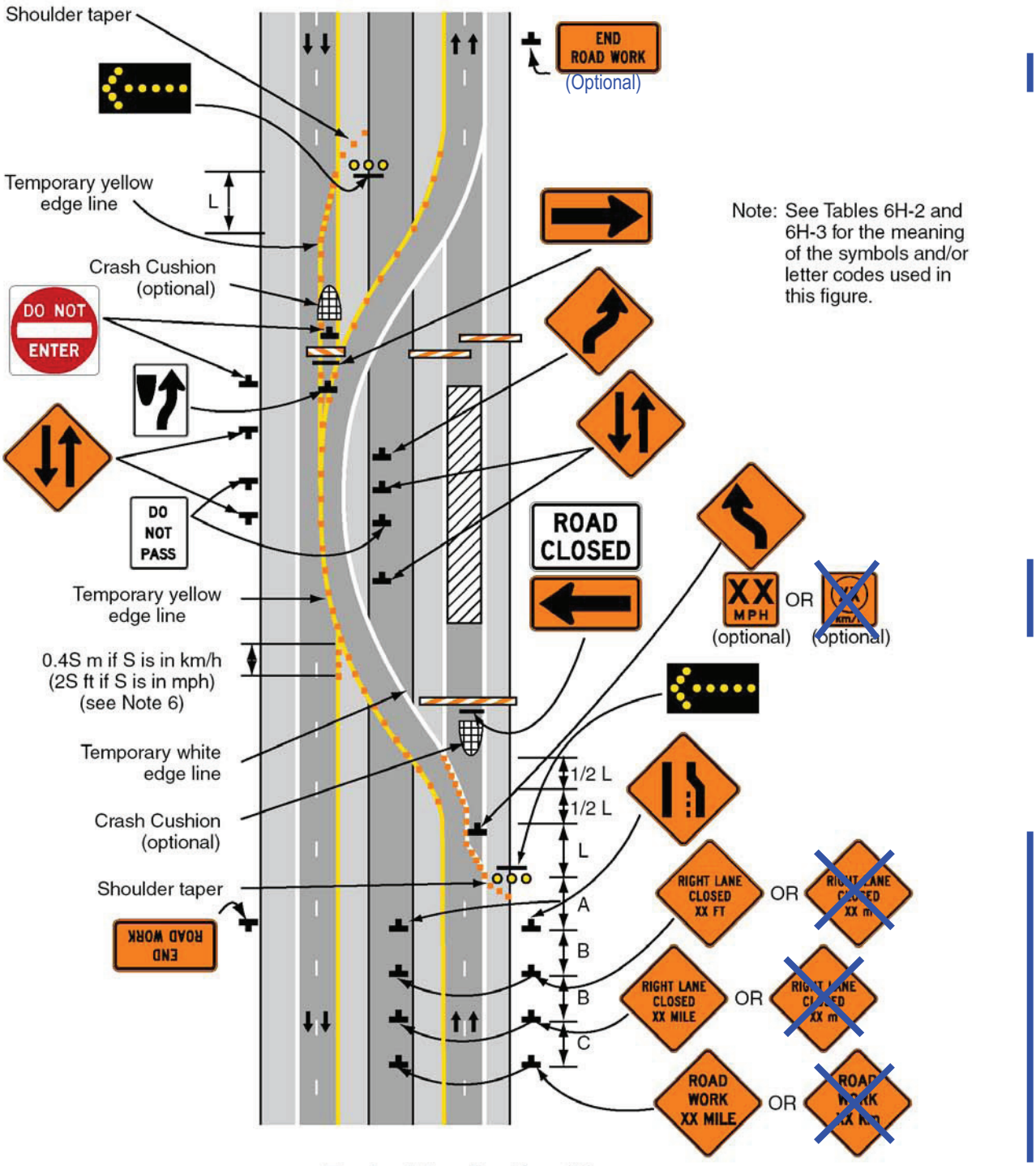
8. NEXT X ~~km~~ (MILES) Supplemental Distance plaques may be used with the Two-Way Traffic signs, where X is the distance to the end of the two-way section.

Support:

9. When the distance is sufficiently short that road users entering the section can see the far end of the section, they are less likely to forget that there is opposing vehicular traffic.
10. The sign legends for the four pairs of signs approaching the lane closure for the noncrossover direction of travel are not shown. They are similar to the series shown for the crossover direction, except that the left lane is closed.

(This space left intentionally blank)

Figure 6H-39. Median Crossover on Freeway (TA-39)



Typical Application 39

Notes for Figure 6H-40—Typical Application 40

Median Crossover for Entrance Ramp

Guidance:

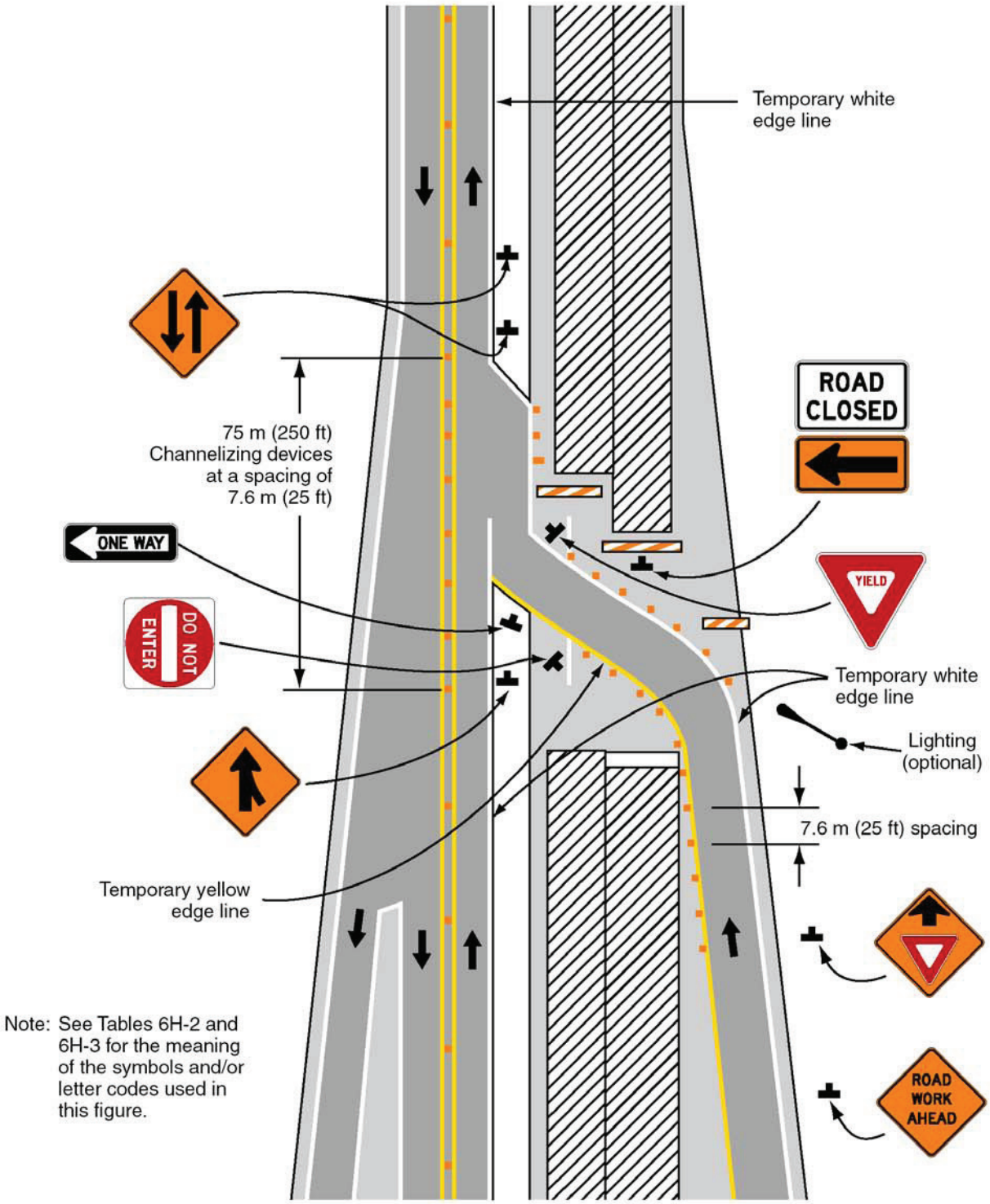
1. The typical application illustrated should be used for carrying an entrance ramp across a closed directional roadway of a divided highway.
2. A temporary acceleration lane should be used to facilitate merging.
3. When used, the YIELD or STOP sign should be located far enough forward to provide adequate sight distance of oncoming mainline vehicular traffic to select a reasonably safe gap. If needed, YIELD or STOP lines should be installed across the ramp to indicate the point at which road users should YIELD or STOP. Also, a longer acceleration lane should be provided beyond the sign to reduce the gap size needed.

Option:

4. If vehicular traffic conditions allow, the ramp may be closed.
5. A broken edge line may be carried across the temporary entrance ramp to assist in defining the through vehicular traffic lane.
6. When a temporary traffic barrier is used to separate opposing vehicular traffic, the Two-Way Traffic signs and the DO NOT ENTER signs may be eliminated.

(This space left intentionally blank)

Figure 6H-40. Median Crossover for Entrance Ramp (TA-40)



Typical Application 40

Notes for Figure 6H-41—Typical Application 41

Median Crossover for Exit Ramp

Guidance:

1. This typical application should be used for carrying an exit ramp across a closed directional roadway of a divided highway. The design criteria contained in the AASHTO "Policy on the Geometric Design of Highways and Streets" (see Section 1A.11) should be used for determining the curved alignment.
2. The guide signs should indicate that the ramp is open, and where the temporary ramp is located. Conversely, if the ramp is closed, guide signs should indicate that the ramp is closed.
3. When the exit is closed, a black on orange EXIT CLOSED panel should be placed diagonally across the interchange/intersection guide signs.
4. In the situation (not shown) where channelizing devices are placed along the mainline roadway, the devices' spacing should be reduced in the vicinity of the off ramp to emphasize the opening at the ramp itself. Channelizing devices and/or temporary pavement markings should be placed on both sides of the temporary ramp where it crosses the median and the closed roadway.
5. Advance guide signs providing information related to the temporary exit should be relocated or duplicated adjacent to the temporary roadway.

Standard:

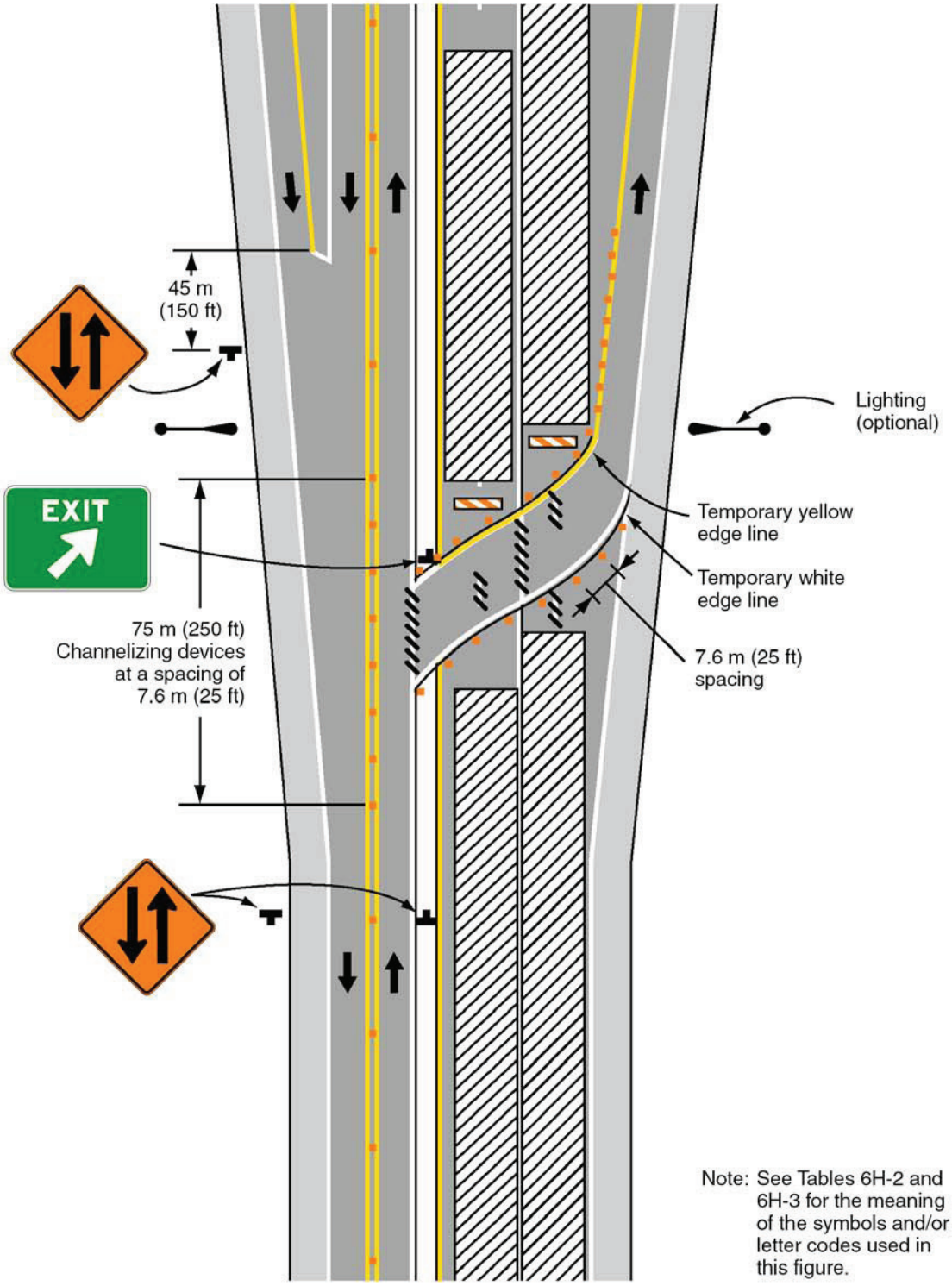
6. A temporary EXIT sign shall be located in the temporary gore. For better visibility, it shall be mounted a minimum of 2.1 m (7 ft) from the pavement surface to the bottom of the sign.

Option:

7. Guide signs referring to the exit may need to be relocated to the median.
8. The temporary EXIT sign placed in the temporary gore may be either black on orange or white on green.
9. In some instances, a temporary deceleration lane may be useful in facilitating the exiting maneuver.
10. When a temporary traffic barrier is used to separate opposing vehicular traffic, the Two-Way Traffic signs may be omitted.

(This space left intentionally blank)

Figure 6H-41. Median Crossover for Exit Ramp (TA-41)



Typical Application 41

Notes for Figure 6H-42—Typical Application 42

Work in Vicinity of Exit Ramp

Guidance:

1. The guide signs should indicate that the ramp is open, and where the temporary ramp is located. However, if the ramp is closed, guide signs should indicate that the ramp is closed.
2. When the exit ramp is closed, a black on orange EXIT CLOSED panel should be placed diagonally across the interchange/intersection guide signs.
3. The design criteria contained in the AASHTO "Policy on the Geometric Design of Highways and Streets" should be used for determining the alignment (see Section 1A.11).

Standard:

4. A temporary EXIT sign shall be located in the temporary gore. For better visibility, it shall be mounted a minimum of 2.1 m (7 ft) from the pavement surface to the bottom of the sign.

Option:

5. An alternative procedure that may be used is to channelize exiting vehicular traffic onto the right shoulder and close the lane as necessary.

Option:

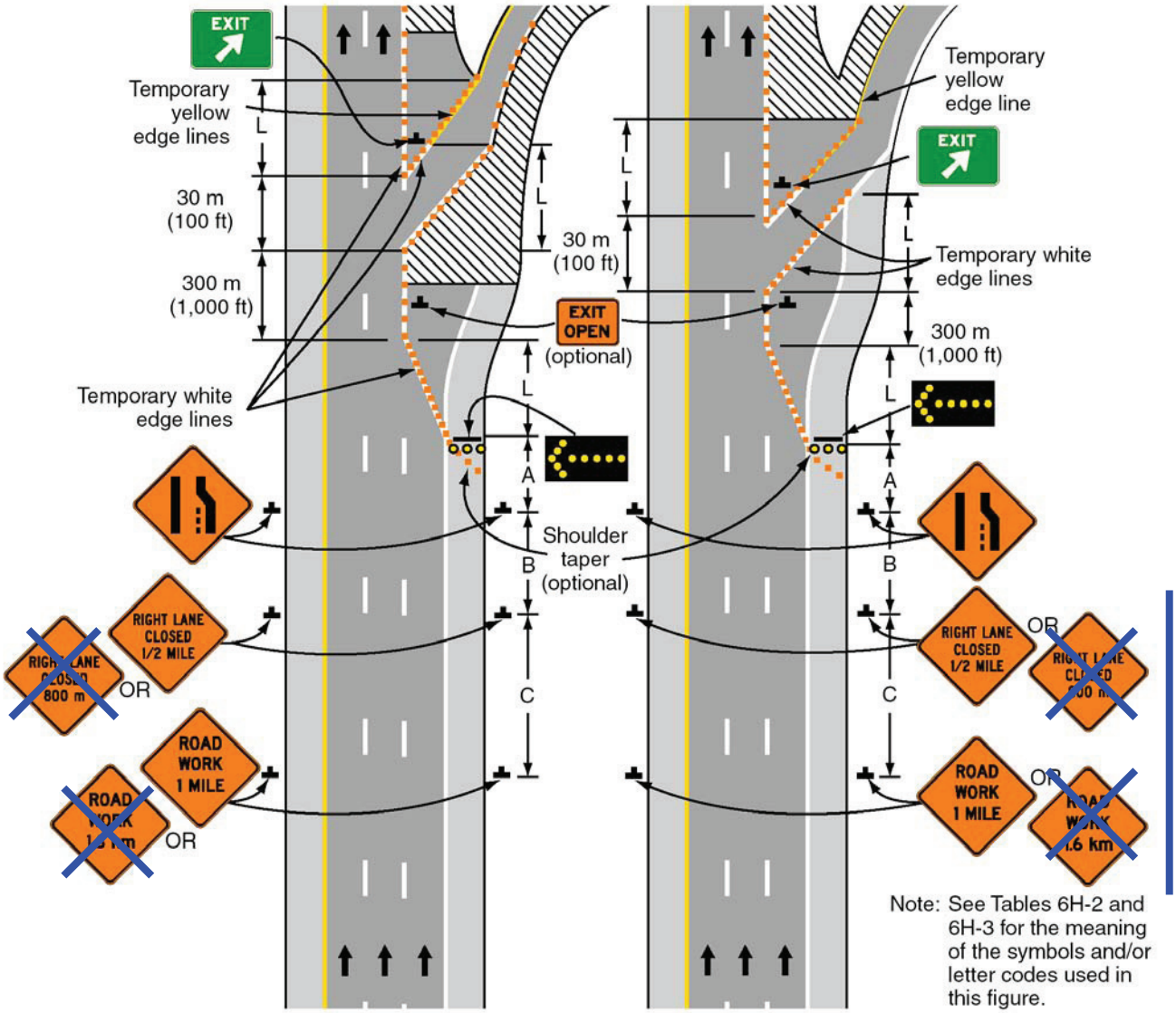
The Department of Transportation's Standard Plan T10 may be used instead of this typical application.

Support:

See Section 1A.11 for information regarding this publication.

(This space left intentionally blank)

Figure 6H-42. Work in Vicinity of Exit Ramp (TA-42)



Typical Application 42

Notes for Figure 6H-43—Typical Application 43

Partial Exit Ramp Closure

Guidance:

1. Truck off-tracking should be considered when determining whether the minimum lane width of 3 m (10 ft) is adequate (see Section 6G.07).

Standard:

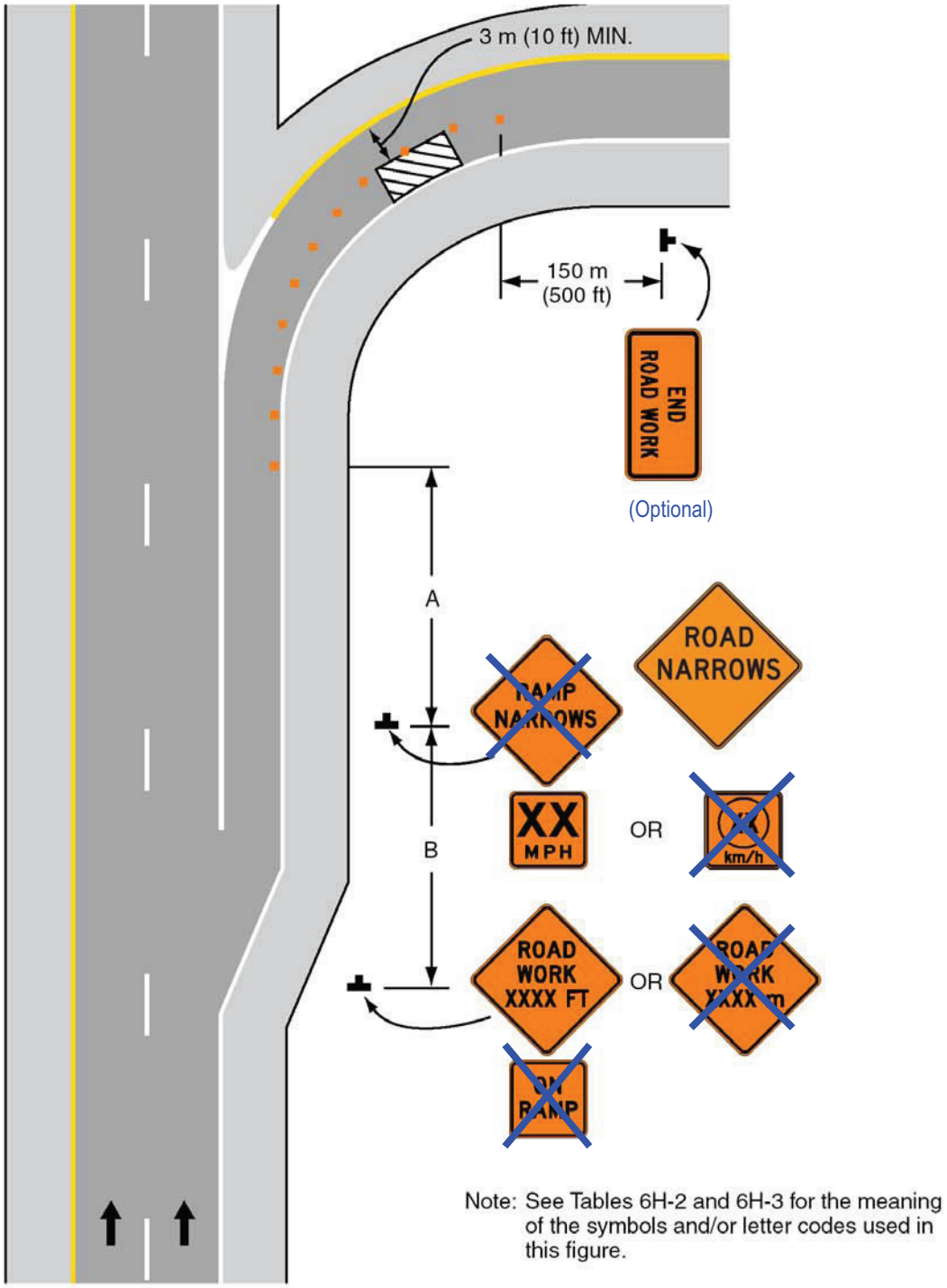
2. The RAMP NARROWS (W5-4) sign shall not be used in California. The ROAD NARROWS (W5-1) sign or NARROW LANE(S) (C12(CA)) sign, as appropriate, shall be used instead. See Sections 2C.15 and 6F.103(CA).

Guidance:

3. For planned partial ramp closure, consideration should be given to closing the entire exit ramp. Refer to Department of Transportation's Standard Plan T14. See Section 1A.11 for information regarding this publication.

(This space left intentionally blank)

Figure 6H-43. Partial Exit Ramp Closure (TA-43)



Typical Application 43

Notes for Figure 6H-44—Typical Application 44

Work in Vicinity of Entrance Ramp

Guidance:

1. An acceleration lane of sufficient length should be provided whenever possible as shown on the left diagram.

Standard:

2. For the information shown on the diagram on the right side of the typical application, where inadequate acceleration distance exists for the temporary entrance, the YIELD sign shall be replaced with STOP signs (one on each side of the approach).

Guidance:

3. When used, the YIELD or STOP sign should be located so that ramp vehicular traffic has adequate sight distance of oncoming mainline vehicular traffic to select a reasonably safe gap in the mainline vehicular traffic flow. Also, a longer acceleration lane should be provided beyond the sign to reduce the gap size needed. If insufficient gaps are available, consideration should be given to closing the ramp.
4. Where STOP signs are used, a temporary stop line should be placed across the ramp at the desired stop location.
5. The mainline merging taper with the arrow panel at its starting point should be located sufficiently in advance so that the arrow panel is not confusing to drivers on the entrance ramp, and so that the mainline merging vehicular traffic from the lane closure has the opportunity to stabilize before encountering the vehicular traffic merging from the ramp.
6. If the ramp curves sharply to the right, warning signs with Advisory Speed Limits located in advance of the entrance terminal should be placed in pairs (one on each side of the ramp).

Option:

7. A Type B high-intensity warning flasher with a red lens may be placed above the STOP sign.
8. Where the acceleration distance is significantly reduced, a supplemental plaque may be placed below the YIELD AHEAD sign reading NO MERGE AREA.

Option:

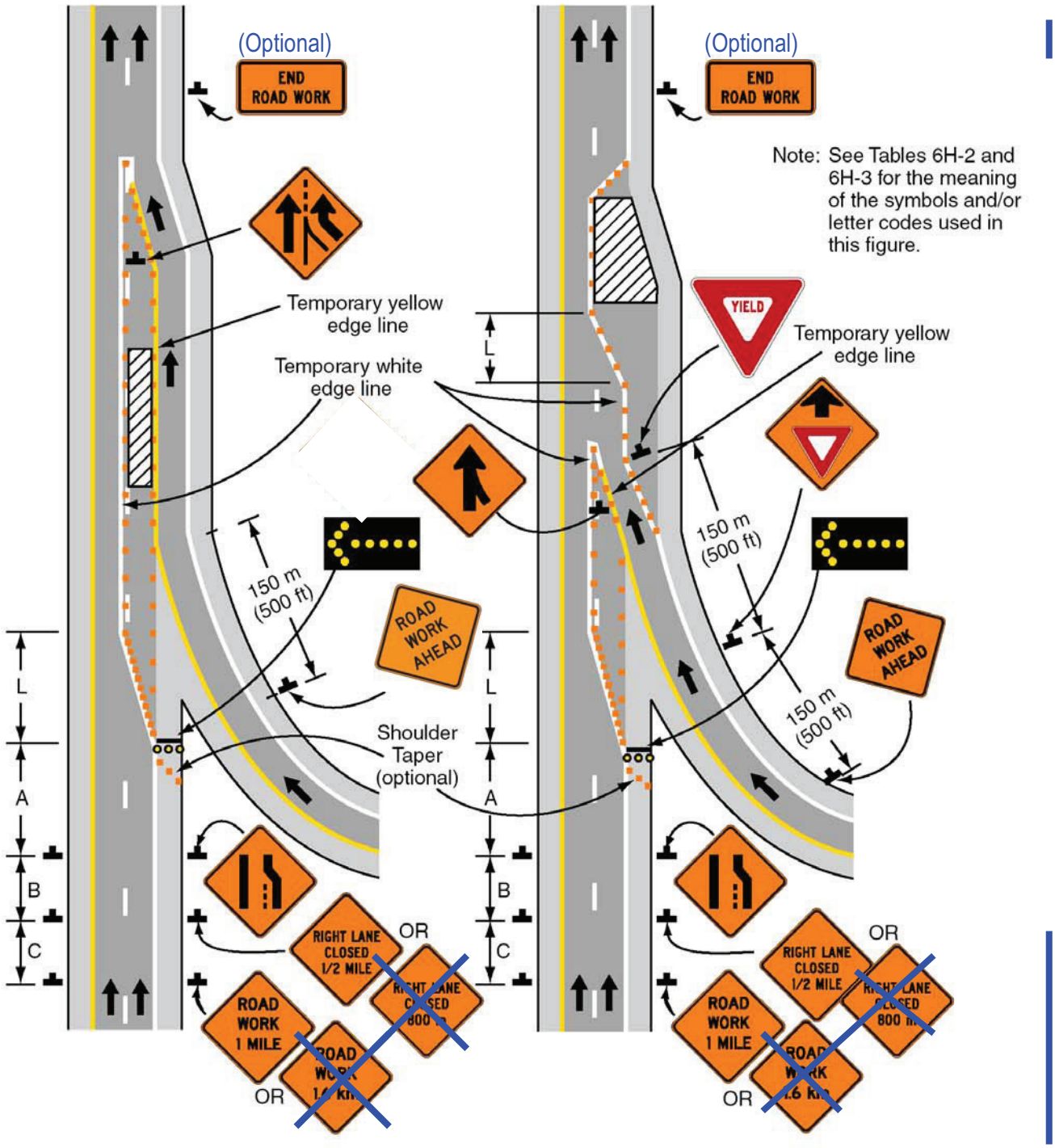
The Department of Transportation's Standard Plan T10 may be used instead of this typical application.

Support:

See Section 1A.11 for information regarding this publication.

(This space left intentionally blank)

Figure 6H-44. Work in Vicinity of Entrance Ramp (TA-44)



Typical Application 44

Notes for Figure 6H-45—Typical Application 45

Temporary Reversible Lane Using Movable Barriers

Support:

1. This application addresses one of several uses for movable barriers in highway work zones. In this example, one side of a 6-lane divided highway is closed to perform the work operation, and vehicular traffic is carried in both directions on the remaining 3-lane roadway by means of a median crossover. To accommodate unbalanced peak-period vehicular traffic volumes, the direction of travel in the center lane is switched to the direction having the greater volume, with the transfer typically being made twice daily. Thus, there are four vehicular traffic phases described as follows:
   a. Phase A—two travel lanes northbound and one lane southbound;
   b. Transition A to B—one travel lane in each direction;
   c. Phase B—one travel lane northbound and two lanes southbound; and
   d. Transition B to A—one travel lane in each direction.

   The typical application on the left illustrates the placement of devices during Phase A. The typical application on the right shows conditions during the transition (Transition A to B) from Phase A to Phase B.

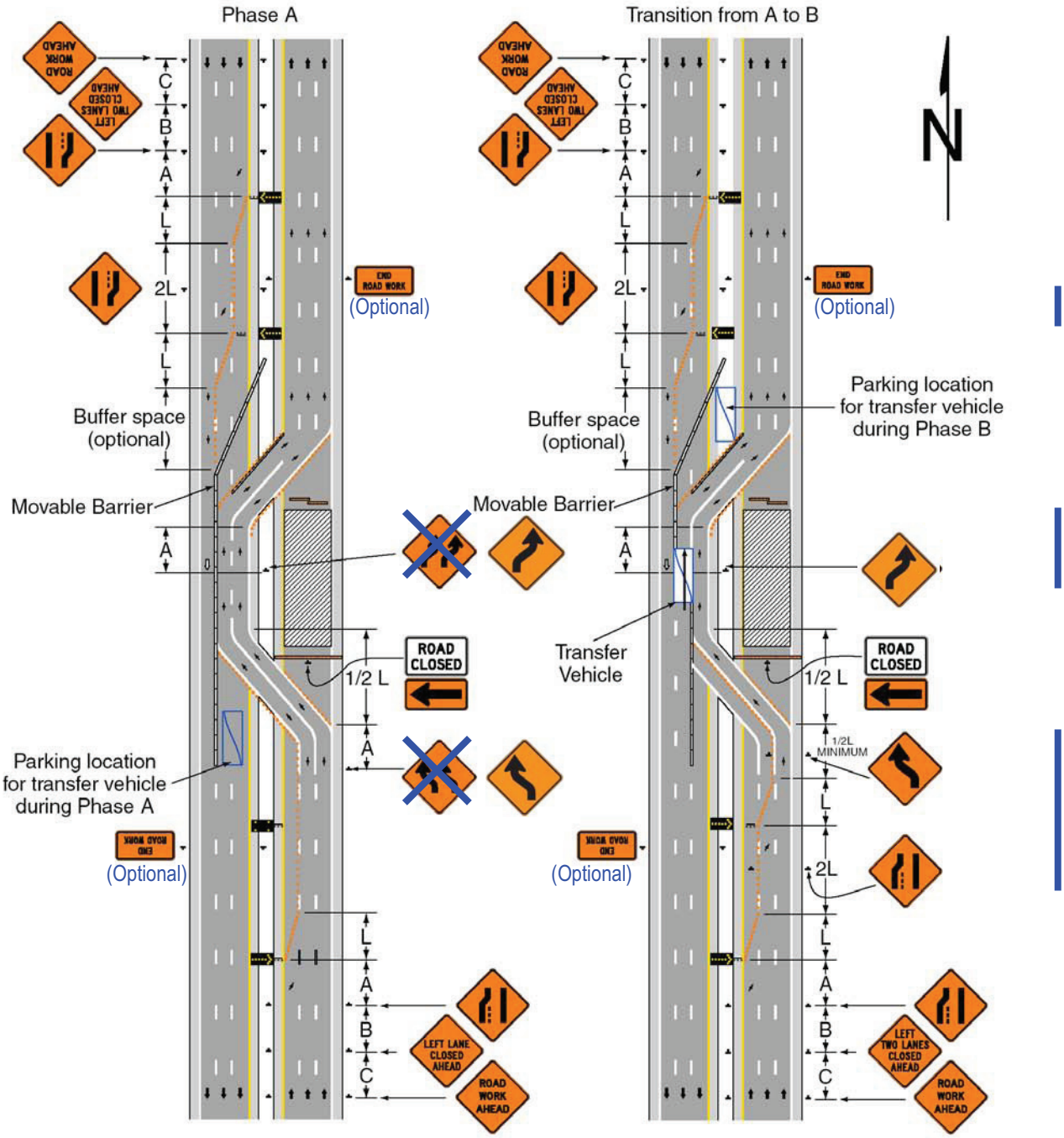
Guidance:

2. For the reversible-lane situation depicted, the ends of the movable barrier should terminate in a protected area or a crash cushion should be provided. During Phase A, the transfer vehicle should be parked behind the end of the movable barrier. During Phase B, the transfer vehicle should be parked behind the end of the movable barrier.

   The transition shift from Phase A to B should be as follows:
   a. Change the signs in the northbound advance warning area and transition area from a LEFT LANE CLOSED AHEAD to a LEFT TWO LANES CLOSED AHEAD. Change the mode of the second northbound arrow panel from Caution to Right Arrow.
   b. Place channelizing devices to close the northbound center lane.
   c. Move the transfer vehicle from south to north to shift the movable barrier from the west side to the east side of the reversible lane.
   d. Remove the channelizing devices closing the southbound center lane.
   e. Change the signs in the southbound transition area and advance warning area from a LEFT TWO LANES CLOSED AHEAD to LEFT LANE CLOSED AHEAD. Change the mode of the second southbound arrow panel from Right Arrow to Caution.
3. Where the lane to be opened and closed is an exterior lane (adjacent to the edge of the traveled way or the work space), the lane closure should begin by closing the lane with channelizing devices placed along a merging taper using the same information employed for a stationary lane closure. The lane closure should then be extended with the movable-barrier transfer vehicle moving with vehicular traffic. When opening the lane, the transfer vehicle should travel against vehicular traffic. The merging taper should be removed in a method similar to a stationary lane closure.

(This space left intentionally blank)

Figure 6H-45. Movable Barriers (TA-45)



Typical Application 45

Note: See Tables 6H-2 and 6H-3 for the meaning of the symbols and/or letter codes used in this figure. Although leader lines point to signs on the right side of roadway, most signs should be installed on both sides of roadway.

Notes for Figure 6H-46—Typical Application 46

Work in Vicinity of Highway-Rail Grade Crossing

Guidance:

1. When highway-rail grade crossings exist either within or in the vicinity of roadway work activities, extra care should be taken to minimize the probability of conditions being created, either by lane restrictions, flagging or other operations, where vehicles might be stopped within the highway-rail grade crossing, considered as being 4.6 m (15 ft) on either side of the closest and farthest rail.

Standard:

2. If the queuing of vehicles across active rail tracks cannot be avoided, a uniformed law enforcement officer or flagger shall be provided at the highway-rail grade crossing to prevent vehicles from stopping within the highway-rail grade crossing (as described in Note 1), even if automatic warning devices are in place.

Guidance:

3. Early coordination with the railroad company should occur before work starts.
4. In the example depicted, the buffer space of the activity area should be extended upstream of the highway-rail grade crossing (as shown) so that a queue created by the flagging operation will not extend across the highway-rail grade crossing.
5. The DO NOT STOP ON TRACKS sign should be used on all approaches to a highway-rail grade crossing within the limits of a TTC zone.

Option:

6. Flashing warning lights and/or flags may be used to call attention to the advance warning signs.
7. A BE PREPARED TO STOP sign may be added to the sign series.

Guidance:

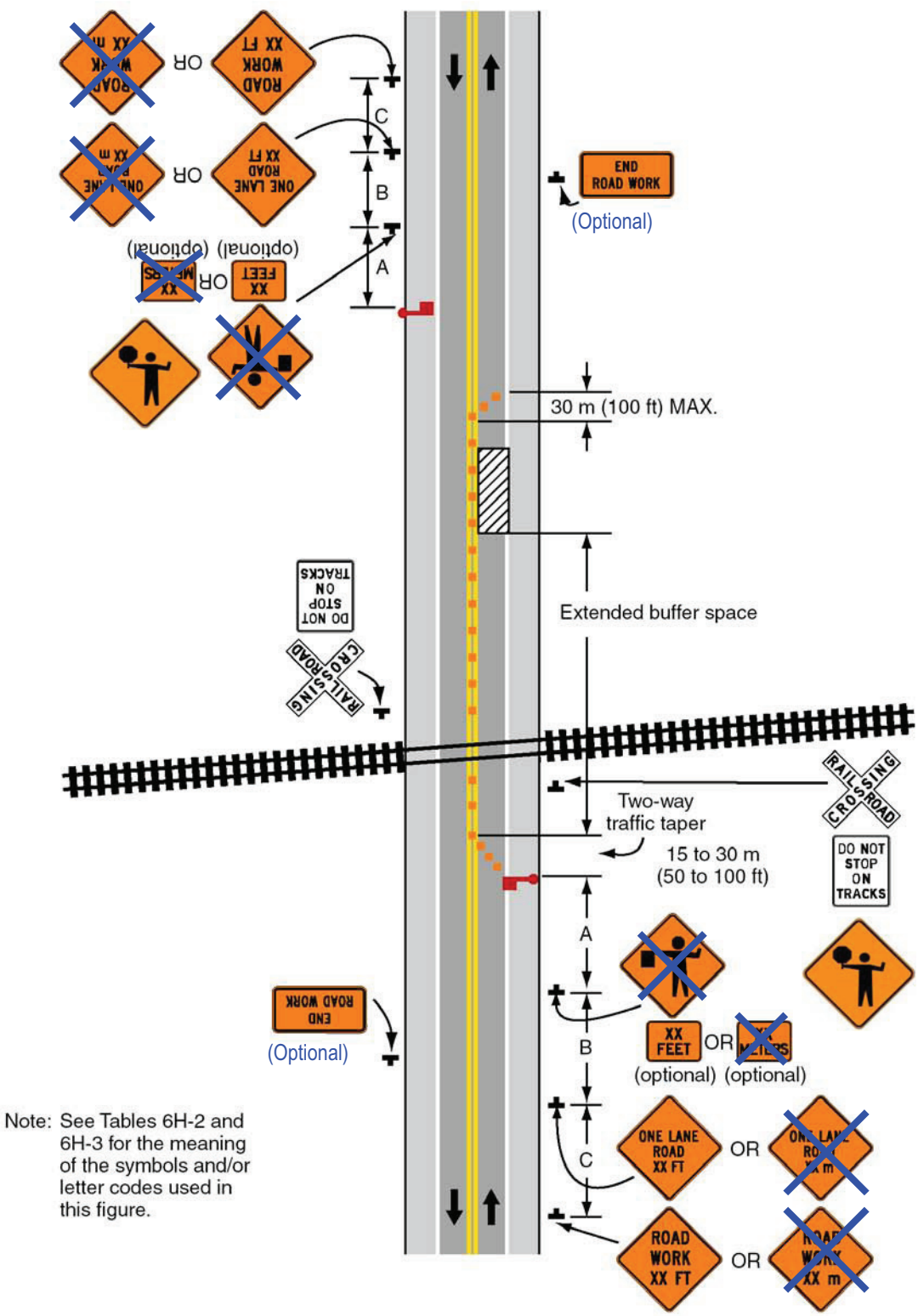
8. When used, the BE PREPARED TO STOP sign should be located ~~before~~ after the Flagger symbol sign.

Standard:

9. At night, flagger stations shall be illuminated, except in emergencies.

(This space left intentionally blank)

Figure 6H-46. Work in Vicinity of Highway-Rail Grade-Crossing (TA-46)



Typical Application 46

CHAPTER 6I. CONTROL OF TRAFFIC THROUGH TRAFFIC INCIDENT MANAGEMENT AREAS

Section 6I.01 General

Support:

Whenever the acronym "TTC" is used in this Chapter, it refers to "temporary traffic control".

Standard:

The needs and control of all road users (motorists, bicyclists, and pedestrians within the highway, including persons with disabilities in accordance with the Americans with Disabilities Act of 1990 (ADA), Title II, Paragraph 35.130) through a TTC zone shall be an essential part of highway construction, utility work, maintenance operations, and the management of traffic incidents.

Support:

A traffic incident is an emergency road user occurrence, a natural disaster, or other unplanned event that affects or impedes the normal flow of traffic.

A traffic incident management area is an area of a highway where temporary traffic controls are imposed by authorized officials in response to a road user incident, natural disaster, hazardous material spill, or other unplanned incident. It is a type of TTC zone and extends from the first warning device (such as a sign, light, or cone) to the last TTC device or to a point where vehicles return to the original lane alignment and are clear of the incident.

Traffic incidents can be divided into three general classes of duration, each of which has unique traffic control characteristics and needs. These classes are:

A. Major—expected duration of more than 2 hours;

B. Intermediate—expected duration of 30 minutes to 2 hours; and

C. Minor—expected duration under 30 minutes.

The primary functions of TTC at a traffic incident management area are to move road users reasonably safely and expeditiously past or around the traffic incident, to reduce the likelihood of secondary traffic crashes, and to preclude unnecessary use of the surrounding local road system. Examples include a stalled vehicle blocking a lane, a traffic crash blocking the traveled way, a hazardous material spill along a highway, and natural disasters such as floods and severe storm damage.

Guidance:

In order to reduce response time for traffic incidents, highway agencies, appropriate public safety agencies (law enforcement, fire and rescue, emergency communications, emergency medical, and other emergency management), and private sector responders (towing and recovery and hazardous materials contractors) should mutually plan for occurrences of traffic incidents along the major and heavily traveled highway and street system.

On-scene responder organizations should train their personnel in TTC practices for accomplishing their tasks in and near traffic. On-scene responders should take measures to move the incident off the traveled way or to provide for appropriate warning. All on-scene responders and news media personnel should constantly be aware of their visibility to oncoming traffic and wear high-visibility safety apparel.

Responders arriving at a traffic incident should, within 15 minutes of arrival on-scene, estimate the magnitude of the traffic incident, the expected time duration of the traffic incident, and the expected vehicle queue length, and then should set up the appropriate temporary traffic controls for these estimates.

Option:

Warning and guide signs used for TTC traffic incident management situations may have a black legend and border on a fluorescent pink background (see Figure 6I-1).

Support:

While some traffic incidents might be anticipated and planned for, emergencies and disasters might pose more severe and unpredictable problems. The ability to quickly install proper temporary traffic controls might greatly reduce the effects of an incident, such as secondary crashes or excessive traffic delays. An essential part of fire, rescue, spill clean-up, highway agency, and enforcement activities is the proper control of road users through the traffic incident management area in order to protect responders, victims, and other personnel at the site while providing reasonably safe traffic flow. These operations might need corroborating

legislative authority for the implementation and enforcement of appropriate road user regulations, parking controls, and speed zoning. It is desirable for these statutes to provide sufficient flexibility in the authority for, and implementation of, TTC to respond to the needs of changing conditions found in traffic incident management areas.

Option:

For traffic incidents, particularly those of an emergency nature, TTC devices on hand may be used for the initial response as long as they do not themselves create unnecessary additional hazards.

Section 6I.02 Major Traffic Incidents

Support:

Major traffic incidents are typically traffic incidents involving hazardous materials, fatal traffic crashes involving numerous vehicles, and other natural or man-made disasters. These traffic incidents typically involve closing all or part of a roadway facility for a period exceeding 2 hours.

Guidance:

If the traffic incident is anticipated to last more than 24 hours, applicable procedures and devices set forth in other Chapters of Part 6 should be used.

Support:

A road closure can be caused by a traffic incident such as a road user crash that blocks the traveled way. Road users are usually diverted through lane shifts or detoured around the traffic incident and back to the original roadway. A combination of traffic engineering and enforcement preparations is needed to determine the detour route, and to install, maintain or operate, and then to remove the necessary traffic control devices when the detour is terminated. Large trucks are a significant concern in such a detour, especially when detouring them from a controlled-access roadway onto local or arterial streets.

During traffic incidents, large trucks might need to follow a route separate from that of automobiles because of bridge, weight, clearance, or geometric restrictions. Also, vehicles carrying hazardous material might need to follow a different route from other vehicles.

Some traffic incidents such as hazardous material spills might require closure of an entire highway. Through road users must have adequate guidance around the traffic incident. Maintaining good public relations is desirable. The cooperation of the news media in publicizing the existence of, and reasons for, traffic incident management areas and their TTC can be of great assistance in keeping road users and the general public well informed.

The establishment, maintenance, and prompt removal of lane diversions can be effectively managed by interagency planning that includes representatives of highway and public safety agencies.

Guidance:

All traffic control devices needed to set up the TTC at a traffic incident should be available so that they can be readily deployed for all major traffic incidents. The TTC should include the proper traffic diversions, tapered lane closures, and upstream warning devices to alert approaching traffic of the end of a queue.

Attention should be paid to the end of the traffic queue such that warning is given to road users approaching the end of the queue.

If manual traffic control is needed, it should be provided by qualified flaggers or uniformed law enforcement officers.

Option:

If flaggers are used to provide traffic control for an incident management situation, the flaggers may use appropriate traffic control devices that are readily available or that can be brought to the traffic incident scene on short notice.

Guidance:

When flares are used to initiate TTC at traffic incidents, more permanent traffic control devices should replace them as soon as practical. Both the flare and its supporting device should then be removed from the roadway.

On-scene responders should be trained in safe practices for accomplishing their tasks in and near traffic. Responders should always be aware of their visibility to oncoming traffic and take measures to move the traffic incident as far off the traveled roadway as possible or to provide for appropriate warning.

Section 6I.03 Intermediate Traffic Incidents

Support:

Intermediate traffic incidents typically affect travel lanes for a time period of 30 minutes to 2 hours, and usually require traffic control on the scene to divert road users past the blockage. Full roadway closures might be needed for short periods during traffic incident clearance to allow traffic incident responders to accomplish their tasks.

The establishment, maintenance, and prompt removal of lane diversions can be effectively managed by interagency planning that includes representatives of highway and public safety agencies.

Guidance:

All traffic control devices needed to set up the TTC at a traffic incident should be available so that they can be readily deployed for intermediate traffic incidents. The TTC should include the proper traffic diversions, tapered lane closures, and upstream warning devices to alert approaching traffic of the end of a queue.

Attention should be paid to the end of the traffic queue such that warning is given to road users approaching the end of the queue.

If manual traffic control is needed, it should be provided by qualified flaggers or uniformed law enforcement officers.

Option:

If flaggers are used to provide traffic control for an incident management situation, the flaggers may use appropriate traffic control devices that are readily available or that can be brought to the traffic incident scene on short notice.

Guidance:

When flares are used to initiate TTC at traffic incidents, more permanent traffic devices should replace them as soon as practical. Both the flare and its supporting device should then be removed from the roadway.

On-scene responders should be trained in safe practices for accomplishing their tasks in and near traffic. Responders should always be aware of their visibility to oncoming traffic and take measures to move the traffic incident as far off the traveled roadway as possible or to provide for appropriate warning.

Section 6I.04 Minor Traffic Incidents

Support:

Minor traffic incidents are typically disabled vehicles and minor crashes that result in lane closures of less than 30 minutes. On-scene responders are typically law enforcement and towing companies, and occasionally highway agency service patrol vehicles.

Diversion of traffic into other lanes is often not needed or is needed only briefly. It is not generally possible or practical to set up a lane closure with traffic control devices for a minor traffic incident. Traffic control is the responsibility of on-scene responders.

Guidance:

When a minor traffic incident blocks a travel lane, it should be removed from that lane to the shoulder as quickly as possible.

Section 6I.05 Use of Emergency-Vehicle Lighting

Support:

The use of emergency-vehicle lighting (such as high-intensity rotating, flashing, oscillating, or strobe lights) is essential, especially in the initial stages of a traffic incident, for the safety of emergency responders and persons involved in the traffic incident, as well as road users approaching the traffic incident. Emergency-vehicle lighting, however, provides warning only and provides no effective traffic control. It is often confusing to road users, especially at night. Road users approaching the traffic incident from the opposite direction on a divided facility are often distracted by emergency-vehicle lighting and slow their vehicles to look at the traffic incident posing a hazard to themselves and others traveling in their direction.

The use of emergency-vehicle lighting can be reduced if good traffic control has been established at a traffic incident scene. This is especially true for major traffic incidents that might involve a number of

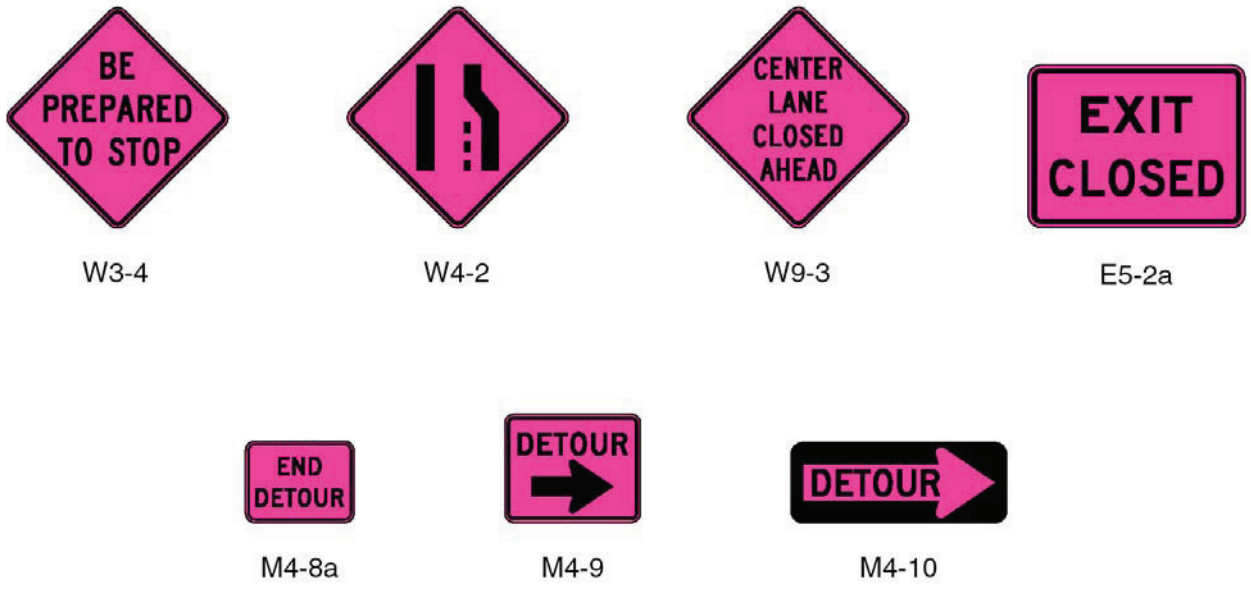
emergency vehicles. If good traffic control is established through placement of advanced warning signs and traffic control devices to divert or detour traffic, then public safety agencies can perform their tasks on scene with minimal emergency-vehicle lighting.

Guidance:

Public safety agencies should examine their policies on the use of emergency-vehicle lighting, especially after a traffic incident scene is secured, with the intent of reducing the use of this lighting as much as possible while not endangering those at the scene. Special consideration should be given to reducing or extinguishing forward facing emergency-vehicle lighting, especially on divided roadways, to reduce distractions to on-coming road users.

Vehicle headlights not needed for illumination, or to provide notice to other road users of the incident response vehicle being in an unexpected location, should be turned off at night.

Figure 6I-1. Examples of Traffic Incident Management Area Signs



(This space left intentionally blank)

California
Manual on Uniform
Traffic Control Devices
for Streets and Highways
**(FHWA's MUTCD 2003 Edition
including Revisions 1 and 2,
as amended for use in California)**

APPENDIX



STATE OF CALIFORNIA
BUSINESS, TRANSPORTATION AND HOUSING AGENCY
DEPARTMENT OF TRANSPORTATION

(This page left intentionally blank)

APPENDIX

TABLE OF CONTENTS

		Page
A1	Congressional Legislation	A1-1
A101(CA)	California Sign Chart (September 2006)	A101(CA)-1
A102(CA)	List of Acronyms & Abbreviations	A102(CA)-1
A103(CA)	List of Useful TCD Related Web Sites	A103(CA)-1

(This page left intentionally blank)

CONGRESSIONAL LEGISLATION

PUBLIC LAW 102-240-DEC. 18, 1991 (INTERMODAL SURFACE TRANSPORTATION EFFICIENCY ACT OF 1991)

Section 1077. REVISION OF MANUAL — Not later than 90 days after the date of the enactment of this Act, the Secretary shall revise the Manual of Uniform Traffic Control Devices and such other regulations and agreements of the Federal Highway Administration as may be necessary to authorize States and local governments, at their discretion, to install stop or yield signs at any rail-highway grade crossing without automatic traffic control devices with 2 or more trains operating across the rail-highway grade crossing per day.

PUBLIC LAW 102-388-OCT. 6, 1992 (DEPARTMENT OF TRANSPORTATION AND RELATED AGENCIES APPROPRIATIONS ACT, 1993)

Section 406 — The Secretary of Transportation shall revise the Manual of Uniform Traffic Control Devices to include —

(a) a standard for a minimum level of retroreflectivity that must be maintained for pavement markings and signs, which shall apply to all roads open to public travel; and

(b) a standard to define the roads that must have a centerline or edge lines or both, provided that in setting such standard the Secretary shall consider the functional classification of roads, traffic volumes, and the number and width of lanes.

PUBLIC LAW 104-59-NOV. 28, 1995 (NATIONAL HIGHWAY SYSTEM DESIGNATION ACT OF 1995)

Section 205. RELIEF FROM MANDATES —

(c) METRIC REQUIREMENTS —

(1) PLACEMENT AND MODIFICATION OF SIGNS — The Secretary shall not require the States to expend any Federal or State funds to construct, erect, or otherwise place or to modify any sign relating to a speed limit, distance, or other measurement on a highway for the purpose of having such sign establish such speed limit, distance, or other measurement using the metric system.

(2) OTHER ACTIONS — Before September 30, 2000, the Secretary shall not require that any State use or plan to use the metric system with respect to designing or advertising, or preparing plans, specifications, estimates, or other documents, for a Federal-aid highway project eligible for assistance under title 23, United States Code.

(3) DEFINITIONS — In this subsection, the following definitions apply:

(A) HIGHWAY — The term 'highway' has the meaning such term has under section 101 of title 23, United State Code.

(B) METRIC SYSTEM — the term 'metric system' has the meaning the term 'metric system of measurement' has under section 4 of the Metric Conversion Act of 1975 (15 U.S.C. 205c).

Section 306. MOTORIST CALL BOXES — Section 111 of title 23, United States Code, is amended by adding at the end the following:

(c) MOTORIST CALL BOXES—

(1) IN GENERAL— Notwithstanding subsection (a), a State may permit the placement of motorist call boxes on rights-of-way of the National Highway System. Such motorist call boxes may include the identification and sponsorship logos of such call boxes.

(2) SPONSORSHIP LOGOS—

(A) APPROVAL BY STATE AND LOCAL AGENCIES—All call box installations displaying sponsorship logos under this subsection shall be approved by the highway agencies having jurisdiction of the highway on which they are located.

(B) SIZE ON BOX—A sponsorship logo may be placed on the call box in a dimension not to exceed the size of the call box or a total dimension in excess of 12 inches by 18 inches.

(C) SIZE ON IDENTIFICATION SIGN—Sponsorship logos in a dimension not to exceed 12 inches by 30 inches may be displayed on a call box identification sign affixed to the call box post.

(D) SPACING OF SIGNS—Sponsorship logos affixed to an identification sign on a call box post may be located on the rights-of-way at intervals not more frequently than 1 per every 5 miles.

(E) DISTRIBUTION THROUGHOUT STATE—Within a State, at least 20 percent of the call boxes displaying sponsorship logos shall be located on highways outside of urbanized areas with a population greater than 50,000.

(3) NONSAFETY HAZARDS—The call boxes and their location, posts, foundations, and mountings shall be consistent with requirements of the Manual on Uniform Traffic Control Devices or any requirements deemed necessary by the Secretary to assure that the call boxes shall not be a safety hazard to motorists.

Section 353(a) SIGNS — Traffic control signs referred to in the experimental project conducted in the State of Oregon in December 1991 shall be deemed to comply with the requirements of Section 2B-4 of the Manual on Uniform Traffic Control Devices of the Department of Transportation.

Section 353(b) STRIPES — Notwithstanding any other provision of law, a red, white, and blue center line in the Main Street of Bristol, Rhode Island, shall be deemed to comply with the requirements of Section 3B-1 of the Manual on Uniform Traffic Control Devices of the Department of Transportation.

(This space left intentionally blank)

APPENDIX A101(CA). CALIFORNIA SIGN CHART (January 2010)

Support:

The most commonly used signs in California are shown in the California Sign Chart (January 2010). This chart is not meant to be used as a comprehensive sign chart but is provided on the following pages for ease of use and as a handy reference. It consists of the following sheets:

- Regulatory Signs (Sheets 1 through 4 of 12).
- Warning Signs (Sheets 5 and 6 of 12).
- Guide Signs (Sheets 7 through 10 of 12).
- Temporary Traffic Control Signs (Sheets 11 and 12 of 12).

(This space left intentionally blank)

California Sign Chart

Sheet 1 of 12 - Federal Regulatory Signs

This chart contains commonly used signs in California, and is not meant to be used as a comprehensive sign chart.
California codes are designated by (CA). Otherwise Federal codes are shown. For a complete directory of signs, visit **www.dot.ca.gov/hq/traffops/signtech/signdel/index.htm**.

California Department of Transportation
Signs and Work Zones Branch
January 2010





R1-1



R1-2



R1-2a



R1-3 R1-4



R1-5a



R2-1


R3-1


R3-1
Activated Blankout


R3-2


R3-2
Activated Blankout



R3-3


R3-4


R3-4
Activated Blankout



R3-5



R3-5a


R3-6



R3-7



R3-8



R3-8a



R3-8b



R3-9a



R3-10a



R3-11b



R3-14b


R3-18


R3-18
Activated Blankout



R4-1



R4-3



R4-5



R4-6


R4-7



R4-7a



R4-7b


R4-8



R4-10



R5-1



R5-1
Activated Blankout



R5-1a



R5-1a
Activated Blankout


R5-2


R5-6



R5-10a



R5-10c

R6-1



R6-2



R6-3



R6-3a



R7-8b



R7-9



R8-4



R8-8



R9-2



R9-3


R9-3a



R9-3b



R10-3



R10-4



R10-4b



R10-6



R10-7



R10-12



R10-15



R11-2



R12-1



R12-5



R14-1



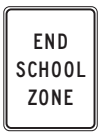
R15-1



R15-2



S4-2



S5-2

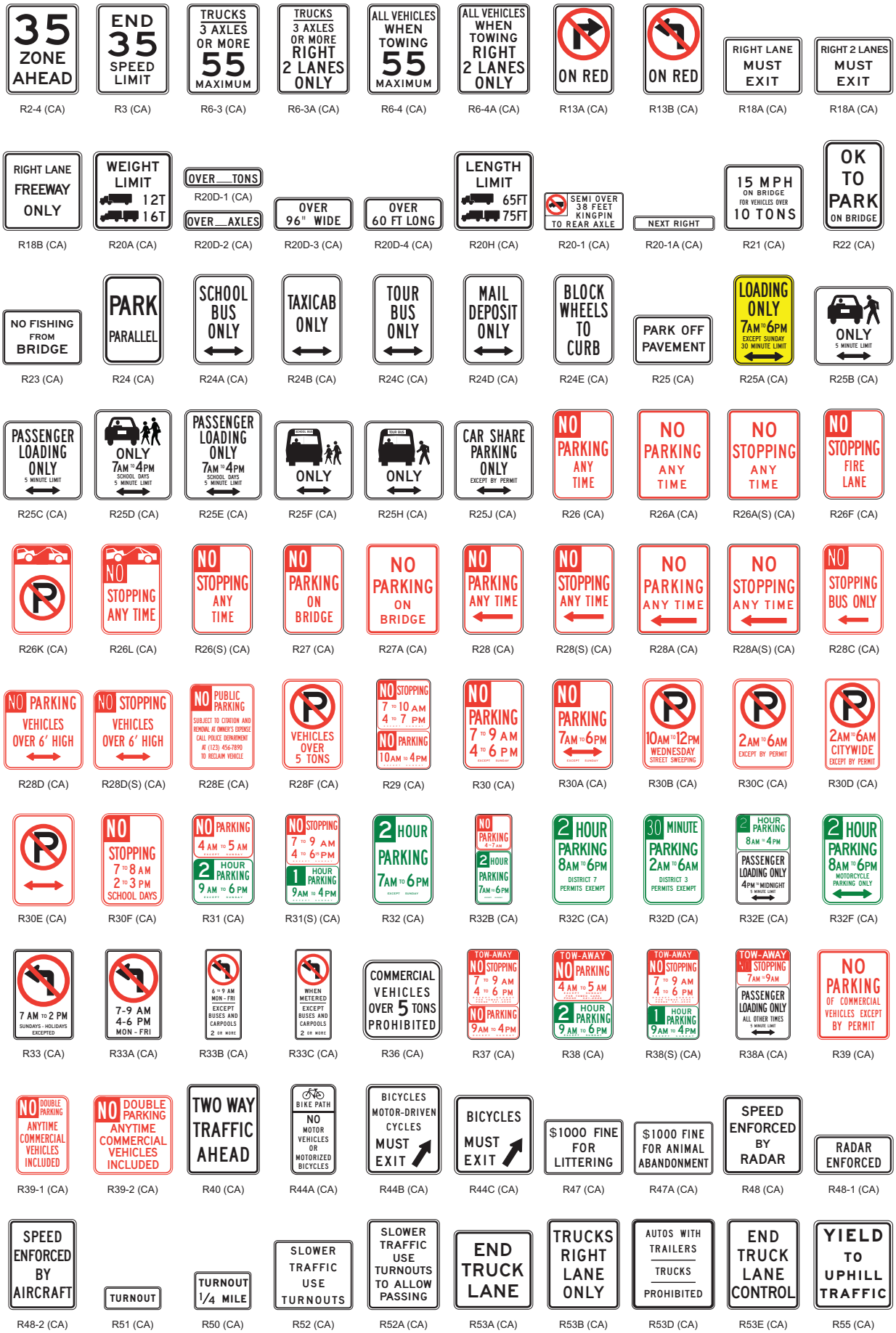
California Sign Chart

Sheet 2 of 12 - California Regulatory Signs

This chart contains commonly used signs in California, and is not meant to be used as a comprehensive sign chart.
California codes are designated by (CA). Otherwise Federal codes are shown. For a complete directory of signs, visit **www.dot.ca.gov/hq/traffops/signtech/signdel/index.htm**.

California Department of Transportation
Signs and Work Zones Branch
January 2010



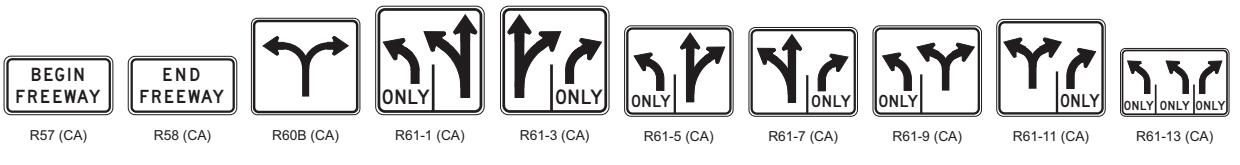


California Sign Chart

Sheet 3 of 12 - California Regulatory Signs

California Department of Transportation
Signs and Work Zones Branch
January 2010

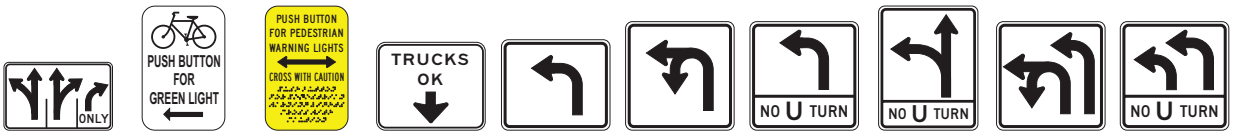
This chart contains commonly used signs in California, and is not meant to be used as a comprehensive sign chart.
California codes are designated by (CA). Otherwise Federal codes are shown. For a complete directory of signs, visit **www.dot.ca.gov/hq/traffops/signtech/signdel/index.htm**.



R57 (CA) R58 (CA) R60B (CA) R61-1 (CA) R61-3 (CA) R61-5 (CA) R61-7 (CA) R61-9 (CA) R61-11 (CA) R61-13 (CA)



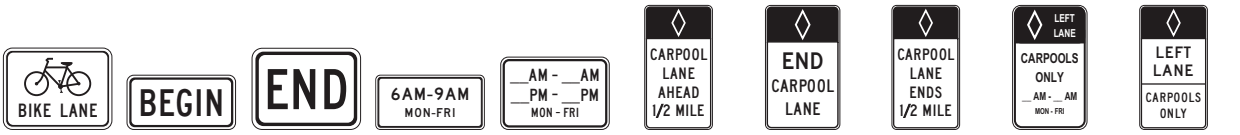
R61-15 (CA) R61-17 (CA) R61-19 (CA) R61-22 (CA) R61-24 (CA) R61-26 (CA) R61-28 (CA) R61-30 (CA) R61-32 (CA) R61-34 (CA)



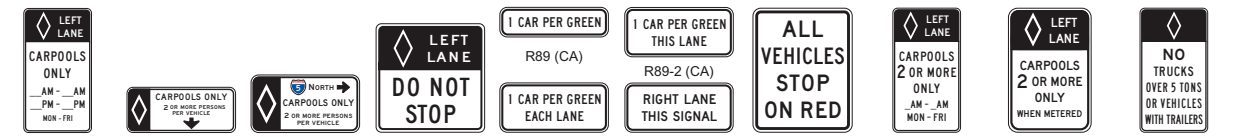
R61-36 (CA) R62C (CA) R62E (CA) R70 (CA) R73-1 (CA) R73-2 (CA) R73-3 (CA) R73-4 (CA) R73-5 (CA) R73-6 (CA)



R73-8 (CA) R73-9 (CA) R74 (CA) R75 (CA) R76 (CA) R76-1 (CA) R77 (CA) R78 (CA) R79 (CA) R80-1 (CA)



R81 (CA) R81A (CA) R81B (CA) R82A (CA) R82B (CA) R82-1 (CA) R84-1 (CA) R84-2 (CA) R86 (CA) R86-2 (CA)



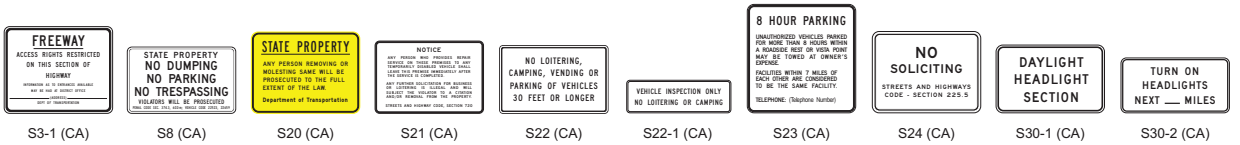
R86-3 (CA) R87-1 (CA) R87-2 (CA) R88 (CA) R89 (CA) R89-1 (CA) R89-2 (CA) R89-3 (CA) R90-1 (CA) R91 (CA) R91-1 (CA) R91-2 (CA)



R91-3 (CA) R91B (CA) R92 (CA) R93A (CA) R93-2 (CA) R94 (CA) R99 (CA) R99B (CA) R99C (CA) R100A (CA)



R100B (CA) R101 (CA) R102 (CA) R102A (CA) R103 (CA) R103A (CA) R104 (CA) R104A (CA) R105 (CA) R105A (CA)



S3-1 (CA) S8 (CA) S20 (CA) S21 (CA) S22 (CA) S22-1 (CA) S23 (CA) S24 (CA) S30-1 (CA) S30-2 (CA)



S30-3 (CA) S30-4 (CA) S30-5 (CA) S33 (CA) S34(CA) SR2(CA) SR5-1 (CA) SR6-1 (CA) SR7-1 (CA) SR8-1 (CA)

California Sign Chart

Sheet 4 of 12 - California Regulatory Signs (Continued)

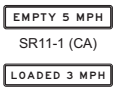
This chart contains commonly used signs in California, and is not meant to be used as a comprehensive sign chart.
California codes are designated by (CA). Otherwise Federal codes are shown. For a complete directory of signs, visit **www.dot.ca.gov/hq/traffops/signtech/signdel/index.htm**.

California Department of Transportation
Signs and Work Zones Branch
January 2010

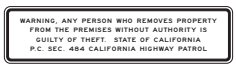




SR9-1 (CA)
SR10-1 (CA)



SR11-1 (CA)
SR12-1 (CA)



SR13-1 (CA)



SR15 (CA)



SR15A (CA)



SR17 (CA)



SR18 (CA)



SR19-1 (CA)



SR20-1 (CA)



SR22-1 (CA)



SR23-1 (CA)



SR25 (CA)



SR26 (CA)



SR27-1



SR39A (CA)



SR39A(U) (CA)



SR40 (CA)



SR41 (CA)



SR42 (CA)



SR43 (CA)



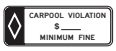
SR44 (CA)



SR46 (CA)



SR47 (CA)



SR50-1 (CA)



SR50-2 (CA)



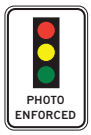
SR53 (CA)



SR54 (CA)



SR55 (CA)



SR56 (CA)



SR57 (CA)



SR58 (CA)



SR60-1 (CA)



SR60-2 (CA)



SR60-3 (CA)



SR60-4 (CA)



SR60-5 (CA)



SR60-6 (CA)



SR60-7 (CA)



SR60-8 (CA)



SR60-9 (CA)



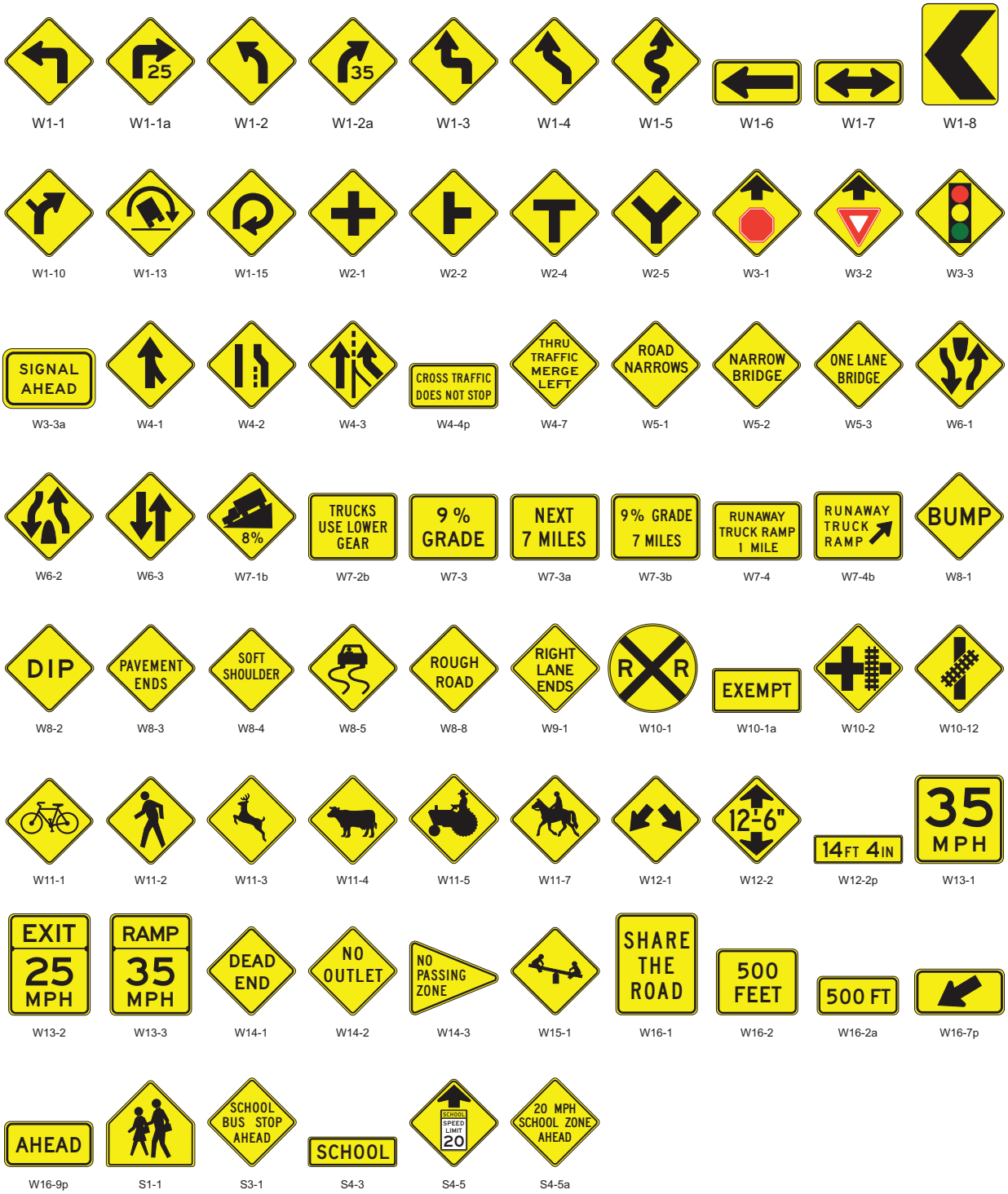
Vehicle Speed
Feedback Sign

California Sign Chart

Sheet 5 of 12 - Federal Warning Signs

This chart contains commonly used signs in California, and is not meant to be used as a comprehensive sign chart.
California codes are designated by (CA). Otherwise Federal codes are shown. For a complete directory of signs, visit **www.dot.ca.gov/hq/traffops/signtech/signdel/index.htm**.

California Department of Transportation
Signs and Work Zones Branch
January 2010



California Sign Chart

Sheet 6 of 12 - California Warning Signs

This chart contains commonly used signs in California, and is not meant to be used as a comprehensive sign chart.
California codes are designated by (CA). Otherwise Federal codes are shown. For a complete directory of signs, visit **www.dot.ca.gov/hq/traffops/signtech/signdel/index.htm**.

California Department of Transportation
Signs and Work Zones Branch
January 2010

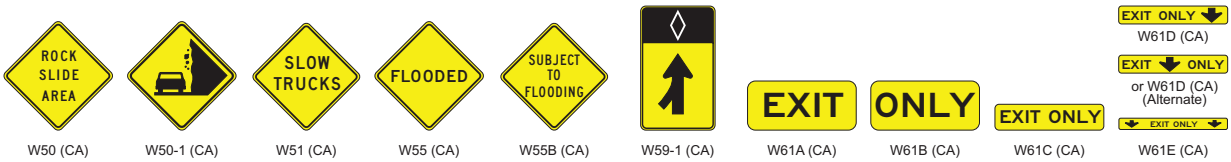




W4-1 (CA) | W4-10 (CA) | W4-14 (CA) | W4-18 (CA) | W4-22 (CA) | W11-1 (CA) | W20 (CA) | W20A (CA) | W30B (CA) | W30C (CA)



W31 (CA) | W31A (CA) | W34A (CA) | W34C (CA) | W38 (CA) | W43 (CA) | W44A (CA) | W46A (CA) | W48 (CA) | W49 (CA)



W50 (CA) | W50-1 (CA) | W51 (CA) | W55 (CA) | W55B (CA) | W59-1 (CA) | W61A (CA) | W61B (CA) | W61C (CA) | W61D (CA) | W61E (CA)



W61F (CA) | W61G (CA) | W61H (CA) | W66B (CA) | W69 (CA) | W70 (CA) | W72B (CA) | W73 (CA) | W73A (CA) | W74-1 (CA) | W75-1 (CA)



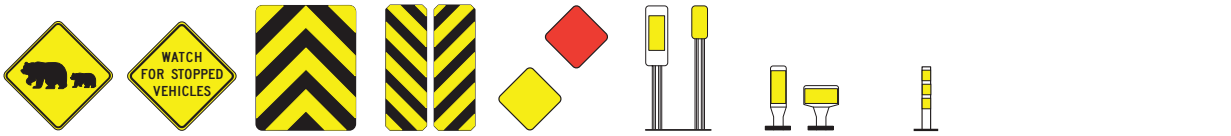
W82 (CA) | W82-1 (CA) | W83 (CA) | SW4-1 (CA) | SW17-1 (CA) | SW22-1 (CA) | SW22-1A (CA) | SW26 (CA) | SW28 (CA) | SW32 (CA)



SW35 (CA) | SW36 (CA) | SW37 (CA) | SW38 (CA) | SW41 (CA) | SW44 (CA) | SW45 (CA) | SW46 (CA) | SW47 (CA) | SW48 (CA)



SW48-1 (CA) | SW49 (CA) | SW50 (CA) | SW52 (CA) | SW54 (CA) | SW54-1 (CA) | SW54A (CA) | SW54B (CA) | SW54C (CA) | SW58 (CA)



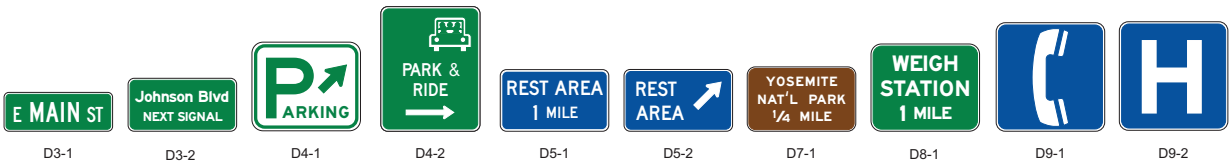
SW59 (CA) | SW60 (CA) | Type R (CA) | Type P (CA) | Type N (CA) | Type L (CA) | Type K (CA) | Type Q (CA)

California Sign Chart

Sheet 7 of 12 - Federal Guide Signs

This chart contains commonly used signs in California, and is not meant to be used as a comprehensive sign chart.
California codes are designated by (CA). Otherwise Federal codes are shown. For a complete directory of signs, visit **www.dot.ca.gov/hq/traffops/signtech/signdel/index.htm**.

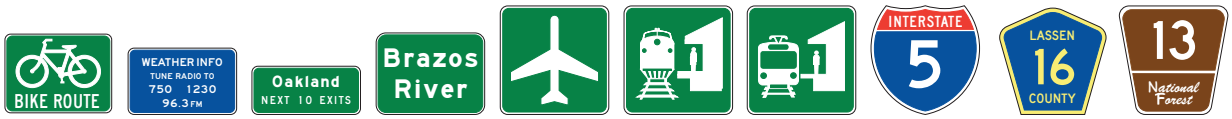
California Department of Transportation
Signs and Work Zones Branch
January 2010



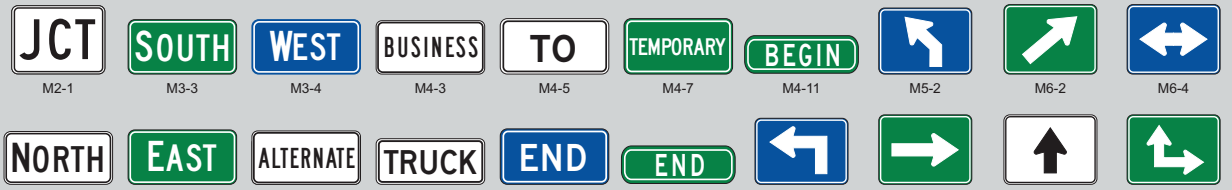
D3-1 D3-2 D4-1 D4-2 D5-1 D5-2 D7-1 D8-1 D9-1 D9-2



D9-3a D9-6 D9-7 D9-8 D9-9 D9-11 D9-11a D9-11b D9-13 D9-17



D11-1 D12-1 E9 I-3 I-5 I-7 I-12 M1-1 Shield M1-6 M1-7



M2-1 M3-3 M3-4 M4-3 M4-5 M4-7 M4-11 M5-2 M6-2 M6-4

M3-1 M3-2 M4-1 M4-4 M4-6 M4-12 M5-1 M6-1 M6-3 M6-6

Note: These Federal M series signs may be used as white on green, white on blue, or black on white as appropriate.



RL-100 RM-010 RM-120 RS-040 RS-070 RW-080 RW-130 Diagramatic Sign

California Sign Chart

Sheet 8 of 12 - California Guide Signs

This chart contains commonly used signs in California, and is not meant to be used as a comprehensive sign chart.
California codes are designated by (CA). Otherwise Federal codes are shown. For a complete directory of signs, visit **www.dot.ca.gov/hq/traffops/signtech/signdel/index.htm**.

California Department of Transportation
Signs and Work Zones Branch
January 2010



California Sign Chart

Sheet 9 of 12 - California Guide Signs (Continued)

This chart contains commonly used signs in California, and is not meant to be used as a comprehensive sign chart.
California codes are designated by (CA). Otherwise Federal codes are shown. For a complete directory of signs, visit **www.dot.ca.gov/hq/traffops/signtech/signdel/index.htm**.

California Department of Transportation
Signs and Work Zones Branch
January 2010



California Sign Chart

Sheet 10 of 12 - California Guide Signs (Continued)

This chart contains commonly used signs in California, and is not meant to be used as a comprehensive sign chart.
California codes are designated by (CA). Otherwise Federal codes are shown. For a complete directory of signs, visit **www.dot.ca.gov/hq/traffops/signtech/signdel/index.htm**.

California Department of Transportation
Signs and Work Zones Branch
January 2010



S29-1 (CA)



S29-2 (CA)



S32 (CA)


S32A (CA)


S32-1 (CA)


S32-2 (CA)


S32-3 (CA)


S32-4 (CA)


S32-5 (CA)



S34 (CA)



S35 (CA)



S35-1 (CA)



S35-2 (CA)



S35-3 (CA)



S36 (CA)



S36A (CA)



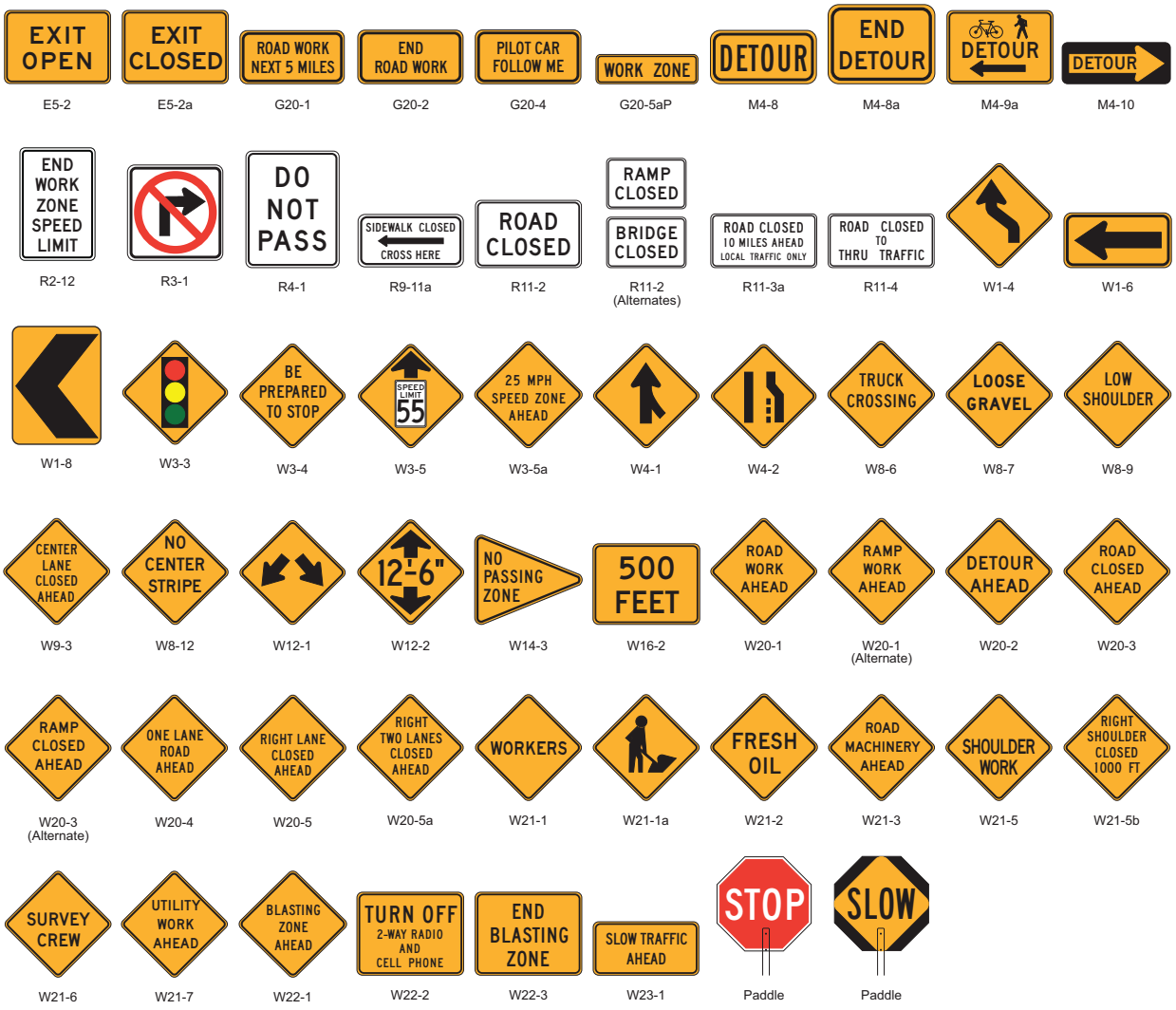
S36B (CA)

California Sign Chart

Sheet 11 of 12 - Federal Temporary Traffic Control Signs

This chart contains commonly used signs in California, and is not meant to be used as a comprehensive sign chart.
California codes are designated by (CA). Otherwise Federal codes are shown. For a complete directory of signs, visit **www.dot.ca.gov/hq/traffops/signtech/signdel/index.htm**.

California Department of Transportation
Signs and Work Zones Branch
January 2010



California Sign Chart

Sheet 12 of 12 - California Temporary Traffic Control Signs

This chart contains commonly used signs in California, and is not meant to be used as a comprehensive sign chart.
California codes are designated by (CA). Otherwise Federal codes are shown. For a complete directory of signs, visit **www.dot.ca.gov/hq/traffops/signtech/signdel/index.htm**.

California Department of Transportation
Signs and Work Zones Branch
January 2010


C9A (CA)



C12 (CA)



Front
C17 (CA)



Back
C17 (CA)



C20 (CA)



C20A (CA)
C20B (CA)



C23B (CA)



C24 (CA)



C27 (CA)



C29 (CA)



C30 (CA)



C30A (CA)



C31A (CA)



C37 (CA)



C37 (CA)



C38 (CA)



C40 (CA)



C40A (CA)



C43 (CA)



C44 (CA)



SC3 (CA)



SC5 (CA)



SC6-3 (CA)



SC6-4 (CA)



SC6A (CA)



SC6B (CA)



SC7 (CA)



SC8 (CA)



SC9 (CA)



SC10 (CA)



SC11 (CA)



SC13 (CA)



SC15 (CA)



SC18 (CA)



SC19 (CA)



SC20 (CA)

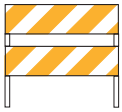


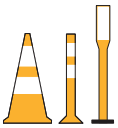
SC21(CA)


Type R (CA)


Type P (CA)


Type N (CA)


Type II
Barricade


Cone,
Tubular Marker,
Channelizer


Plastic
Drum

(This page left intentionally blank)

APPENDIX A102(CA). LIST OF ACRONYMS & ABBREVIATIONS

Support:

The following list of acronyms are related to traffic control devices and provided for ease of use and as a handy reference:

A	
@	At
AADT	Average Annual Daily Traffic
AASHTO	American Association of State Highway and Transportation Officials
ADA	Americans with Disabilities Act
ADT	Average Daily Traffic
AHS	Automated Highway System
Alt	Alternate
AM	Time from midnight to noon
AMBER	Use of CMS signs for child abduction alert messages
AMIS	Automated Management Information System
ANSI	American National Standards Institute
Approx	Approximate
APWA	American Public Works Association
ASCE	American Society of Civil Engineers
ASTM	American Society for Testing and Materials
ATIS	Advanced Traveler Information Systems
ATMS	Advanced Traffic Management System
ATSSA	American Traffic Safety Services Association
AVCS	Automated Vehicle Control System
Ave or AVE	Avenue
Avg	Average
B	
BART	Bay Area Rapid Transit
Bldg	Building
Blvd or BLVD	Boulevard
Br or BR	Bridge
BT&H	Business, Transportation & Housing Agency
C	
CA	California
CAC	California Administrative Code
Cal/OSHA	California Occupational Safety and Health Administration
CA MUTCD	California Manual on Uniform Traffic Control Devices for Streets and Highways
Caltrans	California Department of Transportation
CBD	Central Business District
CCMP	County Congestion Management Plan
CCO	Contract Change Order
CCR	California Code of Regulations
CDC	California Department of Conservation
CDF	California Department of Forestry
CDFG	California Department of Fish and Game

CEAC	County Engineers Association of California
CELSOC	Consulting Engineering and Land Surveyors of California
CFR	Code of Federal Regulations
CHIN	California Highway Information Network
CHP	California Highway Patrol
cm	Centimeter
CMA	Congestion Management Agency
CMP	Congestion Management Program
CMS	Changeable Message Sign or Congestion Management System
Co or CO	County
COB	Close of Business
COZEEP	Construction Zone Enhanced Enforcement Program
CPC	California Penal Code
CPH	California Permit Handbook
CPM	Critical Path Method
CPUC	California Public Utilities Commission
Cr or CR	Creek
CRHR	California Register of Historical Resources
CT	Caltrans or California Department of Transportation
CTA	California Trucking Association
CTC	California Transportation Commission
CTCDC	California Traffic Control Devices Committee
CTP	California Transportation Plan
CURE	Clean-up Roadside Environment
CVC	California Vehicle Code
D	
Deg	Degree
Del	Delineator
Det	Detour or Detail
DHV	Design Hourly Volume
DI	Delay Index, Drop Inlet or Drainage Inlet
Dia	Diameter
DIB	Design Information Bulletin
Dist	Distance or District
DMV	Department of Motor Vehicles
DOT	Department of Transportation
Dr or DR	Drive
DTO	Division of Traffic Operations
Dwy or DWY	Driveway
DYS	Double Yellow Stripe
E	
e.g.	"For Example"
E	East
EB	Eastbound, Environmental Branch or End of Bridge
Elev	Elevation
ENGR	Engineer or Engineering
EP	Edge of Pavement or Environmental Planning
ES	Edge of Shoulder or End Section

ESA	Environmentally Sensitive Area or Endangered Species Act
ESAL	Equivalent Single-Axle Loads
ETW	Edge of Traveled Way
Exp or EXP	Expressway
F	
F&E System	Freeway and Expressway System
FAI	Federal-aid Interstate
FAP	Federal-aid Primary
FCC	Federal Communication Commission
FEBT	Facing Eastbound Traffic
FHWA	Federal Highway Administration
Fig	Figure
FNBT	Facing Northbound Traffic
FR	Federal Register
Fr Rd	Frontage Road
FS	Far Side
FSBT	Facing Southbound Traffic
FSP	Freeway Service Patrol
Ft or FT	Foot or Feet
FWBT	Facing Westbound Traffic
Fwy or FWY	Freeway
G	
g	Acceleration due to gravity
GPS	Global Positioning System
GR	Guard Railing
H	
H	Height
HAR	Highway Advisory Radio
HAZMAT	Hazardous Material
HCM	Highway Capacity Manual
HDM	Highway Design Manual
HOT	High Occupancy Toll
HOV	High-Occupancy Vehicle
HOVL	High-Occupancy Vehicle Lane
HM	Hazardous Material
HQ	Caltrans Headquarters
Hr or HR	Hour
HW	Hazardous Waste
Hwy or HWY	Highway
I	
i.e.	"In Other Words"
IGR	Intergovernmental Review
ILEV	Inherently Low Emission Vehicle
in	Inch
Inj or INJ	Injury
IRLs	In-Roadway Lights
IRWLs	In-Roadway Warning Lights

ISO	International Standards Organization
ISTEA	Intermodal Surface Transportation Efficiency Act of 1991 (Federal)
ITE	Institute of Transportation Engineers
ITS	Intelligent Transportation Systems or Institute of Transportation Studies
ITTE	Institute of Transportation & Traffic Engineering
IVHS	Intelligent Vehicle Highway System
K	
km	Kilometer
KP	Kilometer Post
L	
L	Length
Lat	Latitude
lb or LB	Pound
LED	Light Emitting Diode
LF	Linear Foot
Ln or LN	Lane
Loc or LOC	Location
LOS	Level of service (Traffic Congestion Measure)
LPA	Local Public Agency
LRT	Light Rail Transit
Lt or LT	Left
M	
m	meter
MADT	Monthly Average Daily Traffic
Maint	Maintenance
Max or MAX	Maximum
MAZEEP	Maintenance Zone Enhanced Enforcement Program
MBGR	Metal Beam Guard Rail
Med or MED	Median
MF	Mixed Flow
mi or MI	Mile or Miles
Min or MIN	Minimum
Misc or MISC	Miscellaneous
mm	Millimeter
mph or MPH	Miles per Hour
MPO	Metropolitan Planning Organization
MSL	Mean Sea Level
MT	Mass Transit
MTC	Metropolitan Transportation Commission (for the San Francisco Bay Area)
MUTCD	Manual on Uniform Traffic Control Devices
MVM	Per Million Vehicle Miles
N	
N	North
NB	Northbound
NCEES	National Council of Examiners for Engineering and Surveying
NCHRP	National Cooperative Highway Research Program
NCRP	National Cooperative Research Program

NCUT	National Committee on Urban Transportation
NCUTCD	National Committee on Uniform Traffic Control Devices
NCUTLO	National Committee on Uniform Traffic Laws and Ordinances
NHI	National Highway Institute
NHL	National Historic Landmark
NHS	National Highway System
NHSB	National Highway Safety Bureau
NHTSA	National Highway Traffic Safety Administration
NNIH	National Network of Interstage Highways
No.	Number (must have period)
Nos.	Numbers (must have period)
NPRM	Notice of Proposed Rule Making
NPS	National Park Service (U.S.)
NR	National Register (of Historic Places, abbreviation)
NRHP	National Register of Historic Places
NS	Near Side
NTS	National Transportation System or Not To Scale
NTSB	National Transportation Safety Board
O	
O & D	Origin and Destination
Oc or OC	Overcrossing
OCTA	Orange County Transportation Authority
ODA	Outdoor Advertising (Act)
OES	Office of Emergency Services
OG	Original Ground
OH	Overhead (Structure)
OHP	Office of Historic Preservation
Opp	Opposite
OSA	Office of the State Architect
OSHA	Occupational Safety and Health Administration
P	
P2P	Peer-to-Peer Program
P&P	Policy & Procedure
PCH	Pacific Coast Highway
PCMS	Portable Changeable Message Sign
PDO	Property Damage Only
PE	Professional Engineer or Project Engineer
Ped or PED	Pedestrian
PHF	Peak Hour Factor
PHI	Point of Historic Interest
PM	Post Mile
PMS	Pavement Management System
PMT	Passenger Miles Traveled
PS&E	Plans, Specifications, and Estimate
Pvmt or PVMT	Pavement
PUC	California Public Utilities Commission

Q	
Q&A	Questions and Answers
Qty	Quantity
R	
R&D	Research and Development
RCE	Registered Civil Engineer
Rd	Road
Rdwy	Roadway
RE	Resident Engineer or Right of Entry
ROW	Right of Way
RR	Railroad
Rt or RT	Right
Rte or RTE	Route or Registered Traffic Engineer
RV	Recreational Vehicle
R/W	Right of Way
Rwy	Railway
RXR	Railroad Crossing
S	
S&H Code	Streets & Highways Code
S	South
SACOG	Sacramento Area Council of Governments
SAFE	Service Authority for Freeways & Expressways
SB	Southbound or Senate Bill
SCAG	Southern California Association of Governments
SCRRA	Southern California Regional Rail Authority
SCRTD	Southern California Rapid Transit District
Sec	Second or Section
SHELL	State Highway Extra Legal Loads
SHL	State Historical Landmark
SHOPP	State Highway Operation and Protection Program
SHS	Standard Highway Signs Book (FHWA)
SI	Safety Index or International System of Units (Metric)
SR	State Route or Senate Resolution
SRRA	Safety Roadside Rest Area
SSD	Stopping Sight Distance
SSP's	Standard Special Provisions
St or ST	Street
STA	State Transit Assistance
STIP	State Transportation Improvement Program
Str or STR	Structure
SW	Sidewalk or Soundwall
SWITRS	Statewide Integrated Traffic Records Systems
T	
TASAS	Traffic Accident Surveillance and Analysis System
TC	Traffic Control
TCM	Transportation Control Measure
TCP	Traffic/Transportation Control Plan

TEA21	Transportation Efficiency Act for the 21st Century
Temp or TEMP	Temporary
TI	Traffic Index
TM	Caltrans Traffic Manual
TMC	Traffic Management Center
TMP	Transportation Management Plan
TMT	Traffic Management Team
TODS	Tourist-Oriented Directional Signs
TOPD	Traffic Operations Policy Directives
TOS	Traffic Operations System
TRB	Transportation Research Board
TS	Traffic Signal
TSS	Caltrans Traffic Sign Specifications
TTC	Temporary Traffic Control
U	
UC	Under Crossing
UP	Underpass
UPRR	Union Pacific Railroad
URR	Urban Rail Transit Program (State)
USA	Underground Service Alert
USC	United States Code (Federal)
USCE	United States (Army) Corps of Engineers (Federal)
USDOT	United States Department of Transportation
V	
VMS	Variable Message Sign
VMT	Vehicle Miles Traveled
vph or VPH	Vehicles Per Hour
vphpl or VPHPL	Vehicles Per Hour Per Lane
W	
W	West or Width
WATCH	Work Area Traffic Control Handbook
WB	Westbound
WIM	Weigh-in Motion
WS	White Stripe
Wt	Weight
X	
Xing or XING	Crossing
X	
Yr	Year
YS	Yellow Stripe

(This page left intentionally blank)

APPENDIX A103(CA). LIST OF USEFUL TCD RELATED WEB SITES

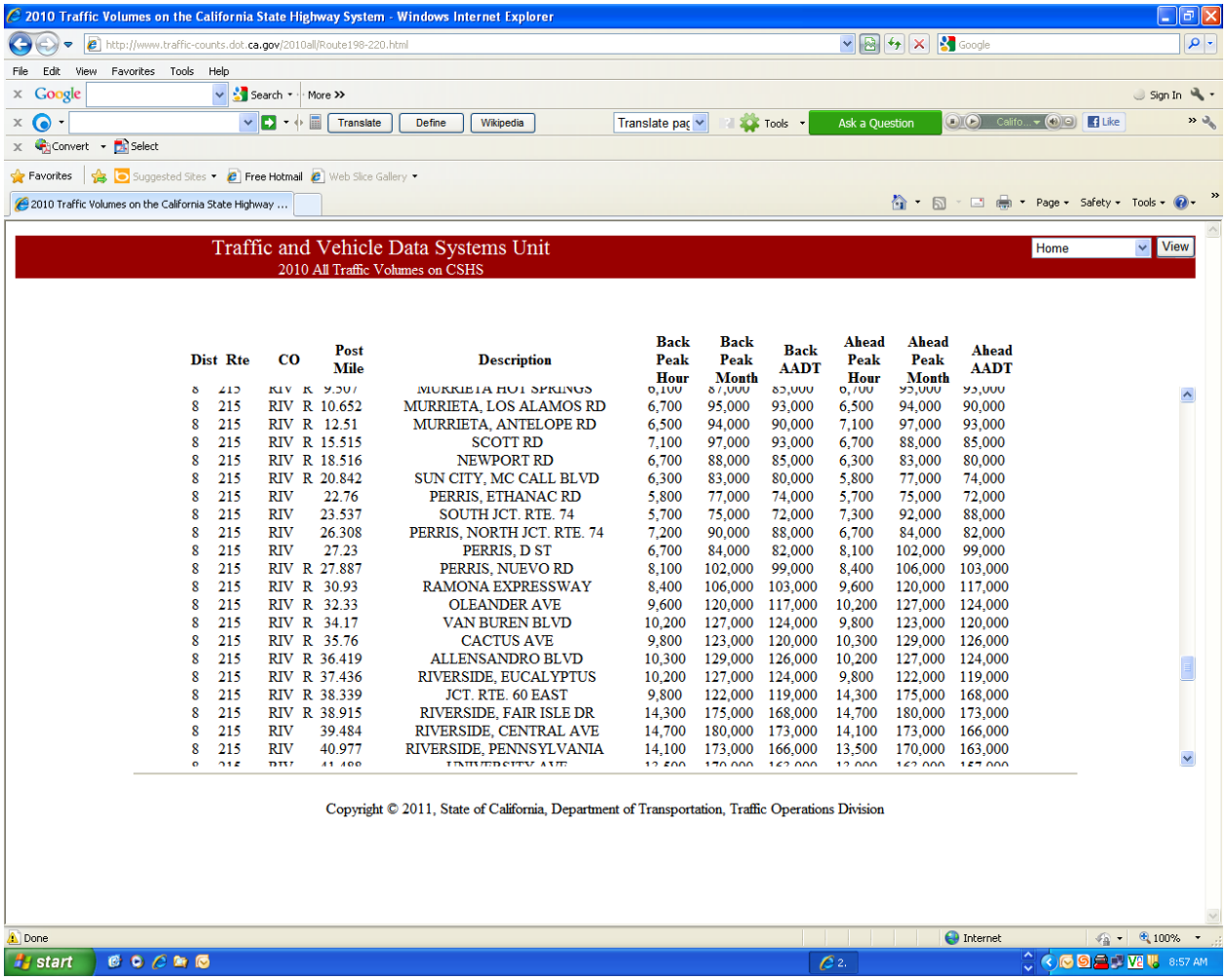
Support:

The following list of web sites are related to traffic control devices and provided for ease of use and as a handy reference:

Description	Internet Web Site Address
American Association of State Highway and Transportation Officials (AASHTO)	http://www.transportation.org/
American Railway Engineering and Maintenance-of-Way Association (AREMA)	http://www.arema.org/
American Traffic Safety Services Association (ATSSA)	http://www.atssa.com
California Building Standards Code	http://www.iccsafe.org/
California Code of Regulations (CCR)	http://ccr.oal.ca.gov/
California Department of Motor Vehicles (DMV)	http://www.dmv.ca.gov/dmv.htm
California Highway Patrol	http://www.chp.ca.gov/
California Law	http://www.leginfo.ca.gov/calaw.html
California MUTCD	http://www.dot.ca.gov/hq/traffops/signtech/mutcdsupp/
California Public Utilities Commission (CPUC)	http://www.cpuc.ca.gov/
California Sign Chart	http://www.dot.ca.gov/hq/traffops/signtech/signdel/signchart.html
California Traffic Control Devices Committee (CTCDC)	http://www.dot.ca.gov/hq/traffops/signtech/newtech/
California Vehicle Code	http://www.dmv.ca.gov/pubs/vctop/vcpdftoc.htm
Caltrans Approved Safety Devices List	http://www.dot.ca.gov/hq/esc/approved_products_list/pdf/highway_safety_features.pdf
Caltrans Interchange Exit Numbering	http://www.dot.ca.gov/hq/traffops/signtech/calnexus/index.htm
Caltrans Manuals	http://www.dot.ca.gov/manuals.htm
Caltrans Office of Truck Services (STAA Truck Routes)	http://www.dot.ca.gov/hq/traffops/trucks/
Caltrans Publications	http://caltrans-opac.ca.gov/publicat.htm
Caltrans Rural/Urban Roadway Classification	http://www.dot.ca.gov/hq/tsip/hpms/Page1.php
Caltrans Sign Specifications	http://www.dot.ca.gov/hq/traffops/signtech/signdel/specs.htm
Caltrans Traffic Manual	http://www.dot.ca.gov/hq/traffops/signtech/signdel/trafficmanual.htm

Description	Internet Web Site Address
Federal-Aid Highway Program Guidance on High Occupancy Vehicle (HOV) Lanes	http://www.fhwa.dot.gov/operations/hovguide01.htm
Federal Highway Administration	http://www.fhwa.dot.gov/
Federal Railroad Administration	http://www.fra.dot.gov/
FHWA's Experimentation/Interpretation Letters	http://www.atssa.com/page.ww?section=Resources&name=Interpretation+Letters
FHWA's MUTCD	http://mutcd.fhwa.dot.gov/
FHWA's Office of Safety	http://safety.fhwa.dot.gov/index.htm
FHWA's Standard Highway Signs Book	http://mutcd.fhwa.dot.gov/ser-shs_millennium.htm
Going Going Gone (Free Surplus Transportation Literature from UC Berkeley's ITS Tech Transfer)	http://www.techtransfer.berkeley.edu/freestuff/
Illuminating Engineering Society (IES)	http://www.iesna.org/
Institute of Makers of Explosives	http://www.ime.org/
Institute of Transportation Engineers (ITE)	http://www.ite.org
International Organization for Standards (ISO)	http://www.iso.org/
International Safety Equipment Association (ISEA)	http://www.safetyequipment.org/
National Committee on Uniform Traffic Control Devices (NCUTCD)	http://www.ncutcd.org
National Committee on Uniform Traffic Laws and Ordinances (NCUTLO)	http://www.ncutlo.org
Occupational Safety and Health Administration (OSHA)	http://www.osha.gov/
Tech Transfer Training: UC Berkeley Institute of Transportation Studies	http://www.techtransfer.berkeley.edu/training/index.php
Transportation Research Board (TRB)	http://www.trb.org/
U.S. Architectural and Transportation Barriers Compliance Board (The U.S. Access Board)	http://www.access-board.gov/

(This page left intentionally blank)



Dist	Rte	CO	Post Mile	Description	Back Peak Hour	Back Peak Month	Back AADT	Ahead Peak Hour	Ahead Peak Month	Ahead AADT
8	215	RIV	R 9.507	MURRIETA HOT SPRINGS	6,100	87,000	85,000	6,700	93,000	93,000
8	215	RIV	R 10.652	MURRIETA, LOS ALAMOS RD	6,700	95,000	93,000	6,500	94,000	90,000
8	215	RIV	R 12.51	MURRIETA, ANTELOPE RD	6,500	94,000	90,000	7,100	97,000	93,000
8	215	RIV	R 15.515	SCOTT RD	7,100	97,000	93,000	6,700	88,000	85,000
8	215	RIV	R 18.516	NEWPORT RD	6,700	88,000	85,000	6,300	83,000	80,000
8	215	RIV	R 20.842	SUN CITY, MC CALL BLVD	6,300	83,000	80,000	5,800	77,000	74,000
8	215	RIV	22.76	PERRIS, ETHANAC RD	5,800	77,000	74,000	5,700	75,000	72,000
8	215	RIV	23.537	SOUTH JCT. RTE. 74	5,700	75,000	72,000	7,300	92,000	88,000
8	215	RIV	26.308	PERRIS, NORTH JCT. RTE. 74	7,200	90,000	88,000	6,700	84,000	82,000
8	215	RIV	27.23	PERRIS, D ST	6,700	84,000	82,000	8,100	102,000	99,000
8	215	RIV	R 27.887	PERRIS, NUEVO RD	8,100	102,000	99,000	8,400	106,000	103,000
8	215	RIV	R 30.93	RAMONA EXPRESSWAY	8,400	106,000	103,000	9,600	120,000	117,000
8	215	RIV	R 32.33	OLEANDER AVE	9,600	120,000	117,000	10,200	127,000	124,000
8	215	RIV	R 34.17	VAN BUREN BLVD	10,200	127,000	124,000	9,800	123,000	120,000
8	215	RIV	R 35.76	CACTUS AVE	9,800	123,000	120,000	10,300	129,000	126,000
8	215	RIV	R 36.419	ALLENSANDRO BLVD	10,300	129,000	126,000	10,200	127,000	124,000
8	215	RIV	R 37.436	RIVERSIDE, EUCALYPTUS	10,200	127,000	124,000	9,800	122,000	119,000
8	215	RIV	R 38.339	JCT. RTE. 60 EAST	9,800	122,000	119,000	14,300	175,000	168,000
8	215	RIV	R 38.915	RIVERSIDE, FAIR ISLE DR	14,300	175,000	168,000	14,700	180,000	173,000
8	215	RIV	39.484	RIVERSIDE, CENTRAL AVE	14,700	180,000	173,000	14,100	173,000	166,000
8	215	RIV	40.977	RIVERSIDE, PENNSYLVANIA	14,100	173,000	166,000	13,500	170,000	163,000
8	215	RIV	41.488	UNIVERSITY AVE	13,500	170,000	163,000	13,000	163,000	157,000

Copyright © 2011, State of California, Department of Transportation, Traffic Operations Division

Traffic and Vehicle Data Systems Unit

2010 All Traffic Volumes on CSHS

Home View

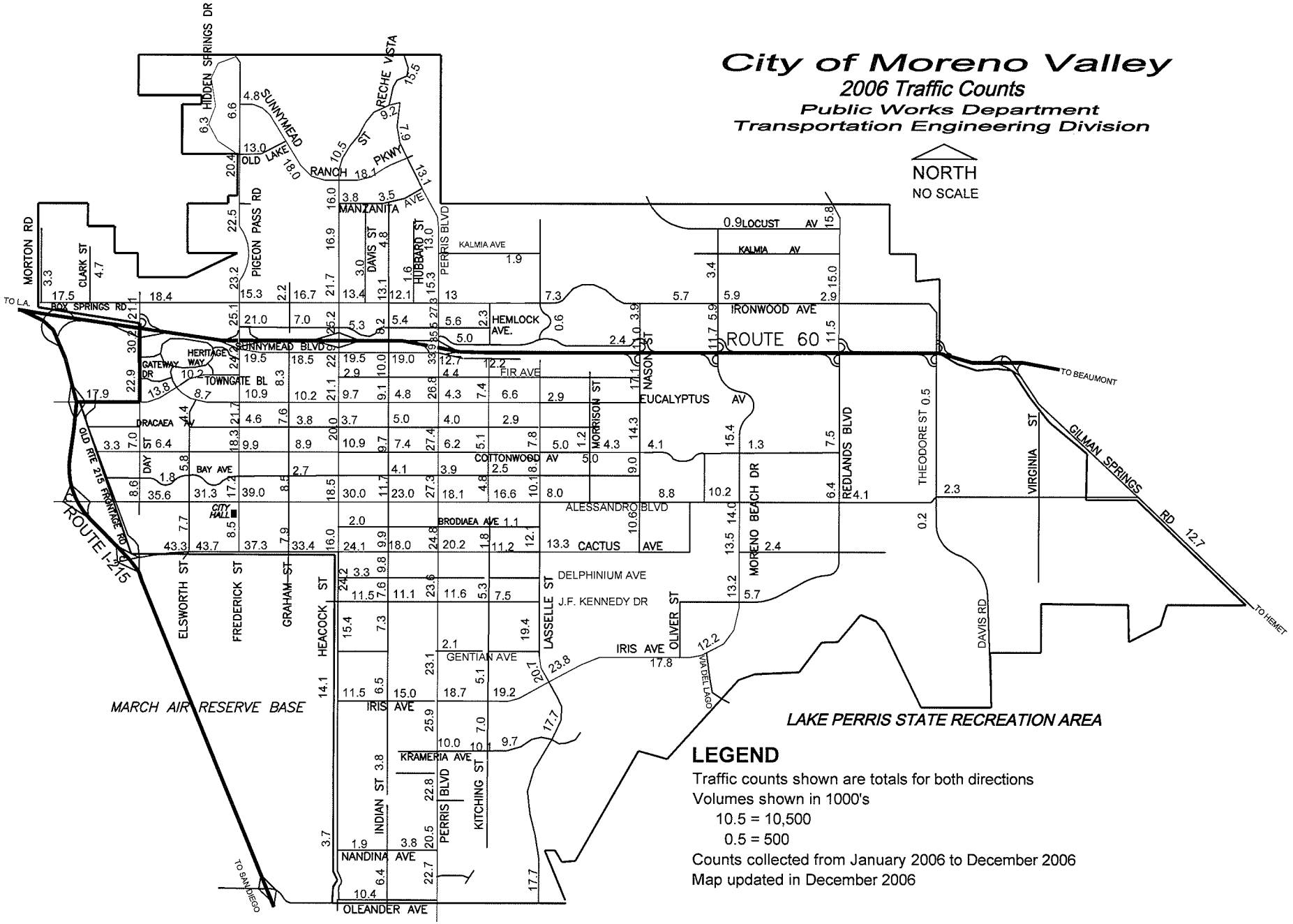
Dist	Rte	CO	Post Mile	Description	Back Peak Hour	Back Peak Month	Back AADT	Ahead Peak Hour	Ahead Peak Month	Ahead AADT
5	198	MON R	0.111	SAN LUCAS, JCT. RTE. 101						
5	198	MON	0.5	SAN LUCAS, EAST				190	2,450	2,30(
5	198	MON	13.995	JCT. RTE. 25 NORTH				100	1,150	1,00(
5	198	MON	25.786	MONTEREY FRESNO CO LINE				170	1,550	1,20(
6	198	FRE	0	MONTEREY FRESNO CO LINE						
6	198	FRE	12.33	PARKFIELD JUNCTION				180	1,550	1,20(
6	198	FRE	19.145	COALINGA CREEK				120	1,400	1,10(
6	198	FRE	21.19	FIRESTONE AVE				110	1,500	1,10(
6	198	FRE	21.74	COALINGA, SOUTH CITY LIMITS				110	1,400	1,05(
6	198	FRE	22.37	COALINGA, 8TH/POLK ST				470	5,100	4,50(
6	198	FRE	22.65	JCT. RTE. 33				670	7,600	7,00(
6	198	FRE	26.814	JCT. RTE. 5				320	3,350	2,90(
6	198	FRE	34.66	JCT. RTE. 269				850	7,300	6,20(
6	198	FRE	42.731	FRESNO/KINGS CO LINE				910	7,800	6,70(
6	198	KIN	0	FRESNO/KINGS CO LINE						
6	198	KIN	3.011	MAIN GATE LEMOORE NAVAL AIR				320	2,750	2,35(
6	198	KIN	4.992	AVENAL CUTOFF RD				2,100	19,800	17,50
6	198	KIN R	8.897	JCT. RTE. 41				2,050	20,400	18,00
6	198	KIN R	10.561	18TH AVE				1,950	23,400	20,00
6	198	KIN R	12.106	HOUSTON AVE				2,150	23,000	21,30
6	198	KIN R	14.767	14TH AVE				2,750	30,000	27,50

Copyright © 2011, State of California, Department of Transportation, Traffic Operations Division

City of Moreno Valley

2006 Traffic Counts

Public Works Department
Transportation Engineering Division



LEGEND

Traffic counts shown are totals for both directions

Volumes shown in 1000's

10.5 = 10,500

0.5 = 500

Counts collected from January 2006 to December 2006

Map updated in December 2006

The information on this map is provided as a courtesy and deemed reliable based on samples taken by the City.

COUNTY OF RIVERSIDE - TRANSPORTATION DEPT
TRAFFIC COUNTS - 2010

LOCATION	DIR	X-STREET	NOTE	DATE	DAY	ADT
04TH AVE	E	US-95		4/6/2010	Tuesday	62
	E	LOVEKIN BLVD		4/6/2010	Tuesday	185
	E	HUNTER BLVD		4/6/2010	Tuesday	163
06TH ST	W	COAHUILLA ST		5/10/2006	Wednesday	741
08TH AVE	W	C & D BLVD	RRX	7/19/2005	Tuesday	145
11TH ST	N	CONTOUR AVE		8/31/2010	Tuesday	886
	E	LAKEVIEW AVE		8/31/2010	Tuesday	1120
	E	YUCCA AVE		4/19/2006	Wednesday	712
	S	12TH ST		4/19/2006	Wednesday	698
18TH AVE	E	LOVEKIN BLVD	CENSUS	6/16/2009	Tuesday	381
	E	LOVEKIN BLVD		11/17/2004	Wednesday	600
20TH AVE	W	MOUNTAIN VIEW RD	CVAG	1/30/2010	Saturday	1246
	W	INDIAN AVE	CVAG	1/30/2010	Saturday	1928
	W	BUBBLING WELLS RD		1/6/2010	Wednesday	518
	E	PALM DR		1/6/2010	Wednesday	523
	W	BUBBLING WELLS RD		1/5/2010	Tuesday	488
	E	PALM DR		1/5/2010	Tuesday	560
20TH ST	W	RUBIDOUX BLVD		11/16/2004	Tuesday	2476
22ND AVE	E	SKY RIDGE RD		3/26/2008	Wednesday	272
24TH ST	W	RUBIDOUX BLVD	CENSUS	2/25/2009	Wednesday	505
	E	RUBIDOUX BLVD	CENSUS	2/25/2009	Wednesday	1587
	E	RUBIDOUX BLVD		1/29/2008	Tuesday	732
	W	RUBIDOUX BLVD		1/29/2008	Tuesday	193
	E	RUBIDOUX BLVD		11/16/2004	Tuesday	2202
	W	RUBIDOUX BLVD		11/16/2004	Tuesday	392
28TH AVE	E	NEIGHBOURS BLVD	CENSUS	6/16/2009	Tuesday	573
	E	NEIGHBOURS BLVD		11/17/2004	Wednesday	1083
28TH ST	E	RUBIDOUX BLVD		1/29/2008	Tuesday	694
	W	RUBIDOUX BLVD		1/29/2008	Tuesday	495
30TH ST	E	RUBIDOUX BLVD	CENSUS	4/7/2009	Tuesday	5230
	E	RUBIDOUX BLVD		12/2/2004	Thursday	4259
34TH ST	W	WALLACE ST	CENSUS	2/11/2009	Wednesday	3567
	N	ARMSTRONG RD		3/29/2005	Tuesday	1047
	S	ARMSTRONG RD		3/29/2005	Tuesday	1954
	W	WALLACE ST		10/21/2004	Thursday	7931
37TH ST	W	VALLEY WAY		1/29/2008	Tuesday	889
42ND AVE	W	FRONT HALL RD		5/11/2010	Tuesday	10234
	W	CAMBRIDGE AVE		5/11/2010	Tuesday	8969

LOCATION	DIR	X-STREET	NOTE	DATE	DAY	ADT
42ND AVE	E	LIMA HALL RD		12/8/2009	Tuesday	4882
	W	LIMA HALL RD		12/8/2009	Tuesday	6477
	E	WASHINGTON ST	CENSUS	6/2/2009	Tuesday	13141
	E	JAMAICA SANDS DR	CENSUS	6/2/2009	Tuesday	7478
	W	LIMA HALL RD		12/5/2007	Wednesday	7402
	E	LIMA HALL RD		12/5/2007	Wednesday	5876
	E	LIMA HALL RD		8/2/2006	Wednesday	3603
	W	LIMA HALL RD		8/2/2006	Wednesday	6061
	W	LIMA HALL RD		3/3/2005	Thursday	6080
	E	LIMA HALL RD		3/2/2005	Wednesday	3262
	E	WASHINGTON ST		10/21/2004	Thursday	13413
	E	YUCCA LN		4/20/2004	Tuesday	10546
	W	YUCCA LN		4/20/2004	Tuesday	13233
42ND ST	E	RUBIDOUX BLVD	CENSUS	2/25/2009	Wednesday	367
	W	RIVERVIEW DR	CENSUS	2/11/2009	Wednesday	3453
	W	MENNES AVE	CENSUS	2/11/2009	Wednesday	1741
	E	RIVERVIEW DR	CENSUS	2/11/2009	Wednesday	7086
	E	PACIFIC AVE		5/25/2005	Wednesday	2819
	W	MENNES AVE		10/21/2004	Thursday	1623
	W	RIVERVIEW DR		10/21/2004	Thursday	3084
	E	RIVERVIEW DR		10/19/2004	Tuesday	6799
44TH AVE	W	DILLON RD	CVAG	1/30/2010	Saturday	1008
	E	MONROE ST	CVAG	1/30/2010	Saturday	9931
	W	GOLF CENTER PKWY	CVAG	1/30/2010	Saturday	3285
	E	GOLF CENTER PKWY	CVAG	1/30/2010	Saturday	3525
	W	JACKSON ST	CVAG	1/30/2010	Saturday	7623
	E	MONROE ST	CVAG	1/26/2009	Monday	9997
	W	DILLON RD	CVAG	1/26/2009	Monday	1167
	W	GOLF CENTER PKWY	CVAG	1/26/2009	Monday	3516
	W	JACKSON ST	CVAG	1/26/2009	Monday	7752
	E	GOLF CENTER PKWY	CVAG	1/26/2009	Monday	3287
	W	DILLON RD	CVAG	1/30/2008	Wednesday	1130
	W	JACKSON ST	CVAG	1/30/2008	Wednesday	6966
	E	MONROE ST	CVAG	1/30/2008	Wednesday	9636
	W	GOLF CENTER PKWY	CVAG	1/30/2008	Wednesday	3212
	E	GOLF CENTER PKWY	CVAG	1/30/2008	Wednesday	3421
	W	DILLON RD	CVAG	1/30/2007	Tuesday	774
	E	MONROE ST	CVAG	1/30/2007	Tuesday	6945

LOCATION	DIR	X-STREET	NOTE	DATE	DAY	ADT
44TH AVE	W	JACKSON ST	CVAG	1/30/2007	Tuesday	7065
	E	GOLF CENTER PKWY	CVAG	1/30/2007	Tuesday	3180
	W	JACKSON ST	CVAG	1/30/2006	Monday	7899
	W	GOLF CENTER PKWY	CVAG	1/30/2006	Monday	2776
	W	DILLON RD	CVAG	1/30/2006	Monday	1471
	E	MONROE ST	CVAG	1/30/2006	Monday	11029
	E	GOLF CENTER PKWY	CVAG	1/30/2006	Monday	3766
	W	GOLF CENTER PKWY	CVAG	1/30/2005	Sunday	2481
	W	JACKSON ST	CVAG	1/30/2005	Sunday	6762
	W	DILLON RD	CVAG	1/30/2005	Sunday	1192
	E	GOLF CENTER PKWY	CVAG	1/30/2005	Sunday	2914
	E	MONROE ST	CVAG	1/30/2005	Sunday	9523
46TH ST	S	JENSEN RANCH RD	CENSUS	2/18/2009	Wednesday	3774
48TH AVE	W	MADISON ST	CVAG	1/30/2010	Saturday	15626
	W	VAN BUREN ST	CVAG	1/30/2010	Saturday	13202
	W	JEFFERSON ST	CVAG	1/30/2010	Saturday	18364
	E	WASHINGTON ST	CVAG	1/30/2010	Saturday	12903
	E	JACKSON ST	CVAG	1/30/2010	Saturday	14595
	E	VAN BUREN ST	CVAG	1/30/2010	Saturday	10395
	E	MONROE ST	CVAG	1/30/2010	Saturday	16128
	E	JEFFERSON ST	CVAG	1/30/2010	Saturday	16404
	W	MADISON ST	CVAG	1/26/2009	Monday	16761
	W	JEFFERSON ST	CVAG	1/26/2009	Monday	17455
	E	WASHINGTON ST	CVAG	1/26/2009	Monday	12726
	E	VAN BUREN ST	CVAG	1/26/2009	Monday	8974
	E	MONROE ST	CVAG	1/26/2009	Monday	16389
	E	JACKSON ST	CVAG	1/26/2009	Monday	14701
	E	JEFFERSON ST	CVAG	1/26/2009	Monday	19529
	W	VAN BUREN ST	CVAG	1/30/2008	Wednesday	10187
	W	MADISON ST	CVAG	1/30/2008	Wednesday	16640
	E	JACKSON ST	CVAG	1/30/2008	Wednesday	14052
	W	JEFFERSON ST	CVAG	1/30/2008	Wednesday	21777
	E	WASHINGTON ST	CVAG	1/30/2008	Wednesday	14769
	E	MONROE ST	CVAG	1/30/2008	Wednesday	16046
	E	JEFFERSON ST	CVAG	1/30/2008	Wednesday	20173
	W	VAN BUREN ST	CVAG	1/30/2007	Tuesday	13246
	W	MADISON ST	CVAG	1/30/2007	Tuesday	16747
	E	MONROE ST	CVAG	1/30/2007	Tuesday	14309

LOCATION	DIR	X-STREET	NOTE	DATE	DAY	ADT
48TH AVE	W	JEFFERSON ST	CVAG	1/30/2007	Tuesday	23127
	E	JEFFERSON ST	CVAG	1/30/2007	Tuesday	17284
	E	WASHINGTON ST	CVAG	1/30/2007	Tuesday	14147
	E	JACKSON ST	CVAG	1/30/2007	Tuesday	13445
	E	VAN BUREN ST	CVAG	1/30/2007	Tuesday	10072
	W	MADISON ST	CVAG	1/30/2006	Monday	13129
	E	JACKSON ST	CVAG	1/30/2006	Monday	10372
	E	MONROE ST	CVAG	1/30/2006	Monday	13688
	E	VAN BUREN ST	CVAG	1/30/2006	Monday	9945
	E	WASHINGTON ST	CVAG	1/30/2006	Monday	12810
	E	JEFFERSON ST	CVAG	1/30/2006	Monday	15722
	W	VAN BUREN ST	CVAG	1/23/2006	Monday	11136
	E	JEFFERSON ST	CVAG	1/30/2005	Sunday	19666
	E	WASHINGTON ST	CVAG	1/30/2005	Sunday	15866
	E	JACKSON ST	CVAG	1/30/2005	Sunday	12314
	E	VAN BUREN ST	CVAG	1/30/2005	Sunday	10120
	E	MONROE ST	CVAG	1/30/2005	Sunday	14856
	W	MADISON ST	CVAG	1/30/2005	Sunday	15563
	E	VAN BUREN ST	CVAG	1/30/2004	Friday	10206
	E	JEFFERSON ST	CVAG	1/30/2004	Friday	15216
	W	MADISON ST	CVAG	1/30/2004	Friday	18269
	E	WASHINGTON ST	CVAG	1/30/2004	Friday	13177
	E	JACKSON ST	CVAG	1/30/2004	Friday	18933
4TH ST	W	HAMMOND RD	CENSUS	5/13/2009	Wednesday	16276
	S	HAMMOND RD		6/5/2008	Thursday	8745
	E	HAMMOND RD		8/9/2007	Thursday	360
	W	HAMMOND RD		8/9/2007	Thursday	3197
	W	HAMMOND RD		12/15/2004	Wednesday	14993
50TH AVE	E	WASHINGTON ST	CVAG	1/30/2010	Saturday	9486
	W	HARRISON AVE (SH-86)	CVAG	1/30/2010	Saturday	9608
	W	JEFFERSON ST	CVAG	1/30/2010	Saturday	9663
	E	JACKSON ST	CVAG	1/30/2010	Saturday	9461
	E	HARRISON AVE (SH-86)	CVAG	1/30/2010	Saturday	8738
	E	JEFFERSON ST	CVAG	1/30/2010	Saturday	9990
	E	MONROE ST	CVAG	1/30/2010	Saturday	10836
	W	VAN BUREN ST	CVAG	1/30/2010	Saturday	10539
	E	SH-111	CVAG	1/30/2010	Saturday	8058
	E	MADISON ST	CVAG	1/30/2010	Saturday	8824

LOCATION	DIR	X-STREET	NOTE	DATE	DAY	ADT
50TH AVE	E	WASHINGTON ST	CVAG	1/26/2009	Monday	9948
	E	MONROE ST	CVAG	1/26/2009	Monday	12478
	E	MADISON ST	CVAG	1/26/2009	Monday	9976
	W	HARRISON AVE (SH-86)	CVAG	1/26/2009	Monday	9695
	E	SH-111	CVAG	1/26/2009	Monday	7981
	E	HARRISON AVE (SH-86)	CVAG	1/26/2009	Monday	8785
	W	JEFFERSON ST	CVAG	1/26/2009	Monday	12163
	W	VAN BUREN ST	CVAG	1/26/2009	Monday	11313
	E	JACKSON ST	CVAG	1/26/2009	Monday	9594
	E	JEFFERSON ST	CVAG	1/26/2009	Monday	11280
	E	SH-111	CVAG	1/30/2008	Wednesday	7647
	E	JEFFERSON ST	CVAG	1/30/2008	Wednesday	10308
	W	VAN BUREN ST	CVAG	1/30/2008	Wednesday	11338
	E	MONROE ST	CVAG	1/30/2008	Wednesday	11361
	E	WASHINGTON ST	CVAG	1/30/2008	Wednesday	9616
	E	HARRISON AVE (SH-86)	CVAG	1/30/2008	Wednesday	8645
	E	MADISON ST	CVAG	1/30/2008	Wednesday	9099
	W	HARRISON AVE (SH-86)	CVAG	1/30/2008	Wednesday	9685
	W	JEFFERSON ST	CVAG	1/30/2008	Wednesday	12590
	E	JACKSON ST	CVAG	1/15/2008	Tuesday	9038
	W	JEFFERSON ST	CVAG	1/30/2007	Tuesday	18051
	E	WASHINGTON ST	CVAG	1/30/2007	Tuesday	12353
	W	HARRISON AVE (SH-86)	CVAG	1/30/2007	Tuesday	10587
	W	VAN BUREN ST	CVAG	1/30/2007	Tuesday	10338
	E	JEFFERSON ST	CVAG	1/30/2007	Tuesday	10302
	E	HARRISON AVE (SH-86)	CVAG	1/30/2007	Tuesday	9635
	E	SH-111	CVAG	1/30/2007	Tuesday	7922
	E	MADISON ST	CVAG	1/30/2007	Tuesday	10238
	E	MONROE ST	CVAG	1/30/2007	Tuesday	10198
	W	HARRISON AVE (SH-86)	CVAG	1/30/2006	Monday	10238
	W	VAN BUREN ST	CVAG	1/30/2006	Monday	9986
	E	SH-111	CVAG	1/30/2006	Monday	7984
	E	HARRISON AVE (SH-86)	CVAG	1/30/2006	Monday	7491
	E	MONROE ST	CVAG	1/30/2006	Monday	10903
	E	JEFFERSON ST	CVAG	1/30/2006	Monday	10532
	E	WASHINGTON ST	CVAG	1/30/2006	Monday	12206
	E	MADISON ST	CVAG	1/30/2006	Monday	9989
	E	MONROE ST	CVAG	1/30/2005	Sunday	10046

LOCATION	DIR	X-STREET	NOTE	DATE	DAY	ADT
50TH AVE	E	HARRISON AVE (SH-86)	CVAG	1/30/2005	Sunday	6928
	W	HARRISON AVE (SH-86)	CVAG	1/30/2005	Sunday	7851
	W	VAN BUREN ST	CVAG	1/30/2005	Sunday	8589
	E	JEFFERSON ST	CVAG	1/30/2005	Sunday	8788
	E	MADISON ST	CVAG	1/30/2005	Sunday	8191
	E	SH-111	CVAG	1/30/2005	Sunday	6979
	E	WASHINGTON ST	CVAG	1/30/2005	Sunday	9714
	E	JEFFERSON ST	CVAG	1/30/2004	Friday	8778
	E	HARRISON AVE (SH-86)	CVAG	1/30/2004	Friday	7355
	E	MADISON ST	CVAG	1/30/2004	Friday	8107
	E	SH-111	CVAG	1/30/2004	Friday	7176
	E	MONROE ST	CVAG	1/30/2004	Friday	9014
	E	WASHINGTON ST	CVAG	1/30/2004	Friday	10328
	W	VAN BUREN ST	CVAG	1/30/2004	Friday	6929
51ST AVE	W	CALHOUN ST	CVAG	1/30/2010	Saturday	2465
	E	CALHOUN ST	CVAG	1/30/2010	Saturday	3506
	E	CALHOUN ST	CVAG	1/30/2009	Friday	3883
	W	CALHOUN ST	CVAG	1/30/2009	Friday	2628
	E	CALHOUN ST	CVAG	1/14/2008	Monday	2972
	W	CALHOUN ST	CVAG	1/14/2008	Monday	2297
	W	CALHOUN ST	CVAG	1/30/2007	Tuesday	2887
	E	CALHOUN ST	CVAG	1/30/2007	Tuesday	2100
	W	CALHOUN ST	CVAG	1/18/2006	Wednesday	2277
	E	CALHOUN ST	CVAG	1/18/2006	Wednesday	3122
	E	CALHOUN ST	CVAG	3/30/2005	Wednesday	2338
	W	CALHOUN ST	CVAG	3/30/2005	Wednesday	1873
	W	CALHOUN ST	CVAG	3/9/2004	Tuesday	2647
	E	CALHOUN ST	CVAG	3/9/2004	Tuesday	2553
52ND AVE	E	HARRISON AVE (SH-86)	CVAG	1/30/2010	Saturday	10408
	W	VAN BUREN ST	CVAG	1/30/2010	Saturday	7603
	E	MADISON ST	CVAG	1/30/2010	Saturday	7238
	E	JACKSON ST	CVAG	1/30/2010	Saturday	6287
	W	MONROE ST	CVAG	1/30/2010	Saturday	6202
	W	JEFFERSON ST	CVAG	1/30/2010	Saturday	13529
	W	WASHINGTON ST	CVAG	1/30/2010	Saturday	16133
	E	MONROE ST	CVAG	1/30/2010	Saturday	6319
	E	VAN BUREN ST	CVAG	1/30/2010	Saturday	8886
	W	SH-86S	CVAG	1/30/2010	Saturday	8019

LOCATION	DIR	X-STREET	NOTE	DATE	DAY	ADT
52ND AVE	E	SH-111	CVAG	1/30/2010	Saturday	10365
	E	SH-86S	CVAG	1/30/2010	Saturday	1992
	E	JEFFERSON ST	CVAG	1/30/2010	Saturday	10306
	E	JACKSON ST	CENSUS	6/3/2009	Wednesday	7218
	W	VAN BUREN ST	CVAG	1/30/2009	Friday	7034
	E	VAN BUREN ST	CVAG	1/30/2009	Friday	9198
	E	MONROE ST	CVAG	1/30/2009	Friday	6056
	E	JACKSON ST	CVAG	1/30/2009	Friday	6475
	W	MONROE ST	CVAG	1/30/2009	Friday	6541
	E	HARRISON AVE (SH-86)	CVAG	1/30/2009	Friday	10295
	W	WASHINGTON ST	CVAG	1/26/2009	Monday	15446
	E	JEFFERSON ST	CVAG	1/26/2009	Monday	9017
	E	MADISON ST	CVAG	1/26/2009	Monday	6882
	W	JEFFERSON ST	CVAG	1/26/2009	Monday	13081
	E	SH-86S	CVAG	1/22/2009	Thursday	1677
	E	SH-111	CVAG	1/22/2009	Thursday	9883
	W	SH-86S	CVAG	1/22/2009	Thursday	7302
	E	SH-86S	CVAG	1/30/2008	Wednesday	2050
	E	VAN BUREN ST	CVAG	1/30/2008	Wednesday	9251
	E	SH-111	CVAG	1/30/2008	Wednesday	11818
	E	HARRISON AVE (SH-86)	CVAG	1/30/2008	Wednesday	10499
	W	WASHINGTON ST	CVAG	1/30/2008	Wednesday	15747
	W	SH-86S	CVAG	1/30/2008	Wednesday	7390
	E	MADISON ST	CVAG	1/30/2008	Wednesday	6820
	W	JEFFERSON ST	CVAG	1/30/2008	Wednesday	10278
	E	JEFFERSON ST	CVAG	1/30/2008	Wednesday	18395
	W	MONROE ST	CVAG	1/10/2008	Thursday	7136
	E	MONROE ST	CVAG	1/10/2008	Thursday	6402
	E	JACKSON ST	CVAG	1/10/2008	Thursday	6851
	W	VAN BUREN ST	CVAG	1/10/2008	Thursday	7903
	W	JEFFERSON ST	CVAG	1/30/2007	Tuesday	14331
	W	MONROE ST	CVAG	1/30/2007	Tuesday	8247
	W	SH-86S	CVAG	1/30/2007	Tuesday	7101
	E	VAN BUREN ST	CVAG	1/30/2007	Tuesday	8388
	E	JEFFERSON ST	CVAG	1/30/2007	Tuesday	9958
	E	HARRISON AVE (SH-86)	CVAG	1/30/2007	Tuesday	11134
	E	JACKSON ST	CVAG	1/30/2007	Tuesday	6630
	W	WASHINGTON ST	CVAG	1/30/2007	Tuesday	18051

LOCATION	DIR	X-STREET	NOTE	DATE	DAY	ADT
52ND AVE	E	MONROE ST	CVAG	1/30/2007	Tuesday	6480
	E	SH-111	CVAG	1/30/2007	Tuesday	17871
	E	SH-86S	CVAG	1/30/2007	Tuesday	2235
	W	SH-86S SBOFF	CVAG	1/30/2006	Monday	6596
	E	SH-111	CVAG	1/30/2006	Monday	11186
	W	JEFFERSON ST	CVAG	1/30/2006	Monday	15389
	E	VAN BUREN ST	CVAG	1/30/2006	Monday	7028
	E	SH-86S NBOFF	CVAG	1/30/2006	Monday	1941
	E	HARRISON AVE (SH-86)	CVAG	1/30/2006	Monday	13550
	E	JEFFERSON ST	CVAG	1/30/2006	Monday	9986
	E	JACKSON ST	CVAG	1/17/2006	Tuesday	6563
	E	MONROE ST	CVAG	1/17/2006	Tuesday	6300
	W	MONROE ST	CVAG	1/17/2006	Tuesday	8061
	W	MONROE ST	CVAG	2/10/2005	Thursday	8098
	E	JACKSON ST	CVAG	2/10/2005	Thursday	8191
	E	MONROE ST	CVAG	2/3/2005	Thursday	6137
	E	HARRISON AVE (SH-86)	CVAG	1/30/2005	Sunday	13125
	W	JEFFERSON ST	CVAG	1/30/2005	Sunday	11821
	E	VAN BUREN ST	CVAG	1/30/2005	Sunday	8810
	E	SH-111	CVAG	1/30/2005	Sunday	13304
	E	JEFFERSON ST	CVAG	1/30/2005	Sunday	8680
	E	JACKSON ST		12/15/2004	Wednesday	6851
	W	MONROE ST	CVAG	3/16/2004	Tuesday	5145
	E	JACKSON ST	CVAG	3/9/2004	Tuesday	6890
	E	SH-111	CVAG	1/30/2004	Friday	12737
	E	JEFFERSON ST	CVAG	1/30/2004	Friday	5401
	W	JEFFERSON ST	CVAG	1/30/2004	Friday	18339
	E	MONROE ST	CVAG	1/7/2004	Wednesday	5943
53RD ST	W	CEDAR ST		5/2/2006	Tuesday	693
54TH AVE	E	JEFFERSON ST	CVAG	1/30/2010	Saturday	8386
	E	HARRISON AVE (SH-86)	CVAG	1/30/2010	Saturday	3574
	E	MONROE ST	CVAG	1/30/2010	Saturday	4020
	E	SH-111	CVAG	1/30/2010	Saturday	714
	E	TYLER ST	CVAG	1/30/2010	Saturday	1236
	E	VAN BUREN ST	CVAG	1/30/2010	Saturday	6404
	W	MADISON ST	CVAG	1/30/2010	Saturday	8263
	W	TYLER ST	CVAG	1/30/2010	Saturday	2601
	E	JACKSON ST	CVAG	1/30/2010	Saturday	4012

LOCATION	DIR	X-STREET	NOTE	DATE	DAY	ADT
54TH AVE	E	MONROE ST	CENSUS	6/3/2009	Wednesday	3560
	W	MADISON ST	CVAG	1/30/2009	Friday	9677
	E	VAN BUREN ST	CVAG	1/30/2009	Friday	6273
	W	TYLER ST	CVAG	1/30/2009	Friday	2434
	E	TYLER ST	CVAG	1/30/2009	Friday	1591
	E	SH-111	CVAG	1/30/2009	Friday	1014
	E	MONROE ST	CVAG	1/30/2009	Friday	3463
	E	JACKSON ST	CVAG	1/30/2009	Friday	4214
	E	HARRISON AVE (SH-86)	CVAG	1/30/2009	Friday	3378
	E	JEFFERSON ST	CVAG	1/30/2009	Friday	9560
	E	VAN BUREN ST	CVAG	1/30/2008	Wednesday	6049
	E	JEFFERSON ST	CVAG	1/30/2008	Wednesday	11799
	W	TYLER ST	CVAG	1/30/2008	Wednesday	2600
	E	TYLER ST	CVAG	1/30/2008	Wednesday	1924
	E	SH-111	CVAG	1/30/2008	Wednesday	1271
	W	MADISON ST	CVAG	1/30/2008	Wednesday	11502
	E	MONROE ST	CVAG	1/10/2008	Thursday	3922
	E	JACKSON ST	CVAG	1/10/2008	Thursday	3985
	E	HARRISON AVE (SH-86)	CVAG	1/10/2008	Thursday	3258
	E	VAN BUREN ST	CVAG	1/30/2007	Tuesday	6113
	E	JACKSON ST	CVAG	1/30/2007	Tuesday	4061
	E	TYLER ST	CVAG	1/30/2007	Tuesday	2227
	W	TYLER ST	CVAG	1/30/2007	Tuesday	2730
	E	SH-111	CVAG	1/30/2007	Tuesday	1616
	E	MONROE ST	CVAG	1/30/2007	Tuesday	3974
	E	HARRISON AVE (SH-86)	CVAG	1/30/2007	Tuesday	3518
	E	TYLER ST	CVAG	1/30/2006	Monday	2031
	W	MADISON ST	CVAG	1/30/2006	Monday	13660
	E	SH-111	CVAG	1/30/2006	Monday	1393
	E	VAN BUREN ST	CVAG	1/30/2006	Monday	4231
	W	TYLER ST	CVAG	1/30/2006	Monday	2517
	E	HARRISON AVE (SH-86)	CVAG	1/17/2006	Tuesday	3329
	E	MONROE ST	CVAG	1/12/2006	Thursday	4462
	E	JACKSON ST	CVAG	1/12/2006	Thursday	4309
	E	JACKSON ST	CVAG	2/10/2005	Thursday	4217
	E	MONROE ST	CVAG	2/3/2005	Thursday	4325
	W	MADISON ST		1/30/2005	Sunday	10687
	E	VAN BUREN ST	CVAG	1/30/2005	Sunday	6050

LOCATION	DIR	X-STREET	NOTE	DATE	DAY	ADT
54TH AVE	E	TYLER ST	CVAG	1/30/2005	Sunday	1639
	W	TYLER ST	CVAG	1/30/2005	Sunday	1639
	E	SH-111	CVAG	1/30/2005	Sunday	1097
	E	HARRISON AVE (SH-86)	CVAG	1/26/2005	Wednesday	3232
	E	MONROE ST		12/15/2004	Wednesday	4208
	E	HARRISON AVE (SH-86)	CVAG	3/17/2004	Wednesday	3455
	W	TYLER ST	CVAG	3/8/2004	Monday	1621
	E	TYLER ST	CVAG	1/30/2004	Friday	2283
	E	MONROE ST	CVAG	1/7/2004	Wednesday	3699
54TH ST	E	SR 111	CVAG	1/20/2009	Tuesday	1014
	E	AGATE ST		5/31/2006	Wednesday	416
	E	ETIWANDA AVE		3/29/2005	Tuesday	735
56TH ST	E	BEACH ST	CENSUS	2/11/2009	Wednesday	1810
	W	VAN BUREN BLVD	CENSUS	2/11/2009	Wednesday	1957
	E	PEDLEY RD		8/3/2006	Thursday	765
	W	VAN BUREN BLVD		11/10/2004	Wednesday	2296
	E	BEACH ST		11/9/2004	Tuesday	2283
58TH AVE	W	VAN BUREN ST	CVAG	1/30/2010	Saturday	1217
	E	MONROE ST	CVAG	1/30/2010	Saturday	1554
	W	MONROE ST	CVAG	1/30/2010	Saturday	2188
	E	SH-111	CVAG	1/30/2010	Saturday	1861
	E	PIERCE ST	CENSUS	6/9/2009	Tuesday	758
	W	PIERCE ST	CENSUS	6/9/2009	Tuesday	990
	E	VAN BUREN ST	CENSUS	6/4/2009	Thursday	822
	W	MONROE ST	CVAG	1/30/2009	Friday	2251
	E	SH-111	CVAG	1/30/2009	Friday	1858
	W	VAN BUREN ST	CVAG	1/30/2009	Friday	1328
	E	MONROE ST	CVAG	1/30/2009	Friday	1204
	E	DESERT CACTUS DR		3/19/2008	Wednesday	1409
	W	VAN BUREN ST	CVAG	1/9/2008	Wednesday	1291
	W	MONROE ST	CVAG	1/9/2008	Wednesday	2229
	E	MONROE ST	CVAG	1/9/2008	Wednesday	1600
	E	SH-111	CVAG	1/8/2008	Tuesday	1774
	E	SH-111	CVAG	1/30/2007	Tuesday	1729
	E	MONROE ST	CVAG	1/30/2007	Tuesday	1631
	W	MONROE ST	CVAG	1/30/2007	Tuesday	2219
	E	SH-111	CVAG	1/11/2006	Wednesday	1835
	E	MONROE ST	CVAG	1/11/2006	Wednesday	1669

LOCATION	DIR	X-STREET	NOTE	DATE	DAY	ADT
58TH AVE	W	MONROE ST	CVAG	1/11/2006	Wednesday	2184
	E	MONROE ST	CVAG	2/3/2005	Thursday	2106
	W	MONROE ST	CVAG	2/3/2005	Thursday	2473
	E	SH-111	CVAG	1/26/2005	Wednesday	1566
	E	PIERCE ST		12/16/2004	Thursday	924
	E	VAN BUREN ST		12/16/2004	Thursday	969
	W	PIERCE ST		12/16/2004	Thursday	1111
	E	SH-111	CVAG	3/9/2004	Tuesday	2028
	W	MONROE ST	CVAG	1/30/2004	Friday	2482
	E	MONROE ST	CVAG	1/7/2004	Wednesday	2031
58TH ST	W	STEVE AVE		8/25/2009	Tuesday	476
	W	ETIWANDA AVE	CENSUS	2/10/2009	Tuesday	892
	E	ETIWANDA AVE	CENSUS	2/10/2009	Tuesday	2543
	E	SR 111	CVAG	1/20/2009	Tuesday	1858
	E	FELSPAR ST		9/26/2007	Wednesday	247
	W	FELSPAR ST		9/26/2007	Wednesday	93
	E	LUCRETIA AVE		3/29/2005	Tuesday	416
	E	ETIWANDA AVE		11/4/2004	Thursday	2685
	W	ETIWANDA AVE		11/4/2004	Thursday	986
60TH AVE	E	MADISON ST	CVAG	1/30/2010	Saturday	3067
	W	JACKSON ST	CVAG	1/30/2010	Saturday	855
	W	SH-86	CENSUS	6/4/2009	Thursday	737
	W	JACKSON ST	CENSUS	6/4/2009	Thursday	1006
	E	POLK ST	CENSUS	6/4/2009	Thursday	312
	W	JACKSON ST	CVAG	1/30/2009	Friday	976
	W	MADISON ST	CVAG	1/30/2009	Friday	3063
	E	BUCHANAN ST		6/5/2008	Thursday	498
	W	BUCHANAN ST		6/5/2008	Thursday	330
	W	JACKSON ST	CVAG	3/13/2008	Thursday	1024
	E	MADISON ST	CVAG	1/30/2008	Wednesday	2817
	W	JACKSON ST	CVAG	1/30/2007	Tuesday	994
	E	MADISON ST	CVAG	1/30/2007	Tuesday	2661
	E	MADISON ST	CVAG	1/30/2006	Monday	2613
	W	JACKSON ST	CVAG	1/11/2006	Wednesday	997
	W	JACKSON ST	CVAG	1/30/2005	Sunday	1078
	E	MADISON ST	CVAG	1/30/2005	Sunday	2569
	W	SH-86		12/16/2004	Thursday	830
	E	POLK ST		12/16/2004	Thursday	185

LOCATION	DIR	X-STREET	NOTE	DATE	DAY	ADT
60TH AVE	E	JACKSON ST		12/16/2004	Thursday	745
62ND AVE	W	SH-86S	CVAG	1/30/2010	Saturday	3255
	W	HARRISON ST	CVAG	1/30/2010	Saturday	866
	W	FILLMORE ST	CVAG	1/30/2010	Saturday	1306
	E	HARRISON ST	CVAG	1/30/2010	Saturday	1595
	W	VAN BUREN ST	CVAG	1/30/2010	Saturday	557
	W	SH-111	CENSUS	6/10/2009	Wednesday	1366
	E	SH-86	CENSUS	6/9/2009	Tuesday	1395
	E	POLK ST	CENSUS	6/9/2009	Tuesday	1509
	W	POLK ST	CENSUS	6/9/2009	Tuesday	1412
	E	MONROE ST	CENSUS	6/4/2009	Thursday	1073
	W	SH-86	CENSUS	6/4/2009	Thursday	892
	W	FILLMORE ST	CVAG	1/30/2009	Friday	1482
	W	SH-86S	CVAG	1/30/2009	Friday	3182
	W	HARRISON ST	CVAG	1/30/2009	Friday	967
	W	JACKSON ST	CVAG	1/30/2009	Friday	955
	W	VAN BUREN ST	CVAG	1/30/2009	Friday	777
	E	HARRISON ST	CVAG	1/30/2009	Friday	1765
	E	LINCOLN ST		5/28/2008	Wednesday	914
	W	LINCOLN ST		5/28/2008	Wednesday	2852
	E	HARRISON ST	CVAG	1/8/2008	Tuesday	1812
	W	JACKSON ST	CVAG	1/8/2008	Tuesday	945
	W	HARRISON ST	CVAG	1/8/2008	Tuesday	981
	W	FILLMORE ST	CVAG	1/8/2008	Tuesday	1295
	W	VAN BUREN ST	CVAG	1/8/2008	Tuesday	914
	W	SH-86S	CVAG	1/8/2008	Tuesday	3229
	W	JACKSON ST	CVAG	1/30/2007	Tuesday	1202
	W	SH-86S	CVAG	1/30/2007	Tuesday	3364
	W	VAN BUREN ST	CVAG	1/30/2007	Tuesday	969
	W	HARRISON ST	CVAG	1/30/2007	Tuesday	970
	W	FILLMORE ST	CVAG	1/30/2007	Tuesday	1593
	E	HARRISON ST	CVAG	1/30/2007	Tuesday	1567
	W	JACKSON ST	CVAG	1/30/2006	Monday	1577
	W	JACKSON ST	CVAG	1/11/2006	Wednesday	1109
	W	HARRISON ST	CVAG	1/11/2006	Wednesday	1078
	W	SH-86S	CVAG	1/11/2006	Wednesday	2760
	E	HARRISON ST	CVAG	1/11/2006	Wednesday	1577
	W	VAN BUREN ST	CVAG	1/11/2006	Wednesday	951

LOCATION	DIR	X-STREET	NOTE	DATE	DAY	ADT
62ND AVE	W	FILLMORE ST	CVAG	1/11/2006	Wednesday	1750
	W	HARRISON ST	CVAG	10/1/2005	Saturday	953
	W	SH-86S	CVAG	10/1/2005	Saturday	2472
	W	FILLMORE ST	CVAG	10/1/2005	Saturday	1443
	W	VAN BUREN ST	CVAG	7/14/2005	Thursday	896
	W	JACKSON ST	CVAG	7/14/2005	Thursday	1150
	W	HARRISON ST	CVAG	7/14/2005	Thursday	932
	W	FILLMORE ST	CVAG	7/14/2005	Thursday	1017
	E	VAN BUREN ST	CVAG	7/14/2005	Thursday	1157
	W	SH-86S	CVAG	7/13/2005	Wednesday	2146
	W	JACKSON ST	CVAG	3/1/2005	Tuesday	1150
	E	HARRISON ST	CVAG	3/1/2005	Tuesday	1157
	W	VAN BUREN ST	CVAG	1/30/2005	Sunday	856
	W	POLK ST		12/16/2004	Thursday	1560
	E	SH-86		12/16/2004	Thursday	4736
	E	POLK ST		12/16/2004	Thursday	1318
	E	MONROE ST		12/16/2004	Thursday	1204
62ND ST	W	SR 86S	CVAG	3/11/2009	Wednesday	3182
64TH ST	W	WINEVILLE AVE		8/19/2010	Thursday	802
	E	PATS RANCH RD		8/19/2010	Thursday	1881
	E	WINEVILLE AVE		1/18/2006	Wednesday	1212
	W	WINEVILLE AVE		1/18/2006	Wednesday	413
65TH ST	W	WINEVILLE AVE		8/19/2010	Thursday	431
	E	PATS RANCH RD		8/19/2010	Thursday	1116
	W	ARCHIBALD AVE		8/25/2009	Tuesday	251
	E	HARRISON AVE		9/25/2007	Tuesday	2381
	W	HARRISON AVE		9/25/2007	Tuesday	2424
	E	FRANK AVE		4/12/2006	Wednesday	879
	W	WINEVILLE AVE		1/18/2006	Wednesday	587
	E	WINEVILLE AVE		1/18/2006	Wednesday	394
	W	SUMNER AVE		2/2/2005	Wednesday	3108
	E	CLEVELAND AVE		1/25/2005	Tuesday	4139
	E	SUMNER AVE		1/25/2005	Tuesday	5436
	E	ARCHIBALD AVE		1/25/2005	Tuesday	2193
66TH AVE	W	PIERCE ST	CVAG	1/30/2010	Saturday	5465
	W	HARRISON ST	CVAG	1/30/2010	Saturday	2131
	E	LINCOLN ST	CVAG	1/30/2010	Saturday	8086
	E	TYLER ST	CENSUS	6/10/2009	Wednesday	3624

LOCATION	DIR	X-STREET	NOTE	DATE	DAY	ADT
66TH AVE	W	JOHNSON ST	CENSUS	6/10/2009	Wednesday	4079
	E	SH-86 (HARRISON)	CENSUS	6/10/2009	Wednesday	2644
	E	VAN BUREN ST	CENSUS	6/10/2009	Wednesday	2183
	W	SH-195	CENSUS	6/10/2009	Wednesday	3081
	W	SH-86 (HARRISON)	CENSUS	6/10/2009	Wednesday	2475
	W	VAN BUREN ST	CENSUS	6/9/2009	Tuesday	1933
	E	LINCOLN ST	CVAG	1/30/2009	Friday	7231
	W	HARRISON ST	CVAG	1/30/2009	Friday	2304
	W	PIERCE ST	CVAG	1/30/2009	Friday	5506
	E	LINCOLN ST	CVAG	3/18/2008	Tuesday	10957
	W	HARRISON ST	CVAG	1/8/2008	Tuesday	2326
	W	PIERCE ST	CVAG	1/8/2008	Tuesday	5611
	W	HARRISON ST	CVAG	1/30/2007	Tuesday	2798
	W	PIERCE ST	CVAG	1/30/2007	Tuesday	5832
	W	HARRISON ST		2/8/2006	Wednesday	3490
	W	HARRISON ST	CVAG	1/30/2006	Monday	2832
	W	PIERCE ST	CVAG	1/11/2006	Wednesday	5553
	W	SH-86 (HARRISON)		1/11/2006	Wednesday	2832
	E	JOHNSON ST		5/11/2005	Wednesday	847
	W	HOME AVE		5/11/2005	Wednesday	3363
	W	JOHNSON ST		5/10/2005	Tuesday	3958
	W	SH-86 (HARRISON)		2/7/2005	Monday	2610
	W	HARRISON ST		2/7/2005	Monday	2610
	W	PIERCE ST	CVAG	2/7/2005	Monday	2992
	W	VAN BUREN ST		12/16/2004	Thursday	1596
	E	VAN BUREN ST		12/15/2004	Wednesday	1946
	W	SH-86 (HARRISON)		12/15/2004	Wednesday	4152
	W	SH-195		12/15/2004	Wednesday	2505
	W	JOHNSON ST		12/15/2004	Wednesday	3737
	E	TYLER ST		12/14/2004	Tuesday	2415
	W	SH-86 (HARRISON)		3/9/2004	Tuesday	3622
	W	HARRISON ST	CVAG	1/30/2004	Friday	3622
	W	PIERCE ST	CVAG	1/30/2004	Friday	4752
66TH AVE (SH-195)	E	SH-86S	CVAG	1/30/2010	Saturday	6938
	E	SH-86S	CVAG	1/30/2009	Friday	7322
	E	SH-86S	CVAG	1/8/2008	Tuesday	6491
	E	SH-86S	CVAG	1/30/2007	Tuesday	7000
66TH AVE(SH-195)	E	SH-86S	CVAG	1/11/2006	Wednesday	6611

LOCATION	DIR	X-STREET	NOTE	DATE	DAY	ADT
66TH AVE(SH-195)	E	SH-86S	CVAG	1/26/2005	Wednesday	4628
	E	SH-86S	CVAG	12/15/2004	Wednesday	6399
	E	SH-86S	CVAG	1/30/2004	Friday	2548
66TH ST	E	SR 86S	CVAG	1/21/2009	Wednesday	7322
	W	CHARLES AVE		8/4/2004	Wednesday	440
68TH ST	E	MORAB ST		10/18/2007	Thursday	3146
	E	HAMNER AVE		1/20/2005	Thursday	4477
	W	HAMNER AVE		1/20/2005	Thursday	3530
	W	WINEVILLE AVE		1/20/2005	Thursday	4323
70TH AVE	E	VANDER VEER RD	CENSUS	6/11/2009	Thursday	1654
	W	WINDWARD DR	CENSUS	6/11/2009	Thursday	2060
	E	WINDWARD DR		3/19/2008	Wednesday	2053
	E	CLEVELAND ST		3/19/2008	Wednesday	2393
	E	VANDER VEER RD		12/14/2004	Tuesday	1188
70TH ST	W	WINWARD DR		12/14/2004	Tuesday	1781
72ND AVE	W	SEA VIEW WY		3/19/2008	Wednesday	422
74TH AVE	E	FILLMORE ST	CENSUS	6/11/2009	Thursday	662
	E	FILLMORE ST		12/14/2004	Tuesday	530
ACACIA AVE	W	SOBOBA ST	CENSUS	5/14/2009	Thursday	1978
	W	STANFORD ST	CENSUS	5/13/2009	Wednesday	4579
	E	GIRARD ST	CENSUS	5/13/2009	Wednesday	7315
	E	GIRARD ST		6/14/2005	Tuesday	6256
	W	GIRARD ST		6/14/2005	Tuesday	6873
	W	YALE ST		5/10/2005	Tuesday	6485
	E	YALE ST		5/10/2005	Tuesday	4306
	E	YALE ST		5/4/2005	Wednesday	3205
	W	YALE ST		5/4/2005	Wednesday	3200
	W	STANFORD ST		12/14/2004	Tuesday	3841
	E	GIRARD ST		12/14/2004	Tuesday	8182
	W	SOBOBA ST		11/30/2004	Tuesday	1650
ADAMS ST	N	SH-111	CVAG	1/30/2010	Saturday	13724
	S	SH-111	CVAG	1/30/2010	Saturday	12035
	N	39TH AVE		8/4/2009	Tuesday	3799
	N	42ND AVE	CENSUS	6/3/2009	Wednesday	1721
	N	SH-111	CVAG	1/30/2009	Friday	13738
	S	SH-111	CVAG	1/30/2009	Friday	11181
	N	SH-111	CVAG	1/30/2008	Wednesday	14174
	S	SH-111	CVAG	1/30/2008	Wednesday	12676

LOCATION	DIR	X-STREET	NOTE	DATE	DAY	ADT
ADAMS ST	N	SH-111	CVAG	3/1/2005	Tuesday	12325
	N	42ND AVE		12/21/2004	Tuesday	3747
ADELFA ST	S	GRAND AVE		3/18/2009	Wednesday	895
	S	ANTHONY AVE		5/5/2005	Thursday	281
	N	ANTHONY AVE		5/5/2005	Thursday	243
AGATE ST	N	MISSION BLVD		12/17/2009	Thursday	209
	S	MISSION BLVD		12/17/2009	Thursday	978
	N	MISSION BLVD	CENSUS	4/1/2009	Wednesday	287
	S	JURUPA RD	CENSUS	2/24/2009	Tuesday	917
	N	54TH ST		5/31/2006	Wednesday	895
	S	JURUPA RD		11/10/2004	Wednesday	624
AGUA MANSA RD	N	MARKET ST	CENSUS	2/25/2009	Wednesday	7419
	S	HALL AVE	CENSUS	2/24/2009	Tuesday	5821
	N	MARKET ST		11/17/2004	Wednesday	11706
	N	MARKET ST		6/30/2004	Wednesday	7093
AIRPORT (56TH)	W	SR 111	CVAG	1/21/2009	Wednesday	5008
AIRPORT BLVD	E	MONROE ST	CVAG	1/30/2010	Saturday	2119
	W	POLK ST	CVAG	1/30/2010	Saturday	3978
	E	HARRISON ST (SH-86)	CVAG	1/30/2010	Saturday	3577
	W	SH-111	CVAG	1/30/2010	Saturday	4519
	E	JACKSON ST	CVAG	1/30/2010	Saturday	3317
	E	VAN BUREN ST	CVAG	1/30/2010	Saturday	3746
	E	SPRR	CVAG	1/30/2010	Saturday	4768
	E	FILLMORE ST	CVAG	1/30/2010	Saturday	1191
	E	MADISON ST	CVAG	1/30/2010	Saturday	1893
	E	FILLMORE ST	CVAG	1/30/2009	Friday	919
	E	VAN BUREN ST	CVAG	1/30/2009	Friday	4620
	E	JACKSON ST	CVAG	1/30/2009	Friday	3917
	E	HARRISON ST (SH-86)	CVAG	1/30/2009	Friday	5589
	E	MADISON ST	CVAG	1/30/2009	Friday	2276
	W	SH-111	CVAG	1/30/2009	Friday	5008
	E	MONROE ST	CVAG	1/30/2009	Friday	2524
	W	POLK ST	CVAG	1/30/2009	Friday	4915
	E	SPRR	CVAG	1/30/2009	Friday	5215
	E	FILLMORE ST	CENSUS	12/10/2008	Wednesday	1516
	E	SH-111	CENSUS	12/10/2008	Wednesday	4863
	W	POLK ST	CENSUS	12/10/2008	Wednesday	4660
	W	SH-111	CENSUS	12/10/2008	Wednesday	4366

LOCATION	DIR	X-STREET	NOTE	DATE	DAY	ADT
AIRPORT BLVD	E	SH-86	CENSUS	12/9/2008	Tuesday	4328
	E	VAN BUREN ST	CENSUS	12/9/2008	Tuesday	3554
	E	MONROE ST	CENSUS	12/9/2008	Tuesday	2072
	E	JACKSON ST	CENSUS	12/9/2008	Tuesday	3105
	E	PIERCE ST		5/28/2008	Wednesday	783
	W	PIERCE ST		5/28/2008	Wednesday	738
	E	MADISON ST	CVAG	1/30/2008	Wednesday	2351
	E	JACKSON ST	CVAG	1/10/2008	Thursday	3585
	W	POLK ST	CVAG	1/9/2008	Wednesday	4855
	E	MONROE ST	CVAG	1/9/2008	Wednesday	2519
	E	HARRISON ST (SH86)	CVAG	1/9/2008	Wednesday	5018
	E	VAN BUREN ST	CVAG	1/8/2008	Tuesday	4298
	E	FILLMORE ST	CVAG	1/8/2008	Tuesday	1391
	E	SPRR	CVAG	1/8/2008	Tuesday	5185
	E	JACKSON ST	CVAG	1/30/2007	Tuesday	3521
	W	SH-111	CVAG	1/30/2007	Tuesday	5062
	E	FILLMORE ST	CVAG	1/30/2007	Tuesday	1502
	E	HARRISON ST (SH86)	CVAG	1/30/2007	Tuesday	5298
	E	VAN BUREN ST	CVAG	1/30/2007	Tuesday	7020
	W	POLK ST	CVAG	1/30/2007	Tuesday	4418
	E	MADISON ST	CVAG	1/30/2007	Tuesday	1631
	E	SPRR	CVAG	1/30/2007	Tuesday	5742
	E	MONROE ST	CVAG	1/30/2007	Tuesday	2684
	E	MADISON ST	CVAG	1/30/2006	Monday	2795
	E	VAN BUREN ST	CVAG	1/18/2006	Wednesday	3833
	E	FILLMORE ST	CVAG	1/12/2006	Thursday	1622
	E	JACKSON ST	CVAG	1/12/2006	Thursday	3541
	E	SPRR	CVAG	1/12/2006	Thursday	5787
	W	POLK ST	CVAG	1/12/2006	Thursday	4874
	W	SH-111	CVAG	1/12/2006	Thursday	5077
	E	HARRISON ST (SH-86)	CVAG	1/12/2006	Thursday	4590
	E	MONROE ST	CVAG	1/12/2006	Thursday	4570
	E	MONROE ST	CVAG	2/3/2005	Thursday	2942
	E	JACKSON ST	CVAG	1/31/2005	Monday	3222
	E	VAN BUREN ST	CVAG	1/31/2005	Monday	3832
	E	MADISON ST	CVAG	1/30/2005	Sunday	2696
	E	HARRISON ST (SH-86)	CVAG	1/26/2005	Wednesday	4943
	W	SH-111	CVAG	1/26/2005	Wednesday	5083

LOCATION	DIR	X-STREET	NOTE	DATE	DAY	ADT
AIRPORT BLVD	E	FILLMORE ST	CVAG	1/26/2005	Wednesday	1317
	W	POLK ST	CVAG	1/26/2005	Wednesday	5304
	E	SPRR	CVAG	1/26/2005	Wednesday	5951
	E	FILLMORE ST		12/16/2004	Thursday	3170
	E	MONROE ST		12/15/2004	Wednesday	3526
	E	VAN BUREN ST		12/15/2004	Wednesday	3999
	E	SH-86		12/15/2004	Wednesday	4304
	W	POLK ST		11/17/2004	Wednesday	5062
	W	POLK ST	CVAG	3/11/2004	Thursday	4883
	E	SPRR	CVAG	3/8/2004	Monday	6125
	W	SH-111	CVAG	1/30/2004	Friday	5398
	E	MONROE ST	CVAG	1/30/2004	Friday	2389
AIRPORT BLVD (56TH AVE)	W	SH-111	CVAG	1/9/2008	Wednesday	4537
ALESSANDRO AVE	S	RAMONA EXPY		5/11/2010	Tuesday	1081
	S	RAMONA EXPY	CENSUS	5/12/2009	Tuesday	1380
	S	RAMONA EXPY		12/14/2004	Tuesday	1083
ALESSANDRO BLVD	E	ALEXANDER ST		9/1/2009	Tuesday	31754
	W	GILMAN SPRINGS RD		2/24/2009	Tuesday	1204
ALEXANDER ST	N	CAJALCO RD		3/13/2008	Thursday	761
	S	CAJALCO RD		3/13/2008	Thursday	575
	N	CAJALCO RD		8/1/2007	Wednesday	814
	S	CAJALCO RD		8/1/2007	Wednesday	527
ALGARVE AVE	E	SH-79		8/26/2010	Thursday	1108
	E	CLOCHE DR		8/26/2010	Thursday	1650
AMAZON ST	E	MEKONG ST		5/24/2005	Tuesday	357
ANTELOPE RD	N	SCOTT RD	CENSUS	2/4/2009	Wednesday	8750
	N	GARBANI RD	CENSUS	2/4/2009	Wednesday	9159
	N	SH-74	CENSUS	2/4/2009	Wednesday	958
	N	LA PEIDRA RD	CENSUS	2/4/2009	Wednesday	11973
	N	MAPES RD		12/14/2004	Tuesday	2104
	N	LA PEIDRA RD		12/8/2004	Wednesday	16025
	S	WATSON RD		12/2/2004	Thursday	1157
	N	SCOTT RD		9/14/2004	Tuesday	12637
ANZA RD	S	RANCHO CALIFORNIA RD	CENSUS	5/19/2009	Tuesday	4009
	N	DE PORTOLA RD	CENSUS	5/19/2009	Tuesday	4188
	S	RANCHO CALIFORNIA RD		6/5/2007	Tuesday	1876
	N	RANCHO CALIFORNIA RD		6/5/2007	Tuesday	346
	N	DE PORTOLA RD		12/15/2004	Wednesday	3665

LOCATION	DIR	X-STREET	NOTE	DATE	DAY	ADT
ANZA RD	S	RANCHO CALIFORNIA RD		12/15/2004	Wednesday	3052
APACHE TR	S	RAILROAD AVE	CENSUS	5/19/2009	Tuesday	2122
	S	RAILROAD AVE	RRX	12/16/2004	Thursday	1833
APACHE TRAIL	N	SEMINOLE DR		4/26/2005	Tuesday	13243
	S	SEMINOLE DR		4/26/2005	Tuesday	3442
ARCHIBALD AVE	N	LIMONITE AVE	CENSUS	2/4/2009	Wednesday	15574
	N	SCHLEISMAN RD	CENSUS	2/3/2009	Tuesday	14779
	S	65TH ST	CENSUS	2/3/2009	Tuesday	14738
	S	LIMONITE AVE	CENSUS	1/20/2009	Tuesday	14522
	S	CHANDLER ST	CENSUS	1/20/2009	Tuesday	11862
	N	SCHLEISMAN RD		11/2/2004	Tuesday	15877
	N	RIVER ROAD		11/2/2004	Tuesday	14362
ARMSTRONG RD	N	SIERRA AVE	CENSUS	2/25/2009	Wednesday	6075
	S	SIERRA AVE	CENSUS	2/24/2009	Tuesday	19629
	N	GAIL DR	CENSUS	2/24/2009	Tuesday	5613
	N	GAIL DR		12/1/2004	Wednesday	6033
AUGUSTA AVE	W	ANNANDALE AVE		3/5/2008	Wednesday	780
AULD RD	E	LEON RD		6/24/2010	Thursday	4523
	W	SHADETREE DR		6/24/2010	Thursday	2555
	E	SH-79	CENSUS	5/27/2009	Wednesday	8202
	E	LEON RD	CENSUS	5/27/2009	Wednesday	6475
	W	POURROY RD	CENSUS	5/14/2009	Thursday	3416
	W	RED OAK ST		9/8/2005	Thursday	4944
	E	RED OAK ST		9/7/2005	Wednesday	3646
	W	POUROY RD		9/15/2004	Wednesday	2864
AVALON ST	N	MISSION BLVD	CENSUS	2/19/2009	Thursday	3357
	N	MISSION BLVD		9/5/2007	Wednesday	1596
	N	MISSION BLVD		10/20/2004	Wednesday	4956
AVE JUAN BAUTISTA	N	LIMONITE AVE	CENSUS	2/25/2009	Wednesday	4399
	N	LIMONITE AVE		10/26/2004	Tuesday	5180
AVENIDA DE CORTEZ	N	CABRILLO DR		4/10/2008	Thursday	742
	N	CABRILLO DR		4/9/2008	Wednesday	701
	N	NEWPORT RD		3/14/2007	Wednesday	776
AVENIDA FLORENCITA	S	CAMINO CAMPANERO		6/4/2009	Thursday	217
AVENIDA LA CRESTA	E	CLINTON KEITH RD		6/24/2010	Thursday	2349
	W	CLINTON KEITH RD		3/15/2007	Thursday	2996
AVENIDA LESTONNAC	E	BUTTERFIELD STATE RD		3/2/2005	Wednesday	2058
AVENIDA MIRAVILLA	S	COUNTY LINE RD	CENSUS	5/27/2009	Wednesday	425

LOCATION	DIR	X-STREET	NOTE	DATE	DAY	ADT
AVON ST	S	BEN NEVIS BLVD		3/28/2007	Wednesday	1063
	S	BEN NEVIS BLVD		3/27/2007	Tuesday	1119
BAIN ST	S	JURUPA RD	CENSUS	2/18/2009	Wednesday	3392
	S	GALENA ST	CENSUS	2/18/2009	Wednesday	2847
	S	SAN SEVAINE WAY	CENSUS	2/18/2009	Wednesday	3058
	N	LIMONITE AVE	CENSUS	2/10/2009	Tuesday	4372
	N	UNION ST		12/18/2008	Thursday	2791
	S	BELLEGRAVE AVE		4/10/2008	Thursday	1927
	S	54TH ST		3/25/2008	Tuesday	3184
	S	BELLEGRAVE AVE		9/14/2006	Thursday	2734
	S	SAN SEVAINE WY		11/10/2004	Wednesday	2917
	N	LIMONITE AVE		11/10/2004	Wednesday	4017
	S	GALENA ST		11/9/2004	Tuesday	2599
BALDWIN AVE	N	GRAY MARE RD		10/6/2005	Thursday	391
	N	YEARLING WY		10/6/2005	Thursday	717
BALDWIN BLVD	S	GRAND AVE		12/11/2008	Thursday	629
BALTIMORE ST	E	CLEVELAND AVE		9/14/2006	Thursday	470
BARTON RD	N	NANDINA AVE		12/9/2004	Thursday	10180
BARTON ST	N	NANDINA AVE	CENSUS	4/14/2009	Tuesday	4878
BAXTER RD	E	CENTRAL ST	CENSUS	5/6/2009	Wednesday	21057
	W	I-15		9/6/2007	Thursday	15210
	E	CENTRAL ST		12/2/2004	Thursday	17414
BAY DR	E	SH-111	CENSUS	6/11/2009	Thursday	1791
	E	SH-111	RRX	12/14/2004	Tuesday	1490
BEACH ST	N	LIMONITE AVE		2/2/2010	Tuesday	789
	N	56TH ST	CENSUS	2/11/2009	Wednesday	1331
	S	59TH ST		9/5/2007	Wednesday	1330
	N	LIMONITE AVE		9/14/2006	Thursday	842
	N	LIMONITE AVE		8/18/2004	Wednesday	1652
BEAUMONT AVE	N	ORCHARD ST	CENSUS	5/27/2009	Wednesday	4265
	N	CHERRY VALLEY BLVD	CENSUS	5/12/2009	Tuesday	10247
	S	CHERRY VALLEY BLVD	CENSUS	5/7/2009	Thursday	10070
	N	BROOKSIDE AVE		8/22/2007	Wednesday	8933
	N	CHERRY VALLEY BLVD		8/22/2007	Wednesday	5001
	N	CHERRY VALLEY BLVD		12/7/2004	Tuesday	9132
	S	CHERRY VALLEY BLVD		12/7/2004	Tuesday	8330
	S	OAK GLEN RD		12/7/2004	Tuesday	3908
BEDFORD CANYON RD	S	FOOTHILL PKWY	CENSUS	4/8/2009	Wednesday	5983

LOCATION	DIR	X-STREET	NOTE	DATE	DAY	ADT
BEDFORD CANYON RD	S	EL CERRITO RD		4/2/2008	Wednesday	6976
BELLEGRAVE AVE	E	JURUPA RD		6/9/2009	Tuesday	2541
	W	JURUPA RD		6/9/2009	Tuesday	3893
	E	ETIWANDA AVE	CENSUS	6/2/2009	Tuesday	10374
	W	ETIWANDA AVE	CENSUS	5/28/2009	Thursday	4389
	W	VAN BUREN BLVD	CENSUS	2/19/2009	Thursday	9028
	E	VAN BUREN BLVD	CENSUS	2/19/2009	Thursday	7310
	W	MISSION BLVD	CENSUS	2/19/2009	Thursday	4088
	W	BAIN ST	CENSUS	2/18/2009	Wednesday	10714
	W	BAIN ST		4/10/2008	Thursday	4036
	E	BAIN ST		4/10/2008	Thursday	4012
	W	BAIN ST		11/28/2007	Wednesday	9334
	W	BAIN ST		11/27/2007	Tuesday	9640
	E	JURUPA RD		9/19/2007	Wednesday	2765
	W	JURUPA RD		9/19/2007	Wednesday	4198
	W	BAIN ST		9/14/2006	Thursday	5123
	E	BAIN ST		9/14/2006	Thursday	4923
	W	JURUPA RD		3/30/2005	Wednesday	6922
	E	JURUPA RD		3/30/2005	Wednesday	6351
	W	MISSION BLVD		11/10/2004	Wednesday	4649
	W	BAIN ST		11/9/2004	Tuesday	10039
	E	VAN BUREN BLVD	RRX	11/9/2004	Tuesday	7615
	W	VAN BUREN BLVD		11/9/2004	Tuesday	9607
BELLFLOWER AVE	S	CHERRY VALLEY BLVD	CENSUS	5/7/2009	Thursday	792
	S	CHERRY VALLEY BLVD		8/22/2007	Wednesday	578
	S	CHERRY VALLEY BLVD		12/16/2004	Thursday	655
BEN NEVIS BLVD	E	MISSION BLVD	CENSUS	2/18/2009	Wednesday	2988
	W	AVON ST	CENSUS	2/18/2009	Wednesday	3001
	E	CONNING ST		3/25/2008	Tuesday	2870
	E	CONNING ST		3/28/2007	Wednesday	3492
	E	KENNETH ST		3/28/2007	Wednesday	2677
	E	CONNING ST		3/27/2007	Tuesday	3247
	E	KENNETH ST		3/27/2007	Tuesday	2526
	W	AVON ST		11/30/2004	Tuesday	4214
	E	MISSION BLVD		11/10/2004	Wednesday	3102
BENTON RD	E	WASHINGTON ST	CENSUS	5/28/2009	Thursday	193
	E	SH-79	CENSUS	5/14/2009	Thursday	6976
	E	COGNAC ST		8/2/2007	Thursday	4406

LOCATION	DIR	X-STREET	NOTE	DATE	DAY	ADT
BENTON RD	W	VAN GAALE LN		8/2/2007	Thursday	5048
	E	SH-79		8/25/2004	Wednesday	5605
BERT RD	W	WOOD RD		9/18/2008	Thursday	518
	W	WOOD RD		4/3/2008	Thursday	1529
BLACKBURN RD	E	VICTORIA GROVE PKY		7/30/2009	Thursday	800
	E	ORANGEWOOD LN		7/29/2009	Wednesday	1518
	E	LA SIERRA AVE		7/29/2009	Wednesday	6189
BLACKWELL BLVD	N	GRAND AVE		11/27/2007	Tuesday	105
	S	GRAND AVE		11/27/2007	Tuesday	857
BLANCHE DR	S	GRAND AVE		3/10/2004	Wednesday	950
BLOSSOM WY	W	FESTIVAL WY		1/19/2006	Thursday	1692
BOB HOPE DR	S	RAMON RD	CVAG	1/30/2010	Saturday	18553
	N	GERALD FORD DR	CVAG	1/30/2010	Saturday	20842
	N	COUNTRY CLUB DR	CVAG	1/30/2010	Saturday	22189
	S	COUNTRY CLUB DR	CVAG	1/30/2010	Saturday	21573
	N	FRANK SINATRA DR	CVAG	1/30/2010	Saturday	21539
	N	DINAH SHORE DR	CVAG	1/30/2010	Saturday	15585
	N	PALM CANYON DR E	CVAG	1/30/2010	Saturday	19771
	N	DINAH SHORE DR	CVAG	1/30/2009	Friday	14178
	N	GERALD FORD DR	CVAG	1/30/2009	Friday	19532
	N	FRANK SINATRA DR	CVAG	1/30/2009	Friday	21271
	N	COUNTRY CLUB DR	CVAG	1/30/2009	Friday	19777
	S	RAMON RD	CVAG	1/30/2009	Friday	18032
	N	PALM CANYON DR E	CVAG	1/30/2009	Friday	16372
	S	COUNTRY CLUB DR	CVAG	1/30/2009	Friday	20414
	S	RAMON RD	CVAG	2/20/2008	Wednesday	17694
	N	GERALD FORD DR	CVAG	1/30/2008	Wednesday	21157
	N	COUNTRY CLUB DR	CVAG	1/30/2008	Wednesday	22542
	S	COUNTRY CLUB DR	CVAG	1/30/2008	Wednesday	22922
	N	FRANK SINATRA DR	CVAG	1/30/2008	Wednesday	24699
	N	PALM CANYON DR E	CVAG	1/30/2008	Wednesday	18846
	N	DINAH SHORE DR	CVAG	1/30/2008	Wednesday	15976
	N	FRANK SINATRA DR	CVAG	1/30/2007	Tuesday	24177
	S	RAMON RD	CVAG	1/30/2007	Tuesday	16775
	N	COUNTRY CLUB DR	CVAG	1/30/2007	Tuesday	22022
	N	GERALD FORD DR	CVAG	1/30/2007	Tuesday	25125
	S	COUNTRY CLUB DR	CVAG	1/30/2007	Tuesday	25351
	N	PALM CANYON DR E	CVAG	1/30/2007	Tuesday	18081

LOCATION	DIR	X-STREET	NOTE	DATE	DAY	ADT
BOB HOPE DR	N	DINAH SHORE DR	CVAG	1/30/2007	Tuesday	14796
	S	RAMON RD	CVAG	2/16/2006	Thursday	17756
	N	PALM CANYON DR E	CVAG	1/30/2006	Monday	19465
	N	FRANK SINATRA DR	CVAG	1/30/2006	Monday	27234
	S	COUNTRY CLUB DR	CVAG	1/30/2006	Monday	25262
	N	DINAH SHORE DR	CVAG	1/30/2006	Monday	16684
	N	GERALD FORD DR	CVAG	1/30/2006	Monday	21507
	N	COUNTRY CLUB DR	CVAG	1/30/2006	Monday	21915
	N	DINAH SHORE DR	CVAG	10/1/2005	Saturday	16572
	N	DINAH SHORE DR	CVAG	3/1/2005	Tuesday	13871
	S	RAMON RD	CVAG	2/23/2005	Wednesday	16703
	N	PALM CANYON DR E	CVAG	1/30/2005	Sunday	16735
	N	GERALD FORD DR	CVAG	1/30/2005	Sunday	21552
	N	FRANK SINATRA DR	CVAG	1/30/2005	Sunday	23477
	N	COUNTRY CLUB DR	CVAG	1/30/2005	Sunday	22861
	S	COUNTRY CLUB DR	CVAG	1/30/2005	Sunday	22977
	S	RAMON RD	CVAG	3/17/2004	Wednesday	18691
	S	COUNTRY CLUB DR	CVAG	1/30/2004	Friday	23950
	N	PALM CANYON DR E	CVAG	1/30/2004	Friday	24827
	N	FRANK SINATRA DR	CVAG	1/30/2004	Friday	25792
	N	DINAH SHORE DR	CVAG	1/30/2004	Friday	16304
	N	COUNTRY CLUB DR	CVAG	1/30/2004	Friday	22977
	N	GERALD FORD DR	CVAG	1/30/2004	Friday	20283
BONITA AVE	W	BROADWAY ST	CENSUS	6/2/2009	Tuesday	773
	E	BROADWAY ST	CENSUS	5/19/2009	Tuesday	3642
	E	BROADWAY ST		12/16/2004	Thursday	2978
	W	BROADWAY ST		12/16/2004	Thursday	1170
BOREL RD	W	WARREN RD	CENSUS	5/14/2009	Thursday	5344
	W	HALIFAX LN		3/13/2008	Thursday	6282
	W	HALIFAX LN		3/12/2008	Wednesday	6183
	W	WARREN RD		12/16/2004	Thursday	4565
BRADLEY RD	N	NEWPORT RD	CENSUS	5/19/2009	Tuesday	11763
	N	HOLLAND RD	CENSUS	5/6/2009	Wednesday	9049
	S	NEWPORT RD	CENSUS	5/6/2009	Wednesday	8497
	S	HOLLAND RD	CENSUS	5/6/2009	Wednesday	5021
	S	RIO VISTA DR	CENSUS	5/6/2009	Wednesday	10012
	S	CHERRY HILLS BLVD	CENSUS	4/30/2009	Thursday	9051
	N	CHAMBERS AVE	CENSUS	4/30/2009	Thursday	1770

LOCATION	DIR	X-STREET	NOTE	DATE	DAY	ADT
BRADLEY RD	S	CHESTER MORRISON WY		9/6/2007	Thursday	9731
	S	RIO VISTA DR		8/9/2007	Thursday	9523
	S	CHERRY HILLS BLVD		8/9/2007	Thursday	9067
	N	CHAMBERS AVE		8/9/2007	Thursday	2049
	E	PEBBLE BEACH DR		5/23/2007	Wednesday	214
	W	PEBBLE BEACH DR		5/23/2007	Wednesday	179
	N	HOLLAND RD		12/14/2004	Tuesday	5516
	S	HOLLAND RD		12/14/2004	Tuesday	5660
	S	RIO VISTA DR		11/9/2004	Tuesday	10068
	S	CHERRY HILLS BLVD		11/9/2004	Tuesday	9007
	N	NEWPORT RD		11/4/2004	Thursday	17333
	S	NEWPORT RD		11/4/2004	Thursday	7343
	S	POTOMAC DR		8/16/2004	Monday	8778
	N	POTOMAC DR		8/16/2004	Monday	8890
BRIGGS RD	N	WATSON RD	CENSUS	5/12/2009	Tuesday	2765
	N	SH-74	CENSUS	5/12/2009	Tuesday	2301
	N	SCOTT RD		4/25/2006	Tuesday	806
	S	SCOTT RD		4/19/2006	Wednesday	487
	S	WATSON RD		12/14/2004	Tuesday	3300
	N	WATSON RD		12/2/2004	Thursday	2320
	S	SCOTT RD		3/30/2004	Tuesday	474
BROADWAY ST	N	BONITA AVE	CENSUS	5/19/2009	Tuesday	6228
	S	CARMEN AVE		10/25/2005	Tuesday	1295
	N	CARMEN AVE		10/25/2005	Tuesday	2333
	N	CARMEN AVE		7/19/2005	Tuesday	1063
	N	BONITA AVE	RRX	12/16/2004	Thursday	5120
BROOKSIDE AVE	E	BEAUMONT AVE	CENSUS	5/27/2009	Wednesday	4874
	W	BEAUMONT AVE	CENSUS	5/7/2009	Thursday	2054
	W	HIGHLAND SPRINGS AVE	CENSUS	5/7/2009	Thursday	6012
	W	LEMON AVE		4/17/2007	Tuesday	2578
	E	LEMON AVE		4/17/2007	Tuesday	2492
	E	NOBLE ST		4/17/2007	Tuesday	2620
	W	NOBLE ST		4/17/2007	Tuesday	2363
	E	BEAUMONT AVE		4/13/2006	Thursday	4469
	E	HANNON RD		4/13/2006	Thursday	2195
	E	WINESAP AVE		4/13/2006	Thursday	3541
	E	NANCY AVE		4/12/2006	Wednesday	2115
	W	HIGHLAND SPRINGS AVE		12/16/2004	Thursday	4995

LOCATION	DIR	X-STREET	NOTE	DATE	DAY	ADT
BROOKSIDE AVE	E	BEAUMONT AVE		12/7/2004	Tuesday	4730
	W	BEAUMONT AVE		12/7/2004	Tuesday	1800
BROWN AVE	S	HALL AVE	CENSUS	2/24/2009	Tuesday	103
BROWN ST	S	CAJALCO RD	CENSUS	4/1/2009	Wednesday	4198
	N	CAJALCO RD	CENSUS	4/1/2009	Wednesday	3324
	S	CAJALCO RD		12/16/2004	Thursday	3394
	N	CAJALCO RD		12/16/2004	Thursday	2642
	N	RIDER ST		11/17/2004	Wednesday	2595
	S	RIDER ST		11/17/2004	Wednesday	1627
BUBBLING WELLS RD	N	20TH AVE		1/6/2010	Wednesday	1220
	S	DILLON RD		1/6/2010	Wednesday	1304
	S	DILLON RD		1/5/2010	Tuesday	1211
	N	20TH AVE		1/5/2010	Tuesday	1140
	S	DILLON RD	CENSUS	6/2/2009	Tuesday	1267
	N	DILLON RD	CENSUS	4/15/2009	Wednesday	1641
	N	EL SERAPE TR		4/26/2006	Wednesday	1563
	N	HATCHET CACTUS DR		4/26/2006	Wednesday	1395
	S	DILLON RD		11/23/2004	Tuesday	1139
BUCHANAN ST	N	60TH AVE		6/5/2008	Thursday	886
	S	60TH AVE		6/5/2008	Thursday	666
BUNDY CANYON RD	W	CHERRY ST	CENSUS	5/27/2009	Wednesday	16788
	E	OAK CANYON DR	CENSUS	5/5/2009	Tuesday	31430
	W	ORANGE ST	CENSUS	5/5/2009	Tuesday	14144
	E	MISSION TR	CENSUS	5/5/2009	Tuesday	13289
	W	THE FARM RD	CENSUS	5/5/2009	Tuesday	15811
	N	HARVEST WY		3/15/2007	Thursday	7111
	S	HARVEST WY		3/14/2007	Wednesday	8599
	E	MONTE VISTA DR		2/28/2007	Wednesday	9611
	W	MONTE VISTA DR		2/28/2007	Wednesday	9473
	N	HARVEST WY		2/15/2006	Wednesday	6640
	S	HARVEST WY		2/14/2006	Tuesday	15246
	W	WALNUT CREEK RD		1/11/2006	Wednesday	9346
	W	MURRIETA RD		12/14/2004	Tuesday	12467
	E	OAK CANYON DR		11/30/2004	Tuesday	27679
	E	MISSION TR		11/30/2004	Tuesday	10247
	W	ORANGE ST		11/30/2004	Tuesday	11368
	W	THE FARM RD		11/30/2004	Tuesday	13431
	W	CHERRY ST		11/30/2004	Tuesday	23570

LOCATION	DIR	X-STREET	NOTE	DATE	DAY	ADT
BUNDY CANYON RD	W	MURRIETA RD		6/29/2004	Tuesday	7867
	S	HARVEST WY		3/24/2004	Wednesday	12598
	N	HARVEST WY		3/24/2004	Wednesday	10323
	N	THE FARM RD		3/24/2004	Wednesday	15467
	W	MURRIETA RD		3/24/2004	Wednesday	10277
	W	CHERRY ST		3/24/2004	Wednesday	16617
BUTTERFIELD STAGE RD	N	MORGAN HILL ST		11/5/2009	Thursday	4107
	N	DESTINO ST		9/15/2009	Tuesday	2674
	S	GALLERON ST		9/15/2009	Tuesday	2158
	N	AVENIDA LESTONNACE		3/2/2005	Wednesday	8893
	S	AVENIDA LESTONNAC		3/2/2005	Wednesday	9957
BYRON ST	N	INDIANA AVE		8/31/2010	Tuesday	1194
C & D BLVD	S	14TH AVE	CENSUS	6/16/2009	Tuesday	520
	S	14TH AVE		11/17/2004	Wednesday	615
CAJALCO EXPY	W	I-215 NBON		4/6/2008	Sunday	9086
	E	HARVILL AVE		4/6/2008	Sunday	8863
	W	I-215 NBON		4/5/2008	Saturday	10606
	E	HARVILL AVE		4/5/2008	Saturday	3640
	E	HARVILL AVE		4/4/2008	Friday	9171
	W	I-215 NBON		4/4/2008	Friday	7289
	E	HARVILL AVE		4/3/2008	Thursday	12488
	W	I-215 NBON		4/3/2008	Thursday	231
	E	HARVILL AVE		4/2/2008	Wednesday	12179
	W	I-215 NBON		4/2/2008	Wednesday	11617
	W	I-215 NBON		4/1/2008	Tuesday	11467
	E	HARVILL AVE		4/1/2008	Tuesday	12199
	W	I-215 NBON		3/31/2008	Monday	11407
	E	HARVILL AVE		3/31/2008	Monday	11883
	E	HARVILL AVE		7/8/2005	Friday	27425
CAJALCO RD	E	HAINES ST		5/6/2009	Wednesday	19534
	W	EL SOBRANTE RD	CENSUS	4/15/2009	Wednesday	8511
	W	GAVILAN RD	CENSUS	4/14/2009	Tuesday	20367
	E	COWAN RD	CENSUS	4/14/2009	Tuesday	18820
	E	TEMESCAL CANYON RD	CENSUS	4/9/2009	Thursday	9439
	E	LAKE MATHEWS DR	CENSUS	4/9/2009	Thursday	6383
	W	BROWN ST	CENSUS	4/1/2009	Wednesday	17439
	W	CLARK ST	CENSUS	4/1/2009	Wednesday	20345
	E	CLARK ST	CENSUS	4/1/2009	Wednesday	21803

LOCATION	DIR	X-STREET	NOTE	DATE	DAY	ADT
CAJALCO RD	E	DAY ST	CENSUS	4/1/2009	Wednesday	24559
	E	BROWN ST	CENSUS	4/1/2009	Wednesday	19331
	E	HARVILL AVE	CENSUS	3/31/2009	Tuesday	24818
	W	WOOD RD	CENSUS	3/31/2009	Tuesday	17131
	E	WOOD RD	CENSUS	3/31/2009	Tuesday	15066
	W	SEATON AVE	CENSUS	3/31/2009	Tuesday	24167
	E	ALEXANDER ST		3/13/2008	Thursday	9078
	W	ALEXANDER ST		3/13/2008	Thursday	9340
	E	ALEXANDER ST		8/1/2007	Wednesday	8793
	W	ALEXANDER ST		8/1/2007	Wednesday	8922
	W	LA SIERRA AVE		9/20/2005	Tuesday	4904
	E	LA SIERRA AVE		9/20/2005	Tuesday	4584
	W	LA SIERRA AVE		9/7/2005	Wednesday	11478
	E	LA SIERRA AVE		9/7/2005	Wednesday	10191
	W	CLARK ST		1/20/2005	Thursday	22700
	E	COWAN RD		11/30/2004	Tuesday	16807
	E	CLARK ST		11/9/2004	Tuesday	23149
	E	BROWN ST		11/9/2004	Tuesday	17884
	E	DAY ST		10/28/2004	Thursday	22423
	W	BROWN ST		10/19/2004	Tuesday	15062
	E	WOOD RD		10/14/2004	Thursday	16532
	E	LAKE MATHEWS DR		10/14/2004	Thursday	7726
	W	WOOD RD		10/14/2004	Thursday	15724
	W	SEATON AVE		10/14/2004	Thursday	22672
	W	GAVILIN RD		10/14/2004	Thursday	19719
	W	LAKE MATHEWS DR		3/11/2004	Thursday	7614
	E	LAKE MATHEWS DR		3/11/2004	Thursday	6130
CALHOUN ST	S	52ND AVE	CVAG	1/30/2010	Saturday	2362
	N	52ND AVE	CVAG	1/30/2010	Saturday	3766
	N	52ND AVE	CENSUS	6/3/2009	Wednesday	3877
	N	AIRPORT BLVD	CENSUS	6/3/2009	Wednesday	3547
	N	52ND AVE		12/15/2004	Wednesday	1351
	N	AIRPORT BLVD		12/15/2004	Wednesday	847
CALIFORNIA AVE	N	SH-79		5/11/2010	Tuesday	2861
	N	SH-79	CENSUS	5/12/2009	Tuesday	2209
	N	SH-79		12/16/2004	Thursday	2777
CALLA NOPAL	E	CALLE CANCION		4/6/2005	Wednesday	821
CALLE CONTENTO	N	RANCHO CALIFORNIA RD		6/5/2007	Tuesday	745

LOCATION	DIR	X-STREET	NOTE	DATE	DAY	ADT
CALLE CONTENTO	S	RANCHO CALIFORNIA RD		6/5/2007	Tuesday	418
	N	MADERA DE PLAYA DR		4/6/2005	Wednesday	641
CALLE CONTENTO RD	S	MADERA DE PLAYA DR		4/6/2005	Wednesday	564
CALLE POMPEII	S	NEWPORT RD		3/11/2004	Thursday	758
CAMINO AVENTURA	E	AVENTURA MANZANA		9/27/2007	Thursday	2527
CAMINO CAMPANERO	W	AVENIDA FLORENCITA		6/4/2009	Thursday	1175
	E	AVENIDA FLORENCITA		6/4/2009	Thursday	1200
CAMINO CRISTAL	W	MENIFEE RD		1/9/2007	Tuesday	427
	E	MENIFEE RD		1/9/2007	Tuesday	1410
CAMINO REAL	S	JURUPA RD	CENSUS	4/2/2009	Thursday	8296
	N	LIVE OAK DR	CENSUS	2/24/2009	Tuesday	8474
	N	LIMONITE AVE	CENSUS	2/24/2009	Tuesday	9597
	S	LIMONITE AVE	CENSUS	2/24/2009	Tuesday	9199
	S	WHITNEY DR		10/18/2007	Thursday	4462
	N	WHITNEY DR		10/18/2007	Thursday	5244
	N	LIMONITE AVE		9/19/2007	Wednesday	9613
	N	LIVE OAK DR		8/7/2007	Tuesday	8561
	S	JURUPA RD		8/7/2007	Tuesday	8889
	S	GRANITE HILL DR		12/15/2005	Thursday	1703
	N	GRANITE HILL DR		12/15/2005	Thursday	21
	S	JURUPA RD		11/17/2004	Wednesday	8754
	N	LIMONITE AVE		10/26/2004	Tuesday	9275
	S	LIMONITE AVE		10/26/2004	Tuesday	10821
CAMINO SAN BENITO	W	SISKIYOU CIR		5/7/2004	Friday	864
CAMPBELL RANCH RD	E	MAYHEW CANYON RD		4/29/2010	Thursday	2086
	W	MAYHEW CANYON RD		4/29/2010	Thursday	4962
CAMPBELL ST	N	HASTINGS BLVD		9/23/2010	Thursday	1843
	S	HASTINGS BLVD		9/23/2010	Thursday	1664
	N	HASTINGS BLVD		9/22/2010	Wednesday	1769
	S	HASTINGS BLVD		9/22/2010	Wednesday	1696
	S	MISSION BLVD	CENSUS	2/19/2009	Thursday	1683
	N	MISSION BLVD		3/28/2007	Wednesday	1581
	N	MISSION BLVD		3/27/2007	Tuesday	1562
	S	MISSION BLVD		11/10/2004	Wednesday	1855
CANTU-GALLEANO RANCH RD	E	I-15	CENSUS	2/18/2009	Wednesday	7737
	E	I-15		8/1/2007	Wednesday	4455
	E	I-15		7/31/2007	Tuesday	4069
CANYON DR	E	MISSION TR	CENSUS	5/5/2009	Tuesday	3382

LOCATION	DIR	X-STREET	NOTE	DATE	DAY	ADT
CANYON DR	W	MISSION TR	CENSUS	5/5/2009	Tuesday	3280
	W	ORANGE ST	CENSUS	5/5/2009	Tuesday	3280
	W	ORANGE ST		9/25/2007	Tuesday	2588
	E	MISSION TR		1/18/2005	Tuesday	2033
	E	MISSION TR		11/30/2004	Tuesday	2690
	W	ORANGE ST		11/30/2004	Tuesday	2814
	E	MISSION TR		3/10/2004	Wednesday	1513
CANYON PINES PL	E	KNABE RD		11/5/2008	Wednesday	667
CANYON RANCH RD	N	BUNDY CANYON RD		3/9/2006	Thursday	1692
	S	LEAFSTOCK TR		8/2/2005	Tuesday	1118
CANYON WIND RD	W	ALDRIDGE CT		12/11/2008	Thursday	201
CANYONVIEW DR	S	SILVER SPUR RD		3/25/2008	Tuesday	1034
CARDIFF AVE	N	SIERRA MADRE DR		5/11/2005	Wednesday	221
CARMEN AVE	E	BROADWAY ST		10/25/2005	Tuesday	999
	W	BROADWAY ST		10/25/2005	Tuesday	316
	E	BROADWAY ST		7/20/2005	Wednesday	372
	E	ORANG ST		7/20/2005	Wednesday	149
	W	ORANGE ST		7/20/2005	Wednesday	76
CARROLL ST	N	MARKHAM ST		8/1/2006	Tuesday	522
	S	MARKHAM ST		8/1/2006	Tuesday	414
CARROLLTON PL	N	CITRUS ST		10/12/2006	Thursday	472
CARTER LN	S	COUNTRY CLUB DR		7/8/2009	Wednesday	208
	N	41ST AVE		9/26/2007	Wednesday	208
CAT CANYON RD	N	CAHUILLA WAY		8/26/2009	Wednesday	695
CATHEDRAL CANYON DR	N	PALM CANYON DR	CVAG	1/30/2010	Saturday	10193
	S	RAMON RD	CVAG	1/30/2010	Saturday	14150
	N	DINAH SHORE DR	CVAG	1/30/2010	Saturday	13640
	S	PALM CANYON DR	CVAG	1/30/2010	Saturday	6511
	S	WHITEWATER RIVER	CVAG	1/30/2010	Saturday	15346
	S	DINAH SHORE DR	CVAG	1/30/2010	Saturday	16158
	S	WHITEWATER RIVER	CVAG	2/23/2009	Monday	16347
	S	RAMON RD	CVAG	2/23/2009	Monday	14651
	S	PALM CANYON DR	CVAG	2/23/2009	Monday	11274
	S	DINAH SHORE DR	CVAG	2/23/2009	Monday	16612
	N	PALM CANYON DR	CVAG	2/23/2009	Monday	10071
	N	DINAH SHORE DR	CVAG	2/23/2009	Monday	13981
	S	RAMON RD	CVAG	1/30/2008	Wednesday	15662
	N	PALM CANYON DR	CVAG	1/30/2008	Wednesday	10831

LOCATION	DIR	X-STREET	NOTE	DATE	DAY	ADT
CATHEDRAL CANYON DR	S	WHITEWATER RIVER	CVAG	1/30/2008	Wednesday	16932
	N	DINAH SHORE DR	CVAG	1/30/2008	Wednesday	14574
	S	DINAH SHORE DR	CVAG	1/30/2008	Wednesday	18022
	S	PALM CANYON DR	CVAG	1/30/2008	Wednesday	7043
	S	WHITEWATER RIVER	CVAG	1/30/2007	Tuesday	19981
	N	DINAH SHORE DR	CVAG	1/30/2007	Tuesday	14073
	S	RAMON RD	CVAG	1/30/2007	Tuesday	15039
	S	PALM CANYON DR	CVAG	1/30/2007	Tuesday	8883
	N	PALM CANYON DR	CVAG	1/30/2007	Tuesday	11852
	S	DINAH SHORE DR	CVAG	1/30/2007	Tuesday	19150
	N	DINAH SHORE DR	CVAG	1/30/2006	Monday	16183
	S	PALM CANYON DR	CVAG	1/30/2006	Monday	9185
	S	RAMON RD	CVAG	1/30/2006	Monday	16053
	N	PALM CANYON DR	CVAG	1/30/2006	Monday	12211
	S	DINAH SHORE DR	CVAG	1/30/2006	Monday	18962
	S	WHITEWATER RIVER	CVAG	1/30/2006	Monday	13329
	S	DINAH SHORE DR	CVAG	1/30/2005	Sunday	18701
	N	DINAH SHORE DR	CVAG	1/30/2005	Sunday	15450
	S	WHITEWATER RIVER	CVAG	1/30/2005	Sunday	16804
	S	PALM CANYON DR	CVAG	1/30/2005	Sunday	7454
	S	RAMON RD	CVAG	1/30/2005	Sunday	17751
	N	PALM CANYON DR	CVAG	1/30/2005	Sunday	12091
CATT RD	E	BELLFLOWER AVE		5/7/2008	Wednesday	5877
CEDAR AVE	W	WENDELL DR		5/11/2010	Tuesday	6209
	E	RAMONA EXPY	CENSUS	5/19/2009	Tuesday	5742
	E	RAMONA EXPY		12/7/2004	Tuesday	6245
CEDAR ST	N	53RD ST		5/2/2006	Tuesday	473
	S	53RD ST		5/2/2006	Tuesday	438
CENTER ST	W	MT VERNON AVE	CENSUS	4/14/2009	Tuesday	2192
	E	PROSPECT AVE	CENSUS	4/7/2009	Tuesday	5919
	E	IOWA AVE	CENSUS	4/7/2009	Tuesday	8069
	W	IOWA AVE	CENSUS	4/7/2009	Tuesday	9813
	E	STEPHENS AVE	CENSUS	4/7/2009	Tuesday	8690
	W	STEPHENS AVE		4/19/2005	Tuesday	6452
	W	MT VERNON AVE		12/8/2004	Wednesday	3158
	E	PROSPECT AVE		12/2/2004	Thursday	6851
	E	IOWA AVE		12/2/2004	Thursday	11847
	W	IOWA AVE		11/17/2004	Wednesday	8560

LOCATION	DIR	X-STREET	NOTE	DATE	DAY	ADT
CENTER ST	E	STEPHENS AVE		11/17/2004	Wednesday	10824
CENTRAL AVE	W	SYCAMORE CANYON BLVD	CENSUS	6/2/2009	Tuesday	15307
	W	SYCAMORE CANYON BLVD		4/6/2008	Sunday	5864
	E	LOCHMOOR DR		4/6/2008	Sunday	5226
	W	SYCAMORE CANYON BLVD		4/5/2008	Saturday	5514
	E	LOCHMOOR DR		4/5/2008	Saturday	7315
	W	SYCAMORE CANYON BLVD		4/4/2008	Friday	6215
	E	LOCHMOOR DR		4/4/2008	Friday	10188
	W	SYCAMORE CANYON BLVD		4/3/2008	Thursday	6162
	E	LOCHMOOR DR		4/3/2008	Thursday	8571
	W	SYCAMORE CANYON BLVD		4/2/2008	Wednesday	6043
	E	LOCHMOOR DR		4/2/2008	Wednesday	8487
	W	SYCAMORE CANYON BLVD	CENSUS	4/1/2008	Tuesday	6067
	E	LOCHMOOR DR		4/1/2008	Tuesday	8589
	W	SYCAMORE CANYON BLVD		3/31/2008	Monday	5832
	E	LOCHMOOR DR		3/31/2008	Monday	7946
	S	GRAND AVE		10/11/2007	Thursday	604
	N	GRAND AVE		10/11/2007	Thursday	3768
	E	RAMONA AVE		12/5/2006	Tuesday	1428
	W	RAMONA AVE		12/5/2006	Tuesday	2160
	W	SYCAMORE CANYON BLVD		12/8/2004	Wednesday	13682
CENTRAL AVE (NUEVO RD)	W	OLIVAS AVE		3/26/2008	Wednesday	2124
CENTRAL ST	N	PALOMAR ST	CENSUS	5/6/2009	Wednesday	24245
	N	GRAND AVE	CENSUS	5/6/2009	Wednesday	9661
	E	DARBY ST		9/6/2007	Thursday	7965
	W	CERVERA RD		9/6/2007	Thursday	12515
	N	GRAND AVE		12/2/2004	Thursday	7644
	N	PALOMAR ST		12/2/2004	Thursday	20587
CHAMBERS AVE	E	MURRIETA RD	CENSUS	4/30/2009	Thursday	1581
	W	MURRIETA RD	CENSUS	4/30/2009	Thursday	2433
	E	MURRIETA RD		1/11/2006	Wednesday	870
	W	MURRIETA RD		1/11/2006	Wednesday	1207
	E	MURRIETA RD		11/9/2004	Tuesday	1698
CHANDLER ST	W	ARCHIBALD AVE	CENSUS	4/7/2009	Tuesday	4913
	E	ARCHIBALD AVE		1/25/2005	Tuesday	2192
	W	ARCHIBALD AVE		1/25/2005	Tuesday	2600
CHERRY AVE	S	BROOKSIDE AVE		6/3/2009	Wednesday	2217
	N	BROOKSIDE AVE		6/3/2009	Wednesday	1282

LOCATION	DIR	X-STREET	NOTE	DATE	DAY	ADT
CHERRY AVE	N	BROOKSIDE AVE	CENSUS	5/7/2009	Thursday	2114
	N	BROOKSIDE AVE		12/7/2004	Tuesday	1765
CHERRY HILLS BLVD	E	PEBBLE BEACH DR	CENSUS	4/30/2009	Thursday	4753
	E	PEBBLE BEACH		11/9/2004	Tuesday	5154
CHERRY ST	N	BUNDY CANYON RD		3/9/2006	Thursday	3302
CHERRY VALLEY BLVD	E	BEAUMONT AVE		5/11/2010	Tuesday	2476
	E	NANCY AVE		5/11/2010	Tuesday	5349
	E	BELLFLOWER AVE	CENSUS	6/2/2009	Tuesday	1109
	E	BEAUMONT AVE	CENSUS	5/27/2009	Wednesday	2079
	W	BEAUMONT AVE	CENSUS	5/27/2009	Wednesday	6245
	W	HANNON RD	CENSUS	5/27/2009	Wednesday	7792
	E	BELLFLOWER AVE		8/22/2007	Wednesday	1093
	W	BEAUMONT AVE		12/7/2004	Tuesday	5753
	E	BEAUMONT AVE		12/7/2004	Tuesday	2033
	W	HANNON RD		12/7/2004	Tuesday	7616
CHICAGO AVE	S	CEDAR AVE	CENSUS	5/12/2009	Tuesday	973
	S	CEDAR AVE		12/7/2004	Tuesday	807
	S	VAN BUREN BLVD		3/3/2004	Wednesday	41
	N	VAN BUREN BLVD		3/3/2004	Wednesday	712
	S	VAN BUREN BLVD		3/2/2004	Tuesday	39
	N	VAN BUREN BLVD		3/2/2004	Tuesday	942
CHOLLA WY	W	CAT CANYON RD		8/26/2009	Wednesday	237
CIDER ST	E	MACINTOSH CT		7/12/2007	Thursday	376
CITRUS ST	E	HARRISON AVE	CENSUS	4/7/2009	Tuesday	1941
	W	CARROLLTON PL		10/12/2006	Thursday	4395
	E	CARROLLTON PL		10/12/2006	Thursday	4606
	W	SUMNER AVE		1/18/2006	Wednesday	4430
	E	SUMNER AVE		1/18/2006	Wednesday	5430
	E	HARRISON AVE		11/2/2004	Tuesday	1518
CLARK ST	N	CAJALCO RD	CENSUS	4/1/2009	Wednesday	3902
	S	CAJALCO RD	CENSUS	4/1/2009	Wednesday	2272
	S	OLEANDER AVE	CENSUS	3/31/2009	Tuesday	3248
	S	RIDER ST		10/12/2006	Thursday	2220
	N	RIDER ST		10/12/2006	Thursday	2134
	S	CAJALCO RD		10/28/2004	Thursday	5686
	N	RIDER ST		10/12/2004	Tuesday	5591
CLAY ST	E	VAN BUREN BLVD	CENSUS	2/24/2009	Tuesday	20065
	S	LIMONITE AVE	CENSUS	2/3/2009	Tuesday	18813

LOCATION	DIR	X-STREET	NOTE	DATE	DAY	ADT
CLAY ST	N	DE ANZA PLAZA DR		10/27/2008	Monday	7164
	S	DE ANZA PLAZA DR		10/27/2008	Monday	7492
	N	DE ANZA PLAZA DR		10/26/2008	Sunday	6146
	S	DE ANZA PLAZA DR		10/26/2008	Sunday	6330
	N	DE ANZA PLAZA DR		10/25/2008	Saturday	7126
	S	DE ANZA PLAZA DR		10/25/2008	Saturday	7561
	N	DE ANZA PLAZA DR		10/24/2008	Friday	8561
	S	DE ANZA PLAZA DR		10/24/2008	Friday	8900
	N	REAGAN RD		9/25/2007	Tuesday	12494
	E	VAN BUREN BLVD		10/27/2004	Wednesday	25415
	S	LIMONITE AVE		10/27/2004	Wednesday	26346
CLEVELAND AVE	N	BALTIMORE ST		9/14/2006	Thursday	2678
	S	BALTIMORE ST		9/14/2006	Thursday	2137
CLINTON KEITH RD	S	AVENIDA LA CRESTA		6/24/2010	Thursday	963
	N	AVENIDA LA CRESTA		6/24/2010	Thursday	3216
	S	PALOMAR ST	CENSUS	5/7/2009	Thursday	15206
	E	INLAND VALLEY DR	CENSUS	5/7/2009	Thursday	12653
	N	PALOMAR ST	CENSUS	4/15/2009	Wednesday	19132
	S	AVENIDA LA CRESTA		1/18/2007	Thursday	1785
	N	AVENIDA LA CRESTA		1/18/2007	Thursday	6981
	N	GRAND AVE		2/3/2005	Thursday	4903
	S	GRAND AVE		2/3/2005	Thursday	6824
	S	PALOMAR ST		9/8/2004	Wednesday	13911
	N	PALOMAR ST		9/7/2004	Tuesday	23487
CLINTON ST	S	FRED WARING DR	CENSUS	6/3/2009	Wednesday	13333
	S	FRED WARING DR		12/14/2004	Tuesday	12133
CLOCHE DR	S	ALGARVE AVE		8/26/2010	Thursday	1619
COBBLE DR	N	BUNKERHILL DR		8/25/2009	Tuesday	491
COGNAC ST	N	BENTON RD		8/2/2007	Thursday	1292
COLT DR	W	HORSETHIEF CANYON RD		5/4/2009	Monday	867
	W	HORSETHIEF CANYON RD		5/3/2009	Sunday	816
	W	HORSETHIEF CANYON RD		5/2/2009	Saturday	1020
	W	HORSETHIEF CANYON RD		5/1/2009	Friday	964
	W	HORSETHIEF CANYON DR		4/27/2008	Sunday	802
	W	HORSETHIEF CANYON DR		4/26/2008	Saturday	933
	W	HORSETHIEF CANYON DR		4/25/2008	Friday	925
COLUMBIA ST	N	JOHNSTON AVE	CENSUS	5/14/2009	Thursday	4239
	S	SH-74	CENSUS	5/13/2009	Wednesday	7620

LOCATION	DIR	X-STREET	NOTE	DATE	DAY	ADT
COLUMBIA ST	S	SH-74		12/14/2004	Tuesday	6631
	N	JOHNSTON AVE		11/30/2004	Tuesday	3238
CONNING ST	S	MISSION BLVD		12/18/2008	Thursday	694
	N	MISSION BLVD		3/28/2007	Wednesday	765
	N	MISSION BLVD		3/27/2007	Tuesday	714
	N	MISSION BLVD		4/25/2006	Tuesday	637
	S	MISSION BLVD		4/25/2006	Tuesday	691
	N	MISSION BLVD		5/17/2005	Tuesday	648
	S	MISSION BLVD		5/17/2005	Tuesday	951
CONTOUR AVE	E	HANSEN AVE	CENSUS	5/12/2009	Tuesday	2784
	E	HANSEN AVE		12/9/2004	Thursday	3408
COOK	S	SR 111	CVAG	2/23/2009	Monday	5364
COOK ST	S	HOVLEY LN	CVAG	1/30/2010	Saturday	25796
	N	FRED WARING DR	CVAG	1/30/2010	Saturday	25669
	S	COUNTRY CLUB DR	CVAG	1/30/2010	Saturday	29889
	S	FRED WARING DR	CVAG	1/30/2010	Saturday	14157
	N	GERALD FORD DR	CVAG	1/30/2010	Saturday	27548
	N	FRANK SINATRA DR	CVAG	1/30/2010	Saturday	23297
	N	COUNTRY CLUB DR	CVAG	1/30/2010	Saturday	26125
	S	SH-111	CVAG	1/30/2010	Saturday	5299
	S	FRANK SINATRA DR	CVAG	1/30/2010	Saturday	21955
	N	GERALD FORD DR	CVAG	2/23/2009	Monday	27121
	N	FRANK SINATRA DR	CVAG	2/23/2009	Monday	22444
	S	FRANK SINATRA DR	CVAG	2/23/2009	Monday	20471
	N	FRED WARING DR	CVAG	2/23/2009	Monday	25410
	N	COUNTRY CLUB DR	CVAG	2/23/2009	Monday	23549
	S	COUNTRY CLUB DR	CVAG	2/23/2009	Monday	25563
	S	FRED WARING DR	CVAG	2/23/2009	Monday	13963
	S	HOVLEY LN	CVAG	2/23/2009	Monday	23847
	S	SH-111	CVAG	1/30/2009	Friday	5364
	S	COUNTRY CLUB DR	CVAG	1/30/2008	Wednesday	25616
	S	HOVLEY LN	CVAG	1/30/2008	Wednesday	25228
	N	GERALD FORD DR	CVAG	1/30/2008	Wednesday	25809
	S	FRANK SINATRA DR	CVAG	1/30/2008	Wednesday	22074
	S	FRED WARING DR	CVAG	1/30/2008	Wednesday	16919
	N	FRED WARING DR	CVAG	1/30/2008	Wednesday	25158
	S	SH-111	CVAG	1/30/2008	Wednesday	6239
	N	FRANK SINATRA DR	CVAG	1/30/2008	Wednesday	22820

LOCATION	DIR	X-STREET	NOTE	DATE	DAY	ADT
COOK ST	N	COUNTRY CLUB DR	CVAG	1/30/2008	Wednesday	26897
	N	FRANK SINATRA DR	CVAG	1/30/2007	Tuesday	25678
	S	FRANK SINATRA DR	CVAG	1/30/2007	Tuesday	27940
	N	COUNTRY CLUB DR	CVAG	1/30/2007	Tuesday	29897
	S	FRED WARING DR	CVAG	1/30/2007	Tuesday	17713
	N	FRED WARING DR	CVAG	1/30/2007	Tuesday	31491
	S	COUNTRY CLUB DR	CVAG	1/30/2007	Tuesday	29930
	S	HOVLEY LN	CVAG	1/30/2007	Tuesday	30278
	S	SH-111	CVAG	1/30/2007	Tuesday	6093
	N	GERALD FORD DR	CVAG	1/30/2007	Tuesday	28440
	S	HOVLEY LN	CVAG	1/30/2006	Monday	31392
	S	FRED WARING DR	CVAG	1/30/2006	Monday	17971
	S	FRANK SINATRA DR	CVAG	1/30/2006	Monday	23462
	S	COUNTRY CLUB DR	CVAG	1/30/2006	Monday	33621
	N	GERALD FORD DR	CVAG	1/30/2006	Monday	27289
	S	SH-111	CVAG	1/30/2006	Monday	6025
	N	FRANK SINATRA DR	CVAG	1/30/2006	Monday	35928
	N	COUNTRY CLUB DR	CVAG	1/30/2006	Monday	24475
	N	FRED WARING DR	CVAG	1/30/2006	Monday	30975
	N	COUNTRY CLUB DR	CVAG	10/1/2005	Saturday	36958
	N	COUNTRY CLUB DR	CVAG	3/1/2005	Tuesday	33776
	S	SH-111	CVAG	1/30/2005	Sunday	6631
	N	FRANK SINATRA DR	CVAG	1/30/2005	Sunday	21639
	S	FRED WARING DR	CVAG	1/30/2005	Sunday	17880
	S	HOVLEY LN	CVAG	1/30/2005	Sunday	29844
	S	FRANK SINATRA DR	CVAG	1/30/2005	Sunday	23652
	S	COUNTRY CLUB DR	CVAG	1/30/2005	Sunday	33734
	N	FRED WARING DR	CVAG	1/30/2005	Sunday	29724
	N	GERALD FORD DR	CVAG	1/30/2005	Sunday	26013
	N	FRED WARING DR	CVAG	1/30/2004	Friday	37070
	N	COUNTRY CLUB DR	CVAG	1/30/2004	Friday	22377
	S	SH-111	CVAG	1/30/2004	Friday	6073
	S	FRED WARING DR	CVAG	1/30/2004	Friday	16573
	S	COUNTRY CLUB DR	CVAG	1/30/2004	Friday	27187
	N	GERALD FORD DR	CVAG	1/30/2004	Friday	26465
CORKILL RD	S	DILLON RD		12/19/2006	Tuesday	3156
CORNELL ST	S	ACACIA AVE	CENSUS	5/13/2009	Wednesday	3825
	N	STETSON AVE	CENSUS	5/13/2009	Wednesday	2674

LOCATION	DIR	X-STREET	NOTE	DATE	DAY	ADT
CORNELL ST	S	ACACIA AVE		12/14/2004	Tuesday	3162
	N	STETSON AVE		12/8/2004	Wednesday	2169
CORNSTALK RD	W	MILLPOND DR		5/2/2006	Tuesday	1320
	E	MILLPOND DR		5/2/2006	Tuesday	424
CORYDON ST	E	GRAND AVE	CENSUS	5/6/2009	Wednesday	18354
	N	GRAND AVE		10/11/2007	Thursday	5284
	S	GRAND AVE		10/11/2007	Thursday	25
	E	GRAND AVE		12/2/2004	Thursday	15222
	S	PALOMAR ST		6/29/2004	Tuesday	11051
	N	PALOMAR ST		6/29/2004	Tuesday	11237
COTTONWOOD AVE	E	OLD I-215 FRONTAGE RD		4/26/2005	Tuesday	2439
COUNTRY CLUB	E	SR 111	CVAG	2/4/2009	Wednesday	5710
COUNTRY CLUB DR	W	MONTEREY AVE	CVAG	1/30/2010	Saturday	24607
	W	ADAMS ST	CVAG	1/30/2010	Saturday	8916
	E	COOK ST	CVAG	1/30/2010	Saturday	21195
	W	BOB HOPE DR	CVAG	1/30/2010	Saturday	12676
	E	SH-111	CVAG	1/30/2010	Saturday	6970
	W	COOK ST	CVAG	1/30/2010	Saturday	22482
	W	JEFFERSON ST	CVAG	1/30/2010	Saturday	14478
	E	BOB HOPE DR	CVAG	1/30/2010	Saturday	18628
	W	OASIS CLUB DR	CVAG	1/30/2010	Saturday	21236
	W	WASHINGTON ST	CVAG	1/30/2010	Saturday	24943
	E	ADAMS ST	CVAG	1/30/2010	Saturday	6893
	E	MONTEREY AVE	CVAG	1/30/2010	Saturday	23434
	W	ADAMS ST	CENSUS	5/13/2009	Wednesday	8026
	E	ADAMS ST	CENSUS	5/13/2009	Wednesday	6193
	W	OASIS CLUB DR	CVAG	2/4/2009	Wednesday	19574
	W	WASHINGTON ST	CVAG	2/4/2009	Wednesday	22609
	W	BOB HOPE DR	CVAG	2/4/2009	Wednesday	8781
	E	BOB HOPE DR	CVAG	2/4/2009	Wednesday	16795
	E	SH-111	CVAG	1/30/2009	Friday	5710
	W	COOK ST	CVAG	1/30/2009	Friday	21208
	W	MONTEREY AVE	CVAG	1/30/2009	Friday	23394
	E	MONTEREY AVE	CVAG	1/30/2009	Friday	24879
	W	JEFFERSON ST	CVAG	1/30/2009	Friday	15748
	E	COOK ST	CVAG	1/30/2009	Friday	19809
	E	MONTEREY AVE	CVAG	1/30/2008	Wednesday	26105
	E	COOK ST	CVAG	1/30/2008	Wednesday	22988

LOCATION	DIR	X-STREET	NOTE	DATE	DAY	ADT
COUNTRY CLUB DR	W	BOB HOPE DR	CVAG	1/30/2008	Wednesday	11552
	W	OASIS CLUB DR	CVAG	1/30/2008	Wednesday	19156
	W	WASHINGTON ST	CVAG	1/30/2008	Wednesday	26324
	W	COOK ST	CVAG	1/30/2008	Wednesday	24592
	W	JEFFERSON ST	CVAG	1/30/2008	Wednesday	16059
	W	MONTEREY AVE	CVAG	1/30/2008	Wednesday	24044
	E	SH-111	CVAG	1/30/2008	Wednesday	6972
	E	BOB HOPE DR	CVAG	1/30/2008	Wednesday	17246
	E	ADAMS ST	CENSUS	9/26/2007	Wednesday	8104
	W	MONTEREY AVE	CVAG	1/30/2007	Tuesday	25095
	W	COOK ST	CVAG	1/30/2007	Tuesday	25665
	W	JEFFERSON ST	CVAG	1/30/2007	Tuesday	16159
	E	BOB HOPE DR	CVAG	1/30/2007	Tuesday	20785
	W	OASIS CLUB DR	CVAG	1/30/2007	Tuesday	24045
	E	COOK ST	CVAG	1/30/2007	Tuesday	27271
	W	WASHINGTON ST	CVAG	1/30/2007	Tuesday	26191
	E	MONTEREY AVE	CVAG	1/30/2007	Tuesday	27340
	W	BOB HOPE DR	CVAG	1/30/2007	Tuesday	10320
	W	JEFFERSON ST	CVAG	1/31/2006	Tuesday	17238
	W	BOB HOPE DR	CVAG	1/30/2006	Monday	12426
	W	OASIS CLUB DR	CVAG	1/30/2006	Monday	22997
	E	MONTEREY AVE	CVAG	1/30/2006	Monday	24653
	W	WASHINGTON ST	CVAG	1/30/2006	Monday	24007
	W	MONTEREY AVE	CVAG	1/30/2006	Monday	23679
	E	BOB HOPE DR	CVAG	1/30/2006	Monday	17605
	W	COOK ST	CVAG	1/30/2006	Monday	24564
	E	SH-111	CVAG	1/30/2006	Monday	8939
	E	COOK ST	CVAG	1/30/2006	Monday	27386
	E	MONTEREY AVE	CVAG	10/1/2005	Saturday	29211
	E	MONTEREY AVE	CVAG	3/1/2005	Tuesday	22000
	W	JEFFERSON ST	CVAG	2/8/2005	Tuesday	12273
	W	OASIS CLUB DR	CVAG	1/30/2005	Sunday	24824
	E	SH-111	CVAG	1/30/2005	Sunday	9990
	W	WASHINGTON ST	CVAG	1/30/2005	Sunday	24292
	W	BOB HOPE DR	CVAG	1/30/2005	Sunday	14473
	E	BOB HOPE DR	CVAG	1/30/2005	Sunday	17775
	W	COOK ST	CVAG	1/30/2005	Sunday	25465
	E	COOK ST	CVAG	1/30/2005	Sunday	25032

LOCATION	DIR	X-STREET	NOTE	DATE	DAY	ADT
COUNTRY CLUB DR	W	MONTEREY AVE	CVAG	1/30/2005	Sunday	24529
	E	ADAMS ST		12/8/2004	Wednesday	5457
	W	ADAMS ST		12/8/2004	Wednesday	6803
	W	JEFFERSON ST	CVAG	3/11/2004	Thursday	17276
	W	OASIS CLUB DR	CVAG	1/30/2004	Friday	19710
	E	COOK ST	CVAG	1/30/2004	Friday	22811
	W	WASHINGTON ST	CVAG	1/30/2004	Friday	25806
	W	MONTEREY AVE	CVAG	1/30/2004	Friday	23373
	E	BOB HOPE DR	CVAG	1/30/2004	Friday	17861
	W	COOK ST	CVAG	1/30/2004	Friday	24170
	E	MONTEREY AVE	CVAG	1/30/2004	Friday	31044
COUNTRY LAKE ESTATES	E	STATE ST		7/30/2008	Wednesday	573
COUNTRY VILLAGE RD	N	GRANITE HILL DR	CENSUS	2/18/2009	Wednesday	36054
	S	PHILADELPHIA AVE	CENSUS	2/18/2009	Wednesday	30167
	N	GRANITE HILL DR		9/5/2007	Wednesday	30588
	S	PHILADELPHIA		8/7/2007	Tuesday	26928
	N	GRANITE HILL DR		11/30/2004	Tuesday	31579
	S	PHILADELPHIA AVE		11/23/2004	Tuesday	28884
COWAN RD	N	CAJALCO RD		3/9/2006	Thursday	486
COWIE AVE	N	DEPRAD ST		5/17/2005	Tuesday	2115
CRAIG AVE	E	MURRIETA RD		1/18/2005	Tuesday	3063
	E	MURRIETA RD		3/11/2004	Thursday	1853
CREST DR	E	RUE DE LA SHARMIE		9/29/2005	Thursday	2364
CREST MEADOW DR	S	LA ESTRELLA RD		4/18/2006	Tuesday	415
CRESTMORE RD	S	LORING RANCH RD N		5/20/2010	Thursday	1674
	W	LORING RANCH RD S		5/20/2010	Thursday	2129
	N	LORING RANCH RD N		5/20/2010	Thursday	2472
	E	LORING RANCH RD S		5/20/2010	Thursday	1450
	W	CAPARY RD		8/27/2009	Thursday	3931
	S	JENSEN RANCH RD		8/27/2009	Thursday	2628
	S	LORING RANCH RD		8/27/2009	Thursday	2339
	N	MISSION BLVD	CENSUS	4/7/2009	Tuesday	2238
	E	46TH ST	CENSUS	4/7/2009	Tuesday	2529
	S	MISSION BLVD	CENSUS	4/7/2009	Tuesday	4403
	E	46TH ST		12/2/2004	Thursday	2668
	N	MISSION BLVD		12/2/2004	Thursday	2737
CROSSLEY RD	N	MESQUITE AVE (DINAH SHOR	CVAG	1/30/2010	Saturday	8673
	S	MESQUITE AVE (DINAH SHOR	CVAG	1/30/2010	Saturday	7033

LOCATION	DIR	X-STREET	NOTE	DATE	DAY	ADT
CROSSLEY RD	S	MESQUITE AVE (DINAH SHOR	CVAG	2/4/2009	Wednesday	7411
	N	MESQUITE AVE (DINAH SHOR	CVAG	2/4/2009	Wednesday	8719
	S	MESQUITE AVE (DINAH SHOR	CVAG	1/30/2008	Wednesday	7370
	N	MESQUITE AVE (DINAH SHOR	CVAG	1/30/2008	Wednesday	9553
	N	MESQUITE AVE (DINAH SHOR	CVAG	1/30/2007	Tuesday	9346
	S	MESQUITE AVE (DINAH SHOR	CVAG	1/30/2007	Tuesday	7884
	N	MESQUITE AVE (DINAH SHOR	CVAG	1/30/2006	Monday	8775
	S	MESQUITE AVE (DINAH SHOR	CVAG	1/30/2006	Monday	7369
	N	MESQUITE AVE (DINAH SHOR	CVAG	1/30/2005	Sunday	7835
	S	MESQUITE AVE (DINAH SHOR	CVAG	1/30/2005	Sunday	8755
CROSSLEY RD (GOLF CLUB DR)	S	RAMON RD	CVAG	1/30/2010	Saturday	8609
	S	RAMON RD	CVAG	2/4/2009	Wednesday	7486
	S	RAMON RD	CVAG	1/30/2008	Wednesday	7612
	S	RAMON RD	CVAG	1/30/2007	Tuesday	7763
	S	RAMON RD	CVAG	1/30/2006	Monday	7080
	S	RAMON RD	CVAG	1/30/2005	Sunday	10934
CRYSTAL VIEW TER	N	GREEN ORCHARD LN		6/29/2005	Wednesday	600
DA VALL DR	S	30TH AVE	CVAG	1/30/2010	Saturday	4541
	N	DINAH SHORE DR	CVAG	1/30/2010	Saturday	10308
	N	GERALD FORD DR	CVAG	1/30/2010	Saturday	11883
	S	RAMON RD	CVAG	1/30/2010	Saturday	9786
	N	30TH AVE	CVAG	1/30/2010	Saturday	148
	N	RAMON RD	CVAG	1/30/2010	Saturday	9200
	N	FRANK SINATRA DR	CVAG	1/30/2010	Saturday	11915
	N	FRANK SINATRA DR	CVAG	2/25/2009	Wednesday	11743
	N	GERALD FORD DR	CVAG	2/25/2009	Wednesday	13079
	N	RAMON RD	CVAG	2/25/2009	Wednesday	8725
	S	RAMON RD	CVAG	2/25/2009	Wednesday	9570
	S	30TH AVE	CVAG	2/25/2009	Wednesday	4415
	N	DINAH SHORE DR	CVAG	2/25/2009	Wednesday	9723
	N	30TH AVE	CVAG	2/25/2009	Wednesday	160
	N	30TH AVE	CVAG	2/28/2008	Thursday	123
	S	30TH AVE	CVAG	2/28/2008	Thursday	4698
	S	RAMON RD	CVAG	1/30/2008	Wednesday	9293
	N	GERALD FORD DR	CVAG	1/30/2008	Wednesday	14063
	N	FRANK SINATRA DR	CVAG	1/30/2008	Wednesday	12554
	N	DINAH SHORE DR	CVAG	1/30/2008	Wednesday	10776
	N	RAMON RD	CVAG	1/30/2008	Wednesday	9083

LOCATION	DIR	X-STREET	NOTE	DATE	DAY	ADT
DA VALL DR	N	30TH AVE	CVAG	1/30/2007	Tuesday	154
	S	RAMON RD	CVAG	1/30/2007	Tuesday	10437
	S	30TH AVE	CVAG	1/30/2007	Tuesday	5121
	N	DINAH SHORE DR	CVAG	1/30/2007	Tuesday	10606
	N	RAMON RD	CVAG	1/30/2007	Tuesday	9219
	N	FRANK SINATRA DR	CVAG	1/30/2007	Tuesday	11804
	N	GERALD FORD DR	CVAG	1/30/2007	Tuesday	14759
	N	30TH AVE	CVAG	2/16/2006	Thursday	170
	S	30TH AVE	CVAG	2/16/2006	Thursday	4926
	N	RAMON RD	CVAG	1/30/2006	Monday	10187
	N	DINAH SHORE DR	CVAG	1/30/2006	Monday	10488
	N	GERALD FORD DR	CVAG	1/30/2006	Monday	12225
	N	FRANK SINATRA DR	CVAG	1/30/2006	Monday	12460
	S	RAMON RD	CVAG	1/30/2006	Monday	14189
	N	30TH AVE	CVAG	3/23/2005	Wednesday	172
	S	30TH AVE	CVAG	3/23/2005	Wednesday	4533
	N	RAMON RD	CVAG	1/30/2005	Sunday	8250
	N	DINAH SHORE DR	CVAG	1/30/2005	Sunday	9596
	S	RAMON RD	CVAG	1/30/2005	Sunday	10439
DARTMOUTH ST	N	WHITTIER ST	CENSUS	5/14/2009	Thursday	2811
	N	STETSON AVE	CENSUS	5/13/2009	Wednesday	2424
	S	STETSON AVE		3/16/2005	Wednesday	1899
	N	STETSON AVE		3/16/2005	Wednesday	1777
	N	STETSON AVE		12/8/2004	Wednesday	1945
	N	WHITTIER ST		11/30/2004	Tuesday	2318
DATE PALM DR	N	30TH AVE	CVAG	1/30/2010	Saturday	26367
	N	GERALD FORD DR	CVAG	1/30/2010	Saturday	19161
	N	DINAH SHORE DR	CVAG	1/30/2010	Saturday	22128
	N	MCCALLUM WY	CVAG	1/30/2010	Saturday	20659
	N	PALM CANYON DR (SH-111)	CVAG	1/30/2010	Saturday	15542
	N	RAMON RD	CVAG	1/30/2010	Saturday	25771
	N	VISTA CHINO DR	CVAG	1/30/2010	Saturday	29468
	N	30TH AVE	CVAG	2/25/2009	Wednesday	20776
	N	RAMON RD	CVAG	2/25/2009	Wednesday	22386
	N	PALM CANYON DR (SH-111)	CVAG	2/25/2009	Wednesday	18786
	N	VISTA CHINO DR	CVAG	2/25/2009	Wednesday	30035
	N	DINAH SHORE DR	CVAG	2/25/2009	Wednesday	23309
	N	MCCALLUM WY	CVAG	2/25/2009	Wednesday	21328

LOCATION	DIR	X-STREET	NOTE	DATE	DAY	ADT
DATE PALM DR	N	GERALD FORD DR	CVAG	2/25/2009	Wednesday	17108
	N	VISTA CHINO DR	CVAG	1/30/2008	Wednesday	36057
	N	PALM CANYON DR (SH-111)	CVAG	1/30/2008	Wednesday	18086
	N	MCCALLUM WY	CVAG	1/30/2008	Wednesday	21840
	N	RAMON RD	CVAG	1/30/2008	Wednesday	25945
	N	30TH AVE	CVAG	1/30/2008	Wednesday	24985
	N	GERALD FORD DR	CVAG	1/30/2008	Wednesday	21103
	N	DINAH SHORE DR	CVAG	1/30/2008	Wednesday	27415
	N	MCCALLUM WY	CVAG	1/30/2007	Tuesday	22188
	N	PALM CANYON DR (SH-111)	CVAG	1/30/2007	Tuesday	17168
	N	30TH AVE	CVAG	1/30/2007	Tuesday	25923
	N	RAMON RD	CVAG	1/30/2007	Tuesday	22935
	N	VISTA CHINO DR	CVAG	1/30/2007	Tuesday	30208
	N	DINAH SHORE DR	CVAG	1/30/2007	Tuesday	24180
	N	GERALD FORD DR	CVAG	1/30/2007	Tuesday	22645
	N	MC CALLUM WY	CVAG	1/30/2006	Monday	23770
	N	I-10	CVAG	1/30/2006	Monday	10946
	N	DINAH SHORE DR	CVAG	1/30/2006	Monday	26413
	N	30TH AVE	CVAG	1/30/2006	Monday	27308
	N	RAMON RD	CVAG	1/30/2006	Monday	25532
	N	PALM CANYON DR (SH-111)	CVAG	1/30/2006	Monday	19267
	N	GERALD FORD DR	CVAG	1/30/2006	Monday	22925
	N	VISTA CHINO DR	CVAG	1/30/2006	Monday	33135
	N	VISTA CHINO DR	CVAG	10/1/2005	Saturday	34377
	N	VISTA CHINO DR	CVAG	3/1/2005	Tuesday	30254
	N	DINAH SHORE DR	CVAG	1/30/2005	Sunday	27896
	N	30TH AVE	CVAG	1/30/2005	Sunday	26489
	N	GERALD FORD DR	CVAG	1/30/2005	Sunday	24313
	N	MC CALLUM WY	CVAG	1/30/2005	Sunday	26140
	N	RAMON RD	CVAG	1/30/2005	Sunday	27601
	N	PALM CANYON DR (SH-111)	CVAG	1/30/2005	Sunday	21191
	N	I-10	CVAG	1/30/2005	Sunday	10197
	N	VISTA CHINO DR	CVAG	1/30/2004	Friday	32513
	N	PALM CANYON DR (SH-111)	CVAG	1/30/2004	Friday	22719
	N	GERALD FORD DR	CVAG	1/30/2004	Friday	28738
	N	DINAH SHORE DR	CVAG	1/30/2004	Friday	29640
	N	RAMON RD	CVAG	1/30/2004	Friday	34140
	N	I-10	CVAG	1/30/2004	Friday	9401

LOCATION	DIR	X-STREET	NOTE	DATE	DAY	ADT
DATE PALM DR	N	30TH AVE	CVAG	1/30/2004	Friday	32950
DAUCHY AVE	N	KROSS RD		9/18/2008	Thursday	354
	N	VAN BUREN BLVD		9/18/2008	Thursday	1057
	N	GENTIAN AVE		9/18/2008	Thursday	720
	N	KROSS RD		12/5/2006	Tuesday	437
	S	ROBERTS RD		12/5/2006	Tuesday	259
	N	GENTIAN AVE		1/25/2006	Wednesday	1079
	S	ROBERTS RD		1/25/2006	Wednesday	590
DAVIS RD	N	RAMONA EXPY		8/17/2004	Tuesday	31
DAY ST	S	BURCH ST		8/26/2009	Wednesday	867
	N	CAJALCO RD		8/26/2009	Wednesday	1563
	N	MARKHAM ST	CENSUS	3/31/2009	Tuesday	1467
	N	CAJALCO RD	CENSUS	3/31/2009	Tuesday	1255
	N	CAJALCO RD		11/10/2004	Wednesday	1426
	N	MARKHAM ST		11/10/2004	Wednesday	1491
DE ANZA PLAZA DR	E	CLAY ST		10/27/2008	Monday	962
	W	CLAY ST		10/27/2008	Monday	1628
	W	CLAY ST		10/26/2008	Sunday	1416
	E	CLAY ST		10/26/2008	Sunday	838
	W	CLAY ST		10/25/2008	Saturday	1889
	E	CLAY ST		10/25/2008	Saturday	965
	E	CLAY ST		10/24/2008	Friday	1235
	W	CLAY ST		10/24/2008	Friday	2269
DE FRAIN BLVD	N	HOBSON WY	CENSUS	6/16/2009	Tuesday	1336
	S	10TH AVE	CENSUS	6/16/2009	Tuesday	1246
	S	I-10	CENSUS	5/12/2009	Tuesday	670
	N	HOBSON WY		7/8/2005	Friday	1314
	S	10TH AVE		7/8/2005	Friday	1192
	S	I-10		7/8/2005	Friday	569
DE LUZ RD	W	KINGS CIR	CENSUS	5/27/2009	Wednesday	280
	W	KINGS CIR		12/7/2004	Tuesday	257
	S	RANCHO CALIFORNIA RD		4/28/2004	Wednesday	1329
	N	RANCHO CALIFORNIA RD		4/28/2004	Wednesday	317
	N	RANCHO CALIFORNIA RD		3/17/2004	Wednesday	1721
	S	RANCHO CALIFORNIA RD		3/17/2004	Wednesday	338
DE PALMA RD	W	HORSETHEIF CANYON RD	CENSUS	4/9/2009	Thursday	10011
	S	INDIAN TRUCK TR	CENSUS	4/9/2009	Thursday	8980
	W	HORSETHIEF CANYON RD		11/3/2004	Wednesday	8602

LOCATION	DIR	X-STREET	NOTE	DATE	DAY	ADT
DE PORTOLA RD	E	ANZA RD	CENSUS	5/28/2009	Thursday	4313
	S	GLENOAKS RD	CENSUS	5/19/2009	Tuesday	2473
	S	GLEN OAKS RD		12/16/2004	Thursday	2225
	E	ANZA RD		12/15/2004	Wednesday	4835
DEPRAD ST	E	MARSHALL ST		5/17/2005	Tuesday	208
DESERT MOON DR	S	RAMON RD		11/9/2004	Tuesday	1427
	N	RAMON RD		11/9/2004	Tuesday	1376
DESTINO ST	W	BUTTERFIELD STAGE RD		9/15/2009	Tuesday	576
DILLON	S	SR 86S	CVAG	1/28/2009	Wednesday	9086
DILLON RD	E	LONG CANYON RD	CVAG	1/30/2010	Saturday	10578
	W	INDIAN AVE	CVAG	1/30/2010	Saturday	2371
	S	SH-86S	CVAG	1/30/2010	Saturday	8102
	S	I-10	CVAG	1/30/2010	Saturday	10969
	W	LONG CANYON RD	CVAG	1/30/2010	Saturday	9315
	N	I-10	CVAG	1/30/2010	Saturday	12193
	W	MOUNTAIN VIEW RD	CVAG	1/30/2010	Saturday	9508
	W	THOUSAND PALMS CANYON	CVAG	1/30/2010	Saturday	2525
	N	44TH AVE	CVAG	1/30/2010	Saturday	3112
	E	THOUSAND PALMS CANYON	CVAG	1/30/2010	Saturday	1516
	W	PALM DR	CVAG	1/30/2010	Saturday	7215
	S	LANDFILL RD	CENSUS	6/3/2009	Wednesday	4768
	E	CABAZON AVE	CENSUS	5/12/2009	Tuesday	7167
	E	PALM DR	CENSUS	4/15/2009	Wednesday	6888
	W	PALM DR	CENSUS	4/15/2009	Wednesday	7069
	E	LONG CANYON RD	CENSUS	4/15/2009	Wednesday	7682
	W	INDIAN CANYON DR	CENSUS	4/14/2009	Tuesday	2350
	E	THOUSAND PALMS CANYON	CVAG	3/11/2009	Wednesday	1042
	W	THOUSAND PALMS CANYON	CVAG	3/11/2009	Wednesday	2255
	S	SH-86S	CVAG	3/3/2009	Tuesday	9086
	S	I-10	CVAG	3/3/2009	Tuesday	8893
	W	LONG CANYON RD	CVAG	3/3/2009	Tuesday	9689
	N	I-10	CVAG	3/3/2009	Tuesday	12987
	E	LONG CANYON RD	CVAG	3/3/2009	Tuesday	11424
	W	MOUNTAIN VIEW RD	CVAG	3/2/2009	Monday	9265
	W	INDIAN AVE	CVAG	3/2/2009	Monday	2352
	W	PALM DR	CVAG	3/2/2009	Monday	6912
	N	44TH AVE	CVAG	1/27/2009	Tuesday	3527
	W	INDIAN AVE	CVAG	3/6/2008	Thursday	2863

LOCATION	DIR	X-STREET	NOTE	DATE	DAY	ADT
DILLON RD	E	LONG CANYON RD	CVAG	3/5/2008	Wednesday	11961
	W	PALM DR	CVAG	3/5/2008	Wednesday	7875
	W	LONG CANYON RD	CVAG	3/5/2008	Wednesday	10418
	W	MOUNTAIN VIEW RD	CVAG	3/5/2008	Wednesday	9608
	E	THOUSAND PALMS CANYON	CVAG	2/6/2008	Wednesday	1460
	W	THOUSAND PALMS CANYON	CVAG	2/6/2008	Wednesday	2711
	N	I-10	CVAG	1/30/2008	Wednesday	16272
	S	I-10	CVAG	1/30/2008	Wednesday	13742
	N	44TH AVE	CVAG	1/16/2008	Wednesday	4098
	S	SH-86S	CVAG	1/16/2008	Wednesday	10327
	W	PALM DR	CVAG	1/30/2007	Tuesday	8072
	W	MOUNTAIN VIEW RD	CVAG	1/30/2007	Tuesday	10230
	W	LONG CANYON RD	CVAG	1/30/2007	Tuesday	10623
	W	THOUSAND PALMS CANYON	CVAG	1/30/2007	Tuesday	3572
	W	INDIAN AVE	CVAG	1/30/2007	Tuesday	3246
	E	LONG CANYON RD	CVAG	1/30/2007	Tuesday	11974
	N	I-10	CVAG	1/30/2007	Tuesday	14721
	S	I-10	CVAG	1/30/2007	Tuesday	14342
	E	THOUSAND PALMS CANYON	CVAG	1/30/2007	Tuesday	1807
	S	SH-86S	CVAG	1/30/2007	Tuesday	12130
	W	LITTLE MORONGO RD		12/19/2006	Tuesday	9097
	E	LITTLE MORONGO RD		12/19/2006	Tuesday	7297
	W	CORKILL RD		12/19/2006	Tuesday	4783
	E	CORKILL RD		12/19/2006	Tuesday	3545
	W	MOUNTAIN VIEW RD	CVAG	3/8/2006	Wednesday	10053
	W	LONG CANYON RD	CVAG	3/8/2006	Wednesday	10432
	E	LONG CANYON RD	CVAG	3/8/2006	Wednesday	11215
	W	INDIAN AVE	CVAG	3/7/2006	Tuesday	2984
	W	PALM DR	CVAG	3/7/2006	Tuesday	8112
	E	CORKILL RD		3/2/2006	Thursday	7651
	W	THOUSAND PALMS CANYON	CVAG	2/8/2006	Wednesday	3540
	E	THOUSAND PALMS CANYON	CVAG	2/8/2006	Wednesday	1898
	S	I-10	CVAG	1/30/2006	Monday	16970
	N	I-10	CVAG	1/30/2006	Monday	16740
	S	SH-86S	CVAG	1/24/2006	Tuesday	13428
	N	I-10	CVAG	1/30/2005	Sunday	15861
	S	I-10	CVAG	1/30/2005	Sunday	15677
	E	THOUSAND PALMS CANYON	CVAG	1/25/2005	Tuesday	1521

LOCATION	DIR	X-STREET	NOTE	DATE	DAY	ADT
DILLON RD	W	THOUSAND PALMS CANYON	CVAG	1/25/2005	Tuesday	2892
	S	SH-86S	CVAG	1/25/2005	Tuesday	12584
	W	INDIAN AVE	CVAG	1/19/2005	Wednesday	2560
	E	LONG CANYON RD	CVAG	1/19/2005	Wednesday	12405
	W	LONG CANYON RD	CVAG	1/19/2005	Wednesday	11378
	W	MOUNTAIN VIEW RD	CVAG	1/13/2005	Thursday	9460
	W	PALM DR	CVAG	1/13/2005	Thursday	7184
	E	CABAZON AVE	CVAG	12/16/2004	Thursday	17961
	E	LONG CANYON RD		11/23/2004	Tuesday	11056
	E	PALM DR		11/23/2004	Tuesday	8968
	W	PALM DR		11/23/2004	Tuesday	7918
	W	INDIAN AVE		11/18/2004	Thursday	2127
	W	PALM DR		6/23/2004	Wednesday	4686
	W	LONG CANYON RD	CVAG	3/17/2004	Wednesday	10419
	E	LONG CANYON RD	CVAG	3/17/2004	Wednesday	12050
	W	MOUNTAIN VIEW RD	CVAG	3/17/2004	Wednesday	9320
	S	SH-86S	CVAG	3/8/2004	Monday	11726
	S	I-10	CVAG	1/30/2004	Friday	17654
	N	I-10	CVAG	1/30/2004	Friday	18502
DINAH SHORE DR	W	PORTOLA AVE	CVAG	1/30/2010	Saturday	7953
	E	MONTEREY AVE	CVAG	1/30/2010	Saturday	9739
	W	MONTEREY AVE	CVAG	1/30/2010	Saturday	23133
	W	DATE PALM DR	CVAG	1/30/2010	Saturday	20760
	E	DATE PALM DR	CVAG	1/30/2010	Saturday	21457
	W	CATHEDRAL CANYON DR	CVAG	1/30/2010	Saturday	23170
	W	DA VALL DR	CVAG	1/30/2010	Saturday	16833
	W	BOB HOPE DR	CVAG	1/30/2010	Saturday	16972
	W	CATHEDRAL CANYON DR	CVAG	2/23/2009	Monday	23236
	W	DA VALL DR	CVAG	2/23/2009	Monday	19764
	W	DATE PALM DR	CVAG	2/23/2009	Monday	21035
	W	PORTOLA AVE	CVAG	2/23/2009	Monday	6636
	W	BOB HOPE DR	CVAG	2/23/2009	Monday	13939
	W	MONTEREY AVE	CVAG	2/23/2009	Monday	21148
	E	DATE PALM DR	CVAG	2/23/2009	Monday	18621
	E	MONTEREY AVE	CVAG	2/23/2009	Monday	7757
	W	MONTEREY AVE	CVAG	1/30/2008	Wednesday	21556
	W	PORTOLA AVE	CVAG	1/30/2008	Wednesday	1080
	E	DATE PALM DR	CVAG	1/30/2008	Wednesday	22038

LOCATION	DIR	X-STREET	NOTE	DATE	DAY	ADT
DINAH SHORE DR	W	DATE PALM DR	CVAG	1/30/2008	Wednesday	22042
	E	MONTEREY AVE	CVAG	1/30/2008	Wednesday	3324
	W	DA VALL DR	CVAG	1/30/2008	Wednesday	20000
	W	BOB HOPE DR	CVAG	1/30/2008	Wednesday	18058
	W	CATHEDRAL CANYON DR	CVAG	1/30/2008	Wednesday	25601
	E	DATE PALM DR	CVAG	1/30/2007	Tuesday	23290
	W	BOB HOPE DR	CVAG	1/30/2007	Tuesday	20859
	W	DA VALL DR	CVAG	1/30/2007	Tuesday	23940
	W	CATHEDRAL CANYON DR	CVAG	1/30/2007	Tuesday	29698
	W	MONTEREY AVE	CVAG	1/30/2007	Tuesday	22886
	E	MONTEREY AVE	CVAG	1/30/2007	Tuesday	2849
	W	DATE PALM DR	CVAG	1/30/2007	Tuesday	23488
	E	DATE PALM DR	CVAG	1/30/2006	Monday	21833
	W	BOB HOPE DR	CVAG	1/30/2006	Monday	13443
	W	MONTEREY AVE	CVAG	1/30/2006	Monday	19269
	W	DA VALL DR	CVAG	1/30/2006	Monday	21417
	W	DATE PALM DR	CVAG	1/30/2006	Monday	21047
	W	CATHEDRAL CANYON DR	CVAG	1/30/2006	Monday	25518
	W	BOB HOPE DR	CVAG	10/1/2005	Saturday	26124
	W	BOB HOPE DR	CVAG	3/1/2005	Tuesday	13203
	E	DATE PALM DR	CVAG	1/30/2005	Sunday	23154
	W	DA VALL DR	CVAG	1/30/2005	Sunday	20845
	W	CATHEDRAL CANYON DR	CVAG	1/30/2005	Sunday	25163
	W	MONTEREY AVE	CVAG	1/30/2005	Sunday	19269
	W	DATE PALM DR	CVAG	1/30/2005	Sunday	24735
	W	MONTEREY AVE	CVAG	1/30/2004	Friday	20203
	W	BOB HOPE DR	CVAG	1/30/2004	Friday	18484
	W	DATE PALM DR	CVAG	1/30/2004	Friday	25216
	W	CATHEDRAL CANYON DR	CVAG	1/30/2004	Friday	38900
	W	DA VALL DR	CVAG	1/30/2004	Friday	20566
DINAH SHORE DR (MESQUITE AVE E)	E	CROSSLEY RD	CVAG	1/30/2010	Saturday	21869
	E	CROSSLEY RD	CVAG	2/23/2009	Monday	24029
	E	CROSSLEY RD	CVAG	1/30/2008	Wednesday	24165
DINAH SHORE DR (MESQUITE AVE)	E	CROSSLEY RD	CVAG	1/30/2007	Tuesday	23411
DODD ST	N	LIMONITE AVE	CENSUS	2/10/2009	Tuesday	835
	N	JURUPA RD		3/14/2007	Wednesday	486
	S	JURUPA RD		3/14/2007	Wednesday	493
	N	LIMONITE AVE		12/8/2004	Wednesday	846

LOCATION	DIR	X-STREET	NOTE	DATE	DAY	ADT
DODD ST	S	54TH ST		3/9/2004	Tuesday	990
DOMAINE MICHAEL DR	E	TOWNVIEW AVE		7/21/2004	Wednesday	12
DOMENIGONI PKWY	E	SH-79	CENSUS	5/20/2009	Wednesday	18496
	E	RAMONA EXPY	CENSUS	5/19/2009	Tuesday	21934
	W	LINDENBERGER RD	CENSUS	5/7/2009	Thursday	20227
DOWNEY ST	N	LIMONITE AVE		5/20/2008	Tuesday	213
	S	LIMONITE AVE		5/20/2008	Tuesday	342
	S	LIMONITE AVE		5/19/2008	Monday	301
	N	LIMONITE AVE		5/19/2008	Monday	314
	S	LIMONITE AVE		5/18/2008	Sunday	398
	N	LIMONITE AVE		5/18/2008	Sunday	259
	N	LIMONITE AVE		5/17/2008	Saturday	247
	S	LIMONITE AVE		5/17/2008	Saturday	317
	S	LIMONITE AVE		5/16/2008	Friday	316
	N	LIMONITE AVE		5/16/2008	Friday	257
DUFFERIN AVE	W	LA SIERRA AVE	CENSUS	4/8/2009	Wednesday	1052
DULLES DR	S	PHILADELPHIA AVE	CENSUS	4/1/2009	Wednesday	980
	S	PHILADELPHIA AVE		11/23/2004	Tuesday	807
DUNE PALMS	S	SR 111	CVAG	2/23/2009	Monday	7710
	N	SR 111	CVAG	2/23/2009	Monday	9058
DUNE PALMS RD	N	SH-111	CVAG	1/30/2010	Saturday	9282
	S	SH-111	CVAG	1/30/2010	Saturday	8373
	N	SH-111	CVAG	1/30/2009	Friday	9058
	S	SH-111	CVAG	1/30/2009	Friday	7710
	N	SH-111	CVAG	1/30/2008	Wednesday	9363
	S	SH-111	CVAG	1/30/2008	Wednesday	9109
	N	SH-111	CVAG	3/1/2005	Tuesday	6026
EAST ALESSANDRO BLVD	E	MISSION GROVE PKWY		4/6/2008	Sunday	13663
	W	BARTON ST		4/6/2008	Sunday	16015
	W	BARTON ST		4/5/2008	Saturday	16844
	E	MISSION GROVE PKWY		4/5/2008	Saturday	17610
	W	BARTON ST		4/4/2008	Friday	21588
	E	MISSION GROVE PKWY		4/4/2008	Friday	24651
	E	MISSION GROVE PKWY		4/3/2008	Thursday	21998
	W	BARTON ST		4/3/2008	Thursday	20844
	E	MISSION GROVE PKWY		4/2/2008	Wednesday	21562
	W	BARTON ST		4/2/2008	Wednesday	20555
	E	MISSION GROVE PKWY		4/1/2008	Tuesday	22328

LOCATION	DIR	X-STREET	NOTE	DATE	DAY	ADT
EAST ALESSANDRO BLVD	W	BARTON ST		4/1/2008	Tuesday	20993
	W	BARTON ST		3/31/2008	Monday	20175
	E	MISSION GROVE PKWY		3/31/2008	Monday	21150
EAST BENTON RD	E	MESA RD	CENSUS	5/14/2009	Thursday	3546
	W	SAGE RD	CENSUS	5/14/2009	Thursday	2854
	W	SAGE RD		12/16/2004	Thursday	2014
	E	MESA RD		12/8/2004	Wednesday	2757
EAST DR	S	KABIAN PARK RD		3/26/2008	Wednesday	1378
EL CERRITO DR	W	FRANCES ST		1/19/2005	Wednesday	6440
EL CERRITO RD	W	TEMESCAL CANYON RD	CENSUS	4/8/2009	Wednesday	6890
	W	FRANCES ST	CENSUS	4/8/2009	Wednesday	7871
	W	TEMESCAL CANYON RD		2/22/2006	Wednesday	2971
	W	TEMESCAL CANYON RD		1/20/2005	Thursday	6955
EL DORADO DR	S	FRED WARING DR	CVAG	1/30/2010	Saturday	4485
	S	FRED WARING DR	CVAG	2/9/2009	Monday	4204
	S	FRED WARING DR	CVAG	1/30/2008	Wednesday	4618
	S	FRED WARING DR	CVAG	1/30/2007	Tuesday	4070
	S	FRED WARING DR	CVAG	1/30/2006	Monday	4829
	S	FRED WARING DR	CVAG	1/30/2005	Sunday	5669
	S	FRED WARING DR	CVAG	1/30/2004	Friday	6829
EL MINERAL RD	W	PLACER HILL CT		6/11/2008	Wednesday	157
	E	OLIVE ST		6/11/2008	Wednesday	273
EL NIDO AVE	S	PLACENTIA AVE		5/2/2006	Tuesday	3979
EL PALOMINO DR	E	HAVEN VIEW DR		9/23/2010	Thursday	1363
	N	LIMONITE AVE	CENSUS	1/20/2009	Tuesday	7191
	S	LIMONITE AVE	CENSUS	1/20/2009	Tuesday	8058
	N	LIMONITE AVE		10/27/2004	Wednesday	5175
	S	LIMONITE AVE		10/27/2004	Wednesday	5034
	E	HAVEN VIEW DR		7/2/2004	Friday	1549
EL PUENTE RD	E	CHULA VISTA DR		2/1/2005	Tuesday	1313
EL PUENTE ST	E	ENCINO DR		7/21/2005	Thursday	1791
EL SOBRANTE RD	E	LA SIERRA AVE		8/12/2009	Wednesday	10077
	N	CAJALCO RD	CENSUS	6/10/2009	Wednesday	10557
	W	MOCKINGBIRD CANYON RD	CENSUS	4/15/2009	Wednesday	9805
	E	MC ALLISTER ST	CENSUS	4/8/2009	Wednesday	9568
	E	LA SIERRA AVE	CENSUS	4/8/2009	Wednesday	9184
	E	MCALLISTER ST		10/26/2006	Thursday	8697
	W	MC ALLISTER ST		10/26/2006	Thursday	8152

LOCATION	DIR	X-STREET	NOTE	DATE	DAY	ADT
EL SOBRANTE RD	W	MOCKINGBIRD CANYON RD		1/18/2005	Tuesday	9227
	W	MC ALLISTER ST		11/3/2004	Wednesday	7956
	N	CAJALCO RD		10/14/2004	Thursday	9367
	E	MCALLISTER ST		10/13/2004	Wednesday	8976
	E	LA SIERRA AVE		1/13/2004	Tuesday	8289
EL TORO RD	S	NICHOLS RD		4/8/2010	Thursday	1157
	S	NICHOLS RD		6/25/2009	Thursday	893
ELLA AVE	W	RUE MARNE		11/28/2007	Wednesday	396
	W	CALHOUN ST		11/28/2007	Wednesday	744
	W	RUE MARNE		11/27/2007	Tuesday	367
	W	CALHOUN ST		11/27/2007	Tuesday	808
	W	RUE MARNE		10/31/2007	Wednesday	467
	W	CALHOUN ST		10/31/2007	Wednesday	954
	W	CALHOUN ST		10/30/2007	Tuesday	761
	W	RUE MARNE		10/30/2007	Tuesday	396
	W	RUE MARNE		10/24/2007	Wednesday	428
	W	CALHOUN ST		10/24/2007	Wednesday	803
	W	RUE MARNE		10/23/2007	Tuesday	444
	W	CALHOUN ST		10/23/2007	Tuesday	814
ELLIS AVE	W	SH-74	CENSUS	4/28/2009	Tuesday	5462
	W	THEDA ST	CENSUS	4/28/2009	Tuesday	4325
	E	MARIE ST		9/6/2007	Thursday	4809
	E	READ ST		9/6/2007	Thursday	3685
	W	THEDA AVE		11/12/2004	Friday	3790
	W	SH-74		11/11/2004	Thursday	4271
EMERY ST	E	SUNCREST DR		4/25/2006	Tuesday	552
	W	SUNCREST DR		4/25/2006	Tuesday	865
ENCANTO DR	N	ALTA VISTA WAY	CENSUS	5/5/2009	Tuesday	5097
	N	SHADEL RD	CENSUS	4/30/2009	Thursday	3792
	N	CORONADO DR		8/9/2007	Thursday	1978
	N	SHADEL RD		8/9/2007	Thursday	3127
	N	CORONADO WY		8/9/2007	Thursday	2099
	N	SHADEL RD		11/9/2004	Tuesday	3321
	N	ALTA VISTA WY		11/9/2004	Tuesday	5051
ETHANAC RD	W	MATTHEWS RD	CENSUS	4/29/2009	Wednesday	5112
	W	MURRIETA RD	CENSUS	4/29/2009	Wednesday	8431
	E	SHERMAN RD	CENSUS	4/29/2009	Wednesday	5536
	W	MURRIETA RD		12/2/2004	Thursday	5518

LOCATION	DIR	X-STREET	NOTE	DATE	DAY	ADT
ETHANAC RD	W	MATTHEWS RD		12/2/2004	Thursday	4064
	E	MURRIETA RD		12/2/2004	Thursday	7104
	W	SHERMAN RD		12/2/2004	Thursday	4900
	E	MURRIETA RD		11/3/2004	Wednesday	5869
	W	MURRIETA RD		11/3/2004	Wednesday	4891
ETIWANDA AVE	N	58TH ST	CENSUS	4/7/2009	Tuesday	8862
	N	BELLEGRAVE AVE	CENSUS	4/2/2009	Thursday	9557
	N	JURUPA RD	CENSUS	2/18/2009	Wednesday	9109
	S	VAN BUREN BLVD	CENSUS	2/18/2009	Wednesday	25028
	N	IBERIA ST	CENSUS	2/18/2009	Wednesday	18522
	N	VAN BUREN BLVD	CENSUS	2/18/2009	Wednesday	29580
	N	LIMONITE AVE	CENSUS	2/10/2009	Tuesday	10492
	S	LIMONITE AVE	CENSUS	2/10/2009	Tuesday	4753
	S	LIMONITE AVE		11/28/2007	Wednesday	10337
	S	VAN BUREN BLVD	CLASS	11/28/2007	Wednesday	18009
	S	LIMONITE AVE		11/27/2007	Tuesday	10189
	S	VAN BUREN BLVD	CLASS	11/27/2007	Tuesday	18031
	S	VAN BUREN BLVD	CLASS	8/30/2007	Thursday	18129
	S	VAN BUREN BLVD	CLASS	8/29/2007	Wednesday	17596
	N	BELLGRAVE AVE		8/1/2007	Wednesday	11605
	S	LIMONITE AVE		8/1/2007	Wednesday	10044
	N	BELLGRAVE AVE		7/31/2007	Tuesday	11826
	S	LIMONITE AVE		7/31/2007	Tuesday	10057
	S	54TH ST		3/29/2005	Tuesday	5215
	N	LUCRETIA AVE		3/29/2005	Tuesday	5577
	N	VAN BUREN BLVD		12/8/2004	Wednesday	28304
	N	LIMONITE AVE		12/8/2004	Wednesday	9710
	S	VAN BUREN BLVD		12/8/2004	Wednesday	24240
	N	JURUPA RD		11/30/2004	Tuesday	7944
	N	BELLGRAVE AVE		11/9/2004	Tuesday	20717
	S	LIMONITE AVE		11/4/2004	Thursday	4687
EUREKA ST	W	PAYNE ST		2/15/2005	Tuesday	274
	E	HARTLEY ST		2/15/2005	Tuesday	502
FAIRVIEW AVE	N	BAUTISTA RD	CENSUS	5/13/2009	Wednesday	1154
	S	OLIVE AVE	CENSUS	5/12/2009	Tuesday	6218
	N	MAYBERRY AVE	CENSUS	5/12/2009	Tuesday	6291
	N	SH-74	CENSUS	5/12/2009	Tuesday	6601
	S	OLIVE AVE		8/9/2007	Thursday	4443

LOCATION	DIR	X-STREET	NOTE	DATE	DAY	ADT
FAIRVIEW AVE	S	ACACIA AVE		8/9/2007	Thursday	4354
	N	BAUTISTA RD		8/9/2007	Thursday	882
	S	OLIVE AVE		12/7/2004	Tuesday	5339
	N	FLORIDA AVE (SH-74)		12/7/2004	Tuesday	5798
	N	BAUTISTA RD		12/7/2004	Tuesday	948
	N	MAYBERRY AVE		12/7/2004	Tuesday	5217
FELSPAR ST	N	JURUPA RD	CENSUS	2/19/2009	Thursday	6147
	N	GALENA ST	CENSUS	2/19/2009	Thursday	5895
	N	56TH ST	CENSUS	2/11/2009	Wednesday	1673
	N	LIMONITE AVE	CENSUS	1/21/2009	Wednesday	2514
	N	58TH ST		9/26/2007	Wednesday	1234
	S	58TH ST		9/26/2007	Wednesday	972
	N	GALENA ST		8/7/2007	Tuesday	5255
	N	GALENA ST		12/14/2004	Tuesday	7246
	N	JURUPA RD		11/10/2004	Wednesday	3479
	N	56TH ST		11/10/2004	Wednesday	1825
	N	LIMONITE AVE		11/9/2004	Tuesday	2735
	N	JURUPA RD		8/18/2004	Wednesday	4772
FERN VALLEY RD	N	DICKINSON RD	CENSUS	5/19/2009	Tuesday	645
	N	DICKINSON RD		12/7/2004	Tuesday	431
FIELDMASTER ST	W	ARCHIBALD AVE		10/15/2009	Thursday	1868
FILLMORE ST	S	62ND AVE	CENSUS	6/10/2009	Wednesday	1052
	S	60TH AVE	CENSUS	6/9/2009	Tuesday	1088
	S	SH-111	CENSUS	6/9/2009	Tuesday	1134
	S	AIRPORT BLVD	CENSUS	6/9/2009	Tuesday	854
	S	AIRPORT BLVD		12/16/2004	Thursday	875
	S	62ND AVE		12/16/2004	Thursday	1170
	S	SH-111		12/16/2004	Thursday	1288
	S	60TH AVE		12/14/2004	Tuesday	1208
FISHER ST	E	MARSHALL ST		5/17/2005	Tuesday	227
FOOTHILL PKWY	E	STARNE RD	CENSUS	4/9/2009	Thursday	17153
	E	STARNE RD		1/19/2005	Wednesday	27788
FORD AVE	S	DILLON RD		5/25/2010	Tuesday	174
	S	DILLON RD		5/25/2010	Tuesday	147
FOX GLEN RD	E	MOCKINGBIRD CANYON RD		8/26/2009	Wednesday	325
	W	SUSSEX RD		2/2/2006	Thursday	284
FOX GLENN RD	E	SUSSEX RD		2/2/2006	Thursday	346
FRANK SINATRA DR	W	COOK ST	CVAG	1/30/2010	Saturday	9734

LOCATION	DIR	X-STREET	NOTE	DATE	DAY	ADT
FRANK SINATRA DR	W	EL DORADO DR	CVAG	1/30/2010	Saturday	10752
	E	EL DORADO DR	CVAG	1/30/2010	Saturday	5905
	W	DA VALL DR	CVAG	1/30/2010	Saturday	11350
	E	COOK ST	CVAG	1/30/2010	Saturday	6348
	E	MONTEREY AVE	CVAG	1/30/2010	Saturday	8856
	W	BOB HOPE DR	CVAG	1/30/2010	Saturday	11333
	W	MONTEREY AVE	CVAG	1/30/2010	Saturday	10752
	E	BOB HOPE DR	CVAG	1/30/2010	Saturday	10470
	E	PORTOLA AVE	CVAG	1/30/2010	Saturday	8591
	W	EL DORADO DR	CVAG	2/9/2009	Monday	9356
	W	MONTEREY AVE	CVAG	2/9/2009	Monday	12146
	E	EL DORADO DR	CVAG	2/9/2009	Monday	6316
	W	COOK ST	CVAG	2/9/2009	Monday	10457
	E	COOK ST	CVAG	2/9/2009	Monday	6551
	E	BOB HOPE DR	CVAG	2/9/2009	Monday	10533
	E	PORTOLA AVE	CVAG	2/9/2009	Monday	9885
	W	DA VALL DR	CVAG	2/9/2009	Monday	12249
	W	BOB HOPE DR	CVAG	2/9/2009	Monday	11889
	E	MONTEREY AVE	CVAG	2/9/2009	Monday	12446
	W	EL DORADO DR	CVAG	1/30/2008	Wednesday	8920
	E	MONTEREY AVE	CVAG	1/30/2008	Wednesday	13893
	E	PORTOLA AVE	CVAG	1/30/2008	Wednesday	11009
	W	COOK ST	CVAG	1/30/2008	Wednesday	12242
	E	EL DORADO DR	CVAG	1/30/2008	Wednesday	6203
	E	COOK ST	CVAG	1/30/2008	Wednesday	6160
	W	BOB HOPE DR	CVAG	1/30/2008	Wednesday	14104
	W	MONTEREY AVE	CVAG	1/30/2008	Wednesday	12896
	E	BOB HOPE DR	CVAG	1/30/2008	Wednesday	11525
	W	DA VALL DR	CVAG	1/30/2008	Wednesday	13101
	W	COOK ST	CVAG	1/30/2007	Tuesday	12685
	W	BOB HOPE DR	CVAG	1/30/2007	Tuesday	13727
	W	EL DORADO DR	CVAG	1/30/2007	Tuesday	8719
	E	PORTOLA AVE	CVAG	1/30/2007	Tuesday	11636
	E	MONTEREY AVE	CVAG	1/30/2007	Tuesday	13616
	E	EL DORADO DR	CVAG	1/30/2007	Tuesday	6551
	W	DA VALL DR	CVAG	1/30/2007	Tuesday	15984
	W	MONTEREY AVE	CVAG	1/30/2007	Tuesday	14734
	E	BOB HOPE DR	CVAG	1/30/2007	Tuesday	10608

LOCATION	DIR	X-STREET	NOTE	DATE	DAY	ADT
FRANK SINATRA DR	E	COOK ST	CVAG	1/30/2007	Tuesday	8186
	W	DA VALL DR	CVAG	1/30/2006	Monday	12358
	W	COOK ST	CVAG	1/30/2006	Monday	11325
	W	MONTEREY AVE	CVAG	1/30/2006	Monday	14236
	W	EL DORADO DR	CVAG	1/30/2006	Monday	9920
	W	BOB HOPE DR	CVAG	1/30/2006	Monday	16689
	E	PORTOLA AVE	CVAG	1/30/2006	Monday	9998
	E	MONTEREY AVE	CVAG	1/30/2006	Monday	13110
	E	EL DORADO DR	CVAG	1/30/2006	Monday	6486
	E	COOK ST	CVAG	1/30/2006	Monday	6485
	E	BOB HOPE DR	CVAG	1/30/2006	Monday	15033
	W	BOB HOPE DR	CVAG	10/1/2005	Saturday	21491
	W	BOB HOPE DR	CVAG	3/1/2005	Tuesday	10488
	W	EL DORADO DR	CVAG	1/30/2005	Sunday	9007
	W	MONTEREY AVE	CVAG	1/30/2005	Sunday	12463
	E	EL DORADO DR	CVAG	1/30/2005	Sunday	8127
	W	DA VALL DR	CVAG	1/30/2005	Sunday	9269
	W	COOK ST	CVAG	1/30/2005	Sunday	11736
	E	BOB HOPE DR	CVAG	1/30/2005	Sunday	12857
	E	MONTEREY AVE	CVAG	1/30/2005	Sunday	15535
	E	COOK ST	CVAG	1/30/2005	Sunday	8749
	E	BOB HOPE DR	CVAG	1/30/2004	Friday	12832
	E	COOK ST	CVAG	1/30/2004	Friday	6194
	W	MONTEREY AVE	CVAG	1/30/2004	Friday	12685
	W	EL DORADO DR	CVAG	1/30/2004	Friday	11302
	E	MONTEREY AVE	CVAG	1/30/2004	Friday	12193
	W	BOB HOPE DR	CVAG	1/30/2004	Friday	14880
	W	COOK ST	CVAG	1/30/2004	Friday	10587
	E	EL DORADO DR	CVAG	1/30/2004	Friday	7052
FRANKLIN DR	N	SH-243	CENSUS	5/19/2009	Tuesday	677
	N	SH-243		12/7/2004	Tuesday	526
FRED WARING	E	SR 111	CVAG	2/9/2009	Monday	15439
FRED WARING DR	W	MONTEREY AVE	CVAG	1/30/2010	Saturday	21640
	E	JEFFERSON ST	CVAG	1/30/2010	Saturday	19018
	E	MADISON ST	CVAG	1/30/2010	Saturday	18296
	W	EL DORADO DR	CVAG	1/30/2010	Saturday	34777
	E	WASHINGTON ST	CVAG	1/30/2010	Saturday	24492
	W	INDIO BLVD	CVAG	1/30/2010	Saturday	5831

LOCATION	DIR	X-STREET	NOTE	DATE	DAY	ADT
FRED WARING DR	W	WASHINGTON ST	CVAG	1/30/2010	Saturday	29397
	E	COOK ST	CVAG	1/30/2010	Saturday	31992
	W	WARNER TR	CVAG	1/30/2010	Saturday	26172
	E	PORTOLA AVE	CVAG	1/30/2010	Saturday	30046
	W	PORTOLA AVE	CVAG	1/30/2010	Saturday	29541
	E	MONTEREY AVE	CVAG	1/30/2010	Saturday	26310
	W	JEFFERSON ST	CVAG	1/30/2010	Saturday	19502
	E	CLINTON ST	CVAG	1/30/2010	Saturday	16808
	W	COOK ST	CVAG	1/30/2010	Saturday	33213
	E	SH-111	CVAG	1/30/2010	Saturday	16150
	E	WASHINGTON ST	CVAG	2/9/2009	Monday	20933
	E	PORTOLA AVE	CVAG	2/9/2009	Monday	28243
	W	COOK ST	CVAG	2/9/2009	Monday	32696
	W	EL DORADO DR	CVAG	2/9/2009	Monday	31596
	W	INDIO BLVD	CVAG	2/9/2009	Monday	5872
	W	JEFFERSON ST	CVAG	2/9/2009	Monday	21676
	W	MONTEREY AVE	CVAG	2/9/2009	Monday	20725
	W	PORTOLA AVE	CVAG	2/9/2009	Monday	26494
	W	WASHINGTON ST	CVAG	2/9/2009	Monday	26016
	W	WARNER TR	CVAG	2/9/2009	Monday	24018
	E	JEFFERSON ST	CVAG	2/9/2009	Monday	26370
	E	MONTEREY AVE	CVAG	2/9/2009	Monday	27202
	E	COOK ST	CVAG	2/9/2009	Monday	30237
	E	MADISON ST	CVAG	2/9/2009	Monday	22488
	E	CLINTON ST	CVAG	2/3/2009	Tuesday	19474
	E	SH-111	CVAG	1/30/2009	Friday	15439
	W	WASHINGTON ST	CVAG	2/6/2008	Wednesday	26067
	E	JEFFERSON ST	CVAG	1/30/2008	Wednesday	24295
	E	COOK ST	CVAG	1/30/2008	Wednesday	28439
	W	PORTOLA AVE	CVAG	1/30/2008	Wednesday	29716
	E	WASHINGTON ST	CVAG	1/30/2008	Wednesday	23077
	E	MADISON ST	CVAG	1/30/2008	Wednesday	12422
	W	INDIO BLVD	CVAG	1/30/2008	Wednesday	5038
	W	JEFFERSON ST	CVAG	1/30/2008	Wednesday	21529
	W	COOK ST	CVAG	1/30/2008	Wednesday	34279
	W	WARNER TR	CVAG	1/30/2008	Wednesday	27289
	W	MONTEREY AVE	CVAG	1/30/2008	Wednesday	24050
	W	EL DORADO DR	CVAG	1/30/2008	Wednesday	28027

LOCATION	DIR	X-STREET	NOTE	DATE	DAY	ADT
FRED WARING DR	E	MONTEREY AVE	CVAG	1/30/2008	Wednesday	31391
	E	PORTOLA AVE	CVAG	1/30/2008	Wednesday	30534
	E	SH-111	CVAG	1/30/2008	Wednesday	16952
	E	CLINTON ST	CVAG	1/29/2008	Tuesday	17697
	W	MONTEREY AVE	CVAG	1/30/2007	Tuesday	20566
	W	PORTOLA AVE	CVAG	1/30/2007	Tuesday	29972
	W	JEFFERSON ST	CVAG	1/30/2007	Tuesday	19181
	E	JEFFERSON ST	CVAG	1/30/2007	Tuesday	18420
	E	PORTOLA AVE	CVAG	1/30/2007	Tuesday	30812
	W	INDIO BLVD	CVAG	1/30/2007	Tuesday	5726
	W	COOK ST	CVAG	1/30/2007	Tuesday	34830
	W	WASHINGTON ST	CVAG	1/30/2007	Tuesday	30042
	E	WASHINGTON ST	CVAG	1/30/2007	Tuesday	23735
	W	EL DORADO DR	CVAG	1/30/2007	Tuesday	28185
	W	WARNER TR	CVAG	1/30/2007	Tuesday	28341
	E	MONTEREY AVE	CVAG	1/30/2007	Tuesday	29765
	E	COOK ST	CVAG	1/30/2007	Tuesday	31010
	E	SH-111	CVAG	1/30/2007	Tuesday	18297
	W	WASHINGTON ST	CVAG	2/2/2006	Thursday	28459
	E	PORTOLA AVE	CVAG	1/30/2006	Monday	32367
	E	WASHINGTON ST	CVAG	1/30/2006	Monday	25111
	W	MONTEREY AVE	CVAG	1/30/2006	Monday	25966
	E	JEFFERSON ST	CVAG	1/30/2006	Monday	18198
	E	COOK ST	CVAG	1/30/2006	Monday	32274
	E	MONTEREY AVE	CVAG	1/30/2006	Monday	30037
	E	SH-111	CVAG	1/30/2006	Monday	19467
	W	WARNER TR	CVAG	1/30/2006	Monday	29401
	W	EL DORADO DR	CVAG	1/30/2006	Monday	29859
	W	COOK ST	CVAG	1/30/2006	Monday	37479
	W	INDIO BLVD	CVAG	1/30/2006	Monday	6276
	W	PORTOLA AVE	CVAG	1/30/2006	Monday	32865
	W	PORTOLA AVE	CVAG	10/1/2005	Saturday	35321
	W	PORTOLA AVE	CVAG	3/1/2005	Tuesday	23091
	W	WASHINGTON ST	CVAG	2/10/2005	Thursday	23219
	E	COOK ST	CVAG	1/30/2005	Sunday	33570
	E	PORTOLA AVE	CVAG	1/30/2005	Sunday	30345
	W	MONTEREY AVE	CVAG	1/30/2005	Sunday	25585
	E	JEFFERSON ST	CVAG	1/30/2005	Sunday	20460

LOCATION	DIR	X-STREET	NOTE	DATE	DAY	ADT
FRED WARING DR	W	INDIO BLVD	CVAG	1/30/2005	Sunday	6714
	E	SH-111	CVAG	1/30/2005	Sunday	19866
	W	EL DORADO DR	CVAG	1/30/2005	Sunday	29766
	W	COOK ST	CVAG	1/30/2005	Sunday	29912
	E	WASHINGTON ST	CVAG	1/30/2005	Sunday	21911
	E	MONTEREY AVE	CVAG	1/30/2005	Sunday	33970
	E	JEFFERSON ST	CVAG	1/30/2004	Friday	24981
	E	COOK ST	CVAG	1/30/2004	Friday	37426
	E	SH-111	CVAG	1/30/2004	Friday	18920
	E	WASHINGTON ST	CVAG	1/30/2004	Friday	28597
	W	MONTEREY AVE	CVAG	1/30/2004	Friday	25233
	W	COOK ST	CVAG	1/30/2004	Friday	38213
	W	EL DORADO DR	CVAG	1/30/2004	Friday	37362
	W	INDIO BLVD	CVAG	1/30/2004	Friday	14902
	E	PORTOLA AVE	CVAG	1/30/2004	Friday	40549
	W	PORTOLA AVE	CVAG	1/30/2004	Friday	40731
	E	MONTEREY AVE	CVAG	1/30/2004	Friday	33563
	W	WASHINGTON ST	CVAG	1/14/2004	Wednesday	37686
FREDERICK ST	E	PALOMAR ST		7/18/2007	Wednesday	1531
FRONTAGE RD	E	SERFAS CLUB DR	CENSUS	4/7/2009	Tuesday	9501
	E	SERFAS CLUB DR		12/7/2004	Tuesday	13707
GALENA ST	W	PEDLEY RD		6/24/2010	Thursday	2894
	E	PEDLEY RD		6/24/2010	Thursday	2187
	E	GLEN ST		8/25/2009	Tuesday	4301
	E	BAIN ST		8/25/2009	Tuesday	2549
	W	FELSPAR ST		8/25/2009	Tuesday	3568
	W	TYROLITE ST		8/25/2009	Tuesday	2475
	W	TYROLITE AVE	CENSUS	4/2/2009	Thursday	3622
	W	FELSPAR ST	CENSUS	2/19/2009	Thursday	5631
	E	PEDLEY RD	CENSUS	2/19/2009	Thursday	4610
	E	FELSPAR ST	CENSUS	2/19/2009	Thursday	5850
	E	BAIN ST	CENSUS	2/19/2009	Thursday	3392
	E	BAIN ST		11/10/2004	Wednesday	11194
	W	TYROLITE ST		11/9/2004	Tuesday	2131
	W	FELSPAR ST		11/3/2004	Wednesday	5735
	E	FELSPAR ST		11/3/2004	Wednesday	5323
	W	AGATE ST		11/3/2004	Wednesday	3863
GALLERON ST	E	BUTTERFIELD STAGE RD		9/15/2009	Tuesday	246

LOCATION	DIR	X-STREET	NOTE	DATE	DAY	ADT
GARBANI RD	E	ANTELOPE RD	CENSUS	5/14/2009	Thursday	4124
	E	MURRIETA RD		1/18/2005	Tuesday	3185
	E	ANTELOPE RD		9/15/2004	Wednesday	3297
GARDNER AVE	S	VAN BUREN BLVD		3/4/2004	Thursday	96
GAVILAN RD	N	LAKE MATHEWS DR	CENSUS	4/28/2009	Tuesday	3119
	S	LAKE MATHEWS DR	CENSUS	4/28/2009	Tuesday	2787
	S	CAJALCO RD	CENSUS	4/15/2009	Wednesday	5385
	N	LAKE MATTHEWS DR		10/14/2004	Thursday	2978
GENE AUTRY TR	S	I-10	CVAG	1/30/2010	Saturday	21124
	N	PALM CANYON DR (SH-111)	CVAG	1/30/2010	Saturday	13318
	N	MESQUITE AVE	CVAG	1/30/2010	Saturday	21302
	N	RAMON RD	CVAG	1/30/2010	Saturday	21663
	N	VISTA CHINO	CVAG	1/30/2010	Saturday	19924
	S	RAMON RD	CVAG	1/30/2010	Saturday	23877
	S	VISTA CHINO	CVAG	1/30/2010	Saturday	22424
	N	VISTA CHINO	CVAG	2/9/2009	Monday	22639
	S	RAMON RD	CVAG	2/9/2009	Monday	21704
	N	PALM CANYON DR (SH-111)	CVAG	2/9/2009	Monday	12947
	S	VISTA CHINO	CVAG	2/9/2009	Monday	23081
	N	RAMON RD	CVAG	2/9/2009	Monday	18787
	S	I-10	CVAG	2/9/2009	Monday	21382
	S	I-10	CVAG	1/30/2008	Wednesday	19243
	S	RAMON RD	CVAG	1/30/2008	Wednesday	26817
	N	PALM CANYON DR (SH-111)	CVAG	1/30/2008	Wednesday	12902
	N	RAMON RD	CVAG	1/30/2008	Wednesday	20221
	S	VISTA CHINO	CVAG	1/30/2008	Wednesday	25279
	S	RAMON RD	CVAG	1/30/2007	Tuesday	27886
	N	PALM CANYON DR (SH-111)	CVAG	1/30/2007	Tuesday	14395
	N	RAMON RD	CVAG	1/30/2007	Tuesday	20897
	S	I-10	CVAG	1/30/2007	Tuesday	28692
	S	VISTA CHINO	CVAG	1/30/2007	Tuesday	24513
	N	VISTA CHINO	CVAG	1/30/2007	Tuesday	22437
	S	VISTA CHINO	CVAG	1/30/2006	Monday	24717
	N	RAMON RD	CVAG	1/30/2006	Monday	22803
	N	VISTA CHINO	CVAG	1/30/2006	Monday	22736
	N	PALM CANYON DR (SH-111)	CVAG	1/30/2006	Monday	13300
	S	RAMON RD	CVAG	1/30/2006	Monday	30817
	S	I-10	CVAG	1/30/2006	Monday	26350

LOCATION	DIR	X-STREET	NOTE	DATE	DAY	ADT
GENE AUTRY TR	S	RAMON RD	CVAG	10/1/2005	Saturday	23501
	S	RAMON RD	CVAG	3/1/2005	Tuesday	26243
	S	VISTA CHINO	CVAG	1/30/2005	Sunday	19274
	N	PALM CANYON DR (SH-111)	CVAG	1/30/2005	Sunday	13381
	S	I-10	CVAG	1/30/2005	Sunday	23350
	N	VISTA CHINO	CVAG	1/30/2005	Sunday	23430
	N	RAMON RD	CVAG	1/30/2005	Sunday	23013
	S	RAMON RD	CVAG	1/30/2004	Friday	21179
	N	PALM CANYON DR (SH-111)	CVAG	1/30/2004	Friday	10650
	N	RAMON RD	CVAG	1/30/2004	Friday	20290
	N	VISTA CHINO	CVAG	1/30/2004	Friday	18606
	S	VISTA CHINO	CVAG	1/30/2004	Friday	20785
	S	I-10	CVAG	1/30/2004	Friday	20353
GENTIAN AVE	W	WOOD RD		9/18/2008	Thursday	1105
	W	WOOD RD		4/3/2008	Thursday	1363
GERALD FORD DR	W	MONTEREY AVE	CVAG	1/30/2010	Saturday	11154
	W	BOB HOPE DR	CVAG	1/30/2010	Saturday	14203
	E	MONTEREY AVE	CVAG	1/30/2010	Saturday	8389
	W	COOK ST	CVAG	1/30/2010	Saturday	10507
	E	DATE PALM DR	CVAG	1/30/2010	Saturday	10607
	E	COOK ST	CVAG	1/30/2010	Saturday	6283
	E	DA VALL DR	CVAG	1/30/2010	Saturday	13024
	E	BOB HOPE DR	CVAG	1/30/2010	Saturday	11221
	E	COOK ST	CVAG	2/9/2009	Monday	6102
	E	MONTEREY AVE	CVAG	2/9/2009	Monday	9519
	E	DA VALL DR	CVAG	2/9/2009	Monday	13680
	E	DATE PALM DR	CVAG	2/9/2009	Monday	11223
	W	BOB HOPE DR	CVAG	2/9/2009	Monday	14414
	E	BOB HOPE DR	CVAG	2/9/2009	Monday	12008
	W	COOK ST	CVAG	2/9/2009	Monday	10823
	W	MONTEREY AVE	CVAG	2/9/2009	Monday	14689
	W	BOB HOPE DR	CVAG	1/30/2008	Wednesday	15881
	E	MONTEREY AVE	CVAG	1/30/2008	Wednesday	14280
	W	MONTEREY AVE	CVAG	1/30/2008	Wednesday	16889
	E	DATE PALM DR	CVAG	1/30/2008	Wednesday	11455
	W	COOK ST	CVAG	1/30/2008	Wednesday	9411
	E	BOB HOPE DR	CVAG	1/30/2008	Wednesday	13364
	E	DA VALL DR	CVAG	1/30/2008	Wednesday	13441

LOCATION	DIR	X-STREET	NOTE	DATE	DAY	ADT
GERALD FORD DR	E	COOK ST	CVAG	1/30/2008	Wednesday	5480
	E	MONTEREY AVE	CVAG	1/30/2007	Tuesday	12458
	W	COOK ST	CVAG	1/30/2007	Tuesday	7634
	E	DATE PALM DR	CVAG	1/30/2007	Tuesday	12305
	E	DA VALL DR	CVAG	1/30/2007	Tuesday	14032
	E	BOB HOPE DR	CVAG	1/30/2007	Tuesday	13720
	W	MONTEREY AVE	CVAG	1/30/2007	Tuesday	14096
	E	COOK ST	CVAG	1/30/2007	Tuesday	4615
	W	BOB HOPE DR	CVAG	1/30/2007	Tuesday	15416
	E	COOK ST	CVAG	1/30/2006	Monday	5370
	W	BOB HOPE DR	CVAG	1/30/2006	Monday	19028
	E	BOB HOPE DR	CVAG	1/30/2006	Monday	12777
	W	COOK ST	CVAG	1/30/2006	Monday	7384
	W	MONTEREY AVE	CVAG	1/30/2006	Monday	14601
	E	MONTEREY AVE	CVAG	1/30/2006	Monday	12523
	E	DA VALL DR	CVAG	1/30/2006	Monday	14244
	E	DATE PALM DR	CVAG	1/30/2006	Monday	12756
	E	COOK ST	CVAG	1/30/2005	Sunday	6150
	E	BOB HOPE DR	CVAG	1/30/2005	Sunday	13890
	W	MONTEREY AVE	CVAG	1/30/2005	Sunday	15162
	E	DATE PALM DR	CVAG	1/30/2005	Sunday	13277
	W	COOK ST	CVAG	1/30/2005	Sunday	6922
	W	BOB HOPE DR	CVAG	1/30/2005	Sunday	16562
	E	DA VALL DR	CVAG	1/30/2005	Sunday	16281
	E	MONTEREY AVE	CVAG	1/30/2005	Sunday	15041
	E	MONTEREY AVE	CVAG	1/30/2004	Friday	13781
	W	COOK ST	CVAG	1/30/2004	Friday	8599
	E	BOB HOPE DR	CVAG	1/30/2004	Friday	17106
	E	DATE PALM DR	CVAG	1/30/2004	Friday	13258
	E	DA VALL DR	CVAG	1/30/2004	Friday	15766
	E	COOK ST	CVAG	1/30/2004	Friday	5321
GIBSON AVE	N	NUEVO RD		8/31/2010	Tuesday	584
GILMAN SPRINGS RD	N	SOBOBA RD		8/26/2009	Wednesday	17046
	S	SH-79		8/26/2009	Wednesday	17061
	S	SH-79		8/26/2009	Wednesday	16962
	E	SH-79	CENSUS	5/19/2009	Tuesday	13515
	E	SUBLETTE RD	CENSUS	5/19/2009	Tuesday	9829
	S	ALESSANDRO BLVD	CENSUS	5/12/2009	Tuesday	8855

LOCATION	DIR	X-STREET	NOTE	DATE	DAY	ADT
GILMAN SPRINGS RD	W	SH-79	CENSUS	5/12/2009	Tuesday	10297
	S	SH-60	CENSUS	5/7/2009	Thursday	6840
	S	ALESSANDRO BLVD		2/24/2009	Tuesday	6679
	N	ALESSANDRO BLVD		2/24/2009	Tuesday	5830
	N	SOBOBA RD		12/6/2007	Thursday	6614
	S	ALESSANDRO BLVD		12/7/2004	Tuesday	7197
	S	SH-60		12/7/2004	Tuesday	5785
	N	SOBOBA RD		8/17/2004	Tuesday	9508
GIRARD ST	S	MAYBERRY AVE	CENSUS	5/14/2009	Thursday	5140
	S	STETSON AVE	CENSUS	5/13/2009	Wednesday	1126
	N	ACACIA AVE		6/14/2005	Tuesday	5705
	S	ACACIA AVE		6/14/2005	Tuesday	4816
	S	STETSON AVE		12/8/2004	Wednesday	822
	S	MAYBERRY AVE		11/30/2004	Tuesday	4116
GLENOAKS RD	E	RANCHO CALIFORNIA RD	CENSUS	5/19/2009	Tuesday	6099
	W	DE PORTOLA RD	CENSUS	5/19/2009	Tuesday	2595
	S	RANCHO CALIFORNIA RD		6/5/2007	Tuesday	2398
	W	DE PORTOLA RD		12/16/2004	Thursday	2088
	E	RANCHO CALIFORNIA RD		12/2/2004	Thursday	4610
GOETZ RD	N	PASEO VIVORA	CENSUS	5/5/2009	Tuesday	3689
	N	NEWPORT RD	CENSUS	5/5/2009	Tuesday	10106
	S	MANGANESE RD	CENSUS	4/30/2009	Thursday	3911
	S	COYOTE CIR		12/2/2004	Thursday	3597
	N	PASEO VIVORA		11/11/2004	Thursday	3985
	N	NEWPORT RD		11/11/2004	Thursday	11725
GOLDEN STAR AVE	E	WASHINGTON ST		12/2/2009	Wednesday	439
	N	WEIKAMP LN		8/30/2007	Thursday	723
GOLDEN WEST AVE	N	SKYLINKS DR		6/17/2010	Thursday	3198
	N	50TH ST		6/17/2010	Thursday	1296
	N	45TH ST	CENSUS	2/19/2009	Thursday	2681
	S	MISSION BLVD	CENSUS	2/19/2009	Thursday	2984
	E	AVE JUAN BAUTISTA		1/14/2009	Wednesday	1148
	S	HAWK DR		1/14/2009	Wednesday	3930
	S	MISSION BLVD		10/19/2004	Tuesday	2265
GOLF CENTER PKWY	S	I-10	CVAG	1/30/2010	Saturday	13478
	N	SH-111	CVAG	1/30/2010	Saturday	12679
	N	44TH AVE	CVAG	1/30/2010	Saturday	7921
	N	I-10	CVAG	1/30/2010	Saturday	16422

LOCATION	DIR	X-STREET	NOTE	DATE	DAY	ADT
GOLF CENTER PKWY	N	I-10	CVAG	2/9/2009	Monday	15170
	S	I-10	CVAG	2/9/2009	Monday	13320
	N	SH-111	CVAG	2/9/2009	Monday	12142
	N	44TH AVE	CVAG	2/9/2009	Monday	7652
	N	SR 111	CVAG	2/9/2009	Monday	12142
	N	I-10	CVAG	1/30/2008	Wednesday	14064
	S	I-10	CVAG	1/30/2008	Wednesday	13051
	N	SH-111	CVAG	1/30/2008	Wednesday	12205
	N	44TH AVE	CVAG	1/30/2008	Wednesday	7228
	N	I-10	CVAG	1/30/2007	Tuesday	17982
	N	SH-111	CVAG	1/30/2007	Tuesday	14284
	S	I-10	CVAG	1/30/2007	Tuesday	16719
	N	I-10	CVAG	1/30/2006	Monday	14002
	N	SH-111	CVAG	1/30/2006	Monday	12254
	S	I-10	CVAG	1/30/2006	Monday	13012
	S	I-10	CVAG	1/30/2005	Sunday	13780
	N	SH-111	CVAG	1/30/2005	Sunday	11155
	N	I-10	CVAG	1/30/2005	Sunday	16030
	N	I-10	CVAG	1/30/2004	Friday	11490
	N	SH-111	CVAG	1/30/2004	Friday	10723
	S	I-10	CVAG	1/30/2004	Friday	10845
GOLF CLUB DR	N	PALM CANYON DR	CVAG	1/30/2010	Saturday	6383
	N	PALM CANYON DR	CVAG	2/4/2009	Wednesday	6204
	N	PALM CANYON DR	CVAG	1/30/2008	Wednesday	5584
	N	PALM CANYON DR	CVAG	1/30/2007	Tuesday	4173
	N	PALM CANYON DR	CVAG	1/30/2006	Monday	5808
	N	PALM CANYON DR	CVAG	1/30/2005	Sunday	5546
GRAND AVE	W	CLINTON KEITH RD	CENSUS	5/7/2009	Thursday	4874
	W	MCVICAR ST	CENSUS	5/7/2009	Thursday	5126
	W	WILSON ST	CENSUS	5/6/2009	Wednesday	11182
	E	CORYDON ST	CENSUS	5/6/2009	Wednesday	13192
	E	CENTRAL ST	CENSUS	5/6/2009	Wednesday	6283
	W	CORYDON ST	CENSUS	5/6/2009	Wednesday	23339
	W	STONEMAN ST	CENSUS	5/5/2009	Tuesday	24766
	S	PATRICK CT	CENSUS	4/9/2009	Thursday	6855
	W	MACHADO ST	CENSUS	4/9/2009	Thursday	7137
	E	ADELFA ST		3/18/2009	Wednesday	6766
	W	ADELFA ST		3/18/2009	Wednesday	8025

LOCATION	DIR	X-STREET	NOTE	DATE	DAY	ADT
GRAND AVE	W	BALDWIN BLVD	CENSUS	3/12/2009	Thursday	16056
	E	ETHLENE DR	CENSUS	3/12/2009	Thursday	16583
	E	BALDWIN BLVD		12/11/2008	Thursday	6986
	W	BALDWIN BLVD		12/11/2008	Thursday	7341
	S	TOFT DR		4/1/2008	Tuesday	4948
	E	BLACKWELL BLVD		11/27/2007	Tuesday	6925
	W	BLACKWELL BLVD		11/27/2007	Tuesday	7200
	E	CORYDON ST		10/11/2007	Thursday	3879
	W	CENTRAL ST		10/11/2007	Thursday	4915
	W	CORYDON ST		10/11/2007	Thursday	9035
	E	CENTRAL ST		10/11/2007	Thursday	2581
	N	MORRISON PL		9/6/2007	Thursday	15207
	W	MCVICAR ST		9/6/2007	Thursday	5291
	E	BLACKWELL BLVD		9/6/2007	Thursday	14707
	W	WILSON ST		9/6/2007	Thursday	20656
	W	CLINTON KEITH RD		2/3/2005	Thursday	2093
	W	BALDWIN BLVD		12/8/2004	Wednesday	14190
	W	CLINTON KEITH RD		12/7/2004	Tuesday	4149
	W	MCVICAR ST		12/7/2004	Tuesday	4413
	W	CORYDON ST		12/2/2004	Thursday	20478
	E	CENTRAL ST		12/2/2004	Thursday	5150
	E	CORYDON ST		12/2/2004	Thursday	10678
	W	STONEMAN ST		12/2/2004	Thursday	21388
	W	WILSON ST		12/2/2004	Thursday	9288
	E	ETHLENE DR		12/1/2004	Wednesday	19891
	S	PATRICK CT		11/17/2004	Wednesday	5390
	W	MACHADO ST		11/10/2004	Wednesday	5860
	W	BLANCHE DR		3/17/2004	Wednesday	15555
GRANITE HILL DR	W	PYRITE ST	CENSUS	4/1/2009	Wednesday	6843
	E	PEDLEY RD	CENSUS	2/18/2009	Wednesday	5885
	W	CAMPBELL ST	CENSUS	2/18/2009	Wednesday	2277
	E	CAMPBELL ST	CENSUS	2/18/2009	Wednesday	2523
	N	VALLEY WAY	CENSUS	2/4/2009	Wednesday	3493
	E	QUARTZ CANYON RD		8/9/2007	Thursday	3844
	E	PYRITE ST		8/7/2007	Tuesday	5056
	E	CAMPBELL ST		8/7/2007	Tuesday	4111
	E	38TH ST		8/7/2007	Tuesday	4800
	W	LINDSAY ST		8/7/2007	Tuesday	3796

LOCATION	DIR	X-STREET	NOTE	DATE	DAY	ADT
GRANITE HILL DR	W	CAMINO REAL		12/15/2005	Thursday	3605
	E	CAMINO REAL		12/15/2005	Thursday	4063
	W	PYRITE ST		11/30/2004	Tuesday	6511
	E	PEDLEY RD		11/30/2004	Tuesday	5358
	N	VALLEY WAY		11/9/2004	Tuesday	3951
GRANT ST	S	HARLOW AVE		8/31/2010	Tuesday	869
	N	MAGNOLIA AVE	CENSUS	4/7/2009	Tuesday	1226
	S	MAGNOLIA AVE	CENSUS	4/7/2009	Tuesday	2910
	S	MAGNOLIA AVE		3/29/2005	Tuesday	1876
	N	MAGNOLIA AVE		3/29/2005	Tuesday	761
	N	MAGNOLIA AVE		1/19/2005	Wednesday	2796
	S	MAGNOLIA AVE		11/2/2004	Tuesday	3405
GRAPEFRUIT BLVD	N	HARRISON ST	CVAG	1/30/2010	Saturday	27534
	N	50TH AVE	CVAG	1/30/2010	Saturday	9664
	S	50TH AVE	CVAG	1/30/2010	Saturday	11646
	N	48TH AVE	CVAG	1/30/2010	Saturday	16670
	S	52ND AVE	CVAG	1/30/2010	Saturday	12272
	N	52ND AVE	CVAG	1/30/2010	Saturday	11909
	S	52ND AVE	CVAG	2/9/2009	Monday	13239
	S	50TH AVE	CVAG	2/9/2009	Monday	12015
	N	HARRISON ST	CVAG	2/9/2009	Monday	24818
	N	52ND AVE	CVAG	2/9/2009	Monday	12940
	N	50TH AVE	CVAG	2/9/2009	Monday	10490
	N	48TH AVE	CVAG	2/9/2009	Monday	18084
	N	50TH AVE	CVAG	1/30/2008	Wednesday	11094
	S	50TH AVE	CVAG	1/30/2008	Wednesday	12956
	N	48TH AVE	CVAG	1/30/2008	Wednesday	19285
	N	HARRISON ST	CVAG	1/30/2008	Wednesday	28304
	N	52ND AVE	CVAG	1/30/2008	Wednesday	13234
	S	52ND AVE	CVAG	1/30/2008	Wednesday	14217
	N	AIRPORT BLV (56TH AVE)	CVAG	1/9/2008	Wednesday	10359
	S	AIRPORT BLV (56TH AVE)	CVAG	1/8/2008	Tuesday	10045
	N	AIRPORT BLV (56TH AVE)	CVAG	1/30/2007	Tuesday	13156
	S	AIRPORT BLV (56TH AVE)	CVAG	1/30/2007	Tuesday	10983
	N	50TH AVE	CVAG	1/30/2007	Tuesday	12211
	N	HARRISON ST	CVAG	1/30/2007	Tuesday	43167
	N	52ND AVE	CVAG	1/30/2007	Tuesday	16820
	S	52ND AVE	CVAG	1/30/2007	Tuesday	13993

LOCATION	DIR	X-STREET	NOTE	DATE	DAY	ADT
GRAPEFRUIT BLVD	S	50TH AVE	CVAG	1/30/2007	Tuesday	15271
	S	SH-111	CVAG	1/30/2007	Tuesday	25874
	N	48TH AVE	CVAG	1/30/2007	Tuesday	32650
	S	50TH AVE	CVAG	1/30/2006	Monday	14028
	S	52ND AVE	CVAG	1/30/2006	Monday	14544
	S	SH-111	CVAG	1/30/2006	Monday	25071
	S	AIRPORT BLV (56TH AVE)	CVAG	1/30/2006	Monday	11048
	N	52ND AVE	CVAG	1/30/2006	Monday	13822
	N	48TH AVE	CVAG	1/30/2006	Monday	24862
	N	HARRISON ST	CVAG	1/30/2006	Monday	29985
	N	50TH AVE	CVAG	1/30/2006	Monday	12458
	S	AIRPORT BLVD	CVAG	1/24/2006	Tuesday	11048
	N	HARRISON ST	CVAG	1/30/2005	Sunday	38451
	N	48TH AVE	CVAG	1/30/2005	Sunday	23453
	N	50TH AVE	CVAG	1/30/2005	Sunday	11391
	S	52ND AVE	CVAG	1/30/2005	Sunday	11895
	N	52ND AVE	CVAG	1/30/2005	Sunday	12209
	S	SH-111	CVAG	1/30/2005	Sunday	24411
	N	HARRISON ST	CVAG	1/30/2004	Friday	34196
	N	52ND AVE	CVAG	1/30/2004	Friday	14252
GRAPEFRUIT BLVD (SH-111)	N	54TH AVE	CVAG	1/30/2010	Saturday	8419
	S	54TH AVE	CVAG	1/30/2010	Saturday	9356
	S	AIRPORT BLVD (56TH AVE)	CVAG	1/30/2010	Saturday	9967
	N	AIRPORT BLVD (56TH AVE)	CVAG	1/30/2010	Saturday	9122
	S	DILLON RD	CVAG	1/30/2010	Saturday	23628
	S	DILLON RD	CVAG	2/9/2009	Monday	27939
	N	54TH AVE	CVAG	2/9/2009	Monday	9071
	S	54TH AVE	CVAG	1/22/2009	Thursday	9836
	S	AIRPORT BLVD (56TH AVE)	CVAG	1/21/2009	Wednesday	10515
	N	AIRPORT BLVD (56TH AVE)	CVAG	1/21/2009	Wednesday	9793
	N	54TH AVE	CVAG	1/30/2008	Wednesday	9239
	S	DILLON RD	CVAG	1/30/2008	Wednesday	32561
	S	54TH AVE	CVAG	1/10/2008	Thursday	10044
	N	AIRPORT BLVD (56TH AVE)	CVAG	1/9/2008	Wednesday	10359
	S	AIRPORT BLVD (56TH AVE)	CVAG	1/8/2008	Tuesday	10045
	N	54TH AVE	CVAG	1/30/2007	Tuesday	13066
	S	DILLON RD	CVAG	1/30/2007	Tuesday	51178
	S	54TH AVE	CVAG	1/30/2007	Tuesday	11423

LOCATION	DIR	X-STREET	NOTE	DATE	DAY	ADT
GRAPEFRUIT BLVD (SH-111)	N	AIRPORT BLVD (56TH AVE)	CVAG	1/30/2007	Tuesday	13156
	S	AIRPORT BLVD (56TH AVE)	CVAG	1/30/2007	Tuesday	10983
	N	54TH AVE	CVAG	1/30/2006	Monday	11239
	S	AIRPORT BLVD (56TH AVE)	CVAG	1/30/2006	Monday	11048
	S	DILLON RD	CVAG	1/30/2006	Monday	32894
	N	AIRPORT BLVD (56TH AVE)	CVAG	1/24/2006	Tuesday	11008
	S	54TH AVE	CVAG	1/24/2006	Tuesday	10732
	S	49TH ST	CVAG	10/1/2005	Saturday	38451
	S	49TH ST	CVAG	3/1/2005	Tuesday	35407
	S	DILLON RD	CVAG	1/30/2005	Sunday	31179
	N	54TH AVE	CVAG	1/30/2005	Sunday	10008
	N	AIRPORT BLVD (56TH AVE)	CVAG	1/26/2005	Wednesday	9668
	S	54TH AVE	CVAG	1/26/2005	Wednesday	9791
	S	DILLON RD	CVAG	1/30/2004	Friday	32009
	N	54TH AVE	CVAG	1/30/2004	Friday	11579
GREEN RIVER RD	E	FRESNO RD		11/2/2004	Tuesday	23679
	W	CRESTRIDGE DR		11/2/2004	Tuesday	4231
GREENWALD AVE	N	DORCHESTER LN	CENSUS	4/29/2009	Wednesday	3929
	S	SENOLA AVE	CENSUS	4/29/2009	Wednesday	4983
	N	DORCHESTER LN		11/11/2004	Thursday	3135
	S	SENOLA AVE		11/11/2004	Thursday	4067
GROSSE POINT DR	S	CHAMBERS AVE		11/15/2006	Wednesday	229
	N	MC CALL BLVD		11/15/2006	Wednesday	782
	S	MC CALL BLVD		11/15/2006	Wednesday	258
	S	MCCALL BLVD		2/22/2006	Wednesday	249
	N	MCCALL BLVD		2/22/2006	Wednesday	790
	S	MCCALL BLVD		6/30/2004	Wednesday	278
	N	MCCALL BLVD		6/30/2004	Wednesday	729
GRUWELL ST	N	PALOMAR ST	CENSUS	4/15/2009	Wednesday	1984
	S	PALOMAR ST	CENSUS	4/9/2009	Thursday	1949
	N	PALOMAR ST		12/2/2004	Thursday	3528
GUM TREE DR	S	LAWSON RD		1/22/2004	Thursday	106
HACIENDA AVE	E	MOUNTAIN VIEW RD	CVAG	1/30/2010	Saturday	5953
	W	PALM DR	CVAG	1/30/2010	Saturday	5157
	W	MOUNTAIN VIEW RD	CVAG	1/30/2010	Saturday	8704
	E	PALM DR	CVAG	1/30/2010	Saturday	9868
	E	PALM DR	CVAG	3/2/2009	Monday	10309
	W	PALM DR	CVAG	3/2/2009	Monday	4449

LOCATION	DIR	X-STREET	NOTE	DATE	DAY	ADT
HACIENDA AVE	W	MOUNTAIN VIEW RD	CVAG	3/2/2009	Monday	9151
	E	MOUNTAIN VIEW RD	CVAG	3/2/2009	Monday	6523
	W	PALM DR	CVAG	1/30/2008	Wednesday	4548
	E	MOUNTAIN VIEW RD	CVAG	1/30/2008	Wednesday	6360
	E	PALM DR	CVAG	1/30/2008	Wednesday	10840
	W	MOUNTAIN VIEW RD	CVAG	1/30/2008	Wednesday	8701
	W	PALM DR	CVAG	1/30/2007	Tuesday	4570
	E	MOUNTAIN VIEW RD	CVAG	1/30/2007	Tuesday	6933
	W	MOUNTAIN VIEW RD	CVAG	1/30/2007	Tuesday	9889
	E	PALM DR	CVAG	1/30/2007	Tuesday	9130
	E	PALM DR	CVAG	1/30/2006	Monday	8910
	W	PALM DR	CVAG	1/30/2006	Monday	7493
	W	MOUNTAIN VIEW RD	CVAG	1/30/2006	Monday	10099
	E	MOUNTAIN VIEW RD	CVAG	1/30/2006	Monday	8811
	W	MOUNTAIN VIEW RD	CVAG	1/30/2005	Sunday	7030
	W	PALM DR	CVAG	1/30/2005	Sunday	3323
	E	PALM DR	CVAG	1/30/2005	Sunday	11643
	E	MOUNTAIN VIEW RD	CVAG	1/30/2005	Sunday	9265
	E	MOUNTAIN VIEW RD	CVAG	1/30/2004	Friday	5935
	E	PALM DR	CVAG	1/30/2004	Friday	9855
HALL AVE	S	28TH ST	CENSUS	4/7/2009	Tuesday	1256
	N	EL RIO AVE	CENSUS	2/25/2009	Wednesday	1911
	E	28TH ST		9/25/2007	Tuesday	2065
	S	28TH ST		12/2/2004	Thursday	2756
	N	EL RIO AVE		11/16/2004	Tuesday	2364
HAMMACK AVE	N	WALNUT ST		6/11/2009	Thursday	734
	S	MOUNTAIN AVE		6/11/2009	Thursday	163
	S	TELFORD AVE		6/11/2009	Thursday	327
HAMMOND RD	S	JOHNSON ST	CENSUS	6/11/2009	Thursday	3624
	S	4TH ST	CENSUS	6/10/2009	Wednesday	7197
	N	4TH ST	CENSUS	6/10/2009	Wednesday	5019
	S	4TH ST		8/9/2007	Thursday	2068
	N	4TH ST		8/9/2007	Thursday	1521
	N	3RD ST		5/11/2005	Wednesday	7209
	N	3RD ST		12/15/2004	Wednesday	6736
	N	4TH ST		12/15/2004	Wednesday	4145
	S	JOHNSON ST		12/15/2004	Wednesday	2853
HAMNER AVE	N	SCHLEISMAN RD	CENSUS	4/14/2009	Tuesday	16251

LOCATION	DIR	X-STREET	NOTE	DATE	DAY	ADT
HAMNER AVE	S	SCHLEISMAN RD	CENSUS	4/14/2009	Tuesday	16823
	S	LIMONITE AVE	CENSUS	2/11/2009	Wednesday	15875
	S	BELLEGRAVE AVE	CENSUS	2/11/2009	Wednesday	13369
	N	LIMONITE AVE		8/7/2007	Tuesday	10479
	S	LIMONITE AVE		8/7/2007	Tuesday	9999
	N	CANTU-GALLEANO RANCH R		8/1/2007	Wednesday	12532
	N	CANTU-GALLEANO RANCH R		7/31/2007	Tuesday	12518
	S	58TH ST		12/5/2006	Tuesday	10593
	S	BELLEGRAVE AVE		11/30/2004	Tuesday	9984
	S	LIMONITE AVE		11/2/2004	Tuesday	13237
	S	SCHLEISMAN RD		11/2/2004	Tuesday	14406
	N	SCHLEISMAN RD		11/2/2004	Tuesday	13871
HANOVER LN	S	HOLLAND RD		1/23/2008	Wednesday	283
HANSEN AVE	S	RAMONA EXPY	CENSUS	5/19/2009	Tuesday	3027
	S	CONTOUR AVE	CENSUS	5/12/2009	Tuesday	3461
	N	CONTOUR AVE	CENSUS	5/12/2009	Tuesday	4472
	S	RAMONA EXPY		12/9/2004	Thursday	3478
	S	CONTOUR AVE		12/9/2004	Thursday	2856
	N	CONTOUR AVE		12/8/2004	Wednesday	3531
	S	RAMONA EXPY		8/17/2004	Tuesday	2930
	S	MONTGOMERY AVE		4/21/2004	Wednesday	296
HARLEY JOHN RD	S	WASHINGTON ST		5/27/2010	Thursday	4748
	W	WASHINGTON ST		5/27/2010	Thursday	1647
	N	SCOTTSDALE DR		3/23/2010	Tuesday	2478
	S	SCOTTSDALE DR		3/23/2010	Tuesday	1882
	W	WASHINGTON ST	CENSUS	4/15/2009	Wednesday	1699
	N	CAJALCO RD	CENSUS	4/15/2009	Wednesday	3734
	E	MOCKINGBIRD CANYON		4/10/2008	Thursday	967
	N	CAJALCO RD		11/3/2004	Wednesday	3360
HARLOW AVE	E	LINCOLN ST		2/21/2008	Thursday	738
	W	LINCOLN ST		2/21/2008	Thursday	821
HARREL ST	E	WINEVILLE AVE		11/28/2007	Wednesday	582
	E	WINEVILLE AVE		11/27/2007	Tuesday	631
HARRISON AVE	S	65TH ST		8/25/2009	Tuesday	5187
	N	CITRUS ST		8/25/2009	Tuesday	4057
	S	65TH ST	CENSUS	4/7/2009	Tuesday	5426
	S	COUNTY LINE	CENSUS	4/7/2009	Tuesday	2107
	S	LIMONITE AVE	CENSUS	4/7/2009	Tuesday	3568

LOCATION	DIR	X-STREET	NOTE	DATE	DAY	ADT
HARRISON AVE	N	65TH ST		9/25/2007	Tuesday	6008
	S	LIMONITE AVE		11/2/2004	Tuesday	2661
HARRISON ST	S	TYLER ST	CVAG	1/30/2010	Saturday	4959
	S	TYLER ST	CVAG	3/2/2009	Monday	5146
	S	TYLER ST	CVAG	1/8/2008	Tuesday	4627
	S	66TH AVE		2/8/2006	Wednesday	3652
HARRISON ST (SH-86)	S	52ND AVE	CVAG	1/30/2010	Saturday	17009
	S	54TH AVE	CVAG	1/30/2010	Saturday	7752
	N	AIRPORT BLVD	CVAG	1/30/2010	Saturday	6019
	S	AIRPORT BLVD	CVAG	1/30/2010	Saturday	6690
	N	52ND AVE	CVAG	1/30/2010	Saturday	18161
	S	50TH AVE	CVAG	1/30/2010	Saturday	22774
	N	54TH AVE	CVAG	1/30/2010	Saturday	10781
	N	50TH AVE	CVAG	1/30/2010	Saturday	19811
	N	50TH AVE	CVAG	3/2/2009	Monday	19259
	N	52ND AVE	CVAG	3/2/2009	Monday	19562
	S	54TH AVE	CVAG	3/2/2009	Monday	8436
	S	AIRPORT BLVD	CVAG	3/2/2009	Monday	6624
	S	52ND AVE	CVAG	3/2/2009	Monday	17752
	S	50TH AVE	CVAG	3/2/2009	Monday	20299
	N	AIRPORT BLVD	CVAG	3/2/2009	Monday	7821
	N	54TH AVE	CVAG	3/2/2009	Monday	11635
	N	52ND AVE	CVAG	1/30/2008	Wednesday	19865
	S	54TH AVE	CVAG	1/30/2008	Wednesday	8145
	S	52ND AVE	CVAG	1/30/2008	Wednesday	19051
	S	50TH AVE	CVAG	1/30/2008	Wednesday	21688
	N	50TH AVE	CVAG	1/30/2008	Wednesday	20915
	N	54TH AVE	CVAG	1/30/2008	Wednesday	11650
	S	AIRPORT BLVD	CVAG	1/9/2008	Wednesday	6719
	N	AIRPORT BLVD	CVAG	1/9/2008	Wednesday	7765
	S	54TH AVE	CVAG	1/30/2007	Tuesday	8987
	S	AIRPORT BLVD	CVAG	1/30/2007	Tuesday	7190
	N	54TH AVE	CVAG	1/30/2007	Tuesday	12641
	N	52ND AVE	CVAG	1/30/2007	Tuesday	19494
	S	52ND AVE	CVAG	1/30/2007	Tuesday	18720
	S	50TH AVE	CVAG	1/30/2007	Tuesday	26531
	N	50TH AVE	CVAG	1/30/2007	Tuesday	23760
	N	AIRPORT BLVD	CVAG	1/30/2007	Tuesday	8605

LOCATION	DIR	X-STREET	NOTE	DATE	DAY	ADT
HARRISON ST (SH-86)	N	52ND AVE	CVAG	1/30/2006	Monday	21916
	N	54TH AVE	CVAG	1/30/2006	Monday	11217
	S	54TH AVE	CVAG	1/30/2006	Monday	8175
	N	50TH AVE	CVAG	1/30/2006	Monday	21852
	S	52ND AVE	CVAG	1/30/2006	Monday	19279
	S	50TH AVE	CVAG	1/30/2006	Monday	23730
	N	AIRPORT BLVD	CVAG	1/12/2006	Thursday	8193
	S	AIRPORT BLVD	CVAG	1/12/2006	Thursday	7076
	S	50TH AVE	CVAG	10/1/2005	Saturday	22282
	S	50TH AVE	CVAG	3/1/2005	Tuesday	22782
	N	52ND AVE	CVAG	1/30/2005	Sunday	19974
	S	54TH AVE	CVAG	1/30/2005	Sunday	9002
	N	50TH AVE	CVAG	1/30/2005	Sunday	21473
	N	54TH AVE	CVAG	1/30/2005	Sunday	13241
	S	52ND AVE	CVAG	1/30/2005	Sunday	18146
	N	AIRPORT BLVD	CVAG	1/26/2005	Wednesday	8814
	S	AIRPORT BLVD	CVAG	1/26/2005	Wednesday	7184
	N	54TH AVE	CVAG	1/30/2004	Friday	16486
	N	50TH AVE	CVAG	1/30/2004	Friday	18436
	S	50TH AVE	CVAG	1/30/2004	Friday	23194
	N	52ND AVE	CVAG	1/30/2004	Friday	20371
	S	AIRPORT BLVD	CVAG	1/6/2004	Tuesday	8902
	N	AIRPORT BLVD	CVAG	1/6/2004	Tuesday	9506
HARVEST WY	E	BUNDY CANYON RD		3/14/2007	Wednesday	1588
	E	BUNDY CANYON RD		2/15/2006	Wednesday	3603
	E	BUNDY CANYON RD		3/24/2004	Wednesday	2812
HARVILL AVE	N	PLACENTIA ST		6/17/2010	Thursday	7545
	S	ORANGE AVE	CENSUS	4/1/2009	Wednesday	4978
	S	MARKHAM ST	CENSUS	3/31/2009	Tuesday	1450
	N	PLACENTIA ST	CENSUS	3/31/2009	Tuesday	8743
	N	CAJALCO EXPY	CENSUS	3/31/2009	Tuesday	4696
	S	CAJALCO EXPY	CENSUS	3/31/2009	Tuesday	7392
	N	MARKHAM ST		5/15/2008	Thursday	3206
	S	MARKHAM ST		5/15/2008	Thursday	2144
	S	ORANGE AVE		11/11/2004	Thursday	4577
	N	CAJALCO EXPY		11/2/2004	Tuesday	4507
	S	CAJALCO EXPY		10/28/2004	Thursday	8528
	S	MARKHAM ST		10/20/2004	Wednesday	3721

LOCATION	DIR	X-STREET	NOTE	DATE	DAY	ADT
HARVILL LN	S	MAGNOLIA AVE		3/29/2005	Tuesday	860
	S	MAGNOLIA AVE		5/7/2004	Friday	855
HAUN RD	N	SCOTT RD	CENSUS	5/6/2009	Wednesday	7849
	S	NEWPORT RD	CENSUS	5/6/2009	Wednesday	7380
	N	SCOTT RD		12/14/2004	Tuesday	4851
	S	NEWPORT RD		11/11/2004	Thursday	2089
HAVEN VIEW DR	N	EL PALOMINO DR		9/23/2010	Thursday	1637
	S	EL PALOMINO DR		9/23/2010	Thursday	1717
	N	EL PALOMINO DR		7/2/2004	Friday	1674
	S	EL PALOMINO DR		7/1/2004	Thursday	1405
HEMET ST	S	MAYBERRY AVE	CENSUS	5/14/2009	Thursday	990
	S	THORNTON AVE	CENSUS	5/13/2009	Wednesday	678
	N	THORNTON AVE		8/9/2007	Thursday	607
	N	CARNEGIE AVE		8/9/2007	Thursday	523
	N	THORNTON AVE		1/18/2006	Wednesday	795
	S	THORNTON AVE		1/18/2006	Wednesday	636
	S	THORNTON AVE		12/7/2004	Tuesday	566
	S	MAYBERRY AVE		11/30/2004	Tuesday	818
HIBISCUS AVE	E	RUSSEL AVE		3/3/2010	Wednesday	445
	W	RUSSEL AVE		3/3/2010	Wednesday	537
	E	RIDGEWAY AVE		9/18/2008	Thursday	1192
	E	RIDGEWAY AVE		4/3/2008	Thursday	608
	E	RUSSEL AVE		9/30/2004	Thursday	832
	E	RIDGEWAY AVE		9/30/2004	Thursday	1112
HIDDEN RIVER RD	E	WASHINGTON ST		4/26/2006	Wednesday	701
HIDDEN SPRINGS RD	N	CLINTON KEITH RD	CENSUS	5/7/2009	Thursday	16401
	N	CLINTON KEITH RD		8/16/2007	Thursday	6993
	N	CLINTON KEITH RD		12/1/2004	Wednesday	15078
HIGH VISTA DR	S	AULD RD		9/7/2005	Wednesday	1155
HIGHGROVE PL	E	LA CADENA DR E	CENSUS	4/7/2009	Tuesday	9277
	E	LA CADENA DR E		12/2/2004	Thursday	9097
HIGHLAND SPRINGS AVE	S	BROOKSIDE AVE	CENSUS	5/12/2009	Tuesday	8170
	N	BROOKSIDE AVE	CENSUS	5/7/2009	Thursday	2641
	N	BROOKSIDE AV		12/16/2004	Thursday	2108
	S	BROOKSIDE AVE		12/16/2004	Thursday	6869
HOBSON WY	W	DE FRAIN BLVD		9/30/2009	Wednesday	3916
	E	DE FRAIN BLVD		9/30/2009	Wednesday	3853
HOLLAND RD	E	ANTELOPE RD	CENSUS	5/13/2009	Wednesday	4223

LOCATION	DIR	X-STREET	NOTE	DATE	DAY	ADT
HOLLAND RD	E	BRADLEY RD	CENSUS	5/6/2009	Wednesday	5268
	W	BRADLEY RD		3/27/2008	Thursday	2432
	E	HANOVER LN		1/23/2008	Wednesday	1907
	W	HANOVER LN		1/23/2008	Wednesday	2149
	E	GEARY ST		4/12/2005	Tuesday	584
	W	MURRIETA RD		3/16/2005	Wednesday	451
	E	MURRIETA RD		3/16/2005	Wednesday	581
	W	MURRIETA RD		1/18/2005	Tuesday	955
	E	MURRIETA RD		1/18/2005	Tuesday	1586
	W	BRADLEY RD		12/14/2004	Tuesday	1792
	E	BRADLEY RD		12/14/2004	Tuesday	3332
	E	ANTELOPE RD		12/8/2004	Wednesday	3426
HOLMES AVE	W	SMITH AVE	CENSUS	2/10/2009	Tuesday	1901
	W	ETIWANDA AVE	CENSUS	2/10/2009	Tuesday	3880
	E	ETIWANDA AVE		1/20/2005	Thursday	759
	W	ETIWANDA AVE		1/20/2005	Thursday	4536
	E	WINEVILLE RD		1/20/2005	Thursday	2951
	E	WINEVILLE AVE		1/12/2005	Wednesday	1641
HOME AVE	N	66TH AVE		5/11/2005	Wednesday	1097
HORSETHEIF CANYON RD	S	TEMESCAL CANYON RD	CENSUS	4/9/2009	Thursday	6912
	S	DE PALMA RD	CENSUS	4/9/2009	Thursday	11516
HORSETHIEF CANYON RD	S	COLT DR		5/4/2009	Monday	4248
	N	COLT DR		5/4/2009	Monday	4949
	S	COLT DR		5/3/2009	Sunday	3645
	N	COLT DR		5/3/2009	Sunday	4461
	N	COLT DR		5/2/2009	Saturday	5540
	S	COLT DR		5/2/2009	Saturday	4707
	S	COLT DR		5/1/2009	Friday	4638
	N	COLT DR		5/1/2009	Friday	5371
	S	COLT DR		4/27/2008	Sunday	3066
	N	COLT DR		4/27/2008	Sunday	3873
	S	COLT DR		4/26/2008	Saturday	4220
	N	COLT DR		4/26/2008	Saturday	4861
	S	COLT DR		4/25/2008	Friday	4187
	N	COLT DR		4/25/2008	Friday	4885
	S	DE PALMA RD		11/16/2004	Tuesday	9250
	S	TEMESCAL CANYON RD		11/16/2004	Tuesday	5570
HOSTETLER RD	W	TEMESCAL CANYON RD		12/7/2004	Tuesday	2431

LOCATION	DIR	X-STREET	NOTE	DATE	DAY	ADT
HOSTETTLER RD	W	TEMESCAL CANYON RD	CENSUS	4/9/2009	Thursday	2891
HUDSON ST	N	LIMONITE AVE		1/16/2008	Wednesday	336
HUNT RD	W	LAWSON RD		1/22/2004	Thursday	1327
HUNTER ST	S	HASTINGS BLV		9/23/2010	Thursday	1129
	N	HASTINGS BLV		9/23/2010	Thursday	851
	N	HASTINGS BLV		9/22/2010	Wednesday	811
	S	HASTINGS BLV		9/22/2010	Wednesday	1027
INDIAN AVE	N	DILLON RD	CVAG	1/30/2010	Saturday	8120
	N	MISSION LAKES BLVD	CVAG	1/30/2010	Saturday	5291
	N	PIERSON BLVD	CVAG	1/30/2010	Saturday	6437
	S	20TH AVE	CVAG	1/30/2010	Saturday	15779
	N	20TH AVE	CVAG	1/30/2010	Saturday	14846
	S	DILLON RD	CVAG	1/30/2010	Saturday	13326
	S	20TH AVE	CVAG	3/2/2009	Monday	15364
	S	DILLON RD	CVAG	3/2/2009	Monday	12811
	N	PIERSON BLVD	CVAG	3/2/2009	Monday	6200
	N	MISSION LAKES BLVD	CVAG	3/2/2009	Monday	4824
	N	DILLON RD	CVAG	3/2/2009	Monday	8042
	N	20TH AVE	CVAG	3/2/2009	Monday	14218
	N	MISSION LAKES BLVD	CVAG	3/8/2008	Saturday	5703
	S	DILLON RD	CVAG	3/6/2008	Thursday	15240
	N	DILLON RD	CVAG	3/6/2008	Thursday	8143
	S	20TH AVE	CVAG	3/6/2008	Thursday	17965
	N	20TH AVE	CVAG	3/6/2008	Thursday	15059
	N	PIERSON BLVD	CVAG	3/6/2008	Thursday	7074
	N	DILLON RD	CVAG	1/30/2007	Tuesday	8314
	N	20TH AVE	CVAG	1/30/2007	Tuesday	15934
	S	20TH AVE	CVAG	1/30/2007	Tuesday	18951
	N	MISSION LAKES BLVD	CVAG	1/30/2007	Tuesday	5626
	S	DILLON RD	CVAG	1/30/2007	Tuesday	13647
	N	PIERSON BLVD	CVAG	1/30/2007	Tuesday	6925
	N	PIERSON BLVD		9/14/2006	Thursday	3056
	S	PIERSON BLVD		9/14/2006	Thursday	4508
	N	MISSION LAKES BLVD	CVAG	3/8/2006	Wednesday	6469
	N	PIERSON BLVD	CVAG	3/7/2006	Tuesday	6986
	N	20TH AVE	CVAG	3/6/2006	Monday	14635
	S	DILLON RD	CVAG	3/6/2006	Monday	11693
	S	20TH AVE	CVAG	3/6/2006	Monday	15670

LOCATION	DIR	X-STREET	NOTE	DATE	DAY	ADT
INDIAN AVE	N	DILLON RD	CVAG	3/6/2006	Monday	7959
	N	20TH AVE	CVAG	3/30/2005	Wednesday	13162
	S	20TH AVE	CVAG	3/30/2005	Wednesday	15321
	N	DILLON RD	CVAG	3/30/2005	Wednesday	7856
	S	DILLON RD	CVAG	3/29/2005	Tuesday	9057
	N	PIERSON BLVD	CVAG	1/18/2005	Tuesday	5611
	N	MISSION LAKES BLVD	CVAG	1/18/2005	Tuesday	4905
	N	DILLON RD		11/23/2004	Tuesday	8865
	N	20TH AVE		11/23/2004	Tuesday	14652
	N	20TH AVE	CVAG	1/30/2004	Friday	15438
	N	DILLON RD	CVAG	1/21/2004	Wednesday	10088
	S	20TH AVE	CVAG	1/21/2004	Wednesday	16641
	S	DILLON RD	CVAG	1/21/2004	Wednesday	15438
INDIAN CANYON DR	S	ALEJO RD	CVAG	1/30/2010	Saturday	12834
	S	TACHEVAH DR	CVAG	1/30/2010	Saturday	14289
	S	RAMON RD	CVAG	1/30/2010	Saturday	11720
	N	RAMON RD	CVAG	1/30/2010	Saturday	13556
	N	RACQUET CLUB RD	CVAG	1/30/2010	Saturday	14320
	S	VISTA CHINO	CVAG	1/30/2010	Saturday	17151
	N	VISTA CHINO	CVAG	1/30/2010	Saturday	14581
	N	RAMON RD	CVAG	3/2/2009	Monday	13918
	S	ALEJO RD	CVAG	3/2/2009	Monday	13469
	S	RAMON RD	CVAG	3/2/2009	Monday	12327
	N	RACQUET CLUB RD	CVAG	3/2/2009	Monday	15294
	S	TACHEVAH DR	CVAG	3/2/2009	Monday	15851
	S	VISTA CHINO	CVAG	3/2/2009	Monday	18112
	N	VISTA CHINO	CVAG	3/2/2009	Monday	16283
	S	RAMON RD	CVAG	1/30/2008	Wednesday	12945
	S	VISTA CHINO	CVAG	1/30/2008	Wednesday	19058
	S	ALEJO RD	CVAG	1/30/2008	Wednesday	14485
	S	TACHEVAH DR	CVAG	1/30/2008	Wednesday	16490
	N	RACQUET CLUB RD	CVAG	1/30/2008	Wednesday	17019
	N	VISTA CHINO	CVAG	1/30/2008	Wednesday	15931
	N	RAMON RD	CVAG	1/30/2008	Wednesday	15143
	S	TACHEVAH DR	CVAG	1/30/2007	Tuesday	16879
	S	VISTA CHINO	CVAG	1/30/2007	Tuesday	19411
	N	RACQUET CLUB RD	CVAG	1/30/2007	Tuesday	16615
	N	RAMON RD	CVAG	1/30/2007	Tuesday	15846

LOCATION	DIR	X-STREET	NOTE	DATE	DAY	ADT
INDIAN CANYON DR	S	RAMON RD	CVAG	1/30/2007	Tuesday	11806
	N	VISTA CHINO	CVAG	1/30/2007	Tuesday	16028
	S	ALEJO RD	CVAG	1/30/2007	Tuesday	15125
	S	VISTA CHINO	CVAG	1/30/2006	Monday	20839
	N	VISTA CHINO	CVAG	1/30/2006	Monday	17338
	S	RAMON RD	CVAG	1/30/2006	Monday	12806
	S	ALEJO RD	CVAG	1/30/2006	Monday	18068
	N	RAMON RD	CVAG	1/30/2006	Monday	18089
	N	RACQUET CLUB RD	CVAG	1/30/2006	Monday	17874
	S	TACHEVAH DR	CVAG	1/30/2006	Monday	18742
	N	RACQUET CLUB RD	CVAG	1/30/2005	Sunday	16591
	S	VISTA CHINO	CVAG	1/30/2005	Sunday	16473
	S	ALEJO RD	CVAG	1/30/2005	Sunday	12563
	N	RAMON RD	CVAG	1/30/2005	Sunday	18666
	S	RAMON RD	CVAG	1/30/2005	Sunday	13987
	S	TACHEVAH DR	CVAG	1/30/2005	Sunday	14958
	N	VISTA CHINO	CVAG	1/30/2005	Sunday	17198
	S	VISTA CHINO	CVAG	1/30/2004	Friday	23305
	N	VISTA CHINO	CVAG	1/30/2004	Friday	19463
	S	TACHEVAH DR	CVAG	1/30/2004	Friday	18250
	S	RAMON RD	CVAG	1/30/2004	Friday	14013
	N	RAMON RD	CVAG	1/30/2004	Friday	16135
	S	ALEJO RD	CVAG	1/30/2004	Friday	15311
	N	RACQUET CLUB RD	CVAG	1/30/2004	Friday	21379
INDIAN CANYON DR N	S	I-10	CVAG	1/30/2010	Saturday	14517
	S	I-10	CVAG	3/2/2009	Monday	15209
	S	I-10	CVAG	1/30/2008	Wednesday	14219
	S	I-10	CVAG	1/30/2007	Tuesday	16935
	S	I-10	CVAG	1/30/2006	Monday	18978
	S	I-10	CVAG	10/1/2005	Saturday	22666
	S	I-10	CVAG	3/1/2005	Tuesday	14820
	S	I-10	CVAG	1/30/2004	Friday	26567
INDIAN TRUCK TR	W	DE PALMA RD	CENSUS	4/9/2009	Thursday	10346
	S	DE PALMA RD		10/13/2004	Wednesday	1819
INDIANA AVE	E	LINCOLN ST	CENSUS	4/7/2009	Tuesday	6368
	W	LINCOLN ST	CENSUS	4/7/2009	Tuesday	5763
	S	BARKER LN	CENSUS	4/7/2009	Tuesday	2405
	S	BARKER LN		11/2/2004	Tuesday	2477

LOCATION	DIR	X-STREET	NOTE	DATE	DAY	ADT
INDIANA AVE	E	LINCOLN ST		10/5/2004	Tuesday	6563
	W	LINCOLN ST		10/5/2004	Tuesday	5923
INDIO BLVD	E	MONROE ST	CVAG	1/30/2010	Saturday	18649
	E	VAN BUREN ST	CVAG	1/30/2010	Saturday	18598
	E	SH-111	CVAG	1/30/2010	Saturday	23182
	E	JACKSON ST	CVAG	1/30/2010	Saturday	19006
	E	JEFFERSON ST	CVAG	1/30/2010	Saturday	19142
	E	VAN BUREN ST	CVAG	3/2/2009	Monday	17424
	E	SH-111	CVAG	3/2/2009	Monday	22856
	E	SR 111	CVAG	3/2/2009	Monday	22856
	E	MONROE ST	CVAG	3/2/2009	Monday	19303
	E	JEFFERSON ST	CVAG	3/2/2009	Monday	19637
	E	JACKSON ST	CVAG	3/2/2009	Monday	18549
	E	SH-111	CVAG	1/30/2008	Wednesday	22237
	E	JEFFERSON ST	CVAG	1/30/2008	Wednesday	19982
	E	VAN BUREN ST	CVAG	1/30/2008	Wednesday	20121
	E	MONROE ST	CVAG	1/30/2008	Wednesday	19456
	E	JACKSON ST	CVAG	1/30/2008	Wednesday	17293
	E	JEFFERSON ST	CVAG	1/30/2007	Tuesday	21883
	E	VAN BUREN ST	CVAG	1/30/2007	Tuesday	21208
	E	MONROE ST	CVAG	1/30/2007	Tuesday	25441
	E	JACKSON ST	CVAG	1/30/2007	Tuesday	18653
	E	SH-111	CVAG	1/30/2007	Tuesday	25874
	E	VAN BUREN ST	CVAG	1/30/2006	Monday	24315
	E	JACKSON ST	CVAG	1/30/2006	Monday	17518
	E	JEFFERSON ST	CVAG	1/30/2006	Monday	19658
	E	SH-111	CVAG	1/30/2006	Monday	25071
	E	MONROE ST	CVAG	1/30/2006	Monday	21008
	E	MONROE ST	CVAG	10/1/2005	Saturday	25617
	E	MONROE ST	CVAG	3/1/2005	Tuesday	19447
	E	JEFFERSON ST	CVAG	1/30/2005	Sunday	21314
	E	JACKSON ST	CVAG	1/30/2005	Sunday	19742
	E	VAN BUREN ST	CVAG	1/30/2005	Sunday	23809
	E	SH-111	CVAG	1/30/2005	Sunday	24125
	E	JACKSON ST	CVAG	1/30/2004	Friday	23365
	E	JEFFERSON ST	CVAG	1/30/2004	Friday	17736
	E	MONROE ST	CVAG	1/30/2004	Friday	20921
	E	VAN BUREN ST	CVAG	1/30/2004	Friday	22947

LOCATION	DIR	X-STREET	NOTE	DATE	DAY	ADT
INDIO BLVD	E	SH-111	CVAG	1/30/2004	Friday	28798
INTAKE BLVD	S	SEELEY AVE	CENSUS	6/16/2009	Tuesday	519
	S	SEELEY AVE		11/17/2004	Wednesday	631
IODINE SPRINGS RD	N	CLINTON KEITH RD		5/7/2008	Wednesday	972
	N	LA ESTRELLA RD		4/18/2006	Tuesday	1245
	S	LA ESTRELLA RD		4/18/2006	Tuesday	2144
IOWA AVE	N	CHURCH ST	CENSUS	4/7/2009	Tuesday	12815
	S	CENTER ST	CENSUS	4/7/2009	Tuesday	11084
	N	SPRING ST	CENSUS	4/7/2009	Tuesday	12703
	S	MAIN ST	CENSUS	4/7/2009	Tuesday	15891
	N	CITRUS ST		4/6/2008	Sunday	3227
	S	W SPRING ST		4/6/2008	Sunday	2769
	N	CITRUS ST		4/5/2008	Saturday	3863
	S	W SPRING ST		4/5/2008	Saturday	3584
	N	CITRUS ST		4/4/2008	Friday	7934
	S	W SPRING ST		4/4/2008	Friday	7312
	S	W SPRING ST		4/3/2008	Thursday	7322
	N	CITRUS ST		4/3/2008	Thursday	7479
	N	CITRUS ST		4/2/2008	Wednesday	7458
	S	W SPRING ST		4/2/2008	Wednesday	7090
	N	CITRUS ST		4/1/2008	Tuesday	7433
	S	W SPRING ST		4/1/2008	Tuesday	7213
	S	W SPRING ST		3/31/2008	Monday	6780
	N	CITRUS ST		3/31/2008	Monday	6818
JACKSON	S	SR 111	CVAG	1/26/2009	Monday	13413
	N	SR 111	CVAG	1/26/2009	Monday	14848
JACKSON ST	S	AIRPORT BLVD (56TH AVE)	CVAG	1/30/2010	Saturday	2326
	N	AIRPORT BLVD (56TH AVE)	CVAG	1/30/2010	Saturday	3338
	S	I-10	CVAG	1/30/2010	Saturday	13264
	S	50TH AVE	CVAG	1/30/2010	Saturday	8895
	S	40TH AVE	CVAG	1/30/2010	Saturday	1226
	S	DR CARREON BLVD (47TH AV	CVAG	1/30/2010	Saturday	14810
	S	58TH AVE	CVAG	1/30/2010	Saturday	1734
	N	SH-111	CVAG	1/30/2010	Saturday	14957
	S	SH-111	CVAG	1/30/2010	Saturday	17225
	N	I-10	CVAG	1/30/2010	Saturday	18951
	N	42ND AVE	CVAG	1/30/2010	Saturday	6667
	S	60TH AVE	CVAG	1/30/2010	Saturday	1569

LOCATION	DIR	X-STREET	NOTE	DATE	DAY	ADT
JACKSON ST	S	48TH AVE	CVAG	1/30/2010	Saturday	13600
	S	60TH AVE	CENSUS	6/4/2009	Thursday	1766
	S	AIRPORT BLVD (56TH AVE)	CENSUS	6/4/2009	Thursday	2716
	S	62ND AVE	CENSUS	6/4/2009	Thursday	1554
	N	AIRPORT BLVD (56TH AVE)	CENSUS	6/3/2009	Wednesday	3421
	S	52ND AVE	CENSUS	5/12/2009	Tuesday	4095
	N	I-10	CVAG	1/26/2009	Monday	17861
	S	48TH AVE	CVAG	1/26/2009	Monday	13432
	S	I-10	CVAG	1/26/2009	Monday	13840
	S	50TH AVE	CVAG	1/26/2009	Monday	10663
	N	42ND AVE	CVAG	1/26/2009	Monday	5827
	S	40TH AVE	CVAG	1/26/2009	Monday	1421
	S	SH-111	CVAG	1/26/2009	Monday	13413
	N	SH-111	CVAG	1/26/2009	Monday	14848
	S	DR CARREON BLVD (47TH AV	CVAG	1/26/2009	Monday	14639
	N	AIRPORT BLVD (56TH AVE)	CVAG	1/21/2009	Wednesday	4030
	S	AIRPORT BLVD (56TH AVE)	CVAG	1/21/2009	Wednesday	2710
	S	58TH AVE	CVAG	1/20/2009	Tuesday	1773
	S	60TH AVE	CVAG	1/20/2009	Tuesday	1411
	S	DR CARREON BLVD (47TH AV	CVAG	1/30/2008	Wednesday	13176
	S	I-10	CVAG	1/30/2008	Wednesday	11520
	S	SH-111	CVAG	1/30/2008	Wednesday	16528
	N	42ND AVE	CVAG	1/30/2008	Wednesday	6560
	N	I-10	CVAG	1/30/2008	Wednesday	9989
	S	40TH AVE	CVAG	1/30/2008	Wednesday	1119
	N	SH-111	CVAG	1/30/2008	Wednesday	13700
	S	48TH AVE	CVAG	1/30/2008	Wednesday	12480
	S	50TH AVE	CVAG	1/15/2008	Tuesday	9470
	S	AIRPORT BLVD (56TH AVE)	CVAG	1/9/2008	Wednesday	2477
	N	AIRPORT BLVD (56TH AVE)	CVAG	1/9/2008	Wednesday	3545
	S	58TH AVE	CVAG	1/9/2008	Wednesday	1721
	S	60TH AVE	CVAG	1/8/2008	Tuesday	1649
	S	DR CARREON BLVD (47TH AV	CVAG	1/30/2007	Tuesday	29355
	S	48TH AVE	CVAG	1/30/2007	Tuesday	14150
	S	50TH AVE	CVAG	1/30/2007	Tuesday	5941
	N	AIRPORT BLVD (56TH AVE)	CVAG	1/30/2007	Tuesday	3384
	S	SH-111	CVAG	1/30/2007	Tuesday	29355
	S	AIRPORT BLVD (56TH AVE)	CVAG	1/30/2007	Tuesday	2490

LOCATION	DIR	X-STREET	NOTE	DATE	DAY	ADT
JACKSON ST	S	60TH AVE	CVAG	1/30/2007	Tuesday	1843
	N	SH-111	CVAG	1/30/2007	Tuesday	17787
	S	52ND AVE	CVAG	1/30/2007	Tuesday	4331
	S	40TH AVE	CVAG	1/30/2007	Tuesday	1419
	S	I-10	CVAG	1/30/2007	Tuesday	14847
	S	58TH AVE	CVAG	1/30/2007	Tuesday	1811
	S	AIRPORT BLVD (56TH AVE)	CVAG	1/30/2006	Monday	2665
	S	SH-111	CVAG	1/30/2006	Monday	17210
	S	I-10	CVAG	1/30/2006	Monday	10653
	S	DR CARREON BLVD (47TH AV	CVAG	1/30/2006	Monday	11415
	N	AIRPORT BLVD (56TH AVE)	CVAG	1/30/2006	Monday	3361
	N	SH-111	CVAG	1/30/2006	Monday	17907
	S	40TH AVE	CVAG	1/30/2006	Monday	1546
	S	48TH AVE	CVAG	1/30/2006	Monday	11227
	S	50TH AVE	CVAG	1/23/2006	Monday	8505
	N	AIRPORT BLVD (56TH AVE)	CVAG	1/12/2006	Thursday	3361
	S	AIRPORT BLVD (56TH AVE)	CVAG	1/12/2006	Thursday	2665
	S	60TH AVE	CVAG	1/11/2006	Wednesday	2251
	S	58TH AVE	CVAG	1/11/2006	Wednesday	2189
	S	SH-111	CVAG	10/1/2005	Saturday	22875
	S	SH-111	CVAG	3/1/2005	Tuesday	19173
	N	AIRPORT BLVD (56TH AVE)	CVAG	1/31/2005	Monday	3533
	S	50TH AVE	CVAG	1/31/2005	Monday	8059
	S	58TH AVE	CVAG	1/31/2005	Monday	2174
	S	AIRPORT BLVD (56TH AVE)	CVAG	1/31/2005	Monday	2602
	S	60TH AVE	CVAG	1/31/2005	Monday	2307
	N	SH-111	CVAG	1/30/2005	Sunday	19427
	S	I-10	CVAG	1/30/2005	Sunday	10118
	S	48TH AVE	CVAG	1/30/2005	Sunday	11234
	S	SH-111	CVAG	1/30/2005	Sunday	22875
	S	DR CARREON BLVD (47TH AV	CVAG	1/30/2005	Sunday	14301
	S	AIRPORT BLVD (56TH AVE)		12/16/2004	Thursday	2330
	S	62ND AVE		12/16/2004	Thursday	2100
	S	60TH AVE		12/16/2004	Thursday	1916
	S	52ND AVE		12/15/2004	Wednesday	4695
	S	SH-111	CVAG	1/30/2004	Friday	23152
	S	60TH AVE	CVAG	1/30/2004	Friday	1899
	S	40TH AVE	CVAG	1/30/2004	Friday	4556

LOCATION	DIR	X-STREET	NOTE	DATE	DAY	ADT
JACKSON ST	S	AIRPORT BLVD (56TH AVE)	CVAG	1/30/2004	Friday	3316
	S	I-10	CVAG	1/30/2004	Friday	8470
	N	SH-111	CVAG	1/30/2004	Friday	13008
	N	AIRPORT BLVD (56TH AVE)	CVAG	1/30/2004	Friday	3531
	S	58TH AVE	CVAG	1/30/2004	Friday	2137
JAMESON RD	N	DAFFODIL DR		6/24/2010	Thursday	777
	N	DAFFODIL DR		4/28/2004	Wednesday	426
JEFFERSON ST	S	INDIO BLVD	CVAG	1/30/2010	Saturday	21231
	N	FRED WARING DR	CVAG	1/30/2010	Saturday	20913
	S	FRED WARING DR	CVAG	1/30/2010	Saturday	23764
	S	42ND AVE	CVAG	1/30/2010	Saturday	11797
	N	I-10	CVAG	1/30/2010	Saturday	13202
	S	40TH AVE	CVAG	1/30/2010	Saturday	5848
	N	SH-111	CVAG	1/30/2010	Saturday	27112
	S	SH-111	CVAG	1/30/2010	Saturday	26889
	S	52ND AVE	CVAG	1/30/2010	Saturday	12399
	S	50TH AVE	CVAG	1/30/2010	Saturday	16169
	N	40TH AVE	CVAG	1/30/2010	Saturday	5154
	S	48TH AVE	CVAG	1/30/2010	Saturday	27133
	N	38TH AVE	CVAG	1/30/2010	Saturday	3071
	S	MILES AVE	CVAG	1/30/2010	Saturday	21036
	S	SH-111	CVAG	2/3/2009	Tuesday	28779
	N	SH-111	CVAG	2/3/2009	Tuesday	25988
	S	50TH AVE	CVAG	2/3/2009	Tuesday	16379
	S	40TH AVE	CVAG	2/3/2009	Tuesday	5248
	S	42ND AVE	CVAG	2/3/2009	Tuesday	10999
	S	FRED WARING DR	CVAG	2/3/2009	Tuesday	22343
	S	48TH AVE	CVAG	2/3/2009	Tuesday	25705
	N	38TH AVE	CVAG	2/3/2009	Tuesday	2976
	S	52ND AVE	CVAG	2/3/2009	Tuesday	15066
	S	INDIO BLVD	CVAG	2/3/2009	Tuesday	20286
	N	40TH AVE	CVAG	2/3/2009	Tuesday	2976
	S	MILES AVE	CVAG	2/3/2009	Tuesday	23101
	N	I-10	CVAG	2/3/2009	Tuesday	12390
	S	42ND AVE	CVAG	1/30/2008	Wednesday	11283
	S	48TH AVE	CVAG	1/30/2008	Wednesday	28891
	S	40TH AVE	CVAG	1/30/2008	Wednesday	5609
	N	SH-111	CVAG	1/30/2008	Wednesday	24942

LOCATION	DIR	X-STREET	NOTE	DATE	DAY	ADT
JEFFERSON ST	S	FRED WARING DR	CVAG	1/30/2008	Wednesday	23477
	N	I-10	CVAG	1/30/2008	Wednesday	13482
	S	INDIO BLVD	CVAG	1/30/2008	Wednesday	20778
	S	MILES AVE	CVAG	1/30/2008	Wednesday	23851
	S	SH-111	CVAG	1/30/2008	Wednesday	23479
	S	52ND AVE	CVAG	1/30/2008	Wednesday	14004
	N	38TH AVE	CVAG	1/30/2008	Wednesday	3245
	S	50TH AVE	CVAG	1/30/2008	Wednesday	19650
	N	40TH AVE	CVAG	1/29/2008	Tuesday	4039
	S	FRED WARING DR	CVAG	1/30/2007	Tuesday	26793
	S	INDIO BLVD	CVAG	1/30/2007	Tuesday	22820
	S	52ND AVE	CVAG	1/30/2007	Tuesday	19130
	S	SH-111	CVAG	1/30/2007	Tuesday	25782
	S	50TH AVE	CVAG	1/30/2007	Tuesday	23269
	N	40TH AVE	CVAG	1/30/2007	Tuesday	3496
	S	48TH AVE	CVAG	1/30/2007	Tuesday	31083
	N	FRED WARING DR	CVAG	1/30/2007	Tuesday	24934
	N	SH-111	CVAG	1/30/2007	Tuesday	24934
	N	I-10	CVAG	1/30/2007	Tuesday	19835
	N	40TH AVE	CVAG	1/31/2006	Tuesday	3646
	S	INDIO BLVD	CVAG	1/30/2006	Monday	13967
	S	SH-111	CVAG	1/30/2006	Monday	19584
	N	FRED WARING DR	CVAG	1/30/2006	Monday	12535
	S	52ND AVE	CVAG	1/30/2006	Monday	15936
	N	I-10	CVAG	1/30/2006	Monday	9044
	N	SH-111	CVAG	1/30/2006	Monday	7674
	S	50TH AVE	CVAG	1/30/2006	Monday	18034
	S	FRED WARING DR	CVAG	1/30/2006	Monday	10258
	S	48TH AVE	CVAG	1/30/2006	Monday	28045
	S	SH-111	CVAG	10/1/2005	Saturday	28571
	S	SH-111	CVAG	3/1/2005	Tuesday	28571
	N	40TH AVE	CVAG	2/8/2005	Tuesday	1402
	S	48TH AVE	CVAG	1/30/2005	Sunday	26994
	S	FRED WARING DR	CVAG	1/30/2005	Sunday	14398
	N	SH-111	CVAG	1/30/2005	Sunday	16205
	S	50TH AVE	CVAG	1/30/2005	Sunday	18564
	S	INDIO BLVD	CVAG	1/30/2005	Sunday	16639
	N	I-10	CVAG	1/30/2005	Sunday	6005

LOCATION	DIR	X-STREET	NOTE	DATE	DAY	ADT
JEFFERSON ST	S	52ND AVE	CVAG	1/30/2005	Sunday	17295
	N	FRED WARING DR	CVAG	1/30/2005	Sunday	24037
	S	50TH AVE	CVAG	1/30/2004	Friday	16488
	S	52ND AVE	CVAG	1/30/2004	Friday	19842
	S	SH-111	CVAG	1/30/2004	Friday	23265
	N	I-10	CVAG	1/30/2004	Friday	7966
	S	48TH AVE	CVAG	1/30/2004	Friday	32926
	S	INDIO BLVD	CVAG	1/30/2004	Friday	14875
	S	FRED WARING DR	CVAG	1/30/2004	Friday	18101
	N	SH-111	CVAG	1/30/2004	Friday	16143
	N	FRED WARING DR	CVAG	1/15/2004	Thursday	23799
JOHNSON ST	S	REBECA RD		1/13/2010	Wednesday	3053
	N	PLONSKI RD		1/13/2010	Wednesday	1613
	S	66TH AVE	CENSUS	6/11/2009	Thursday	1587
	N	66TH AVE		5/11/2005	Wednesday	2134
	S	66TH AVE		5/11/2005	Wednesday	1683
	S	66TH AVE		12/15/2004	Wednesday	1232
JOHNSTON AVE	E	CORNELL ST	CENSUS	5/14/2009	Thursday	1482
	E	CORNELL ST		11/30/2004	Tuesday	1207
JOHNSTON ST	E	SOBOBA RD		4/2/2006	Sunday	403
JUNIPER FLATS RD	W	REGENCY RD	CENSUS	5/12/2009	Tuesday	1805
	S	STAGE COACH RD	CENSUS	5/12/2009	Tuesday	2680
	N	SH-74	CENSUS	5/12/2009	Tuesday	2905
	W	REGENCY RD		12/9/2004	Thursday	1412
	S	STAGECOACH RD		12/9/2004	Thursday	2405
	N	SH-74		12/2/2004	Thursday	2297
JURUPA RD	S	BELLEGRAVE AVE		6/9/2009	Tuesday	1605
	E	VAN BUREN BLVD	CENSUS	4/2/2009	Thursday	12815
	E	FELSPAR ST	CENSUS	4/2/2009	Thursday	13260
	W	VAN BUREN BLVD	CENSUS	4/2/2009	Thursday	5747
	E	VALLEY WAY	CENSUS	2/19/2009	Thursday	4620
	E	ETIWANDA AVE	CENSUS	2/18/2009	Wednesday	6579
	W	ETIWANDA AVE	CENSUS	2/18/2009	Wednesday	4788
	E	BEACH ST	CENSUS	2/18/2009	Wednesday	6307
	W	BAIN ST	CENSUS	2/18/2009	Wednesday	5571
	W	MISSION BLVD	CENSUS	2/4/2009	Wednesday	4337
	W	CAMINO REAL	CENSUS	2/4/2009	Wednesday	6753
	W	PEDLEY RD		4/17/2008	Thursday	3529

LOCATION	DIR	X-STREET	NOTE	DATE	DAY	ADT
JURUPA RD	E	PEDLEY RD		4/17/2008	Thursday	3482
	N	VAN BUREN BLVD	RRX	10/16/2007	Tuesday	11767
	S	BELLEGRAVE AVE		9/19/2007	Wednesday	1713
	E	DODD ST		3/14/2007	Wednesday	3265
	W	DODD ST		3/14/2007	Wednesday	3255
	S	BELLEGRAVE AVE		3/30/2005	Wednesday	2660
	E	ETIWANDA AVE		11/30/2004	Tuesday	8907
	W	ETIWANDA AVE		11/30/2004	Tuesday	8254
	W	CAMINO REAL		11/17/2004	Wednesday	5860
	S	MISSION BLVD		11/9/2004	Tuesday	1896
	W	BAIN ST		11/9/2004	Tuesday	5682
	W	VAN BUREN BLVD		11/3/2004	Wednesday	6636
	E	VAN BUREN BLVD	RRX	11/3/2004	Wednesday	11629
	E	FELSPAR ST		11/3/2004	Wednesday	7207
	E	BEACH ST		11/3/2004	Wednesday	5925
	E	VALLEY WY		10/19/2004	Tuesday	3933
	W	FELSPAR ST	RRX	8/18/2004	Wednesday	11225
	E	FELSPAR ST		8/18/2004	Wednesday	6649
	W	MARLATT ST		3/24/2004	Wednesday	6856
	E	MARLATT ST		3/24/2004	Wednesday	6722
KAREN LN	S	SANDRA DR		5/20/2008	Tuesday	577
	N	GAIL DR		4/29/2004	Thursday	461
KENNETH ST	S	HASTINGS BLV		9/23/2010	Thursday	1647
	N	HASTINGS BLV		9/23/2010	Thursday	1157
	S	HASTINGS BLV		9/22/2010	Wednesday	1552
	N	HASTINGS BLV		9/22/2010	Wednesday	1200
	N	MISSION BLVD		3/28/2007	Wednesday	1684
	S	BEN NEVIS BLVD		3/28/2007	Wednesday	1149
	N	MISSION BLVD		3/27/2007	Tuesday	1767
	S	BEN NEVIS BLVD		3/27/2007	Tuesday	1132
KIM LN	W	AGATE ST		7/19/2007	Thursday	455
KIMBALL DR	E	RUSHMORE AVE		3/27/2008	Thursday	210
KIRBY RD	N	SH-371	CENSUS	5/19/2009	Tuesday	1459
	S	SH-371	CENSUS	5/19/2009	Tuesday	3718
	S	SH-371		12/8/2004	Wednesday	2781
	N	SH-371		11/9/2004	Tuesday	1084
KNABE RD	N	HUNT RD	CENSUS	4/9/2009	Thursday	3390
	S	WEIRICK RD	CENSUS	4/9/2009	Thursday	13851

LOCATION	DIR	X-STREET	NOTE	DATE	DAY	ADT
KNABE RD	N	CANYON PINES PL		11/5/2008	Wednesday	3393
	S	CANYON PINES PL		11/5/2008	Wednesday	2802
	S	WEIRICK RD		2/7/2006	Tuesday	14354
	N	HUNT RD		1/20/2005	Thursday	4826
	S	WEIRICK RD		11/18/2004	Thursday	12198
KRAMERIA AVE	E	EVERETTS WAY		6/17/2010	Thursday	1715
	W	WASHINGTON ST		3/11/2009	Wednesday	1240
	E	WASHINGTON ST		3/11/2009	Wednesday	1637
KROSS RD	W	WOOD RD		9/18/2008	Thursday	628
	W	WOOD RD		4/3/2008	Thursday	1386
LA CADENA DR	S	VILLA ST	CENSUS	4/7/2009	Tuesday	3128
LA CADENA DR E	S	VILLA ST		9/25/2007	Tuesday	3359
	S	VILLA ST		12/2/2004	Thursday	8086
LA CADENA DR W	N	KLUK LN	CENSUS	6/2/2009	Tuesday	9466
	N	TOLOUSE AVE	CENSUS	4/7/2009	Tuesday	9283
	N	STEPHENS AVE		9/5/2007	Wednesday	3510
	N	TOLOUSE AVE		12/2/2004	Thursday	11365
	N	KLUK LN		12/2/2004	Thursday	8112
LA ESTRELLA RD	E	IODINE SPRINGS RD		4/18/2006	Tuesday	938
	E	SALIDA DEL SOL		4/18/2006	Tuesday	565
	W	IODINE SPRINGS RD		4/18/2006	Tuesday	1298
LA LADERA RD	N	NORMANDY RD	CENSUS	5/5/2009	Tuesday	4731
	N	NEWPORT RD		11/9/2004	Tuesday	5253
LA PIEDRA RD	E	ANTELOPE RD	CENSUS	5/14/2009	Thursday	8693
	E	SHORELINE DR		8/9/2007	Thursday	4344
	E	ANTELOPE RD		12/8/2004	Wednesday	7471
	W	MENIFEE RD		4/21/2004	Wednesday	3814
LA RUE ST	N	SAMANTHA PLACE	CENSUS	2/19/2009	Thursday	1762
	N	SAMANTHA PL		10/21/2004	Thursday	2005
LA SIERRA AVE	S	ORCHARD VIEW LN		8/19/2010	Thursday	9279
	N	ORCHARD VIEW LN		8/19/2010	Thursday	11518
	S	LAKE KNOLL PKY		8/20/2009	Thursday	19537
	S	ORCHARD VIEW LN		8/12/2009	Wednesday	21177
	S	BLACKBURN RD		8/12/2009	Wednesday	12369
	S	VICTORIA AVE		8/12/2009	Wednesday	26913
	S	DUFFERIN AVE	CENSUS	4/8/2009	Wednesday	22126
	N	EL SOBRANTE RD	CENSUS	4/8/2009	Wednesday	11285
	S	EL SOBRANTE RD	CENSUS	4/8/2009	Wednesday	3291

LOCATION	DIR	X-STREET	NOTE	DATE	DAY	ADT
LA SIERRA AVE	S	OLD FASHION WY		1/8/2009	Thursday	21798
	S	OLD FASHION WY		1/29/2008	Tuesday	21904
	S	ORCHARD VIEW LN		10/12/2006	Thursday	9313
	N	ORCHARD VIEW LN		10/12/2006	Thursday	9605
	N	CAJALCO RD		9/20/2005	Tuesday	1311
	N	CAJALCO RD		9/7/2005	Wednesday	2919
	N	EL SOBRANTE RD		10/5/2004	Tuesday	11664
	S	EL SOBRANTE RD		10/5/2004	Tuesday	2750
	S	DUFFERIN AVE		10/5/2004	Tuesday	20432
	N	ORCHARD VIEW LN		1/22/2004	Thursday	18346
	N	LAKE KNOLL PKWY		1/13/2004	Tuesday	17034
	N	EL SOBRANTE RD		1/13/2004	Tuesday	11260
	S	LAKE KNOLL PKWY		1/13/2004	Tuesday	15723
	S	EL SOBRANTE RD		1/13/2004	Tuesday	2159
	S	ORCHARD VIEW LN		1/13/2004	Tuesday	17034
LAKE CREST DR	W	LA SIERRA AVE	CENSUS	4/8/2009	Wednesday	2685
	W	LA SIERRA AVE		10/5/2004	Tuesday	2505
LAKE KNOLL PKWY	W	LA SIERRA AVE		8/4/2009	Tuesday	1998
	W	LA SIERRA AVE	CENSUS	4/8/2009	Wednesday	2209
	W	LA SIERRA AVE		10/5/2004	Tuesday	2103
	W	LA SIERRA AVE		1/13/2004	Tuesday	1930
LAKE MATHEWS DR	W	GAVILAN RD	CENSUS	4/28/2009	Tuesday	955
	S	CAJALCO RD	CENSUS	4/9/2009	Thursday	2770
	W	GAVILAN RD	CENSUS	4/28/2008	Monday	968
	W	GAVILAN RD		10/20/2004	Wednesday	1381
	S	CAJALCO RD		10/14/2004	Thursday	3136
	S	CAJALCO RD		3/11/2004	Thursday	2497
LAKE ST	S	STETSON AVE	CENSUS	5/13/2009	Wednesday	910
	S	WHITTIER AVE	CENSUS	5/12/2009	Tuesday	621
	S	STETSON AVE		8/9/2007	Thursday	669
	S	WHITTIER AVE		8/8/2007	Wednesday	288
	S	STETSON AVE		12/7/2004	Tuesday	880
	S	WHITTIER AVE		11/30/2004	Tuesday	414
	N	STETSON AVE		4/21/2004	Wednesday	295
	S	STETSON AVE		4/21/2004	Wednesday	899
LAKEPOINTE DR	S	INDIANA AVE	CENSUS	4/7/2009	Tuesday	5947
	S	INDIANA AVE		10/5/2004	Tuesday	4739
LAKESIDE DR	W	GREENS DR		4/12/2006	Wednesday	2132

LOCATION	DIR	X-STREET	NOTE	DATE	DAY	ADT
LAKESIDE DR	S	ARROWHEAD DR		5/18/2004	Tuesday	266
	N	ARROWHEAD DR		5/18/2004	Tuesday	1158
	S	LIVE OAK DR		5/18/2004	Tuesday	292
LAKEVIEW AVE	S	RAMONA EXY		6/8/2010	Tuesday	1924
	N	10TH ST	CENSUS	5/19/2009	Tuesday	3754
	N	13TH ST	CENSUS	5/12/2009	Tuesday	9900
	N	10TH ST		12/9/2004	Thursday	4475
	N	13TH ST		12/9/2004	Thursday	8254
LANDAU BLVD	N	VISTA CHINO	CVAG	1/30/2010	Saturday	5080
LANDERVILLE BLVD	N	ANTHONY AVE		5/17/2005	Tuesday	291
LARKSPUR DR	E	TRILOGY PKWY		3/22/2006	Wednesday	1004
	W	TRILOGY PKWY		3/22/2006	Wednesday	1807
	W	TRILOGY PKWY		3/21/2006	Tuesday	1719
	E	TRILOGY PKWY		3/21/2006	Tuesday	880
LAWSON RD	W	TEMESCAL CANYON RD	CENSUS	5/28/2009	Thursday	1866
	W	TEMESCAL CANYON RD		9/19/2007	Wednesday	303
	N	HUNT RD		1/22/2004	Thursday	82
	E	HUNT RD		1/22/2004	Thursday	1361
	E	GUM TREE DR		1/22/2004	Thursday	1546
	W	GUM TREE DR		1/22/2004	Thursday	1245
LAZY CREEK RD	W	BROOKFIELD DR		4/19/2006	Wednesday	2021
LEMON AVE	S	BROOKSIDE AVE		4/17/2007	Tuesday	560
LEMON ST	E	MISSION TR	CENSUS	5/5/2009	Tuesday	3901
	E	MISSION TR		11/30/2004	Tuesday	3110
LEON RD	S	BENTON RD	CENSUS	6/2/2009	Tuesday	49
	S	AULD RD	CENSUS	6/2/2009	Tuesday	635
	S	SCOTT RD	CENSUS	5/19/2009	Tuesday	5756
	N	SH-79	CENSUS	5/14/2009	Thursday	6193
	S	NEER ST		3/26/2008	Wednesday	1873
	S	SIMPSON RD		3/25/2008	Tuesday	438
	S	SCOTT RD		9/15/2004	Wednesday	6149
	N	SH-79		9/14/2004	Tuesday	5614
	S	KELLER RD		3/24/2004	Wednesday	4243
	S	SCOTT RD		3/24/2004	Wednesday	4609
	N	WINCHESTER RD		3/24/2004	Wednesday	4150
LIMA HALL RD	N	42ND AVE		12/8/2009	Tuesday	830
	S	42ND AVE		12/8/2009	Tuesday	828
	S	42ND AVE		12/5/2007	Wednesday	954

LOCATION	DIR	X-STREET	NOTE	DATE	DAY	ADT
LIMA HALL RD	N	42ND AVE		12/5/2007	Wednesday	938
	S	42ND AVE		8/2/2006	Wednesday	843
	N	42ND AVE		8/2/2006	Wednesday	806
	S	42ND AVE		3/3/2005	Thursday	368
	N	42ND AVE		3/3/2005	Thursday	727
LIMONITE AVE	E	BEACH ST		2/2/2010	Tuesday	9550
	W	BEACH ST		2/2/2010	Tuesday	10034
	W	BAIN ST	CENSUS	4/14/2009	Tuesday	20862
	W	ETIWANDA AVE	CENSUS	4/14/2009	Tuesday	21380
	E	ETIWANDA AVE	CENSUS	4/14/2009	Tuesday	22175
	W	CAMINO REAL	CENSUS	2/25/2009	Wednesday	24548
	E	CAMINO REAL	CENSUS	2/25/2009	Wednesday	26535
	W	RIVERVIEW DR	CENSUS	2/19/2009	Thursday	15852
	W	BEACH ST	CENSUS	2/11/2009	Wednesday	19056
	W	COLLINS ST	CENSUS	2/11/2009	Wednesday	20505
	W	HAMNER AVE	CENSUS	2/11/2009	Wednesday	26441
	E	HAMNER AVE	CENSUS	2/11/2009	Wednesday	16081
	W	WINEVILLE AVE	CENSUS	2/10/2009	Tuesday	28345
	E	MORTON AVE	CENSUS	2/3/2009	Tuesday	20339
	E	CLAY ST	CENSUS	2/3/2009	Tuesday	29113
	E	PEDLEY RD	CENSUS	1/21/2009	Wednesday	21275
	W	PEDLEY RD	CENSUS	1/21/2009	Wednesday	20355
	W	CLAY ST	CENSUS	1/21/2009	Wednesday	20413
	E	DOWNEY ST		5/20/2008	Tuesday	9995
	W	DOWNEY ST		5/20/2008	Tuesday	10587
	E	DOWNEY ST		5/19/2008	Monday	9783
	W	DOWNEY ST		5/19/2008	Monday	10271
	E	DOWNEY ST		5/18/2008	Sunday	8115
	W	DOWNEY ST		5/18/2008	Sunday	8574
	E	DOWNEY ST		5/17/2008	Saturday	9468
	W	DOWNEY ST		5/17/2008	Saturday	10212
	W	DOWNEY ST		5/16/2008	Friday	11628
	E	DOWNEY ST		5/16/2008	Friday	10913
	E	HUDSON ST		1/16/2008	Wednesday	10647
	W	HUDSON ST		1/16/2008	Wednesday	11422
	W	I-15		11/28/2007	Wednesday	17045
	W	PATS RANCH RD		11/28/2007	Wednesday	29576
	W	I-15		11/27/2007	Tuesday	16552

LOCATION	DIR	X-STREET	NOTE	DATE	DAY	ADT
LIMONITE AVE	W	PATS RANCH RD		11/27/2007	Tuesday	30990
	E	HAMNER AVE		8/7/2007	Tuesday	17771
	W	HAMNER AVE		8/7/2007	Tuesday	13562
	W	PATS RANCH RD		8/1/2007	Wednesday	32797
	W	PATS RANCH RD		7/31/2007	Tuesday	33311
	E	BEACH ST		9/14/2006	Thursday	10698
	W	BEACH ST		9/14/2006	Thursday	11266
	E	PACIFIC AVE		5/17/2005	Tuesday	15753
	W	PACIFIC AVE		5/17/2005	Tuesday	18602
	W	COLLINS ST		11/9/2004	Tuesday	18053
	W	BEACH ST		11/9/2004	Tuesday	18710
	W	BAIN ST		11/9/2004	Tuesday	18801
	E	PEDLEY RD		11/9/2004	Tuesday	20600
	W	PEDLEY RD		11/9/2004	Tuesday	22021
	W	WINEVILLE AVE		11/4/2004	Thursday	25925
	E	ETIWANDA AVE		11/4/2004	Thursday	20357
	W	ETIWANDA AVE		11/4/2004	Thursday	15870
	W	HAMNER AVE		11/3/2004	Wednesday	6301
	W	CLAY ST		10/27/2004	Wednesday	18892
	E	MORTON AVE		10/27/2004	Wednesday	18806
	E	CAMINO REAL		10/26/2004	Tuesday	25807
	W	CAMINO REAL		10/26/2004	Tuesday	23234
	E	CLAY ST		10/26/2004	Tuesday	36209
	W	RIVERVIEW DR		10/21/2004	Thursday	15826
	W	BEACH ST		8/24/2004	Tuesday	16596
	E	BEACH ST		8/17/2004	Tuesday	17122
	E	TROTH ST		6/29/2004	Tuesday	13764
	W	TROTH ST		6/29/2004	Tuesday	16038
LINARES AVE	E	CLAY ST	CENSUS	2/24/2009	Tuesday	4088
	E	CLAY ST		10/27/2004	Wednesday	8083
	W	HAVEN VIEW DR		7/2/2004	Friday	4446
LINCOLN ST	S	62ND AVE	CVAG	1/30/2010	Saturday	3558
	S	62ND AVE	CENSUS	6/10/2009	Wednesday	4322
	S	MAGNOLIA AVE	CENSUS	4/7/2009	Tuesday	4108
	S	RIVERWOOD WY		2/18/2009	Wednesday	1079
	S	62ND AVE	CVAG	1/20/2009	Tuesday	3944
	N	65TH AVE		5/28/2008	Wednesday	2286
	S	62ND AVE		5/28/2008	Wednesday	4419

LOCATION	DIR	X-STREET	NOTE	DATE	DAY	ADT
LINCOLN ST	S	HARLOW AVE		2/21/2008	Thursday	908
	N	HARLOW AVE		2/21/2008	Thursday	2510
	S	62ND AVE	CVAG	1/8/2008	Tuesday	4001
	S	62ND AVE	CVAG	1/30/2007	Tuesday	3815
	S	62ND AVE	CVAG	1/11/2006	Wednesday	3735
	N	5TH ST		5/11/2005	Wednesday	4253
	N	62ND AVE	CVAG	3/29/2005	Tuesday	3456
	S	62ND AVE	CVAG	1/30/2005	Sunday	3456
	S	62ND AVE		12/15/2004	Wednesday	3675
	S	MAGNOLIA AVE		10/5/2004	Tuesday	4293
LINDENBERGER RD	S	SIMPSON RD	CENSUS	5/7/2009	Thursday	5153
	S	SIMPSON RD		12/2/2004	Thursday	9952
LINDSAY ST	N	HASTINGS BLV		9/23/2010	Thursday	1007
	S	HASTINGS BLV		9/23/2010	Thursday	1290
	S	HASTINGS BLV		9/22/2010	Wednesday	1178
	N	HASTINGS BLV		9/22/2010	Wednesday	894
	N	BELLEGRAVE AVE		12/18/2008	Thursday	3690
	N	MISSION BLVD		3/28/2007	Wednesday	1429
	N	MISSION BLVD		3/27/2007	Tuesday	1375
LITTLE MORONGO RD	S	TWO BUNCH PALMS TR	CVAG	1/30/2010	Saturday	5023
	N	DILLON RD	CVAG	1/30/2010	Saturday	5343
	S	PIERSON BLVD	CVAG	1/30/2010	Saturday	3598
	N	PIERSON BLVD	CVAG	1/30/2010	Saturday	3500
	N	TWO BUNCH PALMS TR		8/4/2009	Tuesday	2515
	N	DILLON RD		8/4/2009	Tuesday	4220
	N	DILLON RD	CENSUS	4/14/2009	Tuesday	7735
	S	TWO BUNCH PALMS TR	CVAG	3/2/2009	Monday	4826
	N	DILLON RD	CVAG	3/2/2009	Monday	4956
	N	PIERSON BLVD	CVAG	3/2/2009	Monday	3011
	S	PIERSON BLVD	CVAG	3/2/2009	Monday	3124
	S	PIERSON BLVD	CVAG	3/6/2008	Thursday	3273
	S	TWO BUNCH PALMS TR	CVAG	3/5/2008	Wednesday	4943
	N	DILLON RD	CVAG	3/5/2008	Wednesday	5318
	N	PIERSON BLVD	CVAG	1/30/2008	Wednesday	3010
	N	PIERSON BLVD	CVAG	1/30/2007	Tuesday	3372
	S	PIERSON BLVD	CVAG	1/30/2007	Tuesday	3311
	N	DILLON RD	CVAG	1/30/2007	Tuesday	5175
	S	TWO BUNCH PALMS TR	CVAG	1/30/2007	Tuesday	5011

LOCATION	DIR	X-STREET	NOTE	DATE	DAY	ADT
LITTLE MORONGO RD	N	DILLON RD		12/19/2006	Tuesday	4924
	S	TWO BUNCH PALMS TR	CVAG	3/7/2006	Tuesday	5013
	S	PIERSON BLVD	CVAG	3/7/2006	Tuesday	3222
	N	DILLON RD	CVAG	1/30/2006	Monday	5560
	N	PIERSON BLVD	CVAG	1/30/2006	Monday	2467
	N	PIERSON BLVD	CVAG	1/30/2005	Sunday	2357
	N	DILLON RD	CVAG	1/18/2005	Tuesday	3053
	S	TWO BUNCH PALMS TR	CVAG	1/18/2005	Tuesday	2842
	S	PIERSON BLVD	CVAG	1/18/2005	Tuesday	2195
	N	DILLON RD		11/23/2004	Tuesday	3031
	N	PIERSON BLVD	CVAG	1/30/2004	Friday	2716
	S	PIERSON BLVD	CVAG	1/30/2004	Friday	3586
	N	DILLON RD	CVAG	1/21/2004	Wednesday	6075
	S	TWO BUNCH PALMS TR	CVAG	1/21/2004	Wednesday	4409
LIVE OAK CANYON RD	W	SAN TIMOTEO CANYON RD		3/31/2005	Thursday	9984
LIVE OAK CYN RD	E	SAN TIMOTEO CYN		3/29/2005	Tuesday	12699
LONG CANYON RD	S	DILLON RD		3/2/2006	Thursday	130
	N	DILLON RD		11/23/2004	Tuesday	2067
LOPEZ ST	E	MARSHALL ST		5/17/2005	Tuesday	113
LORING RANCH RD	W	OLDENGURG ST		4/9/2008	Wednesday	923
LORING RANCH RD N	W	CRESTMORE RD		5/20/2010	Thursday	865
LORING RANCH RD S	N	CRESTMORE RD		5/20/2010	Thursday	568
LOS RANCHERIAS RD	N	TRES CERRITOS AVE		3/30/2004	Tuesday	408
LOVEKIN BLVD	S	SEELEY AVE	CENSUS	6/16/2009	Tuesday	1399
	S	18TH AVE	CENSUS	5/12/2009	Tuesday	822
	S	SEELEY AVE		11/17/2004	Wednesday	2126
LUCRETIA AVE	N	LIMONITE AVE	CENSUS	2/11/2009	Wednesday	2426
	S	HOLMES AVE	CENSUS	2/10/2009	Tuesday	404
	S	58TH ST		3/29/2005	Tuesday	950
	W	ETIWANDA AVE		3/29/2005	Tuesday	768
	N	58TH ST		3/29/2005	Tuesday	986
	N	LIMONITE AVE		11/4/2004	Thursday	2357
	S	HOLMES AVE		11/4/2004	Thursday	318
LYON AVE	S	VICTORIA AVE		2/2/2005	Wednesday	613
MACHADO ST	N	GRAND AVE	CENSUS	4/9/2009	Thursday	3213
	N	GRAND AVE		6/14/2005	Tuesday	2870
MADALENA DR	N	GALENA ST		3/25/2008	Tuesday	543
MADERA DE PLAYA DR	W	BERKSWELL LN		12/20/2005	Tuesday	926

LOCATION	DIR	X-STREET	NOTE	DATE	DAY	ADT
MADERA DE PLAYA DR	W	CALLE CONTENTO		12/20/2005	Tuesday	1067
	W	REID CT		12/20/2005	Tuesday	672
	E	CALLE CONTENTO		4/6/2005	Wednesday	200
	W	CALLE CONTENTO		4/6/2005	Wednesday	348
MADISON ST	S	54TH AVE	CVAG	1/30/2010	Saturday	9219
	S	INDIO BLVD	CVAG	1/30/2010	Saturday	2689
	S	AIRPORT BLVD (56TH AVE)	CVAG	1/30/2010	Saturday	6348
	S	SH-111	CVAG	1/30/2010	Saturday	9626
	S	58TH AVE	CVAG	1/30/2010	Saturday	3341
	S	MILES AVE	CVAG	1/30/2010	Saturday	7885
	S	50TH AVE	CVAG	1/30/2010	Saturday	5664
	S	48TH AVE	CVAG	1/30/2010	Saturday	7106
	N	SH-111	CVAG	1/30/2010	Saturday	9053
	S	AIRPORT BLVD (56TH AVE)	CVAG	1/22/2009	Thursday	6212
	S	58TH AVE	CVAG	1/22/2009	Thursday	3507
	S	54TH AVE	CVAG	1/22/2009	Thursday	9772
	S	INDIO BLVD	CVAG	1/22/2009	Thursday	2233
	S	48TH AVE	CVAG	1/22/2009	Thursday	4320
	S	SH-111	CVAG	1/22/2009	Thursday	7702
	S	50TH AVE	CVAG	1/22/2009	Thursday	3560
	N	SH-111	CVAG	1/22/2009	Thursday	8610
	S	MILES AVE	CVAG	1/22/2009	Thursday	5809
	S	AIRPORT BLVD (56TH AVE)	CVAG	1/30/2008	Wednesday	6839
	N	SH-111	CVAG	1/30/2008	Wednesday	6707
	S	SH-111	CVAG	1/30/2008	Wednesday	6871
	S	MILES AVE	CVAG	1/30/2008	Wednesday	7267
	S	50TH AVE	CVAG	1/30/2008	Wednesday	1229
	S	INDIO BLVD	CVAG	1/30/2008	Wednesday	2363
	S	48TH AVE	CVAG	1/30/2008	Wednesday	4029
	S	54TH AVE	CVAG	1/30/2008	Wednesday	9721
	S	58TH AVE	CVAG	1/15/2008	Tuesday	3429
	S	INDIO BLVD	CVAG	1/30/2007	Tuesday	2714
	S	AIRPORT BLVD (56TH AVE)	CVAG	1/30/2007	Tuesday	6295
	S	MILES AVE	CVAG	1/30/2007	Tuesday	10891
	N	SH-111	CVAG	1/30/2007	Tuesday	10678
	S	58TH AVE	CVAG	1/30/2007	Tuesday	2615
	S	54TH AVE	CVAG	1/30/2007	Tuesday	8585
	S	50TH AVE	CVAG	1/30/2007	Tuesday	1666

LOCATION	DIR	X-STREET	NOTE	DATE	DAY	ADT
MADISON ST	S	SH-111	CVAG	1/30/2007	Tuesday	8832
	N	SH-111	CVAG	1/30/2006	Monday	10168
	S	AIRPORT BLVD (56TH AVE)	CVAG	1/30/2006	Monday	7814
	S	54TH AVE	CVAG	1/30/2006	Monday	9319
	S	INDIO BLVD	CVAG	1/30/2006	Monday	1818
	S	50TH AVE	CVAG	1/30/2006	Monday	2100
	S	SH-111	CVAG	1/30/2006	Monday	8477
	S	MILES AVE	CVAG	1/30/2006	Monday	9061
	S	58TH AVE	CVAG	1/18/2006	Wednesday	2487
	S	58TH AVE	CVAG	2/7/2005	Monday	2609
	S	SH-111	CVAG	1/30/2005	Sunday	7750
	S	INDIO BLVD	CVAG	1/30/2005	Sunday	1932
	S	AIRPORT BLVD (56TH AVE)	CVAG	1/30/2005	Sunday	6612
	S	54TH AVE	CVAG	1/30/2005	Sunday	7681
	S	50TH AVE	CVAG	1/30/2005	Sunday	1025
	N	SH-111	CVAG	1/30/2005	Sunday	10810
	S	MILES AVE	CVAG	1/30/2005	Sunday	8291
	S	58TH AVE	CVAG	3/8/2004	Monday	1516
	S	MILES AVE	CVAG	1/30/2004	Friday	13782
	S	SH-111	CVAG	1/30/2004	Friday	13264
	S	50TH AVE	CVAG	1/30/2004	Friday	975
	N	SH-111	CVAG	1/30/2004	Friday	12576
	S	AIRPORT BLVD (56TH AVE)	CVAG	1/30/2004	Friday	5627
MAGNOLIA AVE	E	NEECE ST	CENSUS	4/7/2009	Tuesday	19477
	W	LINCOLN ST	CENSUS	4/7/2009	Tuesday	20565
	E	GRANT ST	CENSUS	4/7/2009	Tuesday	16340
	W	LINCOLN ST		9/25/2007	Tuesday	20532
	E	GRANT ST		9/25/2007	Tuesday	19727
	W	LINCOLN ST		10/13/2004	Wednesday	20039
	E	GRANT ST		10/13/2004	Wednesday	19834
MAIN ST	E	CITRUS ST	CENSUS	5/19/2009	Tuesday	3443
	E	IOWA AVE	CENSUS	4/14/2009	Tuesday	2435
	E	APACHE TR		3/26/2008	Wednesday	2977
	W	BROADWAY ST		3/26/2008	Wednesday	2755
	E	CITRUS ST		12/16/2004	Thursday	2764
	W	MT VERNON AVE		4/28/2004	Wednesday	839
MAITRI RD	S	TEMESCAL CANYON RD		9/22/2010	Wednesday	642
	N	TEMESCAL CANYON RD		9/15/2010	Wednesday	1403

LOCATION	DIR	X-STREET	NOTE	DATE	DAY	ADT
MAITRI RD	S	TEMESCAL CANYON RD	CENSUS	4/9/2009	Thursday	8323
	E	TEMESCAL CANYON RD		5/9/2007	Wednesday	602
	W	TEMESCAL CANYON RD		5/9/2007	Wednesday	3532
	N	TEMESCAL CANYON RD		12/15/2004	Wednesday	526
MANN ST	S	LIMONITE AVE		3/29/2005	Tuesday	1119
MAPES RD	E	MENIFEE RD	CENSUS	5/19/2009	Tuesday	1353
	W	MENIFEE RD	CENSUS	5/12/2009	Tuesday	1075
	E	SHERMAN RD		3/25/2008	Tuesday	1334
	E	MENIFEE RD		12/14/2004	Tuesday	1245
	W	MENIFEE RD		12/14/2004	Tuesday	1101
	E	MENIFEE RD		3/30/2004	Tuesday	970
	W	MENIFEE RD		3/30/2004	Tuesday	827
MARIAN VIEW DR	E	SH-243	CENSUS	6/2/2009	Tuesday	126
	W	SH-243		12/7/2004	Tuesday	207
MARIPOSA AVE	E	WOOD RD	CENSUS	4/14/2009	Tuesday	2404
	W	BARTON ST		10/23/2007	Tuesday	1379
	E	WOOD RD		10/23/2007	Tuesday	1910
	E	WOOD RD		10/13/2004	Wednesday	2748
	E	COLE AVE		9/21/2004	Tuesday	1313
MARKET ST	W	RUBIDOUX BLVD	CENSUS	2/25/2009	Wednesday	1832
	E	RUBIDOUX BLVD	CENSUS	2/25/2009	Wednesday	16581
	S	24TH ST	CENSUS	2/25/2009	Wednesday	19538
	S	24TH ST		11/16/2004	Tuesday	19100
	E	RUBIDOUX BLVD		11/16/2004	Tuesday	17821
	W	AGUA MANSA RD		6/30/2004	Wednesday	6050
	E	AGUA MANSA RD		6/30/2004	Wednesday	7248
MARKHAM ST	E	MOCKINGBIRD CANYON RD	CENSUS	6/16/2009	Tuesday	2495
	E	WOOD RD	CENSUS	4/15/2009	Wednesday	3235
	W	DAY ST	CENSUS	3/31/2009	Tuesday	5314
	W	DECKER RD	CENSUS	3/31/2009	Tuesday	7485
	W	HARVILL AVE		5/15/2008	Thursday	4011
	E	MOCKINGBIRD CANYON RD		4/10/2008	Thursday	1270
	W	BROWN ST		8/16/2007	Thursday	4556
	W	DECKER RD		8/16/2007	Thursday	7496
	E	PARSONS RD		8/16/2007	Thursday	3113
	W	WASHINGTON ST		8/16/2007	Thursday	2454
	W	PARSONS RD		1/10/2007	Wednesday	1551
	E	PARSONS RD		1/10/2007	Wednesday	1527

LOCATION	DIR	X-STREET	NOTE	DATE	DAY	ADT
MARKHAM ST	W	CARROLL ST		8/1/2006	Tuesday	2559
	E	CARROLL ST		8/1/2006	Tuesday	2619
	W	WASHINGTON ST		6/28/2005	Tuesday	1837
	W	DAY ST		3/10/2005	Thursday	5365
	E	MOCKINGBIRD CANYON RD		3/10/2005	Thursday	2155
	E	MOCKINGBIRD CANYON RD		1/21/2004	Wednesday	2457
MARLATT ST	N	LIMONITE AVE	CENSUS	2/11/2009	Wednesday	1057
	N	LIMONITE AVE		11/4/2004	Thursday	1084
	S	JURUPA RD		3/24/2004	Wednesday	1134
	N	JURUPA RD		3/24/2004	Wednesday	966
MARSHALL AVE	S	EMERSON ST		4/1/2009	Wednesday	529
	S	EMERSON ST		4/1/2009	Wednesday	735
MARSHALL ST	N	DEPRAD ST		5/17/2005	Tuesday	1589
MATTHEWS RD	W	WATSON RD		4/6/2008	Sunday	9683
	E	WATSON RD		4/6/2008	Sunday	8033
	W	WATSON RD		4/5/2008	Saturday	11275
	E	WATSON RD		4/5/2008	Saturday	9869
	E	WATSON RD		4/4/2008	Friday	12519
	W	WATSON RD		4/4/2008	Friday	14995
	W	WATSON RD		4/3/2008	Thursday	13938
	E	WATSON RD		4/3/2008	Thursday	11196
	W	WATSON RD		4/2/2008	Wednesday	13932
	E	WATSON RD		4/2/2008	Wednesday	11233
	E	WATSON RD		4/1/2008	Tuesday	11076
	W	WATSON RD		4/1/2008	Tuesday	14019
	E	WATSON RD		3/31/2008	Monday	10444
	W	WATSON RD		3/31/2008	Monday	13647
	W	PALOMAR RD		9/29/2004	Wednesday	3452
MAYBERRY AVE	E	DARTMOUTH ST	CENSUS	5/13/2009	Wednesday	3369
	E	YALE ST	CENSUS	5/13/2009	Wednesday	2637
	E	PLEASANT ST	CENSUS	5/12/2009	Tuesday	2707
	W	STANFORD ST		2/24/2009	Tuesday	1589
	E	STANFORD ST		2/24/2009	Tuesday	1647
	W	STANFORD ST		5/23/2006	Tuesday	1583
	E	STANFORD ST		5/23/2006	Tuesday	1664
	W	SOBOBA ST		4/2/2006	Sunday	548
	E	SOBOBA ST		3/31/2006	Friday	1357
	E	PLEASANT ST		12/14/2004	Tuesday	2111

LOCATION	DIR	X-STREET	NOTE	DATE	DAY	ADT
MAYBERRY AVE	E	DARTMOUTH ST		12/14/2004	Tuesday	2815
MAYBERRY ST	E	YALE ST		12/14/2004	Tuesday	2258
MAYHEW CANYON RD	S	CAMPBELL RANCH RD		4/29/2010	Thursday	3776
	E	LUMERINA ST		4/1/2009	Wednesday	884
MC CALL BLVD	W	MENIFEE RD	CENSUS	5/7/2009	Thursday	13362
	E	SUN CITY BLVD	CENSUS	5/5/2009	Tuesday	15602
	W	HILLPOINTE DR	CENSUS	5/5/2009	Tuesday	18641
	E	MURRIETA RD	CENSUS	5/5/2009	Tuesday	7452
MCALLISTER PKWY	E	HILLSMONT LN		8/12/2009	Wednesday	1741
	E	LA SIERRA AVE		7/29/2009	Wednesday	2975
	N	TIGER LILY WY		7/29/2009	Wednesday	998
	S	GROVE DR		7/29/2009	Wednesday	741
MCALLISTER ST	N	EL SOBRANTE RD	CENSUS	4/8/2009	Wednesday	1099
	N	ORANGEHAVEN LN	CENSUS	4/8/2009	Wednesday	2914
	N	EL SOBRANTE RD		10/26/2006	Thursday	1336
	N	EL SOBRANTE RD		12/1/2004	Wednesday	936
	N	ORANGEHAVEN LN		10/13/2004	Wednesday	3407
MCCALL BLVD	W	SHERMAN RD	CENSUS	5/5/2009	Tuesday	18482
	E	VALLEY BLVD	CENSUS	4/30/2009	Thursday	2588
	W	SHERMAN RD		9/19/2007	Wednesday	17980
	E	ANTELOPE RD		9/19/2007	Wednesday	12582
	E	GROSSE POINT DR		9/19/2007	Wednesday	8573
	E	VALLEY BLVD		8/9/2007	Thursday	2489
	W	GROSSE POINT DR		11/15/2006	Wednesday	4006
	E	GROSSE POINT DR		11/15/2006	Wednesday	5158
	E	GROSSE POINT DR		2/22/2006	Wednesday	5161
	W	GROSSE POINT DR		2/22/2006	Wednesday	4052
	W	MENIFEE RD		11/30/2004	Tuesday	10650
	E	VALLEY BLVD		11/9/2004	Tuesday	2060
	W	HILLPOINTE DR		11/9/2004	Tuesday	15441
	W	SHERMAN RD		11/9/2004	Tuesday	17052
	E	SUN CITY BLVD		11/9/2004	Tuesday	19315
	E	MURRIETA RD		11/9/2004	Tuesday	7950
	E	GROSSE POINT DR		6/30/2004	Wednesday	4556
	W	GROSSE POINT DR		6/30/2004	Wednesday	3404
MCKINLEY ST	S	MAGNOLIA AVE	CENSUS	4/7/2009	Tuesday	9844
	N	MAGNOLIA AVE		3/29/2005	Tuesday	9098
MCVICAR ST	N	GRAND AVE		5/22/2008	Thursday	2334

LOCATION	DIR	X-STREET	NOTE	DATE	DAY	ADT
MEADOWBROOK AVE	W	SH-74	CENSUS	4/29/2009	Wednesday	1921
	W	SH-74		12/7/2004	Tuesday	1822
MENIFEE RD	N	MAPES RD	CENSUS	6/3/2009	Wednesday	6413
	N	WATSON RD	CENSUS	5/20/2009	Wednesday	6879
	S	SAN JACINTO AVE	CENSUS	5/19/2009	Tuesday	5503
	S	SH-74	CENSUS	5/19/2009	Tuesday	9030
	S	NUEVO RD	CENSUS	5/19/2009	Tuesday	5250
	S	NEWPORT RD	CENSUS	5/14/2009	Thursday	5322
	N	SH-74	CENSUS	5/12/2009	Tuesday	8634
	S	MC CALL BLVD	CENSUS	5/7/2009	Thursday	10891
	N	MC CALL BLVD	CENSUS	5/7/2009	Thursday	10396
	N	CAMINO CRISTAL		1/9/2007	Tuesday	1934
	S	CAMINO CRISTAL		1/9/2007	Tuesday	3042
	N	SCOTT RD		7/28/2005	Thursday	2362
	S	SCOTT RD		7/28/2005	Thursday	4228
	N	SH-74		12/14/2004	Tuesday	7265
	N	MAPES RD		12/14/2004	Tuesday	6255
	S	NUEVO RD		12/9/2004	Thursday	4812
	S	NEWPORT RD		12/8/2004	Wednesday	4722
	N	MCCALL BLVD	RRX	11/30/2004	Tuesday	10131
	S	MCCALL BLVD		11/30/2004	Tuesday	5830
	N	LA PIEDRA RD		4/21/2004	Wednesday	4103
	S	LA PIEDRA RD		4/21/2004	Wednesday	2175
	S	MAPES RD		3/30/2004	Tuesday	5945
	N	MAPES RD		3/30/2004	Tuesday	5819
	N	WATSON RD		3/15/2004	Monday	6134
	S	WATSON RD		3/15/2004	Monday	6135
MERIDIAN ST	N	ACACIA AVE	CENSUS	5/14/2009	Thursday	4845
	N	ACACIA AVE		8/9/2007	Thursday	2803
	N	ACACIA AVE		11/30/2004	Tuesday	3921
MESA DR	S	BELLWOOD DR	CENSUS	6/11/2009	Thursday	1381
	N	PEPPER DR		9/26/2007	Wednesday	1615
	S	BELLWOOD DR		11/16/2004	Tuesday	1686
MESQUITE AVE	W	VELLA RD	CVAG	1/30/2010	Saturday	8324
	W	GENE AUTRY TRAIL	CVAG	1/30/2010	Saturday	9887
	W	VELLA RD	CVAG	3/2/2009	Monday	8963
	W	GENE AUTRY TRAIL	CVAG	2/23/2009	Monday	10275
	W	GENE AUTRY TRAIL	CVAG	1/30/2008	Wednesday	10840

LOCATION	DIR	X-STREET	NOTE	DATE	DAY	ADT
MESQUITE AVE	W	VELLA RD	CVAG	1/30/2008	Wednesday	9188
	W	VELLA RD	CVAG	1/30/2007	Tuesday	8293
	W	GENE AUTRY TRAIL	CVAG	1/30/2007	Tuesday	7680
	W	GENE AUTRY TRAIL	CVAG	1/30/2006	Monday	6499
	W	VELLA RD	CVAG	1/30/2005	Sunday	10153
	W	GENE AUTRY TRAIL	CVAG	1/30/2005	Sunday	14230
	W	VELLA RD	CVAG	1/30/2004	Friday	8412
	W	GENE AUTRY TRAIL	CVAG	1/30/2004	Friday	10293
MESQUITE AVE E (DINAH SHORE DR)	E	GENE AUTRY TRAIL	CVAG	1/30/2010	Saturday	21733
	E	GENE AUTRY TRAIL	CVAG	2/23/2009	Monday	21033
	E	GENE AUTRY TRAIL	CVAG	1/30/2008	Wednesday	24769
	E	GENE AUTRY TRAIL	CVAG	1/30/2007	Tuesday	21541
	E	GENE AUTRY TRAIL	CVAG	1/30/2006	Monday	20641
	E	GENE AUTRY TRAIL	CVAG	1/30/2005	Sunday	19292
	E	GENE AUTRY TRAIL	CVAG	1/30/2004	Friday	20408
MIDDLETON ST	S	SH-195	CENSUS	6/10/2009	Wednesday	856
	N	SH-86		9/25/2007	Tuesday	1199
	S	66TH AVE (SH-195)		12/15/2004	Wednesday	743
MIDLAND RD	N	ARROWHEAD BLVD	CENSUS	6/11/2009	Thursday	242
	N	ARROWHEAD BLVD		12/7/2004	Tuesday	254
MILES AVE	N	SH-111	CVAG	1/30/2010	Saturday	4131
	E	JEFFERSON ST	CVAG	1/30/2010	Saturday	11723
	W	OASIS ST	CVAG	1/30/2010	Saturday	4719
	W	INDIO BLVD	CVAG	1/30/2010	Saturday	913
	E	WASHINGTON ST	CVAG	1/30/2010	Saturday	9828
	E	MADISON ST	CVAG	1/30/2010	Saturday	10459
	W	CLINTON ST	CVAG	1/30/2010	Saturday	9881
	E	CLINTON ST	CVAG	1/30/2010	Saturday	10878
	W	WASHINGTON ST	CVAG	1/30/2010	Saturday	6165
	E	MONROE ST	CVAG	1/30/2010	Saturday	5679
	W	CLINTON ST	CENSUS	6/3/2009	Wednesday	9096
	E	MONROE ST	CVAG	3/2/2009	Monday	4586
	W	OASIS ST	CVAG	3/2/2009	Monday	4641
	E	WASHINGTON ST	CVAG	3/2/2009	Monday	8677
	N	SH-111	CVAG	3/2/2009	Monday	3382
	E	MADISON ST	CVAG	3/2/2009	Monday	6409
	E	JEFFERSON ST	CVAG	3/2/2009	Monday	1183
	W	INDIO BLVD	CVAG	3/2/2009	Monday	1071

LOCATION	DIR	X-STREET	NOTE	DATE	DAY	ADT
MILES AVE	E	CLINTON ST	CVAG	3/2/2009	Monday	8233
	W	CLINTON ST	CVAG	3/2/2009	Monday	6465
	W	WASHINGTON ST	CVAG	3/2/2009	Monday	4390
	N	SH-111	CVAG	1/30/2008	Wednesday	4831
	W	CLINTON ST	CVAG	1/30/2008	Wednesday	7876
	W	WASHINGTON ST	CVAG	1/30/2008	Wednesday	5489
	W	INDIO BLVD	CVAG	1/30/2008	Wednesday	567
	E	MADISON ST	CVAG	1/30/2008	Wednesday	9025
	E	CLINTON ST	CVAG	1/30/2008	Wednesday	8357
	E	JEFFERSON ST	CVAG	1/30/2008	Wednesday	3702
	E	WASHINGTON ST	CVAG	1/30/2008	Wednesday	8953
	E	MONROE ST	CVAG	1/30/2008	Wednesday	5364
	W	OASIS ST	CVAG	1/30/2008	Wednesday	4168
	N	SH-111	CVAG	1/30/2007	Tuesday	6118
	E	MONROE ST	CVAG	1/30/2007	Tuesday	6998
	W	OASIS ST	CVAG	1/30/2007	Tuesday	5456
	E	CLINTON ST	CVAG	1/30/2007	Tuesday	10460
	W	WASHINGTON ST	CVAG	1/30/2007	Tuesday	7584
	W	INDIO BLVD	CVAG	1/30/2007	Tuesday	726
	W	CLINTON ST	CVAG	1/30/2007	Tuesday	10824
	E	WASHINGTON ST	CVAG	1/30/2007	Tuesday	10129
	E	JEFFERSON ST	CVAG	1/30/2007	Tuesday	11425
	W	OASIS ST	CVAG	1/30/2006	Monday	4669
	W	WASHINGTON ST	CVAG	1/30/2006	Monday	5570
	W	INDIO BLVD	CVAG	1/30/2006	Monday	800
	N	SH-111	CVAG	1/30/2006	Monday	4610
	E	JEFFERSON ST	CVAG	1/30/2006	Monday	10829
	E	MONROE ST	CVAG	1/30/2006	Monday	6195
	E	CLINTON ST	CVAG	1/30/2006	Monday	11912
	E	WASHINGTON ST	CVAG	1/30/2006	Monday	11394
	W	CLINTON ST	CVAG	1/30/2006	Monday	10916
	E	WASHINGTON ST	CVAG	1/30/2005	Sunday	10767
	W	OASIS ST	CVAG	1/30/2005	Sunday	5005
	W	INDIO BLVD	CVAG	1/30/2005	Sunday	838
	W	CLINTON ST	CVAG	1/30/2005	Sunday	8672
	E	MONROE ST	CVAG	1/30/2005	Sunday	5550
	W	WASHINGTON ST	CVAG	1/30/2005	Sunday	3385
	E	CLINTON ST	CVAG	1/30/2005	Sunday	9865

LOCATION	DIR	X-STREET	NOTE	DATE	DAY	ADT
MILES AVE	N	SH-111	CVAG	1/30/2005	Sunday	3461
	W	CLINTON ST		12/15/2004	Wednesday	8414
	E	CLINTON ST	CVAG	1/30/2004	Friday	12320
	W	OASIS ST	CVAG	1/30/2004	Friday	5083
	W	CLINTON ST	CVAG	1/30/2004	Friday	11635
	E	MONROE ST	CVAG	1/30/2004	Friday	6435
MILLPOND DR	N	CORNSTALK RD		5/2/2006	Tuesday	743
MISSION BLVD	E	AGATE ST		12/17/2009	Thursday	3889
	W	AGATE ST		12/17/2009	Thursday	4293
	E	PYRITE ST	CENSUS	4/2/2009	Thursday	10205
	E	SOTO AVE	CENSUS	4/2/2009	Thursday	10675
	E	MILLIKEN AVE	CENSUS	4/1/2009	Wednesday	7628
	W	RIVERVIEW DR	CENSUS	2/19/2009	Thursday	18365
	E	WALLACE ST	CENSUS	2/19/2009	Thursday	17557
	E	RUBIDOUX BLVD	CENSUS	2/19/2009	Thursday	21003
	W	RUBIDOUX BLVD	CENSUS	2/19/2009	Thursday	26207
	W	WALLACE ST	CENSUS	2/19/2009	Thursday	20324
	E	FELSPAR ST	CENSUS	2/19/2009	Thursday	10377
	W	AVALON ST	CENSUS	2/19/2009	Thursday	25277
	W	OPAL ST	CENSUS	2/19/2009	Thursday	17454
	S	BEN NEVIS BLVD	CENSUS	2/18/2009	Wednesday	12248
	E	CAMPBELL ST	CENSUS	2/18/2009	Wednesday	8963
	N	VALLEY WAY	CENSUS	2/4/2009	Wednesday	5952
	S	VALLEY WAY	CENSUS	2/4/2009	Wednesday	21592
	W	GLEN ST		9/5/2007	Wednesday	11846
	E	CONNING ST		9/5/2007	Wednesday	11037
	W	OPAL ST		9/5/2007	Wednesday	21145
	E	PYRITE ST		9/5/2007	Wednesday	12862
	W	CRESTMORE RD		9/5/2007	Wednesday	19609
	E	CONNING ST		5/2/2006	Tuesday	10486
	W	CONNING ST		4/25/2006	Tuesday	11129
	W	RIVERVIEW DR		12/8/2004	Wednesday	17468
	E	CAMPBELL ST		11/10/2004	Wednesday	9799
	E	FELSPAR ST		11/10/2004	Wednesday	9885
	S	BEN NEVIS BLVD		11/10/2004	Wednesday	10895
	E	SOTO AVE		11/9/2004	Tuesday	12360
	E	PYRITE ST		11/9/2004	Tuesday	13529
	E	VALLEY WAY	RRX	11/9/2004	Tuesday	19948

LOCATION	DIR	X-STREET	NOTE	DATE	DAY	ADT
MISSION BLVD	W	VALLEY WAY		11/9/2004	Tuesday	13784
	W	AVALON ST		9/14/2004	Tuesday	23737
	E	WALLACE ST		9/14/2004	Tuesday	18465
	W	WALLACE ST		9/14/2004	Tuesday	20983
	W	OPAL ST		9/14/2004	Tuesday	18302
	W	RUBIDOUX BLVD		9/14/2004	Tuesday	23424
	E	RUBIDOUX BLVD		9/14/2004	Tuesday	21518
MISSION LAKES BLVD	E	LITTLE MORONGO RD	CVAG	1/30/2010	Saturday	3723
	E	PALM DR	CVAG	1/30/2010	Saturday	1449
	W	LITTLE MORONGO RD	CVAG	1/30/2010	Saturday	4200
	E	PALM DR	CVAG	3/2/2009	Monday	1943
	W	LITTLE MORONGO RD	CVAG	3/2/2009	Monday	4221
	E	LITTLE MORONGO RD	CVAG	3/2/2009	Monday	3451
	W	LITTLE MORONGO RD	CVAG	3/6/2008	Thursday	4021
	E	PALM DR	CVAG	1/30/2008	Wednesday	1957
	E	LITTLE MORONGO RD	CVAG	1/30/2008	Wednesday	3448
	E	PALM DR	CVAG	1/30/2007	Tuesday	1934
	E	LITTLE MORONGO RD	CVAG	1/30/2007	Tuesday	3805
	W	LITTLE MORONGO RD	CVAG	1/30/2007	Tuesday	4436
	W	LITTLE MORONGO RD	CVAG	3/7/2006	Tuesday	4732
	E	PALM DR	CVAG	1/30/2006	Monday	2059
	E	LITTLE MORONGO RD	CVAG	1/30/2006	Monday	5369
	E	PALM DR	CVAG	1/30/2005	Sunday	1507
	E	LITTLE MORONGO RD	CVAG	1/30/2005	Sunday	4638
	W	LITTLE MORONGO RD	CVAG	1/19/2005	Wednesday	3622
	E	CLUBHOUSE BLVD		3/17/2004	Wednesday	2477
	E	PALM DR	CVAG	1/30/2004	Friday	2399
	E	LITTLE MORONGO RD	CVAG	1/30/2004	Friday	4348
	W	LITTLE MORONGO RD	CVAG	1/21/2004	Wednesday	4141
MISSION TR	S	BUNDY CANYON RD	CENSUS	5/28/2009	Thursday	6798
	N	PALOMAR ST	CENSUS	5/6/2009	Wednesday	10296
	N	BUNDY CANYON RD	CENSUS	5/5/2009	Tuesday	16533
	S	MALAGA RD	CENSUS	4/15/2009	Wednesday	14497
	N	LEMON ST	CENSUS	4/15/2009	Wednesday	14620
	S	BUNDY CANYON RD		5/7/2008	Wednesday	7954
	S	ELBERTA RD		5/7/2008	Wednesday	16000
	S	VINE ST		5/7/2008	Wednesday	16793
	S	SAN JACINTO RD		3/26/2008	Wednesday	316

LOCATION	DIR	X-STREET	NOTE	DATE	DAY	ADT
MISSION TR	N	PALOMAR ST		3/14/2007	Wednesday	4161
	S	CANYON DR		1/18/2005	Tuesday	8496
	N	CANYON DR		1/18/2005	Tuesday	8974
	S	WALNUT ST		1/18/2005	Tuesday	8094
	N	BUNDY CANYON RD		11/30/2004	Tuesday	14273
	N	PALOMAR ST		11/30/2004	Tuesday	7515
	N	LEMON ST		11/30/2004	Tuesday	20253
	S	CANYON DR		3/17/2004	Wednesday	6431
	N	CANYON DR		3/10/2004	Wednesday	7720
MISSISSIPPI DR	W	OSAGE RIVER CT		1/23/2008	Wednesday	805
MITCHELL RD	W	KIRBY RD	CENSUS	5/19/2009	Tuesday	1124
	W	KIRBY RD	CENSUS	8/21/2007	Tuesday	1134
	W	KIRBY RD		12/9/2004	Thursday	926
MOCKINGBIRD CANYON RD	N	MARKHAM ST	CENSUS	4/15/2009	Wednesday	5768
	S	MARKHAM ST	CENSUS	4/15/2009	Wednesday	5333
	S	VAN BUREN BLVD	CENSUS	4/8/2009	Wednesday	6316
	S	MARKHAM ST		4/10/2008	Thursday	2008
	N	HARLEY JOHN RD		4/10/2008	Thursday	2144
	N	WINTERS LN		4/10/2008	Thursday	3102
	S	HARLEY JOHN RD		4/10/2008	Thursday	970
	S	WINTERS LN		11/3/2004	Wednesday	2519
	N	WINTERS LN		11/3/2004	Wednesday	2907
	N	MARKHAM ST		11/3/2004	Wednesday	3115
	S	MARKHAM ST		11/3/2004	Wednesday	2044
	S	VAN BUREN BLVD		10/13/2004	Wednesday	7140
	S	MARKHAM ST		1/13/2004	Tuesday	2283
	S	WINTERS LN		1/13/2004	Tuesday	2456
	N	WINTERS LN		1/13/2004	Tuesday	3633
	N	MARKHAM ST		1/13/2004	Tuesday	3528
MONROE ST	S	SH-111	CVAG	1/30/2010	Saturday	18297
	N	SH-111	CVAG	1/30/2010	Saturday	22127
	S	54TH AVE	CVAG	1/30/2010	Saturday	2532
	S	FRED WARING DR	CVAG	1/30/2010	Saturday	21479
	S	52ND AVE	CVAG	1/30/2010	Saturday	3147
	S	50TH AVE	CVAG	1/30/2010	Saturday	7111
	N	FRED WARING DR	CVAG	1/30/2010	Saturday	28745
	S	DR CARREON BLVD	CVAG	1/30/2010	Saturday	19544
	S	40TH AVE	CVAG	1/30/2010	Saturday	4185

LOCATION	DIR	X-STREET	NOTE	DATE	DAY	ADT
MONROE ST	S	I-10	CVAG	1/30/2010	Saturday	20667
	S	48TH AVE	CVAG	1/30/2010	Saturday	13960
	S	42ND AVE	CVAG	1/30/2010	Saturday	13172
	S	MILES AVE	CVAG	1/30/2010	Saturday	24654
	S	AIRPORT BLVD	CENSUS	6/4/2009	Thursday	2412
	S	58TH AVE	CENSUS	6/4/2009	Thursday	2400
	S	DR CARREON BLVD	CVAG	3/2/2009	Monday	18677
	S	FRED WARING DR	CVAG	3/2/2009	Monday	20767
	S	52ND AVE	CVAG	3/2/2009	Monday	4105
	S	MILES AVE	CVAG	3/2/2009	Monday	23872
	S	SH-111	CVAG	3/2/2009	Monday	15755
	S	50TH AVE	CVAG	3/2/2009	Monday	5707
	S	48TH AVE	CVAG	3/2/2009	Monday	13896
	S	I-10	CVAG	3/2/2009	Monday	19205
	N	SH-111	CVAG	3/2/2009	Monday	18564
	S	42ND AVE	CVAG	3/2/2009	Monday	9712
	S	40TH AVE	CVAG	3/2/2009	Monday	2701
	S	54TH AVE	CVAG	1/22/2009	Thursday	2917
	S	40TH AVE	CVAG	1/30/2008	Wednesday	1569
	S	I-10	CVAG	1/30/2008	Wednesday	18699
	N	SH-111	CVAG	1/30/2008	Wednesday	17393
	S	48TH AVE	CVAG	1/30/2008	Wednesday	13977
	S	SH-111	CVAG	1/30/2008	Wednesday	16017
	S	FRED WARING DR	CVAG	1/30/2008	Wednesday	20349
	S	DR CARREON BLVD	CVAG	1/30/2008	Wednesday	19236
	S	MILES AVE	CVAG	1/30/2008	Wednesday	21717
	S	50TH AVE	CVAG	1/30/2008	Wednesday	7690
	S	42ND AVE	CVAG	1/30/2008	Wednesday	10451
	S	54TH AVE	CVAG	1/10/2008	Thursday	3314
	S	52ND AVE	CVAG	1/10/2008	Thursday	4441
	S	SH-111	CVAG	1/30/2007	Tuesday	13416
	S	50TH AVE	CVAG	1/30/2007	Tuesday	11862
	S	MILES AVE	CVAG	1/30/2007	Tuesday	22504
	N	FRED WARING DR	CVAG	1/30/2007	Tuesday	18557
	N	SH-111	CVAG	1/30/2007	Tuesday	9570
	S	48TH AVE	CVAG	1/30/2007	Tuesday	12209
	S	I-10	CVAG	1/30/2007	Tuesday	14084
	S	40TH AVE	CVAG	1/30/2007	Tuesday	4466

LOCATION	DIR	X-STREET	NOTE	DATE	DAY	ADT
MONROE ST	S	I-10	CVAG	1/30/2006	Monday	19972
	S	MILES AVE	CVAG	1/30/2006	Monday	27596
	N	SH-111	CVAG	1/30/2006	Monday	21436
	S	SH-111	CVAG	1/30/2006	Monday	23025
	N	FRED WARING DR	CVAG	1/30/2006	Monday	30058
	S	50TH AVE	CVAG	1/30/2006	Monday	10849
	S	40TH AVE	CVAG	1/30/2006	Monday	4779
	S	48TH AVE	CVAG	1/30/2006	Monday	18161
	S	MILES AVE	CVAG	10/1/2005	Saturday	27781
	S	MILES AVE	CVAG	3/1/2005	Tuesday	23851
	S	SH-111	CVAG	1/30/2005	Sunday	20009
	S	I-10	CVAG	1/30/2005	Sunday	17626
	S	40TH AVE	CVAG	1/30/2005	Sunday	2644
	N	SH-111	CVAG	1/30/2005	Sunday	25470
	S	48TH AVE	CVAG	1/30/2005	Sunday	18230
	S	50TH AVE	CVAG	1/30/2005	Sunday	11328
	N	FRED WARING DR	CVAG	1/30/2005	Sunday	27774
	S	AIRPORT BLVD		12/15/2004	Wednesday	3292
	S	58TH AVE		12/15/2004	Wednesday	1767
	S	48TH AVE	CVAG	1/30/2004	Friday	14819
	N	FRED WARING DR	CVAG	1/30/2004	Friday	29063
	S	50TH AVE	CVAG	1/30/2004	Friday	10969
	S	MILES AVE	CVAG	1/30/2004	Friday	31061
	S	I-10	CVAG	1/30/2004	Friday	18139
	S	SH-111	CVAG	1/30/2004	Friday	22384
	N	SH-111	CVAG	1/30/2004	Friday	24093
	S	40TH AVE	CVAG	1/30/2004	Friday	3728
MONTE VISTA DR	S	BUNDY CANYON RD		2/28/2007	Wednesday	1085
	S	BUNDY CANYON RD		3/9/2006	Thursday	2020
MONTEREY AVE	N	DINAH SHORE DR	CVAG	1/30/2010	Saturday	40800
	S	GERALD FORD DR	CVAG	1/30/2010	Saturday	25824
	N	PARK VIEW DR	CVAG	1/30/2010	Saturday	29457
	N	FRANK SINATRA DR	CVAG	1/30/2010	Saturday	26200
	S	DINAH SHORE DR	CVAG	1/30/2010	Saturday	29064
	N	FRED WARING DR	CVAG	1/30/2010	Saturday	28089
	N	SH-111	CVAG	1/30/2010	Saturday	22109
	N	GERALD FORD DR	CVAG	1/30/2010	Saturday	27176
	S	COUNTRY CLUB DR	CVAG	1/30/2010	Saturday	31325

LOCATION	DIR	X-STREET	NOTE	DATE	DAY	ADT
MONTEREY AVE	S	RAMON RD	CVAG	1/30/2010	Saturday	9359
	S	FRED WARING DR	CVAG	1/30/2010	Saturday	24446
	S	FRANK SINATRA DR	CVAG	1/30/2010	Saturday	24868
	N	COUNTRY CLUB DR	CVAG	1/30/2010	Saturday	25968
	N	VARNER RD		12/1/2009	Tuesday	8920
	S	RAMON RD	CENSUS	6/2/2009	Tuesday	8820
	S	DINAH SHORE DR	CVAG	2/23/2009	Monday	28296
	N	GERALD FORD DR	CVAG	2/23/2009	Monday	28620
	S	COUNTRY CLUB DR	CVAG	2/23/2009	Monday	30704
	N	FRED WARING DR	CVAG	2/23/2009	Monday	29070
	N	PARK VIEW DR	CVAG	2/23/2009	Monday	29462
	S	FRED WARING DR	CVAG	2/23/2009	Monday	24989
	N	COUNTRY CLUB DR	CVAG	2/23/2009	Monday	27558
	S	RAMON RD	CVAG	2/23/2009	Monday	8228
	S	GERALD FORD DR	CVAG	2/23/2009	Monday	31106
	N	DINAH SHORE DR	CVAG	2/23/2009	Monday	41405
	N	SH-111	CVAG	2/23/2009	Monday	23868
	S	FRANK SINATRA DR	CVAG	2/19/2009	Thursday	29036
	N	FRANK SINATRA DR	CVAG	2/19/2009	Thursday	27991
	S	RAMON RD	CVAG	2/19/2008	Tuesday	9908
	N	FRANK SINATRA DR	CVAG	2/13/2008	Wednesday	31397
	S	FRANK SINATRA DR	CVAG	2/13/2008	Wednesday	32480
	S	GERALD FORD DR	CVAG	1/30/2008	Wednesday	33158
	N	PARK VIEW DR	CVAG	1/30/2008	Wednesday	32249
	S	DINAH SHORE DR	CVAG	1/30/2008	Wednesday	34177
	N	SH-111	CVAG	1/30/2008	Wednesday	24549
	S	COUNTRY CLUB DR	CVAG	1/30/2008	Wednesday	35642
	N	DINAH SHORE DR	CVAG	1/30/2008	Wednesday	42620
	S	FRED WARING DR	CVAG	1/30/2008	Wednesday	32184
	N	FRED WARING DR	CVAG	1/30/2008	Wednesday	34219
	N	COUNTRY CLUB DR	CVAG	1/30/2008	Wednesday	31593
	N	GERALD FORD DR	CVAG	1/30/2008	Wednesday	35099
	N	DINAH SHORE DR	CVAG	1/30/2007	Tuesday	43039
	S	COUNTRY CLUB DR	CVAG	1/30/2007	Tuesday	37501
	S	GERALD FORD DR	CVAG	1/30/2007	Tuesday	33771
	N	COUNTRY CLUB DR	CVAG	1/30/2007	Tuesday	33446
	S	FRANK SINATRA DR	CVAG	1/30/2007	Tuesday	32024
	S	FRED WARING DR	CVAG	1/30/2007	Tuesday	33260

LOCATION	DIR	X-STREET	NOTE	DATE	DAY	ADT
MONTEREY AVE	S	DINAH SHORE DR	CVAG	1/30/2007	Tuesday	35253
	N	FRANK SINATRA DR	CVAG	1/30/2007	Tuesday	32709
	N	FRED WARING DR	CVAG	1/30/2007	Tuesday	36595
	N	PARK VIEW DR	CVAG	1/30/2007	Tuesday	35559
	S	RAMON RD	CVAG	1/30/2007	Tuesday	10359
	N	GERALD FORD DR	CVAG	1/30/2007	Tuesday	32673
	N	SH-111	CVAG	1/30/2007	Tuesday	24061
	S	RAMON RD	CVAG	3/9/2006	Thursday	9626
	S	FRANK SINATRA DR	CVAG	2/15/2006	Wednesday	31494
	N	FRANK SINATRA DR	CVAG	2/14/2006	Tuesday	33352
	S	DINAH SHORE DR	CVAG	1/30/2006	Monday	32048
	N	FRED WARING DR	CVAG	1/30/2006	Monday	52727
	S	GERALD FORD DR	CVAG	1/30/2006	Monday	32111
	S	COUNTRY CLUB DR	CVAG	1/30/2006	Monday	34207
	N	SH-111	CVAG	1/30/2006	Monday	25158
	N	PARK VIEW DR	CVAG	1/30/2006	Monday	42151
	N	GERALD FORD DR	CVAG	1/30/2006	Monday	32511
	N	COUNTRY CLUB DR	CVAG	1/30/2006	Monday	33861
	N	DINAH SHORE DR	CVAG	1/30/2006	Monday	35309
	S	FRED WARING DR	CVAG	1/30/2006	Monday	29129
	N	COUNTRY CLUB DR	CVAG	10/1/2005	Saturday	33493
	N	DINAH SHORE DR	CVAG	10/1/2005	Saturday	44908
	S	FRANK SINATRA DR	CVAG	3/30/2005	Wednesday	30554
	S	RAMON RD	CVAG	3/9/2005	Wednesday	9132
	N	FRANK SINATRA DR	CVAG	3/9/2005	Wednesday	38326
	N	DINAH SHORE DR	CVAG	3/1/2005	Tuesday	29141
	N	COUNTRY CLUB DR	CVAG	3/1/2005	Tuesday	24914
	S	GERALD FORD DR	CVAG	1/30/2005	Sunday	39051
	S	FRED WARING DR	CVAG	1/30/2005	Sunday	26158
	N	FRED WARING DR	CVAG	1/30/2005	Sunday	33690
	N	GERALD FORD DR	CVAG	1/30/2005	Sunday	38142
	N	PARK VIEW DR	CVAG	1/30/2005	Sunday	30600
	S	DINAH SHORE DR	CVAG	1/30/2005	Sunday	33275
	S	COUNTRY CLUB DR	CVAG	1/30/2005	Sunday	35658
	N	SH-111	CVAG	1/30/2005	Sunday	25342
	S	RAMON RD		12/7/2004	Tuesday	8669
	S	RAMON RD	CVAG	3/15/2004	Monday	8549
	S	FRANK SINATRA DR	CVAG	2/12/2004	Thursday	31061

LOCATION	DIR	X-STREET	NOTE	DATE	DAY	ADT
MONTEREY AVE	N	FRANK SINATRA DR	CVAG	2/11/2004	Wednesday	38270
	S	COUNTRY CLUB DR	CVAG	1/30/2004	Friday	35708
	S	DINAH SHORE DR	CVAG	1/30/2004	Friday	31236
	S	GERALD FORD DR	CVAG	1/30/2004	Friday	36902
	N	PARK VIEW DR	CVAG	1/30/2004	Friday	31206
	N	COUNTRY CLUB DR	CVAG	1/30/2004	Friday	29563
	N	GERALD FORD DR	CVAG	1/30/2004	Friday	32368
	N	FRED WARING DR	CVAG	1/30/2004	Friday	37386
	N	DINAH SHORE DR	CVAG	1/30/2004	Friday	39895
	S	FRED WARING DR	CVAG	1/30/2004	Friday	28373
	N	SH-111	CVAG	1/30/2004	Friday	24190
MONTEREY AVE (SH-74)	S	SH-111	CVAG	1/30/2010	Saturday	19940
	S	SH-111	CVAG	2/23/2009	Monday	22002
	S	SH-111	CVAG	1/30/2008	Wednesday	21299
	S	SH-111	CVAG	1/30/2007	Tuesday	28714
	S	SH-111	CVAG	1/30/2006	Monday	20959
	S	SH-111	CVAG	1/30/2005	Sunday	19864
	S	SH-111	CVAG	1/30/2004	Friday	20729
MONTGOMERY AVE	N	NUEVO RD	CENSUS	5/12/2009	Tuesday	3055
	W	HANSEN AVE		4/21/2004	Wednesday	2527
MORAGA AVE	W	AVE JUAN DIAZ		1/18/2006	Wednesday	1282
MORGAN HILL ST	N	EL CHIMISAL RD		6/8/2010	Tuesday	1707
	S	BUTTERFIELD STAGE RD		6/8/2010	Tuesday	2384
	N	GALLERON ST		6/8/2010	Tuesday	768
	N	BUTTERFIELD STAGE RD		6/8/2010	Tuesday	1482
MOUNTAIN AVE	E	THEDA ST	CENSUS	4/29/2009	Wednesday	1169
	W	SH-74	CENSUS	4/29/2009	Wednesday	1595
	E	THEDA ST		11/11/2004	Thursday	1207
	W	SH-74		11/11/2004	Thursday	1444
MOUNTAIN AVE (RAMONA EXY)	S	HEMET ST		12/14/2004	Tuesday	11876
MOUNTAIN RD	E	EDGEMONT DR		7/13/2004	Tuesday	470
	N	BUCKSKIN TRAIL DR		7/13/2004	Tuesday	1205
MOUNTAIN VIEW PL	S	SAN JACINTO RD		3/26/2008	Wednesday	594
MOUNTAIN VIEW RD	N	VARNER RD	CVAG	1/30/2010	Saturday	10503
	N	DILLON RD	CVAG	1/30/2010	Saturday	5708
	N	20TH AVE	CVAG	1/30/2010	Saturday	9571
	S	DILLON RD	CENSUS	4/15/2009	Wednesday	8591
	N	VARNER RD	CVAG	3/3/2009	Tuesday	10032

LOCATION	DIR	X-STREET	NOTE	DATE	DAY	ADT
MOUNTAIN VIEW RD	N	20TH AVE	CVAG	3/3/2009	Tuesday	9123
	N	DILLON RD	CVAG	3/3/2009	Tuesday	4778
	N	DILLON RD	CVAG	3/6/2008	Thursday	5689
	N	VARNER RD	CVAG	3/5/2008	Wednesday	11099
	N	20TH AVE	CVAG	3/5/2008	Wednesday	9862
	N	VARNER RD	CVAG	1/30/2007	Tuesday	10449
	N	20TH AVE	CVAG	1/30/2007	Tuesday	9392
	N	DILLON RD	CVAG	1/30/2007	Tuesday	6189
	N	20TH AVE	CVAG	3/8/2006	Wednesday	9816
	N	VARNER RD	CVAG	3/8/2006	Wednesday	10413
	N	DILLON RD	CVAG	3/8/2006	Wednesday	6306
	N	VARNER RD	CVAG	1/20/2005	Thursday	10302
	N	DILLON RD	CVAG	1/19/2005	Wednesday	5755
	N	20TH AVE	CVAG	1/19/2005	Wednesday	9181
	N	DILLON RD		11/23/2004	Tuesday	5496
	S	DILLON RD		11/23/2004	Tuesday	8518
	N	VARNER RD	CVAG	1/22/2004	Thursday	9390
	N	DILLON RD	CVAG	1/22/2004	Thursday	5814
	N	20TH AVE	CVAG	1/22/2004	Thursday	8734
MT VERNON AVE	S	CENTER ST	CENSUS	4/14/2009	Tuesday	2309
	S	MAIN ST	CENSUS	4/14/2009	Tuesday	3222
	S	CENTER ST		12/8/2004	Wednesday	2888
	S	MAIN ST		12/8/2004	Wednesday	4986
	N	CENTER ST		4/28/2004	Wednesday	4285
	N	MAIN ST		4/28/2004	Wednesday	5277
MURRIETA HOT SPRINGS RD	E	SH-79	CENSUS	5/28/2009	Thursday	16551
MURRIETA RD	N	BUNDY CANYON RD	CENSUS	5/6/2009	Wednesday	6205
	N	NEWPORT RD	CENSUS	5/6/2009	Wednesday	13166
	S	NEWPORT RD	CENSUS	5/6/2009	Wednesday	8294
	S	CHAMBERS AVE	CENSUS	5/5/2009	Tuesday	7579
	N	MC CALL BLVD	CENSUS	5/5/2009	Tuesday	7498
	N	ROUSE RD	CENSUS	5/5/2009	Tuesday	7176
	S	CHERRY HILLS BLVD	CENSUS	5/5/2009	Tuesday	7935
	S	THORNTON AVE		5/15/2008	Thursday	3760
	N	THORNTON AVE		5/15/2008	Thursday	3199
	S	SUN CITY BLVD		3/28/2007	Wednesday	4983
	N	SUN CITY BLVD		3/28/2007	Wednesday	4622
	S	CHAMBERS AVE		1/11/2006	Wednesday	4279

LOCATION	DIR	X-STREET	NOTE	DATE	DAY	ADT
MURRIETA RD	N	CHAMBERS AVE		1/11/2006	Wednesday	3805
	N	HOLLAND RD		3/16/2005	Wednesday	7951
	S	HOLLAND RD		3/16/2005	Wednesday	4781
	N	HOLLAND RD		1/18/2005	Tuesday	9352
	N	GARBANI RD		1/18/2005	Tuesday	9756
	N	CRAIG AVE		1/18/2005	Tuesday	8947
	S	GARBANI RD		1/18/2005	Tuesday	8205
	S	NEWPORT RD		12/15/2004	Wednesday	13494
	N	BUNDY CANYON RD		12/14/2004	Tuesday	6838
	S	CHAMBERS AVE		11/9/2004	Tuesday	6943
	N	ROUSE RD		11/9/2004	Tuesday	5904
	N	NEWPORT RD		11/9/2004	Tuesday	15779
	N	CHAMBERS AVE		11/9/2004	Tuesday	7607
	S	CHERRY HILLS BLVD		11/9/2004	Tuesday	9523
	N	BUNDY CANYON RD		6/29/2004	Tuesday	5896
N CIRCLE DR	W	CEDAR ST	CENSUS	6/2/2009	Tuesday	3095
	W	CEDAR ST		12/7/2004	Tuesday	2582
N INDIAN CANYON DR	N	20TH AVE	CENSUS	4/14/2009	Tuesday	12195
	N	DILLON RD	CENSUS	4/14/2009	Tuesday	7018
N MAIN ST	N	PLACENTIA LN	CENSUS	4/14/2009	Tuesday	7064
	N	PLACENTIA ST	CENSUS	4/14/2009	Tuesday	6784
NAEEM ST	W	DENNIS		1/1/2006	Sunday	500
NANCY AVE	N	CHERRY VALLEY BLVD		8/26/2009	Wednesday	1128
	N	BROOKSIDE AVE		11/18/2008	Tuesday	1779
NEECE ST	S	MAGNOLIA AVE	CENSUS	4/7/2009	Tuesday	1980
	S	MAGNOLIA AVE		1/13/2005	Thursday	4905
NEIGHBOURS BLVD	S	28TH AVE	CENSUS	6/16/2009	Tuesday	822
	S	28TH AVE		12/16/2004	Thursday	886
NEWCASTLE DR	N	VARNER RD		8/4/2004	Wednesday	665
NEWPORT RD	W	MENIFEE RD	CENSUS	5/14/2009	Thursday	10348
	W	ANTELOPE RD	CENSUS	5/7/2009	Thursday	35357
	W	HAUN RD	CENSUS	5/6/2009	Wednesday	27681
	E	MURRIETA RD	CENSUS	5/6/2009	Wednesday	24876
	W	BRADLEY RD	CENSUS	5/6/2009	Wednesday	27129
	E	GOETZ RD	CENSUS	5/5/2009	Tuesday	23759
	W	MURRIETA RD	CENSUS	5/5/2009	Tuesday	24402
	E	WESTLINK DR		10/10/2007	Wednesday	14679
	W	VIA CORAZON		10/10/2007	Wednesday	14835

LOCATION	DIR	X-STREET	NOTE	DATE	DAY	ADT
NEWPORT RD	W	AVENIDA DE CORTEZ		3/14/2007	Wednesday	17623
	E	AVENIDA DE CORTEZ		3/14/2007	Wednesday	17923
	W	MENIFEE RD		12/7/2004	Tuesday	12893
	E	BEREA RD		12/7/2004	Tuesday	25769
	W	LINDENBERGER RD		12/2/2004	Thursday	11302
	W	BRADLEY RD		12/2/2004	Thursday	27387
	W	ANTELOPE RD		12/2/2004	Thursday	38156
	E	GOETZ RD		12/2/2004	Thursday	23715
	W	MURRIETA RD		11/9/2004	Tuesday	24722
	W	HAUN RD		11/9/2004	Tuesday	32744
	E	MURRIETA RD		11/6/2004	Saturday	25947
	W	MENIFEE LAKES DR		3/11/2004	Thursday	7625
	E	WESTLINK DR		3/11/2004	Thursday	7695
	W	WESTLINK DR		1/22/2004	Thursday	6023
	E	MENIFEE LAKES DR		1/22/2004	Thursday	6367
NICHOLS RD	E	EL TORO RD		4/8/2010	Thursday	541
	W	EL TORO RD		4/8/2010	Thursday	1733
	W	EL TORO RD		6/25/2009	Thursday	1511
	E	EL TORO RD		6/25/2009	Thursday	498
NINO WY	E	WINEVILLE AVE		3/25/2008	Tuesday	1328
NOBLE ST	N	BROOKSIDE AVE		4/17/2007	Tuesday	1198
NUEVO RD	W	GIBSON AVE	CENSUS	5/19/2009	Tuesday	3449
	E	RAMONA AVE	CENSUS	5/12/2009	Tuesday	11033
	W	MENIFEE RD	CENSUS	5/12/2009	Tuesday	8882
	E	MENIFEE RD	CENSUS	5/12/2009	Tuesday	7483
	W	MENIFEE RD		12/9/2004	Thursday	7767
	E	RAMONA AVE		12/9/2004	Thursday	9520
	E	MENIFEE RD		12/9/2004	Thursday	6617
	W	GIBSON AVE		12/9/2004	Thursday	3465
OAK CANYON DR	S	BUNDY CANYON RD		1/11/2006	Wednesday	810
OAK GLEN RD	N	BEAUMONT AVE	CENSUS	5/27/2009	Wednesday	3702
	S	COUNTY LINE RD	CENSUS	5/7/2009	Thursday	3251
	S	COUNTY LINE RD		12/7/2004	Tuesday	2519
OLD 215 FRONTAGE RD	S	COTTONWOOD AVE		4/26/2005	Tuesday	3901
	N	COTTONWOOD AVE		4/26/2005	Tuesday	1783
OLD ELSINORE RD	N	MACK ST	CENSUS	4/28/2009	Tuesday	5308
	S	ALOHA RD	CENSUS	4/28/2009	Tuesday	4748
	S	ALOHA RD		11/9/2004	Tuesday	4865

LOCATION	DIR	X-STREET	NOTE	DATE	DAY	ADT
OLD ELSINORE RD	N	MACK ST		10/28/2004	Thursday	5183
	S	RIDER ST		10/14/2004	Thursday	5513
OLIVE AVE	W	FAIRVIEW AVE		12/7/2004	Tuesday	691
	E	FAIRVIEW AVE		12/7/2004	Tuesday	1329
OLIVE ST	E	FAIRVIEW AVE	CENSUS	5/12/2009	Tuesday	1989
	W	FAIRVIEW AVE	CENSUS	5/12/2009	Tuesday	822
	E	MISSION TR	CENSUS	5/5/2009	Tuesday	3149
	E	MISSION TR		10/11/2005	Tuesday	2478
	E	MISSION TR		11/30/2004	Tuesday	2764
ONTARIO AVE	S	STATE ST	CENSUS	4/8/2009	Wednesday	14054
ONTARIO AVE (TEMESCAL CANYON RD	N	EL CERRITO RD		2/22/2006	Wednesday	5767
OPAL ST	S	MISSION BLVD	CENSUS	2/19/2009	Thursday	7161
	N	45TH ST	CENSUS	2/19/2009	Thursday	3126
	S	RATHKE DR		9/5/2007	Wednesday	4932
	N	45TH ST		10/7/2004	Thursday	3722
	S	MISSION BLVD		10/7/2004	Thursday	7521
ORANGE ST	S	BUNDY CANYON RD	CENSUS	5/12/2009	Tuesday	8772
	S	WALNUT ST	CENSUS	5/6/2009	Wednesday	3408
	N	BUNDY CANYON RD	CENSUS	5/5/2009	Tuesday	6276
	S	CANYON DR	CENSUS	4/9/2009	Thursday	3731
	E	SUMNER AVE	CENSUS	4/7/2009	Tuesday	3832
	S	WALNUT ST		9/27/2007	Thursday	1317
	N	GROVE ST		9/27/2007	Thursday	1425
	E	SUMNER AVE		9/14/2006	Thursday	883
	S	CARMEN AVE		7/20/2005	Wednesday	164
	N	CARMEN AVE		7/20/2005	Wednesday	179
	N	BUNDY CANYON DR		11/30/2004	Tuesday	5326
	S	CANYON DR		11/30/2004	Tuesday	4067
	S	WALNUT ST		11/30/2004	Tuesday	2762
	E	SUMNER AVE		11/2/2004	Tuesday	5882
	E	SUMNER AVE		5/19/2004	Wednesday	3541
ORANGEMONT LN	E	ORCHARD VIEW LN		12/11/2008	Thursday	214
	S	ORCHARD VIEW LN		10/13/2005	Thursday	583
ORANGEWOOD LN	N	EL SOBRANTE RD		12/1/2004	Wednesday	484
ORCHARD ST	W	BEAUMONT AVE		8/4/2009	Tuesday	1235
	W	NANCY AVE		8/4/2009	Tuesday	586
ORCHARD VIEW LN	E	LA SIERRA AVE		8/19/2010	Thursday	646
	E	LA SIERRA AVE		10/12/2006	Thursday	438

LOCATION	DIR	X-STREET	NOTE	DATE	DAY	ADT
ORCHARD VIEW LN	E	ORANGEMONT LN		10/13/2005	Thursday	1077
	E	LA SIERRA AVE		1/13/2004	Tuesday	1267
OVERTURE DR	S	SH-111		6/28/2005	Tuesday	1713
PACIFIC AVE	N	LIMONITE AVE	CENSUS	2/19/2009	Thursday	5164
	N	MISSION BLVD	CENSUS	2/19/2009	Thursday	3493
	S	MISSION BLVD	CENSUS	2/19/2009	Thursday	5297
	N	45TH ST		3/20/2008	Thursday	3498
	N	LIMONITE AVE		5/17/2005	Tuesday	4390
	N	LIMONITE AVE		10/7/2004	Thursday	4879
	N	MISSION BLVD		10/7/2004	Thursday	3641
	S	MISSION BLVD		10/7/2004	Thursday	5591
PALA RD	S	PECHANGA RD	CENSUS	5/28/2009	Thursday	8529
PALM AVE	W	FAIRVIEW AVE	CENSUS	5/12/2009	Tuesday	420
	E	FAIRVIEW AVE	CENSUS	5/12/2009	Tuesday	808
	W	FAIRVIEW AVE	CENSUS	5/2/2009	Saturday	381
	W	FAIRVIEW AVE		12/7/2004	Tuesday	630
	E	FAIRVIEW AVE		12/7/2004	Tuesday	604
PALM CANYON DR	S	ALEJO RD	CVAG	1/30/2010	Saturday	10506
	N	RAMON RD	CVAG	1/30/2010	Saturday	10355
	E	GENE AUTRY TRAIL	CVAG	1/30/2010	Saturday	33841
	W	FARRELL DR	CVAG	1/30/2010	Saturday	29929
	S	TAHQUITZ CANYON WAY	CVAG	1/30/2010	Saturday	10524
	S	TACHEVAH DR	CVAG	1/30/2010	Saturday	12968
	E	GOLF CLUB DR	CVAG	1/30/2010	Saturday	36221
	W	DATE PALM DR	CVAG	1/30/2010	Saturday	39293
	S	VISTA CHINO	CVAG	1/30/2010	Saturday	13321
	W	GENE AUTRY TRAIL	CVAG	1/30/2010	Saturday	28981
	W	CATHEDRAL CANYON DR	CVAG	1/30/2010	Saturday	31894
	S	RAMON RD	CVAG	1/30/2010	Saturday	10095
	S	MESQUITE AVE	CVAG	1/30/2010	Saturday	21878
	S	TACHEVAH DR	CVAG	3/2/2009	Monday	13154
	S	RAMON RD	CVAG	3/2/2009	Monday	13758
	W	FARRELL DR	CVAG	3/2/2009	Monday	28420
	S	MESQUITE AVE	CVAG	3/2/2009	Monday	20612
	S	ALEJO RD	CVAG	3/2/2009	Monday	11380
	S	TAHQUITZ CANYON WAY	CVAG	3/2/2009	Monday	11570
	W	DATE PALM DR	CVAG	3/2/2009	Monday	34040
	S	VISTA CHINO	CVAG	3/2/2009	Monday	13613

LOCATION	DIR	X-STREET	NOTE	DATE	DAY	ADT
PALM CANYON DR	W	GENE AUTRY TRAIL	CVAG	3/2/2009	Monday	32713
	E	GENE AUTRY TRAIL	CVAG	3/2/2009	Monday	34156
	W	CATHEDRAL CANYON DR	CVAG	3/2/2009	Monday	33011
	N	RAMON RD	CVAG	3/2/2009	Monday	11109
	S	TAHQUITZ CANYON WAY	CVAG	1/30/2008	Wednesday	13591
	W	DATE PALM DR	CVAG	1/30/2008	Wednesday	30647
	S	TACHEVAH DR	CVAG	1/30/2008	Wednesday	14154
	S	VISTA CHINO	CVAG	1/30/2008	Wednesday	14782
	S	RAMON RD	CVAG	1/30/2008	Wednesday	11177
	W	CATHEDRAL CANYON DR	CVAG	1/30/2008	Wednesday	33010
	W	GENE AUTRY TRAIL	CVAG	1/30/2008	Wednesday	29583
	E	GENE AUTRY TRAIL	CVAG	1/30/2008	Wednesday	31814
	S	MESQUITE AVE	CVAG	1/30/2008	Wednesday	23733
	S	ALEJO RD	CVAG	1/30/2008	Wednesday	12928
	E	GOLF CLUB DR	CVAG	1/30/2008	Wednesday	38515
	N	RAMON RD	CVAG	1/30/2008	Wednesday	12089
	E	GENE AUTRY TRAIL	CVAG	1/30/2007	Tuesday	34055
	W	CATHEDRAL CANYON DR	CVAG	1/30/2007	Tuesday	33992
	W	DATE PALM DR	CVAG	1/30/2007	Tuesday	39018
	E	GOLF CLUB DR	CVAG	1/30/2007	Tuesday	40925
	S	VISTA CHINO	CVAG	1/30/2007	Tuesday	15626
	N	RAMON RD	CVAG	1/30/2007	Tuesday	11148
	W	GENE AUTRY TRAIL	CVAG	1/30/2007	Tuesday	35189
	W	FARRELL DR	CVAG	1/30/2007	Tuesday	29266
	S	RAMON RD	CVAG	1/30/2007	Tuesday	11806
	S	ALEJO RD	CVAG	1/30/2007	Tuesday	13395
	S	TACHEVAH DR	CVAG	1/30/2007	Tuesday	15342
	S	TAHQUITZ CANYON WAY	CVAG	1/30/2007	Tuesday	12581
	S	MESQUITE AVE	CVAG	1/30/2007	Tuesday	22521
	S	TACHEVAH DR	CVAG	1/30/2006	Monday	14924
	S	RAMON RD	CVAG	1/30/2006	Monday	12465
	W	FARRELL DR	CVAG	1/30/2006	Monday	30352
	W	CATHEDRAL CANYON DR	CVAG	1/30/2006	Monday	34817
	W	DATE PALM DR	CVAG	1/30/2006	Monday	44853
	N	RAMON RD	CVAG	1/30/2006	Monday	15049
	E	GOLF CLUB DR	CVAG	1/30/2006	Monday	32301
	S	VISTA CHINO	CVAG	1/30/2006	Monday	19776
	S	ALEJO RD	CVAG	1/30/2006	Monday	12763

LOCATION	DIR	X-STREET	NOTE	DATE	DAY	ADT
PALM CANYON DR	E	GOLF CLUB DR	CVAG	10/1/2005	Saturday	40487
	S	VISTA CHINO	CVAG	10/1/2005	Saturday	17355
	W	FARRELL DR	CVAG	10/1/2005	Saturday	33837
	W	FARRELL DR	CVAG	3/1/2005	Tuesday	24053
	E	GOLF CLUB DR	CVAG	3/1/2005	Tuesday	29877
	S	VISTA CHINO	CVAG	3/1/2005	Tuesday	15042
	S	ALEJO RD	CVAG	1/30/2005	Sunday	13997
	N	RAMON RD	CVAG	1/30/2005	Sunday	15611
	S	RAMON RD	CVAG	1/30/2005	Sunday	13490
	S	TACHEVAH DR	CVAG	1/30/2005	Sunday	16591
	W	DATE PALM DR	CVAG	1/30/2005	Sunday	33457
	W	CATHEDRAL CANYON DR	CVAG	1/30/2005	Sunday	31276
	N	RAMON RD	CVAG	1/30/2004	Friday	15738
	W	DATE PALM DR	CVAG	1/30/2004	Friday	35693
	S	ALEJO RD	CVAG	1/30/2004	Friday	13717
	N	EL CAMINO WY	CVAG	1/30/2004	Friday	18899
	S	VISTA CHINO	CVAG	1/30/2004	Friday	14036
	S	RAMON RD	CVAG	1/30/2004	Friday	13431
	W	CATHEDRAL CANYON DR	CVAG	1/30/2004	Friday	35911
	S	TACHEVAH DR	CVAG	1/30/2004	Friday	14312
	W	FARRELL DR	CVAG	1/30/2004	Friday	29323
	E	GOLF CLUB DR	CVAG	1/30/2004	Friday	35735
PALM CANYON DR (SH-111)	N	RACQUET CLUB RD	CVAG	1/30/2010	Saturday	15268
	S	RACQUET CLUB RD	CVAG	1/30/2010	Saturday	13460
	S	RACQUET CLUB RD	CVAG	3/2/2009	Monday	13400
	N	RACQUET CLUB RD	CVAG	3/2/2009	Monday	15063
	N	RACQUET CLUB RD	CVAG	1/30/2008	Wednesday	16715
	S	RACQUET CLUB RD	CVAG	1/30/2008	Wednesday	15033
	S	RACQUET CLUB RD	CVAG	1/30/2007	Tuesday	15016
	N	RACQUET CLUB RD	CVAG	1/30/2007	Tuesday	17656
	S	RACQUET CLUB RD	CVAG	1/30/2006	Monday	14644
	N	RACQUET CLUB RD	CVAG	1/30/2006	Monday	16837
	S	RACQUET CLUB RD	CVAG	1/30/2005	Sunday	17644
	N	RACQUET CLUB RD	CVAG	1/30/2005	Sunday	20256
	N	RACQUET CLUB RD	CVAG	1/30/2004	Friday	15236
	S	RACQUET CLUB RD	CVAG	1/30/2004	Friday	13667
PALM CANYON DR E	W	SUNRISE WAY	CVAG	1/30/2010	Saturday	17831
	W	CAMINO REAL S	CVAG	1/30/2010	Saturday	16657

LOCATION	DIR	X-STREET	NOTE	DATE	DAY	ADT
PALM CANYON DR E	W	CAMINO REAL S	CVAG	3/2/2009	Monday	16096
	W	SUNRISE WAY	CVAG	3/2/2009	Monday	17097
	W	CAMINO REAL S	CVAG	1/30/2008	Wednesday	17666
	W	SUNRISE WAY	CVAG	1/30/2008	Wednesday	17564
	W	CAMINO REAL S	CVAG	1/30/2007	Tuesday	17605
	W	SUNRISE WAY	CVAG	1/30/2007	Tuesday	20023
	W	SUNRISE WAY	CVAG	1/30/2006	Monday	18954
	W	CAMINO REAL S	CVAG	1/30/2006	Monday	17234
	W	SUNRISE WAY	CVAG	1/30/2005	Sunday	23086
	W	CAMINO REAL S	CVAG	1/30/2005	Sunday	20547
	W	SUNRISE WAY	CVAG	1/30/2004	Friday	18604
	W	CAMINO REAL S	CVAG	1/30/2004	Friday	18899
PALM CANYON DR N	N	TRAMWAY RD	CVAG	1/30/2010	Saturday	12630
	N	TRAMWAY RD	CVAG	3/2/2009	Monday	15266
	N	TRAMWAY RD	CVAG	1/30/2008	Wednesday	17192
PALM CANYON RD	E	GOLF CLUB DR	CVAG	3/2/2009	Monday	41260
	W	GENE AUTRY TRAIL	CVAG	1/30/2006	Monday	33575
	W	GENE AUTRY TRAIL	CVAG	1/30/2005	Sunday	30880
	W	GENE AUTRY TRAIL	CVAG	1/30/2004	Friday	33198
PALM DR	N	I-10	CVAG	1/30/2010	Saturday	25358
	S	HACIENDA AVE	CVAG	1/30/2010	Saturday	21007
	N	PIERSON BLVD	CVAG	1/30/2010	Saturday	10544
	S	TWO BUNCH PALMS TR	CVAG	1/30/2010	Saturday	27907
	S	DILLON RD	CVAG	1/30/2010	Saturday	23587
	N	DILLON RD	CENSUS	6/2/2009	Tuesday	23698
	N	VARNER RD	CENSUS	4/15/2009	Wednesday	23660
	S	DILLON RD	CENSUS	4/15/2009	Wednesday	22938
	S	TWO BUNCH PALMS TR	CVAG	3/2/2009	Monday	28404
	S	DILLON RD	CVAG	3/2/2009	Monday	23704
	N	PIERSON BLVD	CVAG	3/2/2009	Monday	13896
	S	HACIENDA AVE	CVAG	3/2/2009	Monday	23533
	N	I-10	CVAG	3/2/2009	Monday	24932
	N	I-10	CVAG	3/5/2008	Wednesday	24429
	S	DILLON RD	CVAG	3/5/2008	Wednesday	21978
	S	HACIENDA AVE	CVAG	1/30/2008	Wednesday	23347
	S	TWO BUNCH PALMS TR	CVAG	1/30/2008	Wednesday	29189
	N	PIERSON BLVD	CVAG	1/30/2008	Wednesday	13417
	N	CAMINO IDILIO		9/27/2007	Thursday	24312

LOCATION	DIR	X-STREET	NOTE	DATE	DAY	ADT
PALM DR	N	20TH ST		9/27/2007	Thursday	23757
	N	VARNER RD		9/27/2007	Thursday	24283
	S	HACIENDA AVE	CVAG	1/30/2007	Tuesday	25054
	N	PIERSON BLVD	CVAG	1/30/2007	Tuesday	14477
	N	I-10	CVAG	1/30/2007	Tuesday	25238
	S	DILLON RD	CVAG	1/30/2007	Tuesday	26178
	S	DILLON RD	CVAG	3/7/2006	Tuesday	26181
	N	I-10	CVAG	3/7/2006	Tuesday	26979
	N	PIERSON BLVD	CVAG	1/30/2006	Monday	14875
	S	HACIENDA AVE	CVAG	1/30/2006	Monday	28686
	S	TWO BUNCH PALMS RD	CVAG	1/30/2006	Monday	29343
	S	TWO BUNCH PALMS RD	CVAG	10/1/2005	Saturday	32630
	S	TWO BUNCH PALMS RD	CVAG	3/1/2005	Tuesday	24116
	S	HACIENDA AVE	CVAG	1/30/2005	Sunday	28616
	N	PIERSON BLVD	CVAG	1/30/2005	Sunday	13856
	S	DILLON RD	CVAG	1/13/2005	Thursday	23544
	N	I-10	CVAG	1/13/2005	Thursday	24562
	N	DILLON RD		11/23/2004	Tuesday	25672
	N	VARNER RD		11/23/2004	Tuesday	21128
	S	DILLON RD		11/23/2004	Tuesday	23036
	S	HACIENDA AVE	CVAG	1/30/2004	Friday	22322
	N	PIERSON BLVD	CVAG	1/30/2004	Friday	14167
	S	TWO BUNCH PALMS RD	CVAG	1/30/2004	Friday	25955
	N	I-10	CVAG	1/22/2004	Thursday	24224
	S	DILLON RD	CVAG	1/22/2004	Thursday	25474
PALOMAR ST	E	CLINTON KEITH RD	CENSUS	5/28/2009	Thursday	7333
	E	HARDWOOD LN	CENSUS	5/28/2009	Thursday	7225
	E	ARNOLD LN	CENSUS	5/27/2009	Wednesday	12799
	W	CLINTON KEITH RD	CENSUS	5/7/2009	Thursday	11031
	E	GRUWELL ST	CENSUS	5/6/2009	Wednesday	15768
	W	WESLEY ST	CENSUS	5/6/2009	Wednesday	10162
	E	CENTRAL ST	CENSUS	5/6/2009	Wednesday	14100
	W	MISSION TR	CENSUS	4/15/2009	Wednesday	6438
	E	CORYDON ST	CENSUS	4/9/2009	Thursday	2059
	S	CLINTON KEITH RD		3/20/2007	Tuesday	8197
	S	WESLEY ST		3/20/2007	Tuesday	8334
	N	MCVICAR ST		3/20/2007	Tuesday	7256
	N	BRYANT ST		3/20/2007	Tuesday	4194

LOCATION	DIR	X-STREET	NOTE	DATE	DAY	ADT
PALOMAR ST	E	MISSION TR		3/14/2007	Wednesday	4392
	W	MISSION TR		3/14/2007	Wednesday	2861
	W	WESLEY ST		6/14/2005	Tuesday	8180
	E	CORYDON ST		12/2/2004	Thursday	2542
	W	MISSION TR		11/16/2004	Tuesday	7609
	E	CENTRAL ST		11/16/2004	Tuesday	12103
	E	GRUWELL ST		11/9/2004	Tuesday	15096
	E	CLINTON KEITH RD		9/7/2004	Tuesday	9443
	W	CLINTON KEITH RD		9/7/2004	Tuesday	10365
	E	CORYDON ST		6/29/2004	Tuesday	2028
PARKCENTER DR	E	WINEVILLE AVE		9/25/2008	Thursday	1005
PARSONS RD	N	MARKHAM ST		10/23/2007	Tuesday	1233
	S	MARIPOSA AVE		10/23/2007	Tuesday	1390
	N	MARKHAM ST		1/10/2007	Wednesday	463
	S	MARKHAM ST		1/10/2007	Wednesday	245
	S	MARIPOSA AVE		8/24/2004	Tuesday	1275
	N	MARKHAM ST		8/17/2004	Tuesday	513
PASEO GRANDE	N	VIA SANTIAGO	CENSUS	4/7/2009	Tuesday	9086
	N	ONTARIO AVE	CENSUS	4/7/2009	Tuesday	3821
	N	ONTARIO AVE		12/7/2004	Tuesday	6327
	S	VIA SANTIAGO		12/7/2004	Tuesday	10851
PAUBA RD	E	CALLE CONTENTO		4/6/2005	Wednesday	1107
PAYNE ST	N	EUREKA ST		2/15/2005	Tuesday	94
PEACHTREE DR	E	HAMNER AVE		12/5/2006	Tuesday	2390
PEBBLE BEACH DR	N	SUN CITY BLVD		7/22/2004	Thursday	721
	S	SUN CITY BLVD		7/22/2004	Thursday	631
PEDLEY RD	S	GALENA ST		6/24/2010	Thursday	4708
	N	GALENA ST		6/24/2010	Thursday	5032
	S	BEN NEVIS BLVD		8/25/2009	Tuesday	9992
	N	54TH ST		8/25/2009	Tuesday	7807
	S	45TH ST		8/25/2009	Tuesday	8074
	N	MISSION BLVD	CENSUS	2/24/2009	Tuesday	13939
	S	MISSION BLVD	CENSUS	2/24/2009	Tuesday	10489
	N	JURUPA RD	CENSUS	2/24/2009	Tuesday	8945
	S	JURUPA RD	CENSUS	2/18/2009	Wednesday	8636
	N	LIMONITE AVE	CENSUS	1/21/2009	Wednesday	9930
	S	JURUPA RD		4/17/2008	Thursday	4705
	N	JURUPA RD		4/17/2008	Thursday	4945

LOCATION	DIR	X-STREET	NOTE	DATE	DAY	ADT
PEDLEY RD	N	LIMONITE AVE		11/9/2004	Tuesday	9207
	S	JURUPA RD	RRX	11/3/2004	Wednesday	9888
	N	MISSION BLVD		11/3/2004	Wednesday	11261
	N	JURUPA RD		11/3/2004	Wednesday	10731
	S	MISSION BLVD		11/3/2004	Wednesday	10683
PENNY LN	N	DILLON RD		3/26/2008	Wednesday	4
PERALTA PL	S	LIMONITE AVE	CENSUS	2/25/2009	Wednesday	3148
	S	LIMONITE AVE		10/27/2004	Wednesday	3710
PICO AVE	E	ALVARADO CIR		5/6/2004	Thursday	488
PIEDRAS RD	S	SANTA ROSA MINE RD		6/12/2008	Thursday	847
	S	COPPER QUEEN LN		6/11/2008	Wednesday	673
	N	ROSE QUARTZ DR		6/11/2008	Wednesday	313
PIERCE ST	S	62ND AVE	CENSUS	6/10/2009	Wednesday	1175
	N	62ND AVE	CENSUS	6/9/2009	Tuesday	1182
	S	AIRPORT BLVD	CENSUS	6/9/2009	Tuesday	444
	S	58TH AVE	CENSUS	6/9/2009	Tuesday	719
	N	AIRPORT BLVD	CENSUS	6/4/2009	Thursday	548
	S	WASTEWAY CANAL	CENSUS	5/12/2009	Tuesday	90
	S	AIRPORT BLVD		5/28/2008	Wednesday	237
	N	AIRPORT BLVD		5/28/2008	Wednesday	295
	S	62ND AVE		12/15/2004	Wednesday	1182
	S	58TH AVE		12/15/2004	Wednesday	401
	N	AIRPORT BLVD		12/15/2004	Wednesday	504
	N	62ND AVE		12/15/2004	Wednesday	1409
	S	AIRPORT BLVD		12/15/2004	Wednesday	421
PIERSON	W	INDIAN	CVAG	3/2/2009	Monday	2484
PIERSON BLVD	E	PALM DR	CVAG	1/30/2010	Saturday	2266
	W	INDIAN AVE	CVAG	1/30/2010	Saturday	2593
	W	PALM DR	CVAG	1/30/2010	Saturday	4267
	W	LITTLE MORONGO RD	CVAG	1/30/2010	Saturday	4301
	E	INDIAN AVE		8/6/2009	Thursday	3691
	W	INDIAN AVE		8/4/2009	Tuesday	2283
	W	INDIAN CANYON DR	CENSUS	4/14/2009	Tuesday	2531
	E	SH-62	CENSUS	4/14/2009	Tuesday	1500
	E	INDIAN CANYON DR	CENSUS	4/14/2009	Tuesday	2668
	W	LITTLE MORONGO RD	CVAG	3/2/2009	Monday	4065
	W	PALM DR	CVAG	1/30/2009	Friday	7480
	W	INDIAN AVE	CVAG	1/30/2009	Friday	2484

LOCATION	DIR	X-STREET	NOTE	DATE	DAY	ADT
PIERSON BLVD	E	PALM DR	CVAG	1/30/2009	Friday	6272
	W	INDIAN AVE	CVAG	3/6/2008	Thursday	2200
	W	LITTLE MORONGO RD	CVAG	3/6/2008	Thursday	4470
	W	PALM DR	CVAG	1/30/2008	Wednesday	6386
	E	PALM DR	CVAG	1/30/2008	Wednesday	5813
	E	PALM DR	CVAG	1/30/2007	Tuesday	6244
	W	LITTLE MORONGO RD	CVAG	1/30/2007	Tuesday	5026
	W	INDIAN AVE	CVAG	1/30/2007	Tuesday	2141
	W	PALM DR	CVAG	1/30/2007	Tuesday	6711
	E	INDIAN AVE		9/14/2006	Thursday	2114
	W	INDIAN AVE		9/14/2006	Thursday	953
	W	LITTLE MORONGO RD	CVAG	3/7/2006	Tuesday	3207
	W	INDIAN AVE	CVAG	3/7/2006	Tuesday	1546
	E	PALM DR	CVAG	1/30/2006	Monday	5846
	W	PALM DR	CVAG	1/30/2006	Monday	4743
	W	PALM DR	CVAG	1/30/2005	Sunday	8137
	E	PALM DR	CVAG	1/30/2005	Sunday	7805
	W	LITTLE MORONGO RD	CVAG	1/18/2005	Tuesday	4571
	W	INDIAN AVE	CVAG	1/18/2005	Tuesday	2311
	E	SH-62		12/15/2004	Wednesday	1773
	W	PALM DR	CVAG	1/30/2004	Friday	11694
	E	PALM DR	CVAG	1/30/2004	Friday	8027
	W	LITTLE MORONGO RD	CVAG	1/22/2004	Thursday	5013
PIGEON PASS RD	E	MT VERNON AVE	CENSUS	4/14/2009	Tuesday	869
	S	QUAIL CALL DR	CENSUS	4/14/2009	Tuesday	1318
	N	QUAIL CALL DR		12/9/2004	Thursday	2430
	W	MT VERNON AVE		12/8/2004	Wednesday	1504
	W	MT VERNON AVE		5/27/2004	Thursday	655
	E	MT VERNON AVE		5/27/2004	Thursday	650
PINE COVE RD	W	SH-243	CENSUS	5/19/2009	Tuesday	1611
	W	SH-243		12/7/2004	Tuesday	1199
PINE CREST AVE	S	JOHN MUIR RD	CENSUS	5/19/2009	Tuesday	612
	E	SH-243	CENSUS	5/19/2009	Tuesday	1296
	W	JAMESON DR		8/21/2007	Tuesday	1052
	S	JOHN MUIR DR		12/16/2004	Thursday	511
	E	SH-243		12/7/2004	Tuesday	1038
PINE CREST DR	E	SERFAS CLUB DR	CENSUS	4/7/2009	Tuesday	2681
PINECREST DR	E	SERFAS CLUB DR		12/7/2004	Tuesday	3758

LOCATION	DIR	X-STREET	NOTE	DATE	DAY	ADT
PLAYGROUND RD	N	SH-243		12/7/2004	Tuesday	425
POLK ST	S	AIRPORT BLVD	CVAG	1/30/2010	Saturday	2140
	N	70TH AVE	CENSUS	6/11/2009	Thursday	889
	S	70TH AVE	CENSUS	6/11/2009	Thursday	782
	S	AIRPORT BLVD	CENSUS	6/9/2009	Tuesday	2037
	S	60TH AVE	CENSUS	6/9/2009	Tuesday	872
	S	60TH AVE		12/16/2004	Thursday	645
	S	AIRPORT BLVD		12/16/2004	Thursday	2056
	S	70TH AVE		12/15/2004	Wednesday	687
	N	70TH AVE		12/15/2004	Wednesday	686
PONTIAC AVE	S	36TH ST		8/16/2005	Tuesday	407
PORRAS RD	N	ROSITA DR		4/18/2006	Tuesday	1490
	S	BRILLANTE DR		4/18/2006	Tuesday	1157
	S	ROSITA DR		4/18/2006	Tuesday	1199
PORTER AVE	N	VULCAN CT		10/30/2007	Tuesday	357
	N	VULCAN ST		10/30/2007	Tuesday	338
PORTOLA	N	COUNTRY CLUB	CVAG	3/2/2009	Monday	11134
	S	GERALD FORD	CVAG	3/2/2009	Monday	7926
	S	SR 111	CVAG	3/2/2009	Monday	15326
	S	HOVLEY	CVAG	3/2/2009	Monday	21753
	N	SR 111	CVAG	3/2/2009	Monday	16735
	N	FRANK SINATRA	CVAG	3/2/2009	Monday	8408
	S	COUNTRY CLUB	CVAG	3/2/2009	Monday	18140
	N	GERALD FORD	CVAG	3/2/2009	Monday	6629
PORTOLA AVE	N	COUNTRY CLUB DR	CVAG	1/30/2010	Saturday	12267
	N	FRED WARING DR	CVAG	1/30/2010	Saturday	16590
	S	FRED WARING DR	CVAG	1/30/2010	Saturday	16717
	S	COUNTRY CLUB DR	CVAG	1/30/2010	Saturday	17741
	N	FRANK SINATRA DR	CVAG	1/30/2010	Saturday	10266
	S	SH-111	CVAG	1/30/2010	Saturday	14665
	N	SH-111	CVAG	1/30/2010	Saturday	16345
	N	GERALD FORD DR	CVAG	1/30/2010	Saturday	9240
	S	GERALD FORD DR	CVAG	1/30/2010	Saturday	9507
	S	HOVLEY LN	CVAG	1/30/2010	Saturday	22819
	S	FRED WARING DR	CVAG	3/2/2009	Monday	17023
	N	FRED WARING DR	CVAG	3/2/2009	Monday	17205
	S	GERALD FORD DR	CVAG	1/30/2009	Friday	7926
	N	GERALD FORD DR	CVAG	1/30/2009	Friday	6629

LOCATION	DIR	X-STREET	NOTE	DATE	DAY	ADT
PORTOLA AVE	S	COUNTRY CLUB DR	CVAG	1/30/2009	Friday	18140
	N	SH-111	CVAG	1/30/2009	Friday	16735
	N	COUNTRY CLUB DR	CVAG	1/30/2009	Friday	11134
	S	SH-111	CVAG	1/30/2009	Friday	15326
	S	HOVLEY LN	CVAG	1/30/2009	Friday	21753
	N	FRANK SINATRA DR	CVAG	1/30/2009	Friday	8408
	S	FRED WARING DR	CVAG	1/30/2008	Wednesday	17838
	S	SH-111	CVAG	1/30/2008	Wednesday	15512
	S	COUNTRY CLUB DR	CVAG	1/30/2008	Wednesday	17994
	S	GERALD FORD DR	CVAG	1/30/2008	Wednesday	6934
	N	SH-111	CVAG	1/30/2008	Wednesday	19311
	N	FRED WARING DR	CVAG	1/30/2008	Wednesday	18397
	S	HOVLEY LN	CVAG	1/30/2008	Wednesday	21495
	N	FRANK SINATRA DR	CVAG	1/30/2008	Wednesday	6897
	N	GERALD FORD DR	CVAG	1/30/2008	Wednesday	2371
	N	COUNTRY CLUB DR	CVAG	1/30/2008	Wednesday	10235
	S	GERALD FORD DR	CVAG	1/30/2007	Tuesday	6422
	N	FRED WARING DR	CVAG	1/30/2007	Tuesday	16278
	S	FRED WARING DR	CVAG	1/30/2007	Tuesday	17741
	N	COUNTRY CLUB DR	CVAG	1/30/2007	Tuesday	9583
	S	COUNTRY CLUB DR	CVAG	1/30/2007	Tuesday	16610
	N	FRANK SINATRA DR	CVAG	1/30/2007	Tuesday	6414
	S	SH-111	CVAG	1/30/2007	Tuesday	16577
	S	HOVLEY LN	CVAG	1/30/2007	Tuesday	20724
	N	SH-111	CVAG	1/30/2007	Tuesday	20535
	S	HOVLEY LN	CVAG	1/30/2006	Monday	17640
	S	SH-111	CVAG	1/30/2006	Monday	14593
	S	GERALD FORD DR	CVAG	1/30/2006	Monday	5700
	N	FRED WARING DR	CVAG	1/30/2006	Monday	15105
	N	COUNTRY CLUB DR	CVAG	1/30/2006	Monday	7857
	S	COUNTRY CLUB DR	CVAG	1/30/2006	Monday	14829
	N	FRANK SINATRA DR	CVAG	1/30/2006	Monday	5559
	N	SH-111	CVAG	1/30/2006	Monday	26110
	S	FRED WARING DR	CVAG	1/30/2006	Monday	14593
	S	HOVLEY LN	CVAG	10/1/2005	Saturday	27053
	S	HOVLEY LN	CVAG	3/1/2005	Tuesday	16642
	N	COUNTRY CLUB DR	CVAG	1/30/2005	Sunday	10027
	N	FRANK SINATRA DR	CVAG	1/30/2005	Sunday	6817

LOCATION	DIR	X-STREET	NOTE	DATE	DAY	ADT
PORTOLA AVE	S	SH-111	CVAG	1/30/2005	Sunday	23367
	N	FRED WARING DR	CVAG	1/30/2005	Sunday	22282
	N	SH-111	CVAG	1/30/2005	Sunday	22573
	S	COUNTRY CLUB DR	CVAG	1/30/2005	Sunday	19124
	S	GERALD FORD DR	CVAG	1/30/2005	Sunday	7544
	S	FRED WARING DR	CVAG	1/30/2005	Sunday	26474
	N	SH-111	CVAG	1/30/2004	Friday	17335
	S	COUNTRY CLUB DR	CVAG	1/30/2004	Friday	18372
	S	SH-111	CVAG	1/30/2004	Friday	26581
	N	FRANK SINATRA DR	CVAG	1/30/2004	Friday	7493
	S	FRED WARING DR	CVAG	1/30/2004	Friday	22808
	N	COUNTRY CLUB DR	CVAG	1/30/2004	Friday	12586
	N	FRED WARING DR	CVAG	1/30/2004	Friday	20065
POTOMAC DR	E	BRADLEY RD		2/6/2007	Tuesday	1209
	W	BRADLEY RD		2/6/2007	Tuesday	1292
POURROY RD	S	ROSALES AVE		12/17/2009	Thursday	3735
	N	ROSALES AVE		12/17/2009	Thursday	3463
	S	PROMONTORY PKWY		12/15/2004	Wednesday	7233
	S	AULD RD		12/15/2004	Wednesday	3146
PRAED ST	S	COUNTRY HILLS LN		7/29/2009	Wednesday	601
	S	MCALLISTER PKWY		7/29/2009	Wednesday	569
PYRITE ST	N	GALENA ST		7/29/2009	Wednesday	2848
	N	SH-60	CENSUS	4/1/2009	Wednesday	8270
	N	GALENA ST	CENSUS	3/12/2009	Thursday	4251
	N	SH-60		11/30/2004	Tuesday	9035
	N	GALENA ST		11/9/2004	Tuesday	4909
RAINBOW CANYON RD	N	FRONTAGE RD	CENSUS	5/28/2009	Thursday	5743
	N	FRONTAGE RD		8/16/2007	Thursday	5702
RAMON RD	W	DESERT MOON DR		5/11/2010	Tuesday	6107
	E	SHELTER DR		5/11/2010	Tuesday	10116
	W	BOB HOPE DR		5/11/2010	Tuesday	20519
	E	DATE PALM DR	CVAG	1/30/2010	Saturday	25195
	E	DA VALL DR	CVAG	1/30/2010	Saturday	24423
	W	EL CIELO RD	CVAG	1/30/2010	Saturday	25337
	W	MONTEREY AVE	CVAG	1/30/2010	Saturday	8950
	W	GENE AUTRY TRL	CVAG	1/30/2010	Saturday	38523
	W	BOB HOPE DR	CVAG	1/30/2010	Saturday	25023
	W	DATE PALM DR	CVAG	1/30/2010	Saturday	29998

LOCATION	DIR	X-STREET	NOTE	DATE	DAY	ADT
RAMON RD	E	INDIAN CANYON DR	CVAG	1/30/2010	Saturday	11241
	E	PASEO DOROTEA	CVAG	1/30/2010	Saturday	29391
	W	SUNRISE WAY	CVAG	1/30/2010	Saturday	17793
	W	DA VALL DR	CVAG	1/30/2010	Saturday	22784
	W	VARNER RD	CVAG	1/30/2010	Saturday	25436
	W	LANDAU BLVD	CVAG	1/30/2010	Saturday	37263
	W	THOUSAND PALMS CANYON	CVAG	1/30/2010	Saturday	3127
	W	FARRELL DR	CVAG	1/30/2010	Saturday	20732
	E	BOB HOPE DR	CVAG	1/30/2010	Saturday	32259
	W	CATHEDRAL CANYON DR	CVAG	1/30/2010	Saturday	33537
	E	AVENIDA CABALLEROS	CVAG	1/30/2010	Saturday	17297
	W	INDIAN CANYON DR	CVAG	1/30/2010	Saturday	7835
	E	THOUSAND PALMS CANYON	CENSUS	6/2/2009	Tuesday	2606
	E	VARNER RD	CENSUS	6/2/2009	Tuesday	15030
	E	MONTEREY AVE	CENSUS	5/28/2009	Thursday	6521
	W	MONTEREY AVE	CENSUS	5/13/2009	Wednesday	11079
	W	VARNER RD	CENSUS	5/13/2009	Wednesday	27498
	E	BOB HOPE DR	CENSUS	5/12/2009	Tuesday	24913
	W	THOUSAND PALMS CANYON	CVAG	3/11/2009	Wednesday	2397
	W	LANDAU BLVD	CVAG	2/23/2009	Monday	36568
	E	AVENIDA CABALLEROS	CVAG	2/23/2009	Monday	19415
	E	PASEO DOROTEA	CVAG	2/23/2009	Monday	32248
	W	INDIAN CANYON DR	CVAG	2/23/2009	Monday	9912
	E	INDIAN CANYON DR	CVAG	2/23/2009	Monday	14057
	E	DA VALL DR	CVAG	2/23/2009	Monday	21510
	W	EL CIELO RD	CVAG	2/23/2009	Monday	25300
	W	DATE PALM DR	CVAG	2/23/2009	Monday	32110
	W	DA VALL DR	CVAG	2/23/2009	Monday	21910
	W	GENE AUTRY TRL	CVAG	2/23/2009	Monday	37660
	W	FARRELL DR	CVAG	2/23/2009	Monday	20249
	W	MONTEREY AVE	CVAG	2/23/2009	Monday	9228
	E	DATE PALM DR	CVAG	2/23/2009	Monday	25812
	W	SUNRISE WAY	CVAG	2/23/2009	Monday	19735
	W	VARNER RD	CVAG	2/23/2009	Monday	22906
	W	CATHEDRAL CANYON DR	CVAG	1/30/2009	Friday	32843
	E	BOB HOPE DR	CVAG	1/30/2009	Friday	30989
	W	BOB HOPE DR	CVAG	1/30/2009	Friday	20951
	W	BOB HOPE DR	CVAG	2/20/2008	Wednesday	22254

LOCATION	DIR	X-STREET	NOTE	DATE	DAY	ADT
RAMON RD	E	BOB HOPE DR	CVAG	2/20/2008	Wednesday	31159
	W	MONTEREY AVE	CVAG	2/19/2008	Tuesday	10459
	W	VARNER RD	CVAG	2/19/2008	Tuesday	25598
	W	THOUSAND PALMS CANYON	CVAG	2/6/2008	Wednesday	3209
	W	INDIAN CANYON DR	CVAG	1/30/2008	Wednesday	9019
	W	DATE PALM DR	CVAG	1/30/2008	Wednesday	30481
	W	EL CIELO RD	CVAG	1/30/2008	Wednesday	26823
	W	GENE AUTRY TRL	CVAG	1/30/2008	Wednesday	41959
	W	DA VALL DR	CVAG	1/30/2008	Wednesday	25476
	W	FARRELL DR	CVAG	1/30/2008	Wednesday	22171
	E	DATE PALM DR	CVAG	1/30/2008	Wednesday	26693
	W	CATHEDRAL CANYON DR	CVAG	1/30/2008	Wednesday	36560
	E	AVENIDA CABALLEROS	CVAG	1/30/2008	Wednesday	18001
	W	LANDAU BLVD	CVAG	1/30/2008	Wednesday	37063
	E	PASEO DOROTEA	CVAG	1/30/2008	Wednesday	30674
	W	SUNRISE WAY	CVAG	1/30/2008	Wednesday	20348
	E	INDIAN CANYON DR	CVAG	1/30/2008	Wednesday	13996
	E	DA VALL DR	CVAG	1/30/2008	Wednesday	22324
	E	AVENIDA CABALLEROS	CVAG	1/30/2007	Tuesday	18788
	W	THOUSAND PALMS CANYON	CVAG	1/30/2007	Tuesday	3583
	E	BOB HOPE DR	CVAG	1/30/2007	Tuesday	31037
	W	FARRELL DR	CVAG	1/30/2007	Tuesday	22044
	W	SUNRISE WAY	CVAG	1/30/2007	Tuesday	19721
	E	DA VALL DR	CVAG	1/30/2007	Tuesday	26574
	W	BOB HOPE DR	CVAG	1/30/2007	Tuesday	24961
	E	DATE PALM DR	CVAG	1/30/2007	Tuesday	27074
	W	GENE AUTRY TRL	CVAG	1/30/2007	Tuesday	42951
	W	DA VALL DR	CVAG	1/30/2007	Tuesday	25508
	E	INDIAN CANYON DR	CVAG	1/30/2007	Tuesday	13358
	W	INDIAN CANYON DR	CVAG	1/30/2007	Tuesday	9416
	W	MONTEREY AVE	CVAG	1/30/2007	Tuesday	9768
	W	VARNER RD	CVAG	1/30/2007	Tuesday	26584
	W	DATE PALM DR	CVAG	1/30/2007	Tuesday	35672
	E	PASEO DOROTEA	CVAG	1/30/2007	Tuesday	35566
	W	LANDAU BLVD	CVAG	1/30/2007	Tuesday	39154
	W	CATHEDRAL CANYON RD	CVAG	1/30/2007	Tuesday	36221
	W	EL CIELO RD	CVAG	1/30/2007	Tuesday	26434
	W	VARNER RD	CVAG	2/16/2006	Thursday	26009

LOCATION	DIR	X-STREET	NOTE	DATE	DAY	ADT
RAMON RD	W	BOB HOPE DR	CVAG	2/16/2006	Thursday	27652
	E	BOB HOPE DR	CVAG	2/16/2006	Thursday	32218
	W	MONTEREY AVE	CVAG	2/14/2006	Tuesday	10194
	W	THOUSAND PALMS CANYON	CVAG	2/9/2006	Thursday	3373
	E	DA VALL DR	CVAG	1/30/2006	Monday	26773
	W	LANDAU BLVD	CVAG	1/30/2006	Monday	43473
	E	INDIAN CANYON DR	CVAG	1/30/2006	Monday	14588
	E	DATE PALM DR	CVAG	1/30/2006	Monday	29682
	W	CATHEDRAL CANYON RD	CVAG	1/30/2006	Monday	38659
	E	PASEO DOROTEA	CVAG	1/30/2006	Monday	39892
	W	DATE PALM DR	CVAG	1/30/2006	Monday	32538
	W	INDIAN CANYON DR	CVAG	1/30/2006	Monday	10328
	W	EL CIELO RD	CVAG	1/30/2006	Monday	30808
	W	FARRELL DR	CVAG	1/30/2006	Monday	23387
	E	AVENIDA CABALLEROS	CVAG	1/30/2006	Monday	19952
	W	GENE AUTRY TRL	CVAG	1/30/2006	Monday	43714
	W	SUNRISE WAY	CVAG	1/30/2006	Monday	23586
	W	GENE AUTRY TRL	CVAG	10/1/2005	Saturday	44901
	W	THOUSAND PALMS CANYON	CVAG	3/30/2005	Wednesday	3243
	W	MONTEREY AVE	CVAG	3/30/2005	Wednesday	10273
	W	VARNER RD	CVAG	3/29/2005	Tuesday	27035
	E	VARNER RD		3/17/2005	Thursday	16246
	W	VARNER RD		3/17/2005	Thursday	30892
	W	GENE AUTRY TRL	CVAG	3/1/2005	Tuesday	32367
	W	BOB HOPE DR	CVAG	2/23/2005	Wednesday	22441
	E	BOB HOPE DR	CVAG	2/23/2005	Wednesday	31600
	W	DATE PALM DR	CVAG	1/30/2005	Sunday	34900
	W	FARRELL DR	CVAG	1/30/2005	Sunday	32648
	W	EL CIELO RD	CVAG	1/30/2005	Sunday	29733
	W	THOUSAND PALMS CANYON	CVAG	1/30/2005	Sunday	3243
	W	INDIAN CANYON DR	CVAG	1/30/2005	Sunday	11111
	E	DA VALL DR	CVAG	1/30/2005	Sunday	28665
	W	SUNRISE WAY	CVAG	1/30/2005	Sunday	22345
	E	DATE PALM DR	CVAG	1/30/2005	Sunday	30447
	W	CATHEDRAL CANYON RD	CVAG	1/30/2005	Sunday	38711
	E	INDIAN CANYON DR	CVAG	1/30/2005	Sunday	16380
	W	LANDAU BLVD	CVAG	1/30/2005	Sunday	38662
	W	MONTEREY AVE		12/7/2004	Tuesday	6949

LOCATION	DIR	X-STREET	NOTE	DATE	DAY	ADT
RAMON RD	W	VARNER RD		12/7/2004	Tuesday	20649
	E	MONTEREY AVE		12/7/2004	Tuesday	5155
	E	VARNER RD		12/7/2004	Tuesday	8673
	E	THOUSAND PALMS CANYON		11/23/2004	Tuesday	2398
	E	BOB HOPE DR		11/23/2004	Tuesday	30827
	E	DESERT MOON DR		11/9/2004	Tuesday	4280
	W	DESERT MOON DR		11/9/2004	Tuesday	5580
	W	THOUSAND PALMS CANYON	CVAG	3/16/2004	Tuesday	3133
	E	BOB HOPE DR	CVAG	3/15/2004	Monday	31914
	W	MONTEREY AVE	CVAG	3/15/2004	Monday	14689
	W	BOB HOPE DR	CVAG	3/15/2004	Monday	23161
	W	VARNER RD	CVAG	3/10/2004	Wednesday	33975
	W	GENE AUTRY TRL	CVAG	1/30/2004	Friday	40197
	E	DA VALL DR	CVAG	1/30/2004	Friday	24023
	E	DATE PALM DR	CVAG	1/30/2004	Friday	39203
	E	INDIAN CANYON DR	CVAG	1/30/2004	Friday	16560
	W	CATHEDRAL CANYON RD	CVAG	1/30/2004	Friday	40275
	W	DATE PALM DR	CVAG	1/30/2004	Friday	37407
	W	FARRELL DR	CVAG	1/30/2004	Friday	23598
	W	INDIAN CANYON DR	CVAG	1/30/2004	Friday	10179
	W	LANDAU BLVD	CVAG	1/30/2004	Friday	36548
	W	SUNRISE WAY	CVAG	1/30/2004	Friday	22704
	W	THOUSAND PALMS CANYON	CVAG	1/30/2004	Friday	3133
	W	EL CIELO RD	CVAG	1/30/2004	Friday	28799
RAMONA AVE	N	CENTRAL AVE		12/6/2006	Wednesday	348
	S	ELVIRA DR		12/6/2006	Wednesday	484
RAMONA EXPY	W	LAKEVIEW AVE	CENSUS	6/3/2009	Wednesday	19912
	N	SH-74	CENSUS	5/13/2009	Wednesday	4002
	W	WARREN RD	CENSUS	5/12/2009	Tuesday	31925
	E	LAKEVIEW AVE	CENSUS	5/12/2009	Tuesday	20668
	W	WARREN RD		12/16/2004	Thursday	26843
	W	LAKEVIEW AVE		12/9/2004	Thursday	17932
	E	LAKEVIEW AVE		12/9/2004	Thursday	17525
	N	SH-74		12/8/2004	Wednesday	4571
	W	HANSEN AVE		8/31/2004	Tuesday	9920
	E	HANSEN AVE		8/17/2004	Tuesday	13529
RAMONA EXY	E	LAKEVIEW AVE		6/8/2010	Tuesday	7269
	W	LAKEVIEW AVE		6/8/2010	Tuesday	6885

LOCATION	DIR	X-STREET	NOTE	DATE	DAY	ADT
RAMONA EXY	S	CEDAR AVE		7/29/2009	Wednesday	7330
	S	CEDAR AVE	CENSUS	5/12/2009	Tuesday	7849
	S	CEDAR AVE		12/7/2004	Tuesday	6785
RANCHO CALIFORNIA RD	E	BUTTERFIELD STAGE RD	CENSUS	5/28/2009	Thursday	12451
	W	GLEN OAKS RD	CENSUS	5/28/2009	Thursday	8784
	E	DE LUZ RD	CENSUS	5/27/2009	Wednesday	1217
	E	SYCAMORE MESA RD	CENSUS	5/27/2009	Wednesday	1347
	W	GLENOAKS RD		6/5/2007	Tuesday	7190
	W	MONTE DE ORO		6/5/2007	Tuesday	5984
	W	MONTE DE ORO		6/5/2007	Tuesday	6083
	E	DE LUZ RD		12/7/2004	Tuesday	1186
	W	SYCAMORE MESA RD		12/7/2004	Tuesday	4309
	E	DE LUZ RD		4/28/2004	Wednesday	1094
	E	DE LUZ RD		3/17/2004	Wednesday	1240
RANCHO ESCONDIDO DR	E	CALUMET CT		2/6/2007	Tuesday	606
	E	CALUMET CT		2/5/2007	Monday	575
	E	CALUMET CT		2/4/2007	Sunday	581
	E	CALUMET CT		2/3/2007	Saturday	720
	E	CALUMET CT		2/2/2007	Friday	635
	E	CALUMET CT		2/1/2007	Thursday	644
	E	CALUMET CT		1/31/2007	Wednesday	637
	W	CALUMET CT		12/15/2004	Wednesday	657
RECHE CANYON RD	W	RECHE VISTA DR	CENSUS	4/14/2009	Tuesday	18238
	N	WHITTIER ST	CENSUS	4/14/2009	Tuesday	19039
	W	KEISSEL RD	CENSUS	4/14/2009	Tuesday	18286
	W	RECHE VISTA DR		8/15/2007	Wednesday	17965
	W	WOODSON RD		8/15/2007	Wednesday	18274
	W	KEISSEL RD		12/9/2004	Thursday	15601
	N	WHITTIER ST		12/9/2004	Thursday	17024
	W	RECHE VISTA DR		12/9/2004	Thursday	15525
RECHE VISTA DR	S	RECHE CANYON RD	CENSUS	4/14/2009	Tuesday	17940
	S	RECHE CANYON RD		12/9/2004	Thursday	15443
RED MOUNTAIN DR	W	CAMINO REAL		9/28/2005	Wednesday	1229
RED MOUNTAIN RD	E	SAGE RD	CENSUS	5/14/2009	Thursday	840
	E	SAGE RD		12/8/2004	Wednesday	516
RED OAK ST	N	AULD RD		9/7/2005	Wednesday	988
REDHAWK PKWY	S	WOLF VALLEY RD		12/16/2004	Thursday	5177
REDLANDS BLVD	S	SAN TIMOTEO CANYON RD	CENSUS	5/27/2009	Wednesday	12532

LOCATION	DIR	X-STREET	NOTE	DATE	DAY	ADT
REDLANDS BLVD	S	SAN TIMOTEO CANYON RD		12/7/2004	Tuesday	12615
REED VALLEY RD	N	WILSON VALLEY RD	CENSUS	5/19/2009	Tuesday	354
	N	WILSON VALLEY RD		12/9/2004	Thursday	268
RESERVOIR AVE	N	NUEVO RD		9/29/2005	Thursday	352
RIDER ST	E	BROWN ST	CENSUS	4/28/2009	Tuesday	1736
	W	BROWN ST	CENSUS	4/28/2009	Tuesday	1170
	E	CLARK ST		10/12/2006	Thursday	1175
	W	CLARK ST		10/12/2006	Thursday	1707
	W	BROWN ST		11/17/2004	Wednesday	1133
	E	BROWN ST		11/17/2004	Wednesday	1579
	E	BROWN ST		11/2/2004	Tuesday	2251
	W	BROWN ST		11/2/2004	Tuesday	1397
	W	CLARK ST		10/12/2004	Tuesday	2448
	E	CLARK ST		10/12/2004	Tuesday	1329
RIDGEMOOR RD	E	MURRIETA RD	CENSUS	5/6/2009	Wednesday	3822
	W	MURRIETA RD	CENSUS	5/6/2009	Wednesday	3588
	E	MURRIETA RD		11/9/2004	Tuesday	1243
	W	MURRIETA RD		11/9/2004	Tuesday	4651
RIDGEVIEW AVE	N	LIMONITE AVE		3/29/2005	Tuesday	264
	S	LIMONITE AVE		3/29/2005	Tuesday	191
RIDGEWAY AVE	N	VAN BUREN BLVD	CENSUS	4/14/2009	Tuesday	2831
	N	VAN BUREN BLVD		9/18/2008	Thursday	1682
	N	VAN BUREN BLVD		4/3/2008	Thursday	1359
	N	VAN BUREN BLVD		9/14/2006	Thursday	1113
	N	VAN BUREN BLVD		1/25/2006	Wednesday	2458
	N	VAN BUREN BLVD		10/7/2004	Thursday	2568
	N	VAN BUREN BLVD		9/30/2004	Thursday	2303
RIO VISTA DR	S	MAYBERRY AVE		8/26/2009	Wednesday	288
	W	VIA NARAVILLA		4/10/2008	Thursday	530
	W	VIA NARAVILLA		4/9/2008	Wednesday	463
RIVER RD	E	HELLMAN AVE	CENSUS	4/7/2009	Tuesday	4095
	E	HELLMAN AVE		11/2/2004	Tuesday	3462
RIVERSIDE DR	E	WINEVILLE RD		7/8/2009	Wednesday	4122
	W	WINEVILLE RD	CENSUS	4/1/2009	Wednesday	4468
	E	WINEVILLE RD	CENSUS	4/1/2009	Wednesday	4376
RIVERSIDE PLAYGROUND RD	N	SH-243	CENSUS	6/2/2009	Tuesday	559
RIVERVIEW DR	N	PERALTA PL	CENSUS	4/7/2009	Tuesday	2002
	N	42ND ST	CENSUS	4/2/2009	Thursday	14959

LOCATION	DIR	X-STREET	NOTE	DATE	DAY	ADT
RIVERVIEW DR	S	MISSION BLVD	CENSUS	4/2/2009	Thursday	14887
	N	LIMONITE AVE	CENSUS	4/2/2009	Thursday	16132
	N	MISSION BLVD	CENSUS	4/2/2009	Thursday	3299
	S	42ND ST	CENSUS	4/2/2009	Thursday	16488
	S	LIMONITE AVE	CENSUS	2/19/2009	Thursday	3432
	S	46TH ST		4/10/2008	Thursday	3382
	N	PERALTA PL		4/9/2008	Wednesday	2047
	S	MISSION BLVD		4/9/2008	Wednesday	13093
	S	MISSION BLVD		4/25/2006	Tuesday	10703
	N	MISSION BLVD		12/14/2004	Tuesday	2155
	S	LIMONITE AVE		10/21/2004	Thursday	3788
	S	42ND ST		10/21/2004	Thursday	17511
	S	MISSION BLVD		10/7/2004	Thursday	15719
	N	LIMONITE AVE		10/7/2004	Thursday	16484
ROBERTS RD	W	WOOD RD	CENSUS	4/14/2009	Tuesday	2143
	W	WOOD RD		9/18/2008	Thursday	1411
	W	WOOD RD		4/3/2008	Thursday	1990
	W	SONNY LN		9/14/2006	Thursday	1155
	W	WOOD RD		10/7/2004	Thursday	1841
ROSALES AVE	E	POURROY RD		12/17/2009	Thursday	569
	W	POURROY RD		12/17/2009	Thursday	353
ROSTRATA AVE	N	TERETICORNIS AVE		10/22/2009	Thursday	355
	N	10TH ST		10/22/2009	Thursday	1423
ROUSE RD	E	MURRIETA RD	CENSUS	4/29/2009	Wednesday	1638
	W	SUN CITY BLVD		1/19/2005	Wednesday	2458
	E	SUN CITY BLVD		1/19/2005	Wednesday	1830
	E	MURRIETA RD		12/2/2004	Thursday	1523
RUBIDOUX BLVD	N	34TH ST	CENSUS	4/2/2009	Thursday	23346
	N	TILTON AVE	CENSUS	4/2/2009	Thursday	4440
	S	34TH ST	CENSUS	4/2/2009	Thursday	19641
	S	MISSION BLVD	CENSUS	4/2/2009	Thursday	5131
	N	30TH ST	CENSUS	4/2/2009	Thursday	18189
	N	MISSION BLVD	CENSUS	4/2/2009	Thursday	20112
	S	MARKET ST	CENSUS	2/25/2009	Wednesday	17029
	S	24TH ST	CENSUS	2/25/2009	Wednesday	16703
	N	MARKET ST	CENSUS	2/25/2009	Wednesday	18159
	S	TARRAGONA DR	CENSUS	2/24/2009	Tuesday	14773
	N	TARRAGONA DR	CENSUS	2/24/2009	Tuesday	18596

LOCATION	DIR	X-STREET	NOTE	DATE	DAY	ADT
RUBIDOUX BLVD	S	28TH ST		1/29/2008	Tuesday	9556
	N	28TH ST		1/29/2008	Tuesday	8200
	N	24TH ST		1/29/2008	Tuesday	7832
	S	24TH ST		1/29/2008	Tuesday	9149
	S	34TH ST		12/15/2004	Wednesday	19304
	N	MISSION BLVD		12/14/2004	Tuesday	22913
	S	MISSION BLVD		12/14/2004	Tuesday	5022
	N	TILTON AVE		12/14/2004	Tuesday	4338
	N	34TH ST		12/14/2004	Tuesday	26888
	N	30TH ST		12/14/2004	Tuesday	23222
	S	TARRAGONA DR		12/2/2004	Thursday	16387
	S	MARKET ST		11/16/2004	Tuesday	15543
	N	MARKET ST		11/16/2004	Tuesday	18988
	S	24TH ST		11/16/2004	Tuesday	15151
RUSHMORE AVE	N	KIMBALL DR		3/27/2008	Thursday	444
RUSSEL AVE	N	HIBISCUS AVE		3/3/2010	Wednesday	660
	N	HIBISCUS AVE		9/18/2008	Thursday	1356
	N	HIBISCUS AVE		4/3/2008	Thursday	534
	S	GENTIAN AVE		12/5/2006	Tuesday	2347
	S	RUSSELL AVE		12/5/2006	Tuesday	2347
	N	HIBISCUS AVE		1/18/2006	Wednesday	2054
	N	HIBISCUS AVE		9/30/2004	Thursday	1871
RUTILE ST	N	53RD ST		6/17/2010	Thursday	2416
	N	BIRMINGHAM AVE		6/17/2010	Thursday	4495
	N	VAN BUREN BLVD	CENSUS	2/19/2009	Thursday	7849
	S	VAN BUREN BLVD	CENSUS	2/19/2009	Thursday	7621
	N	JURUPA RD	CENSUS	2/4/2009	Wednesday	3214
	S	JURUPA RD	CENSUS	2/4/2009	Wednesday	2634
	W	VAN BUREN BLVD		3/29/2005	Tuesday	7162
	E	VAN BUREN BLVD		3/29/2005	Tuesday	4376
	S	VAN BUREN BLVD		11/4/2004	Thursday	7040
	N	VAN BUREN BLVD		11/4/2004	Thursday	9199
	N	JURUPA RD		11/3/2004	Wednesday	3489
	S	JURUPA RD		11/3/2004	Wednesday	2435
S CIRCLE DR	E	SH-243	CENSUS	6/2/2009	Tuesday	1297
	S	SCENIC DR	CENSUS	5/19/2009	Tuesday	699
	E	SH-243		12/8/2004	Wednesday	1048
	S	SCENIC DR		12/7/2004	Tuesday	523

LOCATION	DIR	X-STREET	NOTE	DATE	DAY	ADT
SADDLEBACK RD	W	WASHINGTON ST		12/2/2009	Wednesday	522
	W	WASHINGTON ST		1/29/2008	Tuesday	475
SAGE RD	N	SH-79	CENSUS	5/28/2009	Thursday	757
	S	CACTUS VALLEY RD	CENSUS	5/20/2009	Wednesday	3226
	N	EAST BENTON RD	CENSUS	5/19/2009	Tuesday	3643
	N	EAST BENTON RD		12/16/2004	Thursday	2849
	S	CACTUS VALLEY RD		12/14/2004	Tuesday	3541
SAN JACINTO AVE	W	PICO AVE	CENSUS	5/12/2009	Tuesday	5767
	E	OLD ELSINORE RD	CENSUS	4/28/2009	Tuesday	4405
	W	PICO AVE		12/14/2004	Tuesday	5040
	E	OLD ELSINORE RD		11/11/2004	Thursday	4132
SAN JACINTO RD	W	EAST DR		3/26/2008	Wednesday	663
SAN SEVAINE WY	W	MISSION BLVD	CENSUS	2/19/2009	Thursday	5644
SAN TIMOTEO CANYON RD	W	REDLANDS BLVD	CENSUS	5/27/2009	Wednesday	12302
	E	REDLANDS BLVD	CENSUS	5/7/2009	Thursday	1336
	N	LIVE OAK CANYON RD		3/31/2005	Thursday	4395
SAN TIMOTEO CYN RD	W	REDLANDS BLVD		12/7/2004	Tuesday	15196
SANTA ROSA MINE RD	S	LAKE MATHEWS DR		10/14/2004	Thursday	2332
SAUNDERS MEADOW RD	E	MARIAN VIEW DR	CENSUS	5/29/2009	Friday	653
	E	MARIAN VIEW DR	CENSUS	5/19/2009	Tuesday	627
	E	MARIAN VIEW DR		12/7/2004	Tuesday	1004
SCHLEISMAN RD	W	SUMNER AVE		8/25/2009	Tuesday	9485
	E	HAMNER AVE	CENSUS	4/14/2009	Tuesday	2845
	W	HAMNER AVE	CENSUS	4/14/2009	Tuesday	5191
	E	COUNTY LINE	CENSUS	4/7/2009	Tuesday	15323
	E	ARCHIBALD AVE	CENSUS	4/7/2009	Tuesday	11679
	E	HAMNER AVE		1/23/2008	Wednesday	2392
	E	CLEVELAND AVE		1/23/2008	Wednesday	2450
	E	ARCHIBALD AVE		11/2/2004	Tuesday	6928
	E	HAMNER AVE		11/2/2004	Tuesday	1332
	W	HAMNER AVE		11/2/2004	Tuesday	6407
	W	SUMNER AVE		5/19/2004	Wednesday	2692
SCOTT RD	W	LITTLE REB PL		5/21/2009	Thursday	19311
	W	BRADLEY RD		5/21/2009	Thursday	12270
	E	LINDENBERGER RD		5/21/2009	Thursday	13726
	E	LEON RD	CENSUS	5/19/2009	Tuesday	5382
	E	ANTELOPE RD	CENSUS	5/14/2009	Thursday	16453
	W	BRIGGS RD	CENSUS	5/14/2009	Thursday	14478

LOCATION	DIR	X-STREET	NOTE	DATE	DAY	ADT
SCOTT RD	W	SH-79	CENSUS	5/14/2009	Thursday	5703
	W	LEON RD	CENSUS	5/14/2009	Thursday	10731
	E	HAUN RD	CENSUS	5/7/2009	Thursday	17693
	E	MURRIETA RD	CENSUS	5/6/2009	Wednesday	12011
	W	BRIGGS RD		4/19/2006	Wednesday	13044
	E	BRIGGS RD		4/19/2006	Wednesday	12273
	W	MENIFEE RD		7/28/2005	Thursday	14374
	E	MENIFEE RD		7/28/2005	Thursday	14954
	W	SH-79		12/14/2004	Tuesday	4148
	E	HAUN RD		12/14/2004	Tuesday	14643
	W	LEON RD		9/15/2004	Wednesday	9979
	W	BRIGGS RD		9/15/2004	Wednesday	10434
	E	ANTELOPE RD		9/15/2004	Wednesday	17203
	E	MURRIETA RD		6/29/2004	Tuesday	9464
	W	BRIGGS RD		3/30/2004	Tuesday	8845
	E	BRIGGS RD		3/30/2004	Tuesday	8573
	W	WINCHESTER RD		3/24/2004	Wednesday	1844
SCOTTSDALE DR	E	HARLEY JOHN RD		3/23/2010	Tuesday	344
	W	HARLEY JOHN RD		3/23/2010	Tuesday	178
SCOTTSDALE RD	S	CHICKORY DR		4/2/2008	Wednesday	1048
	W	HARLEY JOHN RD		2/2/2006	Thursday	420
SEATON AVE	N	CAJALCO RD	CENSUS	3/31/2009	Tuesday	668
	N	CAJALCO RD		10/28/2004	Thursday	800
SEELEY AVE	E	LOVEKIN BLVD	CENSUS	6/16/2009	Tuesday	497
	E	LOVEKIN BLVD	RRX	11/16/2004	Tuesday	687
SELLERS RD	N	BUNDY CANYON RD		3/9/2006	Thursday	2647
SEMINOLE DR	E	APACHE TR	CENSUS	6/2/2009	Tuesday	8577
	E	MILLARD PASS	CENSUS	5/19/2009	Tuesday	8433
	E	FIELDS RD	CENSUS	5/19/2009	Tuesday	7407
	W	MAIN ST	CENSUS	5/19/2009	Tuesday	3426
	S	JOHNSON LN		9/27/2007	Thursday	6137
	S	APACHE TR		8/22/2007	Wednesday	4532
	N	APACHE TR		8/22/2007	Wednesday	5260
	W	APACHE TR		4/26/2005	Tuesday	3035
	E	APACHE TR		4/26/2005	Tuesday	5755
	W	MAIN ST		12/16/2004	Thursday	2785
	E	FIELDS RD		12/16/2004	Thursday	7281
	E	APACHE TR		12/16/2004	Thursday	13667

LOCATION	DIR	X-STREET	NOTE	DATE	DAY	ADT
SEMINOLE DR	E	MILLARD PASS		12/16/2004	Thursday	7024
SERFAS CLUB DR	N	MONTEREY PENINSULA DR		6/24/2010	Thursday	16025
	N	PALISADES DR	CENSUS	4/7/2009	Tuesday	18232
	N	PINECREST DR	CENSUS	4/7/2009	Tuesday	15552
	N	PALISADES DR		12/7/2004	Tuesday	20539
	N	PINECREST DR		12/7/2004	Tuesday	16757
SEVEN SPRINGS WAY	W	SWALLOWTAIL LN		8/26/2009	Wednesday	601
	E	WASHINGTON ST		8/26/2009	Wednesday	1279
SH-111	N	FRANK SINATRA DR	CVAG	1/30/2010	Saturday	41120
	E	COOK ST	CVAG	1/30/2010	Saturday	43947
	S	COUNTRY CLUB DR	CVAG	1/30/2010	Saturday	36571
	E	JEFFERSON ST	CVAG	1/30/2010	Saturday	28774
	W	DEEP CANYON RD	CVAG	1/30/2010	Saturday	37680
	W	MONTEREY AVE	CVAG	1/30/2010	Saturday	30656
	E	DUNE PALMS RD	CVAG	1/30/2010	Saturday	38037
	E	PORTOLA AVE	CVAG	1/30/2010	Saturday	35539
	E	JACKSON ST	CVAG	1/30/2010	Saturday	16367
	E	EL DORADO DR	CVAG	1/30/2010	Saturday	38275
	E	WASHINGTON ST	CVAG	1/30/2010	Saturday	29726
	N	COUNTRY CLUB DR	CVAG	1/30/2010	Saturday	36094
	E	MADISON ST	CVAG	1/30/2010	Saturday	25545
	W	BOB HOPE DR	CVAG	1/30/2010	Saturday	35167
	N	FRED WARING DR	CVAG	1/30/2010	Saturday	39795
	W	MAGNESIA FALLS DR	CVAG	1/30/2010	Saturday	42490
	E	MILES AVE	CVAG	1/30/2010	Saturday	30032
	E	ADAMS ST	CVAG	1/30/2010	Saturday	31348
	W	PORTOLA AVE	CVAG	1/30/2010	Saturday	36054
	S	FRED WARING DR	CVAG	1/30/2010	Saturday	34046
	W	INDIAN TRL	CVAG	1/30/2010	Saturday	38301
	E	DEEP CANYON RD	CVAG	1/30/2010	Saturday	41592
	E	CLINTON ST	CVAG	1/30/2010	Saturday	23275
	E	MONROE ST	CVAG	1/30/2010	Saturday	27455
	E	MONTEREY AVE	CVAG	1/30/2010	Saturday	35224
	S	FRANK SINATRA DR	CVAG	1/30/2010	Saturday	39848
	E	GOLF CENTER PKWY	CVAG	1/30/2010	Saturday	15572
	W	RANCHO LAS PALMAS	CVAG	1/30/2010	Saturday	33532
	E	MILES AVE	CVAG	1/30/2009	Friday	31624
	W	MONTEREY AVE	CVAG	1/26/2009	Monday	33227

LOCATION	DIR	X-STREET	NOTE	DATE	DAY	ADT
SH-111	N	COUNTRY CLUB DR	CVAG	1/26/2009	Monday	32224
	E	MONTEREY AVE	CVAG	1/26/2009	Monday	35440
	W	INDIAN TRL	CVAG	1/26/2009	Monday	33297
	W	MAGNESIA FALLS DR	CVAG	1/26/2009	Monday	39394
	E	WASHINGTON ST	CVAG	1/26/2009	Monday	31719
	E	MONROE ST	CVAG	1/26/2009	Monday	24340
	E	JEFFERSON ST	CVAG	1/26/2009	Monday	33356
	E	MADISON ST	CVAG	1/26/2009	Monday	25286
	E	PORTOLA AVE	CVAG	1/26/2009	Monday	34883
	E	JACKSON ST	CVAG	1/26/2009	Monday	16222
	S	COUNTRY CLUB DR	CVAG	1/26/2009	Monday	29112
	E	ADAMS ST	CVAG	1/26/2009	Monday	31528
	S	FRED WARING DR	CVAG	1/26/2009	Monday	34010
	E	CLINTON ST	CVAG	1/26/2009	Monday	22834
	W	PORTOLA AVE	CVAG	1/26/2009	Monday	34968
	S	FRANK SINATRA DR	CVAG	1/26/2009	Monday	36280
	E	DUNE PALMS RD	CVAG	1/26/2009	Monday	37539
	W	DEEP CANYON RD	CVAG	1/26/2009	Monday	43594
	E	GOLF CENTER PKWY	CVAG	1/26/2009	Monday	14587
	E	DEEP CANYON RD	CVAG	1/26/2009	Monday	38460
	E	COOK ST	CVAG	1/26/2009	Monday	37762
	N	FRANK SINATRA DR	CVAG	1/26/2009	Monday	36442
	E	EL DORADO DR	CVAG	1/26/2009	Monday	36809
	W	BOB HOPE DR	CVAG	1/26/2009	Monday	33198
	N	FRED WARING DR	CVAG	1/26/2009	Monday	39105
	W	RANCHO LAS PALMAS	CVAG	1/26/2009	Monday	30481
	W	INDIAN TRL	CVAG	1/30/2008	Wednesday	35788
	W	BOB HOPE DR	CVAG	1/30/2008	Wednesday	42382
	W	MAGNESIA FALLS DR	CVAG	1/30/2008	Wednesday	46411
	E	MONROE ST	CVAG	1/30/2008	Wednesday	27653
	S	FRED WARING DR	CVAG	1/30/2008	Wednesday	38558
	N	COUNTRY CLUB DR	CVAG	1/30/2008	Wednesday	38655
	S	COUNTRY CLUB DR	CVAG	1/30/2008	Wednesday	35464
	E	MONTEREY AVE	CVAG	1/30/2008	Wednesday	38850
	S	FRANK SINATRA DR	CVAG	1/30/2008	Wednesday	38830
	W	DEEP CANYON RD	CVAG	1/30/2008	Wednesday	41363
	E	WASHINGTON ST	CVAG	1/30/2008	Wednesday	33148
	E	PORTOLA AVE	CVAG	1/30/2008	Wednesday	37922

LOCATION	DIR	X-STREET	NOTE	DATE	DAY	ADT
SH-111	N	FRED WARING DR	CVAG	1/30/2008	Wednesday	47301
	N	FRANK SINATRA DR	CVAG	1/30/2008	Wednesday	41655
	E	COOK ST	CVAG	1/30/2008	Wednesday	41338
	W	RANCHO LAS PALMAS	CVAG	1/30/2008	Wednesday	41787
	W	MONTEREY AVE	CVAG	1/30/2008	Wednesday	35086
	E	JACKSON ST	CVAG	1/30/2008	Wednesday	15229
	E	CLINTON ST	CVAG	1/30/2008	Wednesday	22817
	E	MADISON ST	CVAG	1/30/2008	Wednesday	24665
	E	GOLF CENTER PKWY	CVAG	1/30/2008	Wednesday	14437
	E	DEEP CANYON RD	CVAG	1/30/2008	Wednesday	38788
	E	JEFFERSON ST	CVAG	1/30/2008	Wednesday	33355
	W	PORTOLA AVE	CVAG	1/30/2008	Wednesday	38605
	E	MILES AVE	CVAG	1/30/2008	Wednesday	37977
	E	EL DORADO DR	CVAG	1/30/2008	Wednesday	43056
	E	COOK ST	CVAG	1/30/2007	Tuesday	41302
	N	FRANK SINATRA DR	CVAG	1/30/2007	Tuesday	41575
	E	GOLF CENTER PKWY	CVAG	1/30/2007	Tuesday	15826
	E	JACKSON ST	CVAG	1/30/2007	Tuesday	23292
	N	COUNTRY CLUB DR	CVAG	1/30/2007	Tuesday	40329
	W	INDIAN TRL	CVAG	1/30/2007	Tuesday	39285
	E	EL DORADO DR	CVAG	1/30/2007	Tuesday	46508
	N	FRED WARING DR	CVAG	1/30/2007	Tuesday	47695
	S	COUNTRY CLUB DR	CVAG	1/30/2007	Tuesday	35879
	E	DEEP CANYON RD	CVAG	1/30/2007	Tuesday	47237
	S	FRANK SINATRA DR	CVAG	1/30/2007	Tuesday	40795
	W	DEEP CANYON RD	CVAG	1/30/2007	Tuesday	41913
	S	FRED WARING DR	CVAG	1/30/2007	Tuesday	41956
	E	CLINTON ST	CVAG	1/30/2007	Tuesday	29625
	W	BOB HOPE DR	CVAG	1/30/2007	Tuesday	40121
	W	RANCHO LAS PALMAS	CVAG	1/30/2007	Tuesday	42652
	W	PORTOLA AVE	CVAG	1/30/2007	Tuesday	35992
	E	JEFFERSON ST	CVAG	1/30/2007	Tuesday	37568
	E	MADISON ST	CVAG	1/30/2007	Tuesday	30459
	W	MONTEREY AVE	CVAG	1/30/2007	Tuesday	33761
	E	MONTEREY AVE	CVAG	1/30/2007	Tuesday	37260
	E	PORTOLA AVE	CVAG	1/30/2007	Tuesday	35177
	W	MAGNESIA FALLS DR	CVAG	1/30/2007	Tuesday	51616
	E	MILES AVE	CVAG	1/30/2007	Tuesday	40893

LOCATION	DIR	X-STREET	NOTE	DATE	DAY	ADT
SH-111	E	WASHINGTON ST	CVAG	1/30/2007	Tuesday	36007
	E	MONROE ST	CVAG	1/30/2007	Tuesday	37477
	W	MAGNESIA FALLS	CVAG	1/30/2006	Monday	47756
	E	MADISON ST	CVAG	1/30/2006	Monday	35219
	E	MONROE ST	CVAG	1/30/2006	Monday	28974
	E	GOLF CENTER PKWY	CVAG	1/30/2006	Monday	16419
	S	FRANK SINATRA DR	CVAG	1/30/2006	Monday	42239
	W	DEEP CANYON RD	CVAG	1/30/2006	Monday	44807
	E	COOK ST	CVAG	1/30/2006	Monday	45176
	E	CLINTON ST	CVAG	1/30/2006	Monday	28669
	N	COUNTRY CLUB DR	CVAG	1/30/2006	Monday	40962
	W	MONTEREY AVE	CVAG	1/30/2006	Monday	35065
	S	FRED WARING DR	CVAG	1/30/2006	Monday	39082
	W	BOB HOPE DR	CVAG	1/30/2006	Monday	39283
	E	MILES AVE	CVAG	1/30/2006	Monday	40813
	E	MONTEREY AVE	CVAG	1/30/2006	Monday	39320
	W	INDIAN TRL	CVAG	1/30/2006	Monday	37869
	E	JACKSON ST	CVAG	1/30/2006	Monday	19117
	E	WASHINGTON ST	CVAG	1/30/2006	Monday	41302
	N	FRANK SINATRA DR	CVAG	1/30/2006	Monday	42679
	E	DEEP CANYON RD	CVAG	1/30/2006	Monday	42817
	E	JEFFERSON ST	CVAG	1/30/2006	Monday	39514
	S	COUNTRY CLUB DR	CVAG	1/30/2006	Monday	39559
	E	PORTOLA AVE	CVAG	1/30/2006	Monday	39530
	E	EL DORADO DR	CVAG	1/30/2006	Monday	48351
	W	PORTOLA AVE	CVAG	1/30/2006	Monday	41495
	N	FRED WARING DR	CVAG	1/30/2006	Monday	46706
	W	RANCHO LAS PALMAS (W VE	CVAG	1/30/2006	Monday	35873
	N	FRED WARING DR	CVAG	10/1/2005	Saturday	59651
	E	COOK ST	CVAG	10/1/2005	Saturday	46296
	E	JEFFERSON ST	CVAG	10/1/2005	Saturday	36810
	W	DEEP CANYON RD	CVAG	10/1/2005	Saturday	45686
	E	WASHINGTON ST	CVAG	10/1/2005	Saturday	43774
	E	WASHINGTON ST	CVAG	3/1/2005	Tuesday	31793
	E	COOK ST	CVAG	3/1/2005	Tuesday	33560
	E	JEFFERSON ST	CVAG	3/1/2005	Tuesday	26726
	N	FRED WARING DR	CVAG	3/1/2005	Tuesday	35868
	W	DEEP CANYON RD	CVAG	3/1/2005	Tuesday	35454

LOCATION	DIR	X-STREET	NOTE	DATE	DAY	ADT
SH-111	W	MAGNESIA FALLS	CVAG	1/30/2005	Sunday	56280
	W	PORTOLA AVE	CVAG	1/30/2005	Sunday	40867
	W	MONTEREY AVE	CVAG	1/30/2005	Sunday	44141
	W	INDIAN TRL	CVAG	1/30/2005	Sunday	38221
	N	FRANK SINATRA DR	CVAG	1/30/2005	Sunday	43512
	E	MILES AVE	CVAG	1/30/2005	Sunday	41963
	W	BOB HOPE DR	CVAG	1/30/2005	Sunday	40334
	E	MONTEREY AVE	CVAG	1/30/2005	Sunday	40921
	E	JACKSON ST	CVAG	1/30/2005	Sunday	19200
	E	PORTOLA AVE	CVAG	1/30/2005	Sunday	40458
	E	MADISON ST	CVAG	1/30/2005	Sunday	30818
	E	GOLF CENTER PKWY	CVAG	1/30/2005	Sunday	15175
	E	MONROE ST	CVAG	1/30/2005	Sunday	30851
	E	EL DORADO DR	CVAG	1/30/2005	Sunday	44489
	E	DEEP CANYON RD	CVAG	1/30/2005	Sunday	52522
	S	COUNTRY CLUB DR	CVAG	1/30/2005	Sunday	38529
	S	FRANK SINATRA DR	CVAG	1/30/2005	Sunday	39944
	E	CLINTON ST	CVAG	1/30/2005	Sunday	29612
	S	FRED WARING DR	CVAG	1/30/2005	Sunday	40993
	W	RANCHO LAS PALMAS (W VE	CVAG	1/30/2005	Sunday	39183
	E	EL DORADO DR	CVAG	1/30/2004	Friday	42881
	E	COOK ST	CVAG	1/30/2004	Friday	43133
	E	JACKSON ST	CVAG	1/30/2004	Friday	17397
	E	JEFFERSON ST	CVAG	1/30/2004	Friday	30269
	E	MADISON ST	CVAG	1/30/2004	Friday	38980
	E	CLINTON ST	CVAG	1/30/2004	Friday	27217
	W	PORTOLA AVE	CVAG	1/30/2004	Friday	37660
	E	MILES AVE	CVAG	1/30/2004	Friday	40966
	W	MONTEREY AVE	CVAG	1/30/2004	Friday	37000
	E	GOLF CENTER PKWY	CVAG	1/30/2004	Friday	14201
	E	MONTEREY AVE	CVAG	1/30/2004	Friday	37103
	E	PORTOLA AVE	CVAG	1/30/2004	Friday	36415
	W	MAGNESIA FALLS	CVAG	1/30/2004	Friday	49040
	E	WASHINGTON ST	CVAG	1/30/2004	Friday	29967
	N	FRANK SINATRA DR	CVAG	1/30/2004	Friday	43257
	N	FRED WARING DR	CVAG	1/30/2004	Friday	54835
	S	COUNTRY CLUB DR	CVAG	1/30/2004	Friday	38019
	W	INDIAN TRL	CVAG	1/30/2004	Friday	37044

LOCATION	DIR	X-STREET	NOTE	DATE	DAY	ADT
SH-111	S	FRANK SINATRA DR	CVAG	1/30/2004	Friday	41621
	S	FRED WARING DR	CVAG	1/30/2004	Friday	41063
	W	BOB HOPE DR	CVAG	1/30/2004	Friday	36664
	E	MONROE ST	CVAG	1/30/2004	Friday	29434
	W	RANCHO LAS PALMAS (W VE	CVAG	1/30/2004	Friday	32880
SH-111 (PALM CANYON DR E)	E	DATE PALM DR	CVAG	1/30/2010	Saturday	38416
	E	DATE PALM DR	CVAG	1/26/2009	Monday	39384
	E	DATE PALM DR	CVAG	1/30/2008	Wednesday	44137
SH-111 (PALM CANYON DR)	E	DATE PALM DR	CVAG	1/30/2007	Tuesday	44619
	E	DATE PALM DR	CVAG	1/30/2006	Monday	52574
	E	DATE PALM DR	CVAG	10/1/2005	Saturday	45718
	E	DATE PALM DR	CVAG	3/1/2005	Tuesday	36356
	E	DATE PALM DR	CVAG	1/30/2004	Friday	44770
SH-111(INDIO BLVD)	E	VAN BUREN ST	CVAG	1/30/2006	Monday	24315
	E	VAN BUREN ST	CVAG	1/30/2005	Sunday	23809
	E	VAN BUREN ST	CVAG	1/30/2004	Friday	22947
SH-74	S	EL PASEO AVE	CVAG	1/30/2010	Saturday	20623
	S	MESA VIEW DR	CVAG	1/30/2010	Saturday	9957
SHERMAN RD	S	SH-74	CENSUS	4/29/2009	Wednesday	3322
	S	SH-74	RRX	12/9/2004	Thursday	3777
SHRIMP LN	W	WASHINGTON ST		1/24/2007	Wednesday	215
SIERRA AVE	N	ARMSTRONG RD	CENSUS	5/28/2009	Thursday	14714
	N	KAREN LN	CENSUS	2/24/2009	Tuesday	16434
	N	KAREN LN		12/1/2004	Wednesday	12876
SIERRA MADRE DR	W	CARDIFF AVE		5/12/2005	Thursday	868
	E	CARDIFF AVE		5/12/2005	Thursday	1075
SIMPSON RD	W	WARREN RD	CENSUS	6/4/2009	Thursday	6468
	E	PATTERSON AVE	CENSUS	6/4/2009	Thursday	5461
	W	SH-79	CENSUS	6/4/2009	Thursday	5220
	W	WHITTIER AVE		5/28/2009	Thursday	3926
	W	WHITTIER AVE		5/27/2009	Wednesday	3782
	E	WARREN RD	CENSUS	5/19/2009	Tuesday	10773
	E	LINDENBERGER RD	CENSUS	5/7/2009	Thursday	3589
	E	PATTERSON AVE		11/30/2004	Tuesday	7739
	E	WARREN RD		11/30/2004	Tuesday	12687
	W	SH-79		11/30/2004	Tuesday	7931
SKY RIDGE RD	N	22ND AVE		3/26/2008	Wednesday	293
SKYLARK WY	W	SUMNER AVE		9/14/2006	Thursday	617

LOCATION	DIR	X-STREET	NOTE	DATE	DAY	ADT
SKYLARK WY	W	SUMNER AVE		5/19/2004	Wednesday	1173
SMITH AVE	N	65TH ST		4/12/2006	Wednesday	118
SMITH RD	S	CAJALCO RD		3/28/2005	Monday	403
SOBOBA RD	E	GILMAN SPRINGS RD	CENSUS	5/12/2009	Tuesday	3474
	E	GILMAN SPRINGS RD		12/6/2007	Thursday	2082
	W	STATE ST		12/6/2007	Thursday	33
	E	GILMAN SPRINGS RD		12/16/2004	Thursday	2866
	E	STATE ST		8/4/2004	Wednesday	2808
SOBOBA ST	N	STETSON AVE	CENSUS	5/14/2009	Thursday	4172
	N	WHITTIER ST	CENSUS	5/14/2009	Thursday	4716
	S	WHITTIER ST		2/24/2009	Tuesday	2079
	N	WHITTIER ST		2/24/2009	Tuesday	1942
	S	JOHNSTON AVE		4/2/2006	Sunday	2309
	N	MAYBERRY AVE		3/31/2006	Friday	2728
	N	WHITTIER ST		11/30/2004	Tuesday	4119
	N	STETSON AVE		11/30/2004	Tuesday	3694
SOUTH BROADWAY	S	14TH AVE	CENSUS	6/16/2009	Tuesday	1016
SPRING ST	N	SH-74	CENSUS	4/29/2009	Wednesday	831
	N	SH-74		6/14/2005	Tuesday	771
SR 111	E	DUNE PALMS	CVAG	1/26/2009	Monday	37539
STANFORD ST	N	WHITTIER AVE	CENSUS	5/14/2009	Thursday	8390
	S	MAYBERRY AVE		2/24/2009	Tuesday	3866
	N	MAYBERRY AVE		2/24/2009	Tuesday	3828
	S	MAYBERRY AVE		5/23/2006	Tuesday	4507
	N	MAYBERRY AVE		5/23/2006	Tuesday	3880
	N	WHITTIER AVE		4/18/2006	Tuesday	4107
	S	WHITTIER AVE		4/12/2006	Wednesday	4962
	N	WHITTIER AVE		11/30/2004	Tuesday	7967
STAR RUBY AVE	W	HARRISON AVE		12/5/2007	Wednesday	2041
STATE ST	N	CALICO CIR		9/1/2009	Tuesday	1587
	N	ONTARIO AVE		8/25/2009	Tuesday	1149
	S	E NEWPORT RD	CENSUS	5/14/2009	Thursday	6394
	N	COUNTRY LAKE ESTATES		7/30/2008	Wednesday	4333
	S	COUNTRY LAKE ESTATES		7/30/2008	Wednesday	5760
	S	SOBOBA RD		12/6/2007	Thursday	6074
	S	SOBOBA RD		8/4/2004	Wednesday	4036
STEPHENS AVE	S	CENTER ST	CENSUS	4/14/2009	Tuesday	8149
	S	CENTER ST		12/8/2004	Wednesday	13901

LOCATION	DIR	X-STREET	NOTE	DATE	DAY	ADT
STERN DR	S	AUGUSTA AVE		1/11/2006	Wednesday	1620
STETSON AVE	W	SOBOBA ST	CENSUS	5/13/2009	Wednesday	7071
	W	YALE ST	CENSUS	5/13/2009	Wednesday	17856
	W	SAN JACINTO ST	CENSUS	5/13/2009	Wednesday	23277
	W	FAIRVIEW AVE	CENSUS	5/13/2009	Wednesday	3482
	E	STANFORD ST	CENSUS	5/13/2009	Wednesday	7606
	E	SAN JACINTO ST		8/9/2007	Thursday	14595
	W	FAIRVIEW AVE		8/9/2007	Thursday	2308
	W	DARTMOUTH ST		3/16/2005	Wednesday	9151
	E	DARTMOUTH ST		3/16/2005	Wednesday	9431
	W	YALE ST		12/8/2004	Wednesday	16278
	W	SAN JACINTO ST		12/8/2004	Wednesday	20497
	E	STANFORD ST		12/8/2004	Wednesday	6157
	W	FAIRVIEW AVE		12/7/2004	Tuesday	2777
	W	SOBOBA ST		12/7/2004	Tuesday	5702
	E	LAKE ST		4/21/2004	Wednesday	2795
	W	LAKE ST		4/21/2004	Wednesday	2900
STONE AVE	S	JURUPA RD	CENSUS	2/24/2009	Tuesday	1365
	S	JURUPA RD	RRX	12/8/2004	Wednesday	701
SULTANAS RD	N	SH-74	CENSUS	5/12/2009	Tuesday	1614
	N	SH-74		12/8/2004	Wednesday	1321
SUMNER AVE	S	COUNTY LINE	CENSUS	4/7/2009	Tuesday	1191
	S	LIMONITE AVE	CENSUS	4/7/2009	Tuesday	7341
	S	65TH ST	CENSUS	4/7/2009	Tuesday	6967
	N	SCHLEISMAN RD		3/25/2008	Tuesday	6903
	N	SKYLARK WY		9/14/2006	Thursday	3192
	S	ORANGE ST		9/14/2006	Thursday	2426
	S	LIMONITE AVE		11/2/2004	Tuesday	6920
	N	SCHLEISMAN RD		5/19/2004	Wednesday	4221
	S	ORANGE ST		5/19/2004	Wednesday	2508
	S	SCHLEISMAN RD		5/19/2004	Wednesday	4127
SUN CITY BLVD	E	MURRIETA RD	CENSUS	5/6/2009	Wednesday	1733
	E	MURRIETA RD		3/28/2007	Wednesday	901
	W	MURRIETA RD		3/28/2007	Wednesday	788
	E	VALLEY BLVD		12/20/2005	Tuesday	632
	W	VALLEY BLVD		12/20/2005	Tuesday	819
	N	ROUSE RD		1/19/2005	Wednesday	462
	S	ROUSE RD		1/19/2005	Wednesday	850

LOCATION	DIR	X-STREET	NOTE	DATE	DAY	ADT
SUN CITY BLVD	E	MURRIETA RD		11/9/2004	Tuesday	2403
	E	PEBBLE BEACH DR		7/22/2004	Thursday	2861
	W	PEBBLE BEACH DR		7/22/2004	Thursday	2948
SUNCREST DR	N	EMERY ST		4/25/2006	Tuesday	299
	S	EMERY ST		4/25/2006	Tuesday	103
SUSSEX RD	S	FOX GLENN RD		2/2/2006	Thursday	93
SYCAMORE CANYON BLVD	N	COLLEGE BLVD	CENSUS	4/14/2009	Tuesday	12796
TECHNOLOGY DR	W	SKY CANYON DR	CENSUS	5/27/2009	Wednesday	5304
TEMESCAL CANYON RD	E	MAITRI RD		9/15/2010	Wednesday	2868
	W	MAITRI RD		9/15/2010	Wednesday	3698
	E	MAITRI RD	CENSUS	4/9/2009	Thursday	5976
	N	INDIAN TRUCK TR	CENSUS	4/9/2009	Thursday	1385
	N	CAJALCO RD	CENSUS	4/9/2009	Thursday	11156
	E	HORSETHEIF CANYON RD	CENSUS	4/9/2009	Thursday	2911
	W	HORSETHEIF CANYON RD	CENSUS	4/9/2009	Thursday	2993
	N	LAWSON RD	CENSUS	4/9/2009	Thursday	12534
	N	LAWSON RD		9/19/2007	Wednesday	2927
	S	LAWSON RD		9/19/2007	Wednesday	3247
	N	MAITRI RD		5/9/2007	Wednesday	5814
	S	MAITRI RD		5/9/2007	Wednesday	4339
	S	EL CERRITO RD		2/22/2006	Wednesday	5981
	N	CAJALCO RD		7/8/2005	Friday	15672
	E	MAITRI RD		12/15/2004	Wednesday	6719
TERWILLIGER RD	S	WELLMAN RD		8/5/2010	Thursday	2545
	S	WELLMAN RD		8/4/2010	Wednesday	2195
	S	WELLMAN RD		8/3/2010	Tuesday	2201
THE FARM RD	E	BUNDY CANYON RD		2/15/2006	Wednesday	2493
	S	BUNDY CANYON RD		5/18/2004	Tuesday	2170
THEDA AVE	S	ELLIS AVE		12/9/2004	Thursday	2960
THEDA ST	N	SH-74	CENSUS	4/29/2009	Wednesday	2973
	S	ELLIS AVE	CENSUS	4/29/2009	Wednesday	2630
	N	SH-74		12/9/2004	Thursday	2304
THOMPSON RD	W	LEON RD		6/24/2010	Thursday	8094
	E	SH-79	CENSUS	5/14/2009	Thursday	10524
	E	SH-79		9/14/2004	Tuesday	9372
THORNTON AVE	E	MURRIETA RD		5/15/2008	Thursday	690
	W	MURRIETA RD		5/15/2008	Thursday	313
	E	HEMET ST		1/18/2006	Wednesday	944

LOCATION	DIR	X-STREET	NOTE	DATE	DAY	ADT
THORNTON AVE	W	HEMET ST		1/18/2006	Wednesday	1375
	W	LAKE ST		12/7/2004	Tuesday	1427
THOUSAND PALMS CANYON RD	N	RAMON RD	CVAG	1/30/2010	Saturday	3074
	N	RAMON RD	CENSUS	4/15/2009	Wednesday	2398
	N	RAMON RD	CVAG	1/26/2009	Monday	2595
	N	RAMON RD	CVAG	2/6/2008	Wednesday	3010
	N	RAMON RD	CVAG	1/30/2007	Tuesday	3534
	N	RAMON RD	CVAG	3/9/2006	Thursday	2654
	N	RAMON RD	CVAG	3/30/2005	Wednesday	2983
	N	RAMON RD		11/23/2004	Tuesday	2730
	N	RAMON RD	CVAG	3/16/2004	Tuesday	2956
TILTON AVE	N	RUBIDOUX BLVD	CENSUS	4/2/2009	Thursday	5609
TOLL GATE RD	W	SH-243	CENSUS	5/19/2009	Tuesday	2715
	W	SH-243		8/21/2007	Tuesday	2481
	W	SH-243		12/7/2004	Tuesday	2024
TOWN VIEW AVE	N	SAVANNAH OAKS DR		5/7/2008	Wednesday	3751
TOWNVIEW AVE	N	DOMAINE MICHAEL DR		7/21/2004	Wednesday	2371
	S	DOMAINE MICHAEL DR		7/21/2004	Wednesday	2346
TRES CERRITOS AVE	E	CALIFORNIA AVE		9/22/2010	Wednesday	357
TRILOGY PKWY	S	LARKSPUR DR		3/22/2006	Wednesday	2620
	S	LARKSPUR DR		3/21/2006	Tuesday	2493
TROTH ST	N	LIMONITE AVE	CENSUS	2/11/2009	Wednesday	1225
	N	LIMONITE AVE		11/4/2004	Thursday	1327
	N	LIMONITE AVE		6/29/2004	Tuesday	1165
TWO BUNCH PALMS	E	LITTLE MORONGO RD	CVAG	1/30/2006	Monday	4959
	E	LITTLE MORONGO RD	CVAG	1/30/2004	Friday	3515
TWO BUNCH PALMS TR	E	LITTLE MORONGO RD	CVAG	1/30/2010	Saturday	4459
TWO BUNCH PALMS TRL	E	PALM DR	CVAG	1/30/2010	Saturday	10473
	W	PALM DR	CVAG	1/30/2010	Saturday	11841
	W	PALM DR	CVAG	1/26/2009	Monday	11277
	E	PALM DR	CVAG	1/26/2009	Monday	10492
	E	LITTLE MORONGO RD	CVAG	1/26/2009	Monday	4383
	W	PALM DR	CVAG	1/30/2008	Wednesday	10950
	E	LITTLE MORONGO RD	CVAG	1/30/2008	Wednesday	4710
	E	PALM DR	CVAG	1/30/2008	Wednesday	10384
	W	PALM DR	CVAG	1/30/2007	Tuesday	11338
	E	LITTLE MORONGO RD	CVAG	1/30/2007	Tuesday	4393
	E	PALM DR	CVAG	1/30/2007	Tuesday	16570

LOCATION	DIR	X-STREET	NOTE	DATE	DAY	ADT
TWO BUNCH PALMS TRL	W	PALM DR	CVAG	1/30/2006	Monday	11778
	E	PALM DR	CVAG	1/30/2006	Monday	10761
	E	PALM DR	CVAG	3/1/2005	Tuesday	4704
	W	PALM DR	CVAG	3/1/2005	Tuesday	4089
	W	PALM DR	CVAG	1/30/2004	Friday	9925
	E	PALM DR	CVAG	1/30/2004	Friday	9381
TYLER ST	N	66TH AVE	CENSUS	6/10/2009	Wednesday	992
	S	62ND AVE	CENSUS	6/10/2009	Wednesday	3682
	N	AIRPORT BLVD	CENSUS	6/3/2009	Wednesday	925
	N	66TH AVE		12/16/2004	Thursday	590
	N	AIRPORT BLVD		12/16/2004	Thursday	935
	S	62ND AVE		12/16/2004	Thursday	1098
TYROLITE ST	S	OLIVIA WY		6/17/2010	Thursday	3704
	S	JURUPA RD	CENSUS	4/2/2009	Thursday	3625
	S	JURUPA RD	RRX	11/9/2004	Tuesday	4196
	S	OLIVIA WY		5/18/2004	Tuesday	2730
UNA ST	S	CAJALCO RD		3/17/2005	Thursday	787
UNION ST	N	BELLEGRAVE AVE	CENSUS	2/19/2009	Thursday	3062
	N	BELLEGRAVE AVE		12/18/2008	Thursday	3140
	N	BELLEGRAVE AVE		3/26/2008	Wednesday	3301
VALLEY BLVD	N	SUN CITY BLVD		12/20/2005	Tuesday	2573
	S	SUN CITY BLVD		12/20/2005	Tuesday	2074
VALLEY VIEW AVE	S	6TH ST		4/4/2007	Wednesday	12345
VALLEY WAY	S	34TH ST	CENSUS	2/25/2009	Wednesday	27333
	N	MISSION BLVD	CENSUS	2/4/2009	Wednesday	26111
	S	MISSION BLVD	CENSUS	2/4/2009	Wednesday	7302
	N	37TH ST		1/29/2008	Tuesday	11802
	S	37TH ST		1/29/2008	Tuesday	13217
	N	MISSION BLVD		11/18/2004	Thursday	22144
	S	MISSION BLVD		11/9/2004	Tuesday	6254
	S	34TH ST		11/9/2004	Tuesday	25352
	W	37TH ST		1/7/2004	Wednesday	21719
VAN BUREN BLVD	N	LIMONITE AVE		8/4/2009	Tuesday	33297
	N	JURUPA RD		8/4/2009	Tuesday	28480
	E	PLUMMER RD	CENSUS	5/20/2009	Wednesday	43758
	E	RIDGEWAY AVE	CENSUS	4/14/2009	Tuesday	38627
	W	WASHINGTON ST	CENSUS	4/8/2009	Wednesday	40872
	W	SUTTLES DR	CENSUS	4/8/2009	Wednesday	30191

LOCATION	DIR	X-STREET	NOTE	DATE	DAY	ADT
VAN BUREN BLVD	S	MOCKINGBIRD CANYON RD	CENSUS	4/8/2009	Wednesday	31866
	E	WASHINGTON ST	CENSUS	4/8/2009	Wednesday	39599
	N	MOCKINGBIRD CANYON RD	CENSUS	4/8/2009	Wednesday	31156
	S	JURUPA RD	CENSUS	4/2/2009	Thursday	31872
	N	CLAY ST	CENSUS	2/25/2009	Wednesday	45191
	N	LIMONITE AVE	CENSUS	2/25/2009	Wednesday	36761
	S	CLAY ST	CENSUS	2/25/2009	Wednesday	55827
	S	56TH ST	CENSUS	2/25/2009	Wednesday	38857
	N	56TH ST	CENSUS	2/25/2009	Wednesday	33871
	N	JURUPA RD	CENSUS	2/19/2009	Thursday	28961
	N	RUTILE ST	CENSUS	2/19/2009	Thursday	31864
	N	BELLEGRAVE AVE	CENSUS	2/19/2009	Thursday	28931
	S	RUTILE ST	CENSUS	2/19/2009	Thursday	30261
	E	ETIWANDA AVE	CENSUS	2/18/2009	Wednesday	28739
	W	ETIWANDA AVE	CENSUS	2/18/2009	Wednesday	49125
	W	WOOD RD		10/16/2007	Tuesday	42761
	W	SUTTLES DR		9/27/2007	Thursday	31917
	W	I-215		9/25/2007	Tuesday	32717
	N	MOCKINGBIRD CANYON		1/25/2005	Tuesday	46487
	E	ETIWANDA AVE		12/1/2004	Wednesday	24621
	W	ETIWANDA AVE		12/1/2004	Wednesday	38908
	N	LIMONITE AVE		11/10/2004	Wednesday	35040
	S	56TH ST		11/10/2004	Wednesday	36080
	W	SUTTLES DR		11/10/2004	Wednesday	13082
	N	56TH ST		11/10/2004	Wednesday	35573
	S	LIMONITE AVE		11/9/2004	Tuesday	36546
	S	RUTILE ST		11/4/2004	Thursday	28241
	S	JURUPA RD		11/4/2004	Thursday	34189
	N	RUTILE ST		11/4/2004	Thursday	30747
	N	JURUPA RD		11/4/2004	Thursday	27423
	N	BELLEGRAVE AVE		11/4/2004	Thursday	28022
	N	CLAY ST		11/3/2004	Wednesday	41572
	S	CLAY ST		11/2/2004	Tuesday	67754
	S	MOCKINGBIRD CANYON		10/7/2004	Thursday	40392
	E	WASHINGTON ST		10/7/2004	Thursday	39424
	W	WOOD RD		10/7/2004	Thursday	42227
	W	WASHINGTON ST		10/7/2004	Thursday	35091
	E	GARDNER AVE		3/4/2004	Thursday	33813

LOCATION	DIR	X-STREET	NOTE	DATE	DAY	ADT
VAN BUREN BLVD	E	CHICAGO AVE		3/2/2004	Tuesday	21739
	W	CHICAGO AVE		3/2/2004	Tuesday	23390
VAN BUREN ST	N	AIRPORT BLVD (56TH AVE)	CVAG	1/30/2010	Saturday	3346
	N	52ND AVE	CVAG	1/30/2010	Saturday	5808
	S	60TH AVE	CVAG	1/30/2010	Saturday	1017
	N	50TH AVE	CVAG	1/30/2010	Saturday	6354
	S	INDIO BLVD	CVAG	1/30/2010	Saturday	6482
	N	54TH AVE	CVAG	1/30/2010	Saturday	4663
	S	62ND AVE	CVAG	1/30/2010	Saturday	623
	S	AIRPORT BLVD (56TH AVE)	CVAG	1/30/2010	Saturday	1472
	S	58TH AVE	CVAG	1/30/2010	Saturday	1176
	S	62ND AVE	CENSUS	6/10/2009	Wednesday	658
	S	AIRPORT BLVD (56TH AVE)	CENSUS	6/9/2009	Tuesday	1602
	S	60TH AVE	CENSUS	6/9/2009	Tuesday	1017
	S	62ND AVE	CENSUS	6/4/2009	Thursday	696
	S	INDIO BLVD	CVAG	1/26/2009	Monday	7120
	N	AIRPORT BLVD (56TH AVE)	CVAG	1/26/2009	Monday	3340
	N	50TH AVE	CVAG	1/26/2009	Monday	6498
	N	52ND AVE	CVAG	1/26/2009	Monday	5897
	N	54TH AVE	CVAG	1/22/2009	Thursday	4706
	S	62ND AVE	CVAG	1/21/2009	Wednesday	612
	S	60TH AVE	CVAG	1/21/2009	Wednesday	994
	S	AIRPORT BLVD (56TH AVE)	CVAG	1/21/2009	Wednesday	1589
	S	58TH AVE	CVAG	1/21/2009	Wednesday	1177
	S	INDIO BLVD	CVAG	1/30/2008	Wednesday	6873
	N	50TH AVE	CVAG	1/30/2008	Wednesday	6182
	N	52ND AVE	CVAG	1/15/2008	Tuesday	6071
	N	54TH AVE	CVAG	1/10/2008	Thursday	4511
	S	AIRPORT BLVD (56TH AVE)	CVAG	1/9/2008	Wednesday	1551
	S	58TH AVE	CVAG	1/9/2008	Wednesday	1306
	N	AIRPORT BLVD (56TH AVE)	CVAG	1/9/2008	Wednesday	3043
	S	62ND AVE	CVAG	1/8/2008	Tuesday	679
	S	60TH AVE	CVAG	1/8/2008	Tuesday	1112
	S	58TH AVE	CVAG	1/30/2007	Tuesday	1205
	N	52ND AVE	CVAG	1/30/2007	Tuesday	5367
	S	AIRPORT BLVD (56TH AVE)	CVAG	1/30/2007	Tuesday	1593
	S	INDIO BLVD	CVAG	1/30/2007	Tuesday	8112
	N	54TH AVE	CVAG	1/30/2007	Tuesday	4150

LOCATION	DIR	X-STREET	NOTE	DATE	DAY	ADT
VAN BUREN ST	N	50TH AVE	CVAG	1/30/2007	Tuesday	5546
	S	62ND AVE	CVAG	1/30/2007	Tuesday	719
	N	AIRPORT BLVD (56TH AVE)	CVAG	1/30/2007	Tuesday	3097
	S	60TH AVE	CVAG	1/30/2007	Tuesday	1037
	S	INDIO BLVD	CVAG	1/30/2006	Monday	6964
	N	50TH AVE	CVAG	1/30/2006	Monday	7450
	N	52ND AVE	CVAG	1/17/2006	Tuesday	4015
	N	54TH AVE	CVAG	1/17/2006	Tuesday	3143
	S	AIRPORT BLVD (56TH AVE)	CVAG	1/12/2006	Thursday	1484
	N	AIRPORT BLVD (56TH AVE)	CVAG	1/12/2006	Thursday	3134
	S	58TH AVE	CVAG	1/11/2006	Wednesday	1239
	S	60TH AVE	CVAG	1/11/2006	Wednesday	1205
	S	62ND AVE	CVAG	1/11/2006	Wednesday	643
	N	54TH AVE	CVAG	1/31/2005	Monday	4044
	S	AIRPORT BLVD (56TH AVE)	CVAG	1/31/2005	Monday	1494
	S	58TH AVE	CVAG	1/31/2005	Monday	1181
	S	60TH AVE	CVAG	1/31/2005	Monday	1036
	S	62ND AVE	CVAG	1/31/2005	Monday	762
	N	AIRPORT BLVD (56TH AVE)	CVAG	1/31/2005	Monday	2666
	S	INDIO BLVD	CVAG	1/30/2005	Sunday	7306
	N	50TH AVE	CVAG	1/30/2005	Sunday	5253
	N	52ND AVE	CVAG	1/27/2005	Thursday	4656
	S	60TH AVE		12/16/2004	Thursday	811
	S	62ND AVE		12/16/2004	Thursday	629
	S	AIRPORT BLVD (56TH AVE)		12/15/2004	Wednesday	1394
	S	62ND AVE		11/17/2004	Wednesday	846
	N	54TH AVE	CVAG	3/8/2004	Monday	3016
	S	AIRPORT BLVD (56TH AVE)	CVAG	3/8/2004	Monday	1380
	N	52ND AVE	CVAG	1/30/2004	Friday	4003
	N	50TH AVE	CVAG	1/30/2004	Friday	4841
	N	AIRPORT BLVD (56TH AVE)	CVAG	1/30/2004	Friday	2645
	S	INDIO BLVD	CVAG	1/30/2004	Friday	4701
VAN GAALE LN	S	BENTON RD		8/2/2007	Thursday	1013
	S	POMEROL LP		11/15/2005	Tuesday	1984
VANDER VEER RD	S	DOLPHIN DR		3/19/2008	Wednesday	535
VARNER RD	N	COOK ST		8/19/2010	Thursday	2737
	S	MONTEREY AVE		8/19/2010	Thursday	2721
	S	MONTEREY AVE		8/19/2010	Thursday	2702

LOCATION	DIR	X-STREET	NOTE	DATE	DAY	ADT
VARNER RD	N	HARRY OLIVER TRL	CVAG	1/30/2010	Saturday	5858
	E	JEFFERSON ST	CVAG	1/30/2010	Saturday	1945
	E	MADISON ST	CVAG	1/30/2010	Saturday	5179
	E	MONROE ST	CVAG	1/30/2010	Saturday	9370
	E	MOUNTAIN VIEW RD	CVAG	1/30/2010	Saturday	12141
	E	DATE PALM DR	CVAG	1/30/2010	Saturday	4183
	N	RIO DEL SOL RD	CVAG	1/30/2010	Saturday	4182
	E	WASHINGTON ST	CVAG	1/30/2010	Saturday	24835
	W	JEFFERSON ST	CVAG	1/30/2010	Saturday	8058
	S	MONTEREY AVE	CVAG	1/30/2010	Saturday	4643
	E	PALM DR	CVAG	1/30/2010	Saturday	2182
	W	DATE PALM DR	CVAG	1/30/2010	Saturday	12532
	S	RAMON RD	CVAG	1/30/2010	Saturday	6719
	S	RIO DEL SOL RD	CVAG	1/30/2010	Saturday	9156
	E	MONTEREY AVE	CENSUS	6/2/2009	Tuesday	3612
	E	HARRY OLIVER TR	CENSUS	5/12/2009	Tuesday	5321
	N	RIO DEL SOL RD	CENSUS	4/15/2009	Wednesday	3668
	E	WASHINGTON ST	CVAG	2/9/2009	Monday	22915
	E	DATE PALM DR	CVAG	2/9/2009	Monday	4388
	W	DATE PALM DR	CVAG	2/9/2009	Monday	12777
	W	JEFFERSON ST	CVAG	2/9/2009	Monday	7392
	E	MONROE ST	CVAG	2/9/2009	Monday	7447
	E	PALM DR	CVAG	2/9/2009	Monday	1865
	S	MONTEREY AVE	CVAG	2/9/2009	Monday	3833
	S	RAMON RD	CVAG	2/9/2009	Monday	5598
	E	MADISON ST	CVAG	2/9/2009	Monday	1659
	E	JEFFERSON ST	CVAG	2/9/2009	Monday	1287
	E	MOUNTAIN VIEW RD	CVAG	2/9/2009	Monday	11677
	E	PALM DR	CVAG	3/6/2008	Thursday	2467
	S	RAMON RD	CVAG	2/19/2008	Tuesday	6905
	S	MONTEREY AVE	CVAG	2/19/2008	Tuesday	4308
	E	WASHINGTON ST	CVAG	2/6/2008	Wednesday	23032
	W	DATE PALM DR	CVAG	1/30/2008	Wednesday	13657
	E	JEFFERSON ST	CVAG	1/30/2008	Wednesday	2607
	E	MONROE ST	CVAG	1/30/2008	Wednesday	5747
	E	MOUNTAIN VIEW RD	CVAG	1/30/2008	Wednesday	13101
	E	DATE PALM DR	CVAG	1/30/2008	Wednesday	5480
	W	JEFFERSON ST	CVAG	1/30/2008	Wednesday	7236

LOCATION	DIR	X-STREET	NOTE	DATE	DAY	ADT
VARNER RD	E	MONROE ST	CVAG	1/30/2007	Tuesday	5067
	S	MONTEREY AVE	CVAG	1/30/2007	Tuesday	3981
	E	MOUNTAIN VIEW RD	CVAG	1/30/2007	Tuesday	17026
	E	JEFFERSON ST	CVAG	1/30/2007	Tuesday	2797
	W	JEFFERSON ST	CVAG	1/30/2007	Tuesday	6849
	S	RAMON RD	CVAG	1/30/2007	Tuesday	7109
	E	PALM DR	CVAG	1/30/2007	Tuesday	2572
	S	WASHINGTON ST	CVAG	1/30/2007	Tuesday	24066
	W	DATE PALM DR	CVAG	1/30/2007	Tuesday	12505
	E	DATE PALM DR	CVAG	1/30/2007	Tuesday	5801
	E	PALM DR	CVAG	3/8/2006	Wednesday	2954
	S	RAMON RD	CVAG	2/16/2006	Thursday	9085
	S	MONTEREY AVE	CVAG	2/14/2006	Tuesday	5130
	E	WASHINGTON ST	CVAG	2/8/2006	Wednesday	17536
	E	JEFFERSON ST	CVAG	1/30/2006	Monday	2591
	E	MOUNTIAN VEIW RD	CVAG	1/30/2006	Monday	13024
	W	JEFFERSON ST	CVAG	1/30/2006	Monday	6884
	E	DATE PALM DR	CVAG	1/30/2006	Monday	6382
	W	DATE PALM DR	CVAG	1/30/2006	Monday	10553
	S	MONTEREY AVE	CVAG	3/31/2005	Thursday	4988
	S	RAMON RD	CVAG	3/31/2005	Thursday	9795
	E	WASHINGTON ST	CVAG	3/31/2005	Thursday	16819
	N	RAMON RD		3/22/2005	Tuesday	23296
	S	RAMON RD		3/17/2005	Thursday	13495
	E	JEFFERSON ST	CVAG	1/30/2005	Sunday	2609
	E	MOUNTIAN VEIW RD	CVAG	1/30/2005	Sunday	12980
	E	DATE PALM DR	CVAG	1/30/2005	Sunday	6010
	W	JEFFERSON ST	CVAG	1/30/2005	Sunday	5751
	W	DATE PALM DR	CVAG	1/30/2005	Sunday	13297
	E	PALM DR	CVAG	1/13/2005	Thursday	2970
	W	NEWCASTLE DR		8/4/2004	Wednesday	11357
	E	NEWCASTLE DR		8/4/2004	Wednesday	8288
	S	MONTEREY AVE	CVAG	3/17/2004	Wednesday	8179
	E	WASHINGTON ST	CVAG	2/2/2004	Monday	17651
	W	JEFFERSON ST	CVAG	1/30/2004	Friday	5189
	W	DATE PALM DR	CVAG	1/30/2004	Friday	11736
	E	JEFFERSON ST	CVAG	1/30/2004	Friday	1502
	E	DATE PALM DR	CVAG	1/30/2004	Friday	5409

LOCATION	DIR	X-STREET	NOTE	DATE	DAY	ADT
VARNER RD	S	RAMON RD	CVAG	1/29/2004	Thursday	8085
	E	PALM DR	CVAG	1/22/2004	Thursday	1891
VARNER RD (42ND AVE)	E	JACKSON ST	CVAG	1/30/2010	Saturday	5316
	E	JACKSON ST	CVAG	2/9/2009	Monday	5412
	E	JACKSON ST	CVAG	1/30/2008	Wednesday	3489
	E	MADISON ST	CVAG	1/21/2008	Monday	2419
	E	MADISON ST	CVAG	1/30/2007	Tuesday	1769
	E	JACKSON ST	CVAG	1/30/2007	Tuesday	4916
	E	MONROE ST	CVAG	1/30/2006	Monday	5352
	E	JACKSON ST	CVAG	1/30/2006	Monday	3865
	E	MADISON ST	CVAG	1/26/2006	Thursday	2428
	E	MADISON ST	CVAG	2/10/2005	Thursday	2185
	E	MONROE ST	CVAG	1/30/2005	Sunday	4046
	E	JACKSON ST	CVAG	1/30/2005	Sunday	2433
	E	MADISON ST	CVAG	3/15/2004	Monday	1594
	E	MONROE ST	CVAG	1/30/2004	Friday	1943
	E	JACKSON ST	CVAG	1/30/2004	Friday	1292
VIA CORAZON	S	NEWPORT RD		10/10/2007	Wednesday	537
	S	NEWPORT RD		3/17/2004	Wednesday	1254
VIA DEL RIO	W	PASEO GRANDE	CENSUS	4/7/2009	Tuesday	1602
	W	PASEO GRANDE		12/7/2004	Tuesday	2229
VIA FLORENCIA	E	AVE JUAN BAUTISTA		1/14/2009	Wednesday	90
	W	GOLDEN WEST AVE		1/14/2009	Wednesday	61
VIA LAS PALMAS	N	RAMON RD		1/14/2004	Wednesday	512
VIA SANTIAGO	W	PASEO GRANDE	CENSUS	4/7/2009	Tuesday	2212
	W	VIA FELIPE		12/2/2008	Tuesday	1656
	W	PASEO GRANDE		12/7/2004	Tuesday	2611
VICTORIA AVE	W	LA SIERRA AVE	CENSUS	4/8/2009	Wednesday	3337
	E	LYON AVE		2/3/2005	Thursday	3540
	W	LA SIERRA AVE		10/5/2004	Tuesday	3645
VINELAND ST	E	NANCY AVE	CENSUS	5/7/2009	Thursday	908
	E	NANCY AVE		12/7/2004	Tuesday	749
VISTA CHINO (SH-111)	W	SUNRISE WAY	CVAG	1/30/2006	Monday	24064
	W	SUNRISE WAY	CVAG	1/30/2005	Sunday	23079
	W	SUNRISE WAY	CVAG	1/30/2004	Friday	20864
VISTA CHINO DR	W	DATE PALM DR	CVAG	1/30/2010	Saturday	20094
	E	INDIAN CANYON DR	CVAG	1/30/2010	Saturday	14962
	E	PALM CANYON DR	CVAG	1/30/2010	Saturday	10240

LOCATION	DIR	X-STREET	NOTE	DATE	DAY	ADT
VISTA CHINO DR	E	GENE AUTRY TRL	CVAG	1/30/2010	Saturday	22223
	W	GENE AUTRY TRL	CVAG	1/30/2010	Saturday	30749
	W	SUNRISE WAY	CVAG	1/30/2010	Saturday	19282
	W	GENE AUTRY TRL	CVAG	2/9/2009	Monday	31890
	W	DATE PALM DR	CVAG	2/9/2009	Monday	19369
	E	PALM CANYON DR	CVAG	2/9/2009	Monday	9831
	E	INDIAN CANYON DR	CVAG	2/9/2009	Monday	14436
	W	SUNRISE WAY	CVAG	2/9/2009	Monday	17924
	E	GENE AUTRY TRL	CVAG	2/9/2009	Monday	24973
	W	SUNRISE WAY	CVAG	1/30/2008	Wednesday	18002
	W	GENE AUTRY TRL	CVAG	1/30/2008	Wednesday	32789
	E	GENE AUTRY TRL	CVAG	1/30/2008	Wednesday	25713
	E	PALM CANYON DR	CVAG	1/30/2008	Wednesday	11740
	E	INDIAN CANYON DR	CVAG	1/30/2008	Wednesday	11740
	W	DATE PALM DR	CVAG	1/30/2008	Wednesday	21726
	W	GENE AUTRY TRL	CVAG	1/30/2007	Tuesday	33714
	E	GENE AUTRY TRL	CVAG	1/30/2007	Tuesday	26041
	W	DATE PALM DR	CVAG	1/30/2007	Tuesday	24650
	W	SUNRISE WAY	CVAG	1/30/2007	Tuesday	18332
	E	PALM CANYON DR	CVAG	1/30/2007	Tuesday	10722
	E	INDIAN CANYON DR	CVAG	1/30/2007	Tuesday	15012
	W	GENE AUTRY TR	CVAG	1/30/2006	Monday	32434
	E	GENE AUTRY TR	CVAG	1/30/2006	Monday	24993
	E	PALM CANYON DR	CVAG	1/30/2006	Monday	11860
	E	INDIAN CANYON DR	CVAG	1/30/2006	Monday	15115
	W	DATE PALM DR	CVAG	1/30/2006	Monday	17830
	W	GENE AUTRY TR	CVAG	10/1/2005	Saturday	34020
	W	GENE AUTRY TR	CVAG	3/1/2005	Tuesday	28641
	W	DATE PALM DR	CVAG	1/30/2005	Sunday	24534
	E	GENE AUTRY TR	CVAG	1/30/2005	Sunday	24761
	E	INDIAN CANYON DR	CVAG	1/30/2005	Sunday	16882
	E	GENE AUTRY TR	CVAG	1/30/2004	Friday	27210
	W	DATE PALM DR	CVAG	1/30/2004	Friday	27498
	E	INDIAN CANYON DR	CVAG	1/30/2004	Friday	17184
	W	GENE AUTRY TR	CVAG	1/30/2004	Friday	35143
VISTA DEL VALLE	S	VISTA MONTANA		8/12/2010	Thursday	407
	S	VISTA MONTANA		8/12/2010	Thursday	686
WALLACE ST	N	34TH ST		7/29/2009	Wednesday	582

LOCATION	DIR	X-STREET	NOTE	DATE	DAY	ADT
WALLACE ST	S	MISSION BLVD	CENSUS	4/7/2009	Tuesday	2543
	N	MISSION BLVD	CENSUS	4/7/2009	Tuesday	1669
	N	34TH ST	CENSUS	4/7/2009	Tuesday	802
	N	MISSION BLVD		12/16/2004	Thursday	1926
	S	MISSION BLVD		12/16/2004	Thursday	2335
	N	34TH ST		12/15/2004	Wednesday	986
WALNUT CREEK RD	S	BUNDY CANYON RD		1/11/2006	Wednesday	740
WALNUT ST	E	HICKORY LN	CENSUS	5/7/2009	Thursday	2162
	E	MISSION TR		1/18/2005	Tuesday	1577
	E	HICKORY LN		11/16/2004	Tuesday	1702
WARREN RD	S	EAST BENTON RD	CENSUS	5/14/2009	Thursday	6067
	S	SIMPSON RD	CENSUS	5/13/2009	Wednesday	7210
	S	EAST BENTON RD		12/16/2004	Thursday	5512
	S	SIMPSON RD		12/1/2004	Wednesday	6043
WASHINGTON ST	N	HARLEY JOHN RD		5/27/2010	Thursday	3887
	N	MARIPOSA AVE		5/27/2010	Thursday	7014
	N	EAGLE PEAK RD		5/27/2010	Thursday	5548
	N	FRED WARING DR	CVAG	1/30/2010	Saturday	37426
	N	I-10	CVAG	1/30/2010	Saturday	17227
	S	RAMON RD	CVAG	1/30/2010	Saturday	2759
	N	DEL WEBB BLVD	CVAG	1/30/2010	Saturday	5197
	S	MILES AVE	CVAG	1/30/2010	Saturday	32915
	S	HOVLEY/42ND AVE	CVAG	1/30/2010	Saturday	39490
	S	FRED WARING DR	CVAG	1/30/2010	Saturday	40633
	S	EISENHOWER DR	CVAG	1/30/2010	Saturday	27129
	S	COUNTRY CLUB DR	CVAG	1/30/2010	Saturday	32950
	N	MILES AVE	CVAG	1/30/2010	Saturday	35791
	S	SH-111	CVAG	1/30/2010	Saturday	36710
	N	HOVLEY/42ND AVE	CVAG	1/30/2010	Saturday	39367
	S	50TH AVE	CVAG	1/30/2010	Saturday	23434
	N	COUNTRY CLUB DR	CVAG	1/30/2010	Saturday	43340
	N	38TH AVE	CVAG	1/30/2010	Saturday	4592
	N	SADDLEBACK RD		12/2/2009	Wednesday	7205
	S	SADDLEBACK RD		12/2/2009	Wednesday	7414
	S	GOLDEN STAR AVE		12/2/2009	Wednesday	15227
	S	GOLDEN STAR AVE		12/2/2009	Wednesday	7890
	N	GOLDEN STAR AVE		12/2/2009	Wednesday	7067
	N	38TH AVE		8/26/2009	Wednesday	3675

LOCATION	DIR	X-STREET	NOTE	DATE	DAY	ADT
WASHINGTON ST	S	38TH AVE	CENSUS	6/2/2009	Tuesday	4445
	N	WILDCAT DR		5/28/2009	Thursday	13975
	S	BENTON RD	CENSUS	5/14/2009	Thursday	3512
	E	SH-79	CENSUS	5/14/2009	Thursday	3874
	N	BENTON RD	CENSUS	5/14/2009	Thursday	3834
	N	VARNER RD	CENSUS	5/13/2009	Wednesday	14648
	S	MARKHAM ST	CENSUS	4/15/2009	Wednesday	4810
	S	COUNTRY CLUB DR	CENSUS	4/14/2009	Tuesday	37451
	N	VAN BUREN BLVD	CENSUS	4/8/2009	Wednesday	14709
	N	VALLE VISTA WY	CENSUS	4/8/2009	Wednesday	14739
	S	VAN BUREN BLVD	CENSUS	4/8/2009	Wednesday	5557
	S	KRAMERIA AVE		3/11/2009	Wednesday	3791
	N	KRAMERIA AVE		3/11/2009	Wednesday	3669
	N	COUNTRY CLUB DR	CVAG	2/10/2009	Tuesday	43698
	S	FRED WARING DR	CVAG	2/9/2009	Monday	35361
	S	RAMON RD	CVAG	2/9/2009	Monday	2676
	S	50TH AVE	CVAG	2/9/2009	Monday	29074
	S	HOVLEY/42ND AVE	CVAG	2/9/2009	Monday	34596
	N	MILES AVE	CVAG	2/9/2009	Monday	33071
	S	EISENHOWER DR	CVAG	2/9/2009	Monday	28604
	S	SH-111	CVAG	2/9/2009	Monday	40455
	S	MILES AVE	CVAG	2/9/2009	Monday	29596
	S	COUNTRY CLUB DR	CVAG	2/9/2009	Monday	32293
	N	HOVLEY/42ND AVE	CVAG	2/9/2009	Monday	32899
	N	FRED WARING DR	CVAG	2/9/2009	Monday	36061
	N	DEL WEBB BLVD	CVAG	2/9/2009	Monday	4977
	N	I-10	CVAG	1/30/2009	Friday	18687
	S	RAMON RD	CVAG	2/11/2008	Monday	2892
	S	MILES AVE	CVAG	2/6/2008	Wednesday	35081
	S	HOVLEY/42ND AVE	CVAG	2/6/2008	Wednesday	37249
	N	HOVLEY/42ND AVE	CVAG	2/6/2008	Wednesday	42630
	S	COUNTRY CLUB DR	CVAG	2/6/2008	Wednesday	35564
	N	DEL WEBB BLVD	CVAG	2/6/2008	Wednesday	5217
	N	I-10	CVAG	2/6/2008	Wednesday	19929
	N	COUNTRY CLUB DR	CVAG	2/6/2008	Wednesday	44220
	S	EISENHOWER DR	CVAG	1/30/2008	Wednesday	30155
	N	FRED WARING DR	CVAG	1/30/2008	Wednesday	36205
	N	MILES AVE	CVAG	1/30/2008	Wednesday	34712

LOCATION	DIR	X-STREET	NOTE	DATE	DAY	ADT
WASHINGTON ST	S	50TH AVE	CVAG	1/30/2008	Wednesday	25661
	S	FRED WARING DR	CVAG	1/30/2008	Wednesday	35210
	S	SH-111	CVAG	1/30/2008	Wednesday	39266
	S	SADDLEBACK RD		1/29/2008	Tuesday	7878
	N	SADDLEBACK RD		1/29/2008	Tuesday	8022
	N	FRED WARING DR		9/26/2007	Wednesday	36543
	N	WILDCAT DR		9/26/2007	Wednesday	15264
	N	42ND AVE		9/26/2007	Wednesday	36426
	N	I-10	CVAG	1/30/2007	Tuesday	19495
	N	MILES AVE	CVAG	1/30/2007	Tuesday	43146
	N	FRED WARING DR	CVAG	1/30/2007	Tuesday	50407
	S	50TH AVE	CVAG	1/30/2007	Tuesday	28201
	S	HOVLEY/42ND AVE	CVAG	1/30/2007	Tuesday	48375
	S	RAMON RD	CVAG	1/30/2007	Tuesday	3389
	S	EISENHOWER DR	CVAG	1/30/2007	Tuesday	32159
	S	FRED WARING DR	CVAG	1/30/2007	Tuesday	40189
	N	DEL WEBB BLVD	CVAG	1/30/2007	Tuesday	5463
	N	HOVLEY/42ND AVE	CVAG	1/30/2007	Tuesday	37159
	S	SH-111	CVAG	1/30/2007	Tuesday	50019
	W	CALHOUN ST	CVAG	1/30/2007	Tuesday	2887
	S	MILES AVE	CVAG	1/30/2007	Tuesday	39618
	S	COUNTRY CLUB DR	CVAG	1/30/2007	Tuesday	38721
	N	COUNTRY CLUB DR	CVAG	1/30/2007	Tuesday	48741
	S	COUNTRY CLUB DR	CVAG	2/9/2006	Thursday	44242
	S	RAMON RD	CVAG	2/8/2006	Wednesday	3186
	N	DEL WEBB BLVD	CVAG	2/8/2006	Wednesday	3455
	N	I-10	CVAG	2/8/2006	Wednesday	17603
	N	COUNTRY CLUB DR	CVAG	2/8/2006	Wednesday	52398
	N	HOVLEY/42ND AVE	CVAG	2/8/2006	Wednesday	46917
	S	HOVLEY/42ND AVE	CVAG	2/2/2006	Thursday	61435
	S	MILES AVE	CVAG	2/1/2006	Wednesday	42268
	S	FRED WARING DR	CVAG	1/30/2006	Monday	43329
	N	MILES AVE	CVAG	1/30/2006	Monday	43887
	S	SH-111	CVAG	1/30/2006	Monday	45981
	S	50TH AVE	CVAG	1/30/2006	Monday	31690
	S	EISENHOWER DR	CVAG	1/30/2006	Monday	34434
	N	FRED WARING DR	CVAG	1/30/2006	Monday	50837
	S	SH-111	CVAG	10/1/2005	Saturday	52406

LOCATION	DIR	X-STREET	NOTE	DATE	DAY	ADT
WASHINGTON ST	N	COUNTRY CLUB DR	CVAG	8/17/2005	Wednesday	41104
	N	COUNTRY CLUB DR	CVAG	3/31/2005	Thursday	48072
	N	DEL WEBB BLVD	CVAG	3/31/2005	Thursday	5585
	S	RAMON RD	CVAG	3/31/2005	Thursday	2937
	S	MILES AVE	CVAG	3/31/2005	Thursday	38524
	N	I-10	CVAG	3/31/2005	Thursday	17072
	N	HOVLEY/42ND AVE	CVAG	3/31/2005	Thursday	44384
	S	COUNTRY CLUB DR	CVAG	3/31/2005	Thursday	44044
	S	HOVLEY/42ND AVE	CVAG	3/30/2005	Wednesday	44143
	S	SH-111	CVAG	3/1/2005	Tuesday	35829
	N	FRED WARING DR	CVAG	1/30/2005	Sunday	44913
	S	50TH AVE	CVAG	1/30/2005	Sunday	31702
	S	FRED WARING DR	CVAG	1/30/2005	Sunday	41123
	S	EISENHOWER DR	CVAG	1/30/2005	Sunday	33280
	S	MARKHAM ST		1/25/2005	Tuesday	6820
	N	VAN BUREN BLVD		1/25/2005	Tuesday	19629
	S	BENTON RD		12/14/2004	Tuesday	4516
	N	BENTON RD		12/14/2004	Tuesday	3091
	E	SH-79		12/14/2004	Tuesday	2704
	N	VARNER RD		12/8/2004	Wednesday	13652
	S	COUNTRY CLUB DR		12/7/2004	Tuesday	27119
	S	38TH AVE		11/23/2004	Tuesday	5746
	S	VAN BUREN BLVD		10/15/2004	Friday	3724
	N	VALLE VISTA WY		10/13/2004	Wednesday	14775
	N	EAGLE PEAK RD		9/29/2004	Wednesday	2708
	S	KRAMERIA AVE		9/29/2004	Wednesday	3328
	N	MARIPOSA AVE		9/29/2004	Wednesday	2850
	S	FRANCES WY		8/25/2004	Wednesday	1335
	N	WILDCAT DR		7/21/2004	Wednesday	7768
	N	MARIPOSA AVE		4/28/2004	Wednesday	531
	S	RAMON RD	CVAG	3/16/2004	Tuesday	2807
	N	DEL WEBB BLVD	CVAG	3/16/2004	Tuesday	6509
	N	I-10	CVAG	3/9/2004	Tuesday	17667
	S	COUNTRY CLUB DR	CVAG	3/4/2004	Thursday	42499
	N	HOVLEY/42ND AVE	CVAG	3/4/2004	Thursday	45313
	S	50TH AVE	CVAG	1/30/2004	Friday	34046
	N	MILES AVE	CVAG	1/30/2004	Friday	39012
	N	FRED WARING DR	CVAG	1/30/2004	Friday	44191

LOCATION	DIR	X-STREET	NOTE	DATE	DAY	ADT
WASHINGTON ST	S	SH-111	CVAG	1/30/2004	Friday	39463
	S	EISENHOWER DR	CVAG	1/30/2004	Friday	33834
	S	MILES AVE	CVAG	1/30/2004	Friday	38544
	S	FRED WARING DR	CVAG	1/30/2004	Friday	38067
	N	COUNTRY CLUB DR	CVAG	1/15/2004	Thursday	50161
	S	HOVLEY/42ND AVE	CVAG	1/14/2004	Wednesday	44007
WATKINS DR	N	POARCH RD	CENSUS	5/28/2009	Thursday	11462
	N	VALENCIA DR		4/6/2008	Sunday	4388
	S	BLAINE ST		4/6/2008	Sunday	2563
	S	BLAINE ST		4/5/2008	Saturday	3623
	N	VALENCIA DR		4/5/2008	Saturday	2881
	N	VALENCIA DR		4/4/2008	Friday	4627
	S	BLAINE ST		4/4/2008	Friday	7689
	S	BLAINE ST		4/3/2008	Thursday	6407
	N	VALENCIA DR		4/3/2008	Thursday	4718
	S	BLAINE ST		4/2/2008	Wednesday	6496
	N	VALENCIA DR		4/2/2008	Wednesday	4798
	S	BLAINE ST		4/1/2008	Tuesday	6535
	N	VALENCIA DR		4/1/2008	Tuesday	4814
	N	VALENCIA DR		3/31/2008	Monday	4365
	S	BLAINE ST		3/31/2008	Monday	5950
WATSON RD	E	ANTELOPE RD	CENSUS	5/19/2009	Tuesday	1312
	E	MENIFEE RD	CENSUS	5/19/2009	Tuesday	1318
	E	ANTELOPE RD		12/15/2004	Wednesday	999
	E	MENIFEE RD		12/14/2004	Tuesday	1813
	E	MENIFEE RD		3/30/2004	Tuesday	1600
	W	MENIFEE RD		3/30/2004	Tuesday	951
WEIRICK RD	E	KNABE RD	CENSUS	6/10/2009	Wednesday	15706
	E	KNABE RD		1/25/2005	Tuesday	22320
WELLMAN RD	W	TERWILLIGER RD		8/5/2010	Thursday	2592
	W	TERWILLIGER RD		8/4/2010	Wednesday	2290
	W	TERWILLIGER RD		8/3/2010	Tuesday	2270
WESTLINK DR	N	NEWPORT RD		10/10/2007	Wednesday	490
	N	NEWPORT RD		3/11/2004	Thursday	522
WHITNEY DR	W	CAMINO REAL	CENSUS	4/2/2009	Thursday	1690
	W	CAMINO REAL		10/18/2007	Thursday	401
	E	CAMINO REAL		10/18/2007	Thursday	376
	W	CAMINO REAL		11/17/2004	Wednesday	1294

LOCATION	DIR	X-STREET	NOTE	DATE	DAY	ADT
WHITTIER AVE	E	DARTMOUTH ST	CENSUS	5/14/2009	Thursday	1882
	E	GIRARD ST	CENSUS	5/14/2009	Thursday	3732
	E	SOBOBA ST	CENSUS	5/12/2009	Tuesday	505
	E	SOBOBA ST		2/24/2009	Tuesday	204
	W	SOBOBA ST		2/24/2009	Tuesday	378
	W	STANFORD ST		4/12/2006	Wednesday	839
	E	STANFORD ST		4/12/2006	Wednesday	1002
	E	SOBOBA ST		4/2/2006	Sunday	206
	W	SOBOBA ST		4/2/2006	Sunday	383
	E	DARTMOUTH ST		11/30/2004	Tuesday	1723
	E	GIRARD ST		11/30/2004	Tuesday	2960
	E	SOBOBA ST		11/30/2004	Tuesday	352
WILEYS WELL RD	S	I-10	CENSUS	6/11/2009	Thursday	1570
	S	I-10		12/1/2004	Wednesday	2162
WILLIAM AVE	N	HOLMES AVE		3/30/2005	Wednesday	144
	S	HOLMES AVE		3/30/2005	Wednesday	145
WILLOW DR	N	EL SOBRANTE RD		12/1/2004	Wednesday	872
WILLOWS AVE	E	SIERRA MADRE DR		6/2/2009	Tuesday	4618
	E	SH-79	CENSUS	5/19/2009	Tuesday	3169
	E	RIDGE CREST ST		5/7/2008	Wednesday	3469
WILSON VALLEY RD	E	SAGE RD	CENSUS	5/19/2009	Tuesday	1232
	N	SH-371	CENSUS	5/19/2009	Tuesday	1327
	E	SAGE RD		12/9/2004	Thursday	953
	N	SH-371		12/9/2004	Thursday	863
WINESAP AVE	S	HIGH ST		5/24/2005	Tuesday	211
WINEVILLE AVE	S	RIVERSIDE DR	CENSUS	5/28/2009	Thursday	2928
	S	LIMONITE AVE	CENSUS	4/14/2009	Tuesday	3333
	N	PARKCENTER DR		9/25/2008	Thursday	1532
	S	PARKCENTER DR		9/25/2008	Thursday	2064
	S	HARREL ST		11/28/2007	Wednesday	1753
	N	HARREL ST		11/28/2007	Wednesday	2063
	S	HARREL ST		11/27/2007	Tuesday	1706
	N	HARREL ST		11/27/2007	Tuesday	1994
	N	64TH ST		1/18/2006	Wednesday	3507
WINEVILLE RD	N	BELLEGRAVE AVE	CENSUS	2/18/2009	Wednesday	3202
	S	BELLEGRAVE AVE	CENSUS	2/11/2009	Wednesday	3152
	N	BOCA PL	CENSUS	2/11/2009	Wednesday	4174
	S	BELLEGRAVE AVE		11/3/2004	Wednesday	3399

LOCATION	DIR	X-STREET	NOTE	DATE	DAY	ADT
WINTERS LN	W	MOCKINGBIRD CANYON		4/10/2008	Thursday	243
	W	MOCKINGBIRD CANYON RD		1/13/2004	Tuesday	497
WOOD RD	S	GENTIAN AVE		8/12/2009	Wednesday	7182
	N	VAN BUREN BLVD	CENSUS	5/20/2009	Wednesday	8418
	S	MARKHAM ST	CENSUS	4/15/2009	Wednesday	4287
	S	MARIPOSA AVE	CENSUS	4/14/2009	Tuesday	6654
	S	MARIPOSA AVE		10/13/2004	Wednesday	6438
	S	MARKHAM ST		10/12/2004	Tuesday	3438
	N	VAN BUREN BLVD		10/7/2004	Thursday	9755
	S	VAN BUREN BLVD		10/7/2004	Thursday	15695
WORSLEY RD	N	PIERSON BLVD	CVAG	1/30/2010	Saturday	162
	S	PIERSON BLVD	CVAG	1/30/2010	Saturday	151
	N	DESERT CITY RD		3/23/2004	Tuesday	150
	S	DESERT CITY RD		3/23/2004	Tuesday	125
YALE ST	N	MAYBERRY AVE	CENSUS	5/14/2009	Thursday	7260
	N	STETSON AVE	CENSUS	5/13/2009	Wednesday	3634
	N	ACACIA AVE		5/10/2005	Tuesday	7811
	S	ACACIA AVE		5/10/2005	Tuesday	6342
	N	ACACIA AVE		5/4/2005	Wednesday	4513
	S	ACACIA AVE		5/4/2005	Wednesday	3309
	N	STETSON AVE		12/8/2004	Wednesday	3214
	N	MAYBERRY AVE		11/30/2004	Tuesday	6182
YUCCA AVE	S	09TH ST		8/26/2009	Wednesday	662
YUCCA LN	S	41ST AVE	CENSUS	6/3/2009	Wednesday	1920
	N	42ND AVE		4/20/2004	Tuesday	2333
	S	42ND AVE		4/20/2004	Tuesday	1078

Encroachment Permits

What is an encroachment permit?

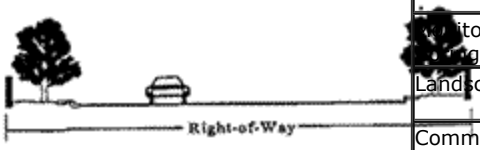
An encroachment permit is written permission to excavate or otherwise encroach within Riverside County's public road right-of-way. A permit may be granted to a public utility, contractor or an individual. Permits are issued by the Transportation Department.

When are they needed?

In addition to excavations, permits must be obtained for tree planting and removal, driveway installations, placement of any structures, construction of street improvements and drainage facilities, or generally for any type of work conducted within the road right-of-way.

What is the road right-of-way?

The road right-of-way is the full width of land owned or controlled by the County, upon which the traveled way is constructed, and which usually extends considerably beyond the edge of pavement (or traveled way) to the boundaries of the adjacent private properties.



What is the purpose of an encroachment permit?

Encroachment permits provide necessary regulation of the encroachment process so as to safeguard the public interest in the roadway facility and to ensure continuing safety and convenience for the traveling public.

What is the authority?

Encroachment permits are required pursuant to Riverside County Ordinance No. 499, which

ENCROACHMENT PERMIT FEE SCHEDULE

(effective 4/28/09)

MINOR	**Permit Fee**	**Inspection Fee**		**Unit Inspection Fee**	**Total Permit Fee**
Tree planting, trimming or removal / Private Drain	$79.00	$22.00	each		varies
Minor drainage structures (Std 303/309/310)	$79.00	3% cost			varies
Operate and Maintain permits (Utilities)	$79.00	$0.00			$79.00
Seismic refraction survey	$79.00	$210.00			$289.00
Residential Driveway Approach	$79.00	$107.00	each		$186.00
Blanket Permits-utilities					
Case 1 Minor	$79.00	$1,921.00		Annually	$2,000.00
Case 2 Extensive	$79.00	$4,921.00		Annually	$5,000.00
Riders (extensions of time)	$79.00	$0.00			$79.00
Involved	**Permit Fee**	**Inspection Fee**		**Unit Inspection Fee**	**Total Permit Fee**
Catch basin 300 (4',7',14',21',28')	$129.00	3% cost			varies
Drop inlet / Overside Drain	$129.00	3% cost			varies
Water / Sewer laterals	$129.00	$210.00	plus	$0.23 lf	varies
Trap fences	$129.00	$210.00	plus	$0.23 lf	varies
itoring Wells / Soil gs	$129.00	$210.00			$339.00
Landscape / Irrigation	$129.00	$210.00	plus	$0.23 lf	varies
Commercial Driveway Approach	$129.00	$264.00	each		$393.00
Grading in Right of Way	$129.00	$210.00	plus	$0.23 lf	varies
Curbs and Gutters	$129.00	$210.00	plus	$0.23 lf	varies
Concrete Sidewalks	$129.00	$210.00	plus	$0.23 lf	varies
Filming	$129.00	$105.00	per day		varies
Temporary Power Poles	$129.00	$210.00	plus	$0.23 lf	varies
Riders (changes)	$129.00	plus other	appl.	charges	varies
Heavy equipment crossings	$129.00	$105.00	per day		varies
AC Paving	$129.00	$210.00	plus	$0.72 sy	varies
Pedestrian Benches	$129.00	$210.00	each		$339.00
	$129.00	$210.00	plus	$0.23 lf	varies

delegates authority to the Director of Transportation to administer the use of highways for such encroachments. The ordinance also establishes penalties for working without a permit and for a violation of any terms of the permit.

What is the process for obtaining an encroachment permit?

An application describing the proposed work must be completed. In many cases, four sets of construction plans must be submitted along with the application. Financial security is usually required to assure compliance with the terms of the permit. Application forms are available from the offices listed below or by clicking here. Most permits are issued within 14 working days.

Where can permits be obtained?

Permits can be obtained at County of Riverside Transportation Department offices in Riverside or Indio as follows:

Riverside:
County of Riverside
Transportation Department
Permits Section
4080 Lemon Street, Second Floor
Riverside, CA 92502
(951) 955-6790

Desert Permit Assistance Center:
County of Riverside
Transportation Department
Permits Section
38686 El Cerrito Road
Palm Desert, CA 92211
(760) 863-8267

Utility service connections involving trenching (BH)					
County required Utility Relocations	$0.00	$0.00			no fee
Utilize Right of Way	$129.00	$210.00			$339.00
Extensive	**Permit Fee**	**Inspection Fee**		**Unit Inspection Fee**	**Total Permit Fee**
Dry / Wet Utility trenches (less than 1000 feet)	$179.00	$210.00	plus	$0.23 lf	varies
Road Closures	$179.00	$105.00	per day		varies
Street Water, Sewer, Storm drain (IP's Only)	$179.00	$0.00			$179.00
Permanent Poles / Temp Poles / Aerial Cable	$179.00	$210.00	plus	$0.23 lf	varies
Storm Drains	$179.00	$210.00	plus	$0.23 lf	varies
Deposit Based	**Permit Fee**	**Inspection Fee**		**Unit Inspection Fee**	**Total Permit Fee**
Traffic Signal	$129.00	3% cost			varies
Bridges and Drainage Structures	$179.00	3% cost			varies
Dry / Wet Utility trenches (1000 feet +)	$465.00	$210.00	plus	$0.23 lf	varies
Penalties	**Permit Fee**	**Inspection Fee**		**Unit Inspection Fee**	**Total Permit Fee**
Work done without benefit of permit (minor)	$500.00		plus	3X fee	varies
Work done without benefit of permit (involved)	$750.00		plus	3X fee	varies
Work done without benefit of permit (extensive)	$1,000.00		plus	2X fee	varies
Illegal cutting pavement (in addition to permit costs)	$1,000.00		plus	0.50 sf	varies
Failure to notify County of work done under blanket permit	$1,000.00			Revoked	$1,000.00
Miscellaneous	**Permit Fee**	**Inspection Fee**		**Unit Inspection Fee**	**Total Permit Fee**
Miscellaneous Plan Review / Field Review	varies	Current DBF hourly labor / equip. usage rates			

SUPPLEMENTAL ENVIRONMENTAL ASSESSMENT AND SECTION 4(f) EVALUATION PERRIS VALLEY LINE RIVERSIDE COUNTY, CALIFORNIA

Prepared for:

Federal Transit Administration
and
Riverside County Transportation Commission

Prepared by:

Kleinfelder
5015 Shoreham Place
San Diego, California 92122
(858) 320-2000

and

STV Incorporated
9130 Anaheim Place, Suite 210
Rancho Cucamonga, California 91730
(909) 484-0660

November 2010

The proposed Perris Valley Line project is located in western Riverside County, extending approximately 24 miles between the cities of Riverside and Perris. The proposed project would extend commuter rail service into the Interstate 215 corridor.

SUPPLEMENTAL ENVIRONMENTAL ASSESSMENT and Section 4(f) Evaluation

Submitted Pursuant to: Federal 42 USC 4332(2) C and 49 USC 303

Federal Transit Administration Region 9
and
Riverside County Transportation Commission

TABLE OF CONTENTS

ACRONYMS ..... **ix**
EXECUTIVE SUMMARY **ES-1**
1.0 PROPOSED PROJECT **1-1**
1.1 INTRODUCTION 1-1
1.2 IDENTIFICATION OF THE PROPOSED PROJECT 1-2
1.3 PROJECT AREA AND BACKGROUND 1-2
1.4 PROJECT PURPOSE AND NEED 1-5
1.5 PROJECT GOALS AND OBJECTIVES 1-6
1.6 REGIONAL AND LOCAL PLANNING CONTEXT 1-7
1.7 PROJECT DETAILS 1-10
1.7.1 Track Improvements 1-15
1.7.2 Stations and Layover Facility 1-16
1.7.3 Culvert Replacement and Extension 1-47
1.7.4 Bridge Replacements 1-47
1.7.5 Grade Crossings 1-47
1.7.6 Communication Systems 1-48
1.7.7 Noise Barriers 1-48
1.7.8 Landscape Walls 1-49
1.7.9 Construction 1-61
1.7.10 Operations 1-62
1.7.11 Maintenance 1-63
1.7.12 Freight Usage 1-63
1.8 ACQUISITIONS AND RELOCATIONS 1-64
1.9 ENVIRONMENTAL PERMITS 1-77
2.0 PROJECT ALTERNATIVES **2-1**
2.1 INTRODUCTION 2-1
2.1.1 FTA Responsibilities 2-1
2.1.2 RCTC Responsibilities 2-1
2.2 DESCRIPTION AND EVALUATION OF ALTERNATIVES 2-2
2.2.1 No Project Alternative 2-11
2.2.2 Express Bus Alternative 2-11
2.2.3 New Commuter Rail Alternatives 2-12
2.3 COMPARISON OF ALTERNATIVES 2-14
2.4 SELECTION OF THE LOCALLY PREFERRED ALTERNATIVE 2-19
3.0 ENVIRONMENTAL EVALUATION **3-1**
3.1 LAND USE AND ZONING 3.1-1
3.1.1 Regulatory Setting 3.1-1
3.1.2 Affected Environment 3.1-5
3.1.3 Environmental Consequences/Impacts 3.1-8
3.1.4 Mitigation Measures 3.1-11
3.2 AGRICULTURAL RESOURCES 3.2-1
3.2.1 Regulatory Setting 3.2-1
3.2.2 Affected Environment 3.2-3
3.2.3 Environmental Consequences/Impacts 3.2-4
3.2.4 Mitigation Measures 3.2-10
3.3 AIR QUALITY 3.3-1
3.3.1 Regulatory Setting 3.3-1

TABLE OF CONTENTS (Continued)

3.3.2 Affected Environment 3.3-10
3.3.3 Environmental Consequences/Impacts 3.3-15
3.3.4 Mitigation Measures 3.3-35
3.4 NOISE AND VIBRATION 3.4-1
3.4.1 Noise Regulatory Setting 3.4-5
3.4.2 Noise Affected Environment 3.4-13
3.4.3 Noise Environmental Consequences/Impacts 3.4-24
3.4.4 Noise Mitigation Measures 3.4-32
3.4.5 Vibration Regulatory Setting 3.4-37
3.4.6 Vibration Affected Environment 3.4-42
3.4.7 Vibration Environmental Consequences/Impacts 3.4-45
3.4.8 Vibration Mitigation Measures 3.4-48
3.5 TRAFFIC AND PARKING 3.5-1
3.5.1 Regulatory Setting 3.5-1
3.5.2 Affected Environment 3.5-2
3.5.3 Environmental Consequences/Impacts 3.5-20
3.5.4 Mitigation Measures 3.5-37
3.6 AESTHETICS 3.6-1
3.6.1 Regulatory Setting 3.6-1
3.6.2 Affected Environment 3.6-2
3.6.3 Environmental Consequences/Impacts 3.6-9
3.6.4 Mitigation Measures 3.6-18
3.7 CULTURAL RESOURCES AND SECTION 106 COMPLIANCE 3.7-1
3.7.1 Regulatory Setting 3.7-1
3.7.2 Affected Environment 3.7-2
3.7.3 Environmental Consequences/Impacts 3.7-6
3.7.4 Mitigation Measures 3.7-8
3.8 HAZARDS AND HAZARDOUS MATERIALS 3.8-1
3.8.1 Regulatory Setting 3.8-1
3.8.2 Affected Environment 3.8-2
3.8.3 Environmental Consequences/Impacts 3.8-9
3.8.4 Mitigation Measures 3.8-13
3.9 UTILITIES AND SERVICE SYSTEMS 3.9-1
3.9.1 Regulatory Setting 3.9-1
3.9.2 Affected Environment 3.9-4
3.9.3 Environmental Consequences/Impacts 3.9-6
3.9.4 Mitigation Measures 3.9-13
3.10 SECTION 4(F) EVALUATION AND PARKLANDS 3.10-1
3.10.1 Regulatory Setting 3.10-1
3.10.2 Affected Environment 3.10-3
3.10.3 Environmental Consequences/Impacts 3.10-8
3.10.4 Mitigation Measures 3.10-14
3.11 ENVIRONMENTAL JUSTICE AND SOCIOECONOMICS 3.11-1
3.11.1 Regulatory Setting 3.11-1
3.11.2 Affected Environment 3.11-1
3.11.3 Environmental Consequences/Impacts 3.11-6
3.11.4 Mitigation Measures 3.11-7

TABLE OF CONTENTS (Continued)

3.12 SAFETY AND SECURITY 3.12-1
3.12.1 Regulatory Setting 3.12-1
3.12.2 Affected Environment 3.12-2
3.12.3 Environmental Consequences/Impacts 3.12-4
3.12.4 Mitigation Measures 3.12-7
3.13 AMERICANS WITH DISABILITIES ACT COMPLIANCE 3.13-1
3.13.1 Regulatory Setting 3.13-1
3.13.2 Affected Environment 3.13-5
3.13.3 Environmental Consequences/Impacts 3.13-6
3.13.4 Mitigation Measures 3.13-6
3.14 BIOLOGICAL RESOURCES 3.14-1
3.14.1 Regulatory Setting 3.14-1
3.14.2 Affected Environment 3.14-3
3.14.3 Environmental Consequences/Impacts 3.14-24
3.14.4 Mitigation Measures 3.14-28
3.15 GEOLOGY AND SOILS 3.15-1
3.15.1 Regulatory Setting 3.15-1
3.15.2 Affected Environment 3.15-7
3.15.3 Environmental Consequences/Impacts 3.15-20
3.15.4 Mitigation Measures 3.15-21
3.16 WATER QUALITY 3.16-1
3.16.1 Regulatory Setting 3.16-1
3.16.2 Affected Environment 3.16-5
3.16.3 Environmental Consequences/Impacts 3.16-5
3.16.4 Mitigation Measures 3.16-6
3.17 FLOODPLAINS 3.17-1
3.17.1 Regulatory Setting 3.17-1
3.17.2 Affected Environment 3.17-3
3.17.3 Environmental Consequences/Impacts 3.17-6
3.17.4 Mitigation Measures 3.17-7
3.18 PALEONTOLOGICAL RESOURCES 3.18-1
3.18.1 Regulatory Setting 3.18-1
3.18.2 Affected Environment 3.18-2
3.18.3 Environmental Consequences/Impacts 3.18-3
3.18.4 Mitigation Measures 3.18-5
3.19 INDIRECT AND CUMULATIVE EFFECTS 3.19-1
3.19.1 Regulatory Setting 3.19-1
3.19.2 Affected Environment 3.19-3
3.19.3 Environmental Consequences/Impacts 3.19-4
3.19.4 Mitigation Measures 3.19-8
4.0 AGENCY COORDINATION 4-1
4.1 FEDERAL AGENCIES 4-1
4.2 STATE AGENCIES 4-1
4.3 REGIONAL/LOCAL AGENCIES 4-1
4.4 OTHER 4-1
5.0 PUBLIC OUTREACH 5-1
5.1 AGENCY COORDINATION 5-1

TABLE OF CONTENTS (Continued)

5.2 PUBLIC SCOPING 5-1
5.3 PUBLIC COMMENT PROCESS 5-1
5.3.1 Initial NEPA Process 5-2
5.3.2 CEQA Process 5-2
5.3.3 Current NEPA Process 5-3
6.0 REPORT PREPARATION 6-1
6.1 LEAD AGENCY 6-1
6.2 REPORT PREPARERS 6-1
7.0 REFERENCES 7-1
8.0 INDEX 8-1

TABLE OF CONTENTS (Continued)

TABLES

Table ES.2-1	Impacts and Mitigation for the Proposed Project	ES-7
Table 1.7-1	Perris Valley Line - Opening Year (2012) Operations	1-62
Table 1.8-1	PVL Parcel Acquisitions	1-66
Table 1.9-1	Agency Actions and Approvals	1-77
Table 2.3-1	Comparison of Alternatives	2-16
Table 3.2-1	Summary of Farmland Conversion Impact Rating Scores	3.2-10
Table 3.3-1	Ambient Air Quality Standards 2009	3.3-4
Table 3.3-2	SCAQMD Air Quality Significance Thresholds	3.3-5
Table 3.3-3	Toxic Air Contaminant (TAC) Threshold	3.3-6
Table 3.3-4	Regional Criteria Pollutants Attainment Status 2009	3.3-12
Table 3.3-5	2006-2008 Air Quality Summary for Project Area Monitoring System	3.3-13
Table 3.3-6	2008 Emission Inventory for Riverside County - South Coast Air Basin (Tons per Day)	3.3-14
Table 3.3-7	2012 Net Change in Operational Emissions (in pounds per day)	3.3-25
Table 3.3-8	Local Area Carbon Monoxide Dispersion Analysis	3.3-29
Table 3.3-9	Parking Lot Carbon Monoxide Analysis	3.3-30
Table 3.3-10	Calculated Risk at Point of Greatest Concentration	3.3-31
Table 3.3-11	Greenhouse Gas Qualitative Assessment	3.3-32
Table 3.3-12	PVL Predicted Daily Construction Emissions (lbs)	3.3-33
Table 3.4-1	Typical Range of L_{dn} in Populated Areas	3.4-2
Table 3.4-2	City of Riverside – Exterior Noise Standards	3.4-8
Table 3.4-3	Land Use Categories and Metrics for Transit Noise	3.4-13
Table 3.4-4	Allowable Transit Noise Level Increases(L_{dn} and L_{eq} in dBA)	3.4-13
Table 3.4-5	Summary of Noise Measurements (2002)	3.4-16
Table 3.4-6	Summary of Noise Measurements (2005)	3.4-21
Table 3.4-7	Noise Monitoring Locations for Detailed Noise Assessment 2009	3.4-22
Table 3.4-8	Summary of Short-Radius Curve Locations	3.4-26
Table 3.4-9	Detailed Noise Impact Assessment Category 2 Land Uses for Riverside	3.4-27
Table 3.4-10	Detailed Noise Impact Assessment Category 2 Land Uses for Perris	3.4-29
Table 3.4-11	Detailed Noise Impact Assessment Category 3 Land Uses	3.4-30
Table 3.4-12	Proposed Noise Barrier Locations	3.4-34
Table 3.4-13	Ground-Borne Vibration and Ground-Borne Noise Impact Criteria for General Assessment	3.4-41
Table 3.4-14	Summary of Vibration Measurements (2005)	3.4-43
Table 3.4-15	Predicted Levels of Ground-Borne Vibration, Category 2 (Residential) Land Uses for Riverside	3.4-45
Table 3.4-16	Predicted Levels of Ground-Borne Vibration, Category 2 (Residential) Land Uses for Perris	3.4-46
Table 3.4-17	Predicted Levels of Ground-Borne Vibration, Category 3 (Institutional) Land Uses	3.4-46
Table 3.5-1	Level-of-Service Descriptions	3.5-1
Table 3.5-2	AM and PM Analysis-Hour Ridership	3.5-21
Table 3.5-3	Modal Split of Passengers for the AM Peak Period (PM peak period modal splits are reversed)	3.5-22
Table 3.5-4	Auto-Trip Generation	3.5-22

TABLE OF CONTENTS (Continued)

Table 3.5-5	Hunter Park Station Options 2012 Future Levels of Service with the Project	3.5-25
Table 3.5-6	Moreno Valley/March Field Station 2012 Future Levels of Service with the Project	3.5-31
Table 3.5-7	Downtown Perris Station 2012 Future Levels of Service with the Project	3.5-32
Table 3.5-8	South Perris Station 2012 Future Levels of Service with the Project	3.5-35
Table 3.5-9	2012 Future Levels of Service and Mitigation Measures	3.5-39
Table 3.7-1	NRHP Listed or Eligible Resources	3.7-4
Table 3.7-2	Archaeological Resources within the APE	3.7-5
Table 3.10-1	NRHP Listed or Eligible Resources	3.10-8
Table 3.10-2	PVL Project Effects on 4(f) Resources	3.10-10
Table 3.12-1	Existing Grade Crossings Perris Valley Line Corridor, Riverside County, California	3.12-3
Table 3.14-1	Cores and Linkages related to PVL	3.14-11
Table 3.14-2	MSHCP Cell Number Conservation Criteria	3.14-12
Table 3.14-3	Jurisdictional Areas of Impact	3.14-24
Table 3.14-4	Proposed Culvert Improvements	3.14-27
Table 3.15-1	SJBL Alignment Soil Mapping Units Soil Survey of Western Riverside Area California (NRCS, 2008)	3.15-9
Table 3.15-2	Summary of Significant Faults	3.15-15
Table 3.15-3	Approximate Distance to Nearest Faults (Miles)	3.15-16
Table 3.16-1	Surface Water Beneficial Uses within the Project Area	3.16-3
Table 3.16-2	Groundwater Beneficial Uses within the Project Area	3.16-3

TABLE OF CONTENTS (Continued)

FIGURES

Figure ES.2-1 Regional and Vicinity Map ES-3
Figure 1.7-1 Perris Valley Line Corridor Mile Posts 1-13
Figure 1.7-2 SJBL Track Improvements 1-19
Figure 1.7-3 Citrus Connection 1-21
Figure 1.7-4 Citrus Connection Engineering Site Plan 1-23
Figure 1.7-5 Typical Views of Platform and Canopy Structure 1-25
Figure 1.7-6 Hunter Park Station Options 1-27
Figure 1.7-7 Hunter Park Station Palmyrita Avenue Engineering Site Plan 1-29
Figure 1.7-8 Hunter Park Station Columbia Avenue Option Engineering Site Plan 1-31
Figure 1.7-9 Hunter Park Station Marlborough Avenue Option Engineering Site Plan 1-33
Figure 1.7-10 Moreno Valley/March Field Station 1-35
Figure 1.7-11 Moreno Valley/March Field Station Engineering Site Plan 1-37
Figure 1.7-12 Downtown Perris Station 1-39
Figure 1.7-13 Downtown Perris Station Engineering Site Plan 1-41
Figure 1.7-14 South Perris Station 1-43
Figure 1.7-15 South Perris Station Engineering Site Plan 1-45
Figure 1.7-16 Layover Facility 1-51
Figure 1.7-17 Layover Facility Engineering Site Plan 1-53
Figure 1.7-18 Bridge and Culvert Improvement Locations 1-55
Figure 1.7-19 San Jacinto River Bridges 1-57
Figure 1.7-20 PVL Grade Crossing Improvements and Closures 1-59
Figure 1.8-1 Citrus Connection Parcel Acquisition 1-67
Figure 1.8-2 Hunter Park Station Parcel Acquisition 1-69
Figure 1.8-3 Moreno Valley/March Field Station Parcel Acquisition 1-71
Figure 1.8-4 South Perris Station and Layover Facility Parcel Acquisition 1-73
Figure 1.8-5 Street Improvements Parcel Acquisition 1-75
Figure 2.2-1 2004 Alternatives Analysis - Express Bus Alternative 2-3
Figure 2.2-2 2004 Alternatives Analysis - Commuter Rail Alternative with New Connection to UP RIL 2-5
Figure 2.2-3 2004 Alternatives Analysis - Commuter Rail Alternative with Highgrove Turnback 2-7
Figure 2.2-4 Locally Preferred Alternative Commuter Rail with Citrus Connection 2-9
Figure 3.2-1 Agricultural Resources 3.2-5
Figure 3.2-2 Agricultural Resources 3.2-7
Figure 3.3-1 Air Quality Monitoring and Modeling Locations 3.3-27
Figure 3.4-1 Common Indoor and Outdoor Noise Levels 3.4-3
Figure 3.4-2 Allowable Transit Noise Increases 3.4-11
Figure 3.4-3 Noise and Vibration Monitoring Locations - North 3.4-17
Figure 3.4-4 Noise and Vibration Monitoring Locations - South 3.4-19
Figure 3.4-5 Noise Barrier Locations 3.4-35
Figure 3.4-6 Typical Vibration Levels 3.4-39
Figure 3.5-1 Hunter Park Station Options Traffic Study Locations 3.5-5
Figure 3.5-2 Moreno Valley/March Field Station Traffic Study Locations 3.5-7
Figure 3.5-3 Downtown Perris Station Traffic Study Locations 3.5-9
Figure 3.5-4 South Perris Station Traffic Study Locations 3.5-11

TABLE OF CONTENTS (Continued)

Figure 3.6-1 Scenic Vista Locations 3.6-5
Figure 3.6-2 Scenic Routes 3.6-7
Figure 3.6-3 Landscape Wall Locations 3.6-15
Figure 3.8-1 Areas of Potential Environmental Concern 3.8-7
Figure 3.9-1 Communication Tower Locations 3.9-7
Figure 3.9-2 Typical Radio Antenna Tower 3.9-9
Figure 3.9-3 Typical Microwave Antenna Tower 3.9-11
Figure 3.10-1 Parklands and Section 4(f) Resources within ½ Mile of SJBL 3.10-5
Figure 3.11-1 Environmental Justice Communities 3.11-3
Figure 3.13-1 Typical Station Features for ADA Mobility 3.13-3
Figure 3.14-1 Multiple Species Habitat Conservation Plan Cores and Linkages 3.14-7
Figure 3.14-2 Multiple Species Habitat Conservation Plan Criteria Cells 3.14-9
Figure 3.14-3 Stephens' Kangaroo Rat Habitats and Reserves 3.14-15
Figure 3.14-4 Habitat and Vegetation Types 3.14-17
Figure 3.14-5 Habitat and Vegetation Types at Station Sites 3.14-19
Figure 3.14-6 Habitat and Vegetation Types at Station Sites 3.14-25
Figure 3.15-1 PVL Corridor Geology 3.15-3
Figure 3.15-2 PVL Corridor Soils 3.15-11
Figure 3.15-3 Regional Faults 3.15-13
Figure 3.15-4 Liquefaction Potential 3.15-17
Figure 3.17-1 FEMA Zones for FIRM Panels C0065G, C0727G, and C0731G 3.17-9
Figure 3.17-2 FEMA Zones for FIRM Panel C1440G 3.17-11
Figure 3.19-1 2012 Projects Near PVL Corridor 3.19-5

APPENDICES

Appendix A 2004 Draft EA Comment Matrix
Appendix B Agricultural Resources: Farmlands Conversion Impact Rating (NRCS-CPA-106)
Appendix C Environmental Justice Data
Appendix D Grade Crossing Modifications Table
Appendix E Agency Communication Log

TECHNICAL REPORTS (located on attached CD)

A San Jacinto Branchline/I-215 Corridor Study Alternatives Analysis
B Air Quality Technical Report
C Noise and Vibration Technical Report
D Traffic Technical Report
E Habitat Assessment Report
F Jurisdictional Determination
G Hazardous Materials Corridor Study – SJBL Segment
H Phase I ESA

ACRONYMS AND ABBREVIATIONS

AA	Alternatives Analysis
AADT	Annual Average Daily Traffic
AB	Assembly Bill
ABA	Architectural Barriers Act
ADA	Americans with Disabilities Act
ADAAG	Americans with Disabilities Act Accessibility Guidelines
AE	Applied EarthWorks, Inc.
AGR	Agricultural Supply
ALUC	Airport Land Use Commission
A-PA	Alquist-Priolo Earthquake Fault Zoning Act
APE	Area of Potential Effects
APN	Assessor Parcel Number
APZ	Accident Potential Zone
AQMP	Air Quality Management Plan
AREMA	American Railway Engineering and Maintenance-of-Way Association Manual
AST	Above Ground Storage Tank
AT&SF	Atchison Topeka & Santa Fe Railroad
ATR	Automatic Traffic Recorder
BFE	Base Flood Elevation
BG	Block Group
BMPs	Best Management Practices
BNSF	Burlington Northern Santa Fe
CAA	Clean Air Act
CAAQS	California Ambient Air Quality Standards
Caltrans	California Department of Transportation
CARB	California Air Resources Board
CBC	California Building Code
CCR	California Code of Regulations
CDFFP	California Department of Forestry and Fire Protection
CDFG	California Department of Fish and Game
CDWR	California Department of Water Resources
CEQ	Council on Environmental Quality
CEQA	California Environmental Quality Act
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
CETAP	Community and Environmental Transportation Acceptability Process
CFR	Code of Federal Regulations
cfs	Cubic Feet per Second
CGP	Construction General Permit
CGS	California Geological Survey
CHRIS	California Historical Resources Information System
CO	Carbon Monoxide
CP	Control Point

ACRONYMS AND ABBREVIATIONS (Continued)

CPA	Conservation Program Application
CPUC	California Public Utilities Commission
CWA	Clean Water Act
DAMP	Drainage Area Management Plan
dB	Decibel
dBA	A-Weighted Decibel
DEA	Draft Environmental Assessment
DEER	Determination of Eligibility and Effects Report
DTSC	Department of Toxic Substances Control
EDR	Environmental Database Report
EIC	Eastern Information Center
EIR	Environmental Impact Report
EIS	Environmental Impact Statement
EJ	Environmental Justice
EO	Executive Order
EOP	Emergency Operations Plan
EMWD	Eastern Municipal Water District
FEIS	Final Environmental Impact Statement
FEMA	Federal Emergency Management Agency
FHWA	Federal Highway Administration
FIRM	Flood Insurance Rate Maps
FONSI	Finding of No Significant Impact
FPPA	Farmland Protection Policy Act
FRA	Federal Railroad Administration
FTA	Federal Transit Administration
GBV	Ground-Borne Vibration
GCOR	General Code of Operating Rules
GHG	Greenhouse Gas
GO	General Order
GWP	Global Warming Potential
GWR	Groundwater Recharge
HAP	Hazardous Air Pollutants
HCM	Highway Capacity Manual
HCP	Habitat Conservation Plan
HMBP	Hazardous Materials Business Plan
HMCS	Hazardous Materials Corridor Study
HOV	High-Occupancy Vehicle
I-215	Interstate 215
IB	Inbound side of track
ICBO	International Conference of Building Officials

ACRONYMS AND ABBREVIATIONS (Continued)

IND	Industrial Service Supply
IS	Initial Study
JPA	Joint Powers Authority
LAFCO	Local Area Formation Commission
LA Union Station	Los Angeles Union Station
L_{dn}	Day-night average sound level
L_{eq}	Equivalence sound level
$L_{eq(h)}$	Hourly value of equivalence sound level
LOS	Level-of-Service
LPA	Locally Preferred Alternative
MARB	March Air Reserve Base
MBTA	Migratory Bird Treaty Act
MDP	Master Drainage Plan
MEP	Maximum Extent Practicable
MFA	Myra L. Frank & Associates, Inc.
MLD	Most Likely Descended
MND	Mitigated Negative Declaration
MP	Mile Post
mph	Miles per hour
MPO	Metropolitan Planning Organization
MSAT	Mobile-Source Air Toxics
MSHCP	Multiple Species Habitat Conservation Plan
MS4	Municipal Separate Storm Sewers
MUN	Municipal and Domestic Supply
MWD	Metropolitan Water District
NAAQS	National Ambient Air Quality Standards
NAHC	Native American Heritage Commission
NCCP	Natural Community Conservation Plan
NCSS	National Cooperative Soil Survey
NEPA	National Environmental Policy Act
NFIP	National Flood Insurance Program
NHPA	National Historic Preservation Act
NNL	National Natural Landmarks
NOA	Notice of Availability
NOP	Notice of Preparation
NO_2	Nitrogen Dioxide
NO_X	Nitrogen Oxides
NPDES	National Pollution Discharge Elimination System
NPL	National Priorities List
NPS	National Park Service
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places

ACRONYMS AND ABBREVIATIONS (Continued)

O_3	Ozone
OB	Outbound side of tracks
OSD	Official Soil Description
Pb	Lead
PM_{10} and $PM_{2.5}$	Particulate Matter
PRC	Public Resources Code
PRPA	Paleontological Resources Preservation Act
PROC	Industrial Process Supply
PTC	Positive Train Control
PVL	Perris Valley Line
PVRWRF	Perris Valley Regional Water Reclamation Facility
Qaf	Artificial fill soil
RCA	Western Riverside County Regional Conservation Authority
RCFCWCD	Riverside County Flood Control and Water Conservation District
RCDEH	Riverside County Department of Environmental Health
RCHCA	Riverside County Habitat Conservation Agency
RCIP	Riverside County Integrated Project
RCLIS	Riverside County Land Information System
RCRA	Resource Conservation and Recovery Act
RCTC	Riverside County Transportation Commission
REC-1	Water Contact Recreation
REC-2	Non-contact Recreation
ROC	Reactive Organic Compounds
ROW	Right-of-way
RPUD	Riverside Public Utilities Department
RPUSA	Riverside Public Utilities Service Area
RTA	Riverside Transit Agency
RTIP	Regional Transportation Improvement Program
RTP	Regional Transportation Plan
RWQCB	Regional Water Quality Control Board
SARA	Superfund Amendments and Reauthorization Act
SARWQCB	Santa Ana Regional Water Quality Control Board
SB	Senate Bill
SBCM	San Bernardino County Museum
SCAB	South Coast Air Basin
SCAG	Southern California Association of Governments
SCAQMD	South Coast Air Quality Management District
SCE	Southern California Edison
SCRRA	Southern California Regional Rail Authority
SEA	Supplemental Environmental Assessment
SF	Single-Family

ACRONYMS AND ABBREVIATIONS (Continued)

SFHA	Special Flood Hazard Area
SHPO	State Historic Preservation Office
SIP	State Implementation Plan
SJBL	San Jacinto Branch Line
SKR	Stephens' Kangaroo Rat
SPWN	Spawning, Reproduction, and/or Early Development
SR-60	State Route 60
SR-74	State Route 74
SWRCB	State Water Resources Control Board
SO_2	Sulfur Dioxide
SSO	State Safety Oversight
SSPP	System Safety Program Plan
SWPPP	Storm Water Pollution Prevention Plan
TACs	Toxic Air Contaminants
TCE	Temporary Construction Easement
TCWG	Transportation Conformity Working Group
TeG	Terrace Escarpments
TLMA	Riverside County Transportation & Land Management Agency
TSM	Transportation Systems Management
UBC	Uniform Building Code
UCR	University of California Riverside
UP RIL	Union Pacific Riverside Industrial Lead
USC	United States Code
USDOT	United States Department of Transportation
USEPA	United States Environmental Protection Agency
USACE	United States Army Corps of Engineers
USFWS	United States Fish and Wildlife Service
UST	Underground Storage Tank
VdB	Vibration Decibels
VMT	Vehicle Miles Traveled
vph	Vehicles per hour
WARM	Warm Freshwater Habitat
WILD	Wildlife Habitat
WMWD	Western Municipal Water District

This Page Intentionally Left Blank

EXECUTIVE SUMMARY

The Executive Summary identifies the type of document, the proposed project including location, project alternatives, the purpose of the Environmental Assessment (EA), and summary of impacts and mitigation for the proposed Perris Valley Line (PVL) project.

ES.1.0 DOCUMENT IDENTIFICATION

This is a Supplemental Environmental Assessment (SEA) prepared for the Perris Valley Line PVL project. The Federal Transit Administration (FTA) is the lead agency for this SEA, prepared in accordance with the National Environmental Policy Act (NEPA) and FTA guidelines.

The study area for this project is an existing transportation corridor located in western Riverside County, California. Situated approximately 70 miles east of Los Angeles, the study corridor extends approximately 24 miles southeast from the city of Riverside to south of the city of Perris. Three incorporated cities in the study area include Riverside, Moreno Valley, and Perris. The proposed project, the PVL, would extend Southern California Regional Rail Authority (SCRRA) commuter rail service from the city of Riverside to south of the city of Perris in western Riverside County, California. In the city of Riverside, the PVL would link to the existing Burlington Northern Santa Fe (BNSF) to connect to the existing Riverside Downtown Station, approximately three miles. From the BNSF, the PVL would operate on a new rail segment, known as the "Citrus Connection," that would be constructed on property to be acquired between the BNSF and the San Jacinto Branch Line (SJBL). The eastern end of the "Citrus Connection" would link with the existing 21-mile SJBL corridor to south of the city of Perris. It is anticipated that the PVL would offer commuter rail service starting in 2012.

In 2004, a Draft Environmental Assessment (Draft EA) was prepared and circulated for comment. Comments were received, but a Final EA to address those comments was not published. In 2008, the Riverside County Transportation Commission (RCTC) selected the Commuter Rail with New Connection to BNSF at Citrus Street Alternative ("Citrus Connection") as the Locally Preferred Alternative (LPA). Because of the length of time that has elapsed since the Draft EA was circulated, and because the LPA has changed, FTA has directed the preparation of this SEA to replace the previously prepared Draft EA in its entirety.

The SEA reflects the Purpose and Need, as well as Goals and Objectives that were evolved through the San Jacinto Branchline/I-215 Corridor Study Alternatives Analysis (AA) (STV Incorporated, 2004). Public input gathered in response to the AA and Draft EA has also guided the development of modal options considered.

The proposed project is the subject of an EA because it is an action for which the significance of impacts on the environment, and social and economic considerations is not clearly established. According to NEPA regulations, an EA is a concise public document prepared to determine whether the proposed action has the potential to cause significant environmental effects (40 Code of Federal Regulations (CFR) 1508.9(a)). This SEA has been prepared to determine the probable impacts of the PVL. The purpose of this SEA is to:

- Provide sufficient evidence and analysis to determine whether an Environmental Impact Statement (EIS) or Finding of No Significant Impact (FONSI) should be prepared;
- Aid FTA's compliance with NEPA when no EIS is necessary; and
- Facilitate preparation of an EIS when one is necessary.

The SEA will assist FTA in determining the significance of environmental impacts resulting from the PVL project, which the FTA has previously approved as qualifying under the FTA Small Starts category of the New Starts program (49 United States Code [USC] Section 5309). This qualification/approval is based on the preliminary estimates that the project is expected to cost less than 250 million dollars and require less than 75 million dollars in federal funding. RCTC has made application for the maximum amount of Small Starts funding (less than 75 million dollars), and the balance of the project would be paid through Proposition a bond proceeds. Proposition A is a key funding source for transportation improvements and projects. Proposition A has funded municipal transportation projects, improved bus service, and initiated plans for a rail system that continues to be expanded today.

The SEA will be available for public review and comment for a 30-day period. At the conclusion of the public review period, the SEA will be revised to reflect changes in the proposed action or mitigation measures in response to comments received on the SEA, and any impacts resulting from the changes. If it is determined that the proposed project would not have a significant impact to the environment, then a FONSI will be issued. If it is determined that the proposed project could have a significant impact to the environment, an EIS will be prepared.

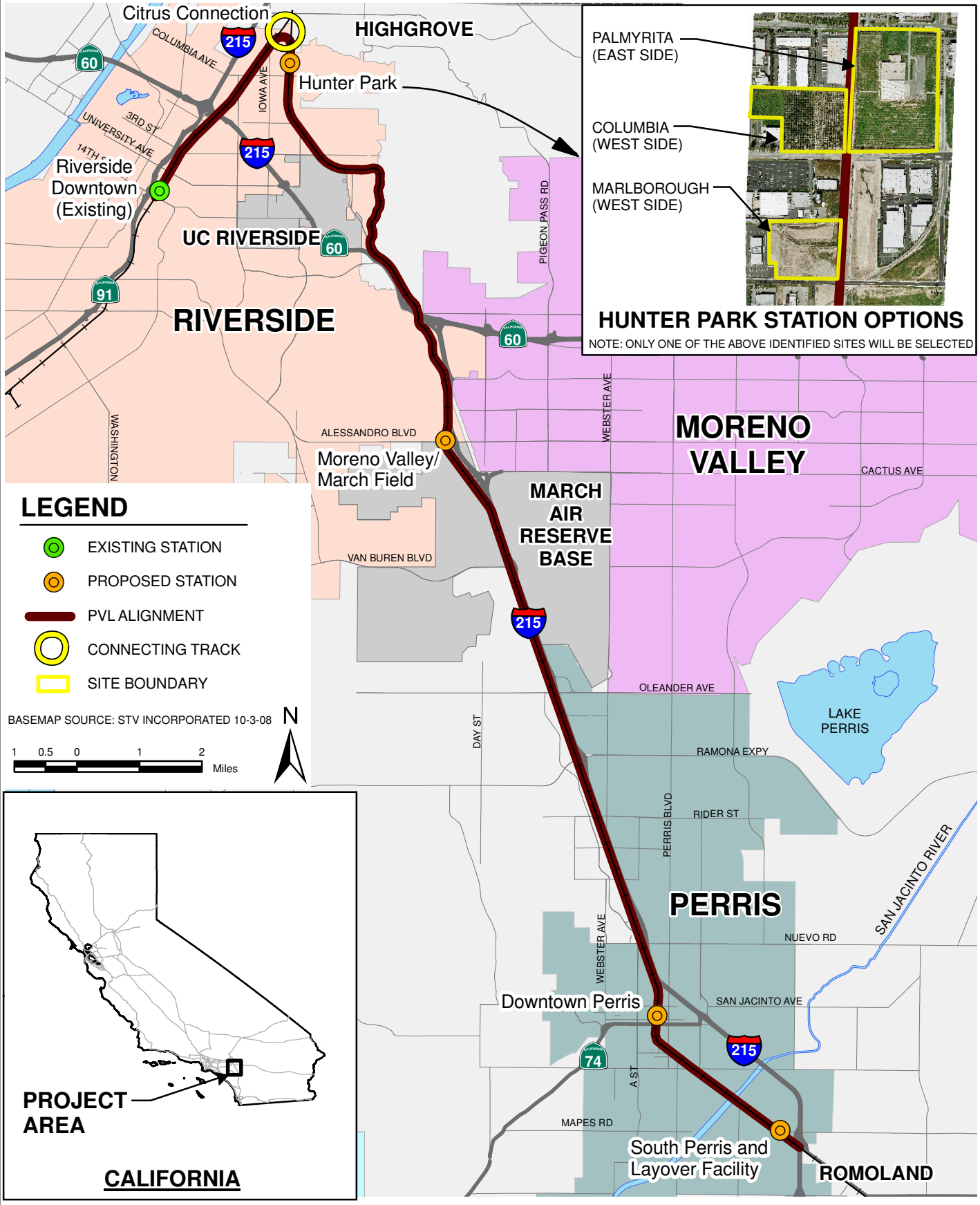
In recognition that comments were made on the Draft EA in 2004, this SEA contains a table of those comments provided in Appendix A. The table identifies public comments received by topic area and directs the reader to the appropriate section in this SEA. Note that no new public scoping was undertaken as part of this updated SEA. Another comment period will be announced by FTA, and specific comments received during this new comment period will be addressed in the Final SEA.

The SEA is comprised of seven primary chapters, as follows:

Chapter 1.0 – Proposed Project
Chapter 2.0 – Alternatives
Chapter 3.0 – Environmental Evaluation
Chapter 4.0 – Agency Coordination
Chapter 5.0 – Public Outreach
Chapter 6.0 – Report Preparation
Chapter 7.0 – References

ES.2.0 PROPOSED PROJECT

The RCTC proposes to extend commuter rail service from the existing Riverside Downtown Station to south of the city of Perris in western Riverside County, California. This new rail extension, known as the PVL, would be operated by the SCRRA, the operators of the SCRRA/Metrolink commuter rail system in southern California. The PVL would be created by connecting the BNSF railroad right-of-way (ROW) to the former Atchison Topeka & Santa Fe Railroad SJBL, which is now owned by RCTC. A new connection, as shown on Figure ES.2-1, would be created to streamline operations using a curved segment of new connecting rail on parcels to be acquired north of Citrus Street in the city of Riverside.



PROJECT NO.	92666	**REGIONAL AND VICINITY MAP**	FIGURE **ES.2-1**
DRAWN:	1/11/10		
DRAWN BY:	JP		
CHECKED BY:	RM	SUPPLEMENTAL ENVIRONMENTAL ASSESSMENT RIVERSIDE COUNTY TRANSPORTATION COMMISSION PERRIS VALLEY LINE RIVERSIDE, CALIFORNIA	
FILE NAME: 92666vicES.MXD			

Four Americans with Disabilities Act (ADA) compliant stations with park and ride facilities would be provided at Hunter Park, Moreno Valley/March Field, Downtown Perris and South Perris. A Layover Facility for overnight storage of trains would also be provided near the South Perris station. Replacement and rehabilitation of existing rail and railroad ties would be undertaken along with installation of a nine-mile segment of bypass track along the I-215 corridor. There would be replacement of two bridges, one over the San Jacinto River (MP 20.70) and the other at the San Jacinto River Overflow Channel (MP 20.80). Existing grade crossings along the SJBL will be improved and some will be closed as part of the PVL project. Along the SJBL corridor, there would be culvert replacement at designated locations. Construction of communication towers and landscape walls would also occur at designated locations within the corridor.

The SEA evaluates potential environmental consequences of the proposed PVL project, and recommends mitigation measures, as necessary, for each environmental resource category, as identified in Table ES.2-1 and described in greater detail in Chapter 3.0. The environmental evaluations are based on preliminary engineering drawings.

This Page Intentionally Left Blank

Table ES.2-1
Impacts and Mitigation for the Proposed Project

Environmental Impact	Mitigation Measures
Land Use and Zoning	
None	N/A
Agricultural Resources	
None	N/A
Air Quality	
None	N/A
Noise and Vibration	
Noise • Noise impacts are predicted at areas along the SJBL in Riverside north of the UCR campus. • Noise impacts are predicted for seven residential buildings and one church in the UCR area of Riverside.	**NV-1:** As shown on Figure 3.4-5, noise barriers shall be provided at the following locations (based on 30% Design Drawings): o NB 1: 10' high and 530' long between Sta. 264+00 and Sta. 269+30 o NB 2: 13' high and 570' long between Sta. 269+30 and Sta. 275+00 o NB 3: 9' high and 680' long between Sta. 283+00 and Sta. 289+40 o NB 4: 12' high and 600' long between Sta. 289+40 and Sta. 295+40 o NB 5: 8' high and 530' long between Sta. 297+70 and Sta. 303+00 o NB 6: 8' high and 800' long between Sta. 303+00 and Sta. 311+00 o NB 7: 10' high and 700' long between Sta. 322+00 and Sta. 330+00 o NB 8: 11' high and 320' long between Sta. 331+00 and Sta. 334+20 o NB 9: 13' high and 950' long between Sta. 323+40 and Sta. 332+40 o NB 10: 13' high and 250' long between Sta. 332+80 and Sta. 334+80 o NB 11: 9' high and 310' long between Sta. 336+00 and Sta. 339+10 o NB 12: 9' high and 310' long between Sta. 339+10 and Sta. 342+20 o NB 13: 13' high and 380' long between Sta. 342+20 and Sta. 346+00

Environmental Impact	Mitigation Measures
	NV-2: Based on the topography and engineering constraints at seven residential locations and St. George's Episcopal Church (eight properties total), the use of noise barriers will not provide adequate noise reduction. Improving the sound insulation of these properties by replacing windows facing the tracks with new sound-rated windows, as well as caulking and sealing gaps in the building envelope, eliminating operable windows and installing specially designed solid-core doors, will reduce noise to below the FTA impact criteria, and to less than significant levels. Sound insulation for eight properties shall be provided at the following locations: o Northeast corner of the grade crossing at West Blaine Street (619 West Blaine Street) o Northeast corner of the grade crossing at Mount Vernon Avenue (116 East Campus View Drive) o Southwest corner of the grade crossing at Mount Vernon Avenue (first home on Mount Vernon Avenue) o Northeast corner of the grade crossing at Citrus Street (1027 Citrus Street) o Northeast corner of the grade crossing at Spruce Street (first two homes on Kentwood Drive) o Southeast corner of the grade crossing at Spruce Street (first home on Glenhill Drive) o St. George's Episcopal Church
<u>Vibration</u> • Vibration impacts at specific locations in the UCR area.	**NV-3:** *Ballast Mats*: A ballast mat consists of a rubber (such as shredded rubber tires), cork or other type of resilient elastomer pad that is placed under the normal ballast, ties, and rail. The mat shall be placed on a concrete or asphalt layer to be most effective. Ballast mats can provide 5 to 12 dB attenuation at frequencies above 25 to 30Hz. **NV-4:** *Resiliently Supported Ties (Under-Tie Pads)*: This treatment consists of resilient rubber pads placed underneath concrete ties. A resiliently supported tie system consists of concrete ties supported by rubber pads. The rails are fastened directly to the concrete ties using standard rail clips. * Implementation of either one of the vibration mitigation measures described above (NV-3 or NV-4) between Sta. 263+00 and 275+00 will eliminate the 2 VdB impact predicted in the UCR area of Riverside (affecting a total of 14 homes extending approximately 1,200 feet along the eastern side of the proposed PVL alignment just south of Spruce Street and north of Hyatt Elementary School).

Environmental Impact	Mitigation Measures
Traffic and Parking	
Traffic impacts would be expected at eight intersections: Cactus Avenue at Old 215, SR-74 at D Street, San Jacinto Avenue at C Street, San Jacinto Avenue at D Street, San Jacinto Avenue at Redlands Avenue, Bonnie Drive at southbound I-215 ramps, SR-74 at northbound I-215 off-ramp, and SR-74 at Sherman Road.	**TP-1:** *Cactus Avenue at Old 215 (for Moreno Valley/March Field Station)* Reduce north/southbound Old 215's maximum green time to 15 seconds during the PM analysis hour. This will reduce delays for westbound Cactus Avenue's through movement from 244 to 119 seconds, and improve the overall intersection LOS from LOS F with 152 seconds of delay to LOS E with 76 seconds of delay, while maintaining LOS C for Old 215. **TP-2:** *SR-74 at D Street (for Downtown Perris Station)* Reduce the maximum green time for the east/westbound SR-74 left-turn phase to 14 seconds during the PM analysis hour. The levels of service for north and southbound D Street's through/left-turn movements, and the overall intersection, will be improved beyond future levels of service without the project during the PM analysis hour with this mitigation measure. **TP-3:** *San Jacinto Avenue at C Street (for Downtown Perris Station)* Reconfigure the intersection with two-way stop control on San Jacinto Avenue. Restripe northbound C Street to provide one left/through shared lane and one right-turn lane. These modifications will reduce the delays for the westbound left-turn movement and the overall intersection to LOS C during the PM analysis hour. **TP-4:** *San Jacinto Avenue at D Street (for Downtown Perris Station)* Install a new traffic signal. With this measure, all movements at this intersection will operate within LOS D during both the AM and PM analysis hours. **TP-5:** *Bonnie Drive at southbound I-215 ramps (for South Perris Station)* Install a new traffic signal. This will improve eastbound Bonnie Drive's right-turn movement from LOS F to LOS B during the PM analysis hour and left-turn movement from LOS F to LOS C during the AM and PM analysis hours. * RCTC shall design the above-proposed improvements, and execute agreements with the affected jurisdictions to provide funding for the installation of the signals or to install the signals in conjunction with the development of the project. With these mitigation measures in place, the significant impacts of the proposed project at the five above-mentioned intersections will be eliminated (out of the eight locations where significant impacts are expected). At the remaining three locations where significant impacts are expected (San Jacinto and Redlands Avenues, SR-74 at northbound I-215 Off-Ramp, and SR-74 at Sherman Road), traffic signals are planned to be installed by other project initiatives as part of the future condition without the project. Therefore, no

Environmental Impact	Mitigation Measures
	mitigation measures will need to be implemented by the proposed PVL project at these intersections. However, in the event that the signalization of these three locations by other project initiatives does not occur prior to the opening year of the PVL, the installation of traffic signals at these additional locations shall be required as part of the PVL project. **TP-6:** RCTC shall develop a traffic management plan in consultation with local jurisdictions to minimize impacts to existing traffic levels of service. At a minimum, the traffic management plan will address: detours; coordination with other construction projects (if applicable); length and timing of any street closures; length and timing of any grade crossing closures; coordination with police and fire departments regarding changes in emergency access routes; temporary access routes and signage if any commercial properties are affected; and contact information for RCTC and its contractors (see HHM-3).
Aesthetics	
Potential to affect nighttime views during construction at the grade crossings.	**AS-1:** In order to limit light spill over into residential areas during construction, light attenuating barriers or directed lighting will be used.
Cultural Resources and Section 106 Compliance	
• Undiscovered cultural resources may be impacted by construction. • Unanticipated cultural resources and human remains may be unearthed during construction activities.	**CR-1:** A qualified archaeologist will monitor ground disturbing construction activities between MP 3.50 and 4.50, and between MP 5.60 and 6.50. The monitor will have the authority to temporarily halt or divert construction equipment to examine potential resources, assess significance, and offer recommendations for the procedures deemed appropriate to either further investigate or mitigate any adverse impacts. CA-RIV-2384, CA-RIV-4497/H and AE-CB-2 sites will be avoided during project construction. **CR-2:** If project construction activities exceed the depth of past agricultural impacts (4 feet), monitoring would be required at the following locations: the Citrus Connection, South Perris Station, and Layover Facility, as well as two of the three potential locations for the Hunter Park Station (Columbia Avenue Station option and the Palmyrita Avenue Station option). Part-time monitoring shall be conducted by a qualified archaeologist during the construction phase to determine whether significant buried cultural deposits are present. The monitor shall have the power to temporarily halt or divert construction equipment in order to examine potential resources, assess their significance, and offer recommendations for the procedures deemed appropriate to either further investigate or mitigate adverse impacts to those cultural resources that have been encountered.

Environmental Impact	Mitigation Measures
	CR-3: In the unlikely event of the accidental discovery of human remains during project construction, the procedures outlined in §15064.5(e) of the CEQA Guidelines shall be strictly followed. These procedures specify that, upon discovery, no further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent human remains can occur. The county coroner must be contacted to determine if the remains are Native American. If the remains are determined to be Native American, the coroner shall contact the NAHC within 24 hours. The NAHC shall identify the Most Likely Descendent (MLD). The MLD shall make recommendations for the appropriate treatment and disposition of the remains and any associated grave goods in accordance with PRC §5097.98.
Hazards and Hazardous Materials	
Potential to encounter contaminated soil during construction.	**HHM-1:** Where soil contamination is suspected, appropriate sampling is required prior to disposal of excavated soil. Characterization of the soil is necessary prior to any ground-disturbing activities. Contaminated soil will be properly disposed at an off-site facility. The following sites will be characterized for possible soil contamination before excavation and/or construction activities begin: • 6400 Fischer Road, Riverside - diesel AST release • 13260 Highway 215, Riverside – gasoline UST release • 2 South D Street, Perris - gasoline UST release • 24 D Street, Perris - gasoline UST release • 101 and 102 South D Street, Perris - gasoline UST release and waste oil release • 210 West San Jacinto Avenue, Perris – gasoline and diesel UST release. Soil characterization activities including sampling and analysis, and drilling will be coordinated with and under the guidance of the Riverside County Department of Environmental Health. RCTC will contract with a qualified environmental consultant to determine if the soil has been sampled, characterized and disposed of properly according to state and federal regulations. **HHM-2:** If the Palmyrita Avenue site is selected for the Hunter Park Station, but is not properly remediated prior to acquisition, RCTC will require the potentially responsible party to remove and remediate hazardous conditions and materials pursuant to the requirements of the local, state, and federal regulations. If, prior to acquisition, the current owner does not complete proper remediation, RCTC will

Environmental Impact	Mitigation Measures
	perform the remediation in accordance with a Health and Safety Plan, and in accordance with the required protocols for the removal and disposal of hazardous materials. Because of the potential for soil contamination, sampling and disposal plans will be implemented prior to construction according to a site-specific hazardous materials investigation work plan. **HHM-3:** Before construction activities commence, RCTC will develop a traffic management plan with local jurisdictions to minimize impacts to existing emergency response or evacuation routes. At a minimum, the traffic management plan would address: detours; coordination with other construction projects (if applicable); length and timing of any street closures; length and timing of any grade crossing closures; coordination with police and fire departments regarding changes in emergency access routes; temporary access routes and signage if any commercial properties are affected; and contact information for RCTC and its contractors (see TP-6). **HHM-4:** Before construction activities commence, RCTC will develop a traffic management plan. The contractor will also work with local jurisdictions to minimize impacts to existing emergency response or evacuation routes for wildland fires. At a minimum, the traffic management plan will address: detours; coordination with other construction projects (if applicable); length and timing of any street closures; length and timing of any grade crossing closures; coordination with police and fire departments regarding changes in emergency access routes; temporary access routes and signage if any commercial properties are affected; and would contain contact information for RCTC and the project contractors.
Utilities and Service Systems	
None	N/A
Section 4(f) Evaluation and Parklands	
None	N/A
Environmental Justice and Socioeconomics	
None	N/A
Safety and Security	
None	N/A
Americans with Disabilities Act Compliance	
None	N/A
Biological Resources	
• Impacts to habitat within both USACE and CDFG jurisdictional areas may occur	**BR-1:** A project biologist shall conduct a training session for all project personnel prior to any grading/construction activities. At a

Environmental Impact	Mitigation Measures
in areas where culvert work would take place. • Potential impacts to threatened or endangered species.	minimum, the training shall include a description of the target species of concern, its habitats, the general provisions of the ESA and the MSHCP, the need to adhere to the provision of the MSHCP, the penalties associated with violating the provisions of the ESA, the general measures that are being implemented to conserve target species of concern as they relate to the project, any provisions for wildlife movement, and the access routes to and project site boundaries within which the project activities must be accomplished. **BR-2:** Equipment storage, fueling and staging areas will be located to minimize the risks of direct drainage into riparian areas or other environmentally sensitive habitats. The project specific SWPPP will identify appropriate construction related BMPs to control anticipated pollutants (oils, grease, etc.). **BR-3:** Stockpiling of materials will be limited to disturbed areas without native vegetation, areas to be impacted by project development or in non-sensitive habitats. These staging areas will be approved by the project biologist, and be located more than 500 feet from environmentally sensitive areas. **BR-4:** "No-fueling zones" will be established within a minimum of 10 meters (33 feet) from drainages and fire sensitive areas. **BR-5:** The qualified biologist will monitor construction activities at a minimum of three days per week throughout the duration of the project to assess if practicable measures are being employed to avoid incidental disturbance of habitat and any target species of concern outside the project footprint. Construction monitoring reports will be completed with applicable conditions. The project biologist will be empowered to halt work activity if necessary to confer with RCTC staff to ensure the proper implementation of species habitat and habitat protection measures. **BR-6:** To avoid attracting predators that may prey upon protected species, the project site will be kept clean of debris. Food related trash items will be enclosed in a sealed container and removed from the site with regular trash removal, at least weekly. Pets of project personnel will not be allowed on site. **BR-7:** If dead or injured listed species are located, initial notification must be made within three working days, in writing to the USFWS Division of Law Enforcement in Torrance California, and by telephone and in writing to the applicable jurisdiction, Carlsbad Field Office of the USFWS, and the CDFG Ontario office. **BR-8:** Narrow Endemic Plants have the potential to occur in the areas

Environmental Impact	Mitigation Measures
	near the San Jacinto River. If Narrow Endemic Plants are identified 90% of the population will be preserved, as required in the MSHCP. **BR-9:** There is a potential to impact spadefoot toads with the work on the San Jacinto River Bridge and Overflow Channel Bridge. A pre-construction survey for toads will determine if toads are present within the designated construction area. Should spadefoot toads be identified within the construction area, an approved mitigation program will be implemented. **BR-10:** The MSHCP requires both protocol surveys and preconstruction surveys for burrowing owls. If owls are identified during the preconstruction survey, the appropriate action will be determined. The appropriate action could include avoidance and passive or active relocation efforts. **BR-11:** If nests are identified at the billboards located on the I-215 corridor, then a qualified biologist must determine if the nests are active. If the biologist determines a nest to be active, appropriate buffers will be used until the birds have fledged and the nest will be removed with the approval of regulatory agencies. **BR-12:** There is a potential for impacts to southwestern willow flycatchers in the southern area of the Box Springs Reserve. To avoid potential impacts to nesting birds, culvert work proposed for this area will be completed outside the bird breeding season (end of April to early September) (SAWA, 2009). **BR-13:** There is a potential for impacts to least Bell's vireo in the southern area of Box Springs Reserve. To avoid potential impacts to nesting birds, culvert work proposed for this area will be completed outside the bird breeding season (end of March to the end of September) (SAWA, 2009). **BR-14:** The project is within the SKR Fee area. RCTC will pay, to the SKR fund managed by Riverside Habitat Conservation Agency, the required $500 per acre fee for developing the Hunter Park Station, Downtown Perris Station, South Perris Station, and Layover Facility. **BR-15:** There is a potential for impacts to California horned lark in the area of the South Perris Station option and the Layover Facility if the agricultural fields are allowed to fallow. To avoid potential impacts to nesting birds, the ground preparation work will be conducted outside of the bird nesting season (March to July) and maintained to ensure that no birds then use the area for nesting prior to construction.

Environmental Impact	Mitigation Measures
	BR-16: There is a potential for impacts to the coastal California gnatcatcher within the Box Springs Canyon Reserve. To avoid potential impacts to nesting birds, culvert work proposed for this area will be completed outside the bird breeding season (mid February to mid September). **BR-17:** Jurisdictional areas associated with the replacement of culverts would result in impacts to habitat within both USACE and CDFG jurisdictional areas. Prior to any construction these impacts would require permit approval from the USACE, CDFG and the RWQCB. The mitigation ratios are finalized by the USACE and CDFG during permitting for the project. The permitting application is not deemed complete until the CEQA document is adopted by RCTC.
Geology and Soils	
None	N/A
Water Quality	
None	NA
Floodplains	
None	N/A
Paleontological Resources	
Undiscovered paleontological resources may be encountered during construction.	**P-1:** Ground-disturbing activities shall be monitored by a qualified paleontologist at the following locations: portions of the SJBL alignments, Moreno Valley/March Field Station, Downtown Perris Station, South Perris Station, and Layover Facility, as well as two of the three potential locations for the Hunter Park Station (Columbia Avenue Station option and the Palmyrita Avenue Station option). The monitor shall have the power to temporarily halt or divert construction equipment to allow for the removal of specimens. The monitor shall be equipped to salvage any fossils unearthed during project construction, and shall be prepared to collect sediment samples that are likely to contain the remains of small fossil invertebrates and vertebrates. To fully mitigate adverse impacts to any paleontological resources encountered during construction, all recovered specimens shall be identified, prepared for permanent preservation, and curated at the San Bernardino County Museum with permanent retrievable paleontological storage. Finally, a report of findings which includes an itemized inventory of specimens shall be prepared and submitted to RCTC along with confirmation of the recovered specimen curation. **P-2:** In the event that unanticipated paleontological resources are encountered during the proposed PVL project construction, all

Environmental Impact	Mitigation Measures
	ground-disturbing activity shall cease in the immediate area until the services of a qualified paleontologist are retained. The paleontologist shall examine the findings, assess their significance, and offer recommendations for the procedures deemed appropriate to either further investigate or mitigate adverse impacts to those resources that have been encountered.
Indirect and Cumulative Effects	
None	N/A

ES.3.0 PURPOSE AND NEED

As part of the overall transportation planning process and to assess the benefits and impacts of establishing commuter rail service along the SJBL, RCTC, in cooperation with the FTA, conducted an AA in 2004. The AA is the process for reaching a broad consensus on what type of improvement(s) best meet locally defined Goals and Objectives for a specified study area. The goal of the AA is to identify transportation and community related needs within the study area and develop transit solutions to meet those needs.

The Purpose and Need for the proposed project, as established in the FTA-sponsored AA process, was developed based upon understanding of the transportation conditions, problems, and issues in the study area that would need to be addressed by a major transportation investment.

ES.3.1 Purpose

Based on the analysis and discussion provided in the AA, it is clear that the study corridor requires an improved and/or upgraded transportation system that does not solely rely on the ever growing and increasingly congested roadway system. The purpose of transportation improvements is to provide alternatives to help alleviate traffic congestion on the freeway segment and arterials in the study area, thus improving the mobility of people and goods. The improvements should also provide or improve linkages to the overall transportation system, support the achievement of regional air quality goals, and avoid environmental and community impacts to the extent possible.

ES.3.2 Need

Currently, the major transportation facilities in the corridor, the I-215 and SR-60 freeways, are experiencing unsatisfactory levels of service. A major bottleneck occurs where the two routes merge between Riverside and Moreno Valley. These freeways are forecasted to continue with unsatisfactory levels of service, even with the several programmed roadway improvements that include a range of capacity improvements. It is not expected that existing roadway facilities would be able to keep pace with the projected demand resulting from population, employment and development growth in the study corridor.

ES.4.0 ALTERNATIVES CONSIDERED

The AA identified five alternatives (No Project Alternative, Express Bus Alternative, and three new Commuter Rail Alternatives), as defined below.

ES.4.1 No Project Alternative

The No Project Alternative was defined as implementation of the planned long-range improvements to the existing highway network, along with the continuation of current commuter rail and freight services on existing routes. The existing Metrolink commuter rail service from Riverside to the Los Angeles – Union Station would continue, as would Metrolink service to Orange County. BNSF, which operates along the SJBL under agreement with RCTC, would continue freight service. This alternative would not provide a different mode of passenger transportation between Riverside and Perris, and would not meet the transportation goals of the

RCTC. The No Project Alternative is required by NEPA and provides a baseline against which the effects of the Build alternatives are analyzed.

ES.4.2 Express Bus Alternative

To evaluate whether more efficient use of existing facilities and transit services could address the transportation problems in the study area (the purpose of a transportation systems management option), an Express Bus Alternative was developed. The Express Bus Alternative was defined as service that would begin in Perris in the morning period, near the intersection of SR-74 and I-215. It would operate northward from Perris on I-215, within HOV lanes wherever available. All stops along I-215 were proposed to include park and ride facilities. To operate, the express buses would enter and exit HOV lanes by crossing mixed-flow lanes. At the Alessandro station, the service would run on local streets to a proposed Box Springs express bus station. The service would then return to I-215/SR60 until exiting to connect to the transit hub at the University of California-Riverside. Local roads would be used to connect to the Riverside Downtown Metrolink Station; there would also be service to the Riverside Transit Agency Downtown Bus Terminal in downtown Riverside. The express bus service would be coordinated to reach the Riverside Downtown Metrolink Station during peak periods such that connections could be made to departing (AM) and arriving (PM) trains. The afternoon schedule would be similar, but reversed.

This alternative was not selected because the several crossings of mixed-flow traffic resulted in significant increases in travel time and the performance of the alternative was deemed insufficient to meet the needs of commuters in the corridor, therefore not meeting the Purpose and Need established for the project.

ES.4.3 New Commuter Rail Alternatives

Three new commuter rail alternatives were evaluated in the AA. Presented in Chapter 2, these alternatives are known as the Commuter Rail with New Connection to Union Pacific Riverside Industrial Lead (UP RIL) Alternative, the Commuter Rail with Highgrove Turnback Alternative, and the Commuter Rail with New Connection to BNSF at Citrus Street Alternative ("Citrus Connection"). The differences among the three commuter rail alternatives pertain to the different connection options to connect the SJBL to the BNSF for service to the Riverside Downtown Station.

The UP RIL Alternative was originally the LPA, and was presented as such in the Draft EA. However, subsequent to the Draft EA, the UP RIL Alternative was dropped from consideration due to difficulties with acquisition of the UP RIL. Further, as noted in the 2004 Draft EA, this alternative resulted in significant vibration impacts, and had displacement impacts that neither of the other commuter rail alternatives would induce.

The Highgrove Turnback Alternative was eliminated in the AA due to a required reverse move and the Federal Railroad Administration (FRA) safety check, along with train capacity constraints, which resulted in it being unable to meet the project's Purpose and Need.

RCTC adopted the "Citrus Connection" as the LPA in April 2008. Among the reasons for adopting this alternative (as compared to the UP RIL Alternative), and described in Chapter 2, are: minimizing the impacts to the community by reducing business relocation; decreasing the

cost of ROW acquisitions; and providing better service to the Highgrove and Hunter Park areas. This alternative most closely meets the Purpose and Need, and Goals and Objectives, established for the project in the AA.

ES.5.0 PUBLIC COMMENT ON THE SUPPLEMENTAL ENVIRONMENTAL ASSESSMENT

Notification of the SEA's 30-day public review period will be published in newspapers within the study area. The notification will outline a brief description of the proposed project; locations where the SEA is available for review; the 30-day period during which comments can be submitted; and how and where comments may be submitted.

In addition to the publication of the notification in area newspapers, notifications will be mailed by RCTC to property owners who are most likely to be affected by the proposed project. All notices state where copies of the SEA may be reviewed. The SEA is also available for review on both the PVL website: www.perrisvalleyline.info and the RCTC website: http://www.rctc.org/.

This Page Intentionally Left Blank

1.0 PROPOSED PROJECT

1.1 INTRODUCTION

The Riverside County Transportation Commission (RCTC) proposes to extend commuter rail service from the existing Riverside Downtown Station to south of the city of Perris in western Riverside County, California. This new rail extension, known as the Perris Valley Line (PVL), will be operated by the Southern California Regional Rail Authority (SCRRA), the operators of the SCRRA/Metrolink commuter rail system in southern California.

This Supplemental Environmental Assessment (SEA) is being prepared for the Federal Transit Administration (FTA), who is the lead agency to comply with the National Environmental Policy Act (NEPA) requirements. This document will provide a project update to the Draft EA originally prepared and distributed in 2004. The SEA reflects the Purpose and Need, as well as Goals and Objectives that were evolved through the 2004 Alternatives Analysis (AA). Public input gathered in response to the AA and Draft EA has also guided the development of modal options considered. Since the completion of the AA and Draft EA, the proposed project has been more clearly defined, and the LPA has changed. In 2008, RCTC selected the Commuter Rail with New Connection to BNSF at Citrus Street Alternative ("Citrus Connection") as the LPA.

FTA has directed the preparation of this SEA to revise the previously prepared Draft EA because of the length of time that has elapsed and the selection of a different LPA. Accordingly, this SEA replaces the 2004 Draft EA in its entirety. Note that no new public scoping was undertaken as part of the updated SEA. A new 30-day public comment period will be initiated with this SEA.

This SEA will assist FTA in determining the significance of environmental impacts resulting from the PVL project, which the FTA has previously approved as qualifying under the FTA Small Starts category (49 United States Code [USC] Section 5309). This qualification/approval is based on the preliminary estimates that the project is expected to cost less than 250 million dollars and require less than 75 million dollars in federal funding. RCTC has made the application for federal funding, and the balance would be paid through Proposition A bond proceeds. Proposition A is a key funding source for transportation improvements and projects. In the past, Proposition A has funded municipal transportation projects, improved bus service, and initiated plans for a rail system that continues to be expanded today.

If it is determined that the PVL would not result in a significant impact to the environment, a Finding of No Significant Impact (FONSI) will be prepared to conclude the process and formally document the decision. If FTA determines that there may be environmental impacts from the proposed project, an Environmental Impact Statement (EIS) may be required.

A California Environmental Quality Act (CEQA) document has been prepared separately for this project with RCTC as the CEQA lead agency. The CEQA document, an Environmental Impact Report (EIR) was circulated for public and agency review and comment on April 5, 2010. Additionally, it should be noted that an Initial Study/Mitigated Negative Declaration (IS/MND) was prepared previously and circulated for public review and comment in January 2009. After careful consideration of public comments received, RCTC decided to discontinue the IS/MND process and instead prepare an EIR.

1.2 IDENTIFICATION OF THE PROPOSED PROJECT

The proposed PVL project is located in the western Riverside County region of southern California. The project is approximately 70 miles east of Los Angeles, and the study area includes the cities of Riverside, Moreno Valley, and Perris. The study area includes an existing transportation corridor which extends approximately 24 miles southeast from Riverside to south of Perris.

The proposed project would extend commuter rail service from the existing Riverside Downtown Station to south of the city of Perris, providing an extension of the existing SCRRA/Metrolink commuter rail service from Los Angeles Union Station (LA Union Station). The PVL would be created through the use of existing rail rights-of–way (ROW) with a short new rail connection, as described below.

In the city of Riverside, the PVL would connect to the existing Riverside Downtown Station from the existing Burlington Northern Santa Fe (BNSF) ROW, an approximately three-mile segment of rail currently operating with freight and commuter service. From the existing BNSF ROW, the PVL would operate on a new curved rail segment, known as the Citrus Connection, which would connect the BNSF and the San Jacinto Branch Line (SJBL). The Citrus Connection would be constructed on property to be acquired, located north of Citrus Street and Springbrook Wash, in Riverside. The eastern end of the Citrus Connection would link to the existing 21-mile SJBL alignment to extend south of Perris. The PVL project would be supplemented with limited acquisition of properties to create support facilities, including station areas and a Layover Facility. It is anticipated that the PVL project would offer commuter rail service starting in 2012 with stations at Hunter Park (one of three evaluated locations), Moreno Valley/March Field, Downtown Perris, and South Perris, and a Layover Facility.

1.3 PROJECT AREA AND BACKGROUND

Existing conditions within the project corridor include established rail lines that were constructed in the 19th century. Originally known as the Atchison Topeka & Santa Fe Railroad (AT&SF), the existing BNSF railroad mainline was constructed between 1885 and 1888 by the Santa Ana & Los Angeles Railway Company. This line originally extended southwest from Highgrove and Riverside to Santa Ana in Orange County where it connected with existing lines in Los Angeles (Myra L. Frank & Associates, Inc. [MFA], 2003).

Before the construction of the BNSF mainline, the segment of the alignment now known as the SJBL was constructed in two segments over a six year period. The California Southern Railroad completed construction of the first segment between Highgrove and Perris in 1882 to serve as part of its San Bernardino to National City mainline. The second segment between Perris and San Jacinto was completed in 1888 (MFA, 2003). Both the current BNSF ROW and SJBL ROW are within their same respective corridors as originally constructed in the late 1880s.

Connecting the San Jacinto Valley with major coastal cities such as Los Angeles and San Diego by railroad contributed to the success of local agricultural economies. Farmers and ranchers built sidings along the SJBL to load produce and other farm products directly onto the trains. In addition to transporting agricultural goods, the railroad also provided passenger service to Los Angeles (Applied EarthWorks, Inc. [AE], 2009).

Later, the SJBL was acquired by AT&SF and then by RCTC in 1993. Through its operating agreement with RCTC, BNSF (AT&SF's successor) provides limited freight service to customers along the SJBL, primarily along the Interstate 215 (I-215) corridor. Both the SJBL and the BNSF lines are currently used for freight operations. The BNSF mainline also accommodates Inland Empire – Orange County trains operated by SCRRA/Metrolink.

Currently, western Riverside County is linked to the coastal counties by three direct commuter rail routes via a station stop at the Riverside Downtown Station. Both the Riverside Line and the 91 Line connect to Los Angeles Union Station. The Inland Empire – Orange County Line parallels the 91 Line and then turns south to destinations in Orange County. These three existing SCRRA/Metrolink commuter rail lines would serve (link to) the proposed PVL via the Riverside Downtown Station, providing improved access between the study area and the adjacent coastal counties served by SCRRA/Metrolink.

The 1993 acquisition by RCTC of the entire length of the SJBL presents the opportunity to utilize the SJBL for an extension of the existing commuter rail service into the study area. Additionally, it should be noted that RCTC is a member agency of SCRRA/Metrolink. In the capacity of a member agency of SCRAA/Metrolink and the project proponent, RCTC has previously donated $26,000 to Riverside to study the potential for "quiet zones" at the grade crossings in Riverside.

University of California, Riverside Station

The University of California, Riverside (UCR) Station was previously evaluated in the Draft EA and IS/MND which was publicly circulated in 2004 and 2009, respectively. The UCR Station would have been located within the SJBL ROW along Watkins Drive in Riverside. In response to input from the surrounding neighborhood, the station would have provided for passenger drop-off and pick-up only ("kiss and ride"), but no parking. However, further input from the neighborhood during the public review and comment period for the IS/MND resulted in the removal of the UCR Station as part of the PVL. It should be noted, the General Plan for the City of Riverside does identify a station in the UCR neighborhood.

Highgrove Option

The concept of a Metrolink Station in the Highgrove area has been raised by members of the public throughout RCTC's commuter rail planning process. In response, RCTC studied the concept on a number of occasions between 1994 and 2010. The studies consistently reaffirm that a Highgrove Area Station is not a viable option for the PVL project.

Starting in 1988, RCTC initiated studies of potential station sites on the BNSF mainline to serve future commuter rail service to Orange County. As a result, RCTC decided to purchase passenger rail operating rights on the BNSF. As the Metrolink system expanded within Riverside County, existing stations were reaching capacity and various station selection studies were undertaken. Unlike other Metrolink member agencies, RCTC takes responsibility to fund the capital and operating costs for Metrolink Stations within the county. As such, RCTC takes into account both capital, operation, and maintenance costs when evaluating station locations.

Commuter rail station siting and selection considerations are based on a number of factors, including projected ridership and revenue; operational requirements; geographic spacing in

relation to other stations; right of way requirements and availability; local conditions such as surrounding land use and traffic circulation; and rail configuration. The Highgrove Area Station fails to adequately meet these considerations.

Prior to planning the PVL project RCTC received public input concerning constructing transit facilities in the Highgrove area. The desired facilities included locating a station on the BNSF mainline near Citrus and Villa Streets. RCTC has revisited the feasibility of this option numerous times in the past (1994, 1999, 2003, 2007, and 2009). In general, the concerns initially identified by RCTC in early studies have not changed over the years. During a January 2006 evaluation, RCTC identified five key reasons to decline development of a Metrolink commuter rail station at Highgrove area on the BNSF which are listed below. The findings included:

1) Public preference was to expand existing stations (38%) compared to construction brand new stations (only 6% of the public wanted a Highgrove option when compared to three other station sites);

2) Constrained Operating Environment – Highgrove weekday volume ranks the lowest in comparison to the current train volumes for the five existing RCTC Metrolink stations. The closest station (existing Riverside Downtown Station) to the Highgrove area is only 3.7 miles away. The Riverside Downtown Station train volume is more than 4 times that of a potential Highgrove option. Riverside Downtown serves three commuter lines while Highgrove would serve just one line.

3) A feasibility study was performed for Highgrove to determine current and projected ridership forecasts. The results indicated that ridership is very low compared to actual trips at the existing stations.

4) Highgrove serves a limited number of commuter trains combined with low ridership and high capital costs. Construction of a Highgrove option was estimated to be $15M - $20M with annual operating costs estimated at $200K - $250K. RCTC determined this would not be cost effective.

5) It was determined that the opportunity to have a station site on the RCTC owned SJBL alignment, at a location just south of the Highgrove area (Hunter Park region), would be a better solution instead of needing to purchase property from BNSF.

Subsequently, after the January 2006 presentation, members of the public requested additional studies to determine the viability of the Highgrove Station option as part of the PVL project. In February 2009 RCTC requested STV Incorporated to prepare a Highgrove Station Site Plan Study. The results of this study indicated 13 impediments to the construction of a Highgrove Station. Reconfiguration of the Villa Street grade crossing and necessary and extensive safety and engineering enhancements is costly and poses potential vehicular and pedestrian safety issues. There is limited parking capacity available at the Highgrove site; bus and public access to the site has moderate to severe traffic congestion implications to the neighborhood. The site plan also reveals potential impacts to environmental justice issues that would require acquisition of real estate. Platform configuration is not feasible in terms of location, operational congestion, track capacity, and public access specifically for handicapped patrons. Additionally, Citrus Street would need to be reconfigured, and access from Iowa Avenue, due to the planned grade separation, would require stairs and an elevator to access the station. The latest study indicates

an estimated cost increase of about $6M in construction ($12M in project costs) in addition to the estimated construction cost for the Hunter Park area station, which is $7.2 million ($14.4 project cost). ROW acquisition cost is not included in this estimate.

For all the above stated reasons, the Highgrove option was not included as a component of the PVL project, and therefore is not evaluated further within this SEA.

1.4 PROJECT PURPOSE AND NEED

RCTC developed a Purpose and Need, as well as Goals and Objectives, for the PVL through the *San Jacinto Branchline/I-215 Corridor Study Alternatives Analysis* (AA), an FTA-sponsored AA process (STV Incorporated, 2004). The AA is the process for reaching a broad consensus on what type of improvement(s) best meet locally defined Goals and Objectives for a specified study area. The Purpose and Need established through the AA was developed based upon understanding of the transportation conditions, problems, and issues in the study area that would need to be addressed by a major transportation investment.

The AA identified that the purpose of proposed transportation improvements is to provide alternatives to help alleviate traffic congestion on the freeway segment and arterials in the study area, thereby improving the mobility of people and goods. The improvements should also provide or improve linkages to the overall transportation system, support the achievement of regional air quality goals, and avoid environmental and community impacts to the extent possible.

As described above, the primary transportation facilities in this corridor include I-215, a limited access freeway with a segment that runs from Riverside to Perris in a south/southeasterly direction, and a limited use rail freight line, the SJBL. Both I-215 and SJBL run approximately parallel to one another for the length of the corridor. The SJBL is an existing non-highway transportation ROW that is significantly underutilized from a passenger transportation perspective. As noted in the AA, and the planning studies discussed below (see Section 1.6, Regional and Local Planning Context), opportunities to use this existing ROW have been explored in the past with general conclusions that it has the potential to relieve pressure on existing and forecasted congestion on the regional transportation network. The I-215/SJBL alignment is in need of an improved transportation system independent of the ever growing and increasingly congested roadway system. The needs of the I-215/SJBL alignment were developed through outreach to the public, affected communities, stakeholders and concerned individuals. The needs identified are listed below:

- Reduce roadway congestion;
- Provide transit travel options to growing population and employment centers;
- Coordinate transportation planning and community development; and
- Improve use of underutilized transportation resources.

Transportation movement occurs primarily via the heavily congested I-215 freeway, which overlaps State Route 60 (SR-60) between Riverside and Moreno Valley. Current and planned freeway improvements cannot fully accommodate forecasted demand. In addition, potential

freeway expansion beyond currently planned improvements would have substantial impacts on adjoining neighborhoods (STV Incorporated, 2004).

The northern end of the study area is served by SCRRA/Metrolink commuter rail service to San Bernardino, Los Angeles and Orange counties. The study corridor includes a railroad ROW (the SJBL) that could provide a transit alternative to I-215, avoiding the freeway bottleneck and congestion. This potential commuter rail service provides an opportunity for transferring some patrons to a transit mode within the study corridor, and provides the opportunity for extending commuter rail service further south and east into Riverside County.

1.5 PROJECT GOALS AND OBJECTIVES

Four goals and complementary objectives were established by RCTC for the I-215/SJBL alignment based on the corridor's issues and the potential for a transit system to achieve or help achieve the project Purpose and Need. The Goals and Objectives are:

Goal 1 – Improve the Transportation System with Alternate Travel Choices

Objective:

- Reduce highway congestion in the corridor;
- Improve the attractiveness of public transit as a commuter alternative to the automobile by making it available, reliable, and convenient to use;
- Establish and expand the regional transit network within and beyond the study corridor; and,
- Promote a seamless regional transit system.

Goal 2 – Promote Community/Transit Oriented Development

Objective:

- Strengthen the older urban communities as centers of economic opportunity;
- Broaden the range and availability of public transportation alternatives between the various urban areas along the corridor for a variety of trip purposes;
- Encourage transit-friendly communities, at higher densities;
- Foster transit-oriented development around transit stations; and,
- Provide improved mobility opportunities to the transit dependent.

Goal 3 – Minimize Adverse Environmental Impacts

Objective:

- Contain residential, commercial, and industrial "sprawl" development;

- Conform to the State Implementation Plan (SIP) as required by the Clean Air Act (CAA) Amendments of 1990;
- Minimize impacts to the natural and human-made environment; and,
- Minimize the need for new ROW, thereby reducing land use impacts to the study corridor.

Goal 4 – Invest and Deploy Resources Effectively and Efficiently

Objective:

- Invest resources efficiently;
- Improve the productivity and cost-effectiveness of transit services in the corridor;
- Enhance and build upon the existing public transportation system within the corridor; and,
- Select investments that build upon underused and abandoned transportation resources.

1.6 REGIONAL AND LOCAL PLANNING CONTEXT

State and local planning efforts applicable to the project corridor anticipate an increasing need for transportation alternatives and also specify, in some cases, the PVL as a potential solution to projected transportation needs. The transportation needs are associated with the forecasted growth in population and employment, and the accompanying increases in congestion. The studies and reports described below for the I-215/SJBL alignment and the region have underscored the need for diversifying transportation service. These studies and reports support the conclusion that there is not sufficient capacity on the existing transportation network to meet the demands of the corridor, even with planned increases in roadway capacity and bus service. The studies and reports include:

Regional Transportation Plan and Regional Transportation Improvement Program – Southern California Association of Governments

The Regional Transportation Plan (RTP) and Regional Transportation Improvement Program (RTIP) are the responsibility of the Southern California Association of Governments (SCAG), the Metropolitan Planning Organization (MPO) for southern California, and are required by statewide and metropolitan planning rules and regulations. The plans examine demographic, economic, and transportation trends and needs within a specified planning area in order to develop an ongoing strategy for implementing transportation investments to meet identified needs. The PVL is included in both the RTP (adopted 2008) and RTIP (adopted 2008).

The RTP is an update to the previous Regional Transportation Plan (2004) and presents an assessment of the overall growth and economic trends in the SCAG region through the year 2035. The RTP is necessary to receive state and federal funding, and is consistent with federal and state requirements. The RTP is the culmination of a multi-year effort focusing on maintaining and improving the transportation system through a balanced approach. This balanced approach considered transportation system preservation, operation and management;

improved coordination between land use decisions and transportation investments; and strategic expansion of the system to accommodate future growth.

The RTIP is a listing of all funded transportation projects proposed over a six-year period (Fiscal Years 2008/09 – 2013/14) for the SCAG region. All projects included in the 2008 RTIP are consistent with the current RTP policies, programs, and projects. Key projects related to the study corridor include county-wide SCRRA/Metrolink improvements, reconstruction and upgrade of the SJBL for passenger rail service between Riverside and Perris (Perris Valley Line), corridor and capacity improvements for the I-215, I-15 and SR-91, and the Mid County Parkway which will provide a 16-mile parkway to improve regional east-west mobility between the San Jacinto and Perris areas.

Riverside County Integrated Project – Riverside County Planning Department

Riverside County Planning Department developed the Riverside County Integrated Project (RCIP) which includes a comprehensive, three-part, integrated program balancing the housing, transportation, and economic needs of a large population with the existing environment and available natural resources. RCIP accommodates continued growth by integrating the Riverside County General Plan with transportation and environmental issues. The three parts of the RCIP are the Riverside County General Plan (adopted 2003), the Multiple Species Habitat Conservation Plan (MSHCP) (adopted 2003), and the Community and Environmental Transportation Acceptability Process (CETAP). The transportation component of the RCIP broadly examines opportunities on how the existing and future transportation system can contribute to and alleviate expected pressures from forecasted traffic volumes on the network. Benefits from alternative modes of transportation are identified and include transit improvements that can generate opportunities for economic development in established urban centers by attracting compatible land use activities. Rail transit is envisioned as a travel option that can contribute to higher quality living environments by reducing auto dependency, concentrating compatible land uses, and relieving pressure to develop open space.

City of Riverside General Plan 2025 – City of Riverside (2007)

The major principles underlying this General Plan are focusing future development near existing transportation corridors ensuring land uses are supported by an efficient local roadway network; embracing innovative solutions to congestion on freeways and regional arterials; supporting alternative modes of transportation such as walking, biking and transit; and ensuring that transportation options are maximized for all community members as necessary components of an effective and safe circulation system for Riverside. Circulation and mobility strategies must be comprehensive to overcome the City's long-term transportation challenges. This General Plan — and its two keystone elements, Land Use and Urban Design and Circulation and Community Mobility — provide such comprehensive strategies. The Land Use and Urban Design Element of the General Plan focuses on incorporating “smart growth” principles into planning and development decisions, and focusing development in already urbanized parts of the City rather than spreading growth to the urban fringes. The Circulation and Community Mobility Element of the General Plan acknowledges the need for alternative modes of transportation, and emphasizes the City’s support for the extension of SCRRA/Metrolink 91 to create the PVL.

City of Perris General Plan 2030 – City of Perris (2005)

This General Plan is a 30-year guide for local government decision on growth, capital investment, and physical development in the city of Perris. Due to the interrelationship of urban and rural activities (employment, housing and services), and the low average density of existing land uses, the private automobile is the dominant mode of travel within the city of Perris. As the population grows, city roads will become increasingly congested. As a result, it is important to encourage increased ridership on public transit systems and increased use of alternative modes of transportation. The public transit system alternatives for City of Perris include: fixed route public transit systems, common bus carriers, and other local agency transit and paratransit services.

The Land Use Plan broadly describes the types of land uses and intensity of physical development that will be accommodated in the city of Perris through the year 2030. The Downtown Specific Plan discusses the future development of a commuter rail station planned for the old Perris Depot area, providing a new spur to Riverside, Los Angeles and Orange Counties, and expanding commuting options for residents of Perris. Implementation of the Downtown Specific Plan including related infrastructure improvements is anticipated to improve the appearance of Downtown. The purpose of the Circulation Element of the General Plan is to provide for a safe, convenient and efficient transportation system for the city. In order to meet this objective, the Circulation Element has been designed to accommodate the anticipated transportation needs based on the estimated intensities of various land uses within the region. The rail system plan would extend service between the cities of Riverside and Perris along the San Jacinto Branch Line to the city of Hemet. The city of Perris rail line would continue to be used for freight activity along the BNSF and would share the line with future Metrolink service.

Perris Commuter Rail Extension Patronage Estimate (2000)

This study estimated the potential for long distance commuter rail ridership from the southwestern area of Riverside County to Downtown Riverside via the Riverside Metrolink Station and then beyond to Los Angeles by way of existing Metrolink ROW and track. The study did not examine shorter trips between communities in southwestern Riverside County. The study concluded that the proposed commuter rail service would grow to more than 3,800 daily weekday trips by 2020.

Union Pacific Riverside Branchline Improvement Study, Boyle Engineering for Riverside County Transportation Commission (2000)

This study examined the viability of acquisition of the Union Pacific Riverside Industrial Lead (UP RIL) by RCTC to provide service into the Riverside Downtown Station from the SJBL. Several track improvements and new track connections were examined. Two new connecting tracks were proposed: one at the crossing of the UP RIL and SJBL near Rustin Avenue, and the other connecting the UP to the BNSF at the Riverside Downtown Station.

San Jacinto Branchline Commuter Rail Study, Boyle Engineering and Barton-Aschman Associates, Inc. for Riverside County Transportation Commission (1995)

This study examined the viability of commuter rail service along the SJBL ROW for commuters in Riverside, Moreno Valley, Perris, Hemet and San Jacinto. The commuter rail implementation

plan consisted of 38 miles of railroad ROW upgrades between Riverside and Hemet/San Jacinto on the SJBL.

Development Plan and Negative Declaration for the construction of Phase I of the proposed Perris Multimodal Facility (2006)

The city of Perris prepared a CEQA document (2005) that analyzed the environmental impacts of the first phase of a proposed multimodal facility that will initially serve buses, and later, commuter rail service. A NEPA Categorical Exclusion was also prepared for FTA in 2006 because of federal grant funds directed to the Riverside Transit Agency (RTA) for the facility.

Final Environmental Impact Statement: I-215 Improvements, California Department of Transportation (2001)

This Final Environmental Impact Statement (FEIS) evaluated improvements on I-215 and short segments of SR-60 and SR-91 in the cities of Riverside and Moreno Valley. The selected High Occupancy Vehicle (HOV) Alternative included one HOV lane in each direction between University Avenue on I-215 in Riverside and Day Street on SR-60 in Moreno Valley. This joint Federal Highway Administration (FHWA) and RCTC study was undertaken to implement improvements on approximately six miles of I-215 and portions of SR-60 and SR-91. Improvements from this project extend from north of the Eucalyptus interchange to north of the Columbia Avenue interchange on I-215; south of the Mission Inn Avenue interchange to the West Junction of I-215/SR-60 with SR-91; Main Street in the city of Riverside to the East Junction of I-215/SR-60 and to Frederick Street in the city of Moreno Valley on SR-60. The HOV Alternative required acquisition of additional ROW. This alternative would establish HOV connectivity between the existing HOV roadway on I-215 from University Avenue to east of the East Junction on SR-60 in the city of Moreno Valley. The HOV alternative was adopted into the RTP and the RTIP.

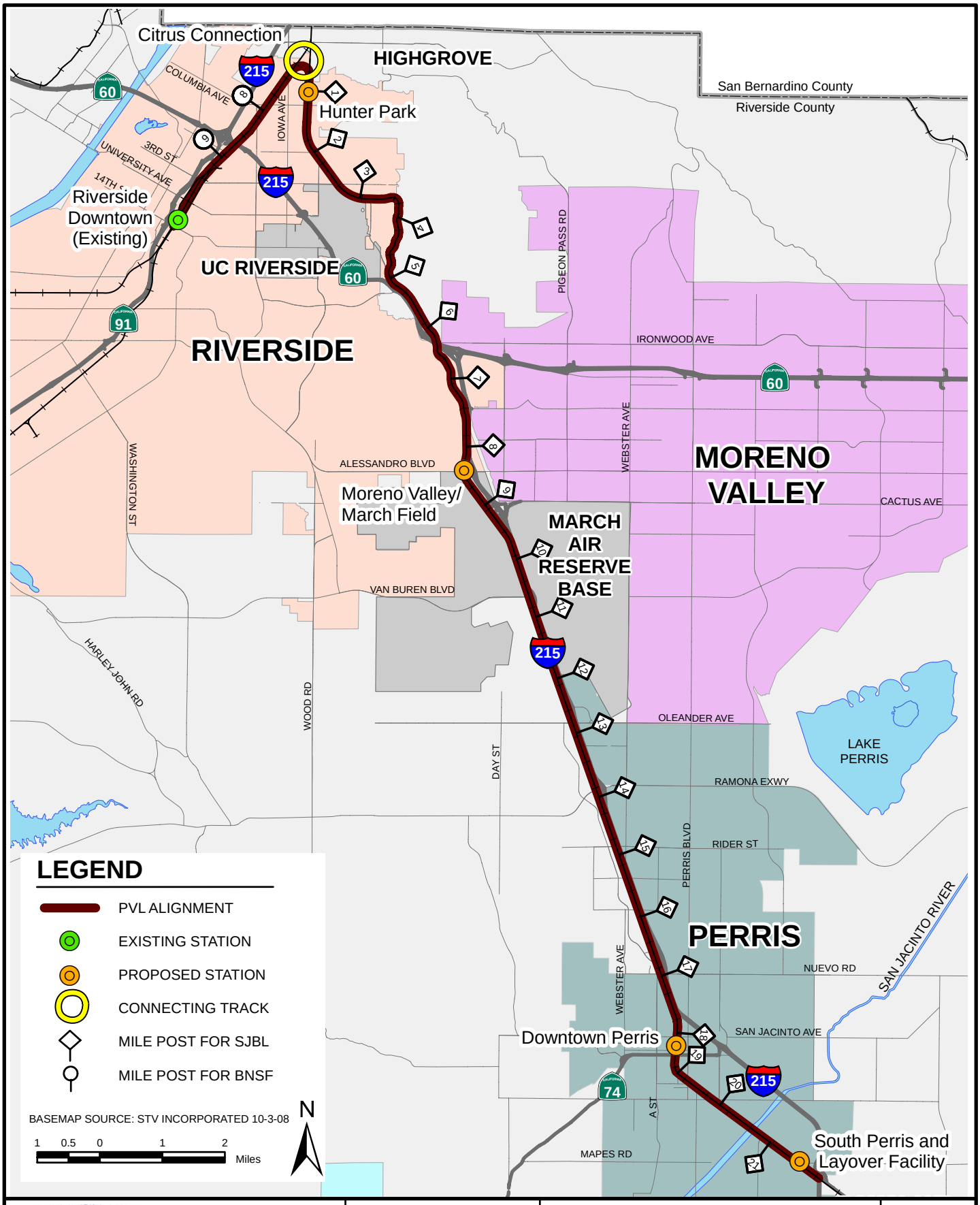
It should be noted that the I-215 Improvements project identified the highway improvements that would maximize throughput with the existing freeway corridor. Even with the proposed improvements, congestion would remain severe and would not meet the forecasted demand.

1.7 PROJECT DETAILS

RCTC proposes to extend commuter rail service approximately 24 miles from the existing Riverside Downtown Station to south of the city of Perris. The proposed PVL project would consist of the existing BNSF and SJBL alignments and corridor Mile Posts (MP) locations are shown in Figure 1.7-1. This commuter rail service is identified as the PVL, and it would be an extension of the SCRRA/Metrolink 91 line from the existing Riverside Downtown Station along a portion of the BNSF mainline and would connect to the SJBL using the proposed Citrus Connection. For the opening year of 2012, the PVL would include installation and rehabilitation of track; construction of four stations and a Layover Facility; improvements to existing grade crossings and selected culverts; installation of new traffic signals, replacement of two existing bridges along the SJBL at the San Jacinto River; and construction of communication towers and landscape walls. (In the context of the PVL project, the term “landscape wall” describes a free-standing, masonry block walls to be deployed for reasons other than noise mitigation. A landscape wall will be constructed as part of the PVL project at Highland Elementary School.

Additionally, RCTC will fund another landscape wall at Nan Sanders Elementary School. See Section 1.7.8 for additional details.)

This Page Intentionally Left Blank



PROJECT NO.	92666
DRAWN:	4/22/10
DRAWN BY:	JP
CHECKED BY:	RM
FILE NAME:	92666mpEA.MXD

PERRIS VALLEY LINE
CORRIDOR MILE POSTS

SUPPLEMENTAL ENVIRONMENTAL ASSESSMENT
RIVERSIDE COUNTY TRANSPORTATION COMMISSION
PERRIS VALLEY LINE
RIVERSIDE, CALIFORNIA

FIGURE
1.7-1

Project features include:

- Construction of a new 2,000 foot long rail segment (Citrus Connection) between the BNSF and the SJBL;
- Replacement and rehabilitation of existing rail and railroad ties (as necessary) over approximately 11.8 miles of existing track;
- Installation of two set-out tracks totaling approximately 1,300 feet in length;
- Construction of four Americans with Disabilities Act (ADA)-compliant commuter rail stations;
- Installation of a new 9.4-mile long bypass track along the I-215 corridor;
- Replacement of two bridges (San Jacinto River located at MP 20.70, and San Jacinto River Overflow Channel located at MP 20.80);
- Construction of a Layover Facility, including four 1,200-foot long storage and servicing tracks;
- Closure and improvements to existing grade crossings along the SJBL;
- Installation of traffic signals;
- Culvert replacement at designated locations;
- Construction of communication towers;
- Construction of a landscape wall at Highland Elementary School and provision for one at Nan Sanders Elementary School; and
- Street improvements at designated locations.

1.7.1 Track Improvements

All track improvements will occur within the existing SJBL ROW, with the exception of the Citrus Connection Track. Work would meet SCRRA/Metrolink commuter rail standards. This work will include replacement of wood ties with concrete ties and new ballast (as necessary). In order to more accurately describe the improvements to the track, the alignment is broken down into the following segments with the identified changes, as shown on Figure 1.7-2:

- Citrus Connection: To connect the BNSF to the SJBL, a new approximately 2,000-foot long track would be constructed, as shown on Figure 1.7-3 and Figure 1.7-4.
- MP 1.40 to MP 5.20 (approximately Marlborough Avenue to Poarch Road): This 3.8-mile segment of track would be upgraded with new concrete ties, new welded rail, and new ballast as required.

- MP 5.20 to MP 7.00 (approximately Poarch Road to Box Springs Boulevard): Wooden ties would be replaced as needed and new ballast added over this approximate 1.8-mile segment of track.

- MP 7.00 to approximately MP 7.50 (approximately Box Springs Boulevard to Eastridge Avenue): This approximately 0.5-mile segment of track would be upgraded with new concrete ties and new welded rail.

- MP 7.50 to MP 16.90 (approximately Eastridge Avenue to Nuevo Road): An approximate 9.4-mile long segment of second track, identified as a by-pass track, would be constructed on the I-215 side of the existing SJBL track within the existing RCTC ROW. This track would be constructed with new concrete ties and new welded rail. The existing track would remain for freight service only, but would be moved slightly where the ROW passes underneath roadway overpasses. This change is required to allow for enough clearance for both tracks and the supports for the roadway overpasses.

- MP 16.90 to MP 18.20 (approximately Nuevo Road to San Jacinto Avenue): This approximate 1.3-mile segment of track would be upgraded with new concrete ties and new welded rail.

- MP 18.20 to approximately MP 19.00 (approximately San Jacinto Avenue to D Street/8th Street): This approximate 0.8-mile segment of track would be relocated so that the PVL would align with the new platforms at the Perris Multimodal Transit Facility. The new track would be constructed of new concrete ties and new welded rail, approximately 18 feet from the existing track, and the existing track would be removed.

- MP 19.00 to MP 22.00 (approximately D Street/8th Street to I-215): This approximate 3.0-mile segment of track would be upgraded on the existing alignment with new concrete ties, new welded rail, and new ballast.

1.7.2 Stations and Layover Facility

Stations

Based on projected ridership, RCTC is proposing four stations for the opening year of 2012 including a Hunter Park Station (one of three studied locations), Moreno Valley/March Field Station, Downtown Perris Station, and South Perris Station.

Each of the proposed stations built as part of the PVL project would be constructed with a 680-foot long side platforms, and ADA-compliant in accordance with federal law and SCRRA/Metrolink design standards (see Section 3.13, ADA Compliance). The “typical” platform is constructed of concrete with steps up and ADA-compliant walkways from the surrounding grade to reach track elevation. In addition to the platform, there would be a trackside canopy structure, ticket kiosks, schedule information, a shelter comprised of mast-supported roof planes (sloped to facilitate drainage), and decorative fencing to direct riders to the appropriate areas for either boarding or disembarking from trains as shown on Figure 1.7-5. All parking areas would be at-grade. It is important to note that the platform location is designed so when the train is stopped in the station, the distance from the front axle of the train is a minimum of 60 feet from

the nearest pedestrian/vehicular crossing, and the end of the platform is a minimum 120 feet from the crossings as well. Each station is described below in greater detail.

For 2012, the four proposed stations are:

- Hunter Park Station, as illustrated on Figure 1.7-6, would be located at one of three proximate site options, shown on Figure 1.7-7, Figure 1.7-8, and Figure 1.7-9. The Palmyrita Station option is proposed for the east side of the SJBL main track at Iowa Avenue between Palmyrita and Columbia Avenues. The Columbia and Marlborough Station options have been identified along the west side of the main track, with entry and exit from Columbia and Marlborough Avenues, respectively. Selection of the Palmyrita Station option would require a new main track to be constructed east of the existing SJBL, between Citrus Street and Marlborough Avenue, to accommodate the station. Any of these station options would accommodate parking for approximately 480 vehicles and cover approximately 8 acres including landscaping.

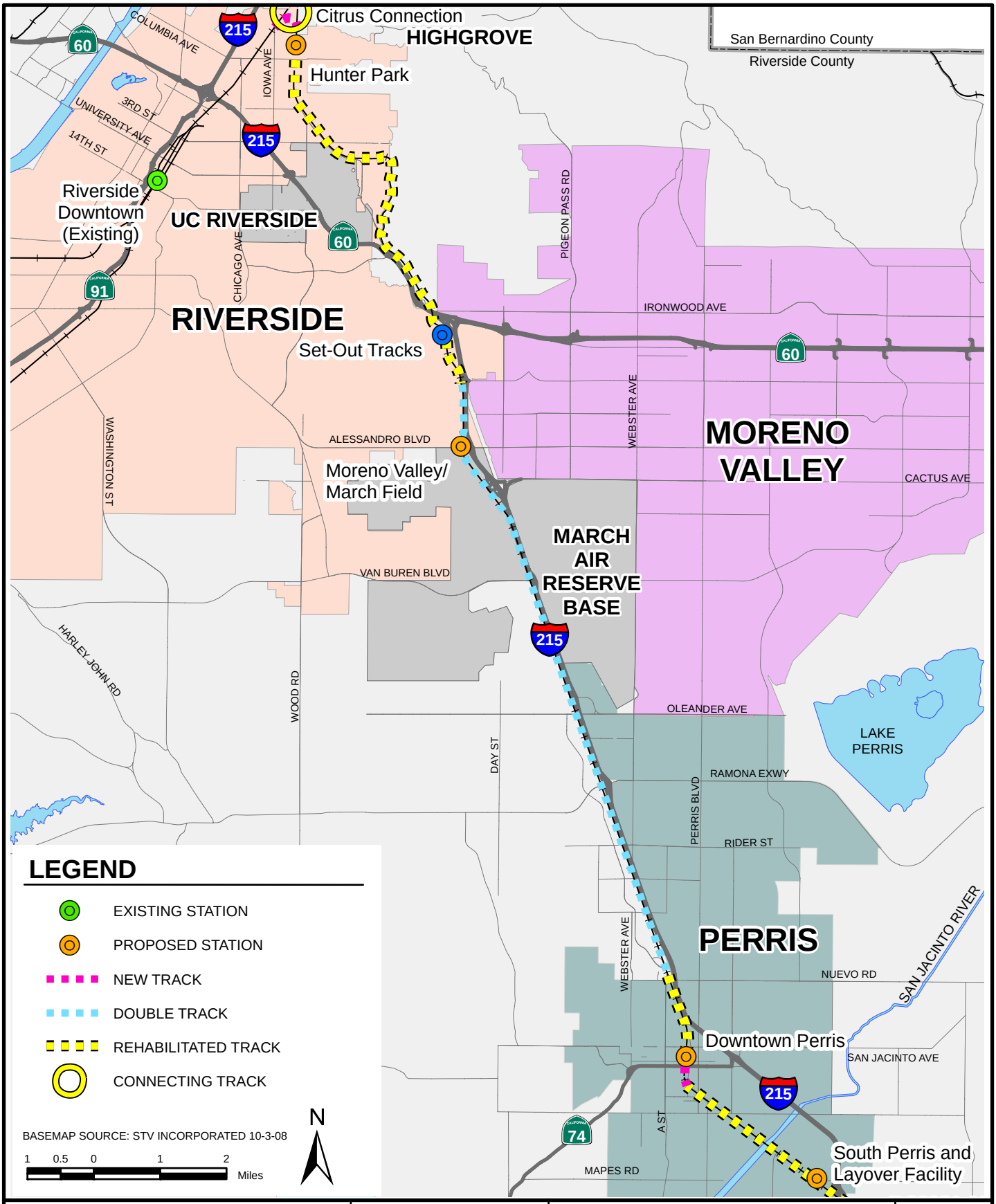
- Moreno Valley/March Field Station will be located west of I-215 and south of Alessandro Boulevard on property currently owned by the March Joint Powers Authority (March JPA) and would be donated to RCTC. RCTC will be responsible for the construction, operation, and maintenance of the station and parking areas as shown on Figure 1.7-10 and Figure 1.7-11. The associated parking area will have a capacity of approximately 445 vehicles and cover approximately 7 acres including landscaping.

- Downtown Perris Station is to be located southwest of I-215 San Jacinto Avenue and 4th Street at the existing Perris Multimodal Transit Facility, as shown on Figure 1.7-12 and Figure 1.7-13. Improvements to be undertaken by RCTC would include; an expansion of the existing parking capacity to approximately 440 spaces covering approximately 6 acres including landscaping and track realignment within the ROW to allow for proper spacing between the platform and the train. The Perris Multimodal Transit Facility, in operation, includes eight bus bays and five canopies. The facility would be operated as a bus terminal by RTA prior to the opening of the proposed PVL project. With the opening of the PVL, it would become a multimodal transit facility.

- South Perris Station will be located west of I-215 near the intersection of the SJBL ROW and State Route (SR-74), as shown on Figure 1.7-14 and Figure 1.7-15. The associated parking area would have a capacity of approximately 880 vehicles and cover approximately 11 acres including landscaping.

It should be noted that the rail station lay-out and design will be coordinated with the appropriate land use agencies (i.e. city of Riverside, March JPA, and city of Perris).

This Page Intentionally Left Blank



PROJECT NO.	92666
DRAWN:	8/9/10
DRAWN BY:	JP
CHECKED BY:	RM
FILE NAME:	92666impr1.MXD

SJBL TRACK IMPROVEMENTS

SUPPLEMENTAL ENVIRONMENTAL ASSESSMENT
RIVERSIDE COUNTY TRANSPORTATION COMMISSION
PERRIS VALLEY LINE
RIVERSIDE, CALIFORNIA

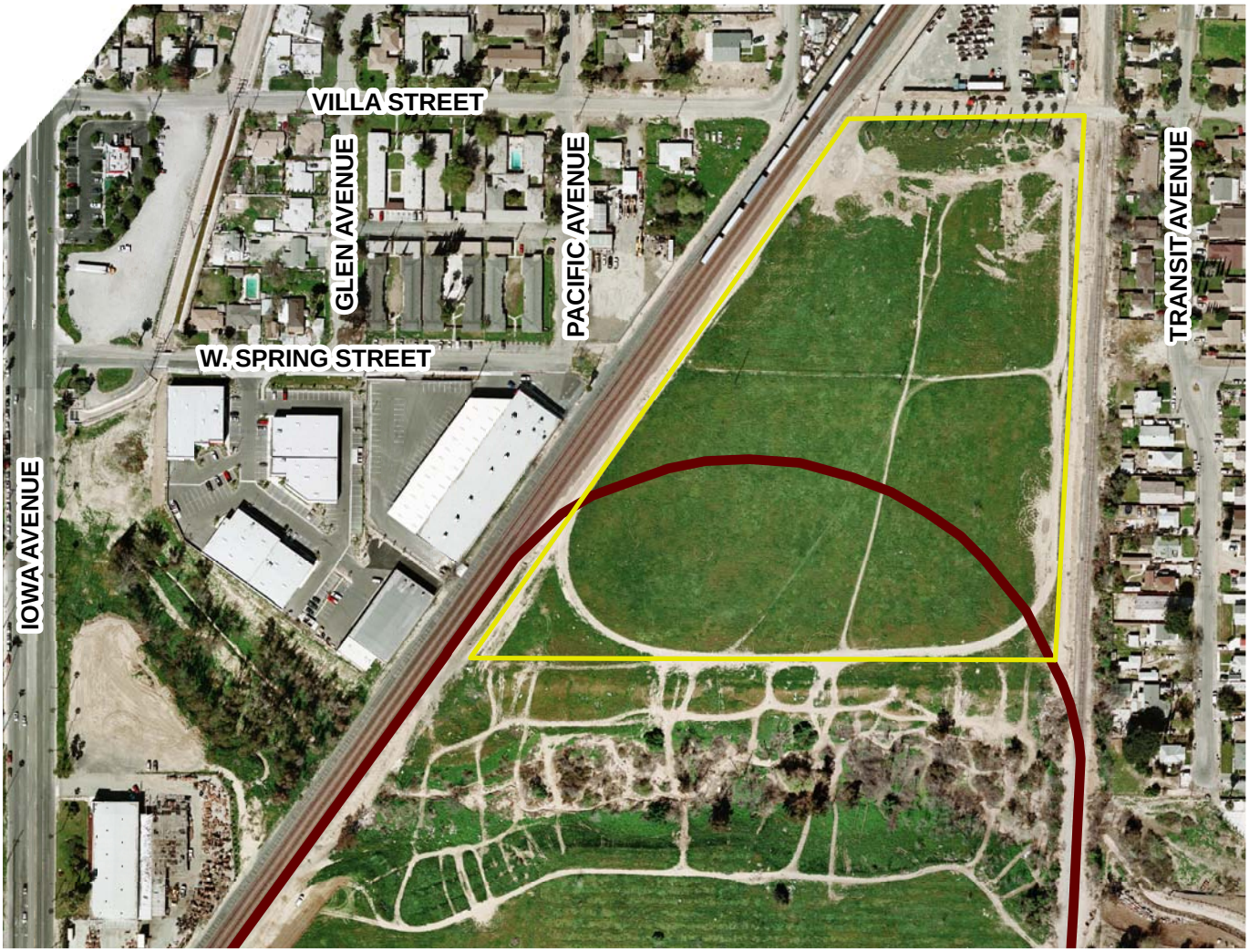
FIGURE 1.7-2



SITE PHOTOGRAPH (VIEW WEST)

LEGEND

- PVL ALIGNMENT
- SITE BOUNDARY



SITE AERIAL

N

0 300 Feet

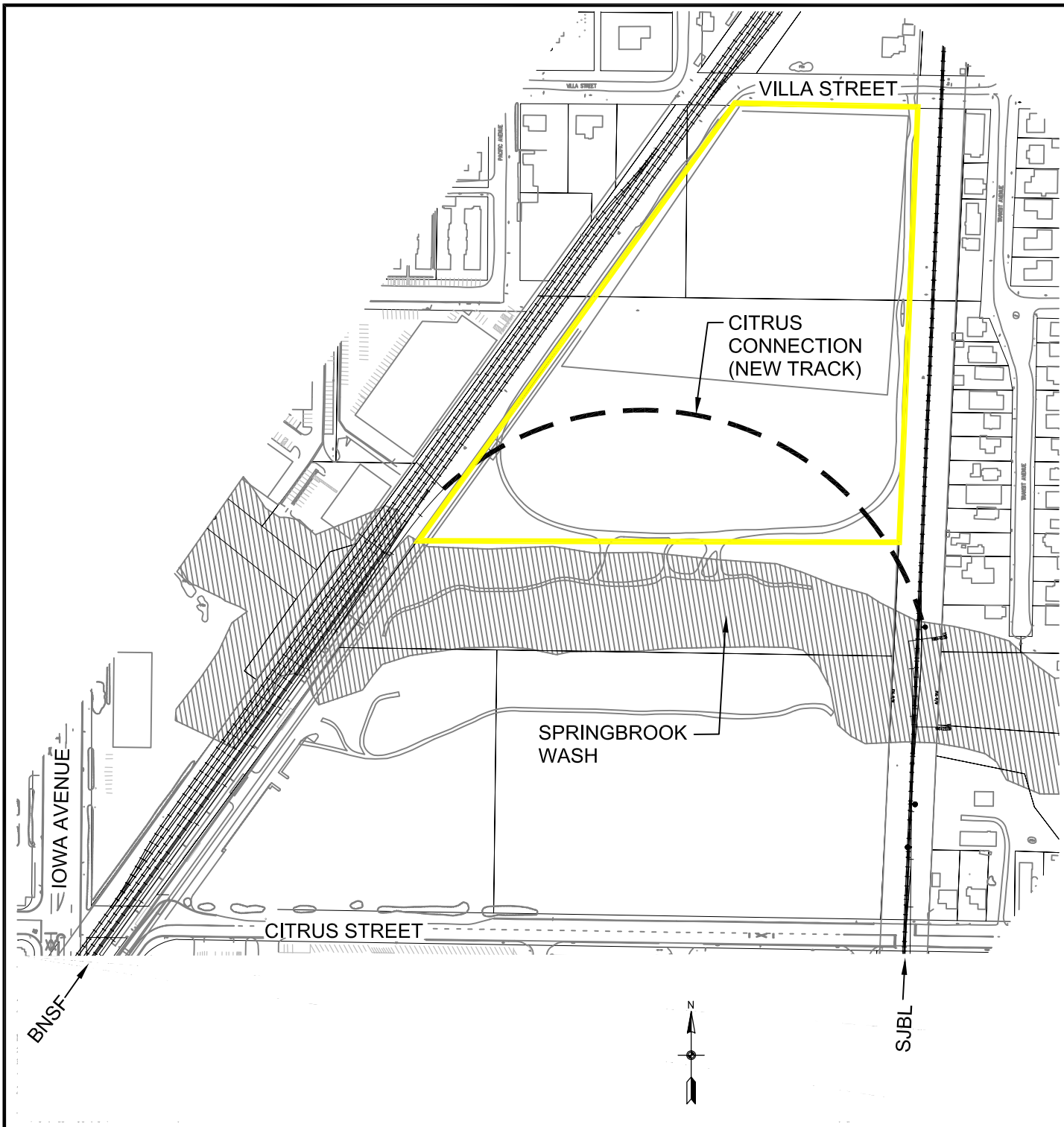
PROJECT NO.	92666
DRAWN:	1/18/10
DRAWN BY:	JP
CHECKED BY:	RM
FILE NAME:	92666citrus.MXD

CITRUS CONNECTION

SUPPLEMENTAL ENVIRONMENTAL ASSESSMENT
RIVERSIDE COUNTY TRANSPORTATION COMMISSION
PERRIS VALLEY LINE
RIVERSIDE, CALIFORNIA

FIGURE

1.7-3



LEGEND

SITE BOUNDARY

SOURCE:

30% DESIGN DRAWINGS

NOT TO SCALE

PROJECT NO. 92666	**CITRUS CONNECTION ENGINEERING SITE PLAN**	FIGURE
DRAWN: 1/4/10		
DRAWN BY: JP		**1.7-4**
CHECKED BY: RM	SUPPLEMENTAL ENVIRONMENTAL ASSESSMENT RIVERSIDE COUNTY TRANSPORTATION COMMISSION PERRIS VALLEY LINE RIVERSIDE, CALIFORNIA	
FILE NAME: 92666citrusE.dwg		





PROJECT NO.	92666
DRAWN:	1/14/10
DRAWN BY:	JP
CHECKED BY:	RM
FILE NAME:	92666PHOTO.dwg

TYPICAL VIEWS OF PLATFORM AND CANOPY STRUCTURE

SUPPLEMENTAL ENVIRONMENTAL ASSESSMENT
RIVERSIDE COUNTY TRANSPORTATION COMMISSION
PERRIS VALLEY LINE
RIVERSIDE, CALIFORNIA

FIGURE

1.7-5



SITE PHOTOGRAPH - MARLBOROUGH (VIEW SOUTH)



SITE PHOTOGRAPH - COLUMBIA (VIEW SOUTH)



SITE PHOTOGRAPH - PALMYRITA (VIEW NORTH)



SITE AERIAL

N

0 500 Feet

LEGEND

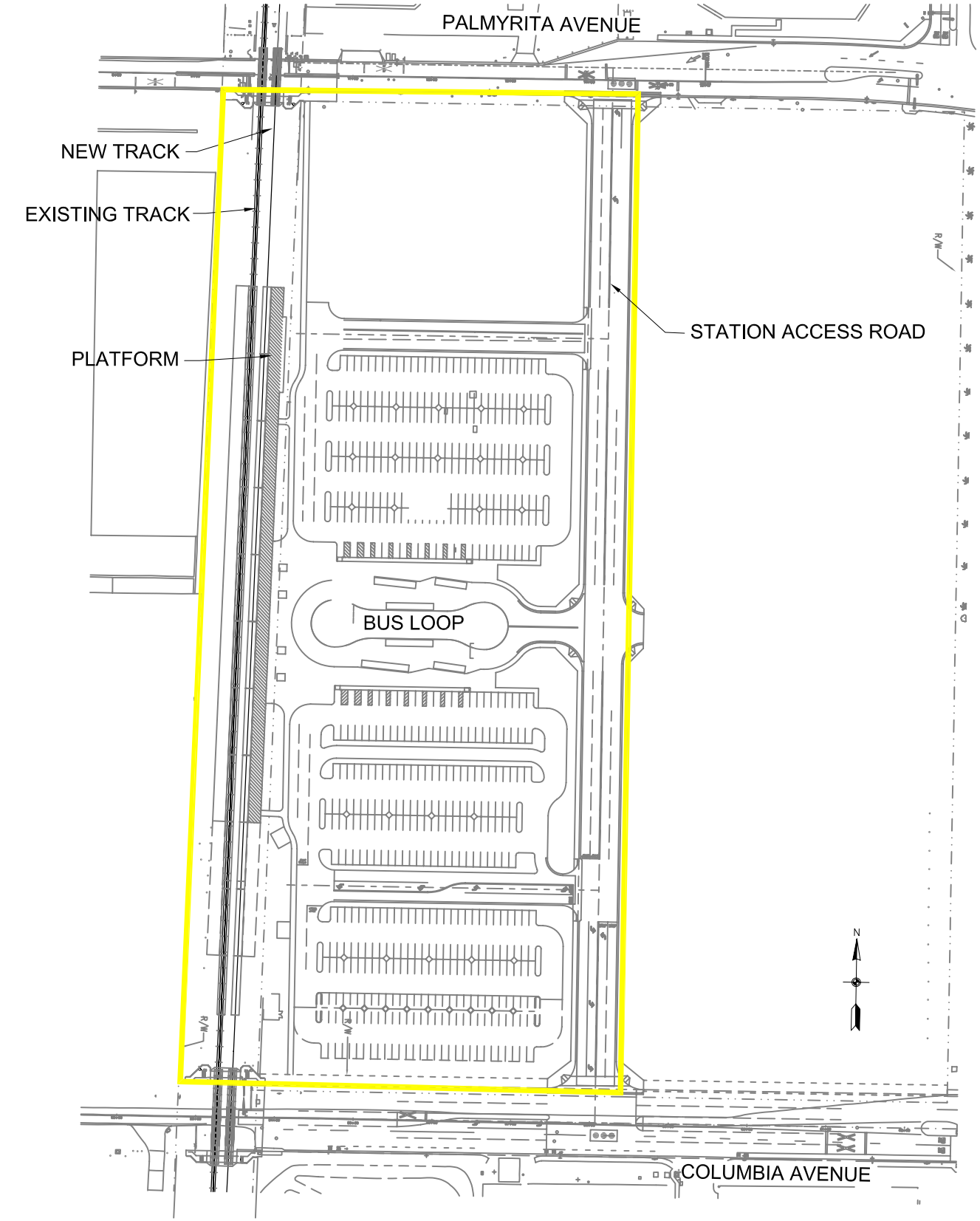
- SITE BOUNDARY
- PVL ALIGNMENT

PROJECT NO.	92666
DRAWN:	4/22/10
DRAWN BY:	JP
CHECKED BY:	RM
FILE NAME:	92666stations.MXD

HUNTER PARK STATION OPTIONS

SUPPLEMENTAL ENVIRONMENTAL ASSESSMENT
RIVERSIDE COUNTY TRANSPORTATION COMMISSION
PERRIS VALLEY LINE
RIVERSIDE, CALIFORNIA

FIGURE 1.7-6



SOURCE:

30% DESIGN DRAWINGS

LEGEND

SITE BOUNDARY

NOT TO SCALE

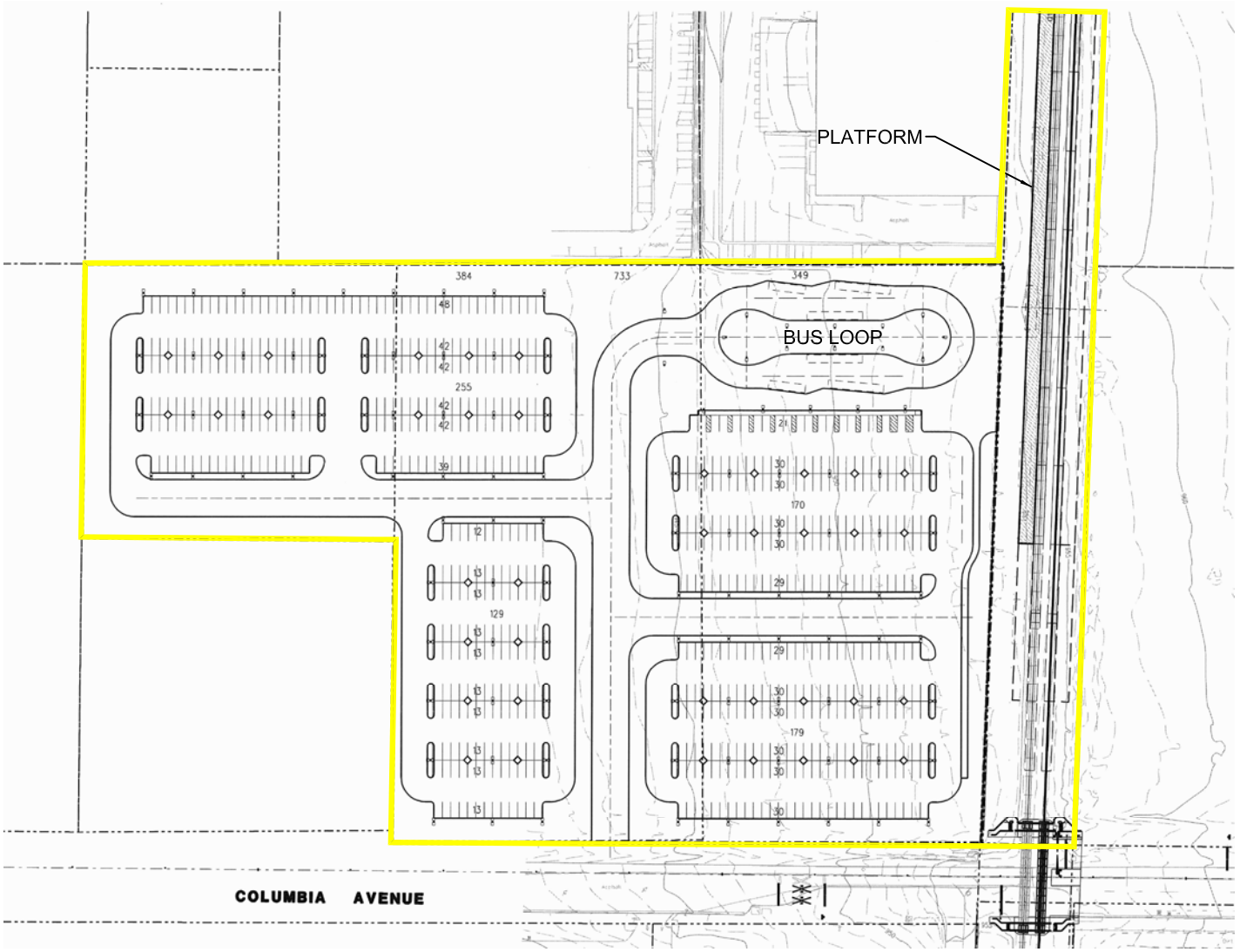
PROJECT NO.	92666
DRAWN:	1/18/10
DRAWN BY:	JP
CHECKED BY:	RM
FILE NAME:	92666PalmE.dwg

HUNTER PARK STATION
PALMYRITA AVENUE OPTION
ENGINEERING SITE PLAN

SUPPLEMENTAL ENVIRONMENTAL ASSESSMENT
RIVERSIDE COUNTY TRANSPORTATION COMMISSION
PERRIS VALLEY LINE
RIVERSIDE, CALIFORNIA

FIGURE

1.7-7



SOURCE:

POST 30% DESIGN DRAWING UPDATE

LEGEND

SITE BOUNDARY

N

NOT TO SCALE

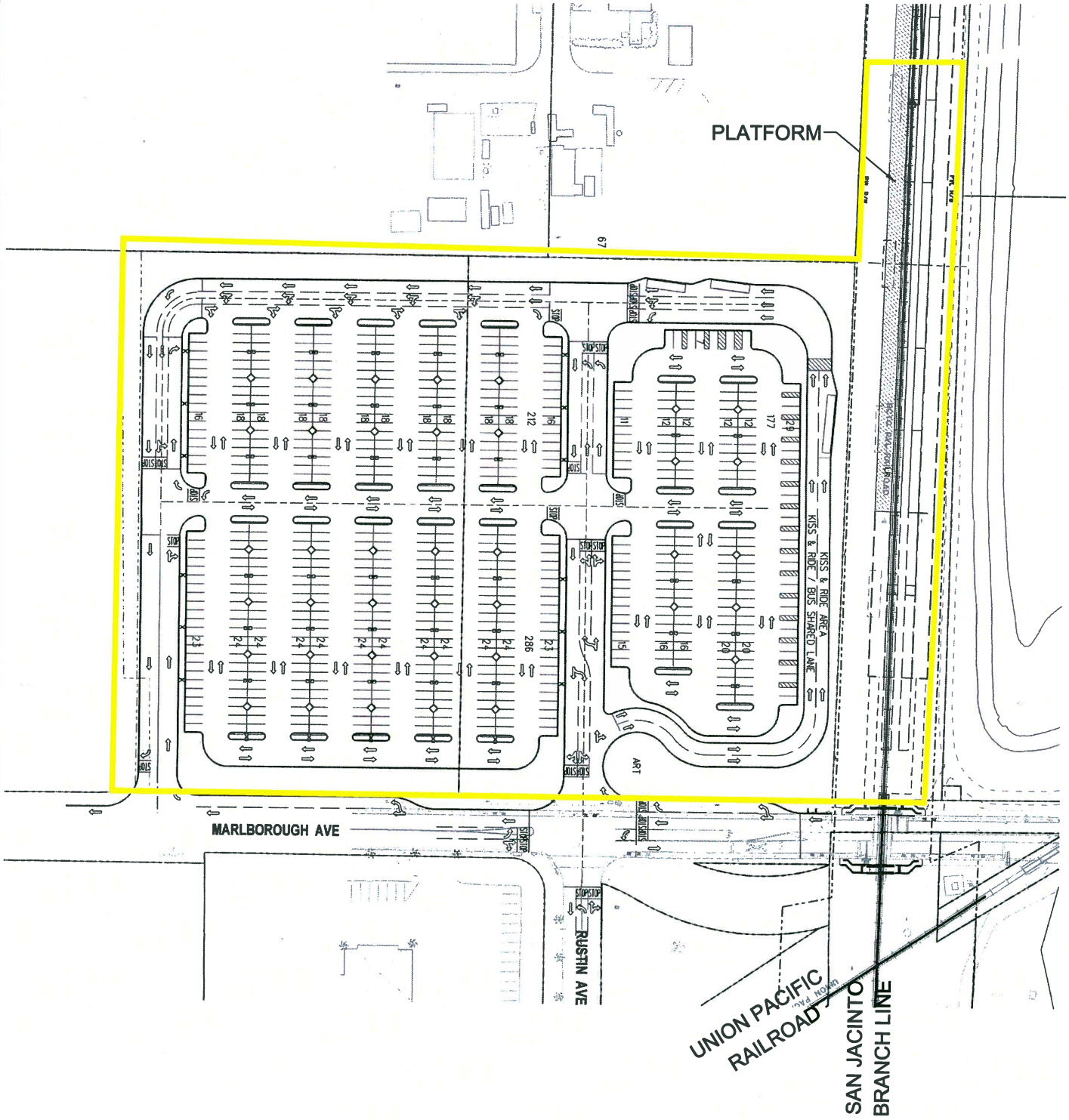
PROJECT NO.	92666
DRAWN:	1/4/10
DRAWN BY:	JP
CHECKED BY:	RM
FILE NAME:	92666columE.dwg

HUNTER PARK STATION
COLUMBIA AVENUE OPTION
ENGINEERING SITE PLAN

SUPPLEMENTAL ENVIRONMENTAL ASSESSMENT
RIVERSIDE COUNTY TRANSPORTATION COMMISSION
PERRIS VALLEY LINE
RIVERSIDE, CALIFORNIA

FIGURE

1.7-8



SOURCE:

POST 30% DESIGN DRAWING UPDATE

LEGEND

SITE BOUNDARY

NOT TO SCALE

PROJECT NO.	92666
DRAWN:	1/4/10
DRAWN BY:	JP
CHECKED BY:	RM
FILE NAME:	92666marlE.dwg

HUNTER PARK STATION
MARLBOROUGH AVENUE OPTION
ENGINEERING SITE PLAN

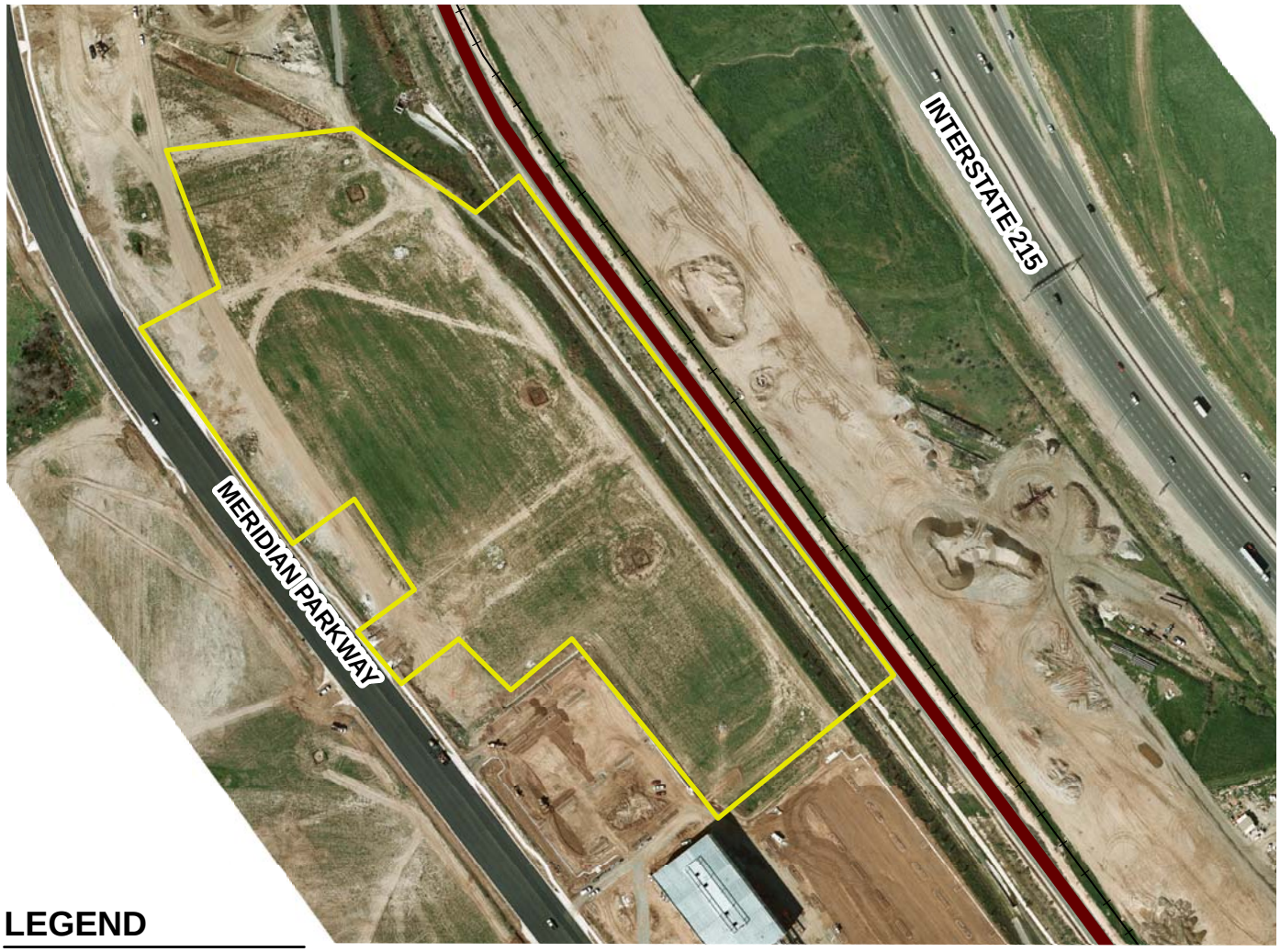
SUPPLEMENTAL ENVIRONMENTAL ASSESSMENT
RIVERSIDE COUNTY TRANSPORTATION COMMISSION
PERRIS VALLEY LINE
RIVERSIDE, CALIFORNIA

FIGURE

1.7-9



SITE PHOTOGRAPH (VIEW SOUTH)



LEGEND

PVL ALIGNMENT

SITE BOUNDARY

SITE AERIAL

N

0 300 Feet

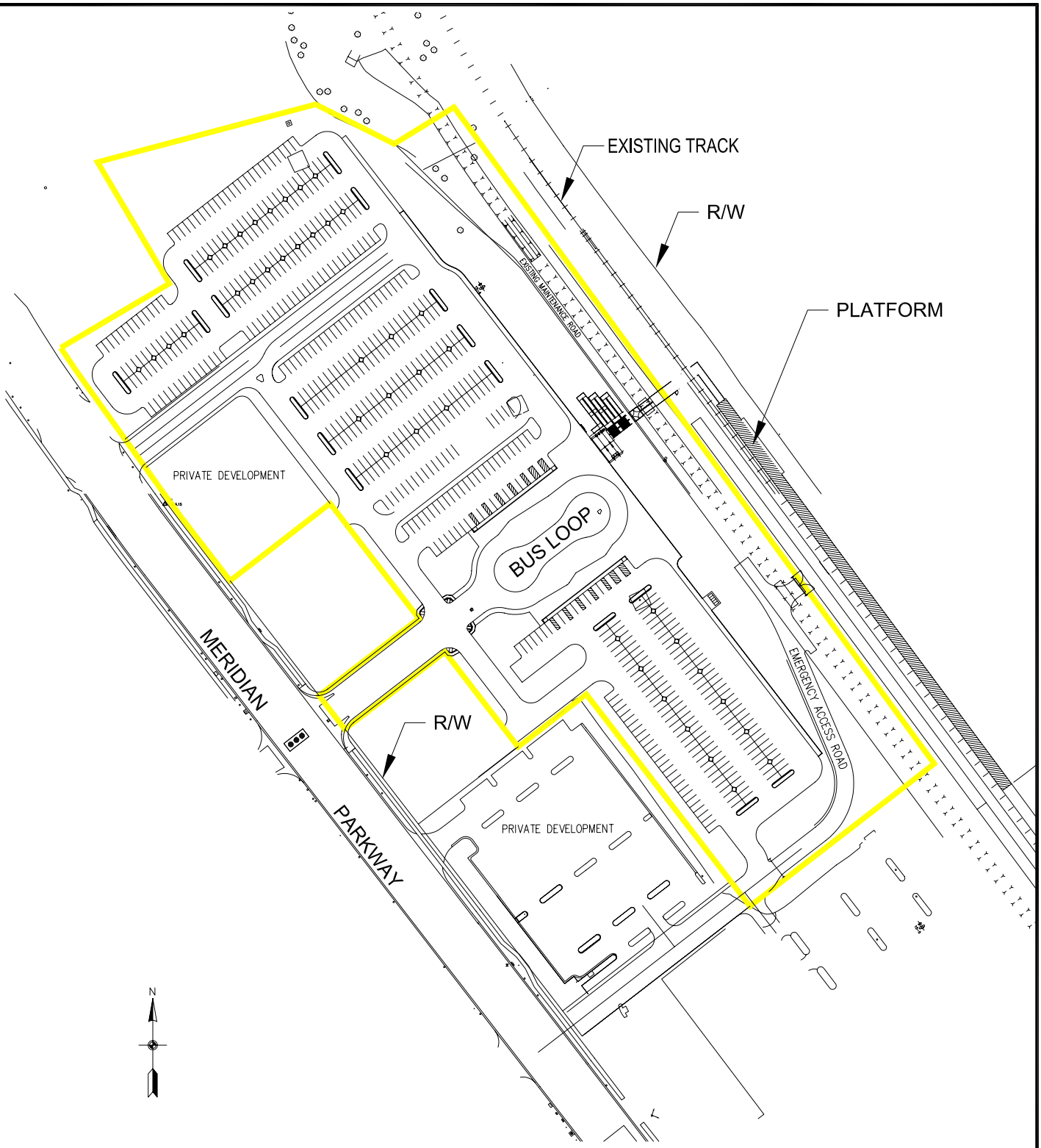
PROJECT NO.	92666
DRAWN:	1/4/10
DRAWN BY:	JP
CHECKED BY:	RM
FILE NAME:	92666mv_mf.MXD

MORENO VALLEY/
MARCH FIELD STATION

SUPPLEMENTAL ENVIRONMENTAL ASSESSMENT
RIVERSIDE COUNTY TRANSPORTATION COMMISSION
PERRIS VALLEY LINE
RIVERSIDE, CALIFORNIA

FIGURE

1.7-10



SOURCE:

30% DESIGN DRAWINGS

LEGEND

SITE BOUNDARY

NOT TO SCALE

PROJECT NO. 92666	**MORENO VALLEY/ MARCH FIELD STATION ENGINEERING SITE PLAN**	FIGURE
DRAWN: 1/14/10		
DRAWN BY: JP		**1.7-11**
CHECKED BY: RM	SUPPLEMENTAL ENVIRONMENTAL ASSESSMENT RIVERSIDE COUNTY TRANSPORTATION COMMISSION PERRIS VALLEY LINE RIVERSIDE, CALIFORNIA	
FILE NAME: 92666morenoE.dwg		



SITE PHOTOGRAPH (VIEW NORTH)

LEGEND

PVL ALIGNMENT

SITE BOUNDARY



SITE AERIAL

N

0 300 Feet

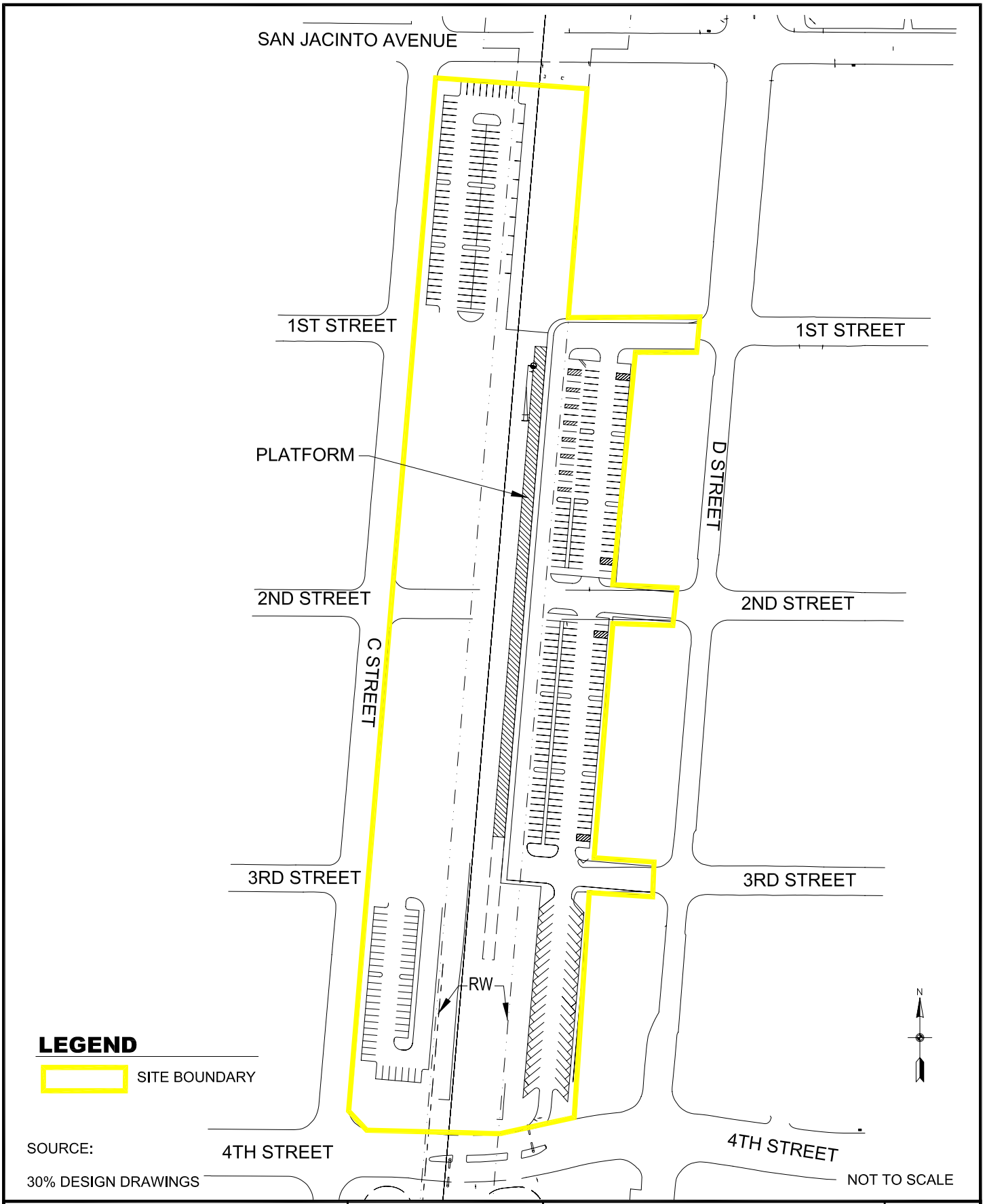
PROJECT NO.	92666
DRAWN:	1/4/10
DRAWN BY:	JP
CHECKED BY:	RM
FILE NAME:	92666dwntwnP.MXD

DOWNTOWN PERRIS STATION

SUPPLEMENTAL ENVIRONMENTAL ASSESSMENT
RIVERSIDE COUNTY TRANSPORTATION COMMISSION
PERRIS VALLEY LINE
RIVERSIDE, CALIFORNIA

FIGURE

1.7-12



PROJECT NO.	92666
DRAWN:	1/14/10
DRAWN BY:	JP
CHECKED BY:	RM
FILE NAME:	92666DPerrrisE.dwg

DOWNTOWN PERRIS STATION ENGINEERING SITE PLAN

SUPPLEMENTAL ENVIRONMENTAL ASSESSMENT
RIVERSIDE COUNTY TRANSPORTATION COMMISSION
PERRIS VALLEY LINE
RIVERSIDE, CALIFORNIA

FIGURE
1.7-13



SITE PHOTOGRAPH (VIEW NORTH)



LEGEND

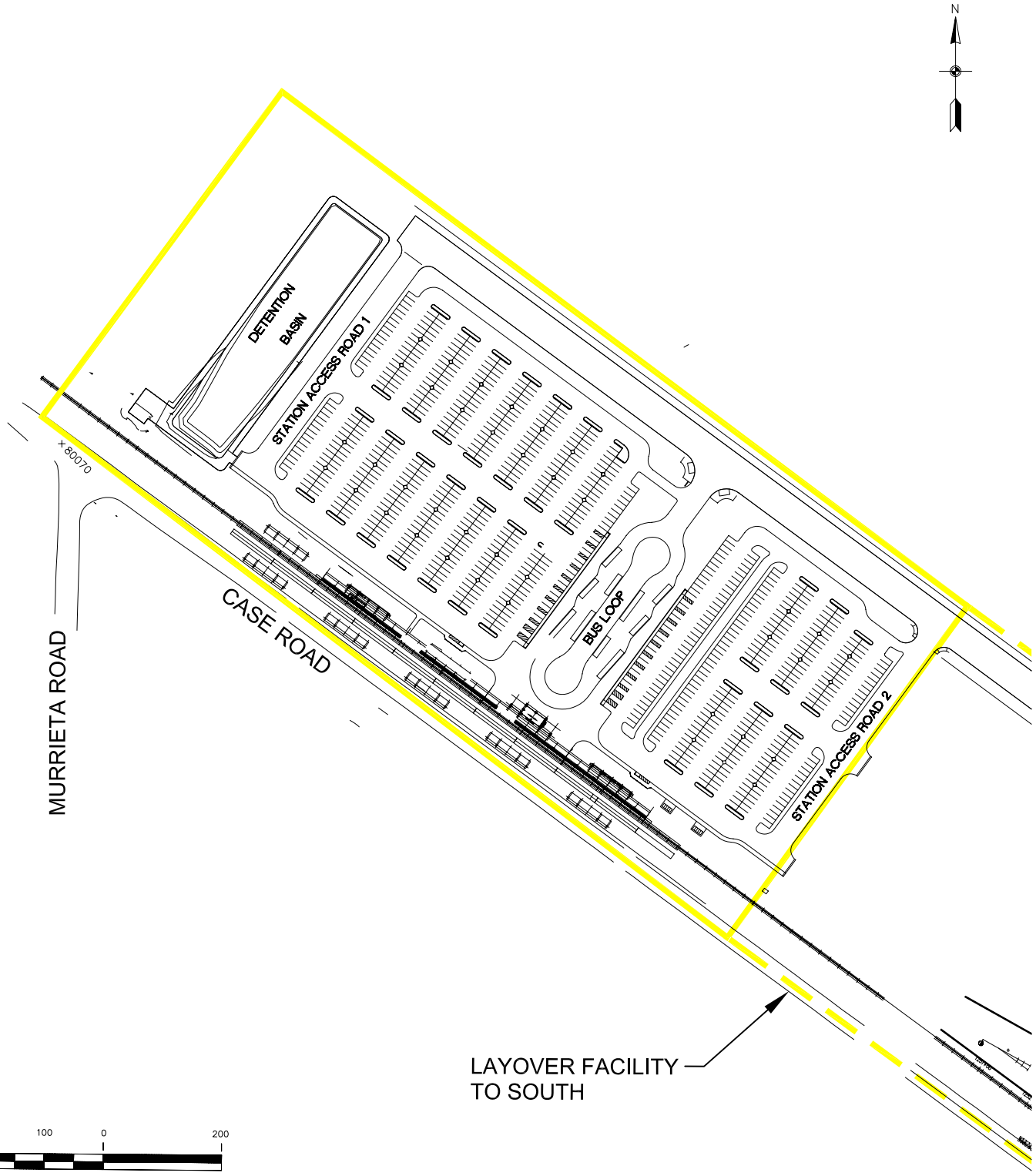
- PVL ALIGNMENT
- SITE BOUNDARY

N

0 1,000 Feet

SITE AERIAL

PROJECT NO.	92666	**SOUTH PERRIS STATION**	FIGURE **1.7-14**
DRAWN:	1/4/10		
DRAWN BY:	JP		
CHECKED BY:	RM	SUPPLEMENTAL ENVIRONMENTAL ASSESSMENT RIVERSIDE COUNTY TRANSPORTATION COMMISSION PERRIS VALLEY LINE RIVERSIDE, CALIFORNIA	
FILE NAME: 92666perris.MXD			



SOURCE:

65% DESIGN DRAWINGS

LEGEND

SITE BOUNDARY

PROJECT NO.	92666
DRAWN:	4/15/10
DRAWN BY:	JP
CHECKED BY:	RM
FILE NAME:	92666PerrisE_EA.dwg

SOUTH PERRIS STATION ENGINEERING SITE PLAN

SUPPLEMENTAL ENVIRONMENTAL ASSESSMENT
RIVERSIDE COUNTY TRANSPORTATION COMMISSION
PERRIS VALLEY LINE
RIVERSIDE, CALIFORNIA

FIGURE

1.7-15

Layover Facility

The proposed Layover Facility would be located southeast of the South Perris Station and west of I-215, as shown on Figure 1.7-16 and Figure 1.7-17. In the 2012 opening year, the Layover Facility would accommodate four ten-car trains arriving from Riverside in the afternoon. Trains would be stored overnight on the four storage tracks (approximately 1,000 feet in length), and would receive light maintenance, cleaning, and operational testing prior to morning departures. The Layover Facility would include an ADA-accessible employee support building with modular offices, storage, and parking. The parking capacity is approximately 40 vehicles covering an area of less than one acre. The employee support building would be raised by six feet to remain out of the 100-year floodplain.

1.7.3 Culvert Replacement and Extension

There are approximately 53 drainage culverts along the SJBL that were evaluated in an *Existing Conditions Report* (JL Patterson & Associates, Inc., 2008). Within this evaluation, approximately 38 drainage culverts were identified for replacement or to be extended as part of the project, as shown on Figure 1.7-18. Of the 38 identified, ten treated wood box culverts would be replaced with corrugated steel pipe.

1.7.4 Bridge Replacements

There are two bridges along the SJBL that require replacement, one at the San Jacinto River (MP 20.70) and a second at the San Jacinto River Overflow Channel (MP 20.80) as shown on Figure 1.7-19. Both bridges will be replaced in-kind and will have a similar appearance as the original bridges. The current San Jacinto River single-track bridge is an open-deck pile, wooden trestle approximately 142-feet long. The San Jacinto Overflow Channel single track-bridge is an open-deck pile, wooden trestle 56-feet long.

1.7.5 Grade Crossings

As required by the California Public Utilities Commission (CPUC), modifications will be made to several existing grade crossings along the SJBL to ensure public safety, and to facilitate safe train movements. These modifications include improvements to several grade crossings, as well as the closure of other grade crossings. The locations of grade crossings to be improved or closed are shown on Figure 1.7-20.

Improvements are proposed at 15 grade crossings along the SJBL; Citrus Avenue (MP 0.57), Palmyrita Avenue (MP 1.00), Columbia Avenue (MP 1.24), Marlborough Avenue (MP 1.5), Spruce Street (MP 2.02), Blaine Street (MP 2.66), Mt. Vernon Avenue (MP 3.41), River Crest Drive (MP 7.0), San Jacinto Avenue (MP 18.05), W. 4th Street (MP 18.34), W. 7th Street (MP 19.10), S. D Street (MP 19.17), S. Perris Boulevard (MP 19.37), G Street (MP 19.68), and E. Ellis Avenue (MP 19.87) to include: flashing warning devices and gates, raised center medians, striping, signage and pavement markings, crossing safety lighting, signalization, and pedestrian safety improvements. Proposed improvements would reduce the potential for pedestrian and motor vehicle conflict at these grade crossings. The exact warning device configuration is to be determined by a diagnostic team consisting of the CPUC SCRRA, and BNSF representatives. To date, four field diagnostic meetings have been held to review grade crossings for the PVL, with members from the CPUC, SCRRA, BNSF, RCTC, County of Riverside, and cities of

Riverside and Perris. A list of proposed grade crossing modifications identified at the meetings, which includes improved crossings and warning devices, is provided in Appendix C, Grade Crossing Modifications Table.

Two grade crossings would be closed to accommodate the PVL project. The closings are at Poarch Road (MP 5.02) in the county Riverside, and at West 6th Street (MP 19.03) in Perris. The closure of West 6th Street is in accordance with Riverside's Downtown General Plan. In addition, 5th Street has been temporarily closed by the city of Perris and will be formally vacated for this project.

Three proposed pedestrian grade crossings are at the Moreno Valley/March Field Station (MP 8.63) and the Perris Station, 1st Street (MP 18.2), and 2nd Street (MP 18.3), and include pedestrian gates and swing gates to reduce the potential for pedestrian conflicts where passengers are required to cross tracks to board trains at stations.

Other work to existing grade crossings, located within the PVL corridor, includes grade separations. Currently there are plans by others to create grade separations at three grade crossings. These are not part of the PVL project. These three locations are along the BNSF alignment at 3rd Street, Columbia Avenue, and Iowa Avenue in the city of Riverside.

1.7.6 Communication Systems

The PVL communication systems would consist of communication towers and associated equipment shelters. This portion of the PVL project would include the construction of nine towers: East Maintenance Facility (outside of the PVL corridor), Control Point (CP) Citrus, Hunter Park Station option microwave tower, CP Marlborough, CP Eastridge, CP Oleander, CP Nuevo, South Perris Station communication shelter and tower, and CP Mapes. Details of the two types of communication towers are described in Section 3.9 Utilities and Service Systems.

The electronics at PVL crossings would be upgraded with crossing predictors to sense the speed and presence of trains. The work would include new or upgraded grade crossing warning devices and new pedestrian crossing warning devices; signal system upgrades; and replacement of control cables, housings, and equipment. The crossing predictors would enable the crossing gates to lower and rise in equal time durations regardless of the speed of approaching trains. Overlay circuits would be installed at each crossing to detect trains while they are still at least one crossing away. Rubberized or asphalt crossings would be replaced with concrete panel crossings.

1.7.7 Noise Barriers

Analysis of potential project noise-related impacts identified a need to construct noise barriers at several locations along Watkins Drive in the UCR area of the city of Riverside. These noise barriers would be placed along the SJBL ROW, replacing existing residential property fences in some instances. The noise barriers will closely resemble a masonry block wall alongside freeways. Details regarding the noise barriers are provided in Section 3.4 Noise and Vibration.

1.7.8 Landscape Walls

As indicated in Section 1.7 Project Details, the term “landscape wall” describes a free-standing, masonry block wall that will be deployed for reasons other than noise mitigation. A landscape wall will be constructed as part of the PVL project at Highland Elementary School. Additionally, RCTC will fund another landscape wall at Nan Sanders Elementary School. Landscape walls are further discussed in Section 3.6 Aesthetics.

Hyatt Elementary School and Nearby Residences Supplementary Protection

RCTC had originally proposed a landscape wall at Hyatt Elementary School during circulation of the Draft Environmental Impact Report (Draft EIR). Several comments expressed concerns that the location of the existing track relative to the adjoining Hyatt Elementary School poses a risk to the school from potential derailments; specifically, the potential that a derailment could result in rail cars and cargo (including release of hazardous materials) rolling down the slope and onto school property. The track is about 15-20 feet higher than the school property and about 95-125 feet away. The same concern was also expressed by several residents in the immediate area regarding their properties.

Project implementation will improve operating conditions by either upgrading (replace ballast, ties, and rail) or replacing existing track throughout its length, including along adjoining Hyatt Elementary School. The one exception is the two mile stretch between Poarch Road and River Crest Road where the track will be rehabilitated (resurfacing and spot tie replacements).

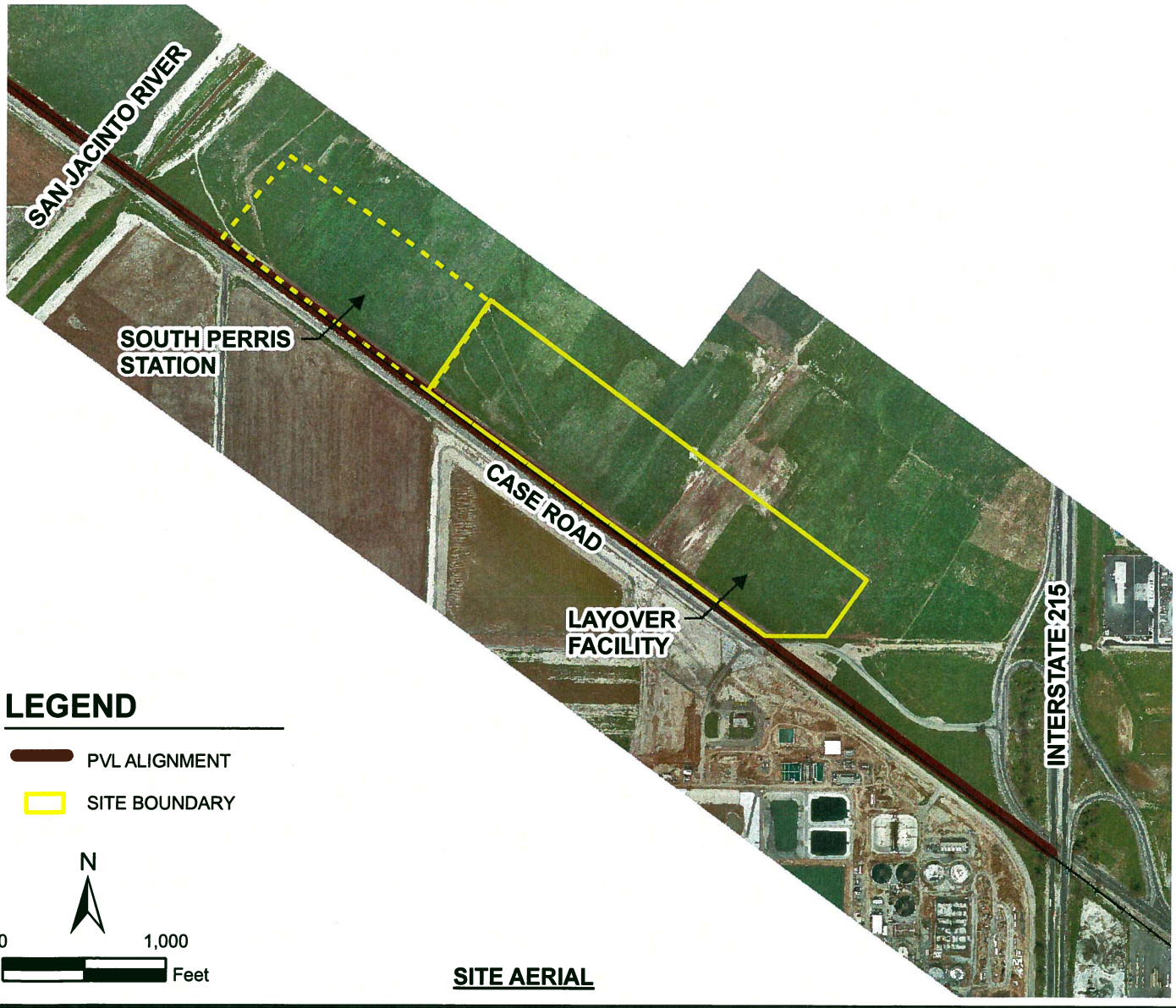
The proposed project does nothing that correlates with an increased potential for derailments. As such, there are no impacts and no mitigation is required. That being said, RCTC is sensitive to public concerns associated with this project and has engaged the services of a railroad design/safety professional to review and assess the situation, and to provide recommendations. These recommendations will be weighed with additional input from the local community before undertaking any supplemental measures.

To be clear, the provision of this supplemental measure is not required to reduce potential impacts to a level of less than significant. To the contrary, the SEA thoroughly analyzed the potential for derailment and concluded that no significant impact would result (see Section 3.8 Hazards and Hazardous Materials). Thus, the provision of any supplemental measure would simply further reduce these already insignificant impacts.

This Page Intentionally Left Blank



SITE PHOTOGRAPH (VIEW NORTH)



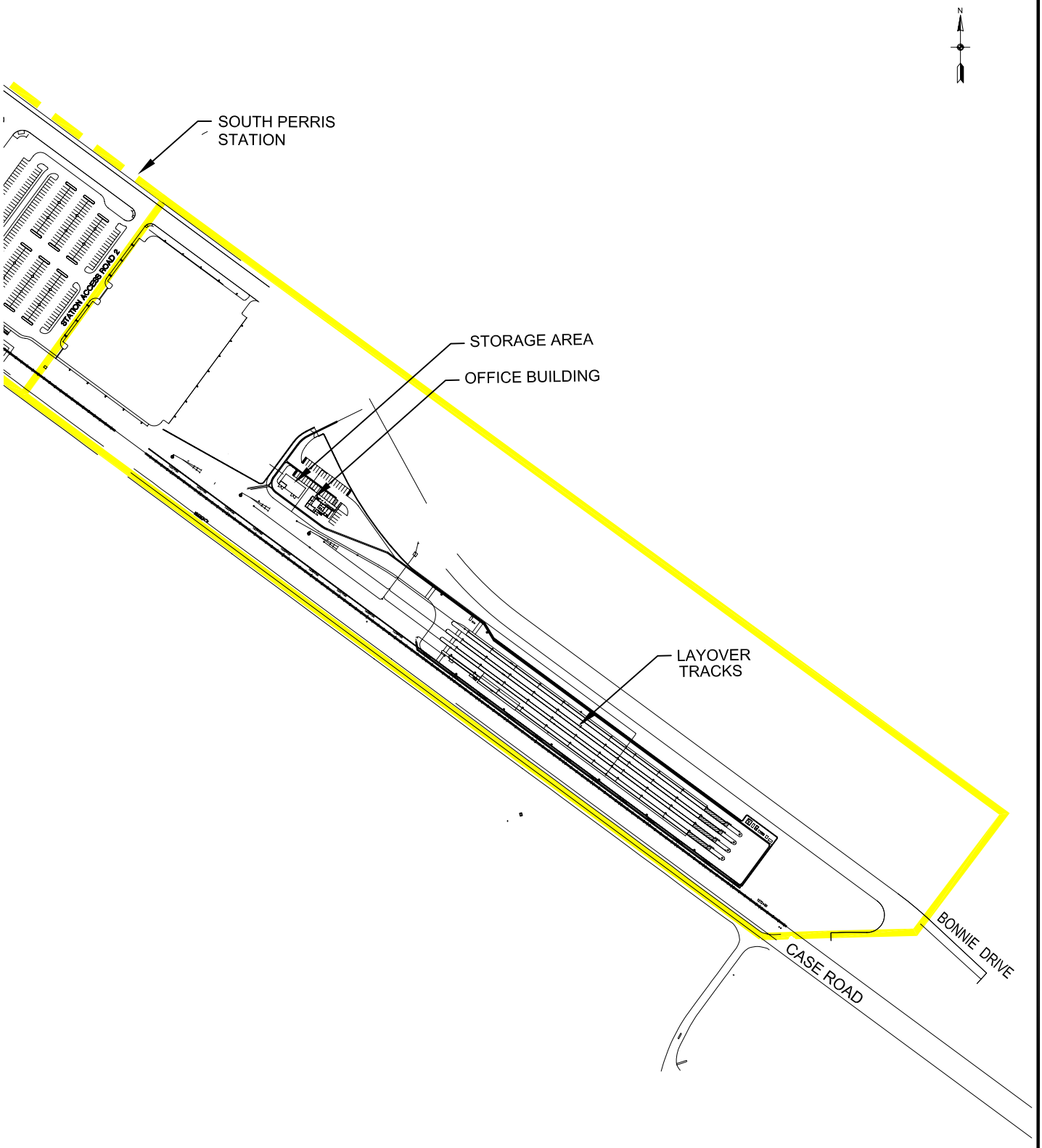
SITE AERIAL

PROJECT NO.	92666
DRAWN:	1/4/10
DRAWN BY:	JP
CHECKED BY:	RM
FILE NAME:	92666layover.MXD

LAYOVER FACILITY

SUPPLEMENTAL ENVIRONMENTAL ASSESSMENT
RIVERSIDE COUNTY TRANSPORTATION COMMISSION
PERRIS VALLEY LINE
RIVERSIDE, CALIFORNIA

FIGURE
1.7-16

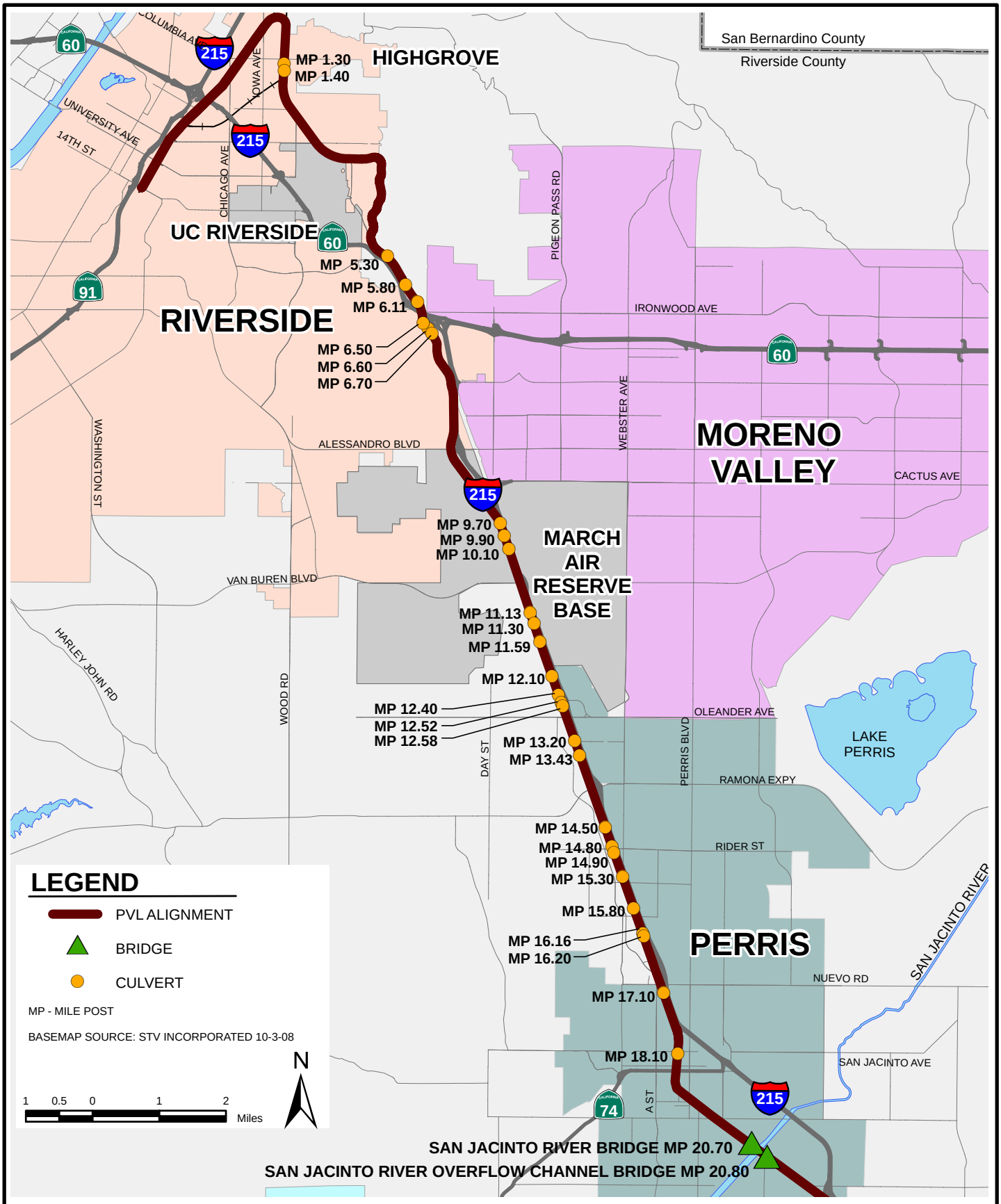


LEGEND

SITE BOUNDARY

NOT TO SCALE

PROJECT NO. 92666	**LAYOVER FACILITY ENGINEERING SITE PLAN**	FIGURE
DRAWN: 4/15/10		
DRAWN BY: JP		**1.7-17**
CHECKED BY: RM	SUPPLEMENTAL ENVIRONMENTAL ASSESSMENT RIVERSIDE COUNTY TRANSPORTATION COMMISSION PERRIS VALLEY LINE RIVERSIDE, CALIFORNIA	
FILE NAME: 92666layoverE_EA.dwg		



PROJECT NO.	92666	BRIDGE AND CULVERT IMPROVEMENT LOCATIONS	FIGURE 1.7-18
DRAWN:	1/4/10		
DRAWN BY:	JP		
CHECKED BY:	RM	SUPPLEMENTAL ENVIRONMENTAL ASSESSMENT RIVERSIDE COUNTY TRANSPORTATION COMMISSION PERRIS VALLEY LINE RIVERSIDE, CALIFORNIA	
FILE NAME:	92666culvEA.MXD		

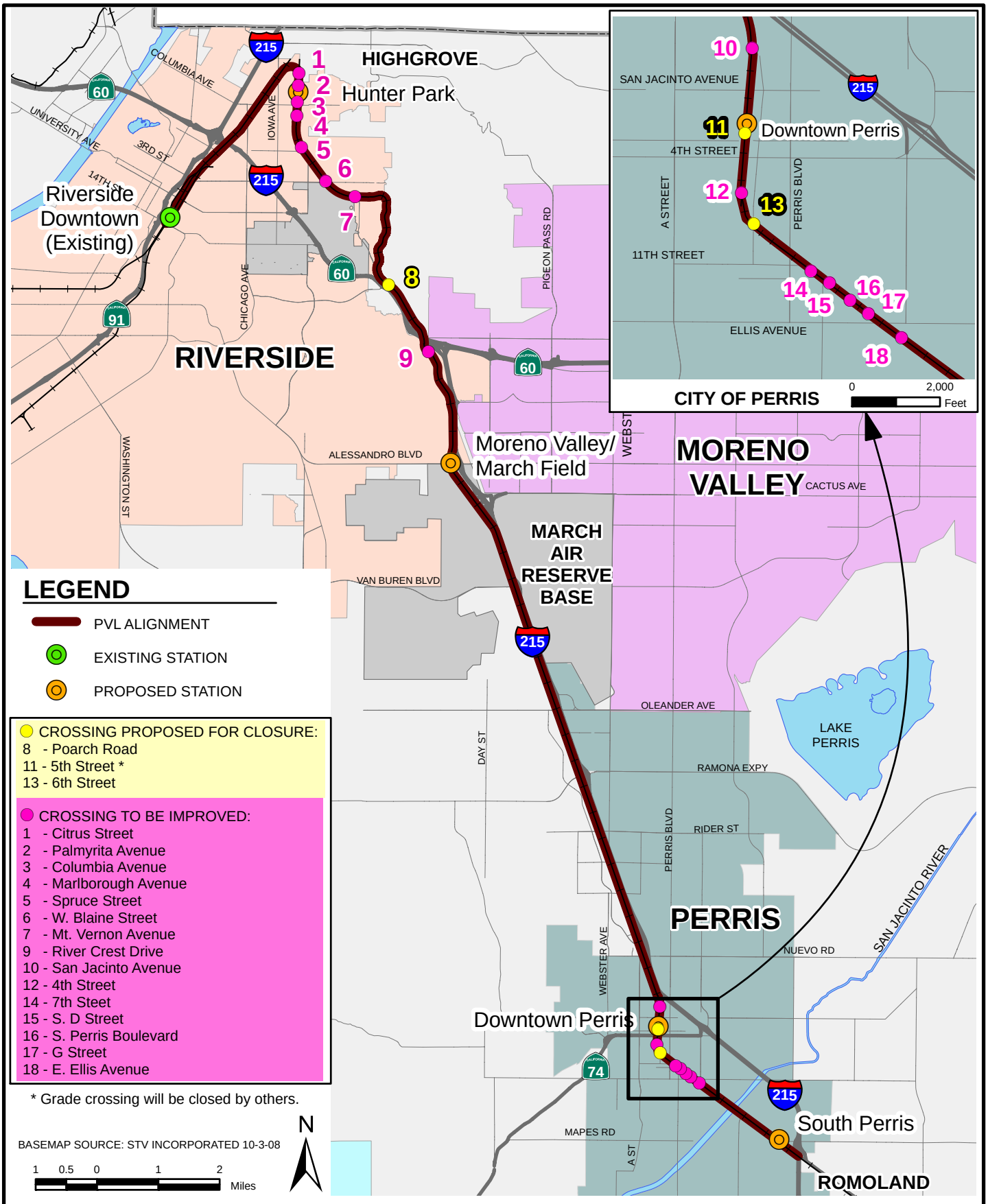


SAN JACINTO RIVER BRIDGE MP 20.70



SAN JACINTO RIVER OVERFLOW CHANNEL BRIDGE MP 20.80

PROJECT NO. 92666	**SAN JACINTO RIVER BRIDGES**	FIGURE
DRAWN: 1/18/10		
DRAWN BY: JP		1.7-19
CHECKED BY: RM	SUPPLEMENTAL ENVIRONMENTAL ASSESSMENT RIVERSIDE COUNTY TRANSPORTATION COMMISSION PERRIS VALLEY LINE RIVERSIDE, CALIFORNIA	
FILE NAME: 92666PHOTO2.dwg		



LEGEND

- PVL ALIGNMENT
- EXISTING STATION
- PROPOSED STATION

CROSSING PROPOSED FOR CLOSURE:
8 - Poarch Road
11 - 5th Street *
13 - 6th Street

CROSSING TO BE IMPROVED:
1 - Citrus Street
2 - Palmyrita Avenue
3 - Columbia Avenue
4 - Marlborough Avenue
5 - Spruce Street
6 - W. Blaine Street
7 - Mt. Vernon Avenue
9 - River Crest Drive
10 - San Jacinto Avenue
12 - 4th Street
14 - 7th Steet
15 - S. D Street
16 - S. Perris Boulevard
17 - G Street
18 - E. Ellis Avenue

* Grade crossing will be closed by others.

BASEMAP SOURCE: STV INCORPORATED 10-3-08

1 0.5 0 1 2 Miles

N

PROJECT NO.	92666
DRAWN:	1/18/10
DRAWN BY:	JP
CHECKED BY:	RM
FILE NAME:	92666crossEA.MXD

PVL GRADE CROSSING IMPROVEMENTS AND CLOSURES

SUPPLEMENTAL ENVIRONMENTAL ASSESSMENT
RIVERSIDE COUNTY TRANSPORTATION COMMISSION
PERRIS VALLEY LINE
RIVERSIDE, CALIFORNIA

FIGURE 1.7-20

1.7.9 Construction

Construction is scheduled to begin in 2011 with actual PVL revenue service commencing in 2012. All construction activities will be conducted in a manner that minimizes impacts to the surrounding area to the extent feasible. RCTC will closely coordinate construction activities with local jurisdictions, schools, and neighborhoods to ensure that community needs are maintained throughout the work.

In addition, the work would be performed in a manner that allows freight delivery to continue while the PVL improvements are being undertaken. Freight delivery schedules will be adjusted to accommodate the work, balancing the need to support business activity of the freight shippers/receivers with the need to remove old track and install new track. Some construction work may be performed at night or on weekends and some train operations may shift to nights or weekends to accomplish the project schedule. In the event that nighttime and weekend work are determined necessary, coordination with the affected local jurisdictions will be undertaken.

Federal regulations and traditional safety practices require that train operations and workers on or near the tracks be protected from each other. This separation is performed by flagmen who assure that workers near the track are safe from oncoming trains, direct the workers to retreat to a place of safety when trains pass, and who assure that the tracks are safe for train operation before permitting trains to pass.

The core of the PVL work would be to remove the existing track and replace it with new track components. This work would likely be performed with specialized equipment that can install about ½ mile of track per day. This equipment is a specialized rail machine that runs on the track and carries the supplies necessary to complete the rehabilitation work. This machine also makes sure that the two rails are level in relation to each other when the work is complete. Other tasks include removing and replacing grade crossings, selected culverts, and bridges. All of these tasks require that the contractor have extended periods (18-96 hours) of exclusive use of the track. Some of the contractor's tasks would not interfere with the operation of trains, and these tasks would be performed during normal working hours. Examples of non-interfering tasks include changes to the embankments, station areas, noise barriers, and signal installations. Segments of wholly new track in the area between Eastridge Avenue and Ramona Boulevard and the areas of very limited freight operations, roughly Ramona Boulevard to the South Perris Station, may be constructed without interference with freight train operation.

Construction will generally take place in at least two locations at any given time; track and grade crossing construction will be done concurrently with station construction. The construction process will begin with the relocation of any public utilities along the alignment. This work is to be done by contractors hired by the utility owners and subject to the control of railroad flagmen. The next step will be the staging of construction materials and equipment. Where needed, the contractor will perform rough grading for embankment changes and construction equipment access. Bridges, selected culverts, and grade crossings will be removed and reconstructed. Replacement of the San Jacinto River bridges will require pile driving.

Once the embankment and culverts are functionally complete, track removal and replacement will be undertaken. Track removal will be performed by typical construction equipment including end loaders, dump trucks, and all-terrain cranes. Replacement of the track will begin with the distribution of a base course of crushed rock ballast. Then, specialized track equipment will be

used to place the concrete ties on the ballast and install the rail. About one to two miles of track will be reconstructed during each three to four day work period. After the track is assembled, more crushed rock ballast will be delivered by rail cars and the track would be lined, surfaced, and welded into its final configuration. This will be followed with final shaping of the embankment, cleanup, and installation and testing of the signals. Road crossing work will be coordinated with the train operations and with local traffic authorities to assure that there is advance public notice and adequate alternate routes.

In addition to the equipment identified for track work, the following will also be used throughout the construction of the PVL: scraper, grader, backhoe, excavator, water truck, asphalt paver, vibratory compactor, concrete trucks, generator and light plant for night time work, speed swing, liner/tamper, ballast regulator, and track renewal machine. It should also be noted that any equipment staging areas will be within disturbed areas of the ROW or RCTC property, and not within 500 feet of environmentally sensitive areas.

1.7.10 Operations

RCTC anticipates the PVL will become operational in 2012. Operation of the trains on the PVL will be the responsibility of SCRRA/Metrolink under agreement with RCTC. The 2012 opening year operating schedules would include four trains from the South Perris Station to the Riverside Downtown Station with continuing service on the SCRRA/Metrolink 91 line to LA Union Station during the morning peak, and one morning train serving reverse commute trips from LA Union Station to the South Perris Station. In addition, two mid-day, off-peak trains would operate in each direction. During the afternoon peak, four trains would operate from LA Union Station to the South Perris Station and one in-bound train will operate from the South Perris Station to LA Union Station. In all, it is anticipated that there will be a total of twelve daily trips. The interval between each peak period run would be approximately 50 to 60 minutes in the 2012 opening year, as shown in Table 1.7-1.

Table 1.7-1
Perris Valley Line - Opening Year (2012) Operations

	To Los Angeles	701	703	7X1	7X3	7X5	7X7
91 Line [Perris V, Riverside, Fullerton, Downtown LA]	South Perris	3:51 AM	4:51 AM	5:51 AM	6:21 AM	2:13 PM	3:55 PM
	Downtown Perris	3:56 AM	4:56 AM	5:56 AM	6:26 AM	2:18 PM	4:00 PM
	Moreno Valley/ March Field	4:10 AM	5:10 AM	6:10 AM	6:40 AM	2:32 PM	4:14 PM
	Hunter Park	4:19 AM	5:19 AM	6:19 AM	6:49 AM	2:41 PM	4:23 PM
	Riverside - Downtown	4:30 AM	5:30 AM	6:30 AM	7:00 AM	2:52 PM	4:34 PM
	Riverside – LA Sierra	4:40 AM	5:40 AM	6:40 AM	7:10 AM	3:02 PM	4:44 PM
	North Main Corona	4:48 AM	5:48 AM	6:48 AM	7:18 AM	3:10 PM	4:52 PM
	West Corona	4:54 AM	5:54 AM	6:54 AM	7:24 AM	3:16 PM	4:58 PM
	Fullerton	5:19 AM	6:19 AM	7:19 AM	7:49 AM	3:41 PM	5:21 PM
	Buena Park	5:26 AM	6:26 AM	7:26 AM	7:56 AM	4:07 PM	5:26 PM
	Norwalk/Santa Fe Springs	5:34 AM	6:34 AM	7:34 AM	8:04 AM	4:15 PM	5:34 PM
	LA Union Station	6:00 AM	7:00 AM	8:00 AM	8:30 AM	4:39 PM	6:00 PM

Table 1.7-1 (cont'd)
Perris Valley Line - Opening Year (2012) Operations

To Perris Valley		700	702	704	706	708	710
91 Line [Perris V, Riverside, Fullerton, Downtown LA]	LA Union Station	6:15 AM	11:30 AM	3:30 PM	4:30 PM	5:30 PM	6:15 PM
	Norwalk/Santa Fe Springs	6:36 AM	11:51 AM	3:51 PM	4:51 PM	5:51 PM	6:36 PM
	Buena Park	6:42 AM	11:57 AM	3:57 PM	4:57 PM	5:57 PM	6:42 PM
	Fullerton	6:49 AM	12:04 PM	4:04 PM	5:04 PM	6:04 PM	6:49 PM
	West Corona	7:12 AM	12:27 PM	4:27 PM	5:27 PM	6:27 PM	7:12 PM
	North Main Corona	7:18 AM	12:33 PM	4:33 PM	5:33 PM	6:33 PM	7:18 PM
	Riverside – LA Sierra	7:27 AM	12:42 PM	4:42 PM	5:42 PM	6:42 PM	7:27 PM
	Riverside - Downtown	7:45 AM	1:00 PM	5:00 PM	6:00 PM	7:00 PM	7:45 PM
	Hunter Park	7:51 AM	1:06 PM	5:06 PM	6:06 PM	7:06 PM	7:51 PM
	Moreno Valley/ March Field	8:03 AM	1:18 PM	5:18 PM	6:18 PM	7:18 PM	8:03 PM
	Downtown Perris	8:17 AM	1:32 PM	5:32 PM	6:32 PM	7:32 PM	8:17 PM
	South Perris	8:22 AM	1:37 PM	5:37 PM	6:37 PM	7:37PM	8:22 PM

1.7.11 Maintenance

Currently, maintenance of the SJBL ROW is the responsibility of BNSF under agreement with RCTC. RCTC anticipates that project maintenance will be according to SCRRA/Metrolink standard practices which include: checking/correcting alignment of the rail, checking/correcting alignment of the ties, controlling vegetation within the ROW, and ensuring drainage pathways are clear and functioning. Additional maintenance checks include: checking the crossing gates and associated electronics, and general condition assessment of all rail-related facilities.

The trains will receive overnight service at the Layover Facility by SCRRA/Metrolink personnel or assigned contractors. This service will include cleaning the inside of the trains, emptying the restroom holding tanks, and a general visual evaluation of the trains. Heavy maintenance, including engine overall, parts replacement, scheduled lubrication and fluid replacement, of SCRRA/Metrolink engines and cars will continue to be performed at SCRRA/Metrolink facilities near Colton, or at the facility near downtown Los Angeles Station, Taylor Yard.

1.7.12 Freight Usage

As part of the planning effort for the PVL, RCTC commissioned a study in 2008 to inventory the current freight usage along the SJBL and to determine whether track improvements planned for commuter rail service would facilitate the expansion of freight service along the SJBL (Wilbur Smith Associates, 2008). Under the shared use agreement between BNSF and RCTC, freight usage of the improved SJBL would continue following the start of revenue service of the PVL.

Currently, there are eight shippers between Riverside and Romoland with sidings off of the SJBL. The existing facilities ship a variety of products, including paper stock, resins, lumber, chlorine, and agricultural products. Many of the freight shippers using the SJBL transport goods outside of California and the western states, and in some cases, to Canada.

According to the findings of the study, it is unlikely that the improvements will benefit shippers in any material way. No shippers indicated that the improvements will result in an increase of their rail shipments. Track improvements and other upgrades proposed as part of the PVL are aimed

at improving operations and safety to accommodate commuter rail service. These improvements will provide safety benefits that accrue to both commuter and freight operations (for example, grade and pedestrian crossing improvements and improved communications). However, rail improvements are not needed to accommodate freight loading, as the existing SJBL track and sidings can already carry the heaviest car weight of 286,000 pounds. Because no additional weight capacity will be added, or is even needed for existing users of the BNSF, PVL-related track improvements will not create conditions that could either increase the volume of freight shipped per carload or the number of weekly carloads.

Although track upgrades will improve operations and theoretically allow trains to travel at faster speeds, freight trains are limited to traveling at 20 miles per hour (mph) north of Perris. Southbound freight trains will continue to operate at lower speeds to maneuver the climb through Box Springs Canyon. The current freight inventory indicates that freight shipments often travel thousands of miles, and therefore any upgrades to the existing 21-mile-long SJBL segment to allow for even minor increases in train speed have little overall impact on the total travel time of the shipment.

Improvements to the SJBL to provide for commuter rail service will not facilitate expansion of freight volume or the number of freight trains operating along the PVL alignment. While PVL track improvements will provide for reduction in potential schedule conflicts, upgrades to the rail line would not result in additional freight demand. The study concluded that economic factors, rather than rail improvements, dictate freight demand.

The SJBL is already accessible to the BNSF via the existing connection near Center Street in the community of Highgrove. The existing connection could also be used by commuter rail and was previously analyzed in the Alternatives Analysis as the Commuter Rail Alternative with Highgrove Turnback (see Chapter 3.0 for Project Alternatives). However, one of the key factors for commuter rail viability is travel time. Use of the Highgrove Turnback at Center Street to move between the BNSF and SJBL would require trains to stop and reverse direction and undergo a number of safety checks prior to continuing along the alignment. The additional time required for this maneuver would effectively degrade commuter rail travel time such that its viability becomes questionable. However, freight operations are not as time sensitive to operate effectively.

Freight operations are dictated by costumer demand; in turn, customer demand is a function of economic conditions. The relationship between an improved SJBL alignment and increased freight operations is tenuous, at best. The business decision to provide freight service along the SJBL is profit driven. As long as the customer demand for freight service is low, there is no reason to assume BNSF would increase operations on the SJBL, regardless of track conditions.

1.8 ACQUISITIONS AND RELOCATIONS

RCTC currently owns the existing SJBL ROW, however, parcels would be required for the Citrus Connection, Hunter Park Station, South Perris Station, Layover Facility, and for project related street improvements. Parcels are in the process of being obtained by RCTC for the Moreno Valley/March Field and are already secured for the Downtown Perris Station.

Citrus Connection

ROW must be acquired to create the connection between the BNSF and SJBL. The Citrus Connection will require the acquisition of approximately 17.22 acres, comprising two parcels which are currently vacant. The assessor parcel numbers (APNs) for these parcels are 247-112-007 and 247-150-040 and are shown on Figure 1.8-1.

Hunter Park Station Options

The location for the Hunter Park Station will be selected from three options, which are generally adjacent to one another, and described below. Depending on the Hunter Park Station option selected by RCTC, the required acquisitions would range between 9.34 acres (for the Columbia Station option) and 24.08 acres (for the Palmyrita Station option). The Hunter Park Station parcels to be acquired are shown on Figure 1.8-2.

Palmyrita Station Option: Located between Palmyrita and Columbia Avenues on the east side of the SJBL, this site is approximately 24.08 acres, although planned for development to include a warehouse, the site is currently vacant. If selected for the Hunter Park Station, existing improvements would require demolition. The APN for this site option is 249-060-033.

Columbia Station Option: Also located between Palmyrita and Columbia Avenues, on the west side of the SJBL, the Columbia site is approximately 9.34 acres. This site is currently a citrus grove. The APNs for this site option are 249-060-034 and 249-060-035.

Marlborough Station Option: Located on the west side of the SJBL, on a parcel south of Columbia Avenue and north of Marlborough Avenue, the site is approximately 9.36 acres. The site is currently undeveloped. The APNs for this site option are 249-070-042 and 249-070-043.

Moreno Valley/March Field Station

RCTC is currently in the process of obtaining the Moreno Valley/March Field Station site from March JPA, by donation. This station and associated impacts were evaluated in the March Business Park (now Meridian) EIR. This station site is approximately 14.46 acres, which is currently undeveloped. The APN is 297-100-036 and is shown on Figure 1.8-3.

South Perris Station and Layover Facility

For the South Perris Station and Layover Facility, approximately 26.50 acres will need to be acquired by the RCTC. This site is currently undeveloped. The APNs are 327-200-001 and 327-020-009 as shown on Figure 1.8-4.

Project Related Street Improvements

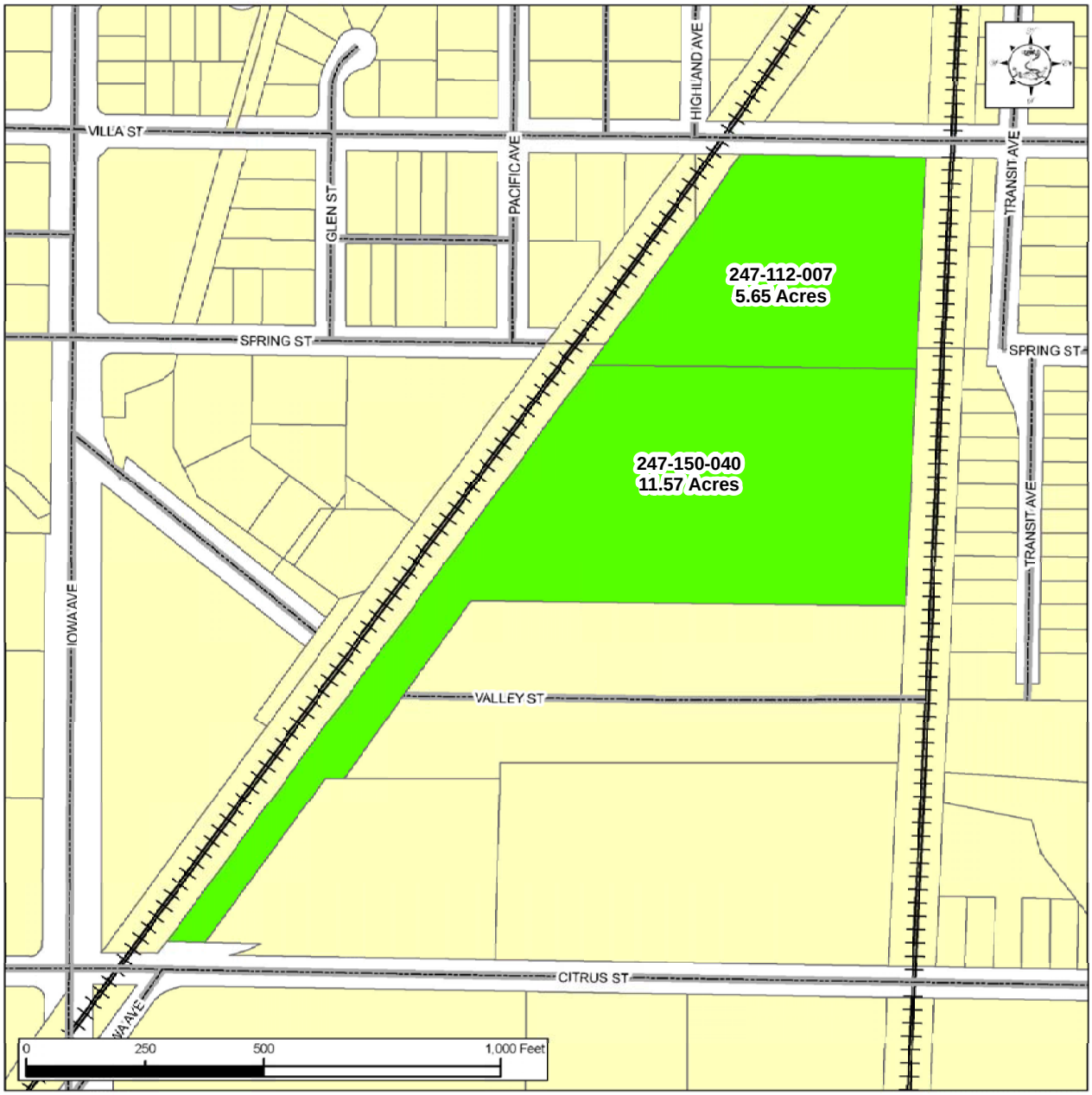
Additional parcels will be acquired to do project related street improvements in the city of Perris. One site is along San Jacinto Avenue at C Street, APN 311-100-021. Approximately 0.04 acres will need to be acquired by RCTC. The second site is located on 7th Street at D Street, APN 313-114-005. Approximately 0.01 acres will need to be acquired by RCTC. Another site is located along Case Road, APNs 310-140-019 and 310-160-070. Approximately 0.02 and 0.01 acres will need to be acquired by RCTC, respectively. The last site is located along Perris

Boulevard, APNs 310-150-002, 313-272-009, and 313-282-048. Approximately 0.03, 0.01, and 0.01 acres will need to be acquired by RCTC, respectively. These sites are shown in Figure 1.8-5.

For any of the facilities identified above, there is currently no need for any relocation. Table 1.8-1 summarizes PVL's proposed acquisitions.

Table 1.8-1
PVL Parcel Acquisitions

Site	APN	Owner	Parcel Acres	Acreage Required for PVL
Citrus – Parcel 1	247-112-007	Lincoln National Life Insurance Company	5.65	5.65
Citrus – Parcel 2	247-150-040	Lincoln National Life Insurance Company	11.57	11.57
Hunter Park Station Palmyrita Option	249-060-033	MDC Hunter Park, LLC	24.08	24.08
Hunter Park Station Columbia Option – Parcel 1	249-060-034	Thompson, Kenneth & Vera Ann	4.78	4.78
Hunter Park Station Columbia Option – Parcel 2	249-060-035	Thompson, Kenneth & Vera Ann	4.56	4.56
Hunter Park Station Marlborough Option – Parcel 1	249-070-042	Grove Business Park, LLC	9.35	9.35
Hunter Park Station Marlborough Option – Parcel 2	249-070-043	Grove Business Park, LLC	6.61	0.01
Moreno Valley/March Field Station	297-100-036	LNR Riverside II, LLC	14.46	14.46
South Perris and Layover Facility – Parcel 1	327-200-001	Intex Property Perris Valley	140.51	37.70
South Perris – Parcel 2	327-020-009	Intex Property Perris Valley	104.24	1.65
7th Street and D Street Improvements	313-114-005	American Legion Perris Post 395	0.65	0.01
San Jacinto Avenue Improvements	311-100-021	County of Riverside	4.89	0.04
Case Road and G Street Improvements – Parcel 1	310-140-019	Arturo and Isabel Munoz	0.31	0.02
Case Road and G Street Improvements – Parcel 2	310-160-070	Integrity Capital Palomar, LLC	3.32	0.01
Perris Boulevard and 11th Street Improvements – Parcel 1	310-150-002	Orlando and Matilde Sanchez	0.21	0.03
Perris Boulevard and 11th Street Improvements – Parcel 2	313-272-009	Pentecostal Church of God	0.19	0.01
Perris Boulevard and 11th Street Improvements – Parcel 3	313-282-048	Apolinar and Florina Sanchez	0.25	0.01
Parcel Totals			**335.63**	**113.94**



Legend 11/09/10

- Owned by RCTC
- In Negotiations
- Potential Acquisitions
- Railroads
- Streets

N

SOURCE:

RIVERSIDE COUNTY LAND INFORMATION SYSTEM
AND EPIC LAND SOLUTIONS, DECEMBER 2009

PROJECT NO.	92666	CITRUS CONNECTION PARCEL ACQUISITION	FIGURE 1.8-1
DRAWN:	11/16/10		
DRAWN BY:	JP		
CHECKED BY:	RM	SUPPLEMENTAL ENVIRONMENTAL ASSESSMENT RIVERSIDE COUNTY TRANSPORTATION COMMISSION PERRIS VALLEY LINE RIVERSIDE, CALIFORNIA	
FILE NAME: 92666parcel1ea.MXD			



SOURCE:

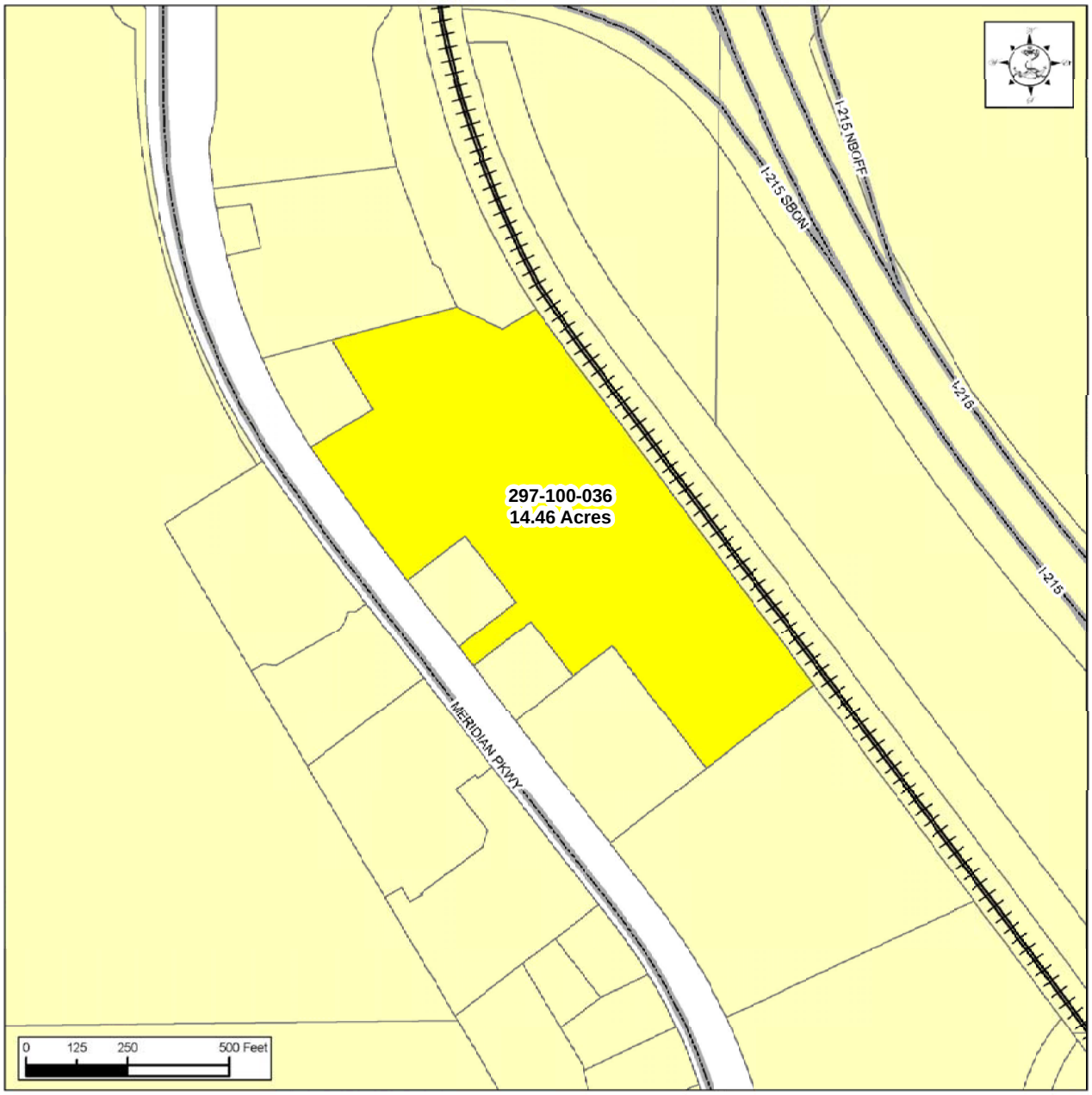
RIVERSIDE COUNTY LAND INFORMATION SYSTEM,
AND EPIC LAND SOLUTIONS, DECEMBER 2009

PROJECT NO.	92666
DRAWN:	11/16/10
DRAWN BY:	JP
CHECKED BY:	RM
FILE NAME:	92666parcel5ea.MXD

HUNTER PARK STATION
PARCEL ACQUISITION

SUPPLEMENTAL ENVIRONMENTAL ASSESSMENT
RIVERSIDE COUNTY TRANSPORTATION COMMISSION
PERRIS VALLEY LINE
RIVERSIDE, CALIFORNIA

FIGURE
1.8-2



Legend 11/10/10

- Owned by RCTC
- In Negotiations
- Potential Acquisitions
- Railroads
- Streets

N

SOURCE:

RIVERSIDE COUNTY LAND INFORMATION SYSTEM
AND EPIC LAND SOLUTIONS, DECEMBER 2009

PROJECT NO.	92666
DRAWN:	11/16/10
DRAWN BY:	JP
CHECKED BY:	RM
FILE NAME:	92666parcel3ea.MXD

MORENO VALLEY/
MARCH FIELD STATION
PARCEL ACQUISITION

SUPPLEMENTAL ENVIRONMENTAL ASSESSMENT
RIVERSIDE COUNTY TRANSPORTATION COMMISSION
PERRIS VALLEY LINE
RIVERSIDE, CALIFORNIA

FIGURE
1.8-3



Legend 11/09/10

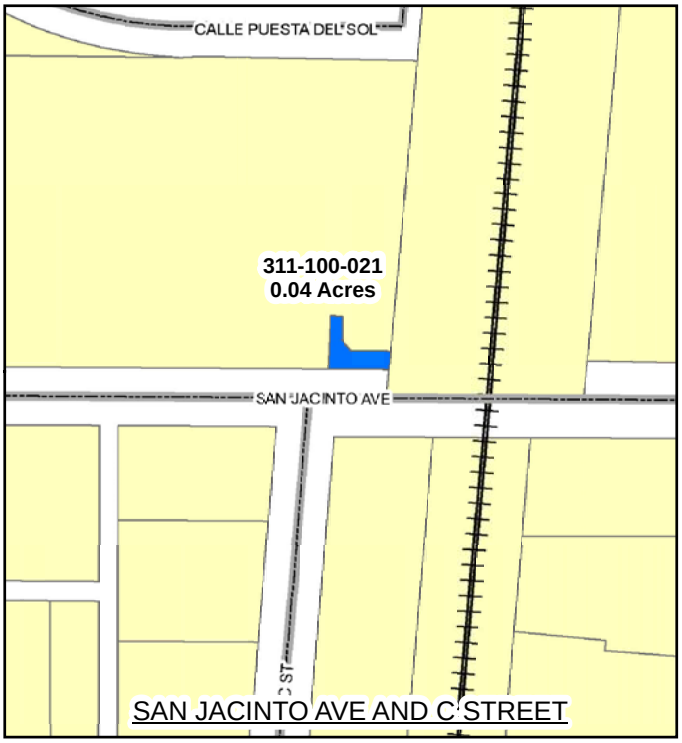
- Owned by RCTC
- In Negotiations
- Potential Acquisitions
- Railroads
- Streets

N

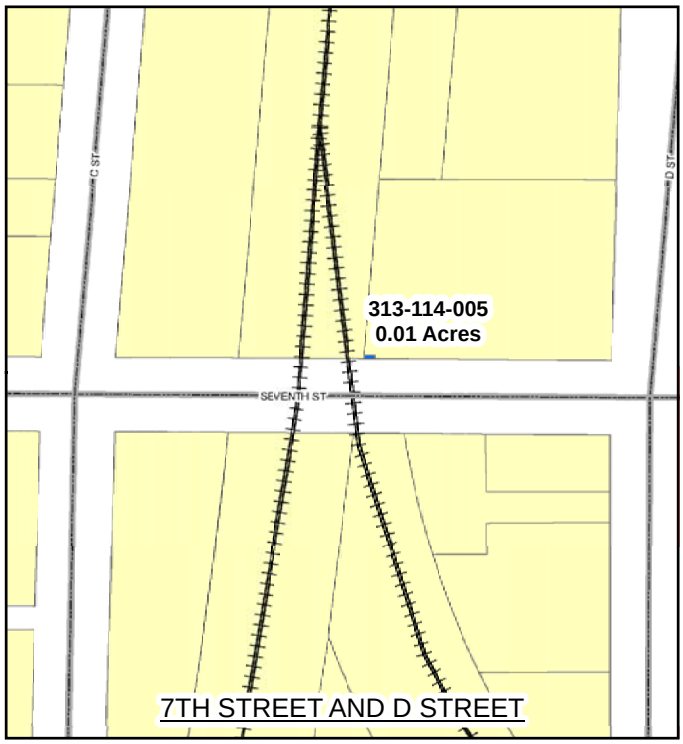
SOURCE:

RIVERSIDE COUNTY LAND INFORMATION SYSTEM
AND EPIC LAND SOLUTIONS, DECEMBER 2009

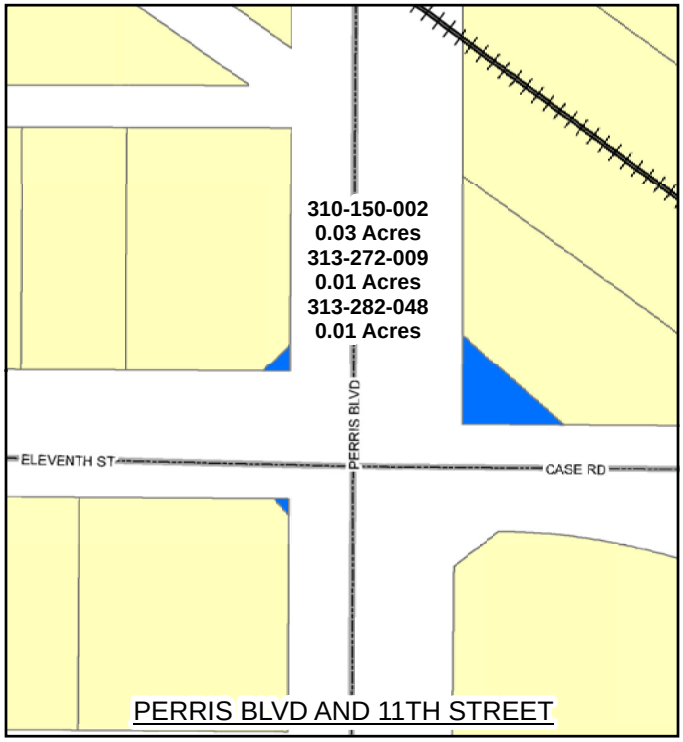
PROJECT NO. 92666	SOUTH PERRIS STATION AND LAYOVER FACILITY PARCEL ACQUISITION	FIGURE 1.8-4
DRAWN: 11/17/10		
DRAWN BY: JP		
CHECKED BY: RM	SUPPLEMENTAL ENVIRONMENTAL ASSESSMENT RIVERSIDE COUNTY TRANSPORTATION COMMISSION PERRIS VALLEY LINE RIVERSIDE, CALIFORNIA	
FILE NAME: 92666parcel4ea.MXD		



SAN JACINTO AVE AND C STREET



7TH STREET AND D STREET



PERRIS BLVD AND 11TH STREET



CASE ROAD AND G STREET

N

Legend 11/11/10

- Owned by RCTC
- In Negotiations
- Potential Acquisitions
- Railroads
- Streets

SOURCE:

RIVERSIDE COUNTY LAND INFORMATION SYSTEM
AND EPIC LAND SOULTIONS, DECEMBER 2009

NOT TO SCALE

PROJECT NO.	92666
DRAWN:	11/18/10
DRAWN BY:	JP/KH
CHECKED BY:	RM
FILE NAME:	92666parcel9ea.MXD

STREET IMPROVEMENTS
PARCEL ACQUISITION

SUPPLEMENTAL ENVIRONMENTAL ASSESSMENT
RIVERSIDE COUNTY TRANSPORTATION COMMISSION
PERRIS VALLEY LINE
RIVERSIDE, CALIFORNIA

FIGURE

1.8-5

1.9 ENVIRONMENTAL PERMITS

The activities identified in this SEA require consultation and possible permitting with federal, state, and local agencies, listed in Table 1.9-1.

Table 1.9-1
Agency Actions and Approvals

Agency	Action
California Department of Fish and Game (CDFG)	1602 Streambed Alteration Agreement
Santa Ana Regional Water Quality Control Board (SARWQCB)	Section 401 Permit
United States Army Corps of Engineers (USACE)	Section 404 Permit
Regional Conservation Authority (RCA)	Consistency Determination with the Western Riverside County Multiple-Species Habitat Conservation Plan (MSHCP)
California Office of Historic Preservation (SHPO)	Section 106 Concurrence
Riverside County Flood Control and Water Conservation District (RCFCWCD)	"No Rise" determination improvements to drainage structures
Transportation Conformity Working Group (TCWG)	Conformity with local air quality plans
Southern California Regional Rail Authority (SCRRA)	Design Approval
BNSF Railway Co.	Design Approval
UP Railroad	Design Approval at the ROW crossing
March Joint Powers Authority (March JPA)	Design Review
Riverside Transit Agency (RTA)	Design Review at Downtown Perris
City of Riverside	Design Review
City of Perris	Design Review
California Public Utilities Commission (CPUC)	Grade Crossing Improvements
Federal Communication Commission	Communication equipment frequencies
Airport Land Use Commission (ALUC)	Consistency with airport plans

This Page Intentionally Left Blank

2.0 PROJECT ALTERNATIVES

2.1 INTRODUCTION

2.1.1 FTA Responsibilities

The FTA has previously approved the PVL project as qualifying under the FTA Small Starts category (49 United States Code [USC] Section 5309). This qualification/approval is based on the preliminary estimates that the project is expected to cost less than 250 million dollars and require less than 75 million dollars in federal funding.

The analysis provided in this SEA will assist FTA in determining the significance of environmental impacts resulting from the PVL project. If it is determined that the PVL would not result in a significant impact to the environment, a FONSI will be prepared to conclude the process and formally document the decision.

2.1.2 RCTC Responsibilities

State law created the Riverside County Transportation Commission in 1976 to oversee funding and coordination of all public transportation services within Riverside County. The Commission's governing board is made up of 32 members including a city council member from each incorporated city and the five members of the Board of Supervisors and a non-voting Governor appointee.

RCTC serves as the tax authority and implementation agency for Measure A, a 1/2 cent sales tax program initially approved by voters in 1988 and subsequently in 2002, and will remain in place until 2039. Measure A funds highway, street and road, and transit projects throughout Riverside County. In addition to Measure A funding, RCTC also allocates state and federal transportation dollars to their local jurisdictions.

The Commission also implements new transportation projects through a Highway and Rail Delivery Plan. In transit RCTC operates and funds commuter rail services and stations, works with local employers to provide commuter assistance programs, oversees public transit funding and providers, and administers the Call Box and Freeway Service Patrol programs. Additionally, the Commission serves as Riverside County's Congestion Management Agency, and actively participates in regional goods movement issues. RCTC is also one of a five-county joint powers authority that makes up the Southern California Regional Rail Authority better known as Metrolink.

In 2004 RCTC developed goals to identify transportation and community related needs within western Riverside County and develop transit solutions to meet those needs. Study efforts have documented a significant increase in population and development within western Riverside County. The accompanying land use patterns that have shaped this growth have additional transportation impacts. The suburban low-density residential developments in this area require an automobile for almost all trips. Even more pronounced is the reduced availability of employment in Riverside County relative to its population, and as a result many residents must commute long distances to jobs outside the county. These factors have resulted in significant burdens on transportation system users, the roadway network, and residents.

RCTC considered existing and projected transportation conditions within the western Riverside County based upon highway congestion, the growth of population and employment centers, and planned transportation improvements within the I-215/SR-60 corridor. RCTC determined that this corridor is severely constrained by several conditions, including:

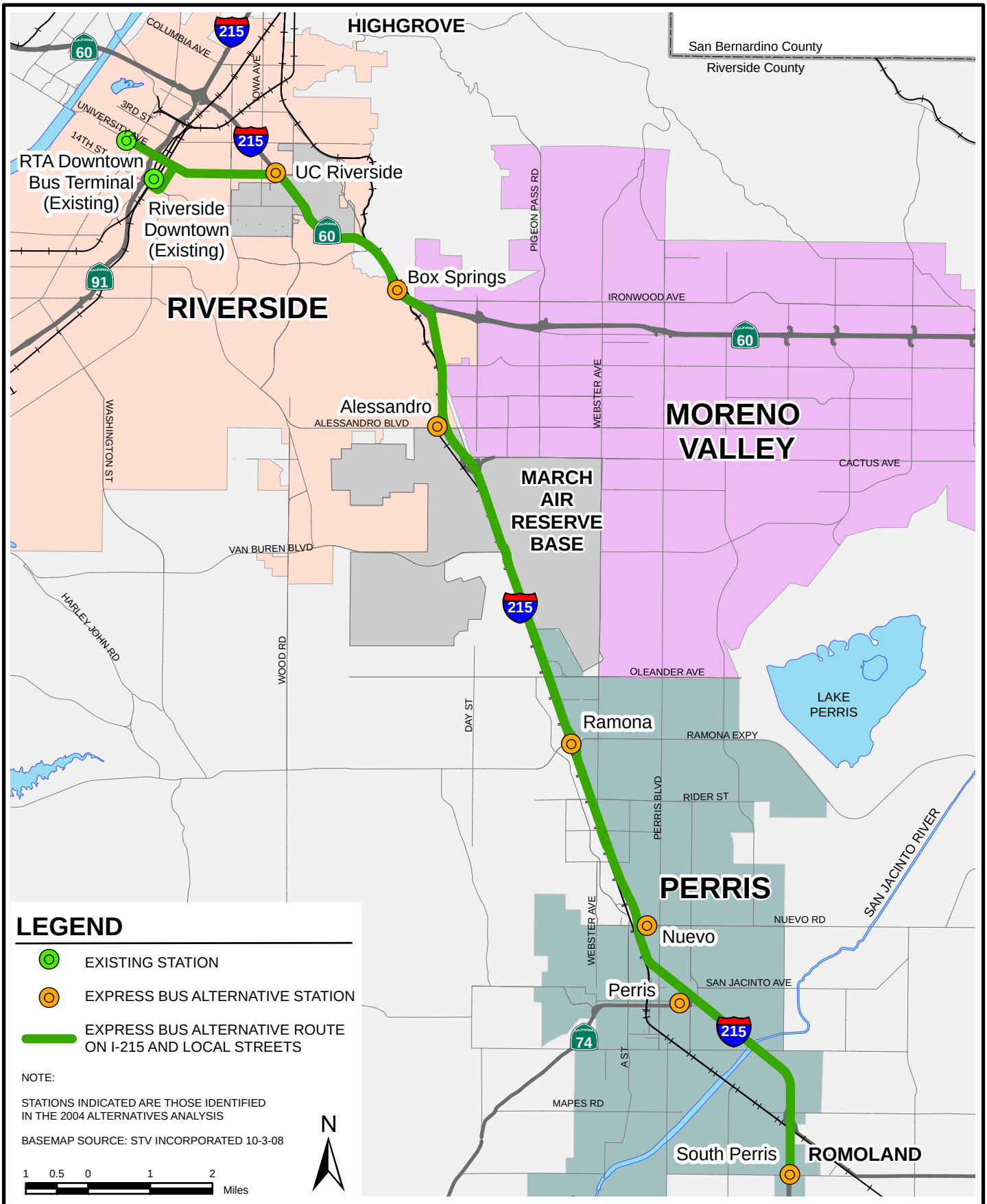
- Both local and regional transportation movement occurs primarily via the already congested I-215 freeway between the cities of Riverside and Moreno Valley;
- At the convergence of I-215/SR-60, a bottleneck is created in the region's transportation network, and there are no roadway alternatives that could relieve congestion in the I-215/SR-60 area;
- Current and planned freeway improvements will not meet forecasted travel demand; and,
- Potential freeway expansion beyond currently planned improvements would have substantial adverse impacts on adjoining neighborhoods.

While a number of transportation improvements have been implemented to reduce traffic congestion, community and transportation related needs have not been fully addressed. The region's existing transportation facilities have not been able to accommodate the growing trip volumes without experiencing extensive congestion along the corridor. Consideration of the transportation issues in the study corridor, including the constraints to additional freeway widening, the existence of underutilized transportation resources, and the need to provide transit travel options to a growing population and employment centers lead to the development of project goals and objectives. In order to focus on an appropriate range of transportation solutions, RCTC developed project related goals and objectives.

2.2 DESCRIPTION AND EVALUATION OF ALTERNATIVES

RCTC considered five alternatives in its AA to alleviate existing and future transportation deficiencies through the use of existing transportation resources in the study corridor. The alternatives were described and evaluated based upon the criteria that measured the ability of each alternative to satisfy the Goals and Objectives of the study (see Sections 1.4 Project Purpose and Need and 1.5 Project Goals and Objectives). The five alternatives included:

- No Project Alternative – Planned roadway improvements along I-215 because it represents a continuation of current transportation planning efforts.
- Express Bus Alternative – Potential improvements in express bus service on the highway network as shown on Figure 2.2-1.
- Commuter Rail Alternatives – New commuter rail service options that runs parallel to a substantial portion of the I-215 with different connection options:
    - New connection to Union Pacific Riverside Industrial Lead (UP RIL), as shown on Figure 2.2-2.
    - Connection to BNSF with Highgrove Turnback, as shown on Figure 2.2-3.
    - New connection to BNSF at Citrus Street (Citrus Connection), as shown on Figure 2.2-4.



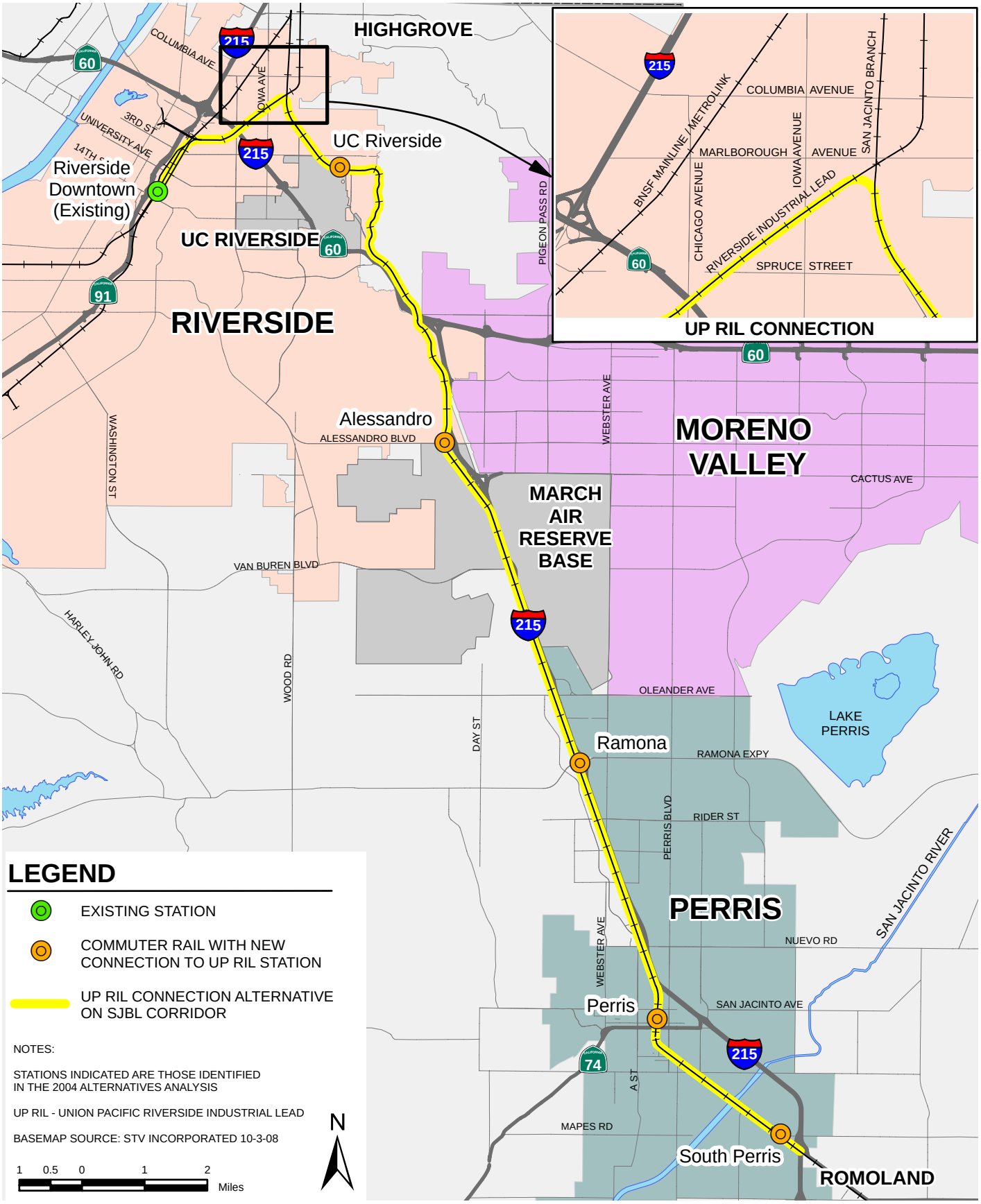
PROJECT NO.	92666
DRAWN:	5/17/10
DRAWN BY:	JP
CHECKED BY:	RM
FILE NAME:	92666bus.MXD

2004 ALTERNATIVES ANALYSIS - EXPRESS BUS ALTERNATIVE

SUPPLEMENTAL ENVIRONMENTAL ASSESSMENT
RIVERSIDE COUNTY TRANSPORTATION COMMISSION
PERRIS VALLEY LINE
RIVERSIDE, CALIFORNIA

FIGURE

2.2-1

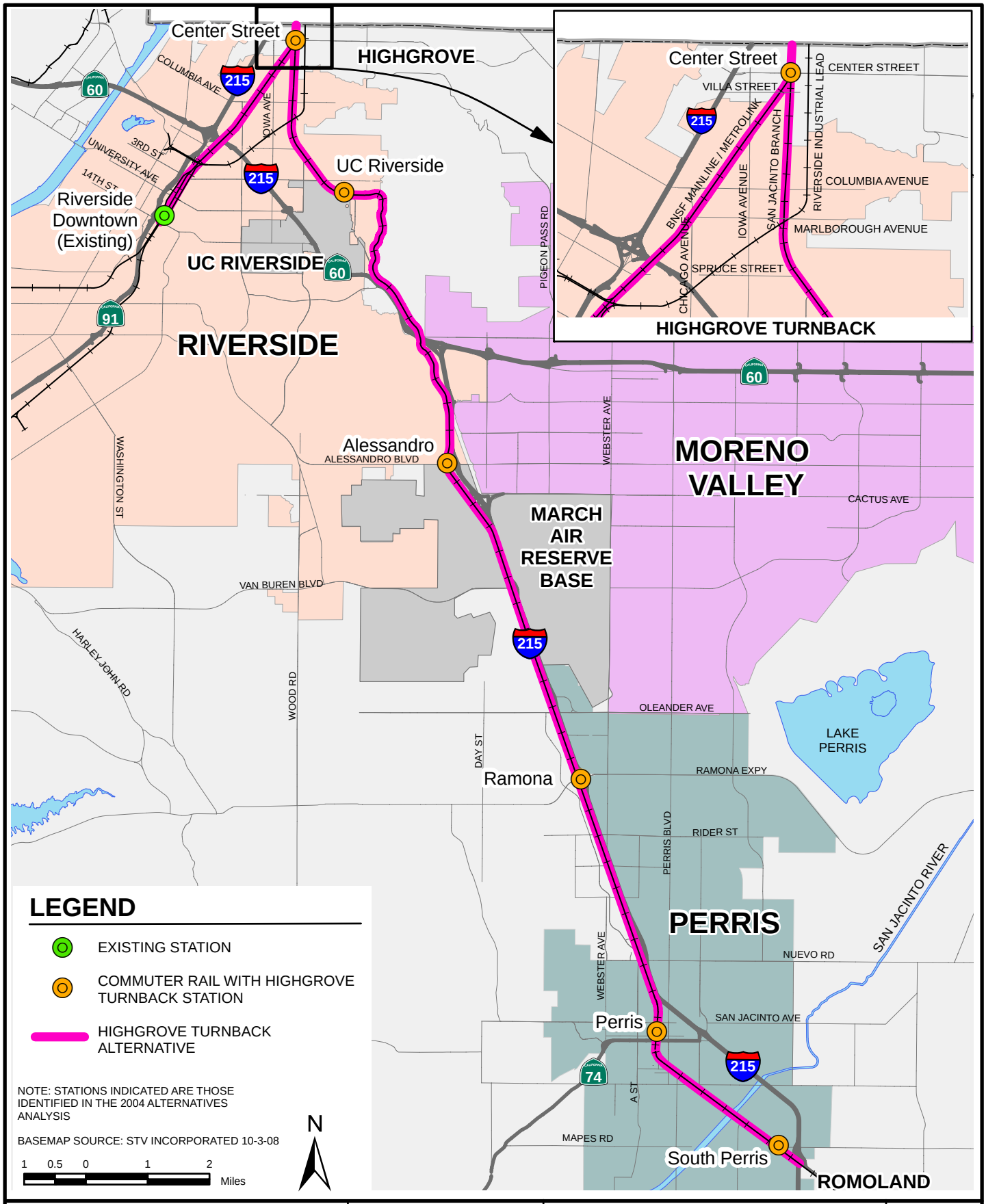


PROJECT NO.	92666
DRAWN:	5/17/10
DRAWN BY:	JP
CHECKED BY:	RM
FILE NAME:	92666union.MXD

2004 ALTERNATIVES ANALYSIS - COMMUTER RAIL ALTERNATIVE WITH NEW CONNECTION TO UP RIL

SUPPLEMENTAL ENVIRONMENTAL ASSESSMENT
RIVERSIDE COUNTY TRANSPORTATION COMMISSION
PERRIS VALLEY LINE
RIVERSIDE, CALIFORNIA

FIGURE 2.2-2



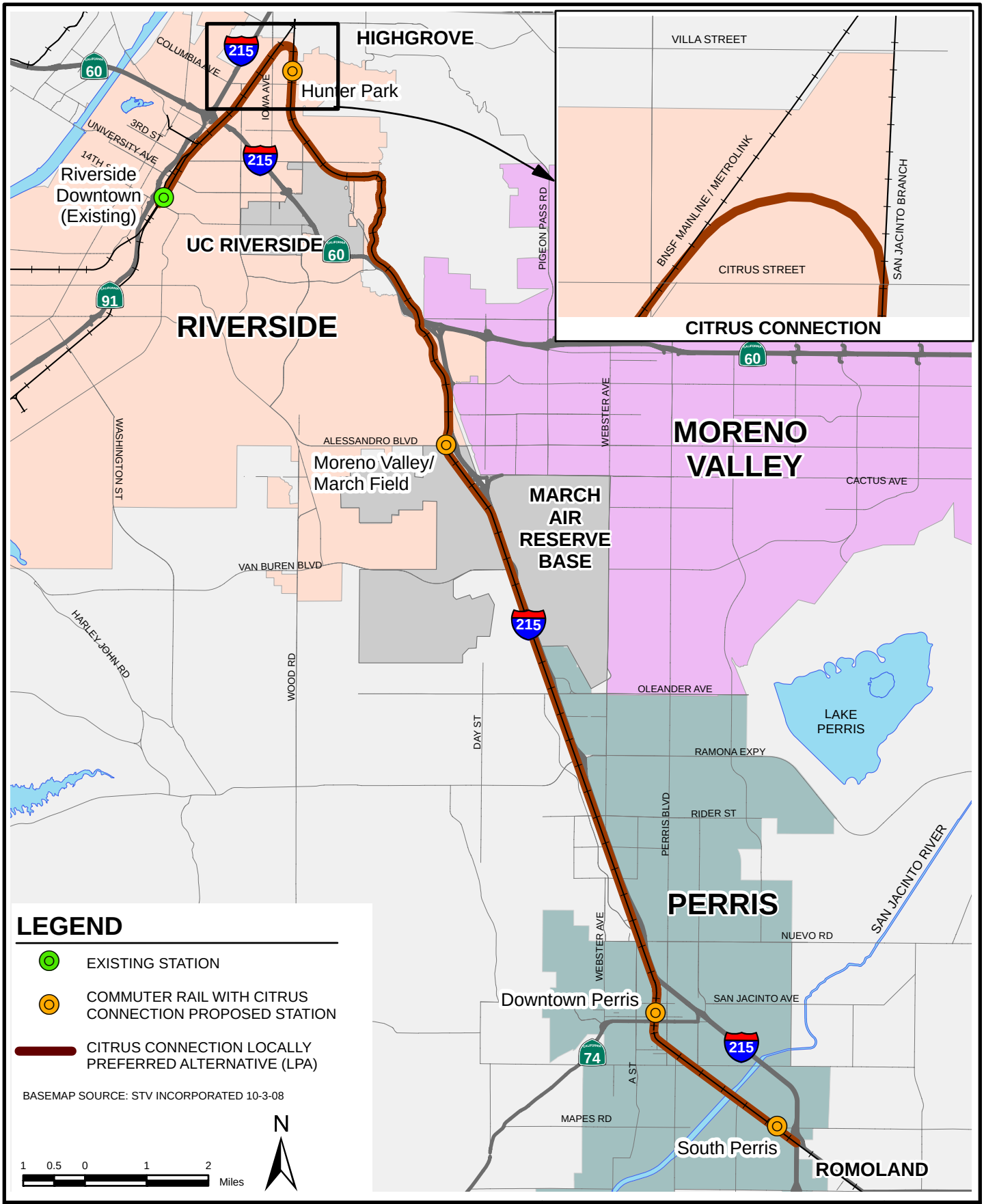
PROJECT NO.	92666
DRAWN:	5/17/10
DRAWN BY:	JP
CHECKED BY:	RM
FILE NAME:	92666hgrove.MXD

2004 ALTERNATIVES ANALYSIS - COMMUTER RAIL ALTERNATIVE WITH HIGHGROVE TURNBACK

SUPPLEMENTAL ENVIRONMENTAL ASSESSMENT
RIVERSIDE COUNTY TRANSPORTATION COMMISSION
PERRIS VALLEY LINE
RIVERSIDE, CALIFORNIA

FIGURE

2.2-3



PROJECT NO.	92666	LOCALLY PREFERRED ALTERNATIVE COMMUTER RAIL WITH CITRUS CONNECTION	FIGURE 2.2-4
DRAWN:	5/17/10		
DRAWN BY:	JP		
CHECKED BY:	RM	SUPPLEMENTAL ENVIRONMENTAL ASSESSMENT RIVERSIDE COUNTY TRANSPORTATION COMMISSION PERRIS VALLEY LINE RIVERSIDE, CALIFORNIA	
FILE NAME: 92666comm.MXD			

2.2.1 No Project Alternative

The No Project Alternative would be the continuation of current and long-range plans for highway improvements, and maintaining the existing rail corridor for continued freight service. There are several planned and programmed roadway improvements along I-215 to include widening this freeway between the I-215/SR-60 interchange and Nuevo Road, between Nuevo Road and Scott Road, and between Scott Road and Murrieta Hot Springs Road. Even with current and programmed improvements that include additional general purpose and High-Occupancy Vehicle (HOV) lanes, I-215 is forecasted to continue to operate at unsatisfactory service levels. As evidenced by increasing travel times, the I-215 freeway cannot keep pace with the projected demand resulting from population, employment, and development growth in the study corridor. With the major transportation facilities in the corridor, I-215 and SR-60, expected to continue experiencing unsatisfactory levels of service even with programmed roadway improvements over the coming years, there is a need for a new transportation alternative to accommodate current and future mobility needs.

The No Project Alternative would not meet any of the identified project Goals and Objectives. This alternative would not provide a different mode of passenger transportation between Riverside and Perris (auto and bus modes would still be tied to the congested roadway network). Additionally, it would not reduce highway congestion in the corridor, thus furthering impacts to the natural environment with increased impacts to air quality within the corridor. The No Project Alternative would not broaden the range of public transportation alternatives between the various urban areas along the corridor and region, nor would it build upon an underused transportation resource within the corridor. Therefore, the No Project Alternative was eliminated from further evaluation, since it did not meet any of the goals and objectives for the project.

2.2.2 Express Bus Alternative

The Express Bus Alternative consists of low-capital improvements to existing transit facilities and services that would operate on I-215 HOV lanes between Downtown Riverside and Perris, as shown on Figure 2.2-1. To support this service, local feeder bus connections are proposed for the express bus route. Metrolink commuter rail service in Riverside would also benefit from any additional transfers from the feeder buses. The Express Bus Alternative comprises seven new stations within the I-215 corridor and two existing stations, including the Riverside Downtown Metrolink Station and the RTA Downtown Bus Terminal in downtown Riverside. The express bus service would be coordinated to reach the Riverside Downtown Metrolink Station during peak periods such that connections could be made to departing (AM) and arriving (PM) trains. In addition, linkages to local bus route services will complement the proposed service. Several local routes will incorporate an additional “express bus stop” in order to provide greater connectivity and faster transportation service between the municipalities in the corridor.

This alternative would not adequately meet a majority of the four established project goals and their respective objectives. While improving the attractiveness of public transit as an alternative to the automobile this option does not reduce highway congestion in the corridor. The congested freeways, in particular the I-215/SR-60 interchange, affect the ability for the Express Bus Alternative to provide congestion relief. The operation of this alternative would require the buses to continually cross highly congested mixed-flow lanes to use the planned HOV lanes between the new stations, thus adversely affecting their travel times and ridership. Ridership growth was projected to be minimal, largely due to longer travel times on the increasingly

congested freeways. Minimizing environmental impacts for this alternative would not be met as effectively as the commuter rail alternatives. Seven new stations are proposed for the Express Bus Alternative, the greatest number of stations compared to the other alternatives, requiring more right-of-way acquisition which increases land use impacts to the corridor. As a result of the longest travel time from increasing highway congestion throughout the forecast years, impacts to air quality and traffic would be significant. Lastly, while this alternative proves to be the most cost effective (lowest total capital expenditure) the performance of this alternative was deemed insufficient to meet the needs of commuters in the corridor.

2.2.3 New Commuter Rail Alternatives

Three build alternatives were identified that would implement commuter rail service in the corridor between Riverside and Perris. The study corridor includes an existing railroad ROW, the SJBL, which could provide a commuter rail route that would avoid the impediments to mobility that are found in the corridor and which cannot be adequately addressed by the other alternatives. The three new commuter rail alternatives are comparable because the alternatives are similar in terms of operation.

Each commuter rail alternative extends the Metrolink 91 Line service from the existing Downtown Riverside Station to San Bernardino, Orange, and Los Angeles Counties. The differences in the three commuter rail alternatives include the various options to connect the SJBL mainline for service to the existing Metrolink station in downtown Riverside. The commuter rail service would operate during the peak period and in the peak direction. The operating schedule will be such that arrival and departure at Los Angeles Union Station would coincide with typical work schedules, in an effort to make the new service as attractive as possible to commuters. Different route lengths and operational considerations for each alternative are described in detail below.

The Commuter Rail Alternatives successfully meet a majority of the project goals and objectives. Specifically, these alternatives build upon underused transportation resources since track in the region is currently only servicing freight operations. Commuter rail service expands not only the regional transit network but also beyond the study corridor and promotes a seamless transit system. These alternatives would strengthen older urban communities as centers of economic opportunity by fostering transit-oriented development. Improving mobility through the corridor without the dependency to rely on and add to the congestion of highways. Since all three commuter rail alternatives would satisfy the above stated project goals and objectives the remainder of the discussion will focus on the goals and objectives, specifically in terms of environmental impacts, that would not be meet by each alternative.

<u>Commuter Rail with New Connection to UP RIL Alternative</u>

This commuter rail alternative would connect the SJBL to the existing Riverside Downtown Station via the Union Pacific Riverside Industrial Lead (UP RIL) (an active freight service line) without connecting to the BNSF mainline, as shown on Figure 2.2-2. A connection track would be constructed between the SJBL and the UP RIL near Rustin Avenue in Riverside. The new connection track would allow for continuous movement between the SJBL and the existing Riverside Downtown station. This commuter rail alternative with new connection to UP RIL would include the construction of five stations.

The new connection at Rustin Avenue would require acquisition of one vacant tract and a parcel that contains an existing building. In addition, a new grade crossing with signal protection would be required. The new track would require the displacement of a commercial property and acquisition of new property for a new grade crossing both which would have significant land use impacts to the corridor. Further, this option resulted in significant vibration and displacement impacts that neither of the other commuter rail alternatives would induce. Although this alternative would provide direct access to the existing Downtown Riverside Station with the shortest travel time, this alternative would require the agreement and purchase of the RIL alignment from the Union Pacific and the RIL would need to be reconstructed resulting in higher initial capital costs as compared to the other commuter rail alternatives. While the UP RIL connection provides an alternative to highway congestion in the corridor and builds upon underused transportation resources it does not adequately coincide with the other project goals and objectives.

Commuter Rail with Highgrove Turnback Alternative

The Commuter Rail with Highgrove Turnback Alternative proposes an alignment that follows existing track along the SJBL and switches over to the BNSF mainline, as shown on Figure 2.2-3. The existing connection would require trains traveling in either direction to Riverside or Perris to reverse movement at Highgrove to continue to the next station. This alignment would join the BNSF mainline track to continue on to the existing Riverside Downtown Station. FRA requires a safety check prior to a train changing direction. This safety check includes a brake check and a visual inspection by the train engineer, which results in significantly longer travel times. The connection to the BNSF track to reach the existing station in Riverside requires no new construction for track, but included in this alternative would be the construction of six new stations.

The evaluation of this alternative revealed operational issues resulting from a significant delay caused by the turnback movement in Highgrove. The time needed to reverse the train and conduct the required FRA brake tests results in a significantly longer travel time, and would likely reduce ridership levels. Because it does not require additional track, the Commuter Rail with Highgrove Turnback Alternative would not need to acquire any new property to connect the BNSF and SJBL alignments (only acquisition of station sites). As a result of increased idling time required for the commuter train to make its reverse movement, travel time increases and subsequently do does the impacts to air quality. Additionally, the reverse movement will impact traffic congestion in the Highgrove area with the commuter train blocking grade crossings as it sits idle. Although this alternative operates on the existing track and requires no acquisition for the track alignments, this alternative would have significant operational issues and environmental impacts. Therefore, the Commuter Rail with Highgrove Turnback Alternative does not meet the project goals and objectives.

Commuter Rail with New Connection to BNSF at Citrus Street Alternative

The Commuter Rail with New Connection to BNSF at Citrus Street Alternative (Citrus Connection) proposes a new, curved connection track north of Citrus Street between the SJBL and the BNSF ROW, as shown on Figure 2.2-4. The new connection track at Citrus Street would require a property acquisition, with no displacements. The proposed connection track would negate the need for a turnback operation as required in the Highgrove Turnback Alternative. This alignment would utilize the BNSF mainline to access the existing Riverside

Downtown Station. This commuter rail alternative, the Citrus Connection, would include the construction of four stations.

The evaluation of this alternative reveals that it does not have the operational constraints of the Highgrove Turnback Alternative and would avoid the environmental and acquisition impacts of the UP RIL Alternative. This alternative would have higher initial capital costs due to a new track connection at Citrus Street. The utilization of existing transportation resources would be improved due to the use of the existing and available BNSF and SJBL mainlines. The Commuter Rail with New Connection to BNSF at Citrus Street Alternative provides the best opportunity to implement a quality transit alternative within the corridor that serves the goals and objectives of the project, and one that is not impeded by either highway congestion or railroad operational issues.

2.3 COMPARISON OF ALTERNATIVES

A matrix, Table 2.3-1, was developed to compare the alternatives with one another to identify the best performing alternative given the Goals and Objectives of the study as developed in the Purpose and Need statement (outlined in Chapter 1). The comparison of the alternatives was based on consideration of the following evaluation criteria:

Operational Issues – The consideration of operational impacts related to bus and train movements when providing revenue service. The alternative should provide service through the most reasonable and efficient service plan.

Railroad Access – The consideration of railroad access issues related to any constraints on access to the existing Riverside Downtown Station. The alternative should seek to provide the most reasonable and time-effective approach to access the station.

Travel Time – The time needed to travel from Riverside to Perris within a transit vehicle. The alternative should provide an optimum travel time between Riverside to Perris when compared against other alternatives.

Property Needs – The existing and new property needed to implement the alternative including existing railroad ROW. The alternative should minimize to the greatest extent possible the impacts to property along the alignment and station areas.

Capital Costs – The cost to design and construct the alternative to the point where it can enter into revenue operations. The alternative should have a reasonable capital cost that provides a level of quality and service that is comparable with the existing bus (RTA) and rail systems (Metrolink) in the region.

Operating Costs – The cost to operate and maintain the alternative on an annual basis to assure an efficient and reliable service. The alternative should have a reasonable operating and maintenance cost that provides a level of quality and service that is comparable with the existing bus (RTA) and rail systems (Metrolink) in the region.

Ridership – The patronage on each of the alternatives expressed in daily boardings. The alternative should maximize the ability to attract riders to the new service.

Environmental – The environmental issues associated with each alternative that impact the surrounding communities and environment. The alternative should minimize to the greatest extent possible the environmental impacts associated with the implementation of its operations and facilities.

Improve Travel Choices in the Corridor – The ability to increase the options for travel within the corridor by modes other than the automobile.

Maximize Under-utilized Resources – The ability to utilize existing transportation and community resources to improve the connections between Perris and Riverside and also into areas of Los Angeles and Orange Counties. The alternative should seek to maximize the use of existing railroad rights-of-way, roadways, transit facilities and community resources within the corridor.

Table 2.3-1
Comparison of Alternatives

Evaluation Criteria	Alternative			
	Express Bus	Commuter Rail with New Connection to UP RIL	Commuter Rail with Highgrove Turnback	Commuter Rail with New Connection to BNSF at Citrus Street (Citrus Connection)
Operational Issue	• Operates on existing highways and roadways such as I-215 • Subject to existing and future automobile congestion	• Eliminates impacts with BNSF mainline operations • Reduces impacts with Metrolink Inland Empire operations • Eliminates turnback movement and brake safety test at Highgrove	• Requires turnback movement at Highgrove causing overall travel time delay • FRA-required brake tests and other safety procedures required when reversing train direction • Potential for delays to access due to BNSF dispatching control	• Reduces impacts with BNSF mainline operations • Reduces impacts with Metrolink Inland Empire operations • Eliminates turnback movement and brake safety test at Highgrove
Railroad Access Issues	• Does not travel on railroad ROW, therefore, no railroad access issues	• Eliminates capacity constraints related to service increases in later years • Requires operating agreement with UP • Freight operations on UP RIL are minimal with one daily switcher • UP has significant interest in selling RIL to RCTC	• Current BNSF/RCTC operating agreement allows 16 one-way train movements with capacity for initial SJBL service only • Service increases in later and horizon years cannot be accommodated without new agreement	• Current BNSF/RCTC operating agreement allows 16 one-way train movements with capacity for initial SJBL service only
Travel Time	• 58 minutes in 2010 from South Perris to Riverside • 98 minutes in 2025 from South Perris to Riverside	• 40 minutes in 2010 from Perris South to Riverside • 40 minutes in 2025 from Perris South to Riverside • Unimpeded by current and future automobile congestion due to use of exclusive ROW	• 49 minutes in 2010 from Perris South to Riverside • 49 minutes in 2025 from Perris South to Riverside • Unimpeded by current and future automobile congestion due to use of exclusive ROW	• 42 minutes in 2010 from South Perris to Riverside • 42 minutes in 2025 from South Perris to Riverside • Unimpeded by current and future automobile congestion due to use of exclusive ROW

Table 2.3-1 (cont'd)
Comparison of Alternatives

Evaluation Criteria	Alternative			
	Express Bus	**Commuter Rail with New Connection to UP RIL**	**Commuter Rail with Highgrove Turnback**	**Commuter Rail with New Connection to BNSF at Citrus Street (Citrus Connection)**
Property Needs	• Uses existing highway and roadways • Property would be needed for park and ride lots with no displacements	• 2 full displacements • 1 partial displacement/ reconfiguration of open parcels • Property would be needed for park and ride lots with no displacements	• 0 full displacements • 0 partial displacement/ reconfiguration • Property would be needed for park and ride lots with no displacements	• 0 full displacements • 1 partial displacement/ reconfiguration • Property would be needed for park and ride lots with no displacements
Capital Costs (2004 $)	$19.3 M	$145.3 M	$128.0 M	$143.6 M
Annual Operating Costs (2004 $)	$4.3 M (opening year) $4.8 M (2025)	$6.1 M (opening year) $8.4 M (2025)	$6.5 M (opening year) $9.1 M (2025)	$6.4 M (opening year) $8.9 M (2025)
Ridership:				
For 2010	3,316	4,151	3,817	4,151
For 2025	3,705	7,472	6,542	7,472
Environmental (Preliminary)	• No land acquisitions for bus alignment; acquisition of vacant lands for park and ride lots • Low air quality benefits due to small mode shift • No noise impacts • Minimal mitigation needed	• Acquisitions of occupied business for rail connection; acquisitions of vacant lands for stations • Moderate air quality benefits due to small mode shift • Noise impacts in Perris and Riverside • Moderate mitigation needed	• No land acquisitions for rail acquisitions for rail alignment; acquisition of vacant lands for stations • Moderate air quality benefits due to small mode shift • Noise impacts in Perris and Highgrove • Moderate mitigation needed	• Acquisitions of vacant land for rail connection; acquisition of vacant lands for stations • Moderate air quality benefits due to small mode shift • Noise impacts in Perris • Moderate mitigation needed

Table 2.3-1 (cont'd)
Comparison of Alternatives

Evaluation Criteria	Alternative			
	Express Bus	Commuter Rail with New Connection to UP RIL	Commuter Rail with Highgrove Turnback	Commuter Rail with New Connection to BNSF at Citrus Street (Citrus Connection)
Improve Travel Choices	• Improves travel choices • Congestion has significant effect on future quality of service	• Improves travel choices • Congestion does not affect future quality of service • Quality of service remains stable	• Improves travel choices • Congestion does not affect future quality of service • Turnback movement reduces quality of service	• Improves travel choices • Congestion does not affect future quality of service • Quality of service remains stable
Maximize Under-utilized Resources	• Does not use abundant railroad ROW such as SJBL and UP RIL	• Use of abundant railroad ROW such as SJBL and UP RIL • Does not use heavily traveled BNSF mainline • Unimpeded access to Riverside Station	• Use of abundant railroad ROW such as SJBL • Uses heavily traveled BNSF mainline from Highgrove to Riverside Station	• Use of abundant railroad ROW such as SJBL • Uses heavily traveled BNSF mainline from Highgrove to Riverside Station

2.4 SELECTION OF THE LOCALLY PREFERRED ALTERNATIVE

RCTC concluded that commuter rail service would provide the best solution to the specific transportation problems in the study corridor. The Commuter Rail with Highgrove Turnback Alternative was eliminated from consideration in the AA due to the required reverse movement and the FRA safety check, which resulted in it being unable to meet the project's Goals and Objectives. The Commuter Rail with New Connection to UP RIL, originally selected as the LPA in the AA and presented as such in the Draft EA prepared in 2004, was dropped from consideration due to difficulties with acquisition of the UP RIL subsequent to the circulation of the Draft EA. Further, as noted in the 2004 Draft EA, this alternative resulted in significant vibration impacts, and had displacement impacts that neither of the other commuter rail alternatives would induce.

In April 2008, RCTC adopted the Commuter Rail with New Connection to BNSF at Citrus Street Alternative (Citrus Connection) as the LPA. The reasons for adopting this alternative were: minimizing the impacts to the community by reducing business relocation; decreasing the cost of ROW acquisitions; and providing better service to the Highgrove and Hunter Park areas. This alternative provides the best opportunity to implement a quality transit alternative within the corridor that serves the needs and goals of the study, and one that is not impeded by either highway/roadway congestion or railroad operational issues.

The Commuter Rail with New Connection to BNSF at Citrus Street Alternative most closely meets the Purpose and Need, and Goals and Objectives, established for the corridor in the AA, and can accommodate the proposed opening year schedule of 12 one-way trips; therefore, this alternative was selected by the RCTC as the LPA. Environmental impacts for this alternative are similar to those for the other commuter alternatives; however, this alternative would result in no property displacements and would have fewer noise impacts as compared to the other commuter rail alternatives, resulting in fewer environmental impacts.

This Page Intentionally Left Blank

3.0 ENVIRONMENTAL EVALUATION

Chapter 3.0 provides information on the regulatory setting and affected environment; evaluates potential environmental consequences of the proposed PVL project; and recommends mitigation measures, as necessary, for each environmental resource category. The environmental evaluations are based on preliminary design drawings (STV Incorporated, 2009). The intent of the analyses is to identify the types, locations, and magnitudes of potential environmental impacts and present this information to decision-makers, agencies and the public. The environmental evaluations also provide a basis for defining mitigation measures in order to reduce the potential impacts.

This Page Intentionally Left Blank

3.1 LAND USE AND ZONING

This section of the SEA discusses the potential environmental impacts of the project associated with land use and zoning. Existing land uses within the proposed PVL project area (including properties to be acquired), as well as the areas adjacent to the project area, are characterized in the context of the County of Riverside General Plan, City of Riverside General Plan, March JPA General Plan, City of Perris General Plan, and the associated city and county zoning ordinances, as well as other adopted plans and policies. It should be noted here that the existing rail corridor, as with all rail corridors, is exempt from local land use regulations. The station sites and Layover Facility are subject to local use regulations, which require coordination with the local agencies.

Federal Emergency Management Agency's (FEMA) the National Flood Insurance Program (NFIP) was analyzed because of flood zones located within a portion of the PVL near the San Jacinto River. The Habitat Multiple Species Conservation Plan was also reviewed for consistency. The majority of analysis focuses on land use compatibility, General Plan consistency, and the implications of the project on existing and surrounding land uses. Information for this section was obtained primarily from public documents and public and agency contacts.

3.1.1 Regulatory Setting

Federal Policies and Regulations

Federal Emergency Management Agency

Flood zones are geographical areas that FEMA has defined according to varying levels of flood risk, and are shown on Flood Insurance Rate Maps (FIRM). High risk flood zones, labeled as Special Flood Hazard Areas (SFHAs) on FIRM, are areas subject to inundation by a 100-year flood. NFIP and participating communities require that development within floodplains does not exacerbate flooding in adjacent areas. A floodway and the adjacent land areas must be reserved in order to discharge the base flood without cumulatively increasing the water surface elevation. Therefore, the participating communities must regulate development in these floodways to ensure that there are no increases in upstream flood elevations. Permit requirements to develop within regulatory floodways are described in detail in Section 3.17 Floodplains.

State Policies and Regulations

There are no state policies and regulations that supersede local policies and regulations for land use, planning, and zoning within the PVL and adjacent parcels of land. However, agencies including California Department of Fish and Game (CDFG) and Santa Ana Regional Water Quality Control Board (SARWQCB) will be a part of the permitting process and approvals for the San Jacinto River bridge replacements.

Local Policies and Regulations

A number of regional and local land use plans pertain to lands surrounding the PVL corridor. Riverside County Planning Department has developed the RCIP, which includes a

comprehensive, integrated program balancing the housing, transportation, and economic needs of a large population with the existing environment and available natural resources. As part of the RCIP, the state-mandated Riverside County General Plan provides comprehensive policies and strategies intended to guide long-term development within the County. The General Plan outlines development policies, objectives, and land use designations. It specifies zoning applicable to unincorporated areas of the County and directs the creation and implementation of municipal general plans and specific plans. While RCTC is exempt from local land use policies under state law, aspects of local plans, policies, and zoning ordinances are reviewed in this analysis for informational purposes (Kleinfelder, 2009).

The PVL is identified in RTP and RTIP, and approved by the Metropolitan Planning Organization and SCAG. The RTIP (adopted 2008) is a listing of all funded transportation projects proposed over a six-year period (Fiscal Years 2008/09 – 2013/14) for the SCAG region.

Riverside County General Plan 2030/2035

The land use element of the General Plan designates the general distribution and intensity of all uses of the land in the county. This includes residential, commercial, industrial, public facilities, and open space uses. According to Riverside County Transportation Land Management Agency (TLMA) the General Plan provides development standards related to each land use category, and general policy level direction for an array of land use-related issues such as hillside development and community design (TLMA, 2003).

The county of Riverside has written the Draft General Plan Update for the first 5-year General Plan review cycle. The 2008 update assesses the General Plan's progress and issues related to its implementation (Riverside County, 2008).

Highgrove 2020 Area Plan

This area plan generally refers to the community of Highgrove within Riverside County, located west and east of I-215. The areas south of the Highgrove community, including the University City neighborhood and portions of the Box Springs Mountains, are also included in this area plan.

City of Riverside General Plan 2025

The Riverside 2025 General Plan includes twelve elements that are intended to satisfy State law requirements for California as well as the vision of the City into the year 2025. The Project Planning Area consists of the corporate boundaries of the city of Riverside and the City's Sphere of Influence as approved by the Local Area Formation Commission (LAFCO) as part of its 2006 Municipal Service Review. The Land Use and Urban Design Element defines both the built and natural environments and introduces new mixed-use land use models that will allow Riverside to support more intense development near transit nodes (City of Riverside, 2007).

Hunter Business Park Specific Plan

The Hunter Business Park Specific Plan describes a Planned Industrial Park consisting of approximately 1,300 acres of industrial and related uses, northeast of downtown Riverside. It addresses planning goals that are relevant to property owners, future tenants, developers and

the city of Riverside, defines the development framework for the Specific Plan area, and establishes the design guidelines, development criteria and implementation measures necessary to implement the Hunter Business Park Specific Plan (City of Riverside, 2002).

Sycamore Canyon Business Park Specific Plan (Formerly Box Springs Industrial Park Specific Plan)

The Sycamore Canyon Business Park Specific Plan was written in conjunction with the City of Riverside's General Plan. The Specific Plan describes a planned industrial park consisting of approximately 920 acres of industrial and commercial uses within a 1,400-acre project area. Approximately 480 acres of the Sycamore Canyon Wilderness Park is located within the Plan area (City of Riverside, 1993). The Specific Plan's southeastern area is located within the PVL corridor.

Sycamore Highlands Specific Plan

Sycamore Highlands is comprised of approximately 420 acres of land located immediately west of State Highway 60 and I-215, near Box Springs. The southerly approximately 350 acres of the Plan Area is part of the Sycamore Canyon Business Park Specific Plan, discussed above. The Sycamore Highlands Plan was written in a manner consistent with the Sycamore Canyon Specific Plan's Goals and Objectives and has been amended over the years to be consistent with the City of Riverside 2025 General Plan (City of Riverside, 2007).

March JPA General Plan

The March JPA General Plan is a comprehensive plan designed to outline and delineate use and development of the area known formerly as March Air Reserve Base (MARB). The land use designations of the March JPA General Plan Land Use Plan are divided into four general classifications, with a total of 13 distinct land use designations. The Plan Area is to comprise approximately 24 million square ft. (551 acres) of commercial, office, and industrial development (March JPA, 2003).

The Moreno Valley/March Field Station option site falls within proximity to the MARB airfield. To minimize high-risk land uses, the Plan Area contains overlay districts including a Clear Zone, APZ I, and APZ II. Together, these form the Airport Influenced Area I. Within Airport Influenced Area I, high-risk land uses are prohibited and are defined as having a high concentration of people, having critical facility (such as a telephone exchange), or having explosive or flammable materials.

Meridian Specific Plan

Within the March JPA jurisdiction, this master-planned employment park contains 1,290-acres located southwest of I-215 and Alessandro Boulevard. Meridian, once known as the March Business Center, is planned as part of the jobs/housing solution within Riverside County with a 15-year build out. The initial development will occur in the northern portion of the development with the final phase planned for the area south of Van Buren Boulevard (March JPA, 2003). Within this specific plan there is a designated rail station. The property for this station site will be donated to RCTC for use as a Metrolink station.

The initial specific plan and related EIR for the development was completed in 2003. Since that time numerous parcels have been developed in the northern portion. With the recent change in the local economic climate a revised specific plan and subsequent EIR was completed (July, 2010). The main change from the original specific plan to the revised plan was the reduction in Business Park and Mixed Use acreage and an increase in Industrial acreage. The increase in Industrial acreage also includes three new rail spurs to accommodate freight service. It is anticipated that these new rail spurs would accommodate approximately twelve trains per week.

Mead Valley 2020 Area Plan

The County of Riverside Mead Valley 2020 Area Plan extends south of the Meridian planning area (e.g., south of MARB) (TLMA, 2003). The Mead Valley Area Plan discusses the land uses and physical development within the unincorporated area west of the city of Perris. Existing land uses consist of the Riverside National Cemetery, a wastewater treatment plant, agricultural, some industrial, and paved public roads Messenia Lane, and Frontage Road. Areas adjacent to and east of the SJBL are designated High Industrial, Community Center, and Business Park.

City of Perris General Plan 2030

The City of Perris General Plan divides the city into ten planning areas as a starting point for the 30-year strategy for organizing and cooperatively accommodating development and land use in the city of Perris. The boundaries of some planning areas mirror natural or manmade physical divisions including the I-215 and the San Jacinto River (City of Perris, 2005). A portion of the PVL corridor is located within the area set forth by the City of Perris General Plan as well as the following Specific Plan Areas.

Perris Downtown Specific Plan

The Perris Downtown Specific Plan Study Area is located within the boundaries of the city of Perris. The Plan covers an area from north to the I-215, east to Redlands Avenue, south to Ellis Avenue, and west to A Street. The purpose of the Specific Plan is to provide a base for the revitalization efforts being carried out by the Perris Redevelopment Agency and the citizens of Perris. The PVL corridor is located within the Perris Downtown Specific Plan Study Area, between D Street and Ellis Avenue.

The Perris Downtown Draft Specific Plan Amendment (Village Walk District) functions as a guide towards the development of the Specific Plan Area in Neighborhood III of the Perris Downtown Specific Plan. The Village Walk District includes the PVL corridor, between Perris Boulevard and Ramona Drive and extends north, near 7th Street (City of Perris, 2007).

Green Valley Specific Plan

The Green Valley Specific Plan outlines a planned community on 1,270 acres south and west of the SJBL. The property consists of open space and agricultural land next to the Perris Valley Airport and wastewater treatment plant. Planned land uses within the Green Valley community include a mix of residential, open space, community facilities, commercial, business parks, industrial, and transportation land use (City of Perris, 1990).

Riverglen Specific Plan

The Riverglen Specific Plan describes a master planned community on about 330 acres located north of the SJBL. The Riverglen planning area contains open space and agricultural land north of the Green Valley planning area. The planned Riverglen community would contain residential units along with some commercial, schools, and open space land uses (City of Perris, 1992).

Riverside County Flood Control and Water Conservation District

The Riverside County Flood Control and Water Conservation District (RCFCWCD) was created in 1945 to protect people, property, and watersheds from damage or destruction from flood and stormwaters. The RCFCWCD is designated by FEMA to administer the NFIP program in the western parts of the County where the PVL project is located. The administrator coordinates, implements, and enforces the local floodplain ordinance by granting or denying development permits in accord with its provisions. Any development or encroachments made to the SFHA must be reviewed by the administrator to determine whether proposed building sites would be reasonably safe from flooding and Base Flood Elevations (BFEs) are not raised which would negatively impact adjacent areas. This may include the submittal of studies, calculations, plans and other information required to meet FEMA requirements.

Resolution Number 2005-220

The County approved Resolution No. 2005-220 (2005), setting forth policies and procedures to control developments within the San Jacinto River floodway and requiring permits or applicable approvals from the RCFCWCD, United States Army Corps of Engineers (USACE), United States Fish and Wildlife Service (USFWS), CDFG, and the SARWQCB.

Western Riverside County Multiple Species Habitat Conservation Plan

The MSHCP is a comprehensive, multi-jurisdictional Habitat Conservation Plan (HCP) focusing on conservation of species and their associated habitats in western Riverside County. The MSCHP is a large, multi-jurisdictional habitat-planning effort in with the overall goal of maintaining biological and ecological diversity within a rapidly urbanizing region (see Section 3.14 Biological Resources for further discussion).

3.1.2 Affected Environment

Existing conditions within the project corridor include established rail lines that were constructed in the 19th century. RCTC acquired the SJBL in 1993, and has an agreement with the BNSF for freight service along the corridor. The SJBL extends from the city of Riverside/Highgrove Area and continues west of and adjacent to Moreno Valley and MARB, through the Mead Valley area, and culminates in the city of Perris. PVL project components are surrounded by a range of land uses including transportation, industrial, residential, commercial, educational, and open space.

Citrus Connection

The proposed Citrus Connection, a new segment of rail that would connect the BNSF to the SJBL, lies within the Riverside city limits southwest of the unincorporated Highgrove area. As such, the Citrus Connection comprises the northernmost element of the PVL. Its boundaries

include Villa Street to the north, the SJBL to the east, and the BNSF to the west; its southern boundary lies approximately 1,000 feet south of Villa Street.

The site is comprised entirely of vacant land, and is designated and zoned for Business/Office Park in the City of Riverside 2025 General Plan. The Business/Office Park land use designation is primarily intended for light industrial uses, consistent with the General Plan's goals to create an economic/job center. The site is planned for development as a warehouse/distribution center in the absence of the PVL project.

A metals recycling facility operates directly north of the site. A residential neighborhood lining Transit Avenue lies east of the site beyond the segment of the SJBL, while light industry comprises the blocks west of the site beyond the BNSF. Directly south of the site runs the Springbrook Wash, which is city of Riverside designated Open Space. At this location, the City of Riverside General Plan includes a public recreational trail. A driveway with a culvert crossing Springbrook Wash connects the site to existing warehouses further south.

The unincorporated Highgrove area, which is located just east of Riverside City limits and northeast of the Citrus Connection, encompasses the single-family (SF) residential housing of the Highgrove community and the westernmost portion of Box Springs Mountain Reserve. In the existing condition the Highgrove area is partly developed in conformity with the area plan.

Hunter Park Station

From the proposed Citrus Connection site, the SJBL runs through existing industrial development and scattered residential/agricultural uses south to the location of the proposed Hunter Park Station. The Hunter Park Station is the only new station to be constructed in the city of Riverside, and it is anticipated to serve primarily the city of Riverside and Highgrove area.

Three options are under consideration for the new Hunter Park Station. The Palmyrita option, north of Columbia Avenue, is currently being developed for light industrial use, while the Columbia option, adjacent to and west of the proposed Palmyrita option, currently hosts a citrus orchard. The Marlborough option, just north of and adjacent to Marlborough Avenue, is located on cleared, disturbed land about 1,000 feet south of the Columbia and Palmyrita options.

South of Hunter Park Station, the SJBL alignment extends through urbanized areas and open space. Further south, the SJBL runs adjacent to residential neighborhoods, a church, scattered commercial, Highland Park and Highland School, and the 20-acre Islander Park. To the west of the SJBL is UCR, and to the east lies Box Springs Mountain Reserve, and Islander Park.

South of Islander Park, the SJBL runs along the eastern boundary of the city of Riverside. Single-family residential development lies to the west of the SJBL and also to the east, where homes are constructed on the hillsides between the SJBL and Box Springs Mountain Reserve.

The SJBL runs along the eastern edges of areas being developed as business parks in the city of Riverside. The Sycamore Canyon Business Park, which includes approximately 920 acres of commercial and industrial land uses (south of the junction of I-215 and SR-60), is being developed within the larger Sycamore Canyon area. The Sycamore Highlands Business Park is currently being developed to the south, north of Alessandro Boulevard, within the larger

Sycamore Highlands area. In this area, Moreno Valley residential and commercial developments are located to the east of the SJBL.

Moreno Valley/March Field Station

The Moreno Valley/March Field Station (and approximately 400-space parking area) is located within the Meridian Specific Plan area of the MARB, which is a planned industrial business park west of I-215 and south of Alessandro Boulevard. The land use planning and designations were approved for the Meridian Specific Plan. The corresponding EIR was certified with the new land uses evaluated.

The proposed Moreno Valley/March Field Station would be located within the boundaries of the former March Air Force Base, which lies just south of the cities of Riverside and Moreno Valley and comprises land on both sides of the SJBL. The station site would be located on an undeveloped 14.8-acre parcel located east of Meridian Parkway and west of the SJBL, about 750 feet south of Alessandro Boulevard.

The MARB is currently under the jurisdiction of the JPA, which operates under a joint powers agreement between Riverside County and the cities of Riverside, Moreno Valley, and Perris. The MARB airfield is utilized for military and civilian aviation operations, primarily air cargo. Remaining federal property of the MARB (east of I-215) is utilized by the U.S. Air Force Reserve, Army Reserve, Navy Reserve, Marine Corps Reserve, and Air National Guard (MARB, 2009). The March Inland Port is located east of the SJBL at the MARB.

Unincorporated areas of Riverside County comprise the lands adjacent to and west of the SJBL south of the Moreno Valley/March Field Station. These lands are developed with warehouses, light industry, and business park development, similar to development further north. The city of Perris, to the east of the SJBL in this area, is similar to the unincorporated county areas west of the SJBL, with large areas currently undeveloped or being developed for light industry.

Downtown Perris Station

The Nan Sanders Elementary School, undeveloped parcels, residential development and business parks are located within the city of Perris (near the city boundary) and west of the SJBL. The site for the Downtown Perris Station is located further south in the city of Perris; this station would be part of the Perris Multimodal Facility that is currently under construction between South C Street on the west, San Jacinto Street on the north, and 4th Street (SR 74) on the south. The Perris Multimodal Facility includes improvements on San Jacinto and C Streets, and will have local road closures. It is surrounded by commercial and residential uses.

South Perris Station and Layover Facility

The site of the South Perris Station and Layover Facility is also located within the city of Perris. The South Perris Station and Layover Facility would be constructed adjacent to one another on a single site south of the San Jacinto River (which crosses under the SJBL). The site would be north of the intersection of Mapes and Case Roads, and west of the I-215 ROW. The site is largely undeveloped property north of the Eastern Municipal Water District (EMWD) sewage treatment facility. It currently comprises agricultural fields. The lands surrounding this site and this portion of the SJBL are rural in character with active agriculture.

PVL Floodplains

Based on a review of the above identified FIRM panels, the southern portion of the SJBL is within a regulatory floodway with SFHA designation; the proposed South Perris Station and Layover Facility would be within the 100-year floodplain boundary.

3.1.3 Environmental Consequences/Impacts

As detailed in Section 1.0 Proposed Project, the PVL would conform to the RTP and RTIP, both of which identify the PVL as an approved project. The proposed action includes the following:

- Installation of about 2,000 feet of new track at the Citrus Connection.
- Rehabilitating the existing SJBL track (e.g., new or upgraded ties, crossings, grade crossing warning devices, signal system, control cables, housings, and equipment). Existing bridges and selected culverts would be replaced. All rehabilitation work is required to meet commuter rail standards.
- Constructing new facilities (i.e., four new stations and their necessary appurtenances and a Layover Facility).

Land Use Planning and Policy

The PVL project, which would generally follow the existing SJBL alignment, would be compatible with existing and planned land uses and is consistent with county, city and specific plan policies. The implementation of the PVL commuter rail service would not restrict the movement of people or physically divide an established community. The evaluation of potential environmental consequences associated with land use reveals consistency with existing and planned land uses along the PVL alignment, including land to be developed as stations and the Layover Facility. As noted, the proposed project is exempt from local land use controls, and so demonstration of compliance with local land use plans and policies is not required. As outlined below, county and city land use plans anticipate and support the PVL project:

- The Riverside County General Plan promotes alternative transportation options within western Riverside County as a means for encouraging concentrated housing and employment centers, in order to reduce traffic congestion. Rail transit is envisioned as a travel option that can contribute to higher quality living environments by reducing auto dependency, concentrating compatible land uses, and relieving pressure to develop open space, and directing compatible land use activities to established urban centers. The PVL project would be consistent with the alternative transportation goals outlined in this document.
- The City of Riverside General Plan aims to encourage mass transit to reduce roadway congestion, air pollution, and non-point source water pollution. Land use planning was structured to support this principle by directing new growth along transportation corridors. The City of Riverside General Plan includes discussion of the PVL project as the extension of the SCRRA/Metrolink 91 line. The Land Use and Urban Design Element of the General Plan focuses on incorporating “smart growth” principles into planning and development

decisions, and focusing development in already urbanized parts of the City rather than spreading growth to the urban fringes.

- The Hunter Business Park Specific Plan states that existing lead tracks and spurs serve established industrial areas, and it is the intent of the Specific Plan to accommodate rail usage where feasible in the designated Land Use Districts. The rail lines have historically supported facilities at the Hunter Business Park, and are maintained within the Specific Plan. The proposed station sites are within the Hunter Business Park, which is 1,300-acre planning area that contains existing industrial/warehouse facilities, scattered agricultural parcels, and a public park (Hunter Park). According to the City of Riverside General Plan, the Hunter Business Park is planned for redevelopment and business/office buildings in order to serve as an employment center, while the Hunter Business Park Specific Plan (City of Riverside, 2002) describes the location of the rail lines within this area as excellent opportunities to serve future industrial-transportation-distribution facilities.

- The City of Moreno Valley General Plan's Circulation Element states that public transit in the city of Moreno Valley consists primarily of bus service. It anticipated that Moreno Valley would have access to commuter rail service; specifically, a commuter rail station for the southwest quadrant of Alessandro at I-215 to serve Moreno Valley residents (City of Moreno Valley, 2006). The PVL project would also be consistent with the City of Moreno Valley General Plan's Community Development Element, which encompasses the Land Use Plan of the City of Moreno Valley General Plan. The City of Moreno Valley General Plan places Residential/Office and Commercial land uses within land located nearest to the PVL corridor. The properties are also identified as redevelopment areas, presumably to encourage economic growth.

- The proposed commuter rail service to serve the March Planning Area would be consistent with the March JPA General Plan, and the March JPA would work with transit providers to ensure that transit programming is oriented to the Meridian area, which is outlined as an economic center. The Meridian Specific Plan places a future transit center near the PVL corridor, and similarly, the March Specific Plan places a 15-acre transportation center to accommodate commuter rail service along the PVL corridor. The proposed station would be a permitted use. The March JPA General Plan identifies the PVL project in its Transportation Element, and acknowledges the need for a multimodal facility to serve its planning area. It promotes the creation of adequate regional railway facilities, including the use of SCRRA/Metrolink service along the SJBL.

- The PVL would be consistent with the Mead Valley Area Plan (2003). The Mead Valley Area Plan identifies the SJBL as a viable regional transportation option for residents, employees, and visitors to the area.

- Commuter rail service along the existing SJBL is consistent with the Land Use Element of the City of Perris General Plan, which recognizes the need for future transportation and infrastructure improvements. The specific plans for Green Valley, Riverglen, Perris Downtown and the Village Walk District have incorporated the PVL project by assigning compatible land uses adjacent to the rail corridor, including the future development of commuter rail station planned for the old Perris Depot area. The Downtown Specific Plan describes a pedestrian-friendly Downtown Promenade District of mixed uses, within walking distance of a train station. The Circulation Element specifically identifies the extension of

SCRRA/Metrolink service along the PVL corridor. The use of the existing railway would be consistent with existing and planned land uses, and the implementation of commuter rail service through downtown Perris would be consistent with specific plan policies to enhance and preserve natural and man-made features, and to promote alternative transportation to reduce regional traffic congestion.

Habitat Conservation/Natural Community Conservation

Two habitat conservation, or natural community conservation, plans apply to the PVL project, and include the MSHCP (2003) and the Stephens' Kangaroo Rat (SKR) HCP (1996) (see Section 3.14 Biological Resources for further discussion).

The purpose of the MSHCP and SKR HCP is to maintain the biological and ecological diversity in an urbanizing region through the assembly of key reserves for the protection of covered species. Although the SKR HCP was established in 1996 prior to the MSHCP, relevant terms of the SKR HCP were incorporated into the MSHCP to ensure the greatest conservation for the largest number of covered species.

Because the MSHCP was developed in conjunction with the Riverside County General Plan and the Community and Environmental Transportation Acceptability Process (CETAP), the cores, habitat blocks, and linkages that have been set aside for assembly as conservation areas were developed in consideration of existing and future land uses, in particular, the region's transportation requirements. The PVL project is subject to the compliance requirements of the SKR HCP and MSHCP, in particular the Urban/Wildlands Interface Guidelines outlined in the MSHCP, which provide guidance on addressing the indirect effects on wildlife species when projects are located in proximity to reserve areas. Through compliance with the Guidelines and coordination with Western Riverside County Regional Conservation Authority (RCA) and Riverside County Habitat Conservation Authority (RCHCA), implementation of the PVL along the existing SJBL alignment would not conflict with any of the conservation or habitat goals established by the Stephens' Kangaroo Rat (SKR) Habitat Conservation Plan (HCP) or the MSHCP, impair the value of wildlife habitat, or cause an ecological intrusion into the existing and proposed conservation areas.

Western Riverside County Multiple Species Habitat Conservation Plan

The MSHCP is a means for consolidating and preserving core areas with suitable vegetation and soils to support species, while at the same time preventing fragmented habitat. The MSHCP covers 146 plant and wildlife species, and is administered by the RCA. One of the primary objectives of the MSCHP is to assemble a total of 500,000 acres for management as the MSHCP Conservation Area. The MSHCP identifies a number of existing and proposed features – including cores, habitat blocks, and linkages – which form the basis of the plan's Conservation Area (refer to Section 3.2.3 of the MSHCP). Section 3.14 Biological Resources under the Environmental Setting summarizes the MSHCP Conservation Area features that are located within one-half mile of the PVL project corridor (see Table 3.14-2).

Stephens' Kangaroo Rat Habitat Conservation Plan

The SKR HCP is administered by the RCHCA, and encompasses approximately 533,954 acres, which include open space, developed, and agricultural land uses. The SKR HCP established

seven permanent core area reserves for SKR (see Section 3.14 Biological Resources). Located west of I-215 and the PVL and on both sides of Alessandro Boulevard, the Sycamore Canyon-March Air Force Base Core Reserve covers a total of 2,502 acres across the two core reserve components.

Moreno Valley/March Field Station

Two noncontiguous wildlife reserves are in the vicinity of the proposed Moreno Valley/March Field Station. The SKR Sycamore Canyon – March Air Force Base Core Reserve (which coincides with Sycamore Canyon Park and the MSHCP Existing Core D) is located north and south of Alessandro Boulevard and west of the PVL corridor outside of the corridor and west of the Moreno Valley/March Field Station.

The purpose of the MSHCP and SKR HCP is to maintain the biological and ecological diversity in an urbanizing region through the assembly of protected reserves for covered species. These planning efforts have been coordinated with municipal and transportation entities, and in consideration of existing and future land uses. The PVL project is subject to the compliance requirements of the SKR HCP and MSHCP, in particular the Urban/Wildlands Interface Guidelines outlined in the MSHCP, which provide guidance on addressing the indirect effects on wildlife species when projects are located in proximity to reserve areas. Through compliance with the Guidelines and coordination with RCA and RCHCA, construction and operation of the proposed Moreno Valley/March Field Station option would not impair the value of wildlife habitat or cause an ecological intrusion into the nearby reserve areas.

South Perris Station and Layover Facility

MSHCP Proposed Constrained Linkage 19 encompasses the San Jacinto River area, which is located approximately 500 feet west of the proposed South Perris Station. As previously described, the PVL project is subject to the compliance requirements of the MSHCP, in particular its Urban/Wildlands Interface Guidelines, which provide guidance on addressing the indirect effects on wildlife species when projects are located in proximity to reserve areas. Through compliance with the Guidelines and coordination with RCA, construction and operation of the proposed South Perris Station would not impair the value of wildlife habitat or cause an ecological intrusion of MSHCP Proposed Constrained Linkage 19.

3.1.4 Mitigation Measures

Implementation of the PVL project would not result in any impacts with regard to land use and planning. Therefore, no mitigation is required.

This Page Intentionally Left Blank

3.2 AGRICULTURAL RESOURCES

Agricultural resources are farmlands that can be used for agricultural purposes. This section presents a discussion of the federal laws governing agricultural resources, describes the types and locations of farmlands within the PVL corridor, analyzes the potential impacts resulting from implementation of the PVL project, and, if appropriate, provides mitigation measures to reduce, avoid, or minimize potential impacts.

3.2.1 Regulatory Setting

Federal Policies and Regulations

Farmland Protection Policy Act

Congress passed the Farmland Protection Policy Act (FPPA) in 1981 in response to a substantial decrease in the amount of open farmland (7 USC 4201). The purpose of the FPPA is to minimize the extent to which federal programs contribute to the unnecessary and irreversible conversion of farmland to nonagricultural uses, and to assure that federal programs are administered in a manner that, to the extent practicable, will be compatible with state, local government, and private programs and policies to protect farmland per the United States Code (USC) (7 USC 4201(b)). Under FPPA, the PVL would be defined as a corridor project. Federal agencies are to assess the suitability of each corridor site and design alternative for protection as farmland along with the land evaluation information.

Under the FPPA, “farmland” is classified as:

- Prime Farmland: land that has the best combination of physical and chemical characteristics for producing food, feed, fiber, forage, oilseed, and other agricultural crops with minimum inputs of fuel, fertilizer, pesticides, and labor, and without intolerable soil erosion, as determined by the Secretary of Agriculture. Prime farmland includes land that possesses the above characteristics but is being used currently to produce livestock and timber. It does not include land already in or committed to urban development or water storage (7 USC 4201(c)(1)(A)).

- Unique Farmland: land other than prime farmland that is used for production of specific high-value food and fiber crops, as determined by the Secretary of Agriculture. It has the special combination of soil quality, location, growing season, and moisture supply needed to economically produce sustained high quality or high yields of specific crops when treated and managed according to acceptable farming methods. Examples of such crops include citrus, tree nuts, olives, cranberries, fruits, and vegetables (7 USC 4201(c)(1)(B)).

- Farmland of Statewide or Local Importance: farmland, other than prime or unique farmland, that is of statewide or local importance for the production of food, feed, fiber, forage, or oilseed crops, as determined by the appropriate state or local government agency or agencies, and that the Secretary of Agriculture determines should be considered as farmland (7 USC 4201(c)(1)(C)).

Under the FPPA, the Secretary of Agriculture is required to establish criteria for federal agencies to identify and take into account the adverse effects of their activities on the

preservation of farmland (7 USC 658.5). The criteria developed by the Secretary of Agriculture, in cooperation with other federal agencies, include two parts:

(1) Land evaluation criterion, for which the Natural Resources Conservation Service (NRCS) will provide the rating or score (0-100 points), is based on national cooperative soil surveys or other acceptable soil surveys, NRCS field office technical guides, soil potential ratings or soil productivity ratings, land capability classifications, and important farmland determinations, and

(2) Site assessment criteria, for which each federal agency must develop its own ratings or scores to consider the suitability of each proposed site or design alternative for protection as farmland (total points vary).

The process for complying with the FPPA involves the completion of a Farmland Conversion Impact Rating Form. For corridor projects like the PVL, NRCS has developed Conservation Program Application (CPA), NRCS-CPA-106 Form. The federal agency completes a portion of the form and submits it, along with appropriate maps, to the local NRCS office for review. NRCS reviews the form and maps, and makes a determination as to whether the project contains Prime, Unique, or Farmland of Statewide or Local Importance. NRCS completes the land evaluation portion of the form, assigns a score between 0 and 100 points, and returns the form to the federal agency. The federal agency evaluates the project against each of the site assessment criteria described above, assigns a site assessment score, and calculates the total score by adding the land evaluation and site assessment scores. Based on the total score and a review of its internal policies, the federal agency makes a determination whether the conversion of farmland resulting from the proposed project is consistent with the FPPA.

The site assessment criteria, and their respective point ranges, include:

1. Area of land in non-urban use within a one-mile radius surrounding the project corridor (0 15 points);

2. Perimeter of the corridor in non-urban use (0-10 points);

3. Percent of corridor being farmed (0-20 points);

4. Protection provided by state and local government policies or programs (0-20 points);

5. Size of present farm unit compared to average (0-10 points);

6. Creation of non-farmable farmland (0-25 points);

7. Availability of farm support services (for example, farm suppliers, equipment dealers, and processing and storage facilities) (0-5 points);

8. Availability of on-farm investments (for example, barns, other storage buildings, fruit trees and vines, field terraces, drainage, irrigation, or waterways) (0-20 points);

9. Effects of conversion on farm support services (0-25 points); and

10. Compatibility with existing agricultural use (0-10 points).

State Policies and Regulations

California Land Conservation Act - Williamson Act

The California Land Conservation Act of 1965, commonly known as the Williamson Act, provides incentives through reduced property taxes, to deter the early conversion of agricultural and open space lands (California Department of Conservation [CDC], 1965).

Lands defined by the state as "prime farmland," "other than prime farmland," and "open space land" are eligible for coverage by a Williamson Act contract. Land other than prime farmland and open space land can also be placed under contract if the lands are located in an area designated by the county or city as an agricultural preserve.

3.2.2 Affected Environment

The proposed PVL project is specifically located within the existing SJBL alignment that runs from the city of Riverside to south of the city of Perris. As the area developed, the predominance of agricultural land both in the cities and surrounding areas, was used primarily to grow citrus. This citrus industry was serviced by the existing railroads to ship goods to distant markets. As the local area continued to develop, a growing population in the late twentieth century created pressure to convert this agricultural land to urban/suburban uses. Today, most of the areas in Riverside have transitioned from agricultural to urban and built-up land.

At the northernmost portion of the PVL corridor, the BNSF and SJBL alignments, Citrus Connection, and the Hunter Park Station options are located within the Hunter Business Park area, a 1,300-acre industrial park in the City's northeast corner. Industrial and business facilities currently occupy much of the area (City of Riverside, 2002).

Southeast of Hunter Park Station area, the SJBL alignment extends through urbanized areas and open space and runs adjacent to residential neighborhoods, commercial buildings, and city parks. Continuing south, the SJBL runs along the eastern edge of the Sycamore Canyon Business Park, which includes approximately 920 acres of commercial and industrial land uses (south of the junction of I-215 and SR-60).

The SJBL transitions into unincorporated land within Riverside County and passes through an area of recent warehouse and distribution center development. Further south along the alignment, the SJBL alignment bisects downtown Perris. South of downtown Perris, land use around the SJBL alignment is primarily agricultural with scattered development. Development includes the Perris Airport and the wastewater treatment complex across the street from the end of the corridor.

Each PVL component with respect to farmland designations is discussed below and depicted on Figure 3.2-1 and Figure 3.2-2.

Citrus Connection

The parcels to be acquired for the construction of the Citrus Connection, which amount to a total of 16.47 acres, are designated as Farmland of Local Importance.

SJBL Alignment

Between the proposed Citrus Connection and the proposed Layover Facility, the existing SJBL ROW encompasses 350.10 acres of built up land already committed to transportation uses.

Hunter Park Station

The proposed Hunter Park Station will be located on one of three parcels located along Palmyrita, Columbia, or Marlborough Avenues. The Palmyrita Avenue Station option comprises 24.08 acres, and is designated as Prime Farmland. The Columbia Avenue Station option is also designated Prime Farmland, and consists of 9.34 acres. The Marlborough Avenue Station option encompasses 9.35 acres, and contains both Prime Farmland and Farmland of Local Importance.

Moreno Valley/March Field Station

The proposed Moreno Valley/March Field Station consists of 14.50 acres of Farmland of Local Importance.

Downtown Perris Station

The proposed Downtown Perris Station encompasses 12.44 acres of urban and built up land.

South Perris Station and Layover Facility

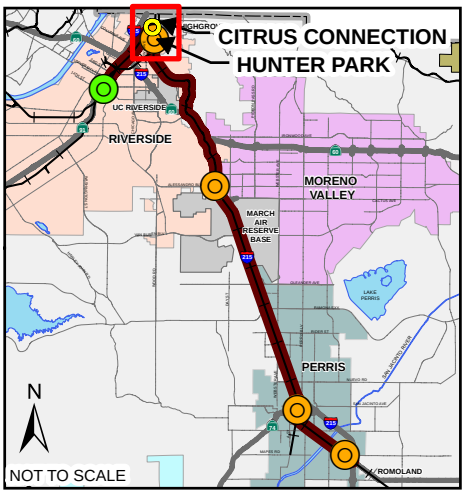
The proposed South Perris Station and Layover Facility include 40.00 acres designated as Farmland of Local Importance.

3.2.3 Environmental Consequences/Impacts

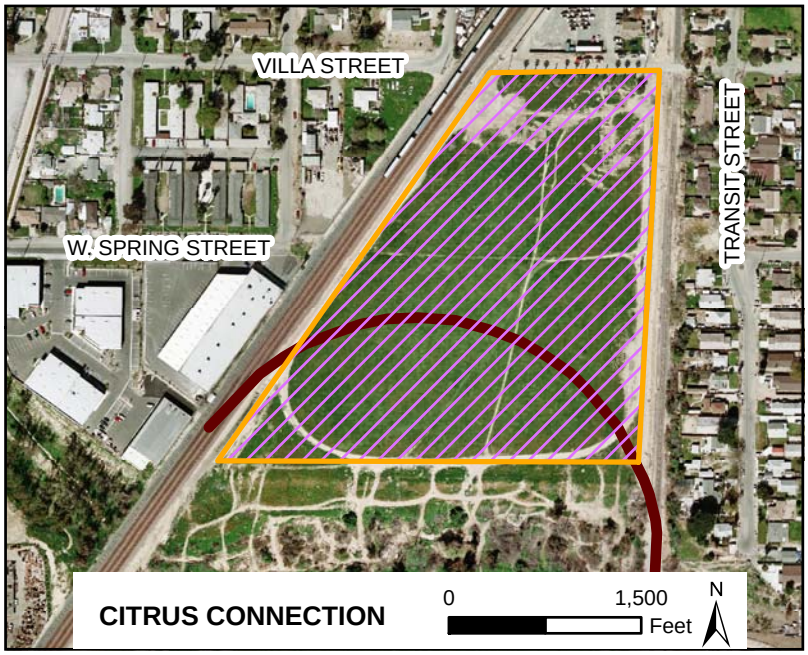
SJBL Alignment

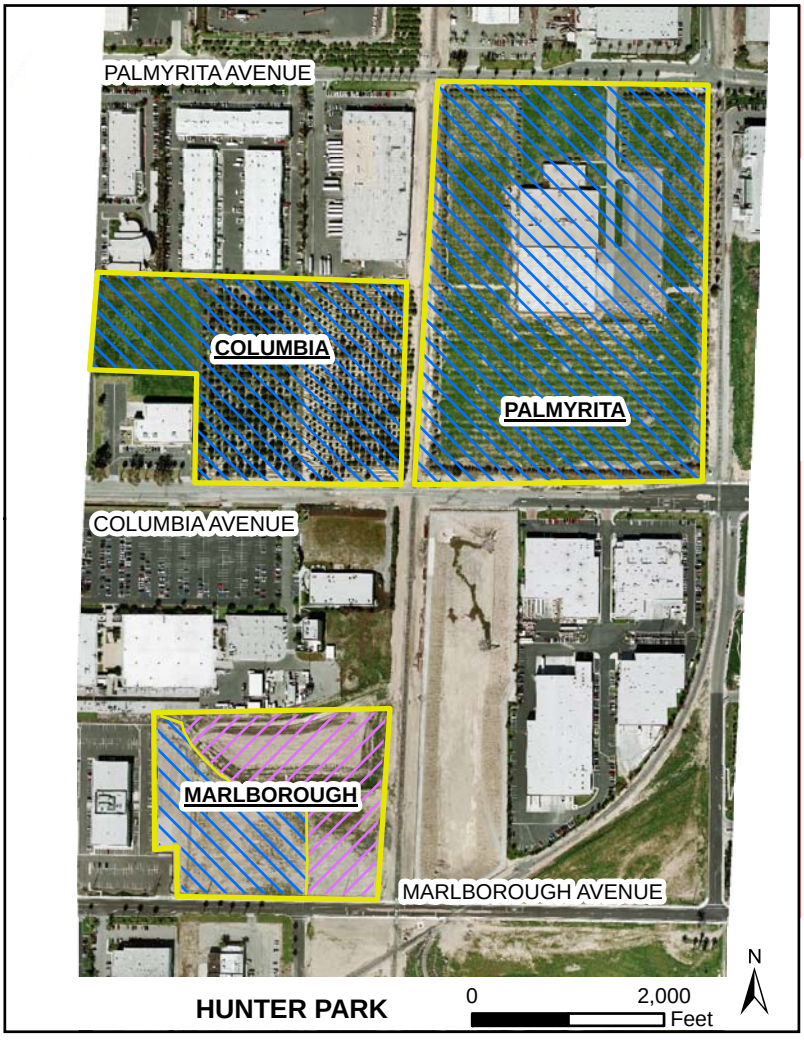
Citrus Connection

The proposed Citrus Connection is located at the northernmost segment of the PVL, which connects the BNSF and SJBL alignments. Though this land was designated as Farmland of Local Importance, the area is now approved for a warehouse/distribution center (City of Riverside, 2007). Since development of this area will occur regardless of the construction of the proposed Citrus Connection, construction of this segment of the PVL project would not alter the planned land use of the area.



KEY MAP FOR INSET AREAS





LEGEND

- PVL ALIGNMENT
- SITE BOUNDARY
- CITRUS CONNECTION BOUNDARY
- PRIME FARMLAND
- FARMLAND OF LOCAL IMPORTANCE

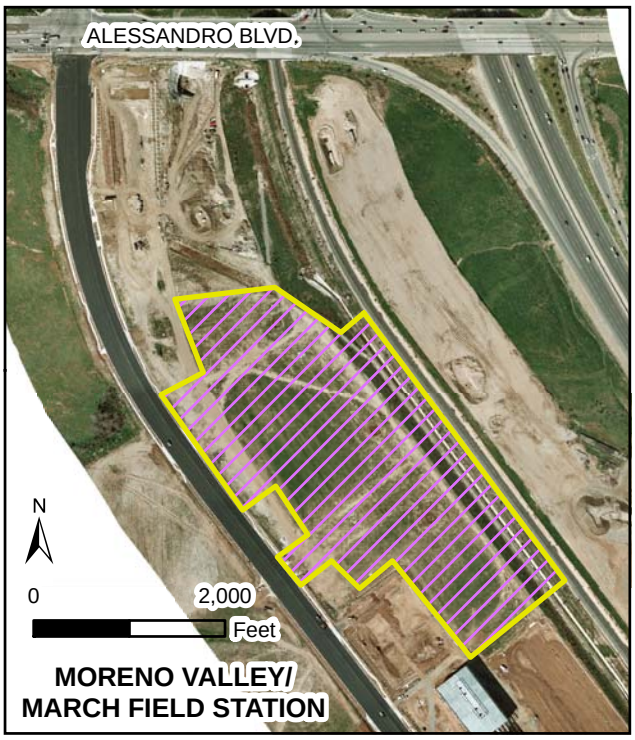
PROJECT NO.	92666
DRAWN:	1/4/10
DRAWN BY:	JP
CHECKED BY:	RM
FILE NAME:	92666agresEA.MXD

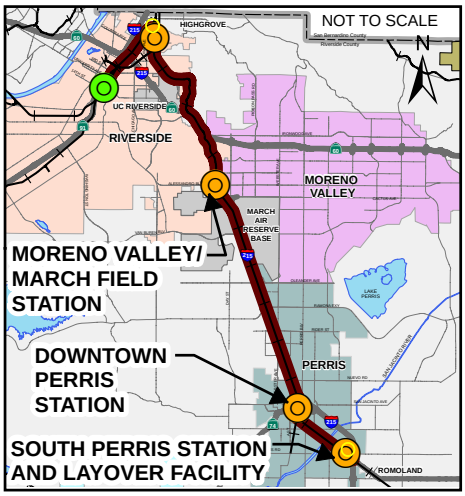
AGRICULTURAL RESOURCES

SUPPLEMENTAL ENVIRONMENTAL ASSESSMENT
RIVERSIDE COUNTY TRANSPORTATION COMMISSION
PERRIS VALLEY LINE
RIVERSIDE, CALIFORNIA

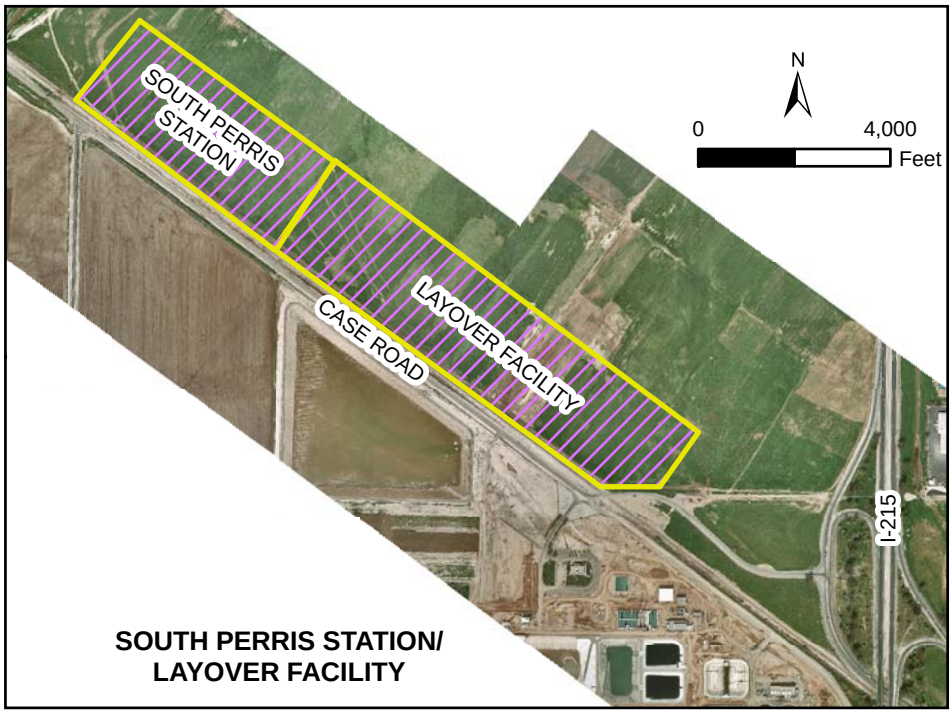
FIGURE

3.2-1





KEY MAP FOR INSET AREAS



LEGEND

- PVL ALIGNMENT
- SITE BOUNDARY
- FARMLAND OF LOCAL IMPORTANCE

PROJECT NO.	92666
DRAWN:	4/16/10
DRAWN BY:	JP
CHECKED BY:	RM
FILE NAME:	92666agres2.MXD

AGRICULTURAL RESOURCES

SUPPLEMENTAL ENVIRONMENTAL ASSESSMENT
RIVERSIDE COUNTY TRANSPORTATION COMMISSION
PERRIS VALLEY LINE
RIVERSIDE, CALIFORNIA

FIGURE

3.2-2

Stations

Hunter Park Station options

One of the three options for the proposed Hunter Park Station would be constructed within the Hunter Business Park area. Palmyrita Station option is proposed north of Columbia Avenue and east of the SJBL ROW. This location is currently being developed for light industrial use. The Columbia Station option would be located south of Palmyrita Avenue and west of the SJBL ROW. The site currently contains a citrus orchard. The Marlborough Station option would be located north of, and adjacent to Marlborough Avenue, and west of the SJBL ROW. The site is currently undeveloped with quantities of fill dirt located on the site.

Though this land was previously designated as Prime Farmland and Farmland of Local Importance, the three options are located in an area that has been approved for Business/Office Park development and is now designated for light industrial uses, consistent with the General Plan's goals to create an economic/job center (City of Riverside, 2007).

Since the land designation for this area has changed to non-agricultural development, the three options for the proposed Hunter Park Station would not convert Prime Farmland, Unique Farmland, or Farmland of State/Local Importance to non-agricultural uses.

Moreno Valley/March Field Station

The proposed Moreno Valley/March Field Station would be located within the boundaries of the former MARB and on an undeveloped 14.50-acre parcel west of the SJBL, about 750 feet south of Alessandro Boulevard. Unincorporated areas of Riverside County that are south of the Moreno Valley/March Field Station option are comprised of warehouses, light industry, and business park development.

The March Field/Moreno Valley Station has already been approved for development as part of the Meridian Business Park Plan, which determined that the site for the proposed station is no longer designated as farmland (March JPA, 2003). Therefore, the proposed PVL project at this location would not convert Prime Farmland, Unique Farmland, or Farmland of State/Local Importance to non-agricultural uses.

South Perris Station and the Layover Facility

The site of the South Perris Station and Layover Facility would be constructed adjacent to one another north of the intersection of Mapes and Case Roads, and west of I-215. The site is an undeveloped property east of the Perris Airport and north of the EMWD sewage treatment facility. The surrounding area consists of agricultural fields and warehouses.

Though this land was designated as Farmland of Local Importance, it is located in an area that is now approved for Public and Community Commercial Land Use designations (City of Perris, 2005). Additionally, the City has approved the Riverglen and Green Valley Specific Plans. These developments would convert the now vacant land to commercial, retail and residential uses (City of Perris, 2005). Therefore, since the land designation for this area has changed to non-agricultural development, the South Perris Station and Layover Facility would not convert

Prime Farmland, Unique Farmland, or Farmland of State/Local Importance to non-agricultural uses.

As described in Section 3.2.1 Regulatory Setting, the Secretary of Agriculture developed criteria for federal agencies to comply with the FPPA and take into account the effects of their projects on farmland. Compliance with the FPPA is accomplished through the completion of NRCS Form CPA-106 for corridor projects. The completed form, along with a summary of how each scoring decision was derived, is provided in Appendix B.

To comply with FPPA (Form CPA-106), three PVL corridor evaluations are conducted (Options A, B and C), considering the entire corridor, with each one addressing a different Hunter Park Station option. Each alternative includes the same components: the existing SJBL ROW, the proposed Citrus Connection, the four proposed stations, and the Layover Facility.

As described in Section 3.2.1 Regulatory Setting, NRCS completed the land evaluation portion of Form CPA-106 and assigned a score of 60.1 to Option A, 60.1 to Option B, and 60.1 to Option C, out of a possible 100 points. The land evaluation score represents the relative value for agricultural production of the farmland to be converted by the project. The ten site assessment criteria for corridor projects were considered in the context of the PVL project (for a total of 160 possible points). The results of both evaluations are summarized below in Table 3.2-1.

Table 3.2-1
Summary of Farmland Conversion Impact Rating Scores

	Land Evaluation Score	Site Assessment Score	Total Score
Corridor A (Palmyrita Avenue)	60.1	25	85.1
Corridor B (Columbia Avenue)	60.1	27	87.1
Corridor C (Marlborough Avenue)	60.1	25	85.1

According to 7 USC Section 658.4(c)(2), sites receiving a total score of less than 160 need not be given further consideration for protection and no additional alternatives need to be evaluated. Because all three options have combined scores of less than 160 points, no impact to agricultural resources would occur as a result of the PVL project, or as a result of any of the three options selected for the Hunter Park Station.

Williamson Act

There are no components of the PVL project, including the Citrus Connection, the proposed station locations, and the Layover Facility, that are located on lands enrolled in Williamson Act contracts. Therefore, there are no impacts within this issue area.

3.2.4 Mitigation Measures

Based on the evaluation of farmland conversion impacts using NRCS Form CPA-106, the proposed PVL project will not have a significant impact on agricultural resources. No mitigation measures are required.

3.3 AIR QUALITY

This section describes the air quality of the Riverside/Perris area and the potential effect that implementation of the PVL may have on the air quality within the South Coast Air Basin (SCAB). Air quality impacts related to construction, operation of the project, and traffic associated with riders driving to and from stations for the PVL project are analyzed in this section. This analysis is based on the *Perris Valley Line Commuter Rail Air Quality Technical Report* (STV Incorporated, 2010) to this SEA as presented in Technical Report B.

3.3.1 Regulatory Setting

The California Air Resources Board (CARB) has divided the state into regions called air basins that share similar meteorological and topographical features. The project area is located in western Riverside County (west of the San Gorgonio Pass), which is within the SCAB. The SCAB is a 6,745-square-mile area comprised of Orange County and the non-desert portions of Los Angeles, Riverside, and San Bernardino counties. The air basin's climate and topography are highly conducive to the formation and transport of air pollution. Peak ozone (O_3) concentrations in the last two decades have occurred at the base of the mountains around Azusa and Glendora in Los Angeles County, and at Crestline in the mountain area above the city of San Bernardino. Both peak O_3 concentrations and the number of exceedances have decreased within the SCAB throughout the 1990s. In addition, carbon monoxide (CO) concentrations have lessened throughout the air basin during the past decade as a result of strict new emission controls and reformulated gasoline sold in winter months. In response to a scientific consensus linking greenhouse gas emissions from human activities to global climate change, CARB is seeking to consider the cumulative effects of carbon dioxide (CO_2) released by new projects within the SCAB.

The South Coast Air Quality Management District (SCAQMD) is responsible for monitoring air quality conditions in the SCAB. Regionally, the SCAQMD and the SCAG prepare the Air Quality Management Plan (AQMP), which contains measures to meet state and federal requirements. When approved by the CARB and the United States Environmental Protection Agency (USEPA), the AQMP becomes part of the State Implementation Plan (SIP).

Federal Standards

The federal Clean Air Act (CAA), enacted in 1970 and amended twice thereafter (including the 1990 amendments), establishes the framework for modern air pollution control. The CAA directs USEPA to establish ambient air standards for six pollutants: ozone (O_3), carbon monoxide (CO), lead (Pb), nitrogen dioxide (NO_2), particulate matter ($PM_{2.5}$ and PM_{10}), and sulfur oxides (SO_x). The standards are divided into primary and secondary standards; the former are set to protect human health with an adequate margin of safety, and the latter to protect environmental values, such as plant and animal life.

The CAA requires states to submit a SIP for areas designated as nonattainment for federal air quality standards. The SIP, which is reviewed and approved by USEPA, must demonstrate how the federal standards would be achieved. Failure to submit a plan or secure approval could lead to denial of federal funding and permits. In cases where the SIP is submitted by the state but fails to demonstrate achievement of the standards, the USEPA is directed to prepare a federal implementation plan.

State Standards

Responsibility for achieving California's Ambient Air Quality Standards (CAAQS), which are more stringent than federal standards, is placed on the CARB and local air pollution control districts. State standards are to be achieved through district-level air quality management plans that are incorporated into the SIP. The California CAA requires local and regional air pollution control districts that are not attaining one or more of the CAAQS to expeditiously adopt plans specifically designed to attain these standards. Each plan must be designed to achieve an annual five percent reduction in district-wide emissions of each nonattainment pollutant or its precursors.

Recently enacted amendments to the California CAA impose additional requirements that are designed to ensure an improvement in air quality within the next five years. More specifically, local districts with moderate air pollution that did not achieve "transitional nonattainment" status by December 31, 1997 must implement the more stringent measures applicable to districts with serious air pollution.

Transportation Conformity

The concept of transportation conformity was introduced in the 1977 amendments to the CAA, which includes a provision to ensure that transportation investments conform to the SIP in meeting the National Ambient Air Quality Standards (NAAQS). Conformity requirements were made substantially more rigorous in the federal CAA amendments of 1990, and the transportation conformity regulation that details implementation of the conformity requirements was first issued in November 1993, with a number of subsequent amendments. The most recent complete set of amendments to the Transportation Conformity Rule is found at 40 Code of Federal Regulations (CFR) parts 51 and 93 (August 15, 1997). Additionally, on July 1, 2004, USEPA published a set of the Transportation Conformity Rule Amendments, amending the August 1997 regulations, in Federal Register (FR) Volume 69 No. 26. The new amendments provide regulations for the new 8-hour O_3 and $PM_{2.5}$ NAAQS. More recently, a March 2006 ruling establishes revised criteria for determining which transportation projects must be analyzed for local particle emissions impacts in $PM_{2.5}$ and PM_{10} nonattainment and maintenance areas.

Based on projects included in the RTP, transportation-related air quality analyses are conducted to determine whether the implementation of those projects would conform to SIP emission budgets or other tests showing that attainment requirements of the CAA are met. If the conformity analysis is successful, the regional planning organization and the appropriate federal agencies make a determination that the RTP is in conformity with the SIP for achieving the goals of the CAA. Otherwise, the projects in the RTP must be modified until conformity is attained. If the design and scope of a proposed project is the same as described in the RTP, then that project is deemed to meet regional conformity requirements for purposes of project-level analysis. The General Conformity Rule may also require localized (hot spot) analyses if an area is nonattainment or maintenance for carbon monoxide and/or particulate matter.

Regional Transportation Improvement Program

The SCAG, as the Metropolitan Planning Organization (MPO) for southern California, is mandated to comply with federal and state transportation and air quality regulations. SCAG is a

six-county region (Imperial, Los Angeles, Orange, Riverside, San Bernardino, and Ventura) that contains four air basins that are administered by five air districts.

All potential emissions from projects included in a RTIP meet the transportation conformity requirements outlined in that RTIP. This means that all of the emissions from projects included in the RTIP have been accounted for in the regional emissions burden. The proposed PVL project is included in SCAG's 2008 RTIP (Project ID RIV520109), as shown in Appendix A of Air Quality Technical Report B, which means the project's operational emissions (including the O_3 precursor emissions reactive organic compounds [ROC] and NO_2) meet the transportation conformity requirements imposed by USEPA and SCAQMD. As such, a project under these circumstances would normally undergo a project-level rather than a regional-level air quality analysis. However, a regional assessment was also conservatively performed for the proposed PVL project. It should be noted that SCAG determined that the PVL is not a Project of Air Quality Concern (POAQC) on April 16, 2010.
(http://www.scag.ca.gov/tcwg/projectlist/march10.htm)

Local and Regional Requirements

The air quality management agencies of direct importance to the SCAQMD portion of Riverside County include USEPA, CARB, and the SCAQMD. USEPA has established federal ambient air quality standards for which CARB and the SCAQMD have primary implementation responsibility. CARB and the SCAQMD are also responsible for ensuring that state ambient air quality standards are met. SCAG develops the RTP and RTIP in consultation with local air management districts. The RTP includes projects that strive to meet the goals and objectives of the NAAQS. The RTP is also in accord with USEPA's Transportation Conformity Rule as it pertains to air quality standards in Riverside County.

Federal and State Ambient Air Quality Standards

Existing air quality conditions in the project area can be characterized in terms of the ambient air quality standards that the State of California and the federal government have established for several different pollutants. For some pollutants, separate standards have been set for different measurement periods. Most standards have been set to protect public health. For some pollutants, standards have been based on other values (such as protection of crops, protection of materials, or avoidance of nuisance conditions). Table 3.3-1 shows the 2009 state and federal standards for relevant air pollutants.

Table 3.3-1
Ambient Air Quality Standards 2009

Pollutant	Averaging Time	State[1]	National[2]	
		Concentration[3]	Primary[3,4]	Secondary[3,5]
Ozone (O_3)	1 hour	0.09 ppm	--	Same as Primary Standard
	8 hours	0.070 ppm	0.075 ppm	
Particulate Matter (PM_{10})	24 hours	50 µg/m^3	150 µg/m^3	Same as Primary Standard
	AAM	20 µg/m^3	--	
Fine Particulate Matter ($PM_{2.5}$)	24 hours	--	35 µg/m^3	Same as Primary Standard
	AAM	12 µg/m^3	15 µg/m^3	
Carbon Monoxide (CO)	8 hours	9.0 ppm	9 ppm	None
	1 hour	20 ppm	35 ppm	
Nitrogen Dioxide (NO_2)	AAM	0.030 ppm	0.053 ppm	Same as Primary Standard
	1 hour	0.18 ppm	--	
Lead (Pb)[6]	30 days	1.5 µg/m^3	--	--
	Calendar Quarter	--	1.5 µg/m^3	1.5 µg/m^3
Sulfur Dioxide (SO_2)	AAM	--	0.030 ppm	--
	24 hours	0.04 ppm	0.14 ppm	--
	3 hours	--	--	0.5 ppm
	1 hour	0.25 ppm	--	--
Visibility-Reducing Particles	8 hours	Extinction coefficient of 0.23 per kilometer — visibility of ten miles or more (0.07 — 30 miles or more for Lake Tahoe) due to particles when relative humidity is less than 70 percent. Method: Beta Attenuation and Transmittance through Filter Tape.	N/A	N/A
Sulfates (SO_4)	24 hours	25 µg/m^3	N/A	N/A
Hydrogen Sulfide (H_2S)	1 hour	0.03 ppm	N/A	N/A

Notes:
N/A = standard is not applicable
ppm = parts per million by volume
AAM = annual arithmetic mean
µg/m^3 = micrograms per cubic meter

Notes:
1. California standards for ozone, carbon monoxide (except Lake Tahoe), sulfur dioxide (1 and 24 hour), nitrogen dioxide, suspended particulate matter—PM_{10}, $PM_{2.5}$, and visibility reducing particles, are values that are not to be exceeded. All others are not to be equaled or exceeded. California ambient air quality standards are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations.
2. National standards (other than ozone, particulate matter, and those based on annual averages or annual arithmetic mean) are not to be exceeded more than once a year. The ozone standard is attained when the fourth highest eight hour concentration in a year, averaged over three years, is equal to or less than the standard. For PM_{10}, the 24 hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 µg/m3 is equal to or less than one. For $PM_{2.5}$, the 24 hour standard is attained when 98 percent of the daily concentrations, averaged over three years, are equal to or less than the standard. Contact U.S. USEPA for further clarification and current federal policies.
3. Concentration expressed first in units in which it was promulgated. Equivalent units given in parentheses are based upon a reference temperature of 25°C and a reference pressure of 760 torr. Most measurements of air quality are to be corrected to a reference temperature of 25°C and a reference pressure of 760 torr; ppm in this table refers to ppm by volume, or micromoles of pollutant per mole of gas.
4. National Primary Standards: The levels of air quality necessary, with an adequate margin of safety to protect the public health.
5. National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.
6. The CARB has identified lead and vinyl chloride as 'toxic air contaminants' with no threshold level of exposure for adverse health effects determined. These actions allow for the implementation of control measures at levels below the ambient concentrations specified for these pollutants.

Source: Ambient Air Quality Standards, California Air Resources Board, February 22, 2009

South Coast Air Quality Management District CEQA Guidelines

SCAQMD has published guidance on conducting air quality analyses under CEQA by establishing thresholds of significance for regional impacts, which are summarized in Table 3.3-2. Thresholds are shown for criteria pollutant emissions during construction activities and project operation. A project is considered to have a regional air quality impact if emissions from its construction and/or operational activities exceed these thresholds.

Table 3.3-2
SCAQMD Air Quality Significance Thresholds

Pollutant	Construction	Operation
NO_x	100 lbs/day	55 lbs/day
VOC	75 lbs/day	55 lbs/day
PM_{10}	150 lbs/day	150 lbs/day
$PM_{2.5}$	55 lbs/day	55 lbs/day
SO_x	150 lbs/day	150 lbs/day
CO	550 lbs/day	550 lbs/day
Lead	3 lbs/day	3 lbs/day
Source: SCAQMD CEQA Handbook (SCAQMD, 1993)		

Mobile Source Air Toxic Regulation

The CAA identified 188 pollutants as being air toxics, which are also known as hazardous air pollutants (HAP). From this list, the USEPA identified a group of 21 as mobile source air toxics (MSAT) in its final rule, Control of Emissions of Hazardous Air Pollutants from Mobile Sources (66 FR 17235) in March 2001. From this list of 21 MSATs, the USEPA has identified six MSATs, benzene, formaldehyde, acetaldehyde, diesel particulate matter/diesel exhaust organic gases, acrolein, and 1,3-butadiene, as being priority MSATs. To address emissions of MSATs, the USEPA has issued a number of regulations that would dramatically decrease MSATs through cleaner fuels and cleaner engines.

In the early 1980s, the CARB established a statewide comprehensive air toxics program to reduce exposure to air toxics. The Toxic Air Contaminant Identification and Control Act (Assembly Bill [AB] 1807) created California's program to reduce exposure to air toxics. The Air Toxics "Hot Spots" Information and Assessment Act (AB 2588) supplements the AB 1807 program by requiring a statewide air toxics inventory, notification of people exposed to a significant health risk, and facility plans to reduce these risks.

Air toxics analysis is a new and emerging issue and is a continuing area of research. Although much work has been done to assess the overall health risk of air toxics, many questions remain unanswered. In particular, the tools and techniques available for assessing project-specific health impacts from MSATs continue to be developed. Shown in Table 3.3-3 are the SCAQMD thresholds for the assessment of Toxic Air Contaminants (TACs). The Federal Highway Administration (FHWA) is currently preparing guidance as to how mobile source health risks should factor into project-level decision making. In addition, USEPA has not established regulatory concentration targets for the six relevant MSAT pollutants appropriate for use in the project development process.

Table 3.3-3
Toxic Air Contaminant (TAC) Threshold

TAC	Threshold
TACs (including carcinogens and non-carcinogens)	Maximum Incremental Cancer Risk ≥ 10 in 1 million Cancer Burden > 0.5 excess cancer cases (in areas ≥ 1 in 1 million) Hazard Index ≥ 1.0 (project increment)
Source: SCAQMD CEQA Handbook (SCAQMD, 1993)	

Greenhouse Gas Regulations

While climate change has been an international concern since at least 1988, as evidenced by the establishment of the United Nations and World Meteorological Organization's Intergovernmental Panel on Climate Change, the efforts devoted to greenhouse gas (GHG) emissions reduction and climate change research and policy have increased dramatically in recent years. In 2002, with the passage of Assembly Bill 1493 (AB 1493), California launched an innovative and proactive approach to deal with GHG emissions and climate change at the state level. AB 1493 requires CARB to develop and implement regulations to reduce automobile and light truck GHG emissions.

On June 1, 2005, Governor Schwarzenegger signed Executive Order (EO) S-3-05. The goal of this EO is to reduce California's GHG emissions to 1) 2000 levels by 2010, 2) to 1990 levels by 2020 and 3) 80 percent below 1990 levels by 2050. The majority of GHG emissions are from the burning of fossil fuels, and 40 percent of all human-made GHG emissions are the result of transportation. Enhancing operations and improving travel times in high congestion travel corridors, such as I-215, would lead to an overall reduction in GHG emissions.

Description of Relevant Air Pollutants

Criteria Pollutants

Ozone (O_3) is a respiratory irritant that increases susceptibility to respiratory infections. It is also an oxidant that can cause substantial damage to vegetation and other materials. O_3, which is a regional pollutant, is not emitted directly into the air but is formed by a photochemical reaction in the atmosphere. O_3 precursors, which include reactive organic compounds (ROC) and NO_x, react in the atmosphere in the presence of sunlight to form ozone. Because photochemical reaction rates depend on the intensity of ultraviolet light and air temperature, ozone primarily forms in summer when it becomes an air pollution problem. In addition, photochemical reactions take time to occur, so high ozone levels often occur downwind of the emission source. The SCAB is classified as Nonattainment Severe-17 (Severe-17 = has 17 years from 1992 to reach attainment). Unless the SCAB is granted an extension by the USEPA, the region had until 2009 to demonstrate conformity with the NAAQS. CARB sent a letter with recommendations for areas of attainment of the ozone standard in March of 2009 and is awaiting response from the USEPA.

Inhalable Particulate Matter (such as $PM_{2.5}$ and PM_{10}) can damage human health and retard plant growth. Health concerns associated with suspended particulate matter focus on those particles small enough to reach the lungs when inhaled. Particulate matter less than ten

micrometers in diameter can enter the lungs and bloodstream. Exposure to these particles can cause a number of health problems such as decreased lung function, development of chronic bronchitis, and irregular heartbeat. Particulates also reduce visibility and corrode materials. Particulate emissions are generated by a wide variety of sources, including industrial emissions, dust suspended by vehicle traffic and construction equipment, and secondary aerosols formed by reactions in the atmosphere.

Carbon Monoxide (CO) is a public health concern because it combines readily with hemoglobin and reduces the amount of oxygen transported in the bloodstream. CO can cause health problems such as fatigue, headache, confusion, dizziness, and even death. Motor vehicle emissions are the dominant source of CO emissions in most areas. High CO levels develop primarily during winter when a period of light winds combines with the formation of ground-level temperature inversions (typically from the evening through early morning). These conditions result in reduced dispersion of vehicle emissions. Motor vehicles also exhibit increased CO emission rates at low air temperatures.

Nitrogen Oxides (NO_x) are a family of highly reactive gases that are primary precursors to the formation of ground-level ozone, reacting in the atmosphere to form acid rain. NO_x is emitted from the use of solvents and combustion processes in which fuel is burned at high temperatures, principally from motor vehicle exhaust and stationary sources such as electric utilities and industrial boilers. A brownish gas, nitrogen dioxide is a strong oxidizing agent that reacts in the air to form corrosive nitric acid, as well as toxic organic nitrates.

NO_x can irritate the lungs, cause lung damage, and lower resistance to respiratory infections such as influenza. The effects of short-term exposure are still unclear, but continued or frequent exposure to concentrations that are typically much higher than those normally found in the ambient air may cause increased incidence of acute respiratory illness in children. Health effects associated with NO_x are an increase in the incidence of chronic bronchitis and lung irritation. Chronic exposure to nitrogen dioxide (NO_2) may lead to eye and mucus membrane aggravation along with pulmonary dysfunction. NO_x can cause fading of textile dyes and additives, deterioration of cotton and nylon, and corrosion of metals due to production of particulate nitrates. Airborne NO_x can also impair visibility. NO_x is a major component of acid deposition in California. NO_x may affect both terrestrial and aquatic ecosystems. NO_x in the air is a potentially significant contributor to a number of environmental effects such as acid rain and eutrophication in coastal waters. Eutrophication occurs when a body of water suffers an increase in nutrients that reduces the amount of oxygen in the water, producing an environment that is destructive to fish and other animal life.

Sulfur Oxides (SO_x) are a family of colorless, pungent gases, which include sulfur dioxide (SO_2), and are formed primarily by combustion of sulfur-containing fossil fuels (mainly coal and oil), metal smelting, and other industrial processes. Sulfur oxides can react to form sulfates, which significantly reduce visibility. SO_x are a precursor to particulate matter formation, for which the project area is in non-attainment.

The major health concerns associated with exposure to high concentrations of SO_x include effects related to breathing, respiratory illness, alterations in pulmonary defenses, and aggravation of existing cardiovascular disease. Major subgroups of the population that are most sensitive to SO_x include individuals with cardiovascular disease or chronic lung disease (such as bronchitis or emphysema), as well as children and the elderly. Emissions of SO_x also can

damage the foliage of trees and agricultural crops. Together, SO_x, and NO_x are the major precursors to acid rain, which is associated with the acidification of lakes and streams and accelerated corrosion of buildings and monuments.

Lead is a metal that is a natural constituent of air, water, and the biosphere. Lead is neither created nor destroyed in the environment, so it essentially persists forever. Lead was used several decades ago to increase the octane rating in automotive fuel. Since gasoline-powered automobile engines were a major source of airborne lead through the use of leaded fuels and the use of leaded fuel has been mostly phased out, the ambient concentrations of lead have dropped dramatically.

Short-term exposure to high levels of lead can cause vomiting, diarrhea, convulsions, coma, or even death. However, even small amounts of lead can be harmful, especially to infants, young children, and pregnant women. Symptoms of long-term exposure to lower lead levels may be less noticeable but are still serious. Anemia is common, and damage to the nervous system may cause impaired mental function. Other symptoms are appetite loss, abdominal pain, constipation, fatigue, sleeplessness, irritability, and headache. Continued excessive exposure, as in an industrial setting, can affect the kidneys.

Lead exposure is most serious for young children because they absorb lead more easily than adults and are more susceptible to its harmful effects. Even low-level exposure may harm the intellectual development, behavior, size, and hearing of infants. During pregnancy, especially in the last trimester, lead can cross the placenta and affect the fetus. Female workers exposed to high levels of lead have more miscarriages and stillbirths.

Toxic Air Contaminants

Although ambient air quality standards exist for criteria pollutants, no ambient standards exist for TACs. These contaminants are sometimes also referred to as mobile source air toxins or MSATs. Many pollutants are identified as TACs because of their potential to increase the risk of developing cancer or because of their acute or chronic health risks. For TACs that are known or suspected carcinogens, the CARB has consistently found that there are no levels or thresholds below which exposure is risk-free. Individual TACs vary greatly in the risk each presents. At a given level of exposure, one TAC may pose a hazard that is many times greater than another. For certain TACs, a unit risk factor can be developed to evaluate cancer risk. For acute and chronic health risks, a similar factor, called a Hazard Index, is used to evaluate risk. The carcinogenic nature of the six TACs identified by the USEPA is briefly described below:

- Benzene is characterized as a known human carcinogen.
- The potential carcinogenicity of acrolein cannot be determined because the existing data are inadequate for an assessment of human carcinogenic potential for either the oral or inhalation route of exposure.
- Formaldehyde is a probable human carcinogen, based on limited evidence in humans, and sufficient evidence in animals.
- 1,3-butadiene is characterized as carcinogenic to humans by inhalation.

- Acetaldehyde is a probable human carcinogen based on increased incidence of nasal tumors in male and female rats and laryngeal tumors in male and female hamsters after inhalation exposure.

- Diesel exhaust or diesel particulate matter is likely to be carcinogenic to humans by inhalation from environmental exposures. Diesel exhaust as reviewed in this document is the combination of diesel particulate matter and diesel exhaust organic gases. Diesel exhaust also represents chronic respiratory effects, possibly the primary noncancerous hazard from MSATs. Prolonged exposures may impair pulmonary function and could produce symptoms, such as cough, phlegm, and chronic bronchitis. Exposure relationships have not been developed from these studies.

Greenhouse Gases

Many chemical compounds found in the Earth's atmosphere act as "greenhouse gases" (GHGs). These gases allow sunlight to enter the atmosphere freely. When sunlight strikes the Earth's surface, some of it is re-radiated back towards space as infrared radiation (heat). GHGs absorb this infrared radiation and trap its heat in the atmosphere. It is widely accepted that the accumulation of GHGs has contributed to an increase in the temperature of the earth's atmosphere and has contributed to global climate change. Many gases exhibit these greenhouse properties. Many occur naturally. Some are also produced by human activities and some are exclusively human made (for example, industrial gases). The principal GHGs are carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), sulfur hexafluoride (SF_6), perfluorocarbons (PFCs), hydrofluorocarbons (HFCs), and water vapor (H_2O).

Carbon Dioxide (CO_2) results from fossil fuel combustion in stationary and mobile sources. It contributes to the greenhouse effect, but not to stratospheric ozone depletion. In 2004, CO_2 accounted for approximately 84 percent of total GHG emissions in the state. In the SCAB, approximately 48 percent of CO_2 emissions come from transportation, residential and utility sources, which contribute approximately 13 percent each; 20 percent come from industry; and the remainder comes from a variety of other sources.

Atmospheric methane (CH_4) is emitted from both non-biogenic and biogenic sources. Non-biogenic sources include fossil fuel mining and burning, biomass burning, waste treatment, geologic sources, and leaks in natural gas pipelines. Biogenic sources include wetlands, rice, agriculture, livestock, landfills, forest, oceans, and termites. CH_4 sources can also be divided into anthropogenic and natural. Anthropogenic sources include rice agriculture, livestock, landfills, and waste treatment, some biomass burning, and fossil fuel combustion. Natural sources are wetlands, oceans, forests, fire, termites and geological sources. Anthropogenic sources currently account for more than 60 percent of the total global emissions. In the SCAB, more than 50 percent of human-induced CH_4 emissions come from natural gas pipelines, while landfills contribute 24 percent. CH_4 emissions from landfills are reduced by SCAQMD Rule 1150.1 - Control of Gaseous Emissions from Active Landfills. CH_4 emissions from petroleum sources are reduced by a number of rules in SCAQMD Regulation XI that control fugitive emissions from petroleum production, refining, and distribution.

Other regulated GHGs include Nitrous Oxide, Sulfur Hexafluoride, Hydrofluorocarbons, and Perfluorocarbons. These gases all possess heat-trapping potentials hundreds to thousands of times more effective than CO_2. Emission sources of nitrous oxide gases include, but are not

limited to, waste combustion, waste water treatment, fossil fuel combustion, and fertilizer production. Because the volume of emissions is small, the net effect of nitrous oxide emissions relative to CO_2 or CH_4 is relatively small. SF_6, HFC, and PFC emissions occur at even lower rates.

Chlorofluorocarbons (CFCs) are emitted from blowing agents used in producing foam insulation. They are also used in air conditioners and refrigerators and as solvents to clean electronic microcircuits. CFCs are primary contributors to stratospheric ozone depletion and to global climate change. Sixty-three percent of CFC emissions in the SCAB come from the industrial sector. Some CFCs are classified as TACs and regulated by SCAQMD Rule 1401 – New Source Review of TACs and SCAQMD Rule 1402 Control of TACs from Existing Sources.

Carbon dioxide equivalents are often used as a metric measure to compare the emissions from various greenhouse gases based upon their global warming potential (GWP). Carbon dioxide equivalents are commonly expressed as "million metric tons of carbon dioxide equivalents." The carbon dioxide equivalent for a gas is derived by multiplying the tons of the gas by the associated GWP.

3.3.2 Affected Environment

Regional Climate and Meteorological Conditions

In large part, the strength and position of the subtropical high pressure cell over the Pacific Ocean, as with all of southern California, control the climate in and around the project area. The high pressure maintains moderate temperatures and comfortable humidities, and limits precipitation to a few storms during the winter “wet” season. Temperatures are normally mild, except in the summer months which commonly bring substantially higher temperatures. In all portions of the SCAB, temperatures well above 100 ºF have been recorded in recent years. The annual average temperature in the SCAB is approximately 62 ºF.

Although Riverside County generates the lowest emissions of any county in the SCAB, air quality in the county is among the Air Basin’s worst, due to onshore winds transporting vast amounts of pollutants from Los Angeles and Orange counties inland. Regional wind patterns are dominated by daytime onshore sea breezes. At night, the wind generally slows and reverses direction, traveling towards the sea. Local canyons alter wind direction, with wind tending to flow parallel to the canyons. During the transition period from onshore to offshore pattern, the dominant wind direction rotates into the south and causes a minor southerly wind direction. The frequency of calm winds (less than two miles per hour) is less than ten percent. Therefore, little stagnation occurs in the project vicinity, especially during busy daytime traffic hours.

Southern California frequently has temperature inversions that inhibit the dispersion of pollutants. Inversions may be either ground-based or elevated. Ground-based inversions, sometimes referred to as radiation inversions, are most severe during clear, cold, early winter mornings. Under conditions of a ground-based inversion, very little mixing or turbulence occurs, and high concentrations of primary pollutants may occur local to major roadways. Elevated inversions act as a lid or upper boundary and restrict vertical mixing. Below the elevated inversion, dispersion is not restricted. The mixing heights for elevated inversions are lower in the summer and more persistent. This low summer inversion puts a lid over the SCAB and is responsible for the high levels of O_3 observed during summer months in the air basin.

Local Climate and Meteorological Conditions

Latitude, topography, and the influence of the nearby Pacific Ocean produce a Mediterranean climate in the project area, consisting of warm, dry summers and mild, wet winters. However, at a local level, the project area exhibits substantial climatic variation. Average January high temperatures range from 66 ºF in the northwestern project area near Riverside to 63 ºF near Perris in the southeastern project area. Nighttime lows in January and February can drop below freezing throughout the project area. Average July high temperatures range from 94 ºF in the northwestern project area near Riverside to 97 ºF near Perris in the southeastern project area. Low altitude areas (i.e. closer to sea level), however, have long mid-summer stretches of daily highs exceeding 110 ºF. Average annual precipitation ranges from about ten inches in the Riverside and Moreno Valley areas to eleven inches in Perris Valley. Annual rainfall in the project area typically ranges from ten to fifteen inches per year. Annual average wind speed in Riverside is six mph.

Local Air Quality

The SCAQMD monitors air quality conditions at 37 source receptor areas throughout the SCAB. The project area extends from the city of Riverside to the city of Perris. The closest air basin monitoring stations for this area are located in Rubidoux on Mission Boulevard, in Riverside on Magnolia Avenue, and in Perris on North D Street. The Rubidoux monitoring station measures ambient levels of O_3, particulates, CO, nitrogen dioxide, and sulfur dioxide. The Riverside monitoring station measures $PM_{2.5}$ and CO ambient levels. The Perris monitoring station measures O_3 and PM_{10} ambient levels. Data from the three monitoring stations, including two located in receptor areas along the study corridor at Riverside and Perris, were used to characterize existing conditions in the vicinity of the proposed project, and establish a baseline for estimating future conditions both with and without the proposed project.

If a pollutant concentration is lower than the state or federal standard, the area is classified as being in attainment for that pollutant. If a pollutant exceeds a state or federal standard, the area is considered a nonattainment area. If data are insufficient to determine whether a pollutant is violating the standard, the area is designated unclassified. The CARB has designated the SCAB as nonattainment for O_3, $PM_{2.5}$ and PM_{10}; and the USEPA has designated the SCAB as nonattainment for O_3 (Severe-17 classification for the 8-hour standard); CO (Serious classification), PM_{10} (Serious classification) and $PM_{2.5}$ (refer to Table 3.3-4).

Table 3.3-5 summarizes the local levels of these four pollutants for 2006, 2007 and 2008 and compares them to national and state air quality standards. The Rubidoux monitoring station shows exceedances of the federal and state standards for O_3, PM_{10} and $PM_{2.5}$. At the Riverside monitoring station, the federal standard for $PM_{2.5}$ was exceeded. The Perris Valley monitoring station has exceeded the state standard for PM_{10}, and the federal and state standards for O_3.

Riverside County emissions inventories are presented in Table 3.3-6. These data are collected by CARB for the South Coast Air Basin.

Table 3.3-4
Regional Criteria Pollutants Attainment Status 2009

Pollutant	Status	
	Federal	State
O_3	1-hour: N/A 8-hour: Severe-17 Nonattainment	1-hour: Nonattainment Not yet rated for 8-hour standard
CO	Attainment	Attainment
NO_2	Attainment/Maintenance	Attainment
SO_2	Attainment	Attainment
Particulates (PM_{10})	Serious Nonattainment	Nonattainment
Fine Particulates ($PM_{2.5}$)	Nonattainment	Nonattainment
Pb	No Designation	Attainment
Source: Federal Register and CARB (2009)		

Table 3.3-5
2006-2008 Air Quality Summary for Project Area Monitoring System

Air-Pollutant	Standard Exceedance	Rubidoux			Riverside			Perris Valley		
		2006	2007	2008	2006	2007	2008	2006	2007	2008
Ozone (O_3)	Maximum 1-hr. concentration (ppm)	**0.151**	**0.131**	**0.146**	Not Monitored			**0.169**	**0.138**	**0.142**
	Maximum 8-hr. concentration (ppm)	**0.117**	**0.111**	**0.116**				**0.123**	**0.117**	**0.115**
	Days >0.09 ppm (state 1-hr. standard)	45	31	54				77	66	65
	Days >0.12 ppm (federal 1-hr. standard)[1]	8	2	8				12	4	4
	Days > 0.075 ppm (federal 8-hr. standard)	57	46	64				83	73	77
	Days > 0.070 ppm (state 8-hr standard)	75	69	89				98	88	94
Respirable Particulate Matter (PM_{10})	Maximum state 24-hr concentration ($\mu g/m^3$)	**106**	**540**	**70**	Not Monitored			**119**	**1155**	**87**
	Maximum federal 24-hr concentration($\mu g/m^3$)	**109**	**559**	**82**				**125**	**1212**	**85**
	Days >50 $\mu g/m^3$ (state 24-hr. standard)	69	65	7				18	25	8
	Days >150 $\mu g/m^3$ (federal 24-hr. standard)	0	1	0				0	2	0
	Calculated >20 $\mu g/m^3$ (state annual standard)	52.7	57.0	44.8				N/A	N/A	N/A
	Calculated 3-year average $\leq$ 20 $\mu g/m^3$ (state annual standard)	53	57	57				37	37	N/A
Fine Particulate Matter ($PM_{2.5}$)	Maximum 24-hr. concentration (ug/m^3)	**68.4**	**75.6**	**53.3**	**55.3**	**68.5**	**42.9**	Not Monitored		
	Days >65 $\mu g/m^3$ (federal 24-hr. primary std.)[1]	32	33	7	9	8	2			
	Calculated >15 $\mu g/m^3$ (federal annual std.)	20.7	19.6	18.1	18.6	17.7	N/A			
	Calculated 3-year average $\leq$ 15 $\mu g/m^3$ (federal annual standard)	19	19	16.4	16.9	18.3	N/A			
Carbon Monoxide (CO)	Maximum 8-hr. concentration (ppm)	2.29	2.93	1.86	2.38	2.16	1.93	Not Monitored		
	Day > 9 ppm (state/federal 8-hr. standard)	0	0	0	0	0	0			
Nitrogen Dioxide (NO_2)	Maximum 1-hr. concentration (ppm)	0.076	0.072	0.092	Not Monitored			Not Monitored		
	Days >0.25 ppm (state 1-hr. standard)[2]	0	0	0						
	Calculated >0.0534 ppm (federal annual std)	0.020	0.020	0.019						
Sulfur Dioxide (SO_2)	Maximum 24-hr. concentration (ppm)	0.003	0.004	0.003	Not Monitored			Not Monitored		
	Days >0.04 ppm (state 24-hr. standard)	0	0	0						
	Days >0.14 ppm (federal 24-hr. standard)	0	0	0						
	>0.03 ppm (federal annual primary standard)	0.003	0.001	0.002						

Notes:
N/A = data not available ppm = parts per million $\mu g/m^3$ = micrograms per cubic meter **bold = exceedance of state or federal standard**
Source: SCAQMD Air Quality Data 2006-2008 California Air Quality Data Summaries 2006-2008, CARB (2009)
1. National 1-hour ozone standard revoked in all areas as of April 15, 2009
2. California measures its 24-hour PM_{10} standard using different methods than USEPA therefore 2 different concentrations are reported

Table 3.3-6
2008 Emission Inventory for Riverside County - South Coast Air Basin (Tons per Day)

Stationary Sources	TOG	ROG	CO	NO_X	SO_X	PM	PM_{10}	$PM_{2.5}$
Fuel Combustion	2.2	0.3	1.8	3.5	0.4	0.2	0.2	0.2
Waste Disposal	3.4	1.2	0	0.1	0	0.4	0.2	0
Cleaning And Surface Coatings	4.3	3.8	0	0	0	0.2	0.2	0.1
Petroleum Production And Marketing	2.4	2.3	-	-	0	-	-	-
Industrial Processes	2.5	2.3	0	0.1	0	4.5	2.6	1
*** Total Stationary Sources**	**14.8**	**10**	**1.9**	**3.7**	**0.4**	**5.2**	**3.1**	**1.4**
Areawide Sources	**TOG**	**ROG**	**CO**	**NO_X**	**SO_X**	**PM**	**PM_{10}**	**$PM_{2.5}$**
Solvent Evaporation	14.4	12.6	-	-	-	0	0	0
Miscellaneous Processes	40.7	4	10.8	2.2	0.1	77.8	38.6	7.2
*** Total Areawide Sources**	**55.1**	**16.7**	**10.8**	**2.2**	**0.1**	**77.8**	**38.6**	**7.2**
Mobile Sources	**TOG**	**ROG**	**CO**	**NO_X**	**SO_X**	**PM**	**PM_{10}**	**$PM_{2.5}$**
On-Road Motor Vehicles	25.9	23.4	264.5	57.4	0.3	3.2	3.2	2.3
Other Mobile Sources	14.4	13.3	70.2	22.7	0.1	1.5	1.5	1.3
*** Total Mobile Sources**	**40.3**	**36.7**	**334.6**	**80.1**	**0.3**	**4.8**	**4.7**	**3.7**
Natural (Non-Anthropogenic) Sources	**TOG**	**ROG**	**CO**	**NO_X**	**SO_X**	**PM**	**PM_{10}**	**$PM_{2.5}$**
Natural Sources	27.8	24.1	37.7	1.1	0.3	4	3.8	3.2
*** Total Natural (Non-Anthropogenic) Sources**	**27.8**	**24.1**	**37.7**	**1.1**	**0.3**	**4**	**3.8**	**3.2**
Total Riverside County In South Coast Air Basin	**138**	**87.4**	**385**	**87.2**	**1.2**	**91.8**	**50.3**	**15.4**

3.3.3 Environmental Consequences/Impacts

The fundamental approach to evaluating project-related air quality is to determine documented air quality conditions for the study area and assess the anticipated air quality impacts associated with the proposed project. The net increases and decreases in operational and construction air emissions are compared to the No Project Alternative and the PVL project for the opening year of 2012. The No Project Alternative includes air quality impacts of proposed I-215 highway improvements, as defined in the *Final Environmental Impact Statement: I-215 Improvements* (California Department of Transportation, 2001). However, in the case of the regional assessments, because required No Project Alternative and PVL project data are not available at this time, the evaluation approach involved only assessing the net increases and/or decreases in operational and construction air pollutant emissions.

The air quality analysis was prepared to conform to FTA, CARB, SCAQMD, and SCAG criteria. Investigation methods, modeling protocols, and conformity issues relating to air quality were developed, discussed, and reviewed with the responsible agencies as needed.

The methodology used to evaluate the operational and construction effects of the PVL is described below.

Construction-Period Impacts Methodology

Construction is a source of fugitive dust and exhaust emissions that can have substantial temporary impacts on local air quality causing exceedance of CAAQS for PM_{10} and/or $PM_{2.5}$. Dust emissions would result from earthmoving and use of heavy equipment, as well as land clearing, ground excavation, and cut-and-fill operations. Dust emissions can vary substantially from day to day, depending on the level of activity, the specific operations, and the prevailing weather. As the proposed PVL project would not involve extensive soils work, a major portion of dust emissions for the proposed project would be caused by construction traffic on temporary construction roadways. Construction emissions from vehicular exhaust would result from the movement and operation of vehicles related to construction activities. Emissions would be generated by both off-site and on-site activities. Off-site emission producing actives include construction work crews traveling to and from the work site. They also include on-road emissions from delivery trucks in addition to locomotive emissions from freight deliveries. On-site emission producing actives include the operation of off-road construction machinery and vehicles. Pollutants of interest with respect to construction exhaust emissions include CO, NO_x, ROC, SO_2, PM_{10}, $PM_{2.5}$ and the GHG CO_2.

In order to assess construction emissions, daily average emissions were calculated for all construction activities. These emissions were then compared to the SCAQMD daily construction emission pollutant thresholds shown above in Table 3.3-6. This reasonable worst-case construction day included installation of culverts, all road crossings and crossing improvements, embankment work, all track work, turnout work, stations (including parking areas where applicable) and the Layover Facility, Mapes Road construction, bridge replacement (including demolition and removal of existing bridges), noise barriers, landscape walls, and installation of signals and communication. For each activity, the duration of the activity, the number and types of construction equipment, and equipment horsepower were used as inputs to define daily emissions. Fuel type was assumed to be diesel, to assure a conservative analysis of particulate matter. The assessment assumed that low vehicle speeds and fugitive dust suppression

measures (application of dust palliatives, covering of dust piles, etc.) would be strictly enforced within the construction zones. As a result, fugitive dust emissions of particulate matter were assumed negligible. Key assumptions include:

- As the PVL project construction schedule is not available at this point in the project (30% engineering drawings), estimates of construction machinery/equipment and construction duration, work crew trip estimates and delivery estimates using best professional judgments from a senior railroad professional engineer are provided in Appendix D of Air Quality Technical Report B. Estimates are provided for each individual construction task.

- On-site emissions come from USEPA NONROAD2008 construction model emissions tables.

- The "Embankment Construction" is the only task with extensive soils work. Therefore, a fugitive dust analysis was conducted using the 2007 URBEMIS Construction Emissions Model (see Appendix D of Air Quality Technical Report B).

- No construction site would require the import/export of soil material.

- Although overall construction would be approximately 18 months, emissions estimates conservatively assume a peak construction year period for all construction activities.

- All construction activities are conservatively assumed to occur simultaneously.

- The use of a "Diesel Oxidation Catalyst" and "Aqueous Diesel Fuel" will be required for all non-road construction vehicles and equipment. This would reduce NO_x emission by 15%.

- No idling of off road machinery or trucks would be allowed, which would reduce emission of exhaust particulate matter.

This approach also assumes that process emissions (which include on-site soil movement as well as fugitive dust emissions) will be negligible (with the exception of Embankment Work) due to inclusion of dust control measures such as:

- Water shall be applied by means of truck(s), hoses and/or sprinklers as needed prior to any land clearing or earth movement to minimize dust emission. Haul vehicles transporting soil into or out of the worksite shall be covered.

- Water shall be applied to disturbed areas a minimum of two times per day or more as necessary.

- On-site vehicles limited to a speed of less than five mph.

- All visibly dry disturbed soil surface areas of operation shall be watered to minimize dust emission.

- Soil pile surfaces shall be moistened if dust is being emitted from the pile(s). Adequately secured tarps, plastic or other material shall be employed to further reduce dust emissions.

- SCAQMD Rule 1113 requires all facilities to use CARB-certified low-VOC paints during construction of commercial and industrial facilities. In accordance with that requirement, the project will include special conditions in its design-build specifications to require the following:

    - To the extent practicable, use required coatings and solvents with a VOC content lower than required under SCAQMD Rule 2113.

    - To the extent practicable, use non-VOC paints and architectural coatings.

- All paints shall be applied either by hand application or by using high-volume low-pressure spray equipment.

Other project control measures would include:

- The use of a "Diesel Oxidation Catalyst" and "Aqueous Diesel Fuel" will be required for all non-road construction vehicles and equipment. This would reduce NO_x emission by 15%.

- No idling of off-road machinery or trucks. Reduces exhaust PM.

Additions to the PVL project construction plans and documents shall be made for all control measures.

Analysis background material spreadsheet calculations, in addition to the URBEMIS model run, are included in Air Quality Technical Report B. Although not included in the SCAQMD construction threshold limits, emissions of the GHG CO_2 were calculated for the construction period to help give quantifiable estimate of the overall carbon footprint of the PVL project.

Operational-Period Impact Methodology

The operational air quality assessment associated with the proposed project includes the study of criteria pollutants, ozone precursors, MSATs and greenhouse gases. The emission of these pollutants can result in potential impacts on a local and/or regional level. Impacts from CO, particulate matter and MSATs can occur on a local and regional level while ozone precursors (ROC and NO_x) and greenhouse gases are primarily regional pollutants. These pollutants are primarily emitted via motor vehicle exhaust. Certain pollutants, MSATs (such as diesel particulate matter and acrolein) and SO_x are also emitted from the operation of diesel locomotives.

Regional Impact Analysis

The proposed project area is within the SCAB which is in nonattainment for ozone, $PM_{2.5}$ and PM_{10}. While a hot-spot analysis is not required for particulate matter, the region's nonattainment status prohibits the PVL from significantly contributing to particulate pollutant levels. The proposed project is also prohibited from significantly contributing to ozone pollutant levels.

Existing and future vehicle miles traveled (VMT) projections for the proposed project were not separately calculated for the PVL. However, projected PVL ridership data was available to make

engineering judgments about project related VMT reductions as shown in Appendix E of Air Quality Technical Report B. Therefore, the regional assessment involved estimating the net project-related emissions of CO, NO_x, ROC, SO_x, PM_{10} and $PM_{2.5}$ from motor vehicles. Emissions estimates were calculated within the project area for the 2012 project build year. Emissions estimates were based on project-related VMT traveling at average speeds within the PVL project traffic network. An approximation of reduced VMT (as shown in Appendix E of Air Quality Technical Report B) was calculated based on the assumption that the proposed PVL service would replace single passenger vehicles driving from South Perris to Riverside to connect to SCRRA/Metrolink service. It is also considered that the South Perris to Los Angeles service is in addition to and not replacing any existing service. Therefore the emissions for the time of the entire trip to LA must be accounted for. The resulting diversion from private car use to PVL ridership is estimated to reduce VMT by approximately 34 million miles per year in the project area. This estimate includes vehicle miles traveled from private homes to the proposed stations. An average motor vehicle travel speed of 30 mph was assumed. Emission factors were determined by using the CARB emission factor model EMFAC2007 v2.3.

Regional emissions of CO, NO_x, ROC, SO_2, PM_{10} and $PM_{2.5}$ from PVL diesel locomotives scheduled to operate within the project area in the year 2012 were calculated based on a technical guidance from the USEPA. This USEPA technical memo provides diesel locomotive emission factors and methods to calculate daily project emissions, based on estimated daily usage for the locomotives.

Greenhouse Gas Emissions

GHGs are considered to contribute to global warming by absorbing infrared radiation and trapping heat in the atmosphere. Because this is a global effect, it is difficult to ascertain the effects from an individual project. While there are many types of greenhouse gases, the most prevalent contributors to the greenhouse effect in the Earth's atmosphere are water vapor, carbon dioxide (CO_2) (53 percent), methane (CH_4) (17 percent), near-surface ozone (O_3) (13 percent), nitrous oxide (N_2O) (12 percent), and chlorofluorocarbons (CFCs) (5 percent). Carbon dioxide is the greenhouse gas most closely linked to passenger car and light truck emissions and recent studies have shown that carbon dioxide (CO_2) accounted for approximately 84 percent of total GHG emissions in the state of California. Worldwide, the State of California ranks between the 12^{th} to 16^{th} largest emitter of CO_2 (the most prevalent GHG) and is responsible for approximately two percent of the world's CO_2 emissions (CEC, 2006). Since CO_2 is the most abundant greenhouse gas in the project area, it is assumed that a reduction in CO_2 will indicate a reduction in the less prominent greenhouse gases.

According to a recent paper by the Association of Environmental Professionals (Hendrix and Wilson, 2007), an individual project does not generate enough GHGs to significantly influence global climate change; rather, global climate change is a cumulative effect. However, for this project, some baseline quantification of the opportunity to switch from private vehicle to the PVL was prepared to demonstrate the regional benefits that would accrue with the PVL. The CO_2 emissions from the operation of the diesel locomotives is estimated based on national usage data for commuter rail and compared to the reduction in CO_2 emissions expected from the diverted ridership to the PVL.

As mentioned above for the regional pollutant assessment, projections of VMT were not separately prepared for this analysis, and assumptions regarding the operation of the proposed

project were made, as detailed above. The same procedure described above for the regional impact analysis was used for the assessment of GHGs.

Local Impact Analysis

Carbon Monoxide Modeling Protocol—Screening Procedure

The California Department of Transportation, in coordination with the University of California, Davis, Institute of Transportation Studies, has developed the *Transportation Project-Level Carbon Monoxide Protocol* (California Department of Transportation, Garza et al., 1997). This CO Protocol details a qualitative step-by-step screening procedure to determine whether project-related CO concentrations have a potential to generate new air quality violations, worsen existing violations, or delay attainment of NAAQS for CO. If the screening procedure reveals that such a potential may exist, then the CO Protocol details a quantitative method to ascertain project-related CO impacts. FTA has no separate guidance for assessing CO impacts. Based on this protocol, a potential for air quality impacts was determined to exist and further analysis was required.

Carbon Monoxide Modeling Protocol—Intersection Analysis

Within an urban setting, vehicle exhaust is the primary source of CO emissions. Consequently, the highest CO concentrations are generally found within close proximity to congested intersection locations (LOS D or worse). Under typical meteorological conditions, CO concentrations tend to decrease as the distance from the emissions source (i.e., congested intersection) increases. For purposes of providing a conservative, worst-case impact analysis, CO concentrations are typically analyzed at congested intersection locations, because if impacts are less than significant in close proximity of the congested intersections, impacts would also be less than significant at more distant sensitive receptor locations.

The SCAQMD recommends a hot-spot evaluation of potential localized CO impacts when volumes-to-capacity ratios are increased by two percent at intersections with a Level-of-Service (LOS) of C or worse. Based on these criteria, four intersections were selected for analysis based on information provided in the *Perris Valley Line Commuter Rail Traffic Technical Report* (STV Incorporated, 2010) to this SEA as presented in Technical Report D. The selected locations were at the proposed Downtown Perris Station site, where a large amount of parking is expected to be located and, thus, a significant number of vehicle trips would be expected to be generated. The traffic analyses did not include grade crossing locations since the project would operate with twelve trains per day and only one train daily during the peak traffic hours. Moreover, it was determined that the delay to vehicular traffic due to peak hour crossing closings would not be any more disruptive to traffic operations than a single red phase of a typical traffic signal (30-40 seconds), which would not be considered significant.

Local area CO concentrations were projected using the CAL3QHC line-source dispersion model. The analysis of CO impacts followed the protocol recommended by the California Department of Transportation, as detailed in their publication *Transportation Project-Level Carbon Monoxide Protocol* (California Department of Transportation, Garza et al., 1997). It is also consistent with procedures identified through the SCAQMD's CO modeling protocol, with all four corners of each intersection analyzed to determine whether project development would result in a CO concentration that exceeds federal or state CO standards.

Carbon Monoxide - Parking Lot Analysis

In addition to congested intersection locations, proposed parking lot locations were also evaluated for CO hot spots. There would be four stations with parking lots. Lot size would range from approximately 440 spaces (Downtown Perris Station) to 880 spaces (South Perris Station). For purposes of providing a conservative, worst-case impact analysis, CO concentrations were evaluated for the largest parking lot (880 spaces), because if impacts are less than significant at the largest parking lot location, impacts would also be less than significant at each of the smaller parking lot locations. Although the parking lot with the largest amount of vehicles was analyzed (South Perris), the screening distance of the lot closest to sensitive receptors (Downtown Perris) was used to model the pollutant concentration.

The parking lot CO hot spot analysis considered emissions from all three vehicular emissions categories: engine start, idle time, and vehicle miles of travel. Emissions factors were ascertained using EMFAC2007 emissions model. Dispersion modeling was conducted using the USEPA SCREEN3 model, using EMFAC2007-generated emissions factors. EMFAC2007 emissions factors and detailed emissions calculation worksheets are provided in Appendix B of Air Quality Technical Report B.

Sensitive Receptors

Some land uses are considered more sensitive to changes in air quality than others, depending on the types of population groups exposed and the activities involved. According to CARB, air pollution has an adverse effect on four primary groups of people: (1) children under 14 years of age, (2) the elderly over 65 years of age, (3) athletes, and (4) people with cardiovascular and chronic respiratory diseases. These groups are classified as sensitive receptors. Locations that may contain a high concentration of these sensitive population groups include hospitals, daycare facilities, elder care facilities, elementary schools, and parks. For the proposed PVL project, the sensitive receptors closest to the alignment are:

- Highland Elementary School - located approximately 46 meters (150 feet) east of the alignment near the intersection of Watkins Drive and Blaine Street near the campus of UC-Riverside
- Highland Park - located approximately 26 meters (85 feet) east of the alignment
- UC-Riverside Child Development Center - located approximately 38 meters (125 feet) west of the alignment in Riverside
- Hyatt Elementary School - located in the Box Springs area near Watkins Drive approximately 152 meters (500 feet) west of the alignment
- Nan Sanders Elementary School - located approximately 38 meters (125 feet) west of the alignment in Perris
- City of Perris Senior Center – located approximately 24 meters (80 feet) east of the alignment in Perris

None of these sensitive receptors are located near the intersections that are projected to have the most potential for future congestion, as identified in Traffic Technical Report D. In addition, these receptors would not be close to any of the proposed parking lots. Potential air quality impacts at sensitive receptor locations with respect to both intersections and parking lots are discussed below.

An analysis of the potential for impact to sensitive receptors is performed in circumstances where CO pollution could be expected to occur, such as at parking facilities where extensive idling could occur and at intersections where a large volume of automobiles and trucks could be expected. At the intersections identified in the traffic analysis (refer to Traffic Technical Report D) as having the potential for most future congestion, the *Guideline for Modeling Carbon Monoxide from Roadway Intersections* (USEPA, 1992) was used to determine receptor locations on sidewalks and near discrete sensitive receptor locations. Consequently, the CO hot spot analysis evaluated the potential impacts to these sensitive receptors and calculated pollutant concentrations. Pollutant concentrations decrease as distance from the pollutant source to a receptor increases; therefore, if the analysis determined that there would be a less than significant impact at the sensitive receptors closest to the congested intersection, then it is expected that impacts to receptors located further away from these intersections (such as the sensitive receptors listed above) would also be less than significant and would not require analysis. As mentioned above, none of the specific sensitive receptors listed above would be near any of these congested intersections.

In addition to the intersection analysis, an assessment of sensitive receptors near the proposed PVL station parking lots was also conducted. The assessment identified residential receptors located close to the proposed station parking lots. Specifically, the parking lot for the proposed commuter rail station at Palmyrita Avenue (one of the Hunter Park Station options) would be located approximately 35 meters (115 feet) south and east of residences, while the Downtown Perris Station would be located approximately 65 meters (215 feet) east of a row of homes. At these locations where receptor distances are nearest to the pollutant source, as shown previously in the Parking Lot Analysis, the proposed station parking lots are not expected to generate significant CO concentrations, and a less than significant impact would occur. Other receptors located even further away (such as St. James Catholic School and Perris Elementary School in Perris) would also experience less than significant impacts.

In addition to potential impacts from intersections and parking lots, a health risk assessment with respect to diesel emission from PVL locomotive operations was also considered. Emission would be from trains traveling along the alignment as well as those idling temporarily within layover yards. As a result, air quality modeling was conducted to predict maximum concentrations of air toxic pollutants. Based on these predicted concentrations, the resulting assessment indicated that the “health risk” to sensitive receptors within the project corridor would be substantially below the SCAQMD threshold of significance. Therefore, the potential health risk from train operations would be less than significant.

$PM_{2.5}$ and PM_{10} Evaluation Protocol—Screening Procedure

In March 2006, USEPA issued a guidance document titled *Transportation Conformity Guidance for Qualitative Hot-spot Analyses in $PM_{2.5}$ and PM_{10} Nonattainment and Maintenance Areas*. This guidance details a qualitative step-by-step screening procedure to determine whether

project-related particulate emissions have a potential to generate new air quality violations, worsen existing violations, or delay attainment of NAAQS for $PM_{2.5}$ or PM_{10}.

The proposed project is in an area designated as nonattainment for PM_{10} and $PM_{2.5}$. According to the most recent USEPA Transportation Conformity Guidance, a $PM_{10}/PM_{2.5}$ hot-spot analysis is required for POAQC in non-attainment areas (40 CFR 93.123 (b) (1)). Projects that are exempt under 40 CFR 93.126 or not POAQC do not require hot-spot analysis.

The proposed project does not meet the criteria of an exempt project under 40 CFR 93.126. However, the USEPA specifies in 40 CFR 93.123(b) (1) that only projects considered POAQC are required to undergo a $PM_{10}/PM_{2.5}$ hot-spot analysis. USEPA defines projects of air quality concern as certain highway and transit projects that involve significant levels of diesel traffic or any other project that is identified by the $PM_{2.5}$ SIP as a localized air quality concern. A discussion of the proposed PVL compared to POAQC, as defined by 40 CFR 93.123(b) (1), is provided below:

1. New or expanded highway projects with greater than 125,000 annual average daily traffic (AADT) and 8 percent or more of such AADT is diesel truck traffic. The proposed project is not a new or expanded highway project.

2. New or expanded highway projects affecting intersections that are at Level of Service (LOS) D, E, or F with a significant number of diesel vehicles or those that will change to LOS D, E, or F because of increased traffic volumes from a significant number of diesel vehicles related to the project. The proposed project is not a new or expanded highway project.

3. New bus and rail terminals and transfer points that have a significant number of diesel vehicles congregating at a single location. Although the proposed project has a rail terminal component, it would not alter travel patterns to/from any existing bus or rail terminal.

4. Expanded bus and rail terminals and transfer points that significantly increase the number of diesel vehicles congregating at a single location. Although the proposed project would expand service to an existing commuter rail terminal (Riverside Downtown Station), it would not increase the number of diesel vehicles congregating at any single location. In addition, the proposed Layover Facility in South Perris would only accommodate a maximum of four SCRRA/Metrolink trains. These trains would receive overnight light maintenance (cleaning, inspection etc.). Heavy maintenance of these vehicles requiring excessive engine idling would be done at an existing off-site SCRRA/Metrolink facility.

5. Projects in or affecting locations, areas, or categories of sites that are identified in the $PM_{2.5}$ and PM_{10} applicable implementation plan or implementation plan submission, as appropriate, as sites of violation or possible violation. The project site is not in or affecting an area or location identified in any $PM_{2.5}$ or PM_{10} implementation plan. The immediate project area is not considered to be a site of violation or possible violation.

Based on the discussion provided above, the proposed project would not be considered a POAQC with respect to PM_{10} or $PM_{2.5}$ emissions as defined by 40 CFR 93.123(b) (1). Therefore,

a $PM_{10}/PM_{2.5}$ hot-spot evaluation is not required, and the proposed project can be screened from further analysis.

An Interagency Consultation project review form for $PM_{2.5}$ and PM_{10} hot spot concurrence is required to be submitted to the SCAG Transportation Conformity Working Group (TCWG) for concurrence with this finding prior to final project approval. On April 16, 2010, the SCAG TCWG determined that the PVL was not a POAQC (http://www.scag.ca.gov/tcwg/projectlist/march10.htm).

Mobile Source Air Toxics—Screening Procedure

The FHWA has issued interim guidance on how MSATs should be addressed for highway projects and has subsequently developed a tiered approach for analyzing them. FTA has no separate guidance. Depending on the specific project circumstances, FHWA has identified three levels of analysis:

1. No analysis for exempt projects or projects with no potential for meaningful MSAT effects,

2. Qualitative analysis for projects with low-potential MSAT effects, or

3. Quantitative analysis to differentiate alternatives for projects with higher potential MSAT effects.

For the PVL, the amount of MSATs emitted would be proportional to the amount of project-related rail activity, assuming that other variables (such as traffic and rail activity not associated with this project) would remain the same. The rail activity estimated for the proposed project would be higher than that for the no-action condition, because of the additional activity associated with the proposed rail line extension. This increase in rail activity would mean that the twelve daily train trips between Riverside and Perris would result in MSAT emissions (particularly diesel particulate matter) in the vicinity of the SJBL alignment. The higher emissions could be offset somewhat by two factors: 1) the decrease in regional automobile commuter traffic due to increased use of commuter rail; and 2) increased speeds on area highways due to the decrease in automobile traffic (according to USEPA's MOBILE6 emissions model, emissions of all of the priority MSATs except for diesel particulate matter decrease as speed increases). However the extent to which these emissions decreases would offset the project-related emissions increases is difficult to determine.

In addition, even with the PVL in place, emissions would likely be lower than present levels in the design year as a result of USEPA's national control programs that are projected to reduce MSAT emissions by 57 to 87 percent from 2000 to 2020. Local conditions may differ from these national projections in terms of fleet mix and turnover, VMT growth rates, and local control measures. However, the USEPA-projected reductions are so significant (even after accounting for VMT growth) that MSAT emissions in the study area are likely to be lower in the future as well. Therefore the PVL has a low-potential for impacts from MSATs and falls under category (2) of the FHWA guidance above and only requires a qualitative assessment.

Mobile Source Air Toxics—Health Risk Assessment

To estimate the localized MSAT effect of the new train service, a health risk assessment will be conducted following CEQA air quality guidelines. This health risk assessment takes into account the effects of TACs on human health. Diesel $PM_{2.5}$ and $PM_{10,}$ and acrolein were selected for analysis as they would be the primary MSAT pollutants emitted by diesel train exhaust and are identified by the USEPA as in the group of priority MSATs. This assessment calculates a health risk index based on the emission factors of the existing SCRRA/Metrolink diesel locomotives as well as the running and idle times of the engines. SCAQMD, in its CEQA Air Quality Handbook, identifies an excess individual cancer risk of one in one million to be a minimal and risk levels up to ten in one million are considered less than significant. The chronic hazard indexes for these two toxics are also calculated to determine the likelihood of chronic health effects due to exposure. As shown above in Table 3.3-3, per SCAQMD, a hazard index less than 1.0 is considered less than significant.

Impact Assessment

Regional Emissions

Table 3.3-7 shows the air quality impacts that would occur during operation of the proposed PVL, with the following operational characteristics. The proposed project would operate 12 one-way trains (four from Perris to LA and one from LA to Perris in the morning peak; one roundtrip from LA to Perris to LA midday; four from LA to Perris and one from Perris to LA in the afternoon/evening). This schedule is executed using six train sets featuring F59PHI locomotives, which are currently used by SCRRA/Metrolink. Four of the trains would layover at South Perris to fulfill the morning schedule, while two train sets would reside at LA Union Station to perform the AM and midday schedule out of LA Union Station. The operational analysis includes the incremental increase in train service over the approximately 168-mile round trip route between South Perris and LA Union Station. In addition, the operational air quality impacts analysis includes the four new stations anticipated to be in service during the initial operation, plus Riverside Downtown Station which is already in service. SO_x emissions were calculated by assuming operational times based on the proposed schedule and use of ultra-low sulfur diesel (ULSD) fuel which will be used exclusively by 2012 as mandated by USEPA. The operational emissions of the trains are based on fuel consumption during the entire trip from South Perris to LA Union Station, and thus include fuel consumed during the train's running and idling phases. Appendix E of Air Quality Technical Report B details the calculation.

The proposed PVL project would result in decreased emissions of carbon monoxide, volatile organic compounds, SO_x $PM_{2.5}$ and PM_{10}. Nitrogen oxide emissions would increase, but the increase would be less than significant. With the reductions in these pollutants, the proposed project would produce a cumulative net benefit to the region's air quality. As rail passenger ridership increases over time and the diesel engines continue to meet EPA's more stringent emission standards, there would be ongoing and increasing air quality benefits.

It is also important to note that the proposed project is included in SCAG's 2008 Adopted RTIP (Project ID RIV520109), as shown in Appendix A of Air Quality Technical Report B. Its presence in the RTIP shows that the project's operational emissions meet the transportation conformity requirements imposed by USEPA and SCAQMD.

Table 3.3-7
2012 Net Change in Operational Emissions (in pounds per day)

Source Category	Pollutant					
	Sulfur Oxides (SO_x)	Carbon Monoxide (CO)	Reactive Organic Compounds (ROC)	Oxides of Nitrogen (NOx)	Particulate Matter (PM_{10})[1]	Fine Particulates ($PM_{2.5}$)[1]
Train Emissions[2]	0.1	30	6	114	4	4
Vehicular Emissions Reduced	1	1227	26	73	8	8
NET PROJECT EMISSIONS	-1	- 1197	- 20	41	- 4	- 4
SCAQMD Significance Thresholds for Operation	150	550	55	55	150	55
Significant (Yes/No)	No	No	No	No	No	No

Notes: Vehicular Emissions assessed with EMFAC2007, V2.2, July 15, 2009 for summertime.
1. $PM_{2.5}$ emissions calculated consistent with methodology provided in the SCAQMD guidance document Particulate Matter (PM) 2.5 Significance Thresholds and Calculation Methodology (2006).
2. Assumes 6 F59PHI diesel engines (meeting USEPA Tier 2 emission standards) each operating one 168 mile round trip per day between South Perris and L.A.
3. NO_x is primarily a regional pollutant so localized impacts from parking lot operations would be less than significant.

Source: STV Incorporated. (2010).

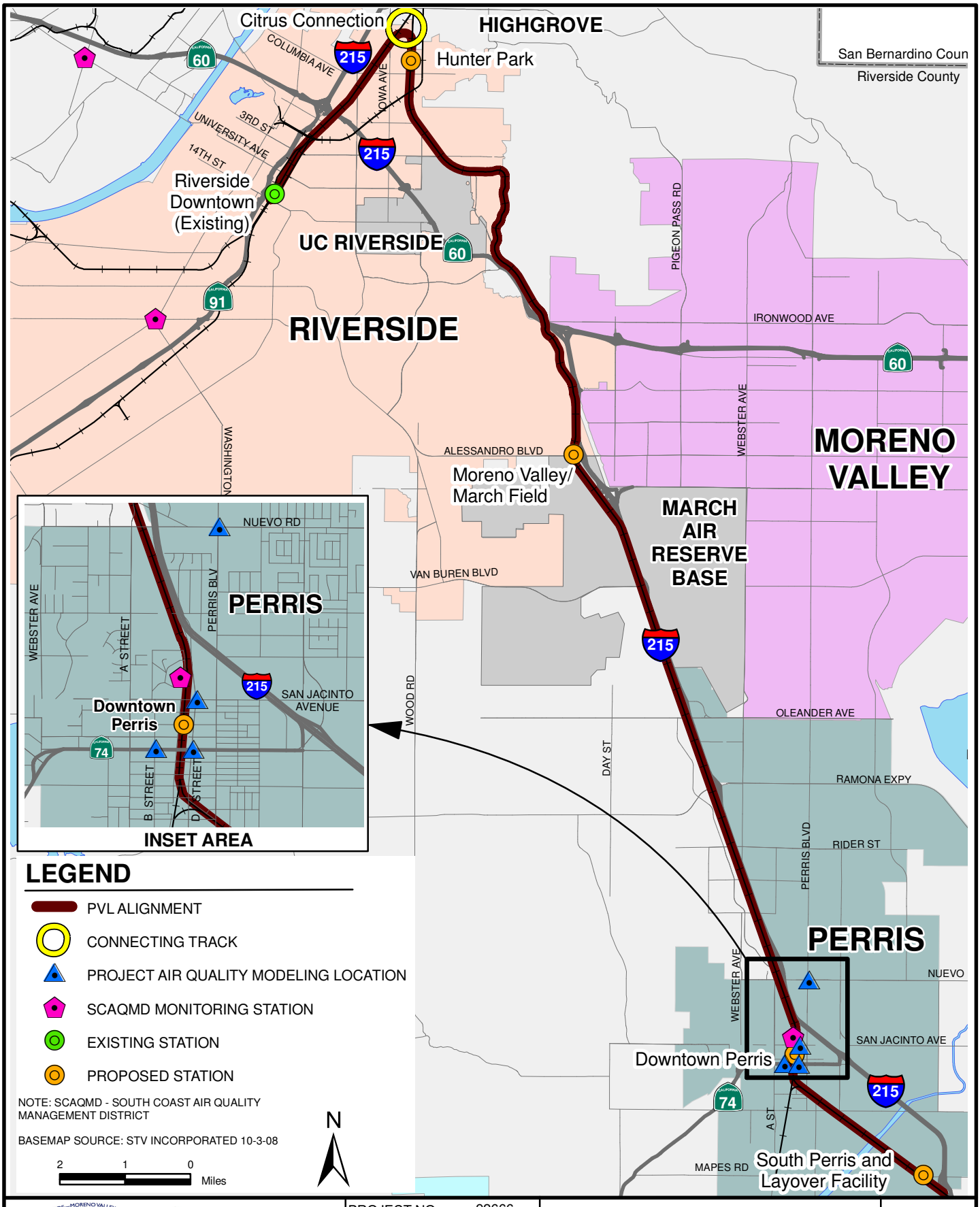
Localized Emissions

Carbon Monoxide - Intersection Analysis

Figure 3.3-1 shows the location of the intersections chosen for microscale air quality analysis. The project's CO concentrations for AM and PM peak hour periods (one- and eight-hour) are provided in Table 3.3-8 (opening year 2012 concentrations). As shown in this table, the project would not have a significant impact upon one-hour or eight-hour local CO concentrations due to mobile source emissions.

Because significant impacts would not occur at the intersections with the highest traffic volumes located adjacent to sensitive receptors, no significant impacts are anticipated to occur at any other locations in the study area because the conditions yielding CO hotspots would not be worse than those occurring at the analyzed intersections. Consequently, the sensitive receptors included in this analysis would not be significantly affected by CO emissions generated by the net changes in traffic that would occur with the project. Because the project does not cause an exceedance or exacerbate an existing exceedance of an AAQS, the project's localized operational air quality impacts would therefore be less than significant. No mitigation measures are necessary.

This Page Intentionally Left Blank



PROJECT NO.	92666
DRAWN:	1/12/10
DRAWN BY:	JP
CHECKED BY:	RM
FILE NAME:	92666scaqmd.MXD

AIR QUALITY MONITORING AND MODELING LOCATIONS

SUPPLEMENTAL ENVIRONMENTAL ASSESSMENT
RIVERSIDE COUNTY TRANSPORTATION COMMISSION
PERRIS VALLEY LINE
RIVERSIDE, CALIFORNIA

FIGURE
3.3-1

Table 3.3-8
Local Area Carbon Monoxide Dispersion Analysis

Location	Peak Period[a]	2008					
		Maximum 1-Hour Base Concentration (ppm) [b]	Maximum 1-Hour With-Project Concentration (ppm) [c]	Significant 1-Hour Impact? [d]	Maximum 8-Hour Base Concentration (ppm) [e]	Maximum 8-Hour With-Project Concentration (ppm) [f]	Significant 8-Hour Impact? [d]
C St. @ 4th St.	AM	4.3	4.3	No	3.1	3.1	No
	PM	4.4	4.4	No	3.2	3.2	No
D St. @ 4th St.	AM	4.2	4.2	No	3.0	3.0	No
	PM	4.4	4.4	No	3.2	3.2	No
D St.@ San Jacinto Avenue	AM	4.1	4.1	No	3.0	3.0	No
	PM	4.4	4.4	No	3.2	3.2	No
Perris Blvd @ Nuevo Road	AM	4.5	4.5	No	3.3	3.3	No
	PM	4.7	4.7	No	3.4	3.4	No

Notes:
CAL3QHC dispersion model output sheets and EMFAC 2007 emission factors
ppm = parts per million
[a] Peak hour traffic volumes are based on the Traffic Technical Report prepared by STV Incorporated, 2010.
[b] SCAQMD 2012 1-hour ambient background concentration (4.1 ppm) + 2012 base traffic CO 1-hour contribution.
[c] SCAQMD 2012 1-hour ambient background concentration (4.1 ppm) + 2012 with-project traffic CO 1-hour contribution.
[d] The state standard for the 1-hour average CO concentration is 20 ppm, and the 8-hour average concentration is 9.0 ppm.
[e] SCAQMD 2012 8-hour ambient background concentration (2.9 ppm) + 2012 base traffic CO 8-hour contribution.
[f] SCAQMD 2012 8-hour ambient background concentration (2.9 ppm) + 2012 with-project traffic CO 8-hour contribution.

Carbon Monoxide - Parking Lot Analysis

The analysis of parking lot conditions was prepared to assess the potential impacts to individuals from "cold start" emissions. Emissions from "cold starts" are those that could occur when peak hour riders, in this case, return to their vehicles from the train. This would occur during the evening peak periods for the PVL. The pollutant of concern is CO. NO_x is primarily a regional pollutant so localized impacts from parking lot operations would be less than significant.

The largest project parking lot, at South Perris was evaluated, and if impacts were to be identified at this location, then the next largest parking lot would be evaluated as well. If no impacts were identified, then none of the other parking lots would result in impacts. To prepare the parking lot analysis, a key modeling assumption was to place sensitive receptors around the proposed 880-space parking lot perimeter, set back at a model default distance of 25 meters. This assumption is conservative, as there are no sensitive receptors within 200 meters of the proposed parking lot at South Perris.

Based on the above-described approach, the maximum off-site CO concentration at any sensitive receptor location was determined to be 7.9 parts per million and 5.6 parts per million

for the one-hour and eight-hour averaging periods, respectively. These maximum concentrations occurred at a distance of 100 meters from the proposed parking lot. At the model default distance of 25 meters, the one-hour and 8 hour-concentrations were 7.2 and 5.0 parts per million respectively, as shown in Table 3.3-9. These worst-case concentrations are below the NAAQS of 35 parts per million and 9 parts per million for the one-hour and eight-hour averaging periods, respectively. They are also below the CAAQS one-hour concentration not exceeding 20 parts per million (ppm), and the eight-hour concentration of nine ppm. Accordingly, the project's localized operational air quality impacts would be less than significant. No mitigation measures are necessary.

Table 3.3-9
Parking Lot Carbon Monoxide Analysis

Parking Lot	1-Hour Concentration (ppm)	Significant Impact?		8-Hour Concentration (ppm)	Significant Impact?	
		CAAQS (20 ppm)	NAAQS (35 ppm)		CAAQS (9 ppm)	NAAQS (9 ppm)
South Perris Station	7.2	No	No	5.0	No	No
Concentrations measured at model default distance of 25 meters CAAQS = California Ambient Air Quality Standards NAAQS = National Ambient Air Quality Standards						

PM_{10} and $PM_{2.5}$

Based on the criteria listed in *Transportation Conformity Guidance for Qualitative Hot-spot Analyses in $PM_{2.5}$ and PM_{10} Nonattainment and Maintenance Areas*, the proposed project would not be considered a POAQC with respect to PM_{10} or $PM_{2.5}$ emissions as defined by 40 CFR 93.123(b) (1). The steel on steel interaction between the train wheels and the rails is not expected to cause any fugitive dust. Therefore, a PM_{10}/$PM_{2.5}$ hot-spot evaluation is not required, and the proposed project can be screened from further analysis.

An Interagency Consultation project review form for $PM_{2.5}$ and PM_{10} hot spot concurrence is required to be submitted to the SCAG TCWG for concurrence with this finding prior to final project approval. On April 16, 2010, the SCAG TCWG determined that the PVL was not a POAQC (http://www.scag.ca.gov/tcwg/projectlist/march10.htm).

Mobile-Source Air Toxics

The FHWA has established interim guidance for analyzing the potential effect of MSATs. FTA currently has no guidance on this topic. This guidance stipulates that a qualitative assessment be performed for highway related projects that establish a low-potential for MSAT effects. Based on this guidance document, the proposed project falls under category (2) above, projects with low potential MSAT effects. As such, a qualitative MSAT analysis utilizing a health risk assessment is provided for diesel exhaust particulates and acrolein.

The results of the health risk assessment are shown in Table 3.3-10. The health risk assessment is presented in full detail in Appendix C of Air Quality Technical Report B. Per the SCREEN3 modeling program, the maximum concentrations of these pollutants occurs at a distance of 25 meters from the source.

Table 3.3-10
Calculated Risk at Point of Greatest Concentration

Pollutant	Risk Factor	Maximum Concentration ($\mu g/m^3$)[1]	Calculated Risk (Health Index - HI)	Threshold of Significance
Diesel Exhaust Particulate	Excess Lifetime Cancer Risk	0.01078	3.235/million	10/million
Diesel Exhaust Particulate	Chronic Hazard	0.01078	HI = 0.002	HI = 1.0
Acrolein	Acute Hazard	0.005055	HI = 0.004	HI = 1.0

Source: SCAQMD CEQA Air Quality Handbook, STV Incorporated (2010)
1. Represents the maximum calculated pollutant concentrations.

The additional commuter rail activity contemplated as part of the PVL would have a negligible effect on diesel particulate matter or acrolein emissions in the vicinity of nearby homes, schools and businesses along the PVL alignment. As locomotive diesel engines continue to meet USEPA's more stringent TIER3 emission standards, there would be ongoing and increasing air quality benefits. In addition, on a region-wide basis, USEPA's vehicle and fuel regulations, coupled with fleet turnover, would cause substantial reductions over time so that in almost all cases, the MSAT levels in the future would be significantly lower than today.

Greenhouse Gas Emissions

On February 16, 2010, the Office of Administrative Law filed with the Secretary of State the amendments to the CEQA Guidelines providing guidance regarding the analysis of GHGs in CEQA documents. The amendments, which were approved by the Natural Resources Agency in December 2009 pursuant to Senate Bill (SB) 97, became effective on March 18, 2010. The amendments are intended to minimize inconsistencies in the analysis of GHG going forward and to provide CEQA lead agencies with guidance on the evaluation of GHG emissions and their associated impacts. Specifically, the new Guidelines confirm that the method of analysis is left to the sound discretion of the lead agency (CEQA Guidelines §15064.4). Additionally, the new guidelines confirm that a lead agency may use either a quantitative analysis or a qualitative analysis in determining whether a project may have a potentially significant impact on climate change (CEQA Guidelines §15064.4). The analysis required by RCTC includes both quantitative and qualitative elements. The results of the quantitative portions of this assessment are shown in Table 3.3-11. Moreover, and as permitted by the revised CEQA Guidelines and Appendix G, RCTC has determined that the analysis of GHGs and Climate Change is more appropriate included in the Air Quality Section 3.3. Accordingly, this analysis fully complies with the newly revised state CEQA Guidelines.

In accordance with the CEQA Guidelines, a qualitative assessment of GHG emissions was performed. The results of the assessment are shown below in Table 3.3-11.

Table 3.3-11
Greenhouse Gas Qualitative Assessment

Pollutant Source	CO_2 pounds/day
Diesel Locomotives	11,400
Passenger Vehicles	158,000
Net change in CO_2	-146,600

The existing and future VMT projections for the proposed project were not available. Therefore an approximation of reduced VMT (as shown in Appendix E of Air Quality Technical Report B) was calculated based on the assumption that the proposed PVL service would replace the single passenger vehicles driving from South Perris to Riverside to connect to the existing rail service. The diversion from private car use to PVL ridership is estimated to reduce VMT by approximately 34 million miles per year in the project area. This estimate includes VMT from private homes to the proposed stations. Based on emission factors from EMFAC2007 in the project operation year of 2012, the reduction in VMT was calculated to result in decreased CO_2 emissions of about 160,000 lbs per day. As CO_2 is the most abundant GHG found in automobile emissions, a reduction in CO_2 indicates a reduction in the less prominent exhaust based GHGs. Therefore, it is unlikely that the proposed PVL project operations would increase the GHG burden in the region, but would likely result in a quantifiable reduction in GHG.

Summary of Impacts

The proposed PVL project would reduce some long-distance trip-making that now occurs via automobile, resulting in a corresponding improvement in air quality. Although the total amount of air quality improvement is small compared to the region, the introduction of commuter rail service provides an ongoing opportunity for reducing automobile trips. The proposed rail service would result in a net decrease in CO, ROC, and NO_x emissions. In addition, SCRRA/Metrolink will be replacing engines over time and the next generation would meet USEPA TIER3 requirements, which have lower emission characteristics than the current fleet. As these new engines are incorporated into the fleet, air quality benefits would increase.

Riverside County and the study corridor are forecasted to have substantial increases in population and employment over the coming decades. The general result of such growth would be increased travel on the existing roadway network, demand for additional capacity on those existing facilities, demand for new roadways, as well as additional demand for transit services. The cumulative impacts of increased transportation demands would likely be degradation of air quality as the volume of travel continues to expand, conversion of land use from agriculture/vacant to residential and commercial development, a corresponding reduction of habitats as land uses change, and increased demands on public facilities.

Construction Period Air Quality Evaluation

As shown in Table 3.3-12, based upon the evaluation of the reasonable worst-case construction day, the construction of the PVL would not result in exceedances of the SCAQMD CEQA daily

construction emission limits. Significant adverse impacts would not occur; nonetheless, best management practices are recommended following to control localized emissions.

Table 3.3-12
PVL Predicted Daily Construction Emissions (lbs)

	CO	NO_X	PM_{10}	$PM_{2.5}$	VOC	SO_X
PVL Total Emissions	40	88	49	15	8	2
SCAQMD Construction Emission Limits	550	100	150	55	75	150
Significant (Yes/No)	No	No	No	No	No	No

In accordance with the CEQA Guidelines, a qualitative assessment of CO_2 emissions was performed. The results of the assessment indicate that emissions created by construction activities would total approximately 10,083 lbs per day during the construction period. This estimate coupled with the net decrease in operational emissions of 160,000 lbs per day indicates that the implementation of the proposed PVL project would not result in increases in CO_2 pollutant emissions.

Construction Best Management Practices

During the construction period, contractors would be required to implement Best Management Practices (BMPs) to control fugitive dust emissions in accordance with SCAQMD Rule 403. In addition to these regulatory requirements, the following construction-phase air quality BMPs would also apply and be included in RCTC contract documents:

- All land clearing/earth-moving activity areas shall be watered to control dust as necessary to remain visibly moist during active operations.
- Streets shall be swept as needed during construction, but not more frequently than hourly, if visible soil material has been carried onto adjacent public paved roads.
- Construction equipment shall be visually inspected prior to leaving the site and loose dirt shall be washed off with wheel washers as necessary.
- Water three times daily or apply non-toxic soil stabilizers, according to manufacturers' specifications, as needed to reduce off-site transport of fugitive dust from all unpaved staging areas and unpaved road surfaces.
- Traffic speeds on all unpaved roads shall not exceed 5 mph.
- All equipment shall be properly tuned and maintained in accordance with manufacturer's specifications.
- Contractors shall maintain and operate construction equipment so as to minimize exhaust emissions. During construction, trucks and vehicles in loading and unloading queues would have their engines turned off when not in use, to reduce vehicle emissions.

- Establish an on-site construction equipment staging area and construction worker parking lots, located on either paved surfaces or unpaved surfaces subject to soil stabilization.

- Use electricity from power poles, rather than temporary diesel or gasoline powered generators.

- Use on-site mobile equipment powered by alternative fuel sources (i.e., ultra-low sulfur diesel, methanol, natural gas, propane or butane).

- Develop a construction traffic management plan that includes, but is not limited to: (1) consolidating truck deliveries (2) utilizing the existing rail freight line for materials delivery.

- Construction grading on days when the wind gusts exceed 25 miles per hour would be prohibited to control fugitive dust.

With application and compliance with the construction-period mitigation measures, potential impacts during construction would be less than significant. By such avoidance, impacts would be less than significant.

Summary of Construction Period Impacts

The overall potential for air quality impacts to be cumulatively significant is reduced because the proposed project would comply with state and regional air quality requirements that construction projects mitigate their individual impacts to less than significant levels, based on their forecasted construction schedule and levels of activity. Traffic and construction data pertaining to the construction of the other projects is a requirement for a quantitative assessment of cumulative impacts. However, it is assumed that concurrent projects are following the same construction BMPs or are included in the RTIP (in which the impacts of their emissions would be already accounted for in the regional burden) and thus their impacts would not be considered significant.

Construction of the proposed Downtown Perris Station could occur simultaneously with the construction of other proposed downtown revitalization projects, which could result in cumulative construction impacts. One of these, the Perris Multimodal Transit Center, is currently in the process of being built so there would be no potential for any cumulative impacts since it would be completed before the PVL project. The extent of the potential impacts with other projects would depend on the location, magnitude, and duration of construction activities for each of the projects. CEQA analysis conducted for this proposed project indicates the use of several pollution control measures to aid in reducing emissions. However, the proposed project would avoid exceeding SCAQMD criteria thereby would reduce any potential for cumulative construction period impacts. It is assumed and likely that other construction projects in Perris would also be conducted with similar mitigation and control measures in place.

Development projects, such as the Meridian Business Park within the March JPA (formerly known as March Business Center), would also be required to impose mitigation measure to address fugitive dust or exceedances of other criteria pollutants during construction. Since construction of each element of these master planned developments would also have to include mitigation measures the overall potential for cumulative air quality impacts would be reduced. However, the Meridian Business Park would be built over the next 20 to 25 years and as such is

unlikely to interfere with the PVL construction schedule which would be implemented over the next two years. As such, the overall potential for cumulative impacts would be reduced.

3.3.4 Mitigation Measures

Implementation of the PVL project would not result in significant impacts with regard to air quality. No mitigation measures are recommended.

This Page Intentionally Left Blank

3.4 NOISE AND VIBRATION

This section describes the existing noise and vibration conditions for the PVL project and assesses long-term changes in noise and vibration conditions resulting from proposed rail service operations, as well as short-term effects related to construction activities. The proposed PVL project was assessed based on the state of the existing noise environment and the resultant effect that future project-related rail traffic would have on nearby noise sensitive areas. Where noise or vibration impacts were predicted, mitigation measures are identified and discussed. This analysis is based on the *Perris Valley Line Commuter Rail Noise and Vibration Technical Report* (STV Incorporated, 2010) to this SEA as presented in Technical Report C.

The FTA guidelines, *Transit Noise and Vibration Impact Assessment (2006)* (the FTA Manual), were followed to conduct the detailed noise and vibration impact assessments presented in this report. The FTA Manual provides explicit procedures for producing accurate impact assessments for federally-funded mass transit projects. It contains the standard and accepted methodologies for analyzing transit-related noise and vibration impacts throughout the country. It also contains techniques and procedures for development of mitigation of predicted impacts. This report presents the findings of updated noise analyses, and also updates the 2004 Draft EA for the PVL, prepared under the NEPA.

As part of this SEA, previously measured noise levels were augmented with new field measurements of existing noise. These measurements include specific locations previously requested by the public through comment on the 2004 Draft EA and the CEQA Mitigated Negative Declaration. Beyond this augmented program, additional noise measurements were taken for the detailed analysis to ensure a representative and accurate assessment of the existing noise environment.

I. Noise Fundamentals

Noise, otherwise known as unwanted sound, is what humans hear when our ears are exposed to small pressure fluctuations in the air (FTA, 2006). Noise is generated by a source and the magnitude of the noise depends on the type of source and its operating characteristics. In the case of the PVL project, the commuter rail would be the primary source of noise. Noises associated with commuter rail are primarily generated from the following system elements:

- Diesel train engines, which is in part a function of the rate of acceleration and speed.
- Cooling fans.
- Wheel/rail interaction, a function of the condition of wheels and type (e.g., welded or jointed), rail car suspension and condition of the rails.
- Structures, such as trestles, that may amplify sound. Horns and crossing gate bells (at and approaching grade crossings).

When excessive noise interrupts ongoing activities, such as sleeping, conversing, and watching TV, it can create annoyance in communities, especially residential areas. In order to quantify and measure this noise annoyance in the environment, beginning in the 1970s, the USEPA undertook a number of research and synthesis studies relating to community noise of all types.

As a result of this research, the USEPA developed descriptors, noise impact criteria, and methods of noise assessment, as described below.

Noise is measured using several descriptors:

- Decibel (dB) - The logarithmic unit used to measure sound.

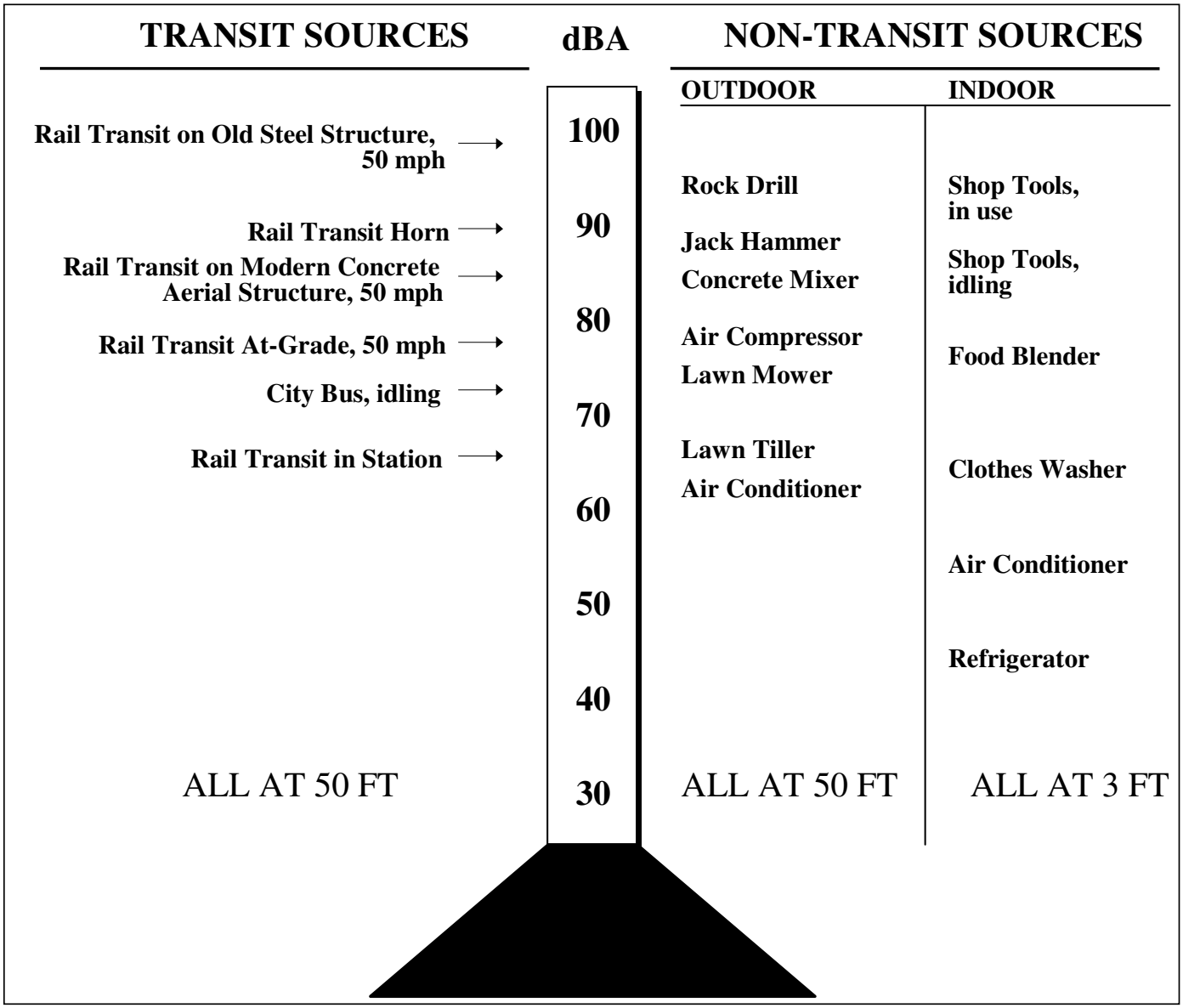
- A-weighting Sound Level (dBA) –The basic noise unit that measures sound audible to humans. Noises contain sound energy at different frequencies whose range depends on the individual noise source. Human hearing does not register the sound levels of all noise frequencies equally, which reduces the impression of the magnitude of high and low pitched sounds. dBA units are sound levels measured through a process that filters noise levels to predominantly include sounds that are audible to humans. This process reduces the strength of very low and very high pitched sounds, such as low-frequency seismic disturbances and dog whistles, to more accurately measure sounds that affect humans. Normally occurring sounds lie in the range of 40 to 120 dBA. A sample of the dBA of common transit-related and other noise sources is shown on Figure 3.4-1.

- Equivalent Sound Level (L_{eq}) – L_{eq} represents a single value of sound level that quantifies the amount of noise in a specific environment for a particular period of time.

- Hourly Equivalent Sound Level (L_{eq} ($_h$)) - A value that accounts for all levels of sound that occur in a particular location for one hour. For example, as a train approaches, passes by, and recedes into the distance, the dBA will rise, reach a maximum level, and eventually fade. The L_{eq} ($_h$) for this event would be a value that measures the cumulative impact of each level of sound that resulted from the train's passing, in addition to any other sounds that occurred during one hour. It is particularly useful when measuring the cumulative noise impact for communities. Day-Night Sound Level (L_{dn}) - a value that accounts for all levels of sound that occur in a particular location for 24 hours. This cumulative value also includes a ten dB penalty imposed on any noise that occurs between 10 PM and 7 AM. L_{dn} is used to measure the cumulative noise impact at residential areas primarily because it takes into account the increased sensitivity to noise at night, which is when most people are sleeping. Typical ranges for community noise in various settings are shown in Table 3.4-1.

Table 3.4-1
Typical Range of L_{dn} in Populated Areas

Area	L_{dn}, dBA
Downtown City	75–85
"Very Noisy" Urban Residential Areas	65-75
"Quiet" Urban Residential Areas	60-65
Suburban Residential Areas	55-60
Small Town Residential Areas	45-55
Notes: L_{dn}= cumulative noise exposure	
Source: FTA Transit Noise and Vibration Assessment Manual, (2006)	



SOURCE:

FTA MANUAL FOR TRANSIT NOISE AND VIBRATION IMPACT ASSESSMENT, FTA, MAY 2006

PROJECT NO.	92666	**COMMON INDOOR AND OUTDOOR NOISE LEVELS**	FIGURE **3.4-1**
DRAWN:	1/14/10		
DRAWN BY:	JP		
CHECKED BY:	RM	SUPPLEMENTAL ENVIRONMENTAL ASSESSMENT RIVERSIDE COUNTY TRANSPORTATION COMMISSION PERRIS VALLEY LINE RIVERSIDE, CALIFORNIA	
FILE NAME: 92666dia2.MXD			

A few general relationships may be helpful in understanding the dB scale:

- An increase of one dBA cannot be perceived by the human ear.
- A three dBA increase is normally the smallest change in sound levels that is perceptible to the human ear.
- A ten dBA increase in noise level corresponds to tenfold increase in noise energy, but a listener would only judge a ten dBA increase as being twice as loud.
- A 20 dBA increase would result in a dramatic change in how a listener would perceive the sound.

3.4.1 Noise Regulatory Setting

Federal Policies and Regulations

Noise Control Act of 1972 and Quiet Communities Act of 1978

The Noise Control Act of 1972 (42 USC) and the Quiet Communities Act of 1978 (42 USC 4913) were established by the USEPA to set performance standards for noise emissions from major sources, including transit sources. Though these acts are still in effect, the enforcement of the stated noise emission standards shifted to state and local governments in 1981.

Federal Railroad Administration

The Federal Railroad Administration (FRA) adopted the USEPA railroad noise standards as its noise regulations (49 CFR 11, part 210) for the purpose of enforcement. The standards provide specific noise limits for stationary and moving locomotives, moving railroad cars, and associated railroad operations in terms of A-weighted sound level at a specified measurement location.

Federal Transit Administration

The FTA provides capital assistance for a wide range of mass transit projects from new rail rapid transit systems to bus maintenance facilities and vehicle purchases. FTA's environmental impact regulation is codified in Title 23, CFR, Part 771. In addition, as noted in this analysis, FTA has developed the prevailing noise and vibration assessment procedures, which are used herein.

State Policies and Regulations

California Noise Control Act of 1973

The California Health and Safety Code established the California Noise Control Act of 1973 (§46000 et seq.) to "establish and maintain a program on noise control." This act mirrors the federal Noise Control Act of 1972 and also defers the enforcement of noise emission standards to local county and city agencies.

California Government Code Section 65302 (f)

California Government Code Section 65302 (f) states that general plans must include a noise element section which identifies and appraises noise problems in the community, and which recognizes the guidelines established by the Office of Noise Control. The adopted noise element should serve as a guideline for compliance with the state's noise standards.

California Public Utilities Commission Requirements

The current CPUC requirements for audible warning devices at grade crossings dictate that bells or other audible warning devices shall be included in all automatic warning device assemblies and shall be operated in conjunction with the flashing light signals (AREMA, 2007).

Local Policies and Regulations

The PVL project would be subject to local policies and regulations relative to construction noise and local nuisance noise levels. These statutes define maximum noise limits for existing community activities and future land development projects; however, as they do not contain explicit noise criteria governing future rail operations, they do not pertain to the assessment of these future operations. As a result, for the PVL project, local policies and regulations are applied to potential project construction activities.

Riverside County General Plan

The Riverside County General Plan Noise Element provides several policies pertaining to the location of new potentially noise-sensitive uses and sets forth planning criteria to maximize the compatibility of uses adjacent to rail corridors and stations. The Noise Element addresses excessive noise exposure and provides community planning for the regulation of noise (Riverside County, 2008). This element includes policies, standards, criteria, programs, diagrams, a reference to action items, and maps related to protecting public health and welfare from noise. Policy No. 10.4 recommends noise mitigation features where rail operations impact existing adjacent residential or other noise-sensitive uses.

The Riverside County General Plan defines “noise sensitive land uses” as a series of land uses that have been deemed sensitive by the State of California. These land uses require a serene environment as part of the overall facility or residential experience and include, but are not necessarily limited to; schools, hospitals, rest homes, long term care facilities, mental care facilities, residential uses, places of worship, libraries, and passive recreation areas.

Riverside County Ordinance No. 847

Riverside County Ordinance No. 847 establishes countywide standards for regulating noise (Riverside County, 2007). For example, in residential land uses, the maximum dB level allowed from 7 AM to 10 PM is 55, while the maximum dB level allowed from 10 PM to 7 AM is 45. With a few exceptions, no person shall create any sound that causes the exterior sound level on any other occupied property to exceed the stated sound level standards. For construction-related activities that exceed these standards, an application for a construction-related exception must be made to the Director of Building and Safety accompanied by the appropriate filing fee.

In this ordinance, “sensitive receptors” are defined as land uses that are identified as sensitive to noise in the Noise Element of the Riverside County General Plan.

Riverside County Code, Title 15.04.020 (F)

According to the Riverside County Municipal Code, Title 15.04.020 (F), whenever a construction site is within one-quarter mile of an occupied residence or residences, no construction activities may be undertaken between the hours of 6 PM and 6 AM during the months of June through September and between the hours of 6 PM and 7 AM during the months of October through May. Exceptions are allowed only with the written consent of the building official.

Operational noise levels are regulated by the Riverside County Department of Industrial Hygiene to limit the level of noise from industrial and other stationary source operations. Worst-case scenario levels for stationary noise sources projected to the property line of an occupied residential property are to remain below 45 dBA during nighttime hours (10 PM to 7 AM), and are not to exceed 65 dBA during daytime hours (7 AM to 10 PM). Sensitive receptors, such as rest homes, schools, hospitals, mental care facilities, places of worship, and libraries, are described in the Riverside County General Plan. Noise generating uses that result in noise levels greater than 65 dBA are discouraged near these areas of increased sensitivity.

City of Riverside General Plan

The Noise Element in the City of Riverside General Plan includes policies and plans that protect existing and planned land uses from significant noise impacts and ways to minimize noise impacts. Policies N - 4.1 through N - 4.5 specifically address ground transportation-related noise impacts and noise reduction features that should be considered, including earthen berms and landscaped walls.

The Noise Element also refers to the City of Riverside Municipal Code, Title 7 for regulations regarding construction noise.

City of Riverside Municipal Code, Title 7

The City of Riverside Municipal Code, Title 7 sets forth standards and regulations that control unnecessary, excessive, and/or annoying noise in the City (City of Riverside, 2007). It is enforced by the Code Enforcement Division of the Community Development Department and the Riverside Police Department. Based in Table 3.4-2, unless a variance has been granted as provided in this chapter, it shall be unlawful for any person to cause or allow the creation of any noise which exceeds the following:

1. The exterior noise standard of the applicable land use category, up to five decibels, for a cumulative period of more than thirty minutes in any hour; or

2. The exterior noise standard of the applicable land use category, plus five decibels, for a cumulative period of more than fifteen minutes in any hour; or

3. The exterior noise standard of the applicable land use category, plus ten decibels, for a cumulative period of more than five minutes in any hour; or

4. The exterior noise standard of the applicable land use category, plus fifteen decibels, for the cumulative period of more than one minute in any hour; or

5. The exterior noise standard of the applicable land use category, plus twenty decibels or the maximum measured ambient noise level, for any period of time.

If the measured ambient noise level exceeds that permissible within any of the first four noise limit categories, the allowable noise exposure standard shall be increased in five decibel increments in each category as appropriate to encompass the ambient noise level. In the event the ambient noise level exceeds the fifth noise limit category, the maximum allowable noise level under said category shall be increased to reflect the maximum ambient noise level.

Table 3.4-2
City of Riverside – Exterior Noise Standards

Land Use Category	Time Period	Noise Level
Residential	Night (10 PM to 7 AM) Day (7 AM to 10 PM)	45 dBA 55 dBA
Office/Commercial	Any time	65 dBA
Industrial	Any time	70 dBA
Community Support	Any time	60 dBA
Public Recreation Facility	Any time	65 dBA
Non-urban	Any time	70 dBA

Section 7.35.010 specifically addresses construction-related activities. Construction work that exceeds the allowable noise standards (in Table 3.4-2) may not occur between the hours of 7 PM and 7 AM on weekdays, between 5 PM and 8 AM on Saturday, or at any time on Sunday or federal holidays.

City of Perris General Plan

The City of Perris General Plan does not discuss specific noise requirements for railroads, but it does provide goals, policies, and implementation measures that address future land use compatibility with noise from rail traffic (City of Perris, 2006). Implementation Measure III.A.1 of Policy III.A states that the city of Perris will work with BNSF and RCTC to upgrade aging rail with new continuous welded rail and to install noise reduction features in residential areas.

City of Perris Municipal Code, Chapter 7.34

Chapter 7.34 of the City of Perris Municipal Code declares that excessive noise levels are detrimental to the health and safety of individuals and are therefore prohibited by the provisions of Ordinance 1082 codified in this chapter (City of Perris, 2000). The maximum noise level allowed during the hours of 10 PM and 7 AM is 60 dBA, and 80 dBA is allowed between 7 AM and 10 PM.

Construction noise is restricted to 80 dBA at residential property lines, and construction is restricted to the hours of 7 AM to 7 PM. Construction is prohibited on Sundays and holidays except for Columbus Day and Washington's Birthday.

FTA Noise Impact Criteria

The FTA has established noise criteria to assess potential impacts of transit projects, as shown on Figure 3.4-2. These criteria were developed based on the research done by the USEPA that identified environments particularly sensitive to annoying noises. These environments are known as “noise sensitive land uses” or “sensitive receptors”. The FTA noise criteria group noise sensitive land uses into three categories, as shown in Table 3.4-3.

For Categories 1 and 3, the L_{eq} noise descriptor is used, while Category 2 properties are assessed utilizing the L_{dn} descriptor. In most cases, these three categories are the only land uses that would be negatively impacted by high noise levels because industrial or commercial areas are generally compatible with high noise levels.

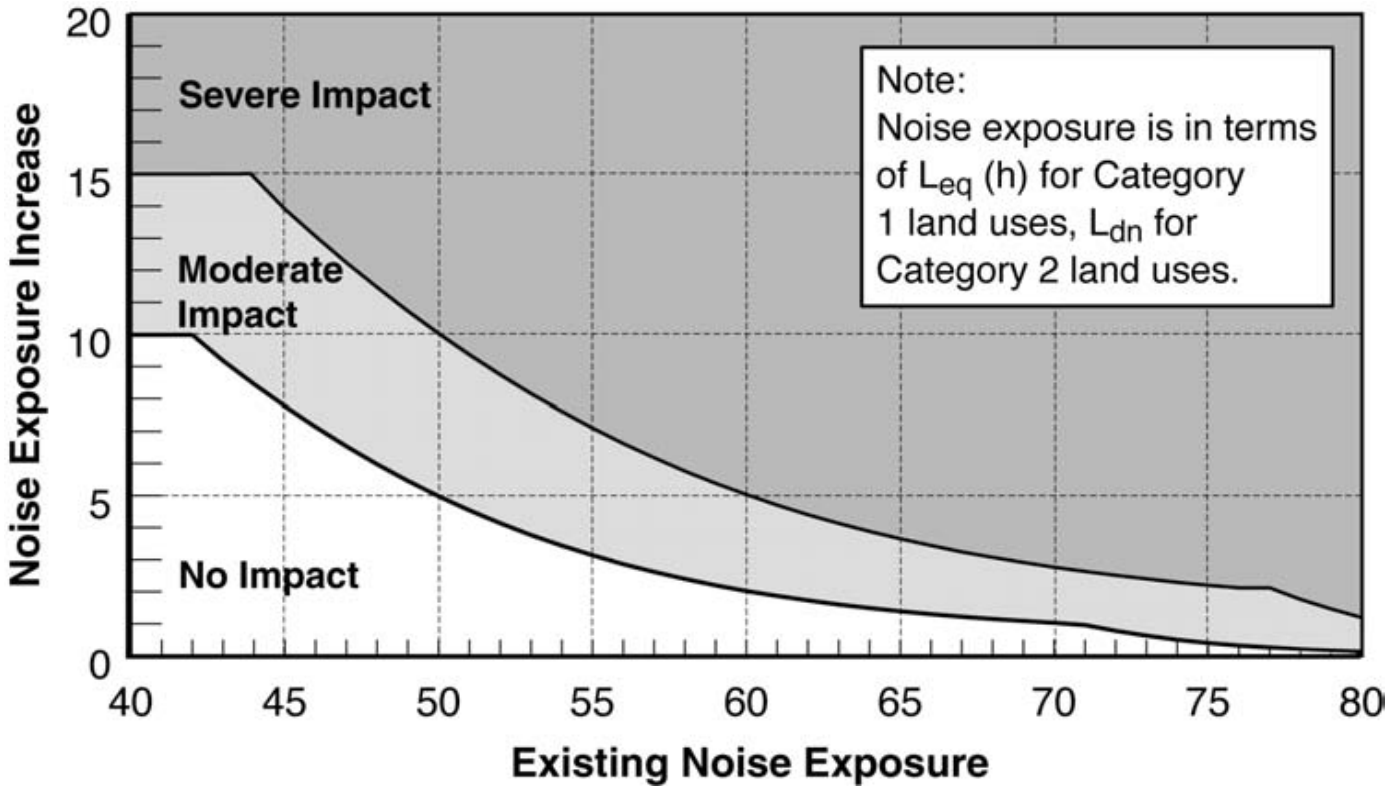
Noise impacts to these three categories as a result of a proposed project are assessed by comparing the existing and future project-related outdoor noise levels as illustrated in the graph provided on Figure 3.4-2. These potential noise impacts fall into three types: “No Impact,” “Moderate Impact,” and “Severe Impact”.

- No Impact - The project, on average, will result in an insignificant increase in the number of instances where people are “highly annoyed” by new noise.

- Moderate Impact - The change in cumulative noise is noticeable to most people, but may not be sufficient to cause strong, adverse community reactions.

- Severe Impact - A significant percentage of people would be highly annoyed by the noise, perhaps resulting in vigorous community reaction.

This Page Intentionally Left Blank



SOURCE:

FTA MANUAL FOR TRANSIT NOISE AND VIBRATION IMPACT ASSESSMENT, FTA, MAY 2006

PROJECT NO. 92666	ALLOWABLE TRANSIT NOISE INCREASES	FIGURE 3.4-2
DRAWN: 1/5/10		
DRAWN BY: JP		
CHECKED BY: RM	SUPPLEMENTAL ENVIRONMENTAL ASSESSMENT RIVERSIDE COUNTY TRANSPORTATION COMMISSION PERRIS VALLEY LINE RIVERSIDE, CALIFORNIA	
FILE NAME: 92666dia3.MXD		

Table 3.4-3
Land Use Categories and Metrics for Transit Noise

Land Use Category	Noise Metric (dBA)	Description of Land Use Category
1	Outdoor $L_{eq(h)}$*	Tracts of land where quiet is an essential element in their intended purpose. This category includes lands set aside for serenity and quiet, and such land uses as outdoor amphitheaters and concert pavilions, as well as National Historic Landmarks with significant outdoor use. Also included are recording studios and concert halls.
2	Outdoor L_{dn}	Residences and buildings where people normally sleep. This category includes homes, hospitals and hotels where a nighttime sensitivity to noise is assumed to be of utmost importance.
3	Outdoor $L_{eq(h)}$*	Institutional land uses with primarily daytime and evening use. This category includes schools, libraries, theaters, and churches where it is important to avoid interference with such activities as speech, meditation and concentration on reading material. Places for meditation or study associated with cemeteries, monuments, museums, campgrounds and recreational facilities can also be considered to be in this category. Certain historical sites and parks are also included.
Notes: *$L_{eq(h)}$ for the noisiest hour of transit-related activity during hours of noise sensitivity		
Source: FTA Transit Noise and Vibration Impact Assessment Manual (2006)		

As the existing level of ambient noise increases, the allowable level of transit noise also increases, but the total amount by which that community's noise can increase without an impact, is reduced. As shown in Table 3.4-4, as existing and allowable combined total noise levels increase, the allowable change in noise level decreases.

Table 3.4-4
Allowable Transit Noise Level Increases(L_{dn} and L_{eq} in dBA)

Existing Noise Levels	Allowable Project Noise Level	Allowable Combined Total Noise Level	Allowable Noise Level Increase
45	51	52	7
50	53	55	5
55	55	58	3
60	57	62	2
65	60	66	1
70	64	71	1
75	65	75	0
Source: FTA Transit Noise and Vibration Impact Assessment Manual (2006)			

3.4.2 Noise Affected Environment

Noise sensitive land use areas within the proposed PVL project area were identified by screening GIS data for buildings with residential or institutional uses nearby the PVL corridor. Field observations were also made to identify and confirm noise sensitive land use locations within the larger study area.

The proposed PVL project area would include portions of the existing BNSF alignment, between the Downtown Riverside Station and the Highgrove area, as well as the SJBL alignment between the areas of Highgrove and south of Perris. These two active railways would be connected by the proposed new Citrus Connection.

The noise environmental conditions for each segment are described below.

- BNSF segment - The noise environment in the Riverside to Highgrove BNSF Mainline segment is dominated by an extremely heavy volume of rail activity; between 60 and 80 trains travel along it during a typical 24-hour period. The majority of these trains (about eighty percent) are freight. These trains generally operate with three to four diesel locomotives and about 50 to 100 freight cars. Typical speeds are approximately 30 mph. The remaining rail traffic consists of mostly SCRRA/Metrolink, and a few Amtrak trains. The SCRRA/Metrolink trains have a single diesel locomotive and about three passenger cars and travel at average speeds of approximately 50 mph. The Amtrak trains have two to three diesel locomotives and about 15 cars, traveling at about 50 mph. Train traffic occurs during both day and night hours. In addition to rail activity, vehicles traveling on I-215 and SR-60 make a significant contribution to the noise environment, as do vehicles on local streets.

- SJBL segment - The SJBL alignment from Highgrove to south of Perris currently has about two freight trains traveling on it daily. These trains typically consist of three diesel locomotives and about 25 freight cars and travel at maximum speeds of 20 mph. In those portions of the rail segment that have grade crossings (where the majority of the corridor's noise sensitive receptors are located), horn noise is a significant contributor to the existing noise environment. Noise from automobile traffic becomes significant along the corridor from near Moreno Valley to Perris, where the I-215 freeway parallels the SJBL, and grade crossings are limited. However, this portion of the SJBL alignment contains very few sensitive noise receptors.

As a result of the train activity, the existing alignment contains grade crossings areas where warning bells would be required for passing trains. At most crossings, these devices are represented by electro-mechanical railroad warning gongs. At a point 10 feet from the gong and in increments of 20 degrees, the sound level should not be more than 105 dBA and not less than 85 dBA. The gongs typically operate between 30 to 60 seconds per normal through-train movement. Whenever a train is physically occupying the space where the railroad and roadway intersect, the gongs will be active.

The current CPUC requirements for audible warning devices at grade crossings are as follows:

> Bells or other audible warning devices shall be included in all automatic warning device assemblies and shall be operated in conjunction with the flashing light signals. See American Railway Engineering and Maintenance of Way Association's *Communications and Signals Manual of Recommended Practices* for reference (AREMA, 2007).

Noise Measurement Programs

To assist in the assessment of potential impacts, noise measurements were conducted at several selected sensitive receptors. The measurement sites were selected on the basis of several factors, the most important of which was the site's potential sensitivity to changes in

noise levels. Measurements were taken in 2002 and 2005, and again in 2008/2009 to update and enhance the data.

For all noise measurements, each site was either representative of a unique noise environment, or of nearby similarly situated receptors. Along the BNSF alignment, the primary land uses are industrial and commercial; however, noise monitoring was conducted at several pockets of residential properties near the alignment. As the Citrus Connection and the existing SJBL alignment pass through predominately residential neighborhoods, most of the sensitive receptors monitored along these segments are residential in nature. Several non-residential land uses also exist along these segments and were included in the monitoring program as well. These sites include schools, churches and senior centers, also deemed sensitive receptors (Riverside County, 2007; 2008). Both long-term (24-hour) and short-term (20 minutes to 1 hour) measurements were conducted.

2002 Measurement Program

For the 2002 measurement program, 31 noise sensitive sites were monitored along the project corridor. A tabulation of these monitored locations is provided in Table 3.4-5 and monitoring locations are mapped on Figure 3.4-3 (North) and Figure 3.4-4 (South). In general, existing L_{dn} noise levels at sensitive receptors along the BNSF alignment were high and in the "downtown city" noise range, while existing L_{dn} noise levels at residential areas of Riverside and Perris adjacent to the SJBL alignment are in the "'very noisy' urban residential areas" range, as shown in Table 3.4-5.

2005 Measurement Program

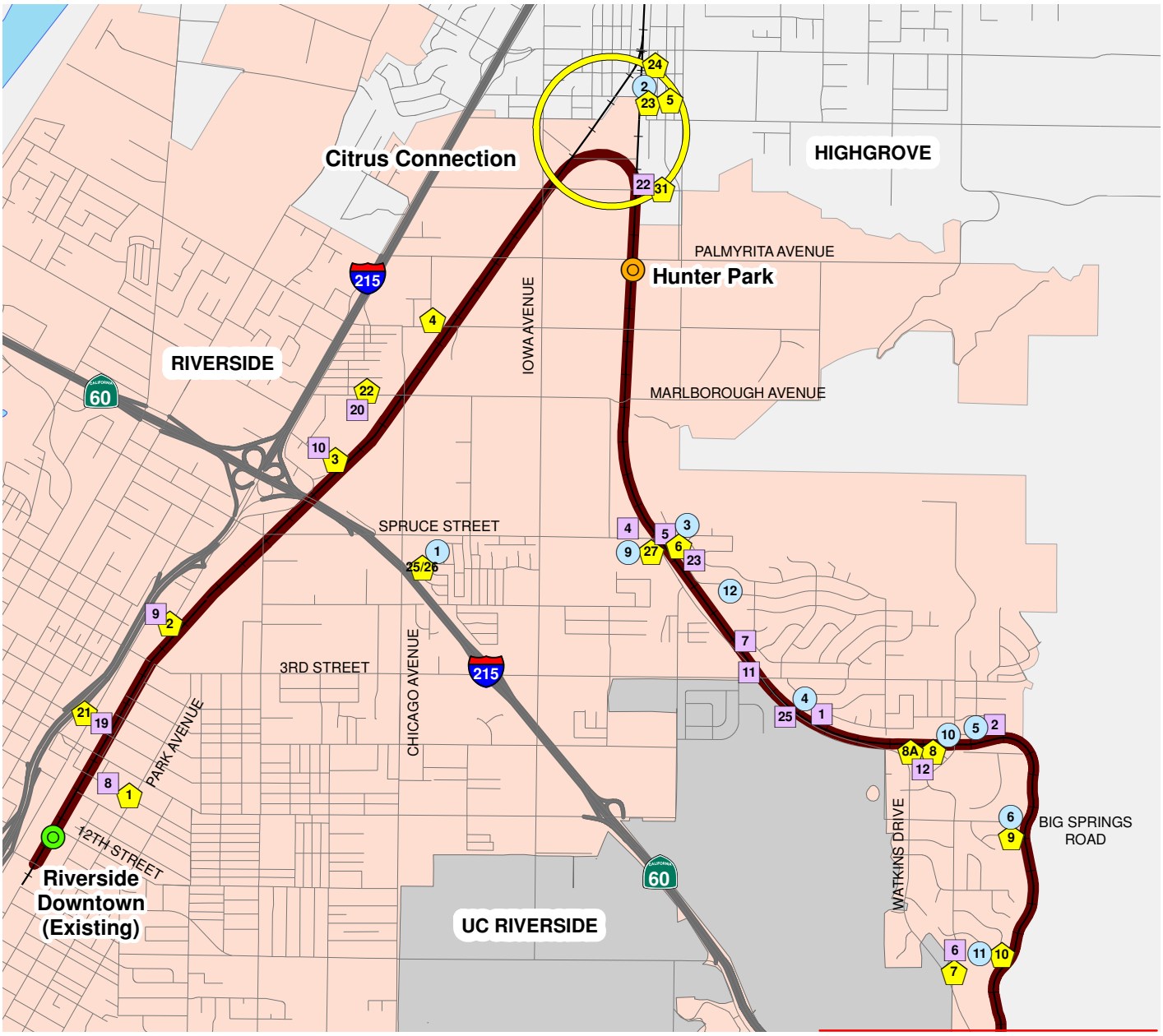
In 2005, several additional noise measurement locations were identified, including locations suggested by public comment on the Draft EA. In all, the 2005 measurement program included additional monitoring at 12 noise sensitive sites along the SJBL alignment. A tabulation of these monitored locations is provided in Table 3.4-6 and monitoring locations are mapped on Figure 3.4-3 and Figure 3.4-4. The monitoring at locations along the SJBL alignment indicates that existing L_{dn} noise levels at residential locations of Riverside and Perris are generally in the "'very noisy' urban residential areas" range, as shown in Table 3.4-1. Additional monitoring at non-residential locations indicated L_{eq} values ranging from 49 to 61 dBA.

Table 3.4-5
Summary of Noise Measurements (2002)

Site No.	Land Use	Description	Dist. from Tracks (ft)	Existing Noise Level (L_{dn})
1	SF	3015 9th St	450	74
2	SF	3112 1st St	180	79
3	SF	1901 Thornton Ave	80	82
4	SF	1148 Ardmore St	340	76
5	SF	Transit & Villa Streets	330, 20 [1]	78
6	SF	890 Kentwood Dr	55	70
7	MF	10 Watkins Dr	125	68
8	SF	121 Nisbet Way	80	68
8A	SF	277 Nisbet Way	50	70
9	SF	396 E Big Springs Road	125	54
10	SF	298 E Manfield St	110	56
11	SF	20511 Claremont	560	61
12	SF	7005 Old Frontage Rd	500	60
13	SF	California & Wade Streets	240	68
14	School	Nan Sanders Elementary School	140	60*
15	SF	234 Bowen St	230	59
16	SF	30 C St	210	66
17	SF	10th St & Perris Blvd	75	69
18	SF	124 8th St	250	64
19	Hotel	27272 SR-74	130	75
20	SF	25688 Sherman Rd	330	54
21	Commercial	Old Spaghetti Factory	250	72*
22	SF	Marlborough Avenue (between Catania Drive & PVL)	320	76
23	SF	Villa St (between Transit Ave & PVL)	330,125 [1]	76
24	SF	Transit Ave (near Fountain St)	200,30 [1]	79
25/26	SF	Trailer park (274 Sir Belvidere Dr)	50	72
27	Church	St George's Episcopal Church (Spruce St & Watkins Dr)	180	67*
27A	MF	Box Spring & Morton	125	57
28	Cemetery	Riverside National	100	61*
29	Senior Citizens Center	San Jacinto & D St	95	70*
30	SF	C St & 7th St	60	71
31	SF	1021 Citrus Street	60	70

Notes:
* = Noise levels presented as L_{eq}
SF = Single-family residence and MF = Multi-family residence
(1) = BNSF and SJBL alignments

Source: STV Incorporated (2002)



CONTINUED ON FIGURE 3.4-4

LEGEND

- PVL ALIGNMENT
- CONNECTING TRACK
- EXISTING STATION
- PROPOSED STATION
- 2002 MONITORING LOCATION
- 2005 MONITORING LOCATION
- 2008/2009 MONITORING LOCATION

Basemap Source: STV Incorporated 10-3-08

0.3 0.15 0 0.3 0.6 Miles

N

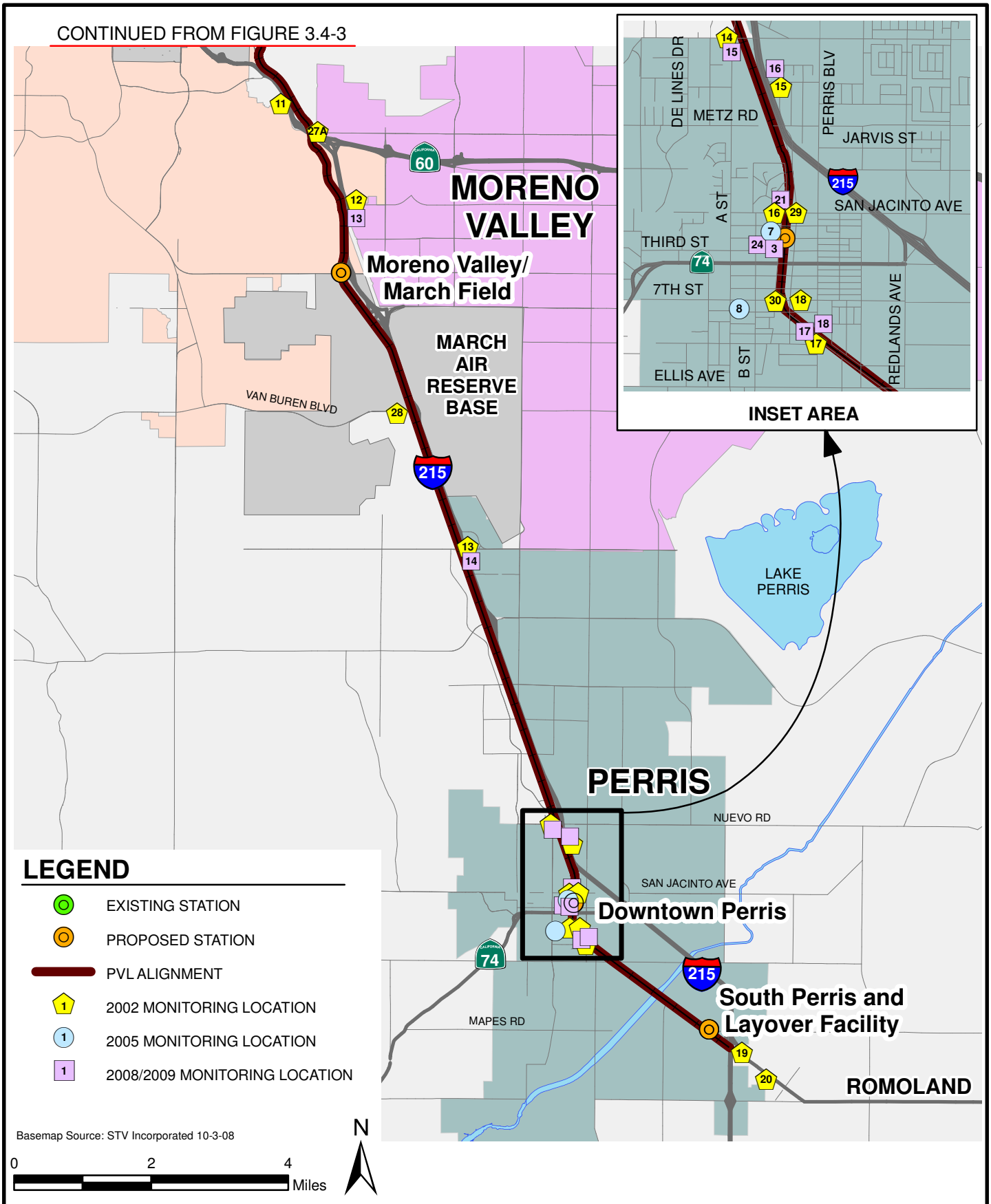
PROJECT NO.	92666
DRAWN:	1/12/10
DRAWN BY:	JP
CHECKED BY:	RM
FILE NAME:	92666noise2.MXD

NOISE AND VIBRATION MONITORING LOCATIONS

SUPPLEMENTAL ENVIRONMENTAL ASSESSMENT
RIVERSIDE COUNTY TRANSPORTATION COMMISSION
PERRIS VALLEY LINE
RIVERSIDE, CALIFORNIA

FIGURE 3.4-3

CONTINUED FROM FIGURE 3.4-3



PROJECT NO.	92666	**NOISE AND VIBRATION MONITORING LOCATIONS**	FIGURE **3.4-4**
DRAWN:	1/12/10		
DRAWN BY:	JP		
CHECKED BY:	RM	SUPPLEMENTAL ENVIRONMENTAL ASSESSMENT RIVERSIDE COUNTY TRANSPORTATION COMMISSION PERRIS VALLEY LINE RIVERSIDE, CALIFORNIA	
FILE NAME: 92666noise3.MXD			

Table 3.4-6
Summary of Noise Measurements (2005)

Site No.	Description	Measure Type[1]	Dist. from Tracks (ft.)	L_{dn}, dBA		No. of Trains[3]
				With Trains	Without Trains[2]	
1	103 Sir Dames Dr, Riverside	LT	35	63	62	3
2	441 Transit Avenue, Highgrove	LT	35	67	67	3
3	2294 Kentwood/Spruce, Riverside	LT	100	67	59	8
4	518 W. Campus View, Riverside	LT	83	66	57	8
5	232 E. Campus View, Riverside	LT	62	65	49	2
6	396 E. Big Springs Rd., Riverside	LT	90	62	54	2
7	228 C Street, Perris	LT	240	67	67	2
8	81W. 8th Street, Perris	LT	300	--	59	0
9	Church at Spruce & Watkins, Riverside	ST	150	--	61	0
10	Church at Mt. Vernon Crossing, Riverside	ST	50	--	49	1
11	Hyatt Elementary School/E. Manfield Rd., Riverside	ST	50	--	50	1
12	Highland Park off Kentwood, Riverside	ST	50	--	56	0

Notes:
(1) LT = long term (24 hours or more), ST = short term (30 minutes to one hour).
(2) For measurements that included one or more train events, this column shows what the L_{dn} would have been without the train noise. No trains passed during the short term noise measurements.
(3) Total number of trains passing during measurement. Measurement period may be for more than 24 hours.

Source: ATS Consulting (2005)

2008/2009 Measurement Program

The 2008/2009 noise measurement program included measurements of noise sensitive locations previously monitored in 2002 and 2005, in addition to several new locations. Schools along the SJBL alignment were specifically re-monitored and other residential and institutional uses were added to the monitoring program. In general, the results of the 2008/2009 monitoring program were consistent with the existing noise environment during the monitoring programs for 2002 and 2005. There were however, several sites within the area of University of California Riverside (UCR) which tended to exhibit lower noise levels for the 2008/2009 measurement program. The overall results of the measurements are summarized in Table 3.4-7 and monitoring locations mapped on Figure 3.4-3 and Figure 3.4-4.

Table 3.4-7
Noise Monitoring Locations for Detailed Noise Assessment 2009

Site No.	Description	Measure Type(1)	Dist. from Tracks (ft.)	Ldn, dBA
1	518 West Campus View Dr	LT	117	59
2	232 East Campus View Dr	LT	65	56
3	228 C Street	LT	244	70
4	St. George's Episcopal Church @ Spruce & Watkins Drive	ST1	190	57*
5	Terrace Crest Community Baptist Church (12354 Mount Vernon)	ST1	163	52*
6	Hyatt Elementary School (4466 Mount Vernon Ave)	ST1	370	60* [2]
7	Highland Park Elementary School (700 Highlander Dr)	ST1	88	54* [2]
8	3015 9th Street	ST2	450	69
9	3112 1st Street	LT	210	75
10	1901 Thornton Ave	LT	90	76
11	2970 Watkins Dr	LT	124	66
12	137 Nisbet Way	LT	180	62
13	7005 Old Frontage Rd	ST2	564	62
14	California & Wade Streets	ST2	258	70
15	Nan Sanders Elementary School (1461 N. A Street)	ST1	123	64* [2]
16	234 W. Bowen St	ST2	235	59
17	116 State Street	ST2	80	72
18	New Homes on 9th Street in Perris	ST2	300	66 [3]
19	Old Spaghetti Factory (3191 Mission Inn Avenue)	ST1	280	65*
20	1824 Marlboro Ave	ST2	260	63
21	Senior Citizens Center (146 W. San Jacinto Ave)	ST1	96	59*
22	1027 Citrus St	LT	62	73
23	842 Kentwood Drive	LT	80	63 [2, 3]
24	St. James Catholic Church/School (269 West 3rd St)	ST1	370	64* [2, 3]
25	UCR Day/Childcare (3338 Watkins Dr)	ST1	175	54* [2]

Notes:
* Represents an L_{eq} value
(1) LT = long term (24 hours or more), ST1 = short term (30 minutes to one hour), ST2 = short term (measurement adjusted to reflect LT L_{dn}).
(2) Noise monitoring conducted in 2009.
(3) New monitoring site.

Source: STV Incorporated, (2008/2009)

Noise Analysis Methodology

Following is an outline of the approach used to identify potential noise and vibration impacts from the proposed PVL. The approach follows the Detailed Assessment guidelines outlined in the FTA Noise and Vibration Assessment Manual (2006). The steps taken were:

1. Identify representative noise sensitive receptors. Sensitive land uses along the corridor were identified for monitoring and assessment, by first referencing recent aerial photography. Sensitive receptors, such as residential and non-residential buildings including schools, churches and senior centers were then grouped together based on their location relative to the tracks, grade crossings, and other geographic and PVL operational factors that might affect noise levels. Within each grouping, a representative receptor was included in the noise model. Sites closest to the alignment were selected first. If no impacts were predicted at these locations then impacts at locations further from the alignment would be unlikely. If impacts were predicted for

Category 2 properties, the next closest row of properties would be assessed for impact. When impacts were predicted at Category 3 sites, no further assessment was required since the next closest receptors were located too far away from the noise source and their lines of sight to the alignment would be blocked by intervening buildings. These two factors eliminated any potential impact at Category 3 locations located further from the alignment.

2. Determine existing noise levels as described above.

3. Develop noise prediction models. For FTA noise predictions, the major noise components related to the operation of the PVL project are represented in the prediction model which utilizes equations and tables contained in the FTA Manual. They include horn noise and locomotive engine noise. Also included in the model were noise from rail cars and bells at grade crossings. Noise from wheel squeal (near the tight radius curve at the proposed "Citrus Connection") was assessed separately since the operation of the PVL train would include wayside applicators as part of the design plans, which would eliminate noise from wheel squeal for all tight radius curves.

   For horn noise, the key modeling factor is that trains are required by law to blow their horns from 15 to 25 seconds or ¼ mile before a grade crossing. The effect of horn noise increases at properties closest to grade crossings. Locomotive and rail car noise are primarily dependent upon the speed of travel along the tracks. Crossing bells are required to be sounded before any train passes by a grade crossing for at least 30 seconds. The prediction of wheel squeal is dependent upon the length of the curve and the rate of speed that the train is traveling along the curve. The "Citrus Connection" curve is the only proposed new curve for the PVL project and, it also represents the longest tight-radius curve along the entire PVL corridor.

   Reference levels for all of the above described noise components (e.g. horn, locomotive, rail car, crossing bells and wheel squeal) were obtained from the FTA Manual tables. Their combined impact at nearby sensitive properties was then calculated. For potential noise from PVL stations, parking lots and the Layover Facility, the FTA Manual noise screening table was utilized. Because night-time noise is more annoying to humans than day-time noise (e.g, a train horn heard at 3 AM is more annoying than a train horn heard at 1 PM), the FTA prediction formulas applied to the PVL project include an adjustment in the actual noise level to simulate the increased annoyance of night-time activities. Utilizing the adjustments penalty, the noise from project-related night-time activity is effectively increased to account for the increased annoyance level of residents.

   Existing freight operations along the PVL corridor were also considered in the analysis. However, their relevance to the assessment is only in terms of their affect on the existing 24-hour monitoring levels shown in the noise monitoring Table 3.4-5, Table 3.4-6 and Table 3.4-7, above. Essentially, existing freight operations increases a community's existing 24-hour Ldn level. As described above in the impact criteria section, this increase in noise level results in a lessening in the amount of noise that a future rail project would be allowed to contribute to a community without resulting in an impact.

4. Estimate future noise levels at the representative receivers. Using the FTA noise model described above, future train-generated noise levels were estimated and compared against the applicable FTA impact thresholds to identify potential noise impacts.

5. Identify noise mitigation. For the proposed PVL project, noise mitigation would be accomplished by two methods, including the construction of noise barriers and the use of building sound insulation. Noise barriers are very effective in eliminating severe and moderate impacts to affected properties; the technique is recognized by FTA as effective, and is used by state agencies and commissions such as RCTC. The length of the barrier is important to its effectiveness so that noise generated beyond the ends of the barrier do not compromise the effectiveness of the barrier at noise-sensitive locations. A solid, impervious wall that is sufficiently high to block the direct view of the noise source will typically reduce community noise levels, at locations within about 200 feet of the track, by five to 15 dBA. At locations where noise barriers are not feasible and/or cannot totally eliminate potential impacts, building sound insulation is recommended for individual residences. Building sound insulation typically involves caulking and sealing gaps in the building envelope, wall insulation and installation of acoustical windows and solid-core doors. Depending on the quality of the original building façade, especially windows and doors, sound insulation treatments can improve the noise reductions from transit noise by 5 to 20 dBA.

   Using the noise methodology described above, future train-generated noise levels were estimated and compared against the applicable FTA impact thresholds to identify potential noise impacts.

3.4.3 Noise Environmental Consequences/Impacts

With regard to the PVL project rail operations, criteria applicable to the assessment of potential project-related noise would be governed by the FTA impact criteria described above. Based on these criteria, Table 3.4-9, Table 3.4-10, and Table 3.4-11 shows the results from Noise and Vibration Technical Report C. The projected noise impacts are summarized below. Table 3.4-9, Table 3.4-10, and Table 3.4-11 characterize the type of impact using the FTA criteria, and identify the proposed mitigation and the number of decibels that the mitigation would reduce noise by.

Trains

By 2012, commuter train operations would consist of twelve total train movements per day with the proposed project. These operations would include four trains leaving South Perris for Riverside (to connect to LA Union Station) in the AM, two trains from South Perris to Riverside in the PM, one train from Riverside to South Perris in the AM, and five trains from Riverside to South Perris in the PM.

Trains are assumed to operate with one diesel locomotive and six to eight passenger cars on rail. The PVL would use welded rail throughout, reducing train-rail noise. Free flow train speeds along the study corridor would range from 25 to approximately 60 mph. FRA and CPUC rules currently require that all trains approaching roadway-rail grade crossings blow their horns for

one-quarter of a mile prior to reaching the grade crossing. In addition, as trains pass grade crossings, warning devices are sounded.

Under the FTA methodology, noise impacts are projected at several Category 2 land uses (residences and buildings where people normally sleep) located along the SJBL in Riverside, north of the UCR campus. The majority of the predicted impacts would be a result of the train horns being sounded by trains scheduled to pass through areas with sensitive land uses prior to 7 AM, the demarcation between nighttime and daytime in the calculation of Ldn. Noise from grade crossing warning devices would only affect homes near the intersection and would be minimal in comparison to the sounding of train horns. Noise impacts are projected at a total of 83 residential locations all of which are located in the UCR area. Impacts at 18 of the total 83 residential locations would be characterized as severe. Table 3.4-9 and Table 3.4-10 present the findings of the noise analysis and its characterization for Category 2 land uses, along the length of the SJBL.

Noise impacts are also predicted for three Category 3 buildings. In the UCR area of Riverside, these impact locations would include the school gymnasium of the Hyatt Elementary School, St. George's Episcopal Church, and Crest Community Baptist Church. None of these impacts would be severe. No impacts on Category 3 buildings were predicted in Perris. Table 3.4-11 presents the land use Category 3 noise impact predictions.

Stations and Parking Lots

Noise due to the operation of a train station is primarily associated with automobile traffic entering and exiting the station drop-off and parking areas. The noise analysis considered the parking lots at each of the four proposed opening year stations. The proposed station parking lots would range in size from approximately 440 to 880 cars. However, all noise sensitive receptors are located beyond the FTA screening distances (as shown in Appendix C of Noise and Vibration Technical Report C) for all proposed stations and parking lots. This is significant since screening distances are conservatively based on the lowest FTA threshold of impact as indicated in Chapter 4 of the FTA Manual. As a result, sensitive receptors located beyond this distance would not experience noise disturbance from station or parking lot operations (see Section 4.2 of the FTA Manual). Noise from station emergency generators would also not result in any impact from stations as they are not considered to be a normal operating component of the project and would only be used in the event of an emergency (e.g., a power outage).

Layover Facility

Trains in the vicinity of the Layover Facility in South Perris would be traveling at low rates of speed and therefore are not expected to be significant sources of noise. In addition, the proposed Layover Facility (for overnight storage and light, routine maintenance of the trains) is located substantially further away from noise sensitive resources than 1,000 feet, the FTA noise screening distance for noise sensitive land uses with respect to noise from a Layover Facility. As a result, noise impacts related to the Layover Facility are not expected.

Wheel Squeal

In addition to noise from train horns, locomotives and crossing bells, wheel squeal on tight radius curves (<10 times the SCRRA/Metrolink locomotive wheel base or 900 feet) can

contribute to community noise levels. Table 3.4-8 lists all short radius curves along the proposed PVL alignment. As wheel squeal noise can be significant, wayside applicators will be installed as part of project implementation in all areas of the corridor with short radius curves. Wayside applicators apply a friction control material to the top of the rail and the gage face to reduce the metal to metal friction that causes wheel squeal. According to the Transit Cooperative Research Program – "Wheel/Rail Noise Control Manual" (Transportation Research Board, 1997), a report which was sponsored by the FTA, the use of a petroleum lubricant would reduce squeal while the use of a water lubricant would eliminate squeal. These steps taken to reduce wheel squeal from the commuter rail operations would also reduce the existing wheel squeal from BNSF freight trains, which do and would continue to operate along the SJBL.

Table 3.4-8
Summary of Short-Radius Curve Locations

Curve Number	Description	Residential Area
P-1A	Citrus Connection	Yes
P-3B	Near East Campus Drive	Yes
P-3D	Box Springs Area	Yes
P-4A	Box Springs Area	Yes
P-4C	Box Springs Area	Yes
P-4D	Box Springs Area	Yes
P-4E	Box Springs Area	Yes
P-4F	Box Springs Area	Yes
P-4G	Near Watkins Drive and Poarch Road	No
P-6C	Near the Intersection of I-60 and I-215	No
P-18A	Perris	Yes
Source: STV Incorporated, based on PVL 30% Engineering Drawings		

The only location at which the construction of new PVL rail would result in a short radius curve would be the "Citrus Connection" (P-1A). The Citrus Connection curve is also the longest curve along the entire extent of the PVL alignment. This length, along with the required slower train speeds along the curve, would increase the wheel squeal noise exposure time. Therefore, as requested by the FTA, an analysis of wheel squeal noise was conducted at this location. The analysis of the noise contribution from wheel squeal was conservatively performed for nearby sensitive residences. A reference SEL of 136 dBA used in the wheel squeal prediction equation was obtained from the FTA Manual, Table 6-7. The resulting analysis indicated that the wheel squeal noise component would result in impacts to residences in the area of Transit Avenue. Predicted project noise levels would surpass the FTA noise impact criteria by one dB. However, as mentioned above, it is important to note that as part of the PVL project, RCTC will include wayside applicators on all short radius curves. These measures would successfully reduce the significance of wheel squeal noise on all segments of the PVL alignment, including the "Citrus Connection" area. As a result, with the wheel squeal noise component successfully reduced, no noise impacts would result at residences along Transit Avenue.

Table 3.4-9
Detailed Noise Impact Assessment Category 2 Land Uses for Riverside

Description[1]	Dist. to Track CL, ft	Land Use	No. Dwelling Units	Track Side[2]	Horn	Exist Ldn, dBA	Speed, mph		Predicted Ldn, dBA	Impact Threshold		Impacts No. Dwelling Units			
							IB	OB		Impact	Severe	Type[3]	Impact	Severe	Mitigation[4]/ Barrier Reduction
RIVERSIDE															
1st Street	210	SF	4	OB	IB	75	45	45	59.9	65.0	73.2	None			
Thornton Avenue	90	SF	17	OB	OB	76	45	45	58.6	65.0	74.0	None			
Transit Avenue	141	SF	12	IB	OB	67	30	30	63.2	62.2	67.5	Moderate			
Citrus Street 1	62	SF	1	IB	OB	73	30	30	66.7	65.0	71.7	Moderate	1		SI
Citrus Street 2	102	SF	2	IB	OB	73	30	30	60.9	65.0	71.7	None			
Kentwood 1	170	SF	3	IB	OB	67	60	60	54.8	62.2	67.5	None			
Kentwood 2	186	SF	2	IB	OB	67	60	60	54.9	62.2	67.5	None			
Kentwood 3	80	SF	7	IB	IB	63	60	60	63.7	59.6	65.0	Moderate	14		NB / 7dB
Kentwood 4	80	SF	6	IB	IB	63	60	60	62.1	59.6	65.0	Moderate	6		NB / 4dB
Kentwood 5	80	SF	1	IB	Both	63	60	60	65.1	59.6	65.0	Severe		1	SI
Kentwood 6	150	SF	1	IB	OB	67	60	60	62.0	62.2	67.5	None			
Kentwood 7	186	SF	2	IB	OB	67	60	60	59.3	62.2	67.5	None			
Kentwood 8	160	SF	1	IB	Both	67	60	60	62.2	62.2	67.5	Moderate	1		SI
Watkins 1	124	MF	3	OB	IB	66	60	60	60.8	61.5	66.8	None			
Watkins 2	140	MF	6	OB	IB	66	60	60	59.7	61.5	66.8	None			
Watkins 3	140	MF	7	OB	NO	66	60	60	53.9	61.5	66.8	None			
Watkins 4	140	MF	10	OB	OB	66	60	60	55.3	61.5	66.8	None			
Watkins 5	124	MF	9	OB	OB	66	60	60	56.0	61.5	66.8	None			
Watkins 6	124	MF	6	OB	IB	66	60	60	60.2	61.5	66.8	None			
Highlander 1	127	SF	8	IB	OB	59	30	30	57.4	57.2	62.9	Moderate	8		NB / 3dB
Highlander 2	127	SF	1	IB	Both	59	30	30	63.2	57.2	62.9	Severe		1	SI

Table 3.4-9 (cont'd)
Detailed Noise Impact Assessment Category 2 Land Uses for Riverside

Description[1]	Dist. to Track CL, ft	Land Use	No. Dwelling Units	Track Side[2]	Horn	Exist Ldn, dBA	Speed, mph		Predicted Ldn, dBA	Impact Threshold		Impacts			
												No. Dwelling Units			
							IB	OB		Impact	Severe	Type[3]	Impact	Severe	Mitigation[4]/ Barrier Reduction
Highlander 3	152	SF	1	IB	Both	59	30	30	56.7	57.2	62.9	None	1		
W. Campus View 1	127	SF	6	IB	IB	59	30	30	61.9	57.2	62.9	Moderate	6		NB / 5dB
W. Campus View 2	117	SF	7	IB	NO	59	30	30	55.4	57.2	62.9	None			
W. Campus View 3	125	SF	9	IB	OB	62	30	30	61.4	58.9	64.5	Moderate	9		NB / 6dB
W. Campus View 4	104	SF	8	IB	OB	59	30	30	60.3	57.2	62.9	Moderate	8		NB /5dB
W. Campus View 5	104	SF	6	IB	NO	59	30	30	55.9	57.2	62.9	None			
Nisbet Street 1	137	SF	6	OB	OB	62	30	30	60.9	58.9	64.5	Moderate	6		NB / 3dB
Nisbet Street 2	137	SF	5	OB	OB	62	30	30	60.8	58.9	64.5	Moderate	5		NB / 3dB
Mt. Vernon 1	110	SF	1	OB	OB	62	30	30	65.0	58.9	64.5	Severe		1	SI
Shady Grove	356	SF	11	IB	OB	62	30	30	56.8	58.9	64.5	None			
E. Campus View 1	80	SF	4	IB	IB	56	25	25	65.3	55.7	61.6	Severe		4	NB / 11dB
E. Campus View 2	65	SF	4	IB	IB	62	25	25	67.9	58.9	64.5	Severe		4	NB[5] / 10dB
E. Campus View 3	65	SF	4	IB	IB	56	25	25	66.8	55.7	61.6	Severe		7	NB[6] / 13dB
Big Springs	120	SF	4	OB	No	62	30	30	57.3	58.9	64.5	None			
Quail and Swain	140	SF	5	OB	No	62	30	30	56.7	58.9	64.5	None			
Masters Avenue	170	SF	4	OB	No	62	30	30	55.8	58.9	64.5	None			
E. Manfield Street	130	SF	3	OB	No	62	30	30	57.0	58.9	64.5	None			
Total, SJBL, Riverside													**65**	**18**	

Notes:
(1) See Appendix A of the Noise and Vibration Technical Report to this SEA for graphics showing each receptor cluster on aerial photographs.
(2) IB = inbound side of track, OB = outbound side of tracks.
(3) Represents FTA impact criteria
(4) NB= Noise Barrier, SI = Sound Insulation
(5) Home would require mitigation at this location (see Mitigation Measure NV-2).
(6) Includes three moderately impacted second row buildings.

Source: STV Incorporated (2009)

Table 3.4-10
Detailed Noise Impact Assessment Category 2 Land Uses for Perris

Description[1]	Dist. To Track CL, ft	Land Use	No. Dwelling Units	Track Side[2]	Horn	Exist Ldn, dBA	Speed, mph		Predicted Ldn, dBA	Impact Threshold		Impacts			
												No. Dwelling Units			
							IB	OB		Impact	Severe	Type[3]	Impact	Severe	Mitigation[4]/ Barrier Reduction
PERRIS															
C Street	220	SF	19	OB	Both	70	46	46	61.8	64.4	69.5	None			
10th Street	120	SF	1	OB	Both	72	30	30	61.2	65.0	70.9	None			
State Street	80	SF	1	OB	Both	72	30	30	63.3	65.0	70.9	None			
9th Street	208	SF	3	IB	Both	66	30	30	53.7	61.5	66.8	None			
Case Road	130	MF	12	OB	IB	72	30	30	61.7	65.0	70.9	None			
Total, SJBL, Perris													**0**	**0**	

Notes:
(1) See Appendix A of the Noise and Vibration Technical Report to this SEA for graphics showing each receptor cluster on aerial photographs.
(2) IB = inbound side of track, OB = outbound side of tracks.
(3) Represents FTA impact criteria
(4) NB= Noise Barrier, SI = Sound Insulation

Source: STV Incorporated (2009)

Table 3.4-11
Detailed Noise Impact Assessment Category 3 Land Uses

Description	Dist. To Track CL, ft	Track Side[1]	Horn	Exist Leq,[2] dBA	Speed, mph		Predict Leq,	Impact Threshold		Impact	Mitigation
					IB	OB	dBA	Impact	Severe	Type[3]	Type[4]/Barrier Reduction
St George's Episcopal Church	190	OB	IB	57	60	60	61.4	61.2	67.0	Moderate	SI
UCR Day Care	175	OB	IB	54	30	30	57.1	59.9	65.8	None	
Highland Elementary School	88	IB	IB	52	30	30	60.5	59.9	65.8	Moderate	NB / 3dB
Crest Community Baptist Church	163	IB	OB	52	30	30	63.3	59.1	65.1	Moderate	NB / 6dB
Mt Vernon Day Care	180	OB	IB	52	25	25	58.7	59.1	65.1	None	
Hyatt Elementary School	370	OB	No	60	35	35	58.1	62.8	68.4	None	
Nan Sanders Elementary School	123	OB	No	64	60	60	55.6	65.2	70.6	None	
Senior Citizens Center	96	IB	OB	59	44	44	60.2	62.2	67.9	None	
St. James School	370	OB	Both	64	46	46	56.2	65.2	70.6	None	

Notes:
(1) See the Noise and Vibration Technical Report to this SEA for graphics showing each receptor cluster on aerial photographs.
(2) IB = inbound side of track, OB = outbound side of tracks.
(3) Represents FTA impact criteria
(4) NB= Noise Barrier, SI = Sound Insulation

Source: STV Incorporated (2009)

Summary of Results

Utilizing FTA noise impact criteria, the results of the noise study indicate that both moderate and severe noise impacts would occur at several locations along the proposed PVL corridor. For the 2012 operational year, moderate impacts were predicted at 83 separate Category 2 locations along the alignment. Of these 83 impact locations, 18 were predicted to be severe. The predicted noise impacts were located in the UCR area. Noise predictions at Category 3 locations revealed moderate impacts at three locations which included St. George's Episcopal Church, Crest Community Baptist Church, and Hyatt Elementary School.

As a result of the noise prediction analysis, an assessment of measures that would mitigate the predicted noise impacts was conducted. The identified mitigation measures (noise barriers, sound insulation) which would eliminate all predicted noise impacts at noise sensitive properties are also shown in Table 3.4-9, 3.4-10 and 3.4-11 above (Mitigation Measures NV-1 and NV-2).

Construction Period Noise Impacts

Site-related construction activities would result in occasional and sporadic increases in noise levels in noise-sensitive areas adjoining the project alignment. Many of these site-related construction activities needed to implement the proposed project are typical of those that occur for street and utility projects. However, given the linear configuration of the construction corridor, only small area segments would likely experience construction noise at any given time. Once grade crossing improvements along with the excavation and grading of the track base are completed, specialized track equipment would move continuously along the alignment constructing the new track. Some night-time work may also have to occur, such as track realignment. This would require prior approval by the locality in which the night-time activity is to take place. With respect to noise from the construction of the stations, only the proposed Downtown Perris Station would be located nearby noise sensitive receptors; however, station construction would only last approximately two months. Any potential impacts would be temporary in nature and would generally only occur between about 6 AM and 7 PM, Monday through Friday. The exact hours when project construction would be allowed are restricted to the hours described in the local construction noise policies above for the individual localities.

Although the overall length of construction would be approximately 18 months, disturbances at individual receptor locations would not last for more than several months. Any potential construction noise impacts on schools and churches would be sporadic and temporary. The longest sustained construction period near these receptors would likely result from station construction and, as mentioned above, would last approximately two months. However, because of the relative small scale of a typical rail station, the use of heavy construction equipment would only occur during a short segment of that two month period. According to the PVL Construction Staging Plan, some nighttime construction is scheduled to occur specifically for new track layout. Because local codes allow construction only during day-time hours, any project-related night-time construction activity would require the project to obtain from the municipality written consent for an exemption, or variance to these codes.

For mobile construction activities, the delivery of construction materials, such as the rail, rail ties, ballast, and specialized track equipment, would be accomplished using the existing rail rather than being delivered by truck. Also, staging yards would be located strategically so as to

limit the travel time for construction crews. These processes would serve to limit the exposure radius of traffic-related construction noise in sensitive areas.

The construction activity that would create the most noise and vibration is pile driving associated with the bridge replacements near the South Perris Layover Facility, around the San Jacinto River. However, there are no sensitive receptor locations nearby the proposed Layover Facility. In addition, pile driving would be temporary in nature, and any site specific pile driving would likely be completed in under a week.

Other locations along the alignment would also be potentially impacted by construction noise. To determine whether construction of the proposed PVL project would result in any noise impacts to sensitive receptors at these locations, an FTA general assessment procedure for construction noise was conducted for a representative residential location at 228 C Street in Perris. This location was chosen because it would be representative of a property which would be affected by typical track laying construction represented by activities such as culvert modifications and embankment work as well as track and road crossings construction. In addition, due to the proposed Perris Station, it would also be affected by construction noise from station and parking elements, which include earthwork, utility work and landscaping among others.

As a result, based on construction noise projections shown in Noise and Vibration Technical Report C, the combined noise level for two of the noisiest pieces of construction equipment would result in a construction noise level of 79 dBA at the property line of the residential home. This would be below the FTA construction noise criteria described in Chapter 12 of the FTA Manual. It would also be below the 80 dB noise level set by Section 7.34.060 of the Perris General Plan. Therefore, although the total project construction period is estimated to last approximately 18 months, noise impacts due to construction noise are not expected.

Subsequently, although the total construction period is estimated to last approximately 18 months, not all activities during that time would be substantive sources of noise. Therefore, because of the temporary and episodic nature of potential noise increases, construction activities would not result in significant noise impacts under NEPA.

3.4.4 Noise Mitigation Measures

The locations where noise impacts are predicted to occur, and at which mitigation would be needed to reduce noise levels, have been determined through the FTA Detailed Assessment methodology. Table 3.4-12 identifies the recommended noise barrier locations and heights for each area where noise impacts were predicted. The number of decibels by which the noise barriers would reduce predicted impacts are shown in Tables 3.4-9, 3.4-10 and 3.4-11. Accordingly, the mitigation imposed below will eliminate predicted moderate and severe impacts and reduce noise levels to a less than significant level:

Noise barrier heights were calculated based on the predicted sound level in the area, local terrain and the amount by which the FTA impact thresholds were exceeded. The barriers were designed so as to reduce the level of noise such that where an affected property would be exposed, there will be no significant noise impact predicted with the inclusion of the barrier. Where noise barriers would not be completely effective at reducing noise levels to less than significant levels, additional building sound insulation was evaluated and recommended at eight

individual properties so that interior noise levels at those eight properties would also be reduced to less than significant.

- **NV-1**: As shown on Figure 3.4-5, noise barriers shall be provided at the following locations (based on 30% Design Drawings):
    - NB 1: 10' high and 530' long between Sta. 264+00 and Sta. 269+30
    - NB 2: 13' high and 570' long between Sta. 269+30 and Sta. 275+00
    - NB 3: 9' high and 680' long between Sta. 283+00 and Sta. 289+40
    - NB 4: 12' high and 600' long between Sta. 289+40 and Sta. 295+40
    - NB 5: 8' high and 530' long between Sta. 297+70 and Sta. 303+00
    - NB 6: 8' high and 800' long between Sta. 303+00 and Sta. 311+00
    - NB 7: 10' high and 700' long between Sta. 322+00 and Sta. 330+00
    - NB 8: 11' high and 320' long between Sta. 331+00 and Sta. 334+20
    - NB 9: 13' high and 950' long between Sta. 323+40 and Sta. 332+40
    - NB 10: 13' high and 250' long between Sta. 332+80 and Sta. 334+80
    - NB 11: 9' high and 310' long between Sta. 336+00 and Sta. 339+10
    - NB 12: 9' high and 310' long between Sta. 339+10 and Sta. 342+20
    - NB 13: 13' high and 380' long between Sta. 342+20 and Sta. 346+00
- **NV-2:** Based on the topography and engineering constraints at seven residential locations and St. George's Episcopal Church (eight properties total), the use of noise barriers will not provide adequate noise reduction. Improving the sound insulation of these properties by replacing windows facing the tracks with new sound-rated windows, as well as caulking and sealing gaps in the building envelope, eliminating operable windows and installing specially designed solid-core doors, will reduce noise to below the FTA impact criteria, and to less than significant levels. Sound insulation for eight properties shall be provided at the following locations:
    - Northeast corner of the grade crossing at West Blaine Street (619 West Blaine Street)
    - Northeast corner of the grade crossing at Mount Vernon Avenue (116 East Campus View Drive)
    - Southwest corner of the grade crossing at Mount Vernon Avenue (first home on Mount Vernon Avenue)
    - Northeast corner of the grade crossing at Citrus Street (1027 Citrus Street)
    - Northeast corner of the grade crossing at Spruce Street (first two homes on Kentwood Drive)
    - Southeast corner of the grade crossing at Spruce Street (first home on Glenhill Drive)
    - St. George's Episcopal Church

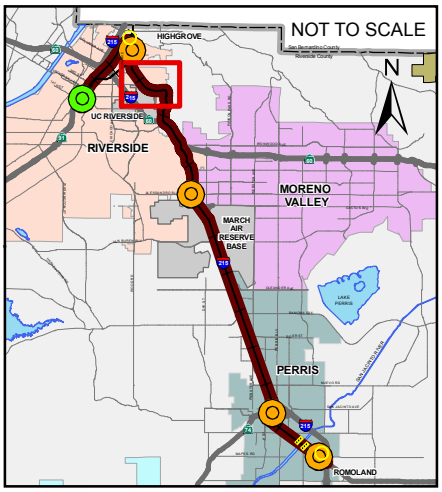
Table 3.4-12
Proposed Noise Barrier Locations

Location	Max Thresh. Exceed, dB(1)	Civil Stations*		Length, ft	Height, ft(2)	Comment
		Start	End			
NB 1. Watkins Drive (south of Spruce Street, east side of alignment)	4	264+00	269+30	530	10	
NB 2. Watkins Drive (south of Spruce Street, east side of alignment)	3	269+30	275+00	570	13	
NB 3. Highland Elementary School (north of W. Blaine Street, east side of alignment)	<1	283+00	289+40	680	9	Includes 40' of barrier segment perpendicular to track.
NB 4. W. Blaine Street (north of Blaine Street, east side of alignment)	<1	289+40	295+40	600	12	
NB 5. W. Blaine Street (south of Blaine Street, east side of alignment)	5	297+70	303+00	530	8	
NB 6. W. Blaine Street (south of Blaine Street, east side of alignment)	3	303+00	311+00	800	8	
NB 7. Mt. Vernon Avenue (west of Mt. Vernon Avenue, north side of alignment)	3	322+00	330+00	700	10	
NB 8. Crest Community Baptist Church @ Mt. Vernon Avenue	4	331+00	334+20	320	11	
NB 9. Nisbet Way (west of Mt. Vernon Avenue, south of alignment)	2	323+40	332+40	950	13	Includes 50' of barrier segment perpendicular to track.
NB 10. Nisbet Way (west of Mt. Vernon Avenue, south of alignment)	2	332+80	334+80	250	13	Includes 50' of barrier segment perpendicular to track.
NB 11. East Campus View (East of Mt. Vernon Avenue, north of alignment)	9	336+00	339+10	310	9	For residences at elevations above the rail elevation, the noise barrier will be located along the ROW.
NB 12. East Campus View (East of Mt. Vernon Avenue, north of alignment)	11	339+10	342+20	310	9	For residences at elevations above the rail elevation, the noise barrier will be located along the ROW.
NB 13. East Campus View (East of Mt. Vernon Avenue, north of alignment)	10	342+20	346+00	380	13	For residences at elevations above the rail elevation, the noise barrier will be located along the ROW.

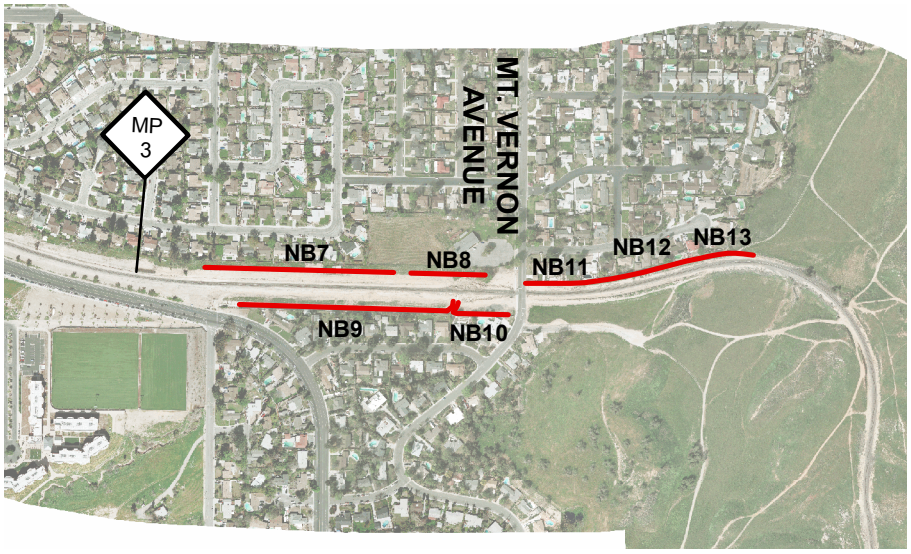
Notes: (1) Maximum amount that the predicted levels exceed the applicable noise impact threshold.
(2) Noise barrier heights are relative to top of ROW boundary elevation. Noise barriers for mitigation may be modified to account for specific field conditions and PVL final design features.
* Stationing is based upon the 30% engineering drawings; final stationing will be determined during final design and linked to final design drawings.

Source: STV Incorporated, 2010





KEY MAP FOR INSET AREAS



LEGEND

NB1 — APPROXIMATE NOISE BARRIER LOCATION (FOR GRAPHICAL PURPOSES ONLY)

MILE POST

N

0 1,000 2,000 Feet

PROJECT NO.	92666
DRAWN:	6/11/10
DRAWN BY:	JP
CHECKED BY:	RM
FILE NAME:	92666noise3.MXD

NOISE BARRIER LOCATIONS

SUPPLEMENTAL ENVIRONMENTAL ASSESSMENT
RIVERSIDE COUNTY TRANSPORTATION COMMISSION
PERRIS VALLEY LINE
RIVERSIDE, CALIFORNIA

FIGURE

3.4-5

II. Vibration Fundamentals

Vibration is a type of movement that rapidly fluctuates back and forth, potentially causing "feelable" and audible sensations for humans. Ground-borne vibration (GBV) is usually caused by trains and construction activities such as blasting, pile-driving, and operating heavy earth-moving equipment. With trains, GBV is a result of the interaction of wheels and rails, which can cause windows, pictures on walls, or items on shelves to rattle. A rumbling sound can also accompany GBV, known as ground-borne noise (GBN) or noise that radiates from the motion of building surfaces.

Although GBV effects usually go unnoticed outdoors, it can be a significant annoyance to people inside buildings. Though GBV is almost never of sufficient magnitude to cause even minor cosmetic damage to buildings, the primary consideration is whether GBV would be intrusive to building occupants or interfere with interior activities or machinery.

GBV is often measured by the descriptor "vibration decibels", abbreviated in this document as VdB. The vibration decibel level in residential areas is usually 50VdB or lower, though humans usually begin to perceive vibration effects once the vibration level reaches 65 VdB (FTA, 2006). Beyond 80 VdB, vibration levels are often considered unacceptable by humans. GBN is measured in dBA. Figure 3.4-6 shows examples of typical vibration levels, sources, and human responses.

3.4.5 Vibration Regulatory Setting

FTA Vibration Impact Criteria

Like the noise impact criteria, the FTA vibration impact criteria are based on the three land use categories, although the categories are somewhat different. One important difference is that outdoor spaces are not included in Category 3 for vibration. This is because human annoyance from GBV requires the interaction of the ground vibration with a building structure. Consequently, the criteria apply to indoor spaces only, and there are no vibration impact thresholds for outdoor spaces such as parks.

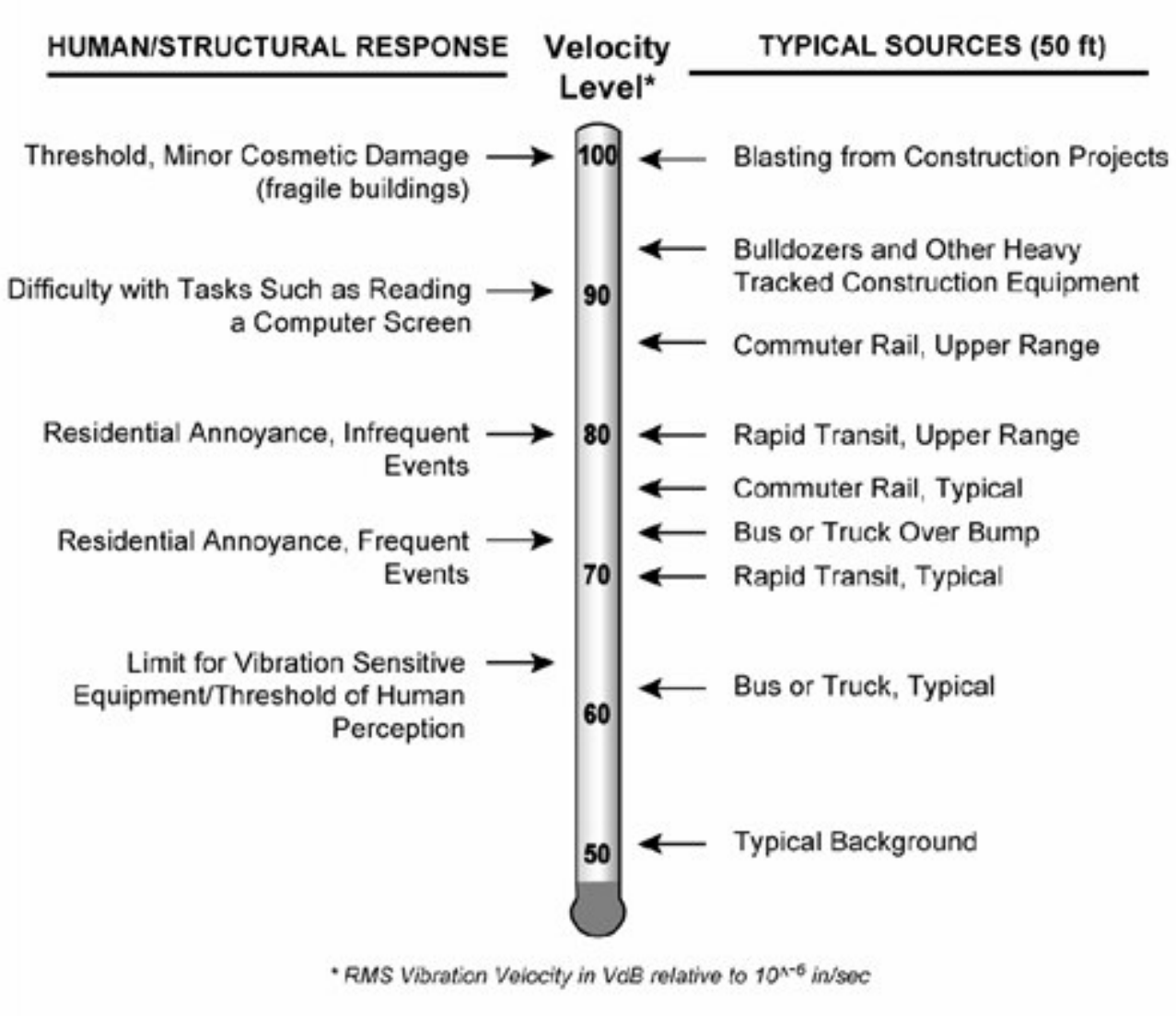
Although there has been relatively little research into human and building response to GBV, there is substantial experience with vibration from rail systems. In general, this collective experience indicates that:

- The threshold for human perception is approximately 65 VdB. Vibration levels in the range of 70 to 75 VdB are often noticeable but acceptable. Beyond 80 VdB, vibration levels are often considered unacceptable.

- Human response to vibration is more closely related to the maximum vibration level than to the number of vibration causing events. The FTA guidelines do however have different standards for "frequent" vs. "infrequent" events.

- For human annoyance, there is a relationship between the number of daily events and the degree of annoyance caused by GBV. FTA guidance includes an eight VdB higher impact threshold if there are fewer than 70 events per day. This higher threshold is applicable to the PVL project.

This Page Intentionally Left Blank



SOURCE:

FTA MANUAL FOR TRANSIT NOISE AND VIBRATION IMPACT ASSESSMENT, FTA, MAY 2006

PROJECT NO. 92666	**TYPICAL VIBRATION LEVELS**	FIGURE
DRAWN: 1/12/10		
DRAWN BY: JP		**3.4-6**
CHECKED BY: RM	SUPPLEMENTAL ENVIRONMENTAL ASSESSMENT RIVERSIDE COUNTY TRANSPORTATION COMMISSION PERRIS VALLEY LINE RIVERSIDE, CALIFORNIA	
FILE NAME: 92666dia1.MXD		

Vibration impact criteria assume that there is a relationship between the number of daily events and the degree of annoyance caused by GBV and GBN (when there are fewer vibration events each day, it takes higher vibration levels to evoke the same community response). This assumption is accounted for in the vibration impact criteria by setting different allowable VdB and dBA levels for proposed projects with varying numbers of vibration events - "Frequent Events" are defined as more than 70 events per day, "Occasional Events" range between 30 and 70 events per day, and "Infrequent Events" are fewer than 30 events per day.

The FTA vibration impact criteria are shown in Table 3.4-13. The VdB and dBA levels shown are the vibration limits allowed for each category.

Table 3.4-13
Ground-Borne Vibration and Ground-Borne Noise Impact Criteria for General Assessment

Land Use Category	GBV Impact Levels (VdB re: 1 micro-inch / sec)			GBN Impact Levels (dB re: 20 micro Pascals/ sec)		
	Frequent Events 1	Occasional Events 2	Infrequent Events 3	Frequent Events 2	Occasional Events 3	Infrequent Events 4
Category 1: Buildings where vibration would interfere with interior operations	65 VdB	65 VdB	65 VdB	NA 4	NA 4	NA 4
Category 2: Residences and buildings where people normally sleep	72 VdB	75 VdB	80 VdB	35 dBA	38 dBA	43 dBA
Category 3: Institutional land uses with primary daytime use	75 VdB	78 VdB	83 VdB	40 dBA	43 dBA	48 dBA

Notes:
1 "Frequent Events" is defined as more than 70 vibration events per day.
2 "Occasional Events" is defined as between 30 and 70 vibration events per day.
3 "Infrequent Events" is defined as less than 30 vibration events per day.
4 N/A means "not applicable". Vibration-sensitive equipment is not sensitive to ground-borne noise.

Source: FTA *Transit Noise and Vibration Impact Assessment* (2006)

These FTA vibration criteria do not specifically account for existing sources of vibration. The existing environment may currently cause a significant number of perceptible GBV or GBN events, regardless of the components of a proposed project. Because of this, the FTA established several separate criteria for existing vibration sources and the methods for addressing each, three of which are described below:

- Infrequently-used rail corridor (corridors with fewer than five trains per day). Use the general vibration criteria (Table 3.4-13).

- Moderately-used rail corridor (corridors with five to twelve trains per day). If existing vibration exceeds the general vibration criteria and if estimated vibration levels are at least 5 VdB less than existing vibration, there would be no impact from the proposed project. For other

situations, use the general vibration criteria. Heavily-used rail corridor (corridors with more than twelve trains per day). If existing vibration exceeds the general vibration criteria and if the proposed project would double the number of vibration events, the project would cause additional impact. If estimated vibration levels for the proposed project would be 3 VdB or less than existing vibration, there would be no impact.

3.4.6 Vibration Affected Environment

The proposed PVL project would be located within an existing transit corridor that currently causes GBV and GBN. The vibration environmental conditions for each segment are described below:

- The BNSF alignment is a heavily used rail corridor with 80 to 100 trains traveling along it during a typical 24-hour period. Vibration along the BNSF alignment is dominated by the existing train activity. Heavy-duty vehicle traffic also contributes to “feelable” vibration in the area.

- The SJBL alignment is an infrequently used rail corridor with about two freight trains per day. Vibration along the SJBL is dominated by the existing train activity. In addition, heavy-duty vehicle traffic along I-215 and other local roads contribute to “feelable” vibration in the area.

Vibration Measurement Program

To assess the potential vibration impacts as a result of the PVL project, vibration measurements were conducted at 12 selected sensitive receptors in 2005. A tabulation of these monitored locations is provided in Table 3.4-14 and monitoring locations are mapped on Figure 3.4-3 and Figure 3.4-4.

Table 3.4-14
Summary of Vibration Measurements (2005)

Site No.	Description	Measure Type [1]	Dist. From Tracks (ft.)	Avg. Train Vib., VdB[2]	No. of Trains
1	103 Sir Dames Dr, Riverside	LT	50	82	3
2	441 Transit Avenue, Highgrove	LT	50	72	3
3	2294 Kentwood/Spruce, Riverside	LT	50	73	8
4	518 W. Campus View, Riverside	LT	50	72	8
5	232 E. Campus View, Riverside	LT	50	70	2
6	396 E. Big Springs Rd., Riverside	LT	50	58	2
7	228 C Street, Perris	LT	50	--	2
8	81W. 8th Street, Perris	LT	50	--	0
9	Church at Spruce & Watkins, Riverside	ST	50	--	0
10	Church at Mt. Vernon Crossing, Riverside	ST	50	78	1
11	Hyatt Elementary School/E. Manfield Rd., Riverside	ST	50	68	1
12	Highland Park off Kentwood, Riverside	ST	50	--	0

Notes:
[1] LT = long term (24 hours or more), ST = short term (30 minutes to one hour).
[2] Average train vibration level when locomotives passed measurement position.
[3] Total number of trains passing measurement position during measurements. Measurement period may be for more than 24 hours.

Source: ATS Consulting (2005)

There has been no major development within the PVL project area since 2005, and therefore no significant increase in traffic, and the volume and type of freight service on the BNSF and SJBL alignments has remained relatively constant. Since the dominant source for ambient vibration levels was and still is the existing freight service on these alignments, the 2005 data is representative of 2009 ambient noise levels.

The 12 measurement sites were selected on the basis of several factors, the most important of which was the site's potential sensitivity to changes in vibration levels. Each site was either representative of a unique vibration environment, or of nearby, similarly situated receptors. Along the BNSF alignment, the primary land uses are industrial and commercial; however, vibration monitoring was conducted at two pockets of residential properties near the alignment. As the Citrus Connection and the existing SJBL alignment pass through predominately residential neighborhoods, most of the sensitive receptors monitored along these segments are residential in nature. Several non-residential land uses also exist along these segments and were included in the monitoring program; these sites include schools, churches and senior centers. Pass-by vibration measurements were taken during existing freight operations.

Vibration Analysis Methodology

Following is an outline of the approach used to identify potential vibration impacts from the proposed PVL commuter rail extension. In general, the approach follows the Detailed Assessment guidelines outlined in the FTA Manual with modifications to account for the measurement results in the PVL corridor and previous experience with SCRRA/Metrolink vibration. The general steps are:

1. Identify representative vibration-sensitive receptors. Sensitive land uses along the corridor were identified, first by referencing recent aerial photography. Field visits were then conducted to confirm land uses and gather additional relevant information. Sensitive receivers were then grouped together based on their location relative to the tracks and other geographic and PVL operational factors that might affect vibration levels. Within each grouping, a representative receptor was included in the FTA vibration model (see step 3 below). The representative locations were developed based on previous studies, additional field review and comments received during the Draft EA process.

2. Determine existing vibration levels as described above.

3. Develop vibration prediction models. The FTA impact criteria for GBV are based on the amount of vibration generated within buildings. This means that accurate predictions of GBV require accounting for: (a) the forces generated by the interaction of the wheels and rails (b) the effects that the localized soil conditions have on vibration propagation, and (c) how building structures respond to ground vibration.

   To develop predictions of GBV for the PVL, the FTA Manual's generalized base vibration curve was applied. The base curve is referenced to typical locomotive vibration characteristics and the distance from the vibration source to the affected receiver. Applying key adjustment elements to the curve such as speed and building response results in the final vibration prediction level.

   Based on the results, the appropriate vibration criteria are then applied to determine potential impact. The FTA vibration criteria are based on the frequency of operation (less than 30 events per day based on the forecasted number of SCRRA/Metrolink trains) along the PVL corridor. For the PVL corridor, this would mean that the forecasted number of SCRRA/Metrolink trains would be in the "Infrequent Events" category, as described in the FTA Manual. Because the impact criteria already takes into account the frequency or number of train trips, only one single train event is required for the assessment.

   According to Chapter 8 of the FTA Manual, the number of existing daily freight train events along the SJBL is too few to warrant inclusion in the analysis. When existing rail corridors have less than five freight train trips per day, the existing environment would not include a significant number of perceptible GBV events. As a result, the FTA vibration assessment for the PVL project would only be related to future Metrolink trains traveling along the SJBL.

4. Estimate future noise and vibration levels at the representative receivers. Using the noise and vibration models described above, future train-generated noise and vibration levels were estimated and compared against the applicable FTA impact thresholds to identify potential noise and vibration impacts.

5. Identify vibration mitigation. With respect to vibration impacts, according to the FTA Manual, the application of mitigation measures such as the use of ballast mats or resiliently supported ties would significantly reduce the level of predicted vibration. One of these mitigation measures would be applied to the track alignment and would

extend along areas where impacts were predicted. When assessing vibration mitigation it is important to consider both the degree of impact and the cost as any mitigation should be both reasonable and feasible.

3.4.7 Vibration Environmental Consequences/Impacts

Details of the vibration predictions are presented in Table 3.4-15 and Table 3.4-16 for residential land uses in Riverside and Perris, respectively. Table 3.4-17 presents the vibration predictions for institutional land uses (schools and churches) for the entire SJBL. All vibration levels have been predicted using the procedures outlined above.

Table 3.4-15
Predicted Levels of Ground-Borne Vibration, Category 2 (Residential) Land Uses for Riverside

Description	Dist (Ft)	Land Use	No. Dwell Units	Track Side1	Speed		Impact Threshold	Predicted Vibration	Impact	No.
					IB	OB	VdB	VdB	Y/N?	
Citrus Street	62	SF	3	IB	30	30	80	78	N	
Kentwood 1	170	SF	5	IB	35	35	80	69	N	
Kentwood 2	140	SF	4	IB	60	60	80	76	N	
Kentwood 3	80	SF	14	IB	60	60	80	81	Y	14
Watkins 2	140	MF	6	OB	60	60	80	76	N	
Watkins 4	140	MF	7	OB	60	60	80	76	N	
Watkins 3	140	MF	10	OB	60	60	80	76	N	
Watkins 1	124	MF	9	OB	60	60	80	78	N	
Watkins 5	124	MF	4	OB	60	60	80	78	N	
Highlander	127	SF	10	IB	30	30	80	72	N	
W. Campus View 1	127	SF	13	IB	30	30	80	72	N	
W. Campus View 2	117	SF	13	IB	30	30	80	73	N	
W. Campus View 3	125	SF	9	IB	30	30	80	72	N	
W. Campus View 4	104	SF	5	IB	30	30	80	74	N	
Nisbet Way	137	SF	11	OB	30	30	80	71	N	
Mt. Vernon 1	110	SF	1	OB	30	30	80	73	N	
Mt. Vernon 2	180	SF	1	OB	30	30	80	68	N	
E. Campus View 1	80	SF	3	IB	25	25	80	73	N	
E. Campus View 2	65	SF	9	IB	25	25	80	75	N	
Big Springs	120	SF	4	OB	30	30	80	73	N	
Quail and Swain	140	SF	5	OB	30	30	80	70	N	
Masters Avenue	170	SF	4	OB	30	30	80	68	N	
E. Manfield Street	130	SF	3	OB	30	30	80	72	N	
Total, SJBL, Riverside										**14**
Source: STV Incorporated (2009)										

Table 3.4-16
Predicted Levels of Ground-Borne Vibration, Category 2 (Residential) Land Uses for Perris

Description	Dist (Ft)	Land Use	No. Dwell Units	Track Side1	Speed		Impact Threshold	Predicted Vibration	Impact	No.
					IB	OB	VdB	VdB	Y/N	
C Street	244	SF	19	OB	46	46	80	67	N	
10th Street	120	SF	1	OB	30	30	80	73	N	
State Street	80	SF	1	OB	30	30	80	75	N	
9th Street	300	SF	5	IB	30	30	80	62	N	
Case Road	130	MF	12	OB	30	30	80	72	N	
Total, SJBL, Perris										**0**
Source: STV Incorporated (2009)										

Table 3.4-17
Predicted Levels of Ground-Borne Vibration, Category 3 (Institutional) Land Uses

Description	Dist (Ft)	Land Use	Track Side1	Speed		Impact Threshold	Predicted Vibration	Impact	No.
				IB	OB	VdB	VdB	Y/N	
St George's Episcopal Church	190	Church	OB	60	60	83	74	N	
UCR Day Care	175	Day Care	OB	30	30	83	69	N	
Highland Elementary School	88	School	IB	60	60	83	81	N	
Crest Community Baptist Church	163	Church	IB	30	30	83	69	N	
Hyatt Elementary School	370	School	OB	35	35	83	63	N	
Senior Citizens Center	72	Community Center	IB	44	44	83	81	N	
St. James School	370	School	OB	60	60	83	68	N	
Total, SJBL, Perris									**0**
Source: STV Incorporated (2009)									

Summary of Results

Rail Operations

Utilizing FTA vibration criteria, the results of the PVL vibration study indicate that future SCRRA/Metrolink rail vibration levels generated under the 2012 operational year would be generally in ranges below the FTA vibration impact thresholds. However, vibration impacts would occur along one residential section of the PVL corridor. Affected homes are located in the UCR area just south of Spruce Street and north of the Hyatt Elementary School along the eastern side of the proposed PVL alignment. A total of 14 homes extending approximately 1,200 feet along the proposed alignment would be affected. The distances between the PVL alignment and existing homes in this section range from 80 to 90 feet.

Train operations from the proposed PVL project will result in vibration impacts in the UCR area of Riverside. Mitigation measures to reduce vibration include the installation of ballast mats or resiliently supported ties (under-tie pads). The proposed mitigation measures allows for the

selection of either one or of these two methods to reduce vibration to below a significant impact (Mitigation Measures NV-3 and NV-4).

Stations, Parking Lots and the Layover Facility

Trains in the vicinity of stations and the Layover Facility would be traveling at low rates of speed and therefore are not expected to result in any vibration impacts at nearby sensitive receptors. In addition, automobile parking areas would be utilized by rubber-tired vehicles. Rubber-tired vehicles do not generate vibration impacts because of the nature of tire-pavement interaction with respect to vibration impacts. No impacts are expected from these areas.

Construction Period Vibration Impacts

Vibration impacts could occur during construction activities from the operation of equipment at a site. Site related construction elements would include excavation of the rail ROW, the construction of grade crossings, the laying of track followed by systems and passenger station construction.

Although the overall length of construction would be approximately 18 months, disturbances at individual receptor locations would not last for more than several months. Any potential construction noise impacts on schools and churches would be sporadic and temporary. The longest sustained construction period near these receptors would likely result from station construction and, as mentioned above, would last approximately two months. However, because of the relative small scale of a typical rail station, the use of heavy construction equipment would only occur during a short segment of that two month period.

According to Section 7.34.060 of the Perris General Plan, construction is restricted to the hours of 7 AM to 7 PM. Construction is prohibited on holidays.

According to the Riverside County Code, Title 15.04.020, whenever a construction site is within one-quarter of a mile of an occupied residence or residences, no construction activities shall be undertaken between the hours of 6 PM and 6 AM during the months of June through September and between the hours of 6 PM and 7 AM during the months of October through May.

According to the PVL Construction Staging Plan, some nighttime construction is scheduled to occur specifically for new track layout. As such, written consent for an exemption, or variance to these codes would have to be obtained from the municipality.

The construction activity that would create the most vibration is pile driving associated with the bridge replacements near the South Perris Layover Facility, around the San Jacinto River. However, there are no sensitive receptor locations nearby the proposed Layover Facility. In addition, pile driving would be temporary in nature, and any site specific pile driving would likely be completed in under a week.

As a result, although the total construction period is estimated to last approximately 18 months, not all activities during that time would be substantive sources vibration. Therefore, because of the temporary and episodic nature of potential vibration increases, construction activities would not result in significant impacts under NEPA.

3.4.8 Vibration Mitigation Measures

Train operations from the proposed PVL project will result in vibration impacts in the UCR area of Riverside from civil stations 263+00 to 275+00 (affecting a total of 14 homes extending approximately 1,200 feet along the eastern side of the proposed PVL alignment just south of Spruce Street and north of Hyatt Elementary School). Mitigation measures to reduce vibration to below a significant impact are listed below: (It should be noted that either one of the two methods would be effective at mitigating the impacts to below a level of significance.

- **NV-3:** *Ballast Mats*: A ballast mat consists of a rubber (such as shredded rubber tires), cork or other type of resilient elastomer pad that is placed under the normal ballast, ties, and rail. The mat shall be placed on a concrete or asphalt layer to be most effective. Ballast mats can provide 5 to 12 dB attenuation at frequencies above 25 to 30Hz.

- **NV-4:** *Resiliently Supported Ties (Under-Tie Pads):* This treatment consists of resilient rubber pads placed underneath concrete ties. A resiliently supported tie system consists of concrete ties supported by rubber pads. The rails are fastened directly to the concrete ties using standard rail clips.

Implementation of either one of the vibration mitigation measures described above (NV-3 or NV-4) between Sta. 263+00 and 275+00 will eliminate the 2 VdB impact predicted in the UCR area of Riverside (affecting a total of 14 homes extending approximately 1,200 feet along the eastern side of the proposed PVL alignment just south of Spruce Street and north of Hyatt Elementary School).

3.5 TRAFFIC AND PARKING

This section of the SEA presents the findings of the *Perris Valley Line Commuter Rail Traffic Technical Report* (STV Incorporated, 2010) to this SEA as presented in Technical Report D, and an assessment of the potential impacts related to traffic within the PVL corridor.

3.5.1 Regulatory Setting

In compliance with California state law, Riverside County and each city within the county limits maintains a General Plan Circulation Element that identifies transportation routes, terminals, and facilities and their performance criteria. Level-of-service (LOS) standards based on the *Highway Capacity Manual 2000 (HCM2000)* procedures are used to assess the performance of a street or highway system and the capacity of a roadway. For a signalized intersection, levels of service are determined for the intersection and its individual lane groups, and are defined in terms of the average control delays experienced by all vehicles that arrive in the analysis period, including delays incurred beyond the analysis period when the intersection or lane group is saturated. For an unsignalized intersection, levels of service are determined for minor movements only, and are defined as the total elapsed time between a vehicle stopping at the end of the queue and departing from the stop line. The delay levels for signalized and unsignalized intersections for various levels of service are detailed below (see Table 3.5-1).

Table 3.5-1
Level-of-Service Descriptions

LOS	Definition	Signalized Intersection Delay (sec/veh)	Unsignalized Intersection Average Stop Delay (secs)
A	Describes operations with very low delay. Freedom to select desired speeds and to maneuver within the traffic stream is extremely high.	<10	<10
B	Describes operations with moderately low delay and stable flow. Drivers begin to feel somewhat restricted within platoons of vehicles.	>10 and <20	>10 and <15
C	Describes operations with average delays. The range of flow in which the operation of individual users becomes significantly affected by interactions with others in the traffic stream.	>20 and <35	>15 and <25
D	Describes a crowded operation, with below average delays. Speed and freedom to maneuver are severely restricted.	>35 and <55	>25 and <35
E	Represents operating conditions at or near the level capacity. All speeds are reduced to a low but relatively uniform value.	>55 and <80	>35 and <50
F	Forced or breakdown flow. This condition often occurs with over-saturation, i.e., when arrival flow rates exceed the capacity of the intersection.	>80	>50

The cities of Riverside, Moreno Valley, and Perris, and the county of Riverside, which are the agencies whose jurisdiction the study area falls under, have adopted the following thresholds for levels of service.

According to the City of Riverside General Plan:

> Maintain LOS D or better on arterial streets and LOS C or better on Local and Collector streets in residential areas. LOS E may be acceptable as determined on a case-by-case basis at key locations such as City arterial roadways which are used as a freeway bypass by regional through traffic and at heavily traveled freeway interchanges.

According to the City of Moreno Valley General Plan:

> Maintain LOS C where possible. Peak hour levels of service in the LOS D range may be acceptable in certain locations including areas of high employment concentration, north/south roads in the vicinity of SR-60 or other locations in already developed areas of the City with geometric constraints that prevent LOS C from being achieved.

According to the City of Perris General Plan:

> Maintain LOS E along all Local roads (for both segments and intersections) and LOS D along I-215 and SR-74 (including intersections with local streets and roads).

According to the Riverside County General Plan:

> Maintain LOS C along all County maintained roads and conventional state highways. As an exception, LOS D may be allowed in Community Development areas, only at intersections of any combination of Secondary Highways, Major Highways, Arterials, Urban Arterials, Expressways, conventional state highways or freeway ramp intersections. LOS E may be allowed in designated community centers to the extent that it would support transit-oriented development and walkable communities.

3.5.2 Affected Environment

The proposed PVL corridor is approximately 21 miles long, and traverses through the cities of Riverside to south of Perris in Riverside County.

The project corridor contains a variety of land uses and related street/intersection layouts. In the more developed areas of the corridor, such as the city of Riverside, traffic signals control intersection movements, while in the less developed areas of the corridor stop signs control traffic movements. Additionally, it should be noted that many of the current grade crossings do not have crossing arms to block access when a train is passing. Traffic study areas were identified for each of the four stations that would be in service in 2012 that considered the primary streets serving the general area, the potential access points to the station, and key intersections likely to be affected by the assignment of project-generated trips.

A total of 29 intersections were selected for analysis for the four stations, and are identified by station area location.

Hunter Park Station: the three proposed station location options along Palmyrita, Columbia and Marlborough Avenues as shown on Figure 3.5-1.

- Iowa Avenue at Center Street
- Iowa Avenue at Palmyrita Avenue
- Northgate Street at Palmyrita Avenue
- Iowa Avenue at Columbia Avenue
- Northgate Street at Columbia Avenue
- Northgate Street at Marlborough Avenue
- Iowa Avenue at Marlborough Avenue
- Rustin Avenue at Marlborough Avenue

Moreno Valley/March Field Station as shown on Figure 3.5-2

- Alessandro Boulevard at Mission Grove Parkway
- Alessandro Avenue at Old 215
- Cactus Avenue at Old 215
- Cactus Avenue at southbound I-215 ramps

Downtown Perris Station as shown on Figure 3.5-3

- Nuevo Road at Perris Boulevard
- San Jacinto Avenue at Redlands Avenue
- San Jacinto Avenue at Perris Boulevard
- San Jacinto Avenue at C Street
- San Jacinto Avenue at D Street
- SR-74 at Navajo Road
- SR-74 at C Street
- SR-74 at D Street
- SR-74 at Perris Boulevard
- 6th Street at C Street
- 6th Street at D Street
- 7th Street at C Street
- 7th Street at D Street
- 7th Street at Perris Boulevard

South Perris Station as shown on Figure 3.5-4

- Bonnie Drive at southbound I-215 ramps
- SR-74 at northbound I-215 off-ramp
- SR-74 at Sherman Road

This Page Intentionally Left Blank

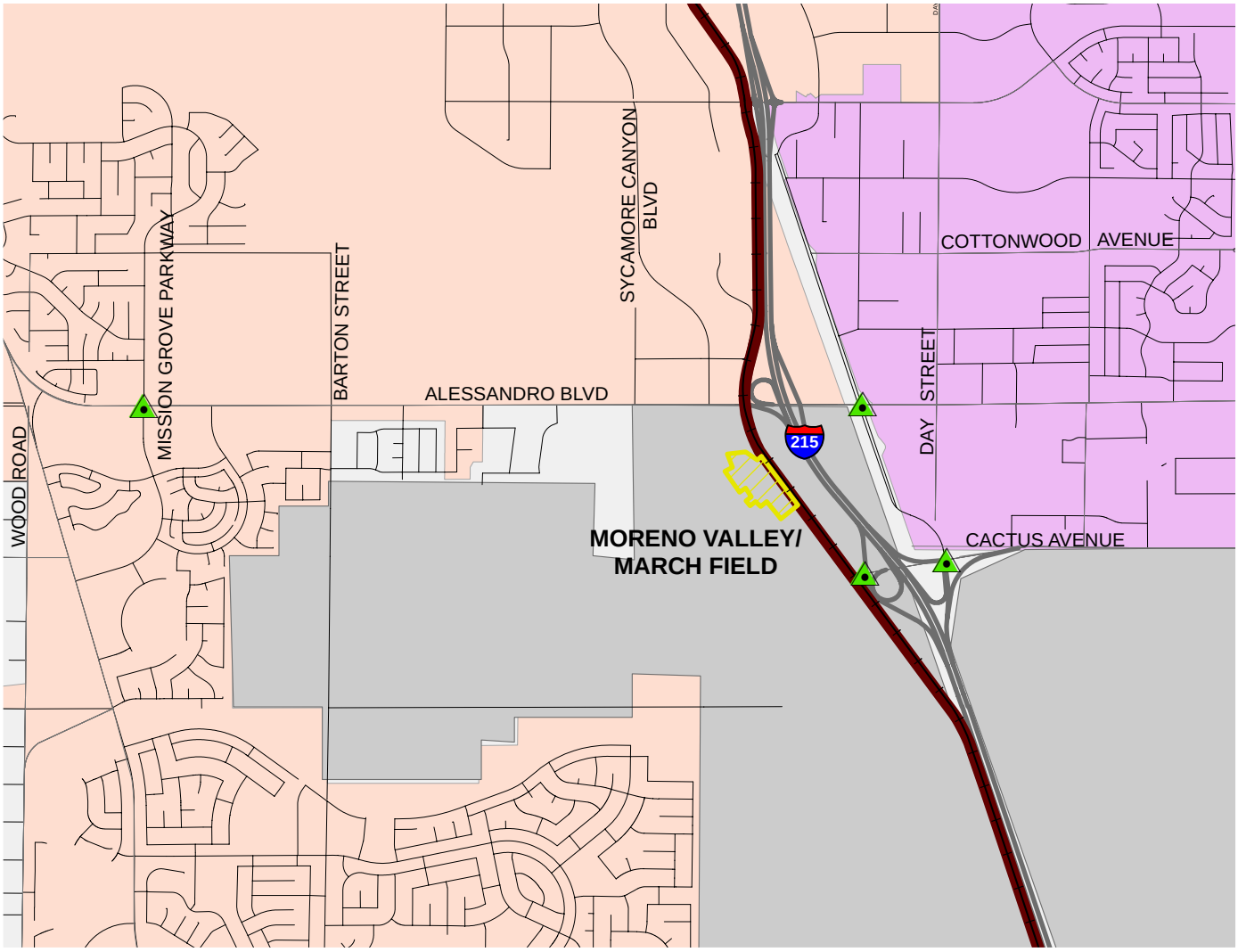


PROJECT NO.	92666
DRAWN:	1/5/10
DRAWN BY:	JP
CHECKED BY:	RM
FILE NAME:	92666traf.MXD

HUNTER PARK STATION OPTIONS
TRAFFIC STUDY LOCATIONS

SUPPLEMENTAL ENVIRONMENTAL ASSESSMENT
RIVERSIDE COUNTY TRANSPORTATION COMMISSION
PERRIS VALLEY LINE
RIVERSIDE, CALIFORNIA

FIGURE
3.5-1



LEGEND

- PVL ALIGNMENT
- PROPOSED STATION BOUNDARY
- TRAFFIC STUDY LOCATION

N

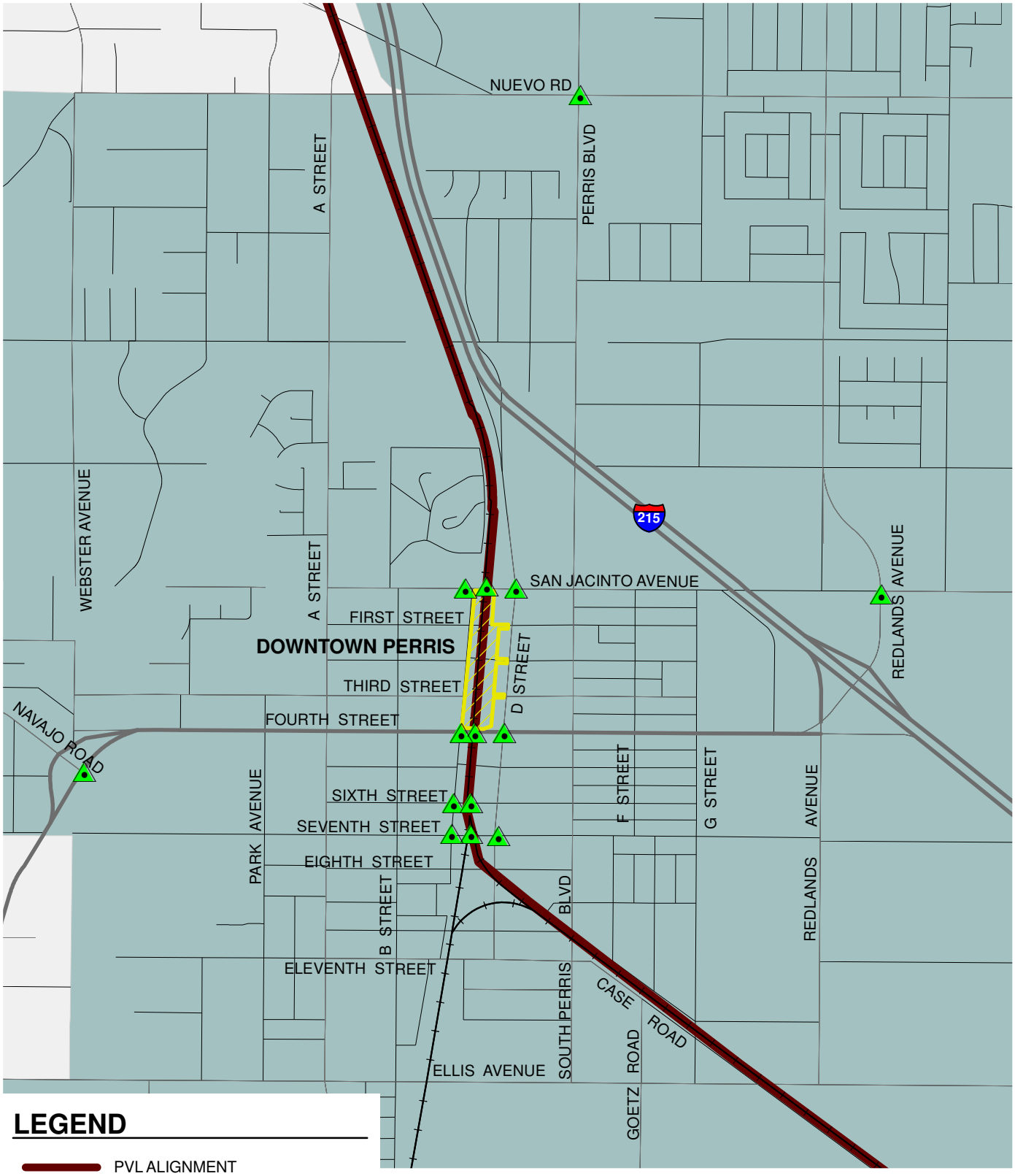
0 3,000 Feet

PROJECT NO.	92666
DRAWN:	1/5/10
DRAWN BY:	JP
CHECKED BY:	RM
FILE NAME:	92666traf1.MXD

MORENO VALLEY/
MARCH FIELD STATION
TRAFFIC STUDY LOCATIONS

SUPPLEMENTAL ENVIRONMENTAL ASSESSMENT
RIVERSIDE COUNTY TRANSPORTATION COMMISSION
PERRIS VALLEY LINE
RIVERSIDE, CALIFORNIA

FIGURE
3.5-2



PROJECT NO.	92666
DRAWN:	1/14/10
DRAWN BY:	JP
CHECKED BY:	RM
FILE NAME:	92666traf2.MXD

DOWNTOWN PERRIS STATION TRAFFIC STUDY LOCATIONS

SUPPLEMENTAL ENVIRONMENTAL ASSESSMENT
RIVERSIDE COUNTY TRANSPORTATION COMMISSION
PERRIS VALLEY LINE
RIVERSIDE, CALIFORNIA

FIGURE

3.5-3



PROJECT NO.	92666	**SOUTH PERRIS STATION TRAFFIC STUDY LOCATIONS**	FIGURE **3.5-4**
DRAWN:	1/5/10		
DRAWN BY:	JP		
CHECKED BY:	RM	SUPPLEMENTAL ENVIRONMENTAL ASSESSMENT RIVERSIDE COUNTY TRANSPORTATION COMMISSION PERRIS VALLEY LINE RIVERSIDE, CALIFORNIA	
FILE NAME:	92666traf3.MXD		

The key travel routes in the vicinity of each station are described below:

Hunter Park Station options

- *Iowa Avenue* is a six-lane, north-south arterial that carries traffic between the Hunter Industrial Park neighborhood to the north and the Canyon Crest neighborhood to the south in Riverside. RTA Route (Rte) 25 runs along Iowa Avenue within the study area.

- *Center Street* is a four-lane undivided arterial oriented in the east-west direction within the study area, and ends just west of its intersection with I-215.

- *Palmyrita Avenue* between Iowa and Prospect Avenues is a two-lane undivided roadway extending in the east-west direction. It is lined with office buildings and warehouses within the study area.

- *Columbia Avenue* is a four-lane arterial that carries traffic in the east-west direction between Hunter Industrial Park and the Northside areas in Riverside.

- *Marlborough Avenue* is an east-west collector road that becomes an arterial between Chicago and Rustin Avenues in Riverside. East of Iowa Avenue, a bike lane is provided along both sides of the street.

Moreno Valley/March Field Station

- *Alessandro Boulevard* is a six-lane, divided arterial roadway extending in the east-west direction within the study area, and is served by the Rte 20 bus.

- *Cactus Avenue* between Meridian Parkway and Old 215 is an undivided east-west arterial within the limits of the city of Moreno Valley providing access to north and southbound I-215. It provides four lanes east of Old 215, and narrows to two lanes at its intersection with southbound I-215 ramps.

Downtown Perris Station

- *Perris Boulevard* is a north-south, primary arterial that extends from downtown Perris to Moreno Valley. The Rte 19, 22, 27, 30, and 74 buses travel along Perris Boulevard in downtown Perris.

- *San Jacinto Avenue* is a two-lane, secondary arterial oriented in the east-west direction.

- *State Route (SR)-74* provides regional access to downtown Perris, and is a four-lane facility oriented in the east-west direction in this area. The Rte 19, 22, 27, 30, 74, and 208 buses travel along a section of SR-74 to serve downtown Perris. SR-74 extends into the South Perris Station study area.

- *D Street* is a two-lane, north-south collector road that extends from 11th Street to I-215 in downtown Perris. It is served by the Rte 30 bus. On-street parking is available on the east and west sides of D Street between 1st and 7th Streets.

- *C Street* is a north-south, local road that extends from 11th Street to San Jacinto Avenue in downtown Perris.

South Perris Station

- *Sherman Road* is a two-lane, undivided roadway that extends in the north-south direction. It is mostly lined with empty lots and some residential land uses in the study area.

- *Bonnie Drive* is a short, two-lane roadway segment that connects Case Road with southbound I-215 on- and off-ramps and SR-74.

Traffic Volumes

Intersection counts, including manual turning movement and vehicle classification, were conducted at the study intersections during the weekday AM and PM periods. Additionally, 24-hour automatic traffic recorder (ATR) machine counts were collected at the following locations concurrent with turning movement counts:

- Iowa Avenue south of Spring Street
- Iowa Avenue south of Marlborough Avenue
- Columbia Avenue east of Iowa Avenue
- Alessandro Boulevard east of Mission Grove Parkway
- Cactus Avenue west of Old 215
- Perris Boulevard south of Bowen Road
- SR-74 east of D Street
- SR-74 east of Trumble Road

The manual and ATR count data were reviewed to ensure that traffic volumes for a representative day (during clear weather and while schools are in session) are reflected in the traffic analyses. From the data collected, the weekday AM and PM peak traffic hours throughout the entire PVL study area typically occur during the 7:15 to 8:15 AM and 4:30 to 5:30 PM periods, respectively. However, peak PVL ridership periods within the study area are from 5 to 7 AM and 5 to 7 PM based on ridership projections (before and after the existing AM and PM peak travel time for area traffic, respectively, with a little overlap in the PM peak). This is due to the travel times of PVL passengers to/from stations depending on their desired arrival/departure times in Los Angeles, taking approximately one hour 15 minutes to two hours and 20 minutes of train travel time into account. For analysis purposes, the 6-7 AM and 5-6 PM analysis hours were selected since the combination of project-generated traffic and background volumes would be highest. Following is a brief description of traffic volumes on the roadways serving the station areas during these time periods.

Iowa Avenue carries the highest traffic volumes in the Hunter Park Station option areas, with approximately 330 to 1,490 vehicles per hour (vph) per direction during the 6-7 AM and 5-6 PM analysis hours. The remaining roadways in the vicinity of Hunter Park Station process up to 280 vph per direction during the AM analysis hour and 615 vph per direction during the PM analysis hour.

The analysis-hour volumes are between 450 and 2,200 vph along eastbound Alessandro Boulevard and between 810 and 1,815 vph along westbound Alessandro Boulevard (higher near Mission Grove Parkway) within the study area for the Moreno Valley/March Field Station. Westbound Cactus Avenue volumes are between 1,360 and 1,875 vph, and eastbound Cactus Avenue volumes are between 485 to 720 vph at Old 215, and decrease to 500-715 vph and 90-280 vph respectively at southbound I-215 ramps as a result of entering/exiting vehicles to/from I-215 in between these two intersections.

The traffic volumes within the Downtown Perris Station area are highest along SR-74, ranging from 430 to 1,200 vph eastbound and from 350 to 1,375 vph westbound. Bi-directional traffic volumes along the remaining roadways in the area are less than 420 vph during the analysis hours, with the exception of Nuevo Road, which carries up to 1,170 vph eastbound; and D Street and Perris Boulevard, both of which carry up to 830 vph southbound during the PM analysis hour. SR-74 also carries the highest traffic volumes in the vicinity of South Perris Station. The volumes in this area are higher compared to Downtown Perris, and vary between 600 and 1,095 vph in the eastbound direction and between 820 and 1,145 vph in the westbound direction.

Existing traffic volumes at study intersections are presented in Traffic Technical Report D.

Existing Conditions

Each of the study intersections was analyzed in terms of its capacity to accommodate existing traffic volumes as defined by the resulting levels of service. A summary of the findings is discussed below and presented in Traffic Technical Report D.

Hunter Park Station options

All movements at the study intersections operate at LOS D or better during both the AM and PM analysis hours, with the exception of Iowa Avenue at Center Street, where the northbound Iowa Avenue through movement operates at LOS E during the PM analysis hour.

Moreno Valley/March Field Station

The intersection operations are at LOS D or better during both analysis hours with the following exceptions:

- At Alessandro Boulevard and Mission Grove Parkway, westbound Alessandro Boulevard and southbound Mission Grove Parkway left-turn movements operate at LOS E during the PM analysis hour.

- Westbound Cactus Avenue's through movement at Old 215 operates at LOS E during the PM analysis hour.

Downtown Perris Station

All movements at the study intersections operate at LOS D or better during both the AM and PM analysis hours, with the exception of D Street northbound shared through/left-turn movements at SR-74, which operates at LOS E during the PM, and southbound C Street shared through/left-turn movements at SR-74, which operates at LOS F, during both the AM and PM analysis hour.

South Perris Station

All movements at the three study intersections operate at LOS C or better during both analysis hours with the following exceptions:

- Bonnie Drive's eastbound right-turn movement at southbound I-215 ramps operates at LOS F during the PM analysis hour.

- Sherman Road's northbound left-turn movement at SR-74 operates at LOS F during both the AM and PM analysis hours, and the southbound left/right-turn movement operates at LOS F during the PM analysis hour.

2012 Future Conditions without the Project

The analysis of the future traffic conditions without the proposed project serves as the baseline against which impacts of the project are compared. These analyses include the traffic volume increases expected due to an overall growth in traffic through and within the study area, and major approved land developments and roadway system changes scheduled to be occupied or implemented by the 2012 opening year for the PVL.

A generally applied background growth rate of two percent per year, resulting in an overall growth of approximately eight percent by 2012, was assumed for Hunter Park and Moreno Valley/March Field station areas per the guidelines of the cities of Riverside and Moreno Valley. For Downtown and South Perris stations, which are within the city of Perris, an annual background growth rate of three percent (approximately 13 percent over four years) was used, per City guidelines.

No major developments are planned in the area surrounding Hunter Park Station by 2012. Although the Hunter Business Park development is not fully built out according to the city of Riverside, this development is not expected to be a significant generator of traffic due to its designated industrial/warehouse land use and the size of the remaining parcels. Two major improvement projects involving railroad grade separations at Columbia and Iowa Avenues are planned to be completed in 2009 and 2011, respectively. The grade separation of Columbia Avenue and the BNSF railroad tracks would raise Columbia Avenue over the BNSF railroad between La Cadena Drive and Iowa Avenue. Similarly, the Iowa Avenue grade-separation project would raise Iowa Avenue over the BNSF tracks between Palmyrita Avenue and Spring Street. These projects are not expected to affect the traffic volumes in the area, and would neither increase nor reduce roadway capacity.

A number of approved development projects were identified by the city of Moreno Valley within the Moreno Valley/March Field Station area:

1. Centerpointe Industrial and Business Park project is located northeast of Cactus Avenue and Graham Street; it will be a 162-acre business park.

2. Meridian Business Park (formerly known as March Business Center) project is located southwest of I-215 and Alessandro Boulevard on a 1,290-acre site. The project land uses consist primarily of industrial park, warehousing, research and development, and associated business support uses. It is planned to be constructed in three phases, two of which would be completed by 2012.

3. Gateway Center is an industrial/business park project on a 25-acre site on Day Street south of Alessandro Boulevard.

4. Cactus/Commerce Commercial Center is a 16,000-square-foot commercial/retail development on Cactus Avenue between Day and Elsworth Streets.

   The trip generation and assignment for these projects were taken from the *Cactus Avenue and Commerce Center Drive Commercial Center Traffic Impact Study* (Urban Crossroads, 2008).

5. March Lifecare Campus is a development project including a mix of healthcare and ancillary uses, including hospitals, general and specialty medical offices, medical retail, research and education, a wellness center, senior center, independent/assisted-living facilities, skilled nursing facilities, and related support facilities. The project will be developed in five planning areas, of which the first two are expected to be developed by 2011, and include a 50-bed hospital, 660 units of institutional residential, 190,000 square feet of medical office, 200,000 square feet of research and education, and 210,000 square feet of retail land uses. The remaining planning areas will be developed over the next 20 to 25 years. Therefore, the trip generation and vehicle assignments associated with only the first two planning areas for this project were incorporated into the 2012 future traffic volumes without the project. Vehicle trip generation and assignments for this development project were obtained from the *March Lifecare Campus Specific Plan Draft Program Environmental Impact Report* (Applied Planning Inc., 2009).

As previously noted, the AM analysis hour for the PVL is earlier than the AM peak hour analyzed for these development projects. It was determined that the trip distribution for the 6-7 AM time period (PVL AM analysis hour) corresponds to 35 percent of the typical AM peak hour traffic based on the *Southern California Association of Governments Year 2000 Post-Census Regional Travel Survey.* Therefore, AM peak hour trip generation for the above projects was reduced by 65 percent.

In addition to the development projects, a major roadway improvement project to widen Cactus Avenue and to reconfigure its intersection with southbound I-215 ramps is planned to be completed by 2012 within the Moreno Valley/March Field study area. Upon the completion of this project, Cactus Avenue would provide two east and westbound through lanes, one westbound left-turn lane, and one eastbound right-turn lane. In addition, southbound through and left-turn movements from I-215 off-ramp onto Cactus Avenue would be no longer allowed.

Two approved projects are to be completed in the Downtown Perris Station study area by 2012:

1. The Venue at Perris development project is located on the northeast corner of I-215 and Redlands Avenue. It would include a movie theater, home improvement superstore, discount superstore, and other retail space. The trip generation for this project was developed based on rates for Land Use 862 ("Home Improvement Superstore"), 813 ("Free-Standing Discount Superstore"), 820 ("Shopping Center"), and 444 ("Movie Theater with Matinee") from the *Institute of Transportation Engineers Trip Generation, 7th Edition* (Institute of Transportation Engineers, 2007). Traffic was assigned based on existing travel patterns.

2. Perris Marketplace project is a 520,000-square-foot retail center located on the west side of Perris Boulevard, north of Nuevo Road. It includes a discount superstore with a gas station, a home improvement store, restaurants, and specialty retail space. Vehicle trip generation and assignments for this project were obtained from the traffic study prepared for the city of Perris in 2006. This study recommends reconfiguration of the Nuevo Road/Perris Boulevard intersection to mitigate the impacts of the project as follows:

- Provide two left-turn, two through, one through/right-turn, and one right-turn lane for eastbound Nuevo Road.

- Provide one left-turn, three through, and one right-turn lane for northbound Perris Boulevard.

- Provide two left-turn, three through, and two right-turn lanes for southbound Perris Boulevard.

- Westbound Nuevo Road approach remains the same as existing conditions.

It is assumed that these mitigation measures were in place by 2009.

Roadway system changes by 2012 within the Downtown Perris Station area include the signalization of the C Street/SR-74 intersection, which is currently stop-controlled, and the restriping of the D and C Street intersections at San Jacinto Avenue.

Two approved projects were identified in the South Perris Station study area:

1. Towne Center project is a 470,000-square-foot retail center located in the southeastern portion of the city of Perris, on the southeast corner of I-215 and Ethanac Road. It would be anchored by a 220,000-square-foot big-box store, and would also include specialty retail space, restaurants, and a hotel. The development is expected to be opened in 2009. The trip generation and assignment for this project were obtained from the *Towne Center Traffic Impact Study* (Albert A. Webb Associates, 2007).

2. Perris Crossing (formerly known as Ethanac Road Retail Center) development is a 625,000-square-foot retail center located on the north side of Ethanac Road, west of Case Road. The retail center would include approximately 600,000 square feet of retail and restaurant uses, a service station, and 24,000 square feet of office uses. The *Ethanac Road Retail Center Traffic Study* (LSA Associates, Inc., 2005) was used in

determining the trip generation and assignment for this development. The development was not completed at the time of the traffic counts in the South Perris Station study area in 2008.

Although this project is within the South Perris Station area, no project-generated trips were added to the study intersections as project traffic to/from I-215 and SR-74 would be able to access these roadways via Ethanac Road without traversing through the study intersections. However, ten percent of in and outbound trips traveling to/from the north, via Case Road, were assigned to intersections in the Downtown Perris area.

The trip generation for the four projects within the Downtown and South Perris Station areas was included only in the PM analysis hour traffic volumes, as they all consist of retail/commercial land uses, which would not generate traffic as early as the PVL AM analysis hour.

The cumulative project trip assignments are presented in Traffic Technical Report D, as are 2012 future traffic volumes without the project.

2012 Future traffic levels of service without the project were determined based on the projected increase in traffic volumes and changes in roadway geometrics. A summary of the findings is discussed below.

Hunter Park Station options

All movements at the study intersections would continue to operate at acceptable levels of service, with the exception of Iowa Avenue's northbound through movement at Center Street, which would worsen from LOS E (existing) to F (future without the PVL project) during the PM analysis hour, resulting in the overall intersection level of service to deteriorate from LOS D to E.

Moreno Valley/March Field Station

All movements at the intersection of Alessandro Boulevard and Old 215 would continue to operate at acceptable levels. Several movements at the remaining three intersections, however, would worsen including:

- At Alessandro Boulevard and Mission Grove Parkway, westbound Alessandro and southbound Mission Grove Parkway's left-turn movements would incur additional delay within LOS E during the PM analysis hour.

- At the intersection of Cactus Avenue and southbound I-215 ramps, westbound Cactus Avenue's left-turn movement and the overall intersection would deteriorate from LOS C (existing) to F (future without the PVL project) during the PM analysis hour.

- Westbound Cactus Avenue's through movement would worsen from LOS E to F at Old 215, and the overall intersection level of service would deteriorate from LOS D to F during the PM analysis hour.

Downtown Perris Station

The levels of service for all movements would remain within acceptable limits during the AM analysis hour. However, several movements would deteriorate to poor levels of service during the PM analysis hour, including:

- At Nuevo Road and Perris Boulevard, eastbound Nuevo Road's left-turn movement would deteriorate from LOS C (existing) to F (future without the PVL project); southbound Perris Boulevard's left-turn movement would deteriorate from LOS C to E. The overall intersection level of service would deteriorate from LOS C to E.

- At SR-74 and D Street, eastbound SR-74's through/right-turn movements would deteriorate from LOS C to E. Northbound D Street's through/left-turn movements would worsen from LOS E to F, and southbound left-turn movement would deteriorate from LOS D to F. The overall intersection operations would also deteriorate from LOS C to F.

- At the intersection of SR-74 and Perris Boulevard, Perris Boulevard's eastbound left-turn movement would deteriorate from LOS C to F.

- At the intersection of San Jacinto Avenue and C Street, San Jacinto Avenue's westbound left-turn movement and the overall intersection would worsen from LOS C to F and E, respectively.

- At San Jacinto Avenue and D Street, San Jacinto Avenue's eastbound left-turn and D Street's southbound through movements would deteriorate from LOS D to F, and the overall intersection level of service would deteriorate from LOS C to F.

- At San Jacinto Avenue and Redlands Avenue, San Jacinto Avenue's westbound through/left-turn movements would deteriorate from LOS B to F. Northbound Redlands Avenue's through/left-turn and right-turn movements would deteriorate from LOS D and B to LOS F, respectively. Southbound Redlands Avenue's left-turn movement would deteriorate from LOS B to F.

South Perris Station

Most movements would continue to operate within acceptable levels of service. However, the movements that currently operate at LOS F would worsen by incurring significant increases in delay (i.e., delay increases of more than two seconds), and southbound Sherman Road at SR-74 would deteriorate from LOS C to E during the PM analysis hour.

3.5.3 Environmental Consequences/Impacts

Project Trip Generation and Modal Split

The PVL is expected to carry 3,705 passengers during each of the AM and PM peak periods in 2012 based on ridership projections. There would be four trains scheduled in the peak direction of travel (to Los Angeles in the morning, to Perris in the afternoon) during these periods, of which one would depart from South and Downtown Perris stations and two would depart from Moreno Valley/March Field and Hunter Park stations during the AM analysis hour (6 AM – 7

AM), and one would arrive at all stations during the PM analysis hour (5 PM – 6 PM). It was determined that approximately 50 percent of the AM peak period inbound (northbound) riders would travel on the two analysis-hour trains (leaving South Perris at 5:48 and 6:18 AM) based on existing ridership data on Metrolink Inland Empire-Orange County, San Bernardino, and Riverside lines. About 35 percent of the outbound (southbound) riders during the PM peak period would travel on the analysis-hour train. No outbound trains would arrive in the study area during the AM analysis hour, and no inbound trains would depart the area during the PM analysis hour.

Table 3.5-2 lists the number of boarding and alighting passengers per station during the AM and PM analysis hours.

Table 3.5-2
AM and PM Analysis-Hour Ridership

Proposed Station	AM		PM	
	Boardings	Alightings	Boardings	Alightings
Hunter Park	241	110	83	182
Moreno Valley/March Field	205	93	70	154
Downtown Perris	134	29	45	207
South Perris	221	0	0	340
Total	**801**	**232**	**198**	**884**
Source: Parsons Brinckerhoff (2009)				

Passengers would arrive at and depart from the stations by a number of travel modes, including private autos, transit buses, and walking. Auto trips would consist of drop-offs/pick-ups and park-and-ride drivers. The modal split of passengers was derived from the PVL ridership model, which included separate modal splits for passengers traveling to and from the area. However, the same modal split was applied to passengers traveling from the area during the AM and returning to the area during the PM peak period. Similarly, passengers arriving in the area during the AM and leaving during the PM exhibited the same modal splits. For example, for Hunter Park Station, it was assumed that 61 percent of boarding passengers and one percent of alighting passengers would travel to/from the station by auto during the AM peak period (see Table 3.5-3). During the PM peak period, 61 percent of alighting passengers and one percent of boarding passengers would travel by auto (see Table 3.5-3).

Table 3.5-3
Modal Split of Passengers for the AM Peak Period
(PM peak period modal splits are reversed)

Proposed Station	Percentage of Passengers							
	Walk		Bus		Park-and-Ride		Drop-off/Pick-up	
	Boarding	Alighting	Boarding	Alighting	Boarding	Alighting	Boarding	Alighting
Hunter Park	4	57	9	42	61	1	26	0
Moreno Valley /March Field	0	0	19	99	63	1	18	0
Downtown Perris	20	40	10	52	56	8	14	0
South Perris	3	0	4	56	79	44	14	0

Using these modal splits, 300 drop-offs/pick-ups and 529 park-and-ride trips would be generated by the project within the overall study area during the AM analysis hour, and 302 drop-offs/pick-ups and 530 park-and-ride trips would be generated during the PM analysis hour. Drop-offs/pick-ups were assumed to make a complete in-and-out cycle within the analysis hours, i.e., arrive full and depart empty within the AM analysis hour, and arrive empty and depart full in the PM analysis hour. Table 3.5-4 lists the auto trips by station during the AM and PM analysis hours.

Table 3.5-4
Auto-Trip Generation

Proposed Station	AM					PM				
	Park-and-Ride		Drop-off/ Pick-up		Bus	Park-and-Ride		Drop-off/ Pick-up		Bus
	In	Out	In	Out		In	Out	In	Out	
Hunter Park	146	2	63	63	2	1	111	47	47	2
Moreno Valley/ March Field	129	1	37	37	4	1	30	28	28	4
Downtown Perris	75	2	19	19	5	4	115	29	29	5
South Perris	174	0	31	31	3	0	268	47	47	3
Total	524	5	150	150	14	6	524	151	151	14

Project Vehicle Assignment

The distribution of auto trips to the stations was developed from the station access maps based on the ridership model as follows:

Hunter Park Station options

As discussed in Section 1.0 Proposed Project, the Hunter Park Station would be located at one of three proximate sites. The Palmyrita Station option is proposed to be located on the east side of the SJBL main track east of Iowa Avenue between Palmyrita and Columbia Avenues. The proposed station access road for this option would connect Palmyrita and Columbia Avenues, and allow entry/exit to the station from both avenues. The Columbia Station option would be along the west side of the main track with only one entry/exit point from Columbia Avenue. The Marlborough Station option would also be located on the west side of the main track, with a single entry/exit point from Marlborough Avenue.

The project vehicle assignment for all three alternative locations for the Hunter Park Station would be the same in terms of approach routing to the station. Approximately 55 percent of drop-offs/pick-ups and 60 percent of park-and-ride passengers would come from areas north of the station. The majority of these passengers would approach the station from southbound Iowa Avenue (35 percent), with the remaining traveling southbound on Northgate Street or eastbound on Columbia Avenue. About 20 percent of drop-offs/pick-ups and park-and-ride passengers would come from the south via northbound Iowa Avenue. The remaining passengers would approach from the east along Palmyrita Avenue.

Vehicle assignments at the study intersections, particularly individual movements, would differ slightly among the three alternative station locations due to the varying location of the proposed station access road for the Palmyrita Station option, and are presented in Traffic Technical Report D.

Moreno Valley/March Field Station

Almost all of the passengers would come from east of the station. Of the drop-offs/pick-ups, 30 percent would approach the station from westbound Alessandro Boulevard, 35 percent would approach from westbound Cactus Avenue, 15 percent would approach from southbound I-215, and 20 percent would approach from northbound I-215. Park-and-ride passengers would travel westbound on Alessandro Boulevard (35 percent) and Cactus Avenue (25 percent), southbound on I-215 (20 percent) and Old 215 (five percent), or northbound on I-215 (15 percent).

Downtown Perris Station

Approximately 40 percent of drop-offs/pick-ups and 30 percent of park-and-ride passengers would approach the station from the north via southbound Perris Boulevard, 35 percent of park-and-ride passengers and 25 percent of drop-offs/pick-ups would approach from the west via eastbound SR-74, and ten percent of each would approach from the east via westbound SR-74 and from the south via D Street. The remaining would approach from the northwest via A Street.

South Perris Station

The majority of the passengers would come from areas south of the station via I-215 (50 percent of park-and-ride passengers and 30 percent of drop-offs/pick-ups) or by following Murrieta and Goetz Roads to Case Road (15 percent of park-and-ride passengers and 25 percent of drop-offs/pick-ups). The remaining would come from the east via SR-74.

The assignment of vehicle trips generated by the project during the AM and PM analysis hours are presented in Traffic Technical Report D.

Grade Crossings

In addition to impacts at key intersections that would experience increases in traffic volumes as a result of project-generated trips, the PVL could also result in impacts at grade crossings by creating additional delays to vehicles that would be stopped during periods of train movements. However, these additional delays would not be considered significant considering that the project would operate with twelve trains per day and only one train during the peak traffic hours

in 2012, and that the wait time of vehicular traffic (30 seconds for typical operations) would not be any more disruptive to traffic operations than a single red phase of a typical traffic signal.

As noted in Chapter 1.0, the project would make improvements to several existing grade crossings including the installation of new signals. These signals would be placed to improve safety and meet jurisdictional requirements, and would remain inactive (i.e. display a steady green signal for vehicular traffic) unless a train is detected.

Further, two existing grade crossings, Poarch Road in Riverside and 6th Street in downtown Perris, are planned to be permanently closed as part of the PVL project. Poarch Road is a dirt road that provides access to a small number of residences and terminates approximately half a mile north of the grade crossing. It connects with Morton Road via Gernert Road to the south, and provides access to an apartment complex and connection to Box Springs Road. The grade crossing is directly across from the northbound I-215 on-ramp, and thus, is mostly used by drivers wanting to bypass the traffic on Box Springs Road to access northbound I-215. The closure of the Poarch Road crossing is not expected to significantly affect the traffic volumes in the area, but may present an inconvenience to some residents.

The closure of 6th Street would result in the diversion of east and westbound traffic (up to 35 vph per direction during the AM and PM analysis hours) to 7th Street, the closest grade crossing to remain open. The changes in traffic volumes due to this diversion would be insignificant, and are reflected in the 2012 analyses with the project.

It should be noted that in downtown Perris, as part of the Perris Multimodal Transit Facility project (not a part of the PVL project), grade crossings at 2nd and 5th Streets were closed in 2008. The impacts of these closures on travel patterns are already incorporated into the existing traffic network and analyses as the closures were in effect at the time the traffic data collection program was conducted. In addition, 5th Street has been temporarily closed by the city of Perris and will be formally vacated for this project.

The total 2012 traffic volumes with the project during the AM and PM analysis hours are presented in Traffic Technical Report D.

Significant Impact Criteria

The identification of potential significant traffic impacts was based on the guidelines for the cities and County. A deterioration from LOS A, B, C, or D conditions without the project to LOS E or F conditions with the project is considered a significant impact. For LOS E or F conditions without the project, an increase of two or more seconds of delay as a result of the project is also considered significant.

2012 Future Conditions with the Project

The level-of-service analyses for the 2012 Future Conditions with the Project indicated that the majority of the study intersections would continue to operate at the same levels of service as the 2012 conditions without the PVL; however, significant traffic impacts would be expected at a number of study area intersections as a result of the increase in traffic volumes (due to new vehicular trips generated by the project) as shown in Table 3.5-5 through Table 3.5-8.

Hunter Park Station options

No impacts would be expected at the study intersections in the vicinity of Hunter Park Station for any of the three alternative station locations, as shown in Table 3.5-5.

Table 3.5-5
Hunter Park Station Options 2012 Future Levels of Service with the Project

Intersection and Approach		Mvt.	AM Peak Hour V/C	AM Peak Hour Control Delay	AM Peak Hour LOS	PM Peak Hour V/C	PM Peak Hour Control Delay	PM Peak Hour LOS
Palmyrita Option								
Center Street at Iowa Avenue – Signalized								
Center Street	EB	LTR	0.63	40.7	D	0.95	51.1	D
	WB	L	0.25	31.2	C	0.43	32.3	C
		T	0.52	34.5	C	0.83	52.8	D
		R	0.07	29.6	C	0.20	30.4	C
Iowa Avenue	NB	L	0.31	43.9	D	0.38	32.0	C
		T	0.56	36.6	D	1.21	134.7	F
		R	0.10	31.7	C	0.15	23.1	C
	SB	L	0.12	42.1	D	0.39	38.7	D
		T	0.55	36.2	D	0.60	28.7	C
		R	0.05	31.3	C	0.05	23.8	C
Overall Intersection		**-**		**36.7**	**D**		**76.3**	**E**
Palmyrita Avenue at Iowa Avenue – Signalized								
Palmyrita Avenue	EB	LT	0.13	11.6	B	0.09	13.6	B
		R	0.02	10.9	B	0.06	13.4	B
	WB	L	0.46	14.2	B	0.90	39.4	D
		TR	0.07	11.2	B	0.44	15.8	B
Iowa Avenue	NB	L	0.16	32.0	C	0.09	24.7	C
		T	0.33	19.9	B	0.80	21.0	C
		R	0.11	18.6	B	0.26	13.9	B
	SB	L	0.84	52.8	D	0.46	27.8	C
		T	0.46	19.5	B	0.62	16.8	B
		R	0.01	16.5	B	0.01	12.5	B
Overall Intersection		**-**		**21.8**	**C**		**21.6**	**C**
Columbia Avenue at Iowa Avenue – Signalized								
Columbia Avenue	EB	L	0.22	42.0	D	0.43	32.2	C
		T	0.46	33.6	C	0.22	28.7	C
		R	0.16	30.4	C	0.43	30.6	C
	WB	L	0.26	42.4	D	0.75	43.3	D
		T	0.10	29.8	C	0.45	30.4	C
		R	0.04	29.3	C	0.14	28.2	C

Table 3.5-5 (cont'd)
Hunter Park Station Options 2012 Future Levels of Service with the Project

Intersection and Approach		Mvt.	AM Peak Hour V/C	AM Peak Hour Control Delay	AM Peak Hour LOS	PM Peak Hour V/C	PM Peak Hour Control Delay	PM Peak Hour LOS
Columbia Avenue at Iowa Avenue – Signalized (cont'd)								
Iowa Avenue	NB	L	0.44	42.4	D	0.71	41.5	D
		T	0.47	29.9	C	0.89	36.4	D
		R	0.22	27.5	C	0.08	20.4	C
	SB	L	0.28	40.9	D	0.07	35.3	D
		T	0.59	31.8	C	0.89	37.8	D
		R	0.08	26.1	C	0.11	22.0	C
Overall Intersection		**-**		**32.4**	**C**		**36.0**	**D**
Marlborough Avenue at Iowa Avenue – Signalized								
Marlborough Avenue	EB	L	0.32	27.5	C	0.45	28.6	C
		TR	0.43	30.4	C	0.30	30.8	C
	WB	L	0.19	26.5	C	0.60	31.7	C
		T	0.05	27.5	C	0.29	30.7	C
		R	0.19	28.3	C	0.44	32.1	C
Iowa Avenue	NB	L	0.16	26.3	C	0.15	32.6	C
		T	0.54	17.1	B	0.68	18.8	B
		R	0.06	13.7	B	0.02	12.8	B
	SB	L	0.26	22.0	C	0.18	32.8	C
		T	0.44	14.9	B	0.90	28.0	C
		R	0.04	12.4	B	0.03	12.8	B
Overall Intersection		**-**		**18.0**	**B**		**25.2**	**C**
Palmyrita Avenue at Station Access Road – Signalized								
Palmyrita Avenue	EB	TR	0.27	5.9	A	0.37	6.5	A
	WB	LT	0.34	6.3	A	0.36	6.4	A
Station Access Road	NB	L	0.12	19.9	B	0.28	20.9	C
		R	0.04	19.5	B	0.14	20.0	C
Overall Intersection		**-**		**7.5**	**A**		**8.8**	**A**
Columbia Avenue at Station Access Road – Signalized								
Columbia Avenue	EB	L	0.20	5.6	A	0.06	5.0	A
		T	0.17	5.5	A	0.08	5.1	A
	WB	TR	0.10	5.1	A	0.13	5.3	A
Station Access Road	SB	L	0.02	19.3	B	0.04	19.4	B
		R	0.10	19.8	B	0.26	20.8	C
Overall Intersection		**-**		**7.0**	**A**		**10.0**	**A**
Palmyrita Avenue at Northgate Street – Unsignalized								
Palmyrita Avenue	EB	L	0.06	7.7	A	0.24	9.4	A
Northgate Street	SB	L	0.16	12.4	B	0.33	32.8	D
		R	0.24	9.7	A	0.17	10.4	B
Columbia Avenue at Northgate Street – Unsignalized								
Columbia Avenue	EB	T	0.12	8.8	A	0.06	8.9	A
		TR	0.15	8.8	A	0.08	8.8	A
	WB	L	0.14	9.6	A	0.56	14.9	B
		T	0.10	8.7	A	0.20	8.9	A
Northgate Street	NB	L	0.04	8.2	A	0.02	8.6	A
		R	0.26	8.7	A	0.15	8.5	A
Overall Intersection		**-**		**8.8**	**A**		**11.8**	**B**

Table 3.5-5 (cont'd)
Hunter Park Station Options 2012 Future Levels of Service with the Project

Intersection and Approach		Mvt.	AM Peak Hour V/C	AM Peak Hour Control Delay	AM Peak Hour LOS	PM Peak Hour V/C	PM Peak Hour Control Delay	PM Peak Hour LOS
Marlborough Avenue at Northgate Street – Unsignalized								
Marlborough Avenue	EB	LT	0.20	7.8	A	0.08	7.5	A
Northgate Street	SB	LR	0.12	9.8	A	0.34	10.4	B
Marlborough Avenue at Rustin Avenue – Unsignalized								
Marlborough Avenue	WB	L	0.03	7.8	A	0.18	8.1	A
Rustin Avenue	NB	LR	0.36	12.3	B	0.31	16.0	C
Center Street at Iowa Avenue – Signalized								
Center Street	EB	LTR	0.63	40.7	D	0.95	51.1	D
	WB	L	0.25	31.2	C	0.43	32.3	C
		T	0.52	34.5	C	0.83	52.8	D
		R	0.07	29.6	C	0.20	30.4	C
Iowa Avenue	NB	L	0.31	43.9	D	0.38	32.0	C
		T	0.56	36.6	D	1.21	134.7	F
		R	0.10	31.7	C	0.15	23.1	C
	SB	L	0.12	42.1	D	0.39	38.7	D
		T	0.55	36.2	D	0.60	28.7	C
		R	0.05	31.3	C	0.05	23.8	C
Overall Intersection		**-**		**36.7**	**D**		**76.3**	**E**
Palmyrita Avenue at Iowa Avenue – Signalized								
Palmyrita Avenue	EB	LT	0.13	11.6	B	0.09	13.6	B
		R	0.02	10.9	B	0.06	13.4	B
	WB	L	0.46	14.1	B	0.89	38.6	D
		TR	0.03	11.0	B	0.30	14.8	B
Iowa Avenue	NB	L	0.16	32.0	C	0.09	24.7	C
		T	0.36	20.1	C	0.86	23.5	C
		R	0.11	18.6	B	0.26	13.9	B
	SB	L	0.43	28.4	C	0.32	26.3	C
		T	0.54	20.3	C	0.64	17.1	B
		R	0.01	16.5	B	0.01	12.5	B
Overall Intersection		**-**		**18.9**	**B**		**22.6**	**C**
Columbia Avenue at Iowa Avenue – Signalized								
Columbia Avenue	EB	L	0.22	42.0	D	0.43	32.2	C
		T	0.46	33.6	C	0.22	28.7	C
		R	0.16	30.4	C	0.43	30.6	C
	WB	L	0.27	42.5	D	0.75	43.5	D
		T	0.10	29.8	C	0.45	30.4	C
		R	0.12	30.0	C	0.39	30.4	C
Iowa Avenue	NB	L	0.44	42.4	D	0.71	41.5	D
		T	0.47	29.9	C	0.89	36.4	D
		R	0.22	27.5	C	0.08	20.4	C
	SB	L	0.66	49.2	D	0.18	36.0	D
		T	0.58	31.7	C	0.89	37.8	D
		R	0.08	26.1	C	0.11	22.0	C
Overall Intersection		**-**		**33.4**	**C**		**35.9**	**D**

Table 3.5-5 (cont'd)
Hunter Park Station Options 2012 Future Levels of Service with the Project

Intersection and Approach		Mvt.	AM Peak Hour V/C	AM Peak Hour Control Delay	AM Peak Hour LOS	PM Peak Hour V/C	PM Peak Hour Control Delay	PM Peak Hour LOS
Marlborough Avenue at Iowa Avenue – Signalized								
Marlborough Avenue	EB	L	0.32	27.5	C	0.45	28.6	C
		TR	0.43	30.4	C	0.30	30.8	C
	WB	L	0.19	26.5	C	0.60	31.7	C
		T	0.05	27.5	C	0.29	30.7	C
		R	0.19	28.3	C	0.44	32.1	C
Iowa Avenue	NB	L	0.16	26.3	C	0.15	32.6	C
		T	0.54	17.1	B	0.68	18.8	B
		R	0.06	13.7	B	0.02	12.8	B
	SB	L	0.26	22.0	C	0.18	32.8	C
		T	0.44	14.9	B	0.90	27.9	C
		R	0.04	12.4	B	0.03	12.8	B
Overall Intersection		-		**18.0**	**B**		**25.2**	**C**
Columbia Avenue at Station Access Road – Signalized								
Columbia Avenue	EB	L	0.38	6.7	A	0.09	5.2	A
		T	0.17	5.5	A	0.08	5.1	A
	WB	TR	0.16	5.4	A	0.15	5.3	A
Station Access Road	SB	L	0.07	19.6	B	0.19	20.3	C
		R	0.22	20.5	C	0.53	23.1	C
Overall Intersection		-		**8.3**	**A**		**13.5**	**B**
Palmyrita Avenue at Northgate Street – Unsignalized								
Palmyrita Avenue	EB	L	0.06	7.6	A	0.22	9.4	A
Northgate Street	SB	L	0.21	12.4	B	0.32	29.8	D
		R	0.20	9.5	A	0.17	10.5	B
Columbia Avenue at Northgate Street – Unsignalized								
Columbia Avenue	EB	T	0.13	9.1	A	0.09	9.1	A
		TR	0.16	9.1	A	0.12	9.1	A
	WB	L	0.15	9.7	A	0.56	15.1	C
		T	0.24	9.9	A	0.23	9.2	A
Northgate Street	NB	L	0.05	8.5	A	0.02	8.7	A
		R	0.28	9.1	A	0.16	8.7	A
Overall Intersection		-		**9.3**	**A**		**11.9**	**B**
Marlborough Avenue at Northgate Street – Unsignalized								
Marlborough Avenue	EB	LT	0.20	7.8	A	0.08	7.5	A
Northgate Street	SB	LR	0.12	9.8	A	0.34	10.4	B
Marlborough Avenue at Rustin Avenue – Unsignalized								
Marlborough Avenue	WB	L	0.03	7.8	A	0.18	8.1	A
Rustin Avenue	NB	LR	0.36	12.3	B	0.31	16.0	C

Table 3.5-5 (cont'd)
Hunter Park Station Options 2012 Future Levels of Service with the Project

Intersection and Approach		Mvt.	AM Peak Hour V/C	AM Peak Hour Control Delay	AM Peak Hour LOS	PM Peak Hour V/C	PM Peak Hour Control Delay	PM Peak Hour LOS
Center Street at Iowa Avenue – Signalized								
Center Street	EB	LTR	0.63	40.7	D	0.95	51.1	D
	WB	L	0.25	31.2	C	0.43	32.3	C
		T	0.52	34.5	C	0.83	52.8	D
		R	0.07	29.6	C	0.20	30.4	C
Iowa Avenue	NB	L	0.31	43.9	D	0.38	32.0	C
		T	0.56	36.6	D	1.21	134.7	F
		R	0.10	31.7	C	0.15	23.1	C
	SB	L	0.12	42.1	D	0.39	38.7	D
		T	0.55	36.2	D	0.60	28.7	C
		R	0.05	31.3	C	0.05	23.8	C
Overall Intersection		**-**		**36.7**	**D**		**76.3**	**E**
Palmyrita Avenue at Iowa Avenue – Signalized								
Palmyrita Avenue	EB	LT	0.13	11.6	B	0.09	13.6	B
		R	0.02	10.9	B	0.06	13.4	B
	WB	L	0.46	14.1	B	0.89	38.6	D
		TR	0.03	11.0	B	0.30	14.8	B
Iowa Avenue	NB	L	0.16	32.0	C	0.09	24.7	C
		T	0.36	20.1	C	0.86	23.5	C
		R	0.11	18.6	B	0.26	13.9	B
	SB	L	0.43	28.4	C	0.32	26.3	C
		T	0.54	20.3	C	0.64	17.1	B
		R	0.01	16.5	B	0.01	12.5	B
Overall Intersection		**-**		**18.9**	**B**		**22.6**	**C**
Columbia Avenue at Iowa Avenue – Signalized								
Columbia Avenue	EB	L	0.22	42.0	D	0.44	32.8	C
		T	0.34	32.2	C	0.18	28.9	C
		R	0.29	31.7	C	0.48	31.7	C
	WB	L	0.19	41.8	D	0.63	37.1	D
		T	0.07	29.6	C	0.39	30.3	C
		R	0.04	29.3	C	0.14	28.7	C
Iowa Avenue	NB	L	0.50	43.2	D	0.81	49.3	D
		T	0.49	30.2	C	0.92	39.6	D
		R	0.11	26.4	C	0.05	19.9	B
	SB	L	0.28	40.9	D	0.07	35.8	D
		T	0.67	33.6	C	0.91	41.3	D
		R	0.08	26.1	C	0.11	22.4	C
Overall Intersection		**-**		**33.1**	**C**		**38.6**	**D**

Table 3.5-5 (cont'd)
Hunter Park Station Options 2012 Future Levels of Service with the Project

Intersection and Approach		Mvt.	AM Peak Hour V/C	AM Peak Hour Control Delay	AM Peak Hour LOS	PM Peak Hour V/C	PM Peak Hour Control Delay	PM Peak Hour LOS
Marlborough Avenue at Iowa Avenue – Signalized								
Marlborough Avenue	EB	L	0.32	27.5	C	0.45	28.6	C
		TR	0.43	30.4	C	0.30	30.8	C
	WB	L	0.27	27.1	C	0.75	39.9	D
		T	0.06	27.6	C	0.29	30.7	C
		R	0.52	31.8	C	0.80	52.8	D
Iowa Avenue	NB	L	0.16	26.3	C	0.15	32.6	C
		T	0.51	16.7	B	0.67	18.7	B
		R	0.15	14.2	B	0.04	12.9	B
	SB	L	0.65	27.7	C	0.45	35.3	D
		T	0.43	14.8	B	0.87	26.1	C
		R	0.04	12.4	B	0.03	12.8	B
Overall Intersection		-		**19.3**	**B**		**26.3**	**C**
Columbia Avenue at Station Access Road – Signalized								
Columbia Avenue	EB	L	0.40	6.8	A	0.10	5.2	A
		T	0.19	5.5	A	0.14	5.3	A
	WB	TR	0.19	5.5	A	0.21	5.6	A
Station Access Road	SB	L	0.07	19.6	B	0.19	20.3	C
		R	0.22	20.5	C	0.53	23.1	C
Overall Intersection		-		**8.2**	**A**		**12.1**	**B**
Palmyrita Avenue at Northgate Street – Unsignalized								
Palmyrita Avenue	EB	L	0.06	7.6	A	0.22	9.4	A
Northgate Street	SB	L	0.22	12.5	B	0.32	29.8	D
		R	0.20	9.5	A	0.17	10.5	B
Columbia Avenue at Northgate Street – Unsignalized								
Columbia Avenue	EB	T	0.12	9.1	A	0.05	9.0	A
		TR	0.15	9.1	A	0.08	8.9	A
	WB	L	0.30	11.2	B	0.60	16.2	C
		T	0.10	8.8	A	0.21	9.1	A
Northgate Street	NB	L	0.05	8.5	A	0.02	8.6	A
		R	0.31	9.4	A	0.21	9.0	A
Overall Intersection		-		**9.7**	**A**		**12.5**	**B**
Marlborough Avenue at Northgate Street – Unsignalized								
Marlborough Avenue	EB	LT	0.22	7.9	A	0.11	7.6	A
Northgate Street	SB	LR	0.20	9.9	A	0.35	10.5	B
Marlborough Avenue at Rustin Avenue – Unsignalized								
Marlborough Avenue	WB	L	0.03	7.9	A	0.19	8.3	A
Rustin Avenue	NB	LR	0.38	13.1	B	0.34	17.9	C

Moreno Valley/March Field Station

Westbound Cactus Avenue's through movement at Old 215 would experience a significant impact by incurring just over two seconds of delay within LOS F during the PM analysis hour (Mitigation Measure TP-1), as shown in Table 3.5-6.

Table 3.5-6
Moreno Valley/March Field Station 2012 Future Levels of Service with the Project

Intersection and Approach		Mvt.	AM Peak Hour V/C	AM Peak Hour Control Delay	AM Peak Hour LOS	PM Peak Hour V/C	PM Peak Hour Control Delay	PM Peak Hour LOS
Cactus Avenue at Southbound I-215 Ramps – Signalized								
Cactus Avenue	EB	T	0.21	13.0	B	0.82	22.8	C
	WB	L	0.94	35.1	D	1.73	349.1	F
		T	0.18	0.0	A	0.09	0.0	A
Overall Intersection		-		**18.7**	**B**		**196.9**	**F**
Cactus Avenue at Old 215 – Signalized								
Cactus Avenue	EB	L	0.34	14.9	B	0.49	17.1	B
		TR	0.41	13.5	B	0.72	16.4	B
	WB	T	1.01	46.0	D	1.48	239.9	F
		R	0.11	11.4	B	0.16	10.4	B
Old 215	NB	L	0.38	16.0	B	0.26	20.0	B
		TR	0.13	13.9	B	0.09	18.5	B
	SB	L	0.06	13.5	B	0.21	19.4	B
		TR	0.16	14.1	B	0.31	20.3	C
Overall Intersection		-		**32.2**	**C**		**146.3**	**F**
Alessandro Boulevard at Old 215 – Signalized								
Alessandro Boulevard	EB	L	0.33	29.1	C	0.51	38.4	D
		T	0.58	20.1	C	0.92	36.9	D
	WB	L	0.14	28.1	C	0.10	35.7	D
		T	0.77	24.4	C	0.77	26.1	C
Old 215	NB	L	0.49	32.8	C	0.63	40.9	D
		T	0.25	30.3	C	0.12	33.9	C
	SB	L	0.04	29.2	C	0.19	33.8	C
		T	0.03	29.2	C	0.11	33.9	C
Overall Intersection		-		**24.1**	**C**		**33.0**	**C**
Alessandro Boulevard at Mission Grove Parkway – Signalized								
Alessandro Boulevard	EB	L	0.18	44.3	D	0.38	53.4	D
		T	0.40	17.9	B	0.99	41.7	D
		R	0.03	14.6	B	0.16	15.1	B
	WB	L	0.36	45.2	D	0.72	59.6	E
		T	0.88	28.8	C	0.76	23.1	C
		R	0.08	15.0	B	0.11	14.7	B
Mission Grove Parkway	NB	L	0.39	45.5	D	0.35	50.9	D
		T	0.76	54.4	D	0.38	46.8	D
		R	0.46	41.9	D	0.49	48.2	D
	SB	L	0.56	50.1	D	0.83	78.2	E
		TR	0.34	40.2	D	0.32	45.9	D
Overall Intersection		-		**29.7**	**C**		**37.2**	**D**

Downtown Perris Station

Significant impacts would be expected at four study intersections during the PM analysis hour as shown in Table 3.5-7:

- At the intersection of SR-74 and D Street, north and southbound D Street's through/left-turn movements would incur approximately ten and 20 seconds of additional delay within LOS F, respectively (Mitigation Measure TP-2).

- At the intersection of San Jacinto Avenue and C Street, westbound San Jacinto Avenue's left-turn movement would sustain over five seconds of increase in delay within LOS F, and the overall intersection would deteriorate from LOS E to F (Mitigation Measure TP-3).

- At San Jacinto Avenue and D Street, San Jacinto Avenue's eastbound left-turn and D Street's southbound through movements would incur eleven and 17 seconds of delay within LOS F, respectively. Northbound D Street through/right-turn shared movement would worsen from LOS E to F (Mitigation Measure TP-4).

- At San Jacinto Avenue and Redlands Avenue, westbound San Jacinto Avenue's through/left-turn movements and northbound Redlands Avenue would incur four to eight seconds of additional delay within LOS F.

Table 3.5-7
Downtown Perris Station 2012 Future Levels of Service with the Project

Intersection and Approach		Mvt.	AM Peak Hour V/C	AM Peak Hour Control Delay	AM Peak Hour LOS	PM Peak Hour V/C	PM Peak Hour Control Delay	PM Peak Hour LOS
SR-74 at Navajo Road – Signalized								
SR-74	EB	L	0.13	26.9	C	0.23	30.5	C
		T	0.28	4.8	A	0.52	5.3	A
	WB	TR	0.39	10.9	B	1.04	52.5	D
Navajo Road	SB	L	0.27	19.3	B	0.71	31.6	C
		R	0.01	17.9	B	0.03	24.2	C
Overall Intersection		**-**		**9.8**	**A**		**32.8**	**C**
SR-74 at C Street – Signalized								
SR-74	EB	L	0.61	21.3	C	0.92	50.4	D
		TR	0.51	9.8	A	0.76	16.2	B
	WB	L	0.04	24.2	C	0.09	23.9	C
		TR	0.80	25.9	C	0.97	41.5	D
C Street	NB	L	0.00	24.0	C	0.00	23.5	C
		TR	0.07	20.0	B	0.12	19.8	B
	SB	L	0.08	24.4	C	0.09	23.9	C
		TR	0.32	21.5	C	0.80	35.4	D
Overall Intersection		**-**		**17.8**	**B**		**31.5**	**C**

Table 3.5-7 (cont'd)
Downtown Perris Station 2012 Future Levels of Service with the Project

Intersection and Approach		Mvt.	AM Peak Hour V/C	AM Peak Hour Control Delay	AM Peak Hour LOS	PM Peak Hour V/C	PM Peak Hour Control Delay	PM Peak Hour LOS
SR-74 at D Street – Signalized								
SR-74	EB	L	0.62	32.6	C	0.62	32.5	C
		TR	0.65	24.2	C	1.06	71.9	E
	WB	L	0.07	25.9	C	0.16	26.5	C
		TR	0.46	21.5	C	0.75	26.9	C
D Street	NB	LT	0.43	21.5	C	1.32	192.7	F
		R	0.02	18.1	B	0.09	18.6	B
	SB	LT	0.26	19.9	B	1.37	216.9	F
		R	0.08	18.5	B	0.16	19.1	B
Overall Intersection		-		**23.6**	**C**		**86.8**	**F**
SR-74 at Perris Boulevard – Signalized								
SR-74	EB	L	0.60	30.2	C	0.84	49.7	D
		TR	0.44	17.1	B	0.70	20.6	C
	WB	L	0.18	25.0	C	0.56	36.4	D
		TR	0.35	16.4	B	0.59	22.5	C
Perris Boulevard	NB	L	0.11	18.3	B	0.76	39.0	D
		T	0.32	19.7	B	0.76	30.2	C
		R	0.06	18.0	B	0.19	20.0	C
	SB	L	0.15	18.7	B	1.24	186.8	F
		T	0.25	19.2	B	0.63	25.6	C
		R	0.08	18.1	B	0.17	19.9	B
Overall Intersection		-		**19.1**	**B**		**34.2**	**C**
San Jacinto Avenue at Perris Boulevard – Signalized								
San Jacinto Avenue	EB	L	0.18	30.0	C	0.71	48.4	D
		TR	0.27	30.7	C	0.29	27.0	C
	WB	L	0.06	29.3	C	0.08	34.8	C
		T	0.14	29.8	C	0.18	26.1	C
		R	0.17	30.1	C	0.28	27.0	C
Perris Boulevard	NB	L	0.45	35.8	D	0.45	41.6	D
		TR	0.36	11.7	B	0.90	44.1	D
	SB	L	0.14	32.6	C	0.47	41.8	D
		TR	0.32	11.4	B	0.95	52.7	D
Overall Intersection		-		**16.3**	**B**		**44.1**	**D**
Nuevo Road at Perris Boulevard – Signalized								
Nuevo Road	EB	L	0.37	34.2	C	1.39	214.1	F
		T	0.31	27.0	C	0.83	32.9	C
		R	0.08	25.1	C	0.25	22.3	C
	WB	L	0.30	33.6	C	0.57	32.9	C
		TR	0.25	26.4	C	0.47	26.5	C
		R	0.05	24.9	C	0.31	25.8	C
Perris Boulevard	NB	L	0.40	34.0	C	0.88	52.2	D
		T	0.17	28.0	C	0.57	25.5	C
		R	0.10	27.5	C	0.28	23.3	C
	SB	L	0.22	38.7	D	0.95	66.0	E
		T	0.19	31.1	C	0.82	32.8	C
		R	0.05	15.3	B	0.52	16.7	B
Overall Intersection		-		**29.4**	**C**		**65.7**	**E**

Table 3.5-7 (cont'd)
Downtown Perris Station 2012 Future Levels of Service with the Project

Intersection and Approach		Mvt.	AM Peak Hour V/C	AM Peak Hour Control Delay	AM Peak Hour LOS	PM Peak Hour V/C	PM Peak Hour Control Delay	PM Peak Hour LOS
San Jacinto Avenue at C Street – Unsignalized								
San Jacinto Avenue	EB	LTR	0.00	7.8	A	0.07	9.7	A
	WB	L	0.23	10.2	B	1.07	81.3	F
		TR	0.04	7.8	A	0.01	8.2	A
C Street	NB	LTR	0.28	8.3	A	0.56	14.8	B
	SB	LTR	0.01	7.9	A	0.05	10.5	B
Overall Intersection		-		**8.9**	**A**		**52.9**	**F**
San Jacinto Avenue at D Street – Unsignalized								
San Jacinto Avenue	EB	L	0.55	18.9	C	0.97	65.6	F
		TR	0.01	9.2	A	0.06	11.1	B
	WB	L	0.09	11.8	B	0.12	13.6	B
		TR	0.14	10.8	B	0.32	15.5	C
D Street	NB	L	0.02	9.9	A	0.03	11.7	B
		TR	0.67	21.7	C	0.90	49.5	E
	SB	L	0.12	10.8	B	0.32	15.2	C
		T	0.42	14.0	B	1.05	84.4	F
		R	0.20	10.0	A	0.81	34.1	D
Overall Intersection		-		**16.3**	**C**		**55.8**	**F**
San Jacinto Avenue at Redlands Avenue – Unsignalized								
San Jacinto Avenue	EB	L	0.14	10.8	B	0.26	16.5	C
		TR	0.12	9.3	A	0.41	18.8	C
	WB	LT	0.37	13.3	B	1.68	338.3	F
		R	0.07	8.6	A	0.58	21.6	C
Redlands Avenue	NB	LT	0.29	11.4	B	1.36	200.0	F
		R	0.15	9.1	A	1.58	292.8	F
	SB	L	0.04	9.6	A	0.87	51.3	F
		TR	0.41	12.8	B	0.44	18.2	C
Overall Intersection		-		**11.6**	**B**		**194.7**	**F**
6th Street at C Street – Unsignalized								
6th Street	EB	LTR	0.01	7.2	A	0.01	7.2	A
C Street	NB	LT	0.00	8.8	A	0.03	9.3	A
	SB	TR	0.02	9.4	A	0.05	9.3	A
6th Street at D Street – Unsignalized								
6th Street	WB	LR	0.01	10.6	B	0.06	11.3	B
D Street	SB	LT	0.00	7.8	A	0.01	7.8	A
7th Street at C Street – Unsignalized								
7th Street	EB	LTR	0.00	7.3	A	0.00	7.4	A
	WB	LTR	0.00	7.3	A	0.02	7.3	A
C Street	NB	LTR	0.01	8.7	A	0.02	8.8	A
	SB	LTR	0.03	9.1	A	0.08	10.3	B

Table 3.5-7 (cont'd)
Downtown Perris Station 2012 Future Levels of Service with the Project

Intersection and Approach		Mvt.	AM Peak Hour V/C	AM Peak Hour Control Delay	AM Peak Hour LOS	PM Peak Hour V/C	PM Peak Hour Control Delay	PM Peak Hour LOS
7th Street at D Street – Unsignalized								
7th Street	EB	LTR	0.08	11.5	B	0.24	17.8	C
	WB	LTR	0.02	11.7	B	0.16	18.5	C
D Street	NB	LTR	0.00	7.5	A	0.03	8.0	A
	SB	LTR	0.00	7.8	A	0.01	7.9	A
7th Street at Perris Boulevard – Unsignalized								
7th Street	EB	LTR	0.07	11.8	B	0.27	22.8	C
	WB	LTR	0.01	11.2	B	0.19	18.0	C
Perris Boulevard	NB	LTR	0.00	7.7	A	0.00	8.3	A
	SB	LTR	0.00	7.9	A	0.01	8.2	A

South Perris Station

Significant impacts would be expected at all three study intersections as shown in Table 3.5-8.

- Eastbound Bonnie Drive's left-turn movement at southbound I-215 ramps would deteriorate from LOS D to F during the AM and PM analysis hours, and right-turn movement would worsen within LOS F by incurring approximately 240 seconds of additional delay during the PM analysis hour (Mitigation Measure TP-5).

- SR-74 at northbound I-215 off-ramp would deteriorate from LOS D to E during the AM and PM analysis hours.

- At the intersection of SR-74, Sherman Road's northbound left-turn movement onto SR-74 would incur approximately 110 and 290 seconds of additional delay within LOS F during the respective AM and PM analysis hours. Southbound Sherman Road would deteriorate from LOS E to F during the AM, and worsen within LOS F by incurring 160 seconds of additional delay during the PM analysis hours.

Table 3.5-8
South Perris Station 2012 Future Levels of Service with the Project

Intersection and Approach		Mvt.	AM Peak Hour V/C	AM Peak Hour Control Delay	AM Peak Hour LOS	PM Peak Hour V/C	PM Peak Hour Control Delay	PM Peak Hour LOS
Relocated Mapes Road at Station Access Road – Signalized								
Relocated Mapes Road	EB	L	0.13	5.8	A	0.03	7.6	A
		T	0.08	5.5	A	0.20	8.4	A
	WB	TR	0.33	6.6	A	0.18	8.3	A
Station Access Road	SB	L	0.14	17.6	B	0.92	38.8	D
		R	0.04	17.1	B	0.19	14.4	B
Overall Intersection		**-**		**7.3**	**A**		**21.4**	**C**

Table 3.5-8 (cont'd)
South Perris Station 2012 Future Levels of Service with the Project

Intersection and Approach		Mvt.	AM Peak Hour V/C	AM Peak Hour Control Delay	AM Peak Hour LOS	PM Peak Hour V/C	PM Peak Hour Control Delay	PM Peak Hour LOS
Bonnie Drive at Southbound I-215 Ramps – Unsignalized								
Bonnie Drive	EB	L	0.30	78.5	F	1.51	320.2	F
		R	0.36	18.7	C	1.78	397.2	F
Southbound I-215 Ramps	NB	L	0.63	15.9	C	0.47	15.5	C
SR-74 at Northbound I-215 Off Ramp – Unsignalized								
SR-74	EB	L	0.01	8.7	A	0.03	8.3	A
I-215 Northbound Off-Ramp	SB	LR	0.80	43.9	E	0.69	42.5	E
SR-74 at Sherman Road – Unsignalized								
SR-74	EB	L	0.09	13.4	B	0.08	10.5	B
	WB	L	0.11	10.1	B	0.21	14.5	B
Sherman Road	NB	L	1.02	304.4	F	2.00	854.1	F
		R	0.21	12.6	B	0.42	20.6	C
	SB	LR	0.53	52.3	F	1.71	592.9	F

Station Parking

In general, auto trip generation listed in Table 3.5-4 represents about half of the daily total demand that would require parking at each PVL station. Thus, doubling the high auto park-and-ride volumes in this table would yield a daily demand of between approximately 230 and 540 spaces. The station designs would provide between approximately 440 and 880 spaces to satisfy station auto demands, as follows:

- Hunter Park – approximately 480 spaces provided; demand for approximately 300 spaces (63 percent utilization)
- Moreno Valley/March Field – approximately 445 spaces provided; demand for approximately 260 spaces (59 percent)
- Downtown Perris – approximately 440 spaces provided; demand for approximately 230 spaces (52 percent)
- South Perris – approximately 880 spaces provided, demand for approximately 540 spaces (61 percent)

Construction Period Impacts

The construction activities for the proposed PVL project would result in an increase of auto and truck trips generated by construction crews, and the delivery/removal of materials to and from the construction sites. It should be noted that for the delivery of construction materials and equipment, such as the rail, rail ties, ballast, and specialized track equipment, would be accomplished using the existing rail, as opposed to being delivered by truck. The volume of construction traffic would be modest given that no significant excavation is expected, and most construction-related materials deliveries would likely occur during non-peak hours so as to limit congestion along adjacent roads. In addition, traffic diversions would occur during partial and complete roadway and grade crossing closures. As a result, the construction activities could

potentially create significant traffic impacts although, due to their temporary nature, such impacts may be tolerated and the thresholds of significance during construction periods may be redefined by reviewing agencies (Mitigation Measure TP-6). RCTC shall develop a traffic management plan in consultation with local jurisdictions that will contain measures proven to improve traffic levels of service and mitigate significant impacts to acceptable levels.

3.5.4 Mitigation Measures

- **TP-1:** Cactus Avenue at Old 215 (for Moreno Valley/March Field Station)

  Reduce north/southbound Old 215's maximum green time to 15 seconds during the PM analysis hour. This will reduce delays for westbound Cactus Avenue's through movement from 244 to 119 seconds, and improve the overall intersection LOS from LOS F with 152 seconds of delay to LOS E with 76 seconds of delay, while maintaining LOS C for Old 215.

- **TP-2:** SR-74 at D Street (for Downtown Perris Station)

  Reduce the maximum green time for the east/westbound SR-74 left-turn phase to 14 seconds during the PM analysis hour. The levels of service for north and southbound D Street's through/left-turn movements, and the overall intersection, will be improved beyond future levels of service without the project during the PM analysis hour with this mitigation measure.

- **TP-3:** San Jacinto Avenue at C Street (for Downtown Perris Station)

  Reconfigure the intersection with two-way stop control on San Jacinto Avenue. Restripe northbound C Street to provide one left/through shared lane and one right-turn lane. These modifications will reduce the delays for the westbound left-turn movement and the overall intersection to LOS C during the PM analysis hour.

- **TP-4:** San Jacinto Avenue at D Street (for Downtown Perris Station)

  Install a new traffic signal. With this measure, all movements at this intersection will operate within LOS D during both the AM and PM analysis hours.

- **TP-5:** Bonnie Drive at southbound I-215 ramps (for South Perris Station)

  Install a new traffic signal. This will improve eastbound Bonnie Drive's right-turn movement from LOS F to LOS B during the PM analysis hour and left-turn movement from LOS F to LOS C during the AM and PM analysis hours.

- **TP-6:** RCTC shall develop a traffic management plan in consultation with local jurisdictions to minimize impacts to existing traffic levels of service. At a minimum, the traffic management plan will address: detours; coordination with other construction projects (if applicable); length and timing of any street closures; length and timing of any grade crossing closures; coordination with police and fire departments regarding changes in emergency access routes; temporary access routes and signage if any commercial properties are affected; and contact information for RCTC and its contractors. With this measure in place, traffic will operate at acceptable levels.

RCTC shall design the above-proposed improvements, and execute agreements with the affected jurisdictions to provide funding for the installation of the signals or to install the signals in conjunction with the development of the project. With these mitigation measures in place, the significant impacts of the proposed project at the five above-mentioned intersections will be eliminated (out of the eight locations where significant impacts are expected, as shown in Table 3.5-9). At the remaining three locations where significant impacts are expected (San Jacinto and Redlands Avenues, SR-74 at northbound I-215 Off-Ramp, and SR-74 at Sherman Road), traffic signals are planned to be installed by other project initiatives as part of the future conditions without the project. Therefore, no mitigation measures will need to be implemented by the proposed PVL project at these intersections. However, in the event that the signalization of these intersections does not occur prior to the opening year of the PVL, the installation of traffic signals at these additional locations shall be required as part of the PVL project.

Comparison of future levels of service with and without the project, and with mitigation, is listed in Table 3.5-9.

Table 3.5-9
2012 Future Levels of Service and Mitigation Measures

Intersection and Approach		Without Project Mvt.	Without Project V/C	Without Project Control Delay	Without Project LOS	With Project V/C	With Project Control Delay	With Project LOS	Mitigated with Project Mvt.	Mitigated with Project V/C	Mitigated with Project Control Delay	Mitigated with Project LOS	PVL Mitigation Measures	Notes
Moreno Valley/March Field Station														
PM Peak														
Cactus Avenue at Old 215														
Cactus Avenue	EB	L	0.36	14.1	B	0.49	17.1	B	L	0.41	8.6	A	**TP-1:** Reduce north/southbound Old 215's maximum green time to 15 seconds. Less than significant after mitigation.	
		TR	0.71	16.2	B	0.72	16.4	B	TR	0.59	7.6	A		
	WB	T	1.48	237.4	F	1.48	239.9	F	T	1.22	115.7	F		
		R	0.16	10.4	B	0.16	10.4	B	R	0.13	4.9	A		
Old 215	NB	L	0.25	19.8	B	0.26	20.0	B	L	0.47	25.6	C		
		TR	0.09	18.5	B	0.09	18.5	B	TR	0.15	22.5	C		
	SB	L	0.21	19.4	B	0.21	19.4	B	L	0.34	24.1	C		
		TR	0.30	20.2	C	0.31	20.3	C	TR	0.52	25.5	C		
Overall Intersection		-		**145.6**	**F**		**146.3**	**F**			**71.8**	**E**		
Downtown Perris Station														
PM Peak														
SR-74 at D Street														
SR-74	EB	L	0.57	31.0	C	0.62	32.5	C	L	0.66	34.3	C	**TP-2**: Reduce the maximum green time for the east/westbound SR-74 left-turn phase to 14 seconds. Less than significant after mitigation.	
		TR	1.06	71.9	E	1.06	71.9	E	TR	1.05	67.0	E		
	WB	L	0.16	26.5	C	0.16	26.5	C	L	0.17	26.9	C		
		TR	0.76	27.0	C	0.75	26.9	C	TR	0.74	26.0	C		
D Street	NB	LT	1.30	183.1	F	1.32	192.7	F	LT	1.29	176.5	F		
		R	0.09	18.6	B	0.09	18.6	B	R	0.09	18.2	B		
	SB	LT	1.32	194.2	F	1.37	216.9	F	LT	1.32	193.7	F		
		R	0.17	19.2	B	0.16	19.1	B	R	0.16	18.7	B		
Overall Intersection		-		**82.8**	**F**		**86.8**	**F**	-	-	**80.2**	**F**		
San Jacinto Avenue at C Street														
San Jacinto Avenue	EB	LTR	0.07	9.7	A	0.07	9.7	A	LTR	0.07	12.2	B	**TP-3**: Reconfigure the intersection with two-way stop control on San Jacinto Avenue. Restripe northbound C Street. Less than significant after mitigation.	
	WB	L	1.05	75.7	F	1.07	81.3	F	L	0.72	19.2	C		
		TR	0.01	8.2	A	0.01	8.2	A	TR	0.01	9.0	A		
C Street	NB	LTR	0.55	14.5	B	0.56	14.8	B	LT	0.00	7.2	A		
	SB	LTR	0.05	10.4	B	0.05	10.5	B	LTR	0.02	8.3	A		
Overall Intersection		-		**49.7**	**E**		**52.9**	**F**			**19.1**	**C**		

Table 3.5-9 (cont'd)
2012 Future Levels of Service and Mitigation Measures

Intersection and Approach		Mvt.	Without Project V/C	Without Project Control Delay	Without Project LOS	With Project V/C	With Project Control Delay	With Project LOS	Mvt.	Mitigated with Project V/C	Mitigated with Project Control Delay	Mitigated with Project LOS	PVL Mitigation Measures	Notes
San Jacinto Avenue at D Street														
San Jacinto Avenue	EB	L	0.92	54.2	F	0.97	65.6	F	L	0.88	45.0	D	**TP-4**: Install new traffic signal. Less than significant after mitigation.	
		TR	0.06	10.8	B	0.06	11.1	B	TR	0.04	15.4	B		
	WB	L	0.07	12.7	B	0.12	13.6	B	L	0.41	37.2	D		
		TR	0.30	14.7	B	0.32	15.5	C	TR	0.64	37.5	D		
D Street	NB	L	0.02	11.4	B	0.03	11.7	B	L	0.11	34.6	C		
		TR	0.73	29.3	D	0.90	49.5	E	TR	0.85	40.7	D		
	SB	L	0.30	14.3	B	0.32	15.2	C	L	0.61	37.0	D		
		T	0.99	67.4	F	1.05	84.4	F	T	0.67	22.4	C		
		R	0.76	28.8	D	0.81	34.1	D	R	0.47	18.6	B		
Overall Intersection		**-**		**44.1**	**E**		**55.8**	**F**			**32.7**	**C**		
San Jacinto Avenue at Redlands Avenue			Unsignalized			Unsignalized				Signalized				
San Jacinto Avenue	EB	L	0.26	16.5	C	0.26	16.5	C	L	0.68	40.3	D		Installation of a new traffic signal to be completed by a private developer as part of an unrelated development.
		TR	0.41	18.8	C	0.41	18.8	C	TR	0.56	30.2	C		
	WB	LT	1.67	333.9	F	1.68	338.3	F	L	0.94	44.0	D		
		R	0.58	21.6	C	0.58	21.6	C	TR	0.57	18.2	B		
Redlands Avenue	NB	LT	134	193.1	F	1.36	200.0	F	L	0.66	36.7	D		
		R	1.56	284.2	F	1.58	292.8	F	T	0.90	40.6	D		
		-	-	-	-	-	-	-	R	0.66	6.6	A		
	SB	L	0.87	51.3	F	0.87	51.3	F	L	0.92	39.8	D		
		TR	0.44	18.2	C	0.44	18.2	C	TR	0.32	16.0	B		
Overall Intersection		**-**		**189.9**	**F**		**194.7**	**F**	**-**		**27.9**	**C**		
South Perris Station														
AM Peak **Bonnie Drive at Southbound I-215 Ramps**			Unsignalized			Unsignalized				Signalized				
Bonnie Drive	EB	L	0.03	27.8	D	0.30	78.5	F	L	0.07	25.9	C	**TP-5:** Install new traffic signal. Less than significant after mitigation.	
		R	0.30	17.5	C	0.36	18.7	C	R	0.54	30.5	C		
Southbound I-215 Ramps	NB	L	0.38	11.7	B	0.63	15.9	C	L	0.91	36.5	D		
		T	N/A	N/A	-	N/A	N/A	-	T	0.20	3.6	A		
	SB	T	N/A	N/A	-	N/A	N/A	-	T	0.89	32.0	C		
		R	N/A	N/A	-	N/A	N/A	-	R	0.08	13.2	B		
Overall Intersection				**N/A**	**-**		**N/A**	**-**			**28.4**	**C**		

Table 3.5-9 (cont'd)
2012 Future Levels of Service and Mitigation Measures

Intersection and Approach		Mvt.	Without Project V/C	Without Project Control Delay	Without Project LOS	With Project V/C	With Project Control Delay	With Project LOS	Mvt.	Mitigated with Project V/C	Mitigated with Project Control Delay	Mitigated with Project LOS	PVL Mitigation Measures	Notes
SR-74 at Northbound I-215 Off-Ramp				Unsignalized			Unsignalized				Signalized			Installation of a new traffic signal to be completed by Caltrans as part of another program. The signal will be in operation for the 2012 opening year.
SR-74	EB	L	0.01	8.5	A	0.01	8.7	A	L	0.02	4.5	A		
		T	N/A	N/A	-	N/A	N/A	-	T	0.52	11.9	B		
	WB	T	N/A	N/A	-	N/A	N/A	-	T	0.31	10.3	B		
Northbound I-215 Off-Ramp	SB	LR	0.54	28.9	D	0.80	43.9	E	LR	0.77	32.2	C		
Overall Intersection		-		**N/A**	-		**N/A**	-	-	L	**14.9**	**B**		
SR-74 at Sherman Road				Unsignalized			Unsignalized				Signalized			Installation of a new traffic signal to be completed by Caltrans as part of another program. The signal will be in operation for the 2012 opening year.
SR-74	EB	L	0.09	12.8	B	0.09	13.4	B	L	0.19	8.6	A		
		TR	N/A	N/A	-	N/A	N/A	-	TR	0.53	11.9	B		
	WB	L	0.11	10.0	A	0.11	10.1	B	L	0.24	5.7	A		
		TR	N/A	N/A	-	N/A	N/A	-	TR	0.83	17.9	B		
Sherman Road	NB	L	0.71	192.7	F	1.02	304.4	F	L	0.11	18.9	B		
		R	0.21	12.5	B	0.21	12.6	B	R	0.35	20.5	C		
	SB	LR	0.46	43.4	E	0.53	52.3	F	LR	0.19	19.4	B		
Overall Intersection		-		**N/A**	-		**N/A**	-	-	L	**15.6**	**B**		
PM Peak														
Bonnie Drive at Southbound I-215 Ramps				Unsignalized			Unsignalized				Signalized		**TP-5:** Install new traffic signal. Less than significant after mitigation	
Bonnie Drive	EB	L	0.06	28.4	D	1.51	320.2	F	L	0.52	22.2	C		
		R	1.20	159.4	F	1.78	397.2	F	R	0.68	17.2	B		
Southbound I-215 Ramps	NB	L	0.40	14.3	B	0.47	15.5	C	L	0.86	35.3	D		
		T	N/A	N/A	-	N/A	N/A	-	T	0.17	4.3	A		
	SB	T	N/A	N/A	-	N/A	N/A	-	T	1.00	40.8	D		
		R	N/A	N/A	-	N/A	N/A	-	R	0.01	7.1	A		
Overall Intersection	-		**N/A**	-		**N/A**	-	-		**30.2**	**C**			

Table 3.5-9 (cont'd)
2012 Future Levels of Service and Mitigation Measures

Intersection and Approach		Mvt.	Without Project V/C	Without Project Control Delay	Without Project LOS	With Project V/C	With Project Control Delay	With Project LOS	Mvt.	Mitigated with Project V/C	Mitigated with Project Control Delay	Mitigated with Project LOS	PVL Mitigation Measures	Notes
SR-74 at Northbound I-215 Off-Ramp				Unsignalized			Unsignalized				Signalized			Installation of a new traffic signal to be completed by Caltrans as part of another program. The signal will be in operation for the 2012 opening year.
SR-74	EB	L	0.02	8.2	A	0.03	8.3	A	L	0.05	4.5	A		
		T	N/A	N/A	-	N/A	N/A	-	T	0.82	17.7	B		
	WB	T	N/A	N/A	-	N/A	N/A	-	T	0.27	10.0	A		
Northbound I-215 Off-Ramp	SB	LR	0.59	32.9	D	0.69	42.5	E	LR	0.46	21.4	C		
Overall Intersection		**-**		**N/A**	**-**		**N/A**	**-**	**-**	L	**16.2**	**B**		
SR-74 at Sherman Road				Unsignalized			Unsignalized				Signalized			Installation of a new traffic signal to be completed by Caltrans as part of another program. The signal will be in operation for the 2012 opening year.
SR-74	EB	L	0.07	10.4	B	0.08	10.5	B	L	0.18	6.0	A		
		TR	N/A	N/A	-	N/A	N/A	-	TR	0.82	17.8	B		
	WB	L	0.19	13.4	B	0.21	14.5	B	L	0.41	10.1	B		
		TR	N/A	N/A	-	N/A	N/A	-	TR	0.60	12.8	B		
Sherman Road	NB	L	1.48	563.9	F	2.00	854.1	F	L	0.12	18.9	B		
		R	0.39	18.6	C	0.42	20.6	C	R	0.46	21.6	C		
	SB	LR	1.40	431.7	F	1.71	529.9	F	LR	0.19	19.2	B		
Overall Intersection		**-**		**N/A**	**-**		**N/A**	**-**	**-**		**15.8**	**B**		

Notes: As presented herein, a few individual turning movements would continue to operate below acceptable levels of service with mitigation measures. However, these would not be considered impacts of the project per impact criteria, as the future conditions without the project would already be at unacceptable levels.

3.6 AESTHETICS

This section provides a discussion of the aesthetics and visual resources along the PVL corridor. This section also analyzes the potential impacts to those resources, and provides mitigation measures to avoid, or minimize, potential impacts within the PVL corridor.

Aesthetics pertain to the visual resources that contribute to the perceived visual quality of an area. While the criteria for visual quality features are subjective, contributing elements may include open spaces, vegetation, and architecture of a scenic area or visual setting with a set distinction. Adverse impacts may occur through the removal, alteration, or addition of important visual resources.

3.6.1 Regulatory Setting

Federal Policies and Regulations

National Scenic Byways Program

The U.S. Department of Transportation Federal Highways Administration collaborated with several organizations to create a program for America's scenic highways, called the National Scenic Byways Program (U.S. Department of Transportation [USDOT], 2009). The U.S. Secretary of Transportation identifies the California Department of Transportation (Caltrans) as the California state agency responsible for implementing the National Scenic Byways Program.

State Policies and Regulations

California Scenic Highways Program

In response to the National Scenic Byways Program, Caltrans established and implemented the California Scenic Highway Program to protect and enhance the natural scenic beauty of California highways and adjacent corridors through special conservation treatment (Streets and Highways Code, §260 et seq.).

Caltrans defines a State Scenic Highway as any freeway, highway, road, or other public ROW that "traverses an area of outstanding scenic quality, containing striking views, flora, geology, and other unique natural attributes" (Caltrans, 2009).

Caltrans also includes "scenic corridors" in the State Scenic Highway Program: "Scenic corridors consist of land that is visible from, adjacent to, and outside the highway ROW, and is comprised primarily of scenic and natural features. Topography, vegetation, viewing distance, and/or jurisdictional lines determine the corridor boundaries" (Caltrans, 2009).

Once a highway has been designated a state or national scenic highway, or a scenic corridor, special consideration must be made whenever a project proposes to develop the surrounding area.

Local Policies and Regulations

Riverside County General Plan

The Riverside County General Plan emphasizes concentrating growth near or within existing urban boundaries, permanently preserving important natural and scenic resources, incorporating open space within urban areas, ensuring compatibility of historic and new development, conserving view corridors, skylines, and scenic vistas, and imposing restrictions on development activities that may adversely affect scenic resources (Riverside County, 2008). According to the Multipurpose Open Space Element chapter in the Riverside County General Plan, "Scenic vistas are points, accessible to the general public, that provide a view of the countryside" (Riverside County, 2008).

Riverside County Ordinance 655

Riverside County Ordinance 655 requires that lighting for new construction areas within 45 miles of the Palomar Observatory be shielded and focused in order to minimize spill light into the night sky and onto adjacent properties (Riverside County, 1988). This ordinance also applies to parking lots and walkways. This protects the night sky from light pollution which affects astronomical observation and research.

City of Riverside General Plan

The City of Riverside General Plan lists a number of policies that serve to limit impacts on aesthetics and visual resources along roadways in the city of Riverside. This plan utilizes the Caltrans term and definition of State Scenic Highways. For scenic corridors, the City of Riverside General Plan uses the terms "Scenic Boulevards", "Special Boulevards", and "Scenic Parkways" (City of Riverside, 2007).

City of Perris Ordinance Number 1051

The City of Perris Ordinance Number 1051 requires the use of certain types of light fixtures on non-residential properties to reduce glare and the intrusion of unwanted light onto adjoining properties, the public ROW, and the night sky (City of Perris, 1997).

3.6.2 Affected Environment

The aesthetics analysis focuses on locations where the PVL would introduce new structural elements with the potential to significantly alter the visual environs of identified sensitive resources. Relevant sensitive resources may include public open space and historic resources near the PVL and public areas from which such locations may be enjoyed.

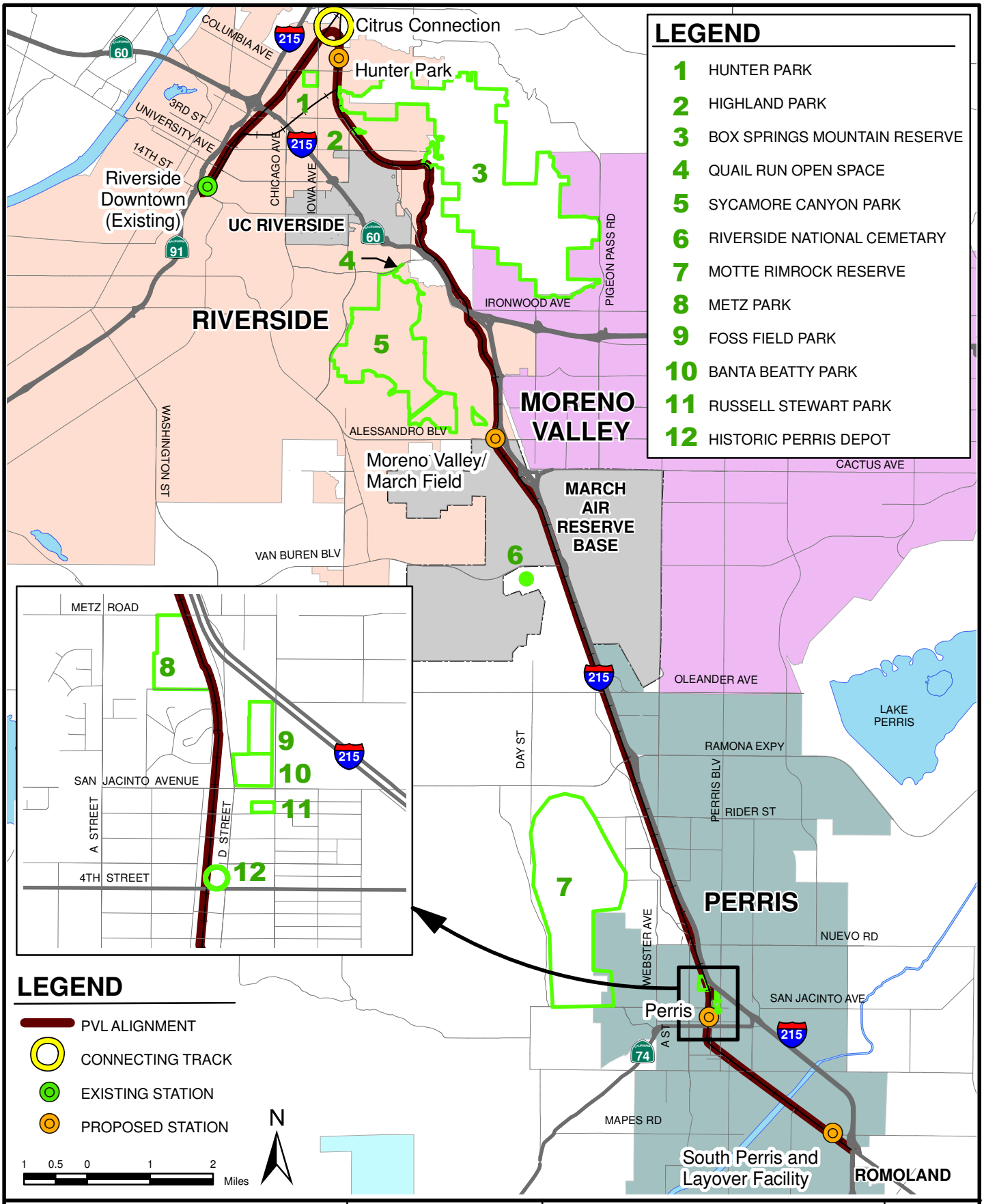
The PVL rail upgrades would generally follow the existing SJBL ROW at the existing grade; therefore, it would resemble existing conditions and not significantly alter the visual character of the area or detract from the quality of the visual environment from public areas along the PVL corridor. Likewise, the rail installed as part of the Citrus Connection would not introduce new visually prominent elements near sensitive visual resources. The parking areas would be at-grade lots with new light fixtures that would be shielded to direct the light downwards away from

off-site uses and activities; therefore, the parking areas would not intrude on the visual environment.

Therefore, sensitive aesthetic resources near the stations and Layover Facility, noise barriers, landscape walls, and communications towers are of primary concern to this aesthetics evaluation. Specifically, the potentially affected environment would comprise the following aesthetic sensitive resources (Figures 3.6-1 and 3.6-2):

- Hunter Park, located at the corner of Columbia Avenue and Iowa Avenue.
- Highland Park, Box Springs Mountain Reserve, and Islander Park. Highland Park contains sports facilities, playgrounds, and picnic areas north of Hyatt Elementary School. Box Springs Mountain Reserve, east of Islander Park and the SJBL alignment, is a large contiguous open space with trails and a steep and varied topography.
- Highland Elementary School near the proposed landscape wall that would be located near to MP 2.30 (south of Spruce Street and north of Blaine Street).
- Quail Run Open Space and Sycamore Canyon Wilderness Park are located west of the PVL corridor and north of Alessandro Boulevard. Both parks cover over 1,550 acres of land.
- Riverside National Cemetery, near the proposed Control Point Eastridge Radio Tower that would be located in the Sycamore Canyon Business Park near to MP 8 (south of Eucalyptus Avenue and north of Alessandro Boulevard). Riverside National Cemetery contains several military memorials. Trees largely block views of the corridor from most areas of the cemetery. Motte Rimrock Reserve is located south of the cemetery on the west side of the SJBL alignment.
- Listed on the National Register of Historic Places (NRHP), the Perris Depot (Santa Fe Railroad Depot) adjacent to the Downtown Perris Station that would be located near to MP 18.50 (south of 1st Street and north of 3rd Street).
- Russell Stewart Park, Metz Park, Foss Field Park, and Banta Beatty Park are located on both sides of the SJBL alignment and north of downtown Perris.
- The Ramona Expressway is a National Scenic Byway located in the vicinity of the PVL corridor. The segment of Ramona Expressway that is designated as a National Scenic Byway is located west of its intersection with E Main Street in the city of San Jacinto to the east side of I-215, north of Motte Rimrock Reserve.
- SR-74 (e.g., West 4th Street), crosses the SJBL alignment south of the Downtown Perris Station that would be located near to MP 18.50 (south of 1st Street and north of 3rd Street). SR-74 is considered an eligible state scenic highway west of the eastern boundary of the city of Hemet to the I-5 Intersection in San Juan Capistrano.

This Page Intentionally Left Blank

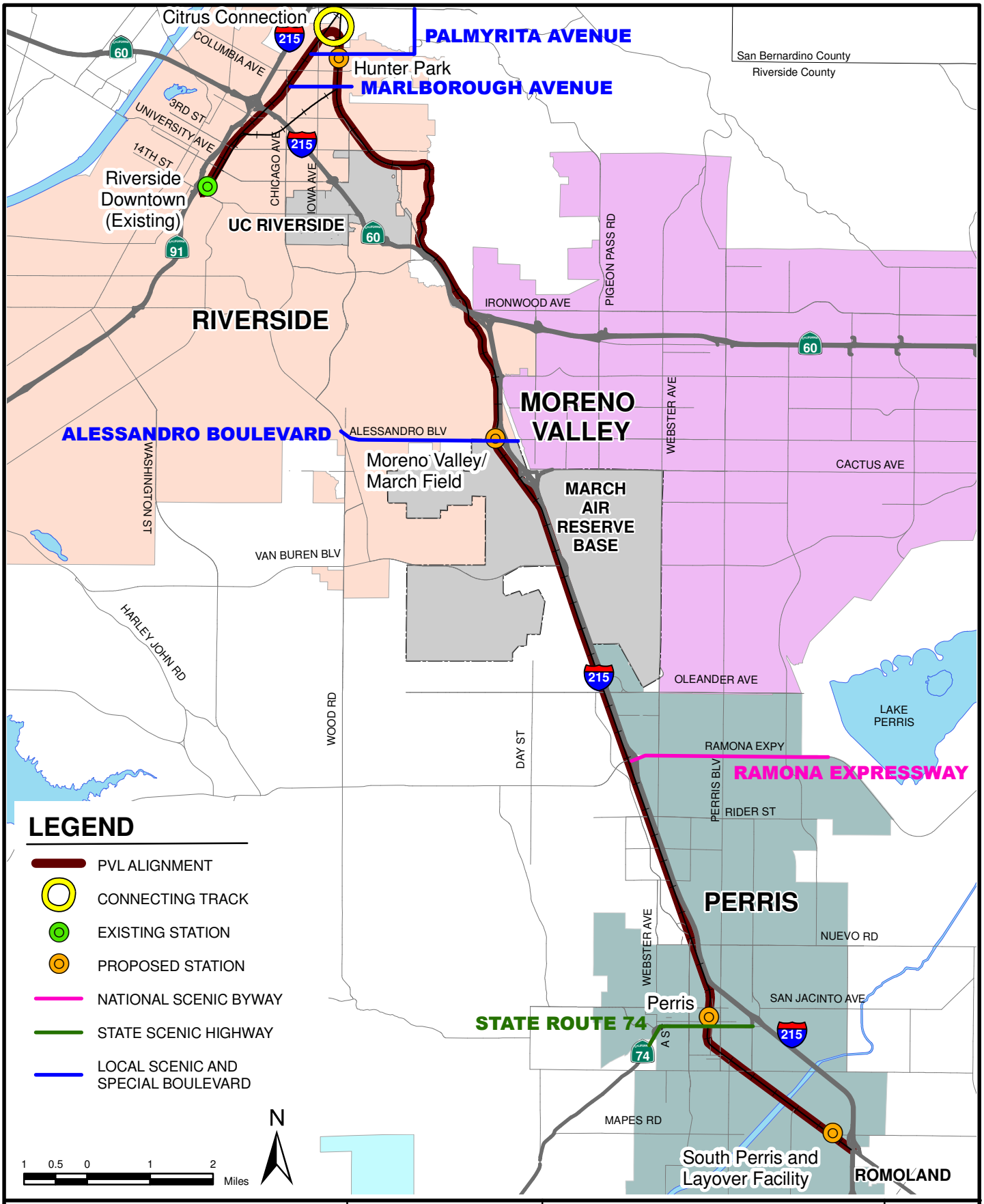


PROJECT NO.	92666
DRAWN:	1/12/10
DRAWN BY:	JP
CHECKED BY:	RM
FILE NAME:	92666scene_EA.MXD

SCENIC VISTA LOCATIONS

SUPPLEMENTAL ENVIRONMENTAL ASSESSMENT
RIVERSIDE COUNTY TRANSPORTATION COMMISSION
PERRIS VALLEY LINE
RIVERSIDE, CALIFORNIA

FIGURE
3.6-1



PROJECT NO.	92666
DRAWN:	1/12/10
DRAWN BY:	JP
CHECKED BY:	RM
FILE NAME:	92666scene1_EA.MXD

SCENIC ROUTES

SUPPLEMENTAL ENVIRONMENTAL ASSESSMENT
RIVERSIDE COUNTY TRANSPORTATION COMMISSION
PERRIS VALLEY LINE
RIVERSIDE, CALIFORNIA

FIGURE
3.6-2

3.6.3 Environmental Consequences/Impacts

Citrus Connection

The proposed Citrus Connection would be located on vacant land north of Citrus Street and near the intersection of the BNSF and SJBL alignments. This connecting track will be relatively level with the new rail placed on ballast rock.

Box Springs Mountain Reserve is about one mile east of the proposed Citrus Connection location and can be seen in the distance to the southeast, though partially blocked by the intervening development. The visual landscape of the area consists of existing public roads and railways, and industrial, commercial, and residential land uses.

New track installed as part of the Citrus Connection would closely resemble existing conditions and therefore would not alter the visual landscape or introduce new visually impacting elements near Box Springs Mountain Reserve. Therefore, there is no impact for this issue area.

SJBL Alignment

The SJBL alignment currently extends south from its intersection with the BNSF alignment in Riverside to its intersection with I-215/SR-74 south of Perris.

The views around the SJBL alignment transition from the industrialized downtown Riverside, to agricultural and residential areas in the city of Riverside, to agricultural, industrial, and open space land in Riverside County. The alignment continues south through the commercial buildings in downtown Perris to the agricultural and scattered development in the southern extent of the PVL corridor.

Hunter Park is a block west of the SJBL alignment adjacent to downtown Riverside and cannot be seen from the ROW due to the industrial development of the area.

Highland Park is adjacent to the SJBL alignment in a residential area within the city of Riverside. From the existing SJBL alignment, the park can be seen to the east, in addition to Box Springs Mountain Reserve and the surrounding educational and residential properties.

Box Springs Mountain Reserve is located to the east and southeast of the SJBL alignment, though partially blocked by intervening development, including industrial, commercial, and residential structures.

Further south along the SJBL alignment in Riverside County, the views include Quail Run Open Space, Sycamore Canyon Wilderness Park, Riverside National Cemetery, and Motte Rimrock Reserve to the west. Additional views from the SJBL alignment in this area include light industrial and agricultural facilities.

The National Scenic Byway, Ramona Expressway, east of the PVL corridor approximately 1.5 miles south of the MARB and at the east side of the I-215. The view from Ramona Expressway at this location consists of a mixture of agricultural land, light industrial structures, residential properties, the I-215, and the existing SJBL alignment.

Russell Stewart Park, Metz Park, Foss Field Park, and Banta Beatty Park are located adjacent to the existing SJBL alignment in a light industrial area within the city of Perris.

SR-74 is known as West 4th Street in downtown Perris and passes east through the city, crosses the SJBL alignment, and joins the I-215. The view of SR-74 in this area includes a moderately industrialized downtown with various commercial, business, industrial, and residential buildings.

This portion of the PVL project involves upgrading the existing track along the SJBL alignment, and adding a double track in certain segments (see Figure 1.7-2). Since only ground-level changes would be made, proposed development would resemble existing conditions and therefore would not alter the visual landscape or introduce new visually impacting elements near these sensitive scenic vistas.

Stations

The proposed PVL project would involve the construction of four stations with adequate lighting for station operations, parking lots, and the safety of station patrons. The lights at the stations would remain on during operating hours. After the last train of the day, the station and parking area lights would cycle with half of the lights being on at a time. This is an energy saving measure. The lights at the Layover Facility would remain on throughout the night. The station lighting will comply with all local ordinances.

Hunter Park Station Options

The Hunter Park Station would be constructed at one of three proximate sites located adjacent to the SJBL alignment and south of the Citrus Connection. The Palmyrita Avenue Station option is north of Columbia Avenue and east of the ROW. This is currently being developed for light industrial use by a private developer. The Columbia Avenue Station option is south of proposed Palmyrita Station option west of the ROW. The site currently hosts a citrus orchard. The citrus orchard at the Columbia Avenue station is bordered on three sides by commercial buildings and Columbia Avenue to the south. There are no sensitive receptors in the area and the only views of the orchard are from the surrounding buildings. The Marlborough Station option is just north of and adjacent to Marlborough Avenue, and is located on cleared, disturbed land about 1,000 feet south of the Columbia and Palmyrita Station options.

Box Springs Mountain Reserve abuts the existing SJBL alignment and can be seen extending southeast from the proposed station locations. Hunter Park, meanwhile, cannot be seen from any of the three proposed sites at the Hunter Park Station due to intervening development. The views around the proposed station consist of roads, agricultural land, and industrial buildings with equal or greater vertical heights as the proposed development.

Based upon the current development in the area, the proposed station would be consistent with existing conditions and would not introduce new visually impacting elements near Box Springs Mountain Reserve or Hunter Park.

Moreno Valley/March Field Station

The March Field/Moreno Valley Station has already been approved as part of the Meridian Business Park Plan in 2003. The Environmental Impact Report for the Specific Plan indicated that Sycamore Canyon Wilderness Park would be preserved (March JPA, 2003). Therefore, the March Field/Moreno Valley Station is not expected to introduce new visually impacting elements near Sycamore Canyon Wilderness Park.

Downtown Perris Station

The site for the Downtown Perris Station is located along the SJBL alignment just north of SR-74. This station is part of the Perris Multimodal Transit Facility that is currently under construction adjacent to the SJBL alignment in downtown Perris.

Russell Stewart Park, Metz Park, Foss Field Park, and Banta Beatty Park are located to the north and are not visible from the proposed Downtown Perris Station. The views around this station consist of light industrial, agricultural, and residential structures. Additionally, the city of Perris has approved plans to revitalize downtown with new walkways, renovated store fronts, and residential land uses surrounding the Multimodal Transit Facility (City of Perris, 2005).

The historic Perris Depot (Santa Fe Railroad Depot) is a restored train depot used for museum space located adjacent to the multimodal facility. The added activity and station components would be similar to and supportive of the National Register Perris Depot, and, therefore, would result in no significant adverse impact to this historic resource.

Based upon the existing conditions and the planned construction the proposed station would be consistent with the visual landscape and would not introduce any new visually prominent elements that would negatively impact scenic vistas in the area.

South Perris Station and the Layover Facility

There are no scenic vistas identified in the vicinity of the proposed South Perris Station and the Layover Facility.

Bridges

The replacement bridges will be of similar visual character to the existing bridges. There are no scenic vistas identified in the vicinity of the two proposed bridge replacements at the San Jacinto River and the San Jacinto River Overflow Channel.

Noise Barriers

Analysis of potential project noise-related impacts identified a need to construct noise barriers at several locations along Watkins Drive in the UCR area of the City of Riverside. These noise barriers would be placed at the SJBL ROW line, replacing existing residential property fences in some instances. The barriers will closely resemble a masonry block freeway noise barrier. Details regarding the noise barriers are provided in Section 4.0, Noise and Vibration.

Landscape Walls

The term "landscape wall" describes a free-standing, masonry block wall that will be deployed for reasons other than noise mitigation. A landscape wall will be constructed as part of the PVL project at Highland Elementary School, as shown on Figure 3.6-3. Additionally, RCTC will fund another landscape wall at Nan Sanders Elementary School.

Highland Elementary School

This landscape wall will be located between two of the noise mitigation barriers (see Section 3.4 Noise and Vibration). This location will create a continuous 3,140 foot long wall between Spruce Street Blaine Street. The height of the wall/barrier will vary between 9 and 13 feet.

From the proposed landscape wall location at the school's western property boundary, the view of Box Springs Mountain Reserve currently includes medium-density residential buildings. Elevations of the Reserve are vast compared to the height of even the tallest structures in the area. Highland Park is also visible from the proposed landscape wall location, though rows of trees line both sides of the SJBL alignment segment and partially block views into the park.

Since the proposed wall would be to the west of the school, their views of Highland Park to the northeast and Box Springs Mountain Reserve to the east would not be impacted. For the residential properties on the west side of the tracks, any views of Box Springs Mountain Reserve and Highland Park currently include chain link fences, the existing railway, Watkins Drive, street parking, trees on either side of the road, and intervening buildings. Additionally, these residential properties are rental units with two floors; units on the bottom floor currently have no views of the park or the reserve because of the tall wood fence that encircles each patio. Units on the top floor are elevated and currently have views that look out above the tree line.

The height of the proposed landscape wall would not exceed the height of existing structures and trees in the area. Therefore, this proposed landscape wall would not significantly impair scenic views of the park and reserve, or substantially degrade the existing visual landscape of the area.

Hyatt Elementary School

RCTC had originally proposed a landscape wall at Hyatt Elementary School during circulation of the Draft Environmental Impact Report (Draft EIR). Several comments expressed concerns that the location of the existing track relative to the adjoining Hyatt Elementary School poses a risk to the school from potential derailments; specifically, the potential that a derailment could result in rail cars and cargo (including release of hazardous materials) rolling down the slope and onto school property. The track is about 15-20 feet higher than the school property and about 95-125 feet away. The same concern was also expressed by several residents in the immediate area regarding their properties.

Project implementation will improve operating conditions by either upgrading (replace ballast, ties, and rail) or replacing existing track throughout its length, including along adjoining Hyatt

Elementary School. The one exception is the two mile stretch between Poarch Road and River Crest Road where the track will be rehabilitated (resurfacing and spot tie replacements).

The proposed project does nothing that correlates with an increased potential for derailments. As such, there are no impacts and no mitigation is required. That being said, RCTC is sensitive to public concerns associated with this project and has engaged the services of a railroad design/safety professional to review and assess the situation, and to provide recommendations. These recommendations will be weighed with additional input from the local community before undertaking any supplemental measures.

To be clear, the provision of this supplemental measure is not required to reduce potential impacts to a level of less than significant. To the contrary, the SEA thoroughly analyzed the potential for derailment and concluded that no significant impact would result (see Section 3.8 Hazards and Hazardous Materials). Thus, the provision of any supplemental measure would simply further reduce these already insignificant impacts.

Potential supplemental measures would not rise significantly above the track level to impact views into Box Springs Mountain Reserve. Box Springs Mountain Reserve would continue to be the main element of the local and regional viewshed. Views of the Reserve from either the main play area of the school, 150 feet west of the tracks, or the medium density residential areas would not be adversely impacted.

Nan Sanders Elementary School

It should be noted that there are ROW constrictions at Nan Sanders Elementary School, therefore, RCTC will provide funding for the design and construction of the landscape wall on the school's property, in lieu of constructing the wall. It is anticipated that this wall would block views of the ROW as well as views of the I-215. These are not identified as significant views for this area of the project.

Communication Towers

The PVL project includes the construction of communication towers and associated equipment shelters: East Maintenance Facility (outside the PVL corridor); CP Citrus Radio Tower, Palmyrita Station Microwave Tower; CP Marlborough Radio Tower; CP Eastridge Radio Tower; CP Oleander Radio Tower; CP Nuevo Radio Tower; South Perris Station Communication Shelter and Tower; and Control Point Mapes Radio Tower (Figure 3.9-1). A shelter or equipment box located near the base of these towers would house equipment and electronics and would be surrounded by a block wall or other type of security fence.

There are no scenic vistas in the vicinity of the East Maintenance Facility, the South Perris Station Communication Shelter and Tower, and the Control Point Mapes Radio Tower and therefore no impacts are anticipated at those three locations.

CP Citrus Radio Tower, Palmyrita Station Microwave Tower, and CP Marlborough Radio Tower

The CP Citrus Radio Tower would be located near the proposed Citrus Connection site and along the existing railroad tracks. The Palmyrita Station Microwave Tower would be installed near the proposed Hunter Park Station in Riverside.

Box Springs Mountain Reserve would be seen to the southeast of the proposed towers. This view of the Reserve would also include the agricultural lands, telephone poles, and industrial structures of varying heights that currently occupy the visual landscape.



HIGHLAND ELEMENTARY SCHOOL/HIGHLAND PARK

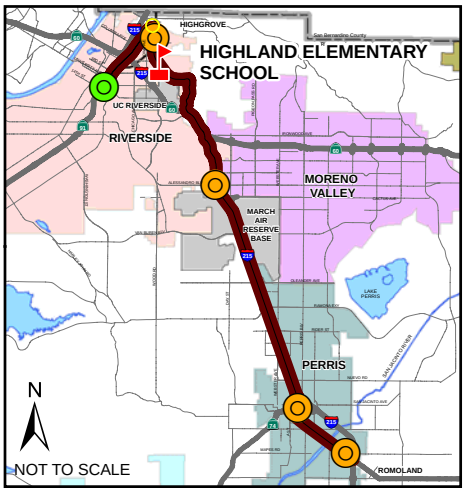
NOTE:

DUE TO RIGHT OF WAY CONSTRICTIONS AT NAN SANDERS ELEMENTARY SCHOOL, RCTC WILL PROVIDE FUNDING FOR THE DESIGN AND CONSTRUCTION OF THE LANDSCAPE WALL.

LEGEND

- PVL ALIGNMENT
- APPROXIMATE LOCATION OF LANDSCAPE WALL

NOT TO SCALE



KEY MAP

PROJECT NO.	92666
DRAWN:	11/16/10
DRAWN BY:	JP
CHECKED BY:	RM
FILE NAME:	92666lscape1.MXD

LANDSCAPE WALL LOCATION

SUPPLEMENTAL ENVIRONMENTAL ASSESSMENT
RIVERSIDE COUNTY TRANSPORTATION COMMISSION
PERRIS VALLEY LINE
RIVERSIDE, CALIFORNIA

FIGURE 3.6-3

The proposed towers would have thin profiles and the proposed shelter would not exceed the height of structures in the surrounding area. Based upon this and the elevation of the Reserve, development at this segment of the PVL project would be consistent with the existing visual landscape and would not introduce new visually impacting elements near Box Springs Mountain Reserve.

CP Eastridge Radio Tower

This tower would be located west of the SJBL alignment between Alessandro Boulevard and the I-215/SR-60 interchange. Sycamore Canyon Wilderness Park would be seen one mile west of the proposed tower. Agricultural lands, industrial structures, and telephone poles currently exist between this tower and the park. Despite the intervening development, drivers or train commuters along I-215 or the SJBL railway can also see the park in the distance to the west, which has elevations ranging from 1,100 -1,600 feet ASL.

Based upon existing conditions and the proposed tower's thin profile, it would be consistent with the visual landscape and would not introduce new visually impacting elements near Sycamore Canyon Wilderness Park.

CP Oleander Radio Tower

The CP Oleander Radio Tower is located south of the MARB along the PVL corridor. From this proposed tower, the view of Riverside National Cemetery would consist of moderately rural land with scattered industrial structures and telephone poles throughout. Trees line the boundary that is adjacent to the SJBL alignment and mostly block views into the cemetery. Additionally, business park development has been planned north of the cemetery (March JPA2003).

The proposed tower would have a thin profile that is similar to the existing telephone poles. Therefore the tower would be consistent with the visual landscape and would not introduce new visually impacting elements around the Riverside National Cemetery.

CP Nuevo Radio Tower

This tower would be located just north of Nuevo Road in Perris and adjacent to the PVL corridor. Motte Rimrock Reserve would be seen to the west of the proposed Nuevo Radio Tower. The view of the reserve from this proposed tower would also include approximately 1/2 mile of the agricultural lands, scattered residential and industrial properties, and telephone poles that currently occupy the visual landscape. In addition to the intervening development, drivers or train commuters along I-215 or the SJBL railway can see the reserve in the distance to the west, which has elevations ranging from 1,500 -1,900 feet ASL.

Based upon existing conditions and the proposed tower's thin profile, it would be consistent with the visual landscape and would not introduce new visually impacting elements near Motte Rimrock Reserve.

Construction Impacts

During the construction period, airborne dust may be created and equipment may be stored along the railroad ROW and at station sites, which has the potential for temporary, localized

visual impacts. These impacts would be temporary. Furthermore, best management practices would be incorporated into the proposed action to reduce the amounts of fugitive dust (see Section 3.3 Air Quality), and screen construction equipment.

During the construction period, fugitive light may be created from night-time work activities, which has the potential for temporary, localized visual impacts. These impacts would be temporary. Furthermore, best management practices would be incorporated into the proposed action to reduce the amounts of fugitive light and screen construction equipment (Mitigation Measure AS-1).

3.6.4 Mitigation Measures

- **AS-1:** In order to limit light spill over into residential areas during construction, light attenuating barriers or directed lighting will be used.

3.7 CULTURAL RESOURCES AND SECTION 106 COMPLIANCE

This section summarizes the efforts to identify historic properties within the PVL project area, describes the identified resources and their eligibility for the National Register of Historic Places (NRHP), analyzes the potential impacts to those resources, and provides mitigation measures to reduce, avoid, or minimize potential impacts.

It should be noted that historical resources also are protected under Section 4(f) of the Department of Transportation Act of 1966. A complete discussion of Section 4(f) and its applicability to the PVL project is provided in Section 3.10 Section 4(f) Evaluation.

3.7.1 Regulatory Setting

The term "cultural resource" refers to a broad category of resources, which include prehistoric and historic archaeological sites, buildings, districts, structures, locations, or objects considered important to a culture or community for scientific, traditional, religious, or other reasons. Cultural resources deemed significant for their contribution to broad patterns of history, prehistory, architecture, engineering, and culture are eligible for listing on the NRHP and require specific considerations under the National Historic Preservation Act (NHPA). Regardless of age, cultural resources listed on or eligible for listing on the NRHP are termed historic properties.

Because the PVL project would be funded in part through FTA's Small Starts category, it is a project subject to compliance with Section 106 of the NHPA of 1966, as amended (16 USC 470 et seq.). Section 106 (36 CFR Part 800, as amended August 5, 2004) requires federal agencies to take into account the effects of their undertakings on historic properties, and consult with the State Historic Preservation Office (SHPO).

In order to be eligible for inclusion on the NRHP, a property must be significant under one or more of the four evaluation criteria:

- Criterion A: Associated with events that have made a significant contribution to the broad patterns of our history; or
- Criterion B: Associated with the lives of persons significant in our past; or
- Criterion C: Embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or
- Criterion D: Yielded, or may be likely to yield, information important in prehistory or history.

In addition, a property must be able to convey its significance through the retention of specific aspects of integrity, such as location, design, setting, materials, workmanship, feeling, and association. In general, properties less than 50 years of age, unless of exceptional importance, are not eligible for the NRHP.

To comply with Section 106 of the NHPA, any effects of the federal agency's proposed undertaking on historic properties must be evaluated by applying the Criteria of Adverse Effect (36 CFR Part 800.5):

(1) An adverse effect is found when an undertaking may alter, directly or indirectly, any of the characteristics of a historic property that qualify the property for inclusion in the NRHP in a manner that would diminish the integrity of the property's location, design, setting, materials, workmanship, feeling, or association. Consideration must be given to all qualifying characteristics of a historic property, including those that may have been identified subsequent to the original evaluation of the property's eligibility for the NRHP.

(2) Adverse effects on historic properties include, but are not limited to:

i. Physical destruction of or damage to all or part of the property;

ii. Alteration of a property, including restoration, rehabilitation, repair, maintenance, stabilization, hazardous material remediation and provision of handicapped access, that is not consistent with the Secretary's Standards for the Treatment of Historic Properties (36 CFR part 68) and applicable guidelines;

iii. Removal of the property from its historic location;

iv. Change of the character of the property's use or of physical features within the property's setting that contributes to its historic significance;

v. Introduction of visual, atmospheric or audible elements that diminish the integrity of the property's significant historic features;

vi. Neglect of a property which causes its deterioration, except where such neglect and deterioration are recognized qualities of a property of religious and cultural significance to an Indian tribe or Native Hawaiian organization; and

vii. Transfer, lease, or sale of property out of federal ownership or control without adequate and legally enforceable restrictions or conditions to ensure long-term preservation of the property's historic significance.

3.7.2 Affected Environment

This section describes the extent of the area considered for the presence of cultural resources, outlines the methods used to identify historic properties within the PVL project area, and presents the findings of the cultural resource investigations.

Definition of the Area of Potential Effect

As defined by Section 106 (36 CFR Part 800.16(d)), the Area of Potential Effects (APE) means the geographic area or areas within which an undertaking may directly or indirectly cause alterations in the character or use of historic properties, if any such properties exist. The APE is

influenced by the scale and nature of an undertaking and may be different for different kinds of effects caused by the undertaking."

The APE for the PVL project includes the existing SJBL ROW (extending one parcel out to account for potential visual, atmospheric, or auditory effects to historic properties); the Citrus Connection; the proposed station locations; and the Layover Facility.

Identification Methods and Findings

Architectural Resources

In 2003, Myra L. Frank & Associates, Inc. (MFA) prepared a Determination of Eligibility and Effects Report (DEER), which analyzed the architectural and historic resources within and adjacent to the PVL corridor. The DEER included a records search and field survey to identify architectural and archaeological resources that could be eligible for listing on the NRHP.

Prior to field survey, MFA consulted the following inventories and information sources:

- NRHP
- State Historic Landmarks
- State Points of Historical Interest
- City of Riverside Landmarks
- City of Riverside Structures of Merit
- Riverside Public Library
- TRW/Experian property data records
- City of Riverside Building Permits
- Eastern Information Center at UCR
- California Historical Resources Information System (CHRIS)

MFA also solicited information from interested parties, including: the City of Perris Planning Department, Riverside Public Library, City of Riverside Planning Department, County of Riverside Transportation Department, Historical Society of Riverside, Riverside County Historical Commission, Riverside Municipal Museum, Jurupa Cultural Center, Regional Park and Open Space Agency, and MARB.

The reconnaissance built environment survey was conducted on August 27 – 30, 2002 and January 16, 2003 by qualified architectural historians who meet the Secretary of Interior's Professional Qualification Standards (Federal Register 48(190): 44738-44739). As a result of the field effort, more than 60 buildings and structures were evaluated for eligibility to the NRHP. Of the resources evaluated by MFA within the PVL project's APE, four resources are listed on or recommended as eligible for listing on the NRHP, as summarized in Table 3.7-1.

Table 3.7-1
NRHP Listed or Eligible Resources

Resource	Description	Eligibility Status	Distance from PVL Corridor
March Field Historic District (within March Air Reserve Base)	District of military buildings	Listed, Criteria A and C	< 1 mile east of SJBL alignment
Perris Depot (120 West 4th Street)	One-story Victorian railroad depot	Listed, Criteria A and C	Adjacent to east side of SJBL alignment
Rock House (246 Lomita Drive, Perris)	Two-story stone-clad Mission Revival style single-family residence	Recommended Eligible, Criterion C[1]	500 ft west of SJBL alignment, elevated 100 ft
Janie Kirkpatrick House (504 South C Street, Perris)	One-story Victorian cottage	Recommended Eligible, Criteria B and C[1]	300 ft west of SJBL alignment

Archaeological Resources

AE prepared an archaeological resources report (AE, Inc., 2008), which included a literature and records search and a pedestrian survey. The records search was conducted at the Eastern Information Center (EIC) at UCR, and encompassed a 1/8-mile search radius of the PVL corridor. Information collected from EIC indicated that portions of the APE had been previously surveyed, and that three known archaeological sites are located in close proximity to the rail alignment.

Following the records search, pedestrian survey was performed by AE archaeologists between October 6 and 8, 2008 and on October 22, 2008. Supplemental survey of the proposed Marlborough and Columbia Station locations was conducted on July 7, 2009. Survey transects were spaced no more than 10 to 15 meters (33 to 50 feet) apart. All areas were observed carefully to ensure that potentially significant cultural resources (if present) were discovered and documented. Where possible, the surveyor investigated distinctive soil contours or changes and any other potential cultural site markers.

As a result of fieldwork, AE archaeologists identified and recorded an additional archaeological site, and updated site records for the three previously identified archaeological sites. Table 3.7-2 summarizes the results of the archaeological survey.

Table 3.7-2
Archaeological Resources within the APE

Site Number	Description	Eligibility Status
CB-2	Bedrock milling site	Not evaluated
CA-RIV-805	Prehistoric artifact scatter	Portion of site within APE not eligible[1]
CA-RIV-2384	Bedrock milling site	Not evaluated
CA-RIV-4497H / 3817H	Box Springs siding; historic artifact scatter; prehistoric features	Not evaluated

Site CA-RIV-805 is a sparse prehistoric artifact scatter located partially within the railroad ROW west of the San Jacinto River. Because site CA-RIV-805 is located in the floodplain, additional artifacts and possibly features may be buried beneath the site's surface. In addition, at least a portion of site CA-RIV-805 and the area immediately north of it (outside of the ROW) has been regularly plowed as part of agricultural operations. Flooding episodes and plowing have impacted the integrity of at least the upper portions of the site, and therefore the horizontal and vertical extents of site CA-RIV-805 could not be determined from the distribution of surface artifacts. Project-related construction activities proposed near site CA-RIV-805 would include the replacement of track, tie, and ballast, and the construction of a drainage swale adjacent to the rail. These ground-disturbing activities are expected to impact a portion of the known extent of the site. Accordingly, archaeological testing was conducted at site CA-RIV-805 to determine the spatial extent of the site and its eligibility for listing on the NRHP (Mirro, 2009b).

The results of the archaeological testing concluded that no intact buried deposits are present within the APE at site CA-RIV-805 and that the surface artifacts represent the only remnants of the site within the APE. No testing was conducted on portions of the site outside the APE. Accordingly, it is recommended that the portions of site CA-RIV-805 that exist within the APE would not contribute to the eligibility of the site for listing on the NRHP if other portions of the site, outside the APE, are determined eligible in the future.

The other three archaeological sites (Table 3.7-2) will not be directly affected by the project and were not evaluated for their NRHP-eligibility. To ensure protection of these resources during construction, environmentally sensitive areas (ESAs) would be established and monitored.

Native American Consultation and Coordination

RCTC contacted the Native American Heritage Commission (NAHC) in June 2008 to identify any traditional lands or cultural places within or adjacent to the project corridor. The NAHC responded on June 18, 2008 with a request for RCTC to contact local Native American groups who may have knowledge of cultural resources in the vicinity of the PVL corridor. On July 10, 2008, RCTC sent letters and a map of the PVL corridor to the list of contacts provided by NAHC.

It should be noted that RCTC's July 2008 contact with Native American groups and individuals was based on the list provided by the NAHC in June 2008. On February 5, 2009, NAHC sent a new list of Native American contacts following the promulgation of the January 2009 IS/MND, which differed from the June 2008 list. RCTC contacted the NAHC to clarify which list should be used for all future correspondence. NAHC indicated that contact lists are periodically updated to

most accurately reflect each tribe's area of cultural affinity. NAHC indicated the most appropriate list to use is the one dated February 5, 2009. Accordingly, the following tribes will be included in any future project correspondence or consultation related to the requirements of NEPA and Section 106 of the National Historic Preservation Act: Pechanga Band of Mission Indians, Ramona Band of Cahuilla Mission Indians, Soboba Band of Mission Indians, Santa Rosa Band of Mission Indians, Morongo Band of Mission Indians, Willie Pink, and Soboba Band of Luiseno Indians.

Two responses were received. The Morongo Tribe responded on July 31, 2008 requesting that any human remains identified during project construction be treated in accordance with Health and Safety Code Section 7050.5. The tribe also requested that they be consulted should any cultural resources be discovered during project construction. On August 28, 2008, the Soboba Band of Mission Indians responded with a request that RCTC provide copies of archaeological and/or cultural resource documentation prepared for the project, and continue to consult with Native American tribes about the project.

Following preparation of the archaeological testing plan prepared for site CA-RIV-805 (AE, Inc., 2009), additional tribal consultation occurred among FTA, RCTC, and the Soboba Band of Luiseño Indians on June 11, 2009 and among FTA, RCTC, and the Pechanga Band of Luiseño Indians on October 20, 2009 and June 25, 2010. Native American consultants were hired from each Band to monitor the testing activities at CA-RIV-805. Subsequently, in a letter to RCTC dated March 15, 2010, the Pechanga Band indicated that the entire project alignment is of cultural importance to the Band and that construction activities in sensitive areas should be monitored. As well, they recommended that evaluation of the NRHP-eligibility of portions of site CA-RIV-805 outside the APE be deferred; they concur that the portion of the site within the APE would not contribute to the eligibility of the site, overall.

3.7.3 Environmental Consequences/Impacts

Citrus Connection

No historic properties or archaeological sites were identified within or adjacent to the Citrus Connection parcel, and therefore no impacts associated with the construction, operation, or maintenance of the PVL would occur.

SJBL Alignment

One archaeological site, CA-RIV-805, was identified within the railroad ROW. Portions of that site within the ROW are recommended as not eligible for the NRHP. Therefore, the project would have no adverse effect to that site. Three other archaeological sites, CB-2, CA-RIV-2384, and CA-RIV-4497H / 3817H (Table 3.7-2) are immediately adjacent to the railroad ROW. Project-related construction activities proposed in the vicinity of these archaeological sites are limited to rehabilitation of existing track and ties, and the construction of drainage features adjacent to rail. The sites would be protected from direct impacts by designation of ESAs that would be monitored. Therefore, the project would have no impact on these three sites.

MFA applied the Criteria of Adverse Effect (refer to 3.7.1 Regulatory Setting) to the resources listed in Table 3.7-1 to determine if the proposed PVL would adversely affect any historic properties. The properties are located in close proximity to the railroad (that is, 500 feet or less),

and railroad facilities have long been part of the area's historic setting. Therefore, the proposed project does not constitute a change in the setting of the respective resources. In addition, the PVL project would not alter any of the character-defining features for which these resources are valued, nor would it introduce visual, atmospheric, or audible effects which are greater than the existing conditions. Because there are no adverse direct or indirect impacts on historic properties, the DEER prepared by MFA proposes a Determination of No Adverse Effect for all four resources.

It should be noted that MFA also evaluated the existing SJBL alignment, and recommended it as ineligible for listing on the NRHP.

Hunter Park Station

No historic properties or archaeological sites were identified within or adjacent to any of the three optional Hunter Park Station parcels, and therefore no impacts associated with the construction, operation, or maintenance of the PVL would occur.

Moreno Valley/March Field Station

No historic properties or archaeological sites were identified within or adjacent to area proposed for the Moreno Valley/March Field Station, and therefore no impacts associated with the construction, operation, or maintenance of the PVL would occur.

Downtown Perris Station

As described in Section 3.7.2 Affected Environment, the historic Perris Depot is listed on the NRHP under Criteria A and C, that is, for its association with an important event in history and its embodiment of the distinctive characteristics of a type or period. No project-related activities are proposed for the historic Perris Depot. Railroad facilities are an intrinsic element to the historic setting of the Perris Depot, and therefore the proposed PVL project, including the construction of the Downtown Perris Station, would not alter, impair, or diminish any of the qualities for which the historic depot is valued. The platform for the proposed Downtown Perris Station would be at-grade, and located west of the existing rail line and north of the historic depot. Furthermore, the appurtenances proposed for the Downtown Perris Station, which include an at-grade platform and a track-side canopy structure, would not introduce a significant visual intrusion that would obstruct or eliminate architectural views of the depot. All of the rail facilities proposed as part of the PVL project would be consistent with the existing conditions.

The noise and vibration study prepared for the PVL project concluded that there would be no auditory or atmospheric impacts to the historic depot (or its immediate vicinity) which could detract from the significance of the historic site or affect the structural integrity of the depot. Therefore, no direct or indirect impacts to the historic Perris Depot are anticipated from the construction, operation, or maintenance of the PVL project. Section 106 consultation is complete. FTA has received SHPO concurrence with its determinations of eligibility and project effect on October 4, 2010.

South Perris Station

No historic properties were identified within or adjacent to the area proposed for the South Perris Station, and therefore no impacts associated with the construction, operation, or maintenance of the PVL would occur.

Layover Facility

No historic properties were identified within or adjacent to the area proposed for the Layover Facility, and therefore no impacts associated with the construction, operation, or maintenance of the PVL would occur.

3.7.4 Mitigation Measures

No known historic properties would be adversely affected by the construction, operation, or maintenance of the PVL. To ensure that unanticipated impacts to unknown resources do not occur, the following actions would be implemented and be included in RCTC contract documents:

- **CR-1:** Sites CB-2, CA-RIV-2384, and CA-RIV-4497H / 3817H shall be avoided during project construction. Site avoidance shall be accomplished through establishing ESAs and monitoring all construction in the vicinity of these sites by a qualified archaeologist. A qualified archaeologist shall monitor all construction activities between MP 3.50 and 4.50, and between MP 5.60 and 6.50.

- **CR-2:** If project construction activities exceed the depth of past agricultural impacts (4 feet), monitoring would be required at the following locations: the Citrus Connection, South Perris Station, and Layover Facility, as well as two of the three potential locations for the Hunter Park Station (Columbia Avenue Station option and the Palmyrita Avenue Station option). Part-time monitoring shall be conducted by a qualified archaeologist during the construction phase to determine whether significant buried cultural deposits are present. The monitor shall have the power to temporarily halt or divert construction equipment in order to examine potential resources, assess their significance, and offer recommendations for the procedures deemed appropriate to either further investigate or mitigate adverse impacts to those cultural resources that have been encountered.

- **CR-3:** In the unlikely event of the accidental discovery of human remains during project construction, the procedures outlined in §15064.5(e) of the CEQA Guidelines shall be strictly followed. These procedures specify that, upon discovery, no further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent human remains can occur. The county coroner must be contacted to determine if the remains are Native American. If the remains are determined to be Native American, the coroner shall contact the NAHC within 24 hours. The NAHC shall identify the Most Likely Descendent (MLD). The MLD shall make recommendations for the appropriate treatment and disposition of the remains and any associated grave goods in accordance with PRC §5097.98.

3.8 HAZARDS AND HAZARDOUS MATERIALS

This section describes the potential presence of hazardous materials within the PVL corridor, the potential for exposure to hazardous materials during and following construction, and the specific measures that would be employed to protect public health, worker safety, and the environment. A "hazardous material" is generally defined as any substance that poses a threat to human health or the environment. It is often used interchangeably with "contaminated material," but should not be confused with the term "hazardous waste," which is a regulatory term (Davis, 2006). "Hazardous waste" is defined in the USEPA regulations (40 CFR Part 261) and refers to a subset of solid wastes that are either specific wastes listed in the regulations (listed wastes) or solid wastes possessing the characteristic of ignitability, reactivity, corrosivity or toxicity (characteristic wastes) (Davis, 2006). Information in this section is based on the *Hazardous Materials Corridor Study (HMCS) SJBL Alignment* (Technical Report G) (Kleinfelder, 2008), unless otherwise specified.

3.8.1 Regulatory Setting

Federal Policies and Regulations

Comprehensive Environmental Response, Compensation, and Liability Act

The U.S. Congress passed the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA or Superfund) in 1980. The purpose of CERCLA is to identify and clean up chemically contaminated sites that pose a significant environmental health threat. Under CERCLA, the USEPA maintains a list, known as CERCLIS, of all contaminated sites in the nation that have to some extent or are currently undergoing clean-up activities. CERCLIS contains information on current hazardous waste sites, potential hazardous waste sites, and remedial activities. This includes sites that are on the National Priorities List (NPL) or being considered for the NPL. The Hazard Ranking System within the CERCLIS database is used to determine whether a site should be placed on the NPL for cleanup activities (USEPA, 2000).

Superfund Amendments and Reauthorization Act

The Superfund Amendments and Reauthorization Act (SARA) pertain primarily to emergency management of accidental releases. Passed by the U.S. Congress in 1986, it requires formation of State and local emergency planning committees, which are responsible for collecting material handling and transportation data for use as a basis for planning. Chemical inventory data is made available to the community at large under the "right-to-know" provision of the law. In addition, SARA also requires annual reporting of continuous emissions and accidental releases of specified compounds. These annual submissions are compiled into a nationwide Toxics Release Inventory (USEPA, 2000).

Emergency Planning and Community Right-To-Know Act

The Emergency Planning & Community Right-to-Know Act was enacted by Congress as the national legislation on community safety in 1986, under Title III of the SARA. This law is designed to help local communities protect public health, safety, and the environment from chemical hazards. To help Emergency Planning & Community Right-to-Know Act be put into action, Congress requires each state to appoint a State Emergency Response Commission.

The State Emergency Response Commissions are required to divide their states into Emergency Planning Districts and to name a Local Emergency Planning Committee for each district. Fire fighters, health officials, government and media representatives, community groups, industrial facilities, and emergency managers help make sure that all necessary elements of the planning process are represented (USEPA, 2000).

Hazardous Materials Transportation Act

The Hazardous Materials Transportation Act is the statutory basis for the extensive body of regulations aimed at ensuring the safe transport of hazardous materials on water, rail, highways, through air, or in pipelines. It includes provisions for material classification, packaging, marking, labeling, placarding, and shipping documentation (USEPA, 1975).

Resource Conservation and Recovery Act

The Resource Conservation and Recovery Act (RCRA) Subtitle C addresses hazardous waste generation, handling, transportation, storage, treatment, and disposal. It includes requirements for a system that uses hazardous waste manifests to track the movement of waste from its site of generation to its ultimate disposition. The 1984 amendments to RCRA created a national priority for waste minimization. Subtitle D establishes national minimum requirements for solid waste disposal sites and practices. It requires states to develop plans for the management of wastes within their jurisdictions. Subtitle I requires monitoring and containment systems for USTs that hold hazardous materials. Owners of tanks must demonstrate financial assurance for the cleanup of a potential leaking tank.

In addition to the acts listed above, Executive Order 12088, Federal Compliance with Pollution Control, mandates that necessary actions be taken to prevent and control environmental pollution when federal activities or federal facilities are involved (Davis, 2006).

Hazardous waste in California is regulated primarily under the authority of RCRA and the California Health and Safety Code. According to the Department of Toxic Substances Control (DTSC), other California laws that affect hazardous waste are specific to handling, storage, transportation, disposal, treatment, reduction, cleanup and emergency planning.

3.8.2 Affected Environment

The PVL corridor is an existing rail corridor that goes through light industrial, commercial, residential, and undeveloped areas. Adjacent land uses include residential, schools, parks, commercial, light industry, agriculture, and an active airport. Other infrastructure in the area includes natural gas and jet fuel pipelines. It should be noted that freight trains may carry hazardous materials for delivery to existing clients on the corridor. However, freight train operations on the PVL are not part of this project, but are an existing condition of the railway. The project is not anticipated to increase freight train traffic because the freight train deliveries are market driven and not related to track condition. Additionally, it should be noted that RCTC has no control over the type of freight being transported along the corridor.

Pipelines

According to the Pipeline and Hazardous Materials Safety Administration's National Pipeline Mapping System, hazardous material pipelines located within the PVL corridor include a six-inch jet fuel transmission pipeline operated by Kinder Morgan. A portion of the jet fuel pipeline extends from the Colton Terminal (2359 South Riverside Avenue) to the MARB (Cactus Avenue). Additional segments of the Kinder Morgan pipeline are located within the SJBL ROW from Service Road southward to Watkins Drive, and then reconnecting near Box Springs Boulevard to Cactus Avenue. A portion of the Kinder Morgan pipeline, within the PVL corridor, runs parallel to Hyatt Elementary School, within approximately 50 feet to the west.

A natural gas pipeline, operated by Kinder Morgan, transects the SJBL alignment at Columbia Avenue. Two other natural gas transmission pipelines operated by Southern California Gas Company intersect the PVL corridor near Cottonwood Avenue and Alessandro Boulevard.

Airport Hazards

The PVL corridor has two airports zoned within or near the project area. They are March Global Port/MARB (over one mile east) and the Perris Valley Airport (less than 0.25 miles west).

The PVL corridor and the proposed Moreno Valley/March Field Station are located within the boundaries of the airport land use plan of the MARB. The proposed station would be located predominantly within Accident Potential Zone (APZ) II, to the west of the airport, which allows for industrial and transportation uses. As currently designed, a small southerly segment of the station parking lot would be located within APZ I, to the west, which prohibits dense concentrations of people, but allows for parking lots (City of Perris, 2005).

The South Perris Station and Layover Facility are also within the MARB Airport Influence Area. They are both located within Safety Zone 3.

In addition, the privately owned Perris Valley Airport is located approximately 500 feet southwest from the PVL corridor. The PVL corridor lies within the Perris Valley Airport Influence Area, from west of Goetz Road, along SJBL alignment, to just east of Murrieta Road.

Emergency Response Plans and Emergency Evacuation Plans

Emergency management is the continuous process by which all individuals, groups, and communities manage hazards in an effort to avoid or ameliorate the impact of disasters resulting from the hazards. Effective emergency management relies on thorough integration of emergency plans at all levels of government and non-government involvement (Wisner, 2004).

Riverside County and the city of Riverside have Emergency Operations Plans (EOP) written to address the planned emergency responses associated with natural disasters and technological incidents. Each specifies its own level of response within their jurisdiction. Effective emergency management relies on thorough integration of emergency plans at all levels of government and non-government involvement.

The Emergency Management Office within the Riverside Fire Department coordinates emergency response and has prepared an EOP for the city of Riverside (Riverside Fire

Department, 2002). Currently the city of Riverside is updating their EOP and associated evacuation plan (Anthony Coletta, Program Administrator for the Riverside UASI Regional Homeland Security Program).

The Riverside County Operational Area EOP, which is an extension of the State Emergency Program, focuses on defining and coordinating the appropriate departments that are directly involved with Riverside County emergency response activities (Riverside County, 2006). This plan is a multi-agency plan and also serves as a Multi-Hazard Functional Plan for the city of Perris. Along with setting forth emergency response plans and emergency evacuation plans, the EOP addresses terrorist strikes against MARB (City of Perris, 2004).

Schools

There are fifteen schools located within one-quarter mile of the SJBL ROW. Safety is the first consideration in the selection of school sites, and certain health and safety criteria are necessary including proximity to power lines, presence of toxic and hazardous substances, hazardous air emissions and facilities within a quarter mile, proximity to railroads, proximity to high pressure natural gas lines, gasoline lines, and proximity to propane tanks. The schools and their addresses are listed below:

- Riverside Community College – 1155 Spruce Street, Riverside, CA
- University Middle School – 1155 Massachusetts Avenue, Riverside, CA
- University of California Riverside – 1000 West Blaine Street, Riverside, CA
- Highland Elementary School – 700 Highlander Drive, Riverside, CA
- Vineyard Christian School – 533 Massachusetts Avenue, Riverside, CA
- Seneca Elementary School – 11615 Wordsworth Road, Moreno Valley, CA
- Apple Tree Learning Center and Riverside Child Day Care – 220 West Big Springs Road, Riverside, CA
- Hyatt Elementary School – 4466 Mt. Vernon Avenue, Riverside, CA
- Red Maple and Sierra Vista Elementary School – 975 Morgan Street, Riverside, CA
- Val Verde Student Success Academy – 972 Morgan Street, Riverside, CA
- Nan Sanders Elementary School – 1461 North A Street, Perris, CA
- California Military Institute School – 755 North A Street, Perris, CA
- St. James School – 250 West 3rd Street, Perris, CA
- Perris Elementary School – 500 South A Street, Perris, CA
- Perris Community Day School – 515 East 7th Street, Perris, CA

Sites of Potential Environmental Concern

A site located on or adjacent to a facility, or former facility, which is of potential environmental concern may pose a hazard to public health and safety. An environmental concern is defined as anything that poses a potential risk to the quality of the groundwater in the area and to the health of individuals drinking from the groundwater (USEPA, 2000). A number of locations of potential environmental concern were identified within and adjacent to the PVL corridor, along the SJBL alignment (Figure 3.8-1).

A number of properties adjacent to the PVL corridor were identified as locations subject to unauthorized releases of substances from Underground Storage Tanks (USTs) and Above Ground Storage Tanks (ASTs). The Environmental Database Report (EDR) records indicate that the releases may have impacted soil and groundwater (Kleinfelder, 2008).

- 6400 Fischer Road, Riverside - diesel AST release
- 13260 Highway 215, Riverside - gasoline UST release
- 2 South D Street, Perris - gasoline UST release
- 24 D Street, Perris - gasoline UST release
- 101 and 102 South D Street, Perris - gasoline UST release and waste oil release
- 210 West San Jacinto Avenue, Perris - gasoline and diesel UST release

Other sites of potential environmental concern include:

- The proposed Palmyrita option for the Hunter Park Station. Hazardous materials impacts associated with this parcel include: a former UST, a remote fill port, ASTs, a 55-gallon drum containing an unidentified substance, a cooling tower, a sump and soil staining. This site is currently undergoing development by a private developer; and it is not known at this time if the Phase I environmental recommendations were followed during site preparation.

- Three 55-gallon drums were observed within the PVL corridor, but outside the construction area, at the base of a ravine adjacent to the SJBL alignment at the Manfield Street eastern terminus. Due to the steep terrain leading to the drums, the contents of the drums are presently undetermined, and will not be disturbed during construction.

According to the EDR contained in the HMCS, approximately 75 gallons of diesel were released onto the railroad tracks during an automobile accident to the south of Fair Isle Drive in 2001. It is possible that residual diesel is currently present on the railroad tracks.

Communication Equipment Shelters

Each of the communication equipment shelters within the PVL corridor would contain one 250-gallon propane AST. Several arrays of batteries containing regulated heavy metals would also be located at the equipment shelters. The tanks would be used to operate the emergency generators at the equipment shelters. Each of the tanks would be mounted on a concrete pad and would be permitted through the Riverside County Department of Environmental Health (RCDEH). The ASTs would be included on the Hazardous Materials Business Plan (HMBP) for

the PVL corridor. The storage and use of the heavy metals is regulated by federal, State, and County hazardous materials regulations. The storage and use of the ASTs and batteries would not adversely affect on-site construction workers or the public during operations and maintenance.

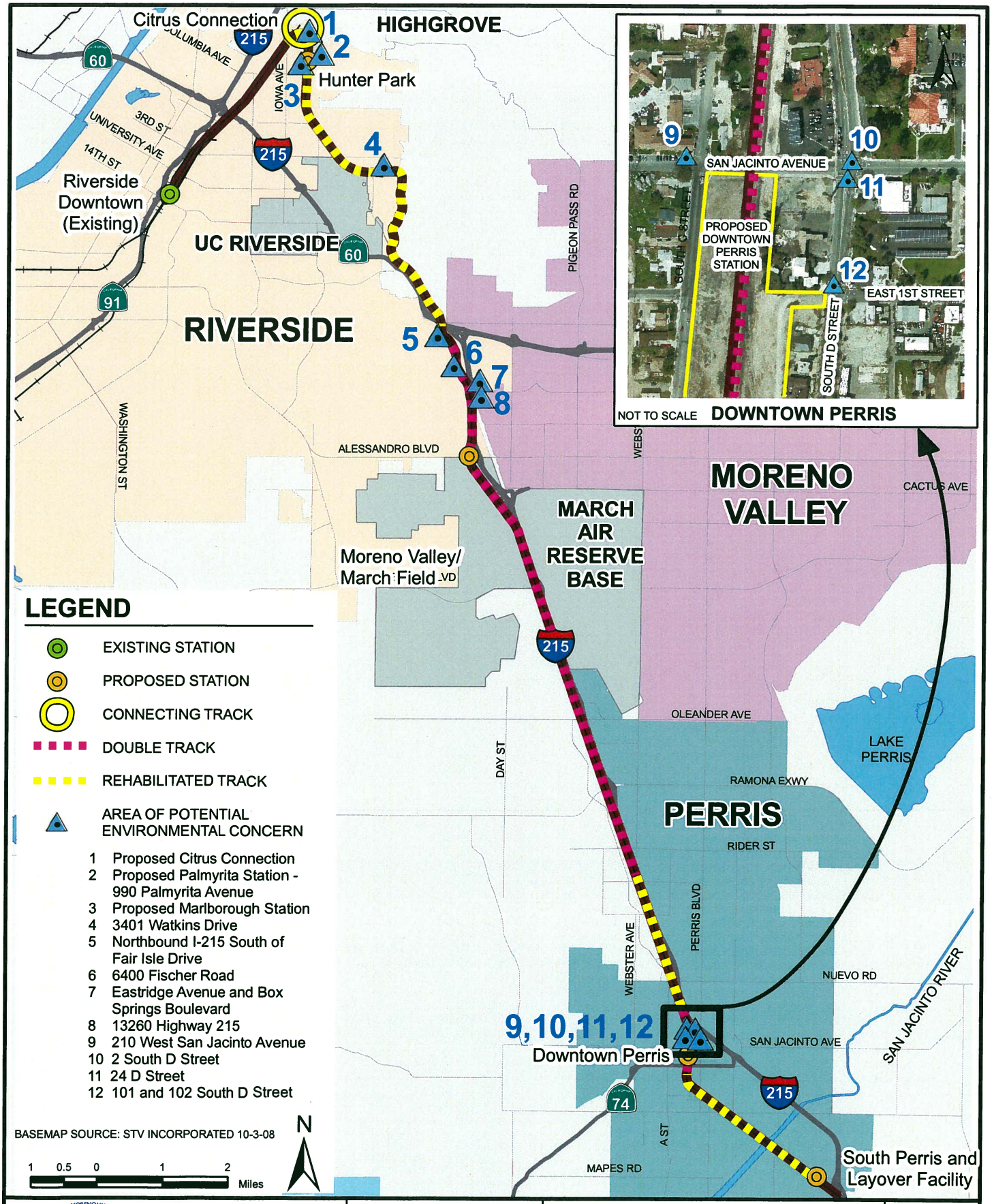
Layover Facility

It is expected that up to four trains would be stored at this facility overnight. Drips pans would be installed where engines are located in order to catch any dripping or leaking fuel oil, lubrication, or hydraulic fluid from engines laid up in the yard. There would be a train inspection pit located under one of the tracks. The pit allows train mechanics to inspect the undercarriage of the train. The drainage from the drip pans and the inspection pit would be directly connected to an oil/water separator system for treatment prior to discharge into the sanitary sewer system. The oil/water separator system would be periodically serviced to remove any accumulated waste. The oil/water separator system would be permitted through the National Pollutant Discharge Elimination System (NPDES), which has been authorized by the Clean Water Act (CWA).

Wildland Fires

Wildland fires pose a hazard to the public and environment adjacent to or intermixed with urban areas. A wildfire is any uncontrolled, non-structure fire that occurs in the wilderness, wildland, or bush. Wildfires are common in various parts of the world, occurring in cycles. They are often considered beneficial to the wilderness, as many plant species are dependent on the effects of fire for growth and reproduction. Wildfires differ from other fires only by their extensive size, the speed at which it spreads out from its original source, its ability to change direction unexpectedly, and to jump gaps, such as roads, rivers and fire breaks. According to the National Fire and Aviation Executive Board's "Interagency Strategy for the Implementation of the Federal Wildland Fire Policy", wildfires generally do not involve properties; however, with extensive urbanization of wilderness, they can cause extensive destruction of homes and other property located in the *wildland-urban interface*, a zone of transition between developed areas and undeveloped wilderness.

The Western Riverside County Natural Hazard Disclosure Map (Fire Map) provided by the California Department of Forestry and Fire Protection (CDFFP) was reviewed to determine the susceptibility of the PVL corridor to forest fire risks and hazards. According to the Fire Map, a section of the PVL corridor, east of Mt. Vernon Avenue to the I-215/SR-60 Interchange is shown to be in a wildland area that may contain substantial fire risks and hazards. Pursuant to Section 4125 of the Public Resources Code (PRC) and requirements of maintenance listed in Section 4291 of the same code, the owner of the property is the responsible party for maintaining fire protection services unless CDFFP has entered into a cooperative agreement with a local agency for this area pursuant to Section 4142 of the PRC. The remainder of the PVL corridor and adjacent properties are located in developed areas not shown within substantial fire risks or hazards.



PROJECT NO.	92666
DRAWN:	4/16/10
DRAWN BY:	JP
CHECKED BY:	RM
FILE NAME:	92666envcon.MXD

AREAS OF POTENTIAL ENVIRONMENTAL CONCERN

SUPPLEMENTAL ENVIRONMENTAL ASSESSMENT
RIVERSIDE COUNTY TRANSPORTATION COMMISSION
PERRIS VALLEY LINE
RIVERSIDE, CALIFORNIA

FIGURE 3.8-1

3.8.3 Environmental Consequences/Impacts

Transport, Use, Or Disposal Of Hazardous Materials

The PVL corridor is an existing rail corridor that goes through light industrial, commercial, residential, and undeveloped areas. Adjacent land uses include residential, schools, parks, commercial, light industry, agriculture, and two active airports. Other infrastructure in the area includes natural gas and jet fuel pipelines.

Construction activities associated with the proposed project would involve the use of small volumes of commercially available hazardous materials, such as petroleum products (gasoline, diesel, and other oils), brake fluids, coolants, and paints. The use of these substances is governed by existing hazardous materials regulations, and would not adversely affect on-site construction workers or the public.

As a commuter rail line, PVL service is passenger only. As such, there would never be an occasion when hazardous materials would be transported on commuter trains. Any such materials incidental to construction and operational activities, including routine maintenance, would be required to be stored, used, and disposed of in accordance with existing federal, state, and local hazardous materials regulations, and would not adversely affect on-site construction workers or the public.

Each communication equipment shelter within the PVL corridor would contain a 250-gallon propane AST. Several arrays of batteries containing regulated heavy metals would also be located within the equipment shelters. The propane tanks would be used to operate emergency generators in the equipment shelters. Each of the tanks would be mounted on a concrete pad and permitted through the RCDEH. The ASTs would also be included in the Hazardous Materials Business Plan for the PVL project, which is kept on file with RCDEH. The storage and use of the heavy metals is regulated by federal, state, and county hazardous materials regulations.

The proposed Layover Facility would include portable track pans at each track to catch drips during emergency fueling. Routine fueling of the trains will not take place within the PVL project corridor. Regular or routine fueling will be at either the Colton (north of project area) or Taylor Yard (north of LA Union Station), outside of the project area. It is expected that up to four trains would be stored at this facility overnight. Drip pans would be installed where engines are located, in order to catch any dripping or leaking fuel oil, lubrication, or hydraulic fluid from engines laid-up in the yard. There would be a train inspection pit located under one of the tracks. The pit allows train mechanics to inspect the undercarriage of the train. Drainage from the drip pans and inspection pit would be directly connected to an oil/water separator system for treatment prior to discharge into the sanitary sewer system.

A construction SWPPP will be prepared and put into place during the construction of the entire project including the Layover Facility. As part of the Construction General Permit (CGP) requirements, the SWPPP will also include BMPs to minimize the potential for leaks and spills during operations (Kleinfelder, 2009). The SWPPP preparation is discussed in the Water Quality Section of this report (see Section 3.16 Water Quality).

Because only small volumes of hazardous materials anticipated to be used during construction operations, and maintenance, there will be no impacts due to the implementation of the project.

Sites of Potential Environmental Concern

The HMCS has identified locations of potential environmental concern within and adjacent to the PVL corridor. The sites of potential environmental concern are shown on Figure 3.8-1. The locations appearing on hazardous material site lists that pose an environmental concern to the PVL rail corridor are summarized below.

The Citrus Connection and selected Hunter Park Station options at Palmyrita and Marlborough were historically used for agricultural purposes. Therefore, it is possible that increased amounts of pesticides and/or herbicides are present at these sites. Soil excavation activities are proposed to take place at this site prior to the construction phase of the project and, as such, there may be hazards related to the soil for construction workers and the environment.

According to the EDR contained in the HMCS, approximately 75 gallons of diesel were released onto the railroad tracks during an automobile accident in 2001, to the south of Fair Isle Drive. It is possible that residual diesel is currently present on the railroad tracks. Since track rehabilitation is proposed for this segment, it is not anticipated that soil would be disturbed or excavated, and therefore, the health and safety of the construction workers would not be affected. The health and safety of the general public and railroad workers would not be affected during the operation and maintenance of the PVL. Therefore, there would be no impacts from the release by the implementation of the project.

A number of properties adjacent to the PVL corridor were identified as locations subject to unauthorized releases of substances from USTs and ASTs. The EDR records indicate that the releases may have impacted soil and groundwater. These releases may have an adverse effect to workers during excavation and dewatering activities in the construction phase. The following sites may have negative effects to the health and safety of construction workers during construction activities of the project, due to the proposed disturbance or excavation of soil within the PVL corridor:

- 6400 Fischer Road, Riverside - diesel AST release
- 13260 Highway 215, Riverside – gasoline UST release
- 2 South D Street, Perris - gasoline UST release
- 24 D Street, Perris - gasoline UST release
- 101 and 102 South D Street, Perris - gasoline UST release and waste oil release
- 210 West San Jacinto Avenue, Perris – gasoline and diesel UST release

Because of the potential for soil contamination at the sites discussed above, there is a potential for significant impacts within the PVL project area (Mitigation Measure HHM-1 and HHM-2).

Accident Conditions with Potential to Release Hazardous Materials

Construction activities associated with the proposed project would involve the use of small quantities of hazardous materials. Hazardous materials will be required to be stored, used, and disposed of in accordance with existing federal, state, and local agency hazardous materials regulations.

Operation and maintenance activities associated with the proposed project would also involve the use of small quantities of hazardous materials. As previously stated, hazardous materials would be required to be stored, used, and disposed of in accordance with existing federal, state, and local agency hazardous materials regulations.

The pipelines located within the existing rail ROW were installed in accordance with the safety requirements of the owners. The pipelines are buried at a minimum of three feet below ground surface, or deeper if they are closer than 40 feet to the rail line, and/or are encased. There have been no reported leaks from the previously mentioned pipelines within or adjacent to the PVL corridor. There would not be an adverse affect on the environment, on-site workers, or the public during operation and maintenance of the PVL trains in these areas; therefore, there will be less than significant impacts through the implementation of the project from these pipelines.

Derailment could cause an accidental spill from the SCRAA/Metrolink train engines or diesel fuel tanks. It should be noted that the BNSF freight history has about 4.5 million freight train miles since 1993 (first full year of operation) and during this time, there have been only three freight train derailments. This equates to about one derailment per 1.5 million train miles or 0.000000667 (STV Incorporated, 2009).

On the SJBL, BNSF operates 11,440 train miles per year. The annual derailment risk is then the product of 0.000000667 (risk per train mile) and 11,440 miles, or 0.00801. This derailment risk equates to about once every 124 years. (STV Incorporated, 2009).

The numbers noted above represent an extremely low risk of derailment. This analysis, coupled with the PVL track improvements being made to the latest standards as dictated by FRA and SCRAA/Metrolink design criteria, will further decrease the risk of derailment potential. SCRAA/Metrolink would also regularly inspect the track to ensure safe operating conditions.

Due to the small volumes of hazardous materials anticipated to be used, safety practices, inspections, and design criteria for the PVL project, there would be no impacts.

Vicinity to Schools

Construction activities associated with the PVL project, near the schools, would involve the use of small volumes of commercially available hazardous materials, such as petroleum products (gasoline, diesel, and other oils), brake fluids, coolants, and paints. The use of these substances is governed by existing hazardous materials regulations. The construction of the PVL project would not include power lines or propane tanks within a 1,500-foot setback of the schools, nor would the project introduce newly constructed high pressure natural gas lines or gasoline lines.

Currently, the BNSF operates freight service along the SJBL corridor. The train engines contain oil and diesel fuel, in order to operate. Additionally, it should be noted that, on occasion, freight trains carry hazardous material for delivery to customers along the corridor, however, the PVL commuter trains would only contain oil and diesel fuel, in order to operate.

Section 4.3 Air Quality of this report notes that sensitive receptor sites, including schools are near mobile source emissions generated from freight trains using the SJBL, and from vehicles using the adjacent SR-60 and I-215 corridors. It is also noted that most PVL trains would pass by the schools either prior to the beginning of the school day or after the end of the day, resulting in less potential exposure to emissions. Simultaneously, vehicle emissions would be reduced with a shift of modes from private vehicles to the PVL and other reductions in mobile source pollution through increased vehicular speeds on the major vehicular corridors. Using the available interim guidance from the FHWA, the project is categorized as having low potential emission effects.

Exposure to MSATs as a risk to schools would result from the sitting of a new fixed, continuously operating point source of pollution, such as a stack from a factory. With an engine and the proposed train sets for the PVL, exposure to PM_{10} in diesel exhaust from passing commuter trains would be limited. The trains would pass by schools very quickly, for only several seconds along the PVL between stations. For most PVL movements, schools would not be in session, as most scheduled runs occur either before the start of the school day or after its completion. Opportunity for exposure to emissions is limited in occurrence and duration and is therefore no impact.

Vicinity to Airports

The PVL corridor and the proposed Moreno Valley/March Field Station are located west of I-215 and MARB airport, and within the boundaries of the airport land use plan of MARB. The proposed station would be located predominantly within APZ II, which allows for industrial and transportation uses. As currently designed, a small southerly segment of the proposed parking lot associated with the station would be located in APZ I, which prohibits dense concentrations of people, but allows for parking lots (March JPA 2003). The Riverside County ALUC and March JPA will review RCTC's application to construct to ensure zone compatibility.

Because the proposed Moreno Valley/March Field Station is within appropriate zoning uses, there would be no impact.

The South Perris and Layover Facility are located within MARB Safety Zone 3. The commuter railroad and related facilities are considered compatible facilities, and therefore no impact.

The Perris Valley Airport is located immediately south of Ellis Avenue and southwest of Case Road, approximately 500 feet southwest from the existing rail corridor. The airport is largely used for skydiving. The PVL corridor lies within the Perris Valley Airport Influence Area, from west of Goetz Road, along SJBL, to just east of Murrieta Road. In this Influence Area, only residential uses "are to be limited to areas not in the actual flight path and to areas where aircraft have gained sufficient altitude so as to no longer pose a relative safety threat" (City of Perris, 2005). Implementation of the PVL is not expected to result in a safety hazard for any people residing or working in the project area. The Perris Valley Airport is currently drafting a land use plan.

Emergency Response Plan and Emergency Evacuation Plan

During construction activities, the proposed project will require temporary re-routing of emergency response routes to avoid street closures. However, prior to construction, local emergency services for the project so that alternative travel routes can be identified prior to the road closure. Routine operation and maintenance of the PVL corridor would not interfere with emergency response or evacuation plans. The trains would not block grade crossings while at the stations because the stations were chosen in reference to the length of the trains and distance from the grade crossings. Emergency access would not be blocked, except briefly by a passing train. There would be no impact with mitigation in place (Mitigation Measure HHM-3).

Wildlands

A section of the PVL corridor, east of Mt. Vernon Avenue to the I-215/SR-60 Interchange is shown to be in a wildland area that may contain substantial forest fire risks and hazards. This area of Box Springs Mountain Reserve has been incorporated into a Wildfire Management Plan, and is under State of California responsibility for fire protection.

Evacuation plans caused to be put into effect by a wildland fire may be affected during construction activities because the proposed project will be temporarily closing streets or grade crossings will be temporarily closed or re-routed in this area. Routine operation and maintenance of the PVL corridor would not interfere with daily operations at the grade crossings and streets associated with these crossings. There would be no impact with mitigation in place (Mitigation Measure HHM-4).

3.8.4 Mitigation Measures

- **HHM-1:** In areas where soil contamination is suspected, appropriate sampling is required prior to disposal of excavated soil. Characterization of the soil is necessary prior to any ground-disturbing activities. Contaminated soil would be properly disposed at an off-site facility. The following sites will be characterized for possible soil contamination before excavation and/or construction activities begin:
    - 6400 Fischer Road, Riverside
    - 13260 Highway 215, Riverside
    - 2 South D Street, Perris - gasoline UST release
    - 24 D Street, Perris
    - 101 and 102 South D Street, Perris
    - 210 West San Jacinto Avenue, Perris
- **HHM-2:** If the Palmyrita Avenue site is selected for the Hunter Park Station, but is not properly remediated prior to acquisition, RCTC would require the potentially responsible party to remove and remediate hazardous conditions and materials pursuant to the

requirements of the local, state, and federal regulations. If, prior to acquisition, the current owner does not complete proper remediation, RCTC will perform the remediation in accordance with a Health and Safety Plan and in accordance with the required protocols for the removal and disposal of hazardous materials.

Because of the potential for soil contamination, sampling and disposal plans will be implemented prior to construction according to the hazardous materials investigation work plan.

- **HHM-3:** Before construction activities commence, RCTC will develop a traffic management plan prior to starting construction. The contractor will also work with local jurisdictions to minimize impacts to existing emergency response or evacuation routes. At a minimum, the traffic management plan will address: detours; coordination with other construction projects (if applicable); length and timing of any street closures; length and timing of any grade crossing closures; coordination with police and fire departments regarding changes in emergency access routes; temporary access routes and signage if any commercial properties are affected; and contact information for RCTC and its contractors.

- **HHM-4:** Before construction activities commence, RCTC will develop a traffic management plan with local jurisdictions to minimize impacts to existing emergency response or evacuation routes. At a minimum, the traffic management plan would address: detours; coordination with other construction projects (if applicable); length and timing of any street closures; length and timing of any grade crossing closures; coordination with police and fire departments regarding changes in emergency access routes; temporary access routes and signage if any commercial properties are affected; and contact information for RCTC and its contractors.

3.9 UTILITIES AND SERVICE SYSTEMS

The following provides a discussion of utilities and the associated service systems that may be affected by the proposed project.

3.9.1 Regulatory Setting

Federal Policies and Regulations

Clean Water Act

The CWA is the primary federal law in the United States governing water pollution (33 USC 1251-1376). The CWA established the goals of eliminating releases to water of high amounts of toxic substances, eliminating additional water pollution by 1985, and ensuring that surface waters would meet standards necessary for human sports and recreation by 1983. Under the CWA, the USEPA's Office of Waste Management works together with USEPA regions, states and tribes to regulate discharges into surface waters such as wetlands, lakes, rivers, estuaries, bays and oceans. Specifically, the Office of Waste Management focuses on control of water that is collected in discrete conveyances (also called point sources), including pipes, ditches, and sanitary or storm sewers (USEPA, 2009).

The Federal Water Pollution Control Act prohibits the discharge of any pollutant to navigable waters unless the discharge is authorized by a NPDES permit. Since 1990, operators of stormwater systems have been required to develop a stormwater management program designed to prevent harmful pollutants from being washed away by stormwater runoff and discharged into local water bodies. In California, the SARWQCB administers the NPDES permitting program (SARWQCB, 2009).

United States Environmental Protection Agency

USEPA defines solid waste as any garbage or refuse, sludge from a wastewater treatment plant, water supply treatment plant, or air pollution control facility and other discarded material, including solid, liquid, semi-solid, or contained gaseous material resulting from industrial, commercial, mining, and agricultural operations, and from community activities (USEPA, 2009). "Other" wastes regulations are set forth in 40 CFR 273, including batteries, pesticides, and some conditionally exempt small quantity generators.

Federal Transit Administration's Final Rule, Title 49 CFR 659

Under Title 49 of CFR, the FTA published a set of regulations to create a state-managed safety and security oversight program for rail transit agencies not regulated by FRA. This regulation was published as "Rail Fixed Guideway Systems; State Safety Oversight" on December 27, 1995, and referred to as the State Safety Oversight (SSO) Rule or Part 659. FTA recently amended 49 CFR 659, publishing the revised Rule in the FR on April 29, 2005. The revised Rule adds clarifying sections, further specification concerning what the state must require to monitor safety and security of rail transit systems, and incorporates into the body of the regulation material previously incorporated by reference (FTA, 2006).

Federal Rail Safety Improvement Act

Under §202 of the Federal Rail Safety Improvement Act of 2008, by October 16, 2009, the Secretary of the U.S. Department of Transportation is to have identified ten states that have had the most grade crossing collisions on average over the past three years and require those states to submit grade crossing safety plans. The plans must identify specific solutions for improving safety at crossings, including highway-rail grade crossing closures or grade separations, and must focus on crossings that have experienced multiple accidents or are at high risk for such accidents. Because of the number of accidents recorded in the past, it is likely that California will be chosen as one of these states to provide safety plans under Federal Rail Safety Improvement Act (CPUC, 2009).

Title 23, United States Code, §130

Under 23 USC §130, California as well as all other states are required to maintain a survey of all of its highways to identify those grade crossings that may require grade separation, relocation, or protective devices (e.g., automatic crossing gates), and to establish and implement a schedule of projects for these purposes. The CPUC maintains such a database of crossings, and conducts an annual evaluation of crossing data to identify crossings where safety can be improved (CPUC, 2009).

State Policies and Regulations

California Public Utilities Commission

The CPUC is a state public utilities commission which regulates privately-owned utilities in the state of California, including electric power, telecommunications, natural gas and water companies. In addition, the CPUC regulates household goods movers, passenger transportation companies and grade crossing safety. The CPUC is the designated state oversight agency in California, in accordance with the FTA's Final Rule, Title 49 CFR 659, and effective May 5, 2007 (CPUC, 2009).

CPUC General Order 95 and General Order 128

The Commission's General Order 95 defines safe practices for utility poles and wiring. It defines safe separation between high voltage conductors, guy wires, cable television, and telephone cable. For example, GO-95 defines how high a telephone cable must pass over a roadway. It restricts attachments to poles to allow adequate, safe climbing space for personnel who work aloft. By ensuring an orderly and reliable system is used, risks to the public and track employees are reduced. A similar system is specified for underground utilities in the Commission's GO-128.

Title 27 of the California Code of Regulations

Title 27 of the California Code of Regulation (CCR), Division 2, is the State Water Resources Control Board (SWRCBs) regulations applicable to the discharge to land of waste that is not hazardous waste. All of the active landfills currently located in Riverside County are classified as Class III landfills; accepting only non-hazardous and municipal solid wastes (California Integrated Waste Management Board, 2009).

California Department of Water Resources

The California Department of Water Resources (CDWR) manages California's water resources. The regulations overseen by CDWR regarding water service availability include the Urban Water Management Planning Act and SBs 221 and 610. The California Act, adopted in 1983, requires all urban water suppliers within the state to prepare an Urban Water Management Plan and update them every five years (CDWR, 2003).

California Integrated Waste Management Act

The California Integrated Waste Management Act (PRC §40000 et seq.) requires municipalities to divert 25 percent of their solid waste from landfills to recycling facilities by 1995 and 50 percent by 2000.

Local Policies and Regulations

Riverside Public Utilities Department Guidelines, Standards, and Policies

Riverside Public Utilities Department (RPUD) provides electricity to most of the city of Riverside. Southern California Edison (SCE) provides electricity to the other parts of the city and county of Riverside. RPUD has established its own set of guidelines, standards, and policies relating to the use and construction of electrical utilities for projects within the City limits.

County of Riverside General Plan

The Riverside County General Plan Land Use Element (2003) includes several applicable policies:

- Land Use Goal 1.6: Coordinate with local agencies, such as LAFCO, service providers and utilities, to ensure adequate service provision for new development.

- Land Use Goal 5.1: Ensure that development does not exceed the ability to adequately provide supporting infrastructure and services, such as libraries, recreational facilities, transportation systems, and fire/police/medical services.

- Land Use Goal 5.2: Monitor the capacities of infrastructure and services in coordination with service providers, utilities, and outside agencies and jurisdictions to ensure that growth does not exceed acceptable levels of service.

- Land Use Goal 5.4: Ensure that development and conservation land uses do not infringe upon existing public utility corridors, including fee owned ROW and permanent easements, whose true land use is that of "public facilities." This policy will ensure that the "public facilities" designation governs over what otherwise may be inferred by the large scale general plan maps.

City of Riverside General Plan

The City of Riverside General Plan Public Facilities and Infrastructure Element includes several applicable policies:

- Public Facilities Goal 6.2: Ensure that adequate back-up facilities are available to meet critical electrical power needs in the event of shortages or temporary outages.

- Public Facilities Goal 6.3: Promote and encourage energy conservation.

City of Perris General Plan

The City of Perris General Plan Conservation Element includes the following goals:

- Conservation Element Goal V – Water Supply:

  Provide an adequate water supply to support existing and future land uses, as anticipated in the Land Use Element.

- Conservation Element Goal VI – Water Quality:

  Achieve regional water quality objectives and protect the beneficial uses of the region's surface and groundwater.

March Joint Powers Authority General Plan

The March JPA General Plan Land Use Element includes several applicable policies:

- Land Use Goal 15: In compliance with state laws, ensure solid waste collection, siting and construction of transfer and/or disposal facilities, operation of household hazardous waste disposal programs and education are consistent with the County Solid Waste Management Plan.

- Land Use Goal 16: Adequate supplies of natural gas and electricity from utility purveyors and the availability of communications services shall be provided within the March JPA Planning Area.

- Land Use Goal 17: Adequate flood control facilities shall be provided prior to, or concurrent with, development in order to protect the lives and property within the March JPA Planning Area.

3.9.2 Affected Environment

The following section provides a discussion of utilities and service stations specific to the PVL.

Utilities and service systems in the PVL corridor include power distribution, wastewater treatment, storm water drainage, water supply, communications, heating systems, and solid waste collection and removal.

Power Distribution

Electricity would be distributed to the grade crossings proposed for improvement, including gates, signals, and switches; six communication towers and associated equipment shelters; each of the four proposed stations and associated parking lots, the Citrus Connection, and the Layover Facility. Electricity is supplied to the PVL corridor by SCE and RPUD. Overhead

electrical transmission lines are also located along the PVL corridor, which are used as local distribution sources.

Water Supply

Water is supplied to the area immediately adjacent to the BNSF Alignment and Citrus Connection by the Riverside Public Utilities Service Area (RPUSA). The Hunter Park area and Moreno Valley/March Field Station would have water supplied by Western Municipal Water District (WMWD). WMWD's primary source of water is the Metropolitan Water District (MWD), with a seasonally low demand secondary supply provided by the City of Riverside. The EMWD would provide and distribute water to the proposed South Perris Station and the Layover Facility. The City of Perris Water District owns, operates, and maintains water lines near the proposed Downtown Perris Station. During construction, water would be supplied by water trucks.

Wastewater Treatment

Sanitary sewer systems within the PVL corridor are owned and maintained by four water and sewer districts. The WMWD and the Riverside Public Works Department cooperatively own and maintain the sanitary sewer system in the area around the Citrus Connection, and Hunter Park area. Treatment in this area occurs at the Riverside Regional Water Quality Treatment Plant. The EMWD owns and maintains the sanitary sewer system located at the Moreno Valley/March Field Station, South Perris Station, and the Layover Facility. The Downtown Perris Station's sanitary sewer system is owned and maintained by the City of Perris Sewer District. The City of Perris Sewer District sewers discharge into EMWD trunk lines and the wastewater is processed at the Perris Valley Regional Water Reclamation Facility (PVRWRF) south of Case Road and west of the I-215 Freeway (City of Perris, 2005).

Storm Water Drainage

Storm water drains within the PVL corridor are owned and maintained by RCTC and flow into the RCFCWCD storm water drainage system. Most of the storm water runoff flows directly into a storm drain system by way of street gutters and other inlets and associated culverts located within the PVL corridor. This flow of storm water would eventually discharge into the Santa Ana River from the northern portion of the project, or the San Jacinto River from the southern portion.

Communications

The communications system within the PVL corridor would consist of communication towers and associated equipment shelters with locations shown on Figure 3.9-1. The project includes the construction of nine towers for communications (three radio antenna towers and six microwave antenna towers) along the PVL corridor. Details of the two types of communication towers are shown on Figure 3.9-2 and Figure 3.9-3. They would be located at the East Maintenance Facility (outside of the PVL corridor), Hunter Park Station, Control Point (CP) Eastridge, CP Oleander, CP Nuevo, and South Perris Station. Communication cables would link CP Citrus and CP Hunter Park, and CP Mapes would be linked to South Perris Communications Shelter via similar communications cables.

Solid Waste Collection and Removal

Solid waste collected would be taken to the Robert A. Nelson Transfer Station, which is owned by the county of Riverside. The waste would then be transferred to either the Badlands Landfill in Moreno Valley or the El Sobrante Landfill located east of I-15 south of the city of Corona.

3.9.3 Environmental Consequences/Impacts

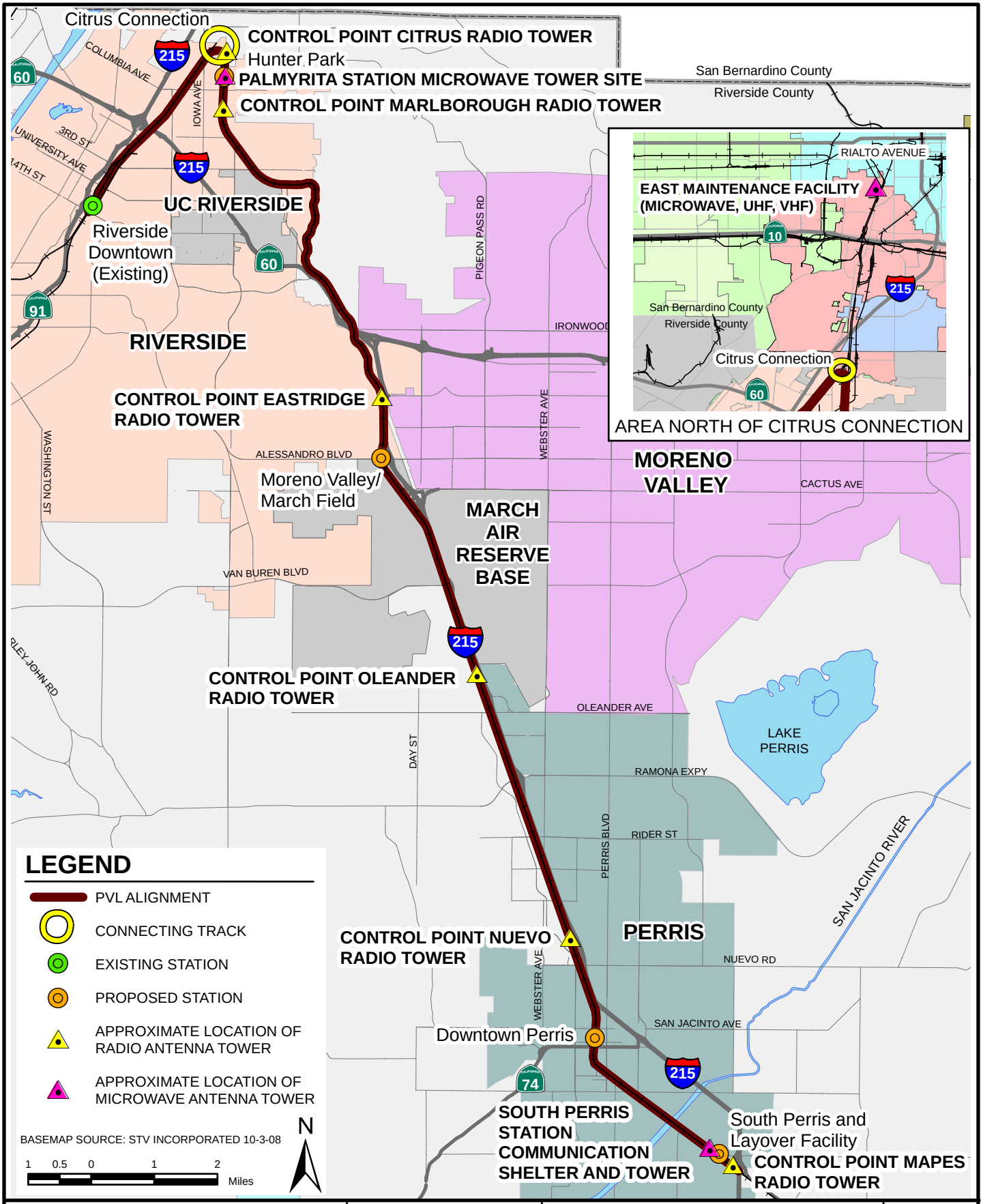
Power Distribution

The relocation and installation of utilities is not anticipated to cause an extended disruption in service of power to the areas near the PVL corridor. If temporary disruption is anticipated during the connection of the new power systems within the PVL corridor, local residents and businesses that may be affected will be notified in advance of any outage.

Since power distribution provided by SCE or RPUD is readily available within the PVL corridor, the amount of electrical power proposed to be used within the PVL corridor would not cause a significant impact to the environment during construction, operations or maintenance.

Wastewater Treatment

During construction of the PVL, construction personnel would use rented portable restrooms and sinks, which would be transported to a wastewater treatment facility for proper treatment. Restrooms would not be constructed at the proposed stations within the PVL corridor; however, the trains themselves would contain restrooms. The toilets and other wastewater collected on the trains would be evacuated into the wastewater system at the Layover Facility and treated at the PVRWRF. In addition, the Layover Facility would provide restroom facilities for approximately 70 employees. The volume of waste generated by the trains and Layover Facility would not exceed wastewater treatment capacities established by the SARWQCB. Additionally, since the source of wastewater is very limited, no new treatment facilities are necessary, nor are existing facilities required to expand, therefore, there will be no impacts related to wastewater treatment requirements.

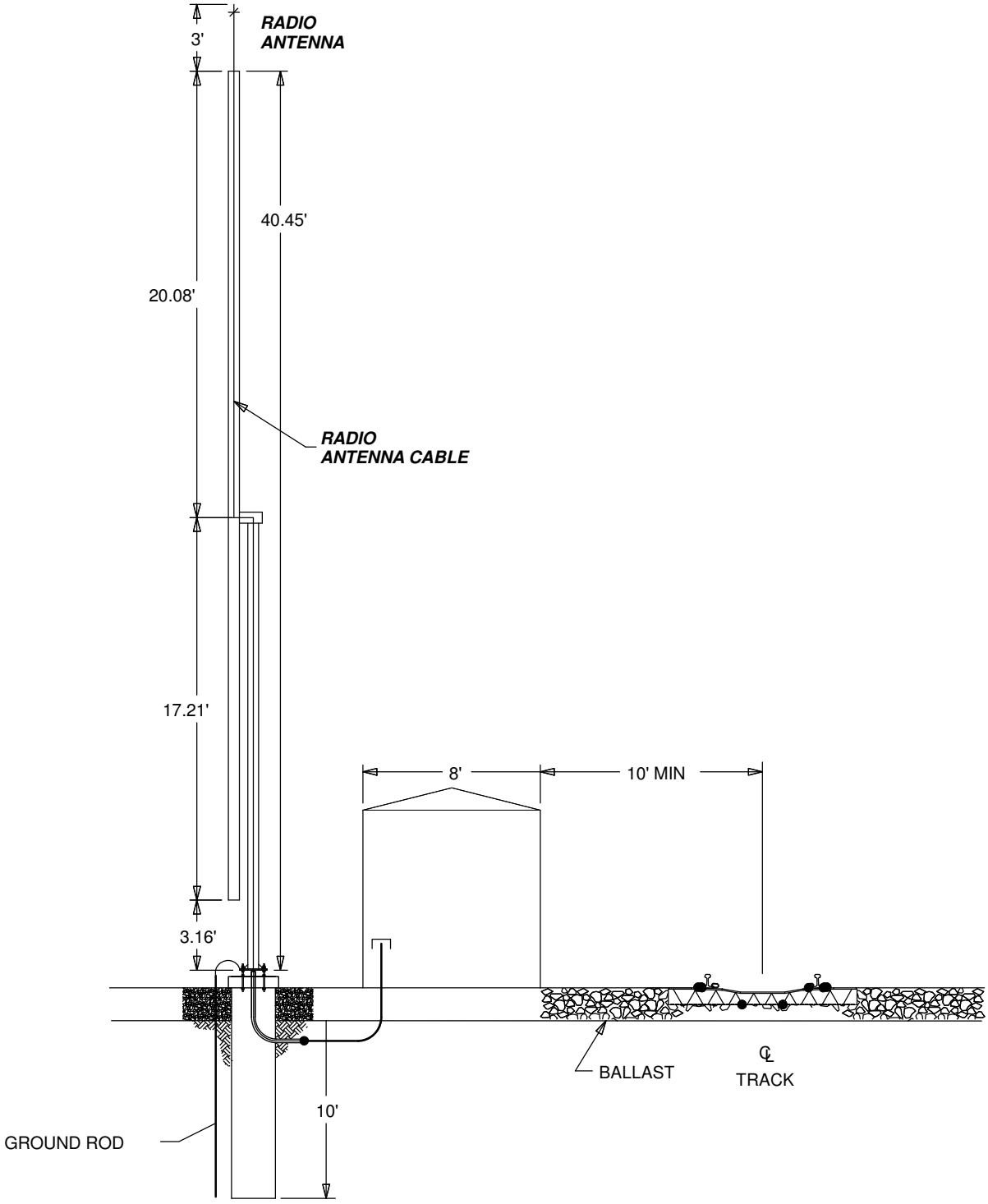


PROJECT NO.	92666
DRAWN:	1/5/10
DRAWN BY:	JP
CHECKED BY:	RM
FILE NAME:	92666talk.MXD

COMMUNICATION TOWER LOCATIONS

SUPPLEMENTAL ENVIRONMENTAL ASSESSMENT
RIVERSIDE COUNTY TRANSPORTATION COMMISSION
PERRIS VALLEY LINE
RIVERSIDE, CALIFORNIA

FIGURE
3.9-1



NOTE:

REFER TO FIGURE 3.9-1 FOR LOCATIONS

SOURCE:

30% DESIGN DRAWINGS

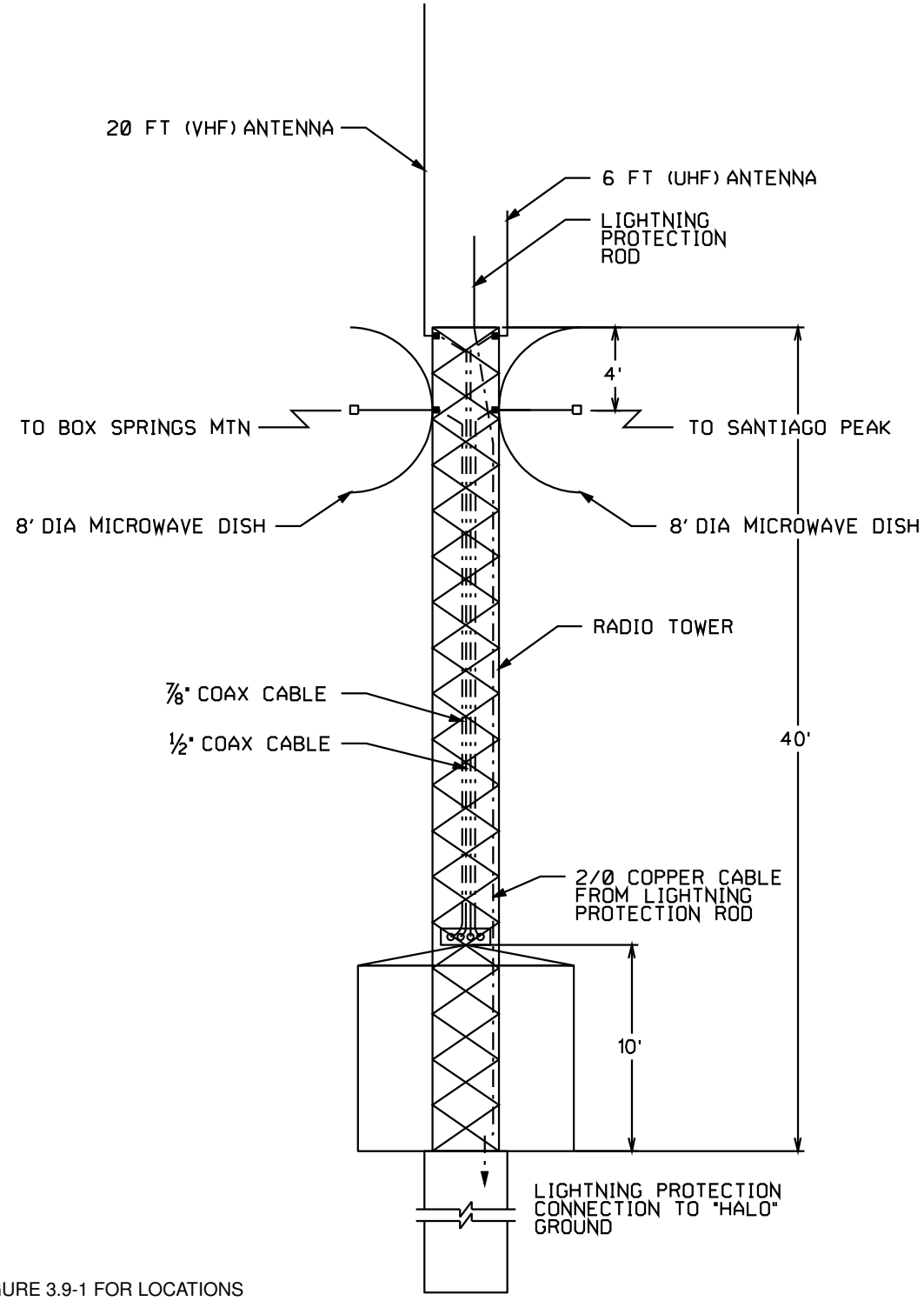
PROJECT NO.	92666
DRAWN:	1/12/10
DRAWN BY:	JP
CHECKED BY:	RM
FILE NAME:	92666tower.MXD

TYPICAL RADIO ANTENNA TOWER

SUPPLEMENTAL ENVIRONMENTAL ASSESSMENT
RIVERSIDE COUNTY TRANSPORTATION COMMISSION
PERRIS VALLEY LINE
RIVERSIDE, CALIFORNIA

FIGURE

3.9-2



NOTE:

REFER TO FIGURE 3.9-1 FOR LOCATIONS

SOURCE:

30% DESIGN DRAWINGS

PROJECT NO. 92666	**TYPICAL MICROWAVE ANTENNA TOWER**	FIGURE
DRAWN: 1/14/10		**3.9-3**
DRAWN BY: JP		
CHECKED BY: RM	SUPPLEMENTAL ENVIRONMENTAL ASSESSMENT RIVERSIDE COUNTY TRANSPORTATION COMMISSION PERRIS VALLEY LINE RIVERSIDE, CALIFORNIA	
FILE NAME: 92666tower2.MXD		

Storm Water Drainage

Within the PVL corridor, there are 53 culverts of which 30 would be replaced or reconstructed as part of the project. Additional storm water drainage would be generated from the parking lots at the proposed PVL stations. Project stations and parking lots eventually drain into either the Santa Ana River or San Jacinto River. Additional storm water drainage would not affect the local drainage facilities during operation and maintenance. Sheet flow across proposed station parking lots during construction is expected to be controlled by installation of BMPs as is required by the stormwater regulations from the Regional Water Quality Control Board.

Water Supply

Water would be supplied to each of the proposed stations and Layover Facility. During construction, water would be supplied by water trucks to control fugitive dust. Limited supplies of water would be used for irrigation and maintenance of the PVL facilities when fully operational. Because of the limited amounts of water needed for the Layover Facility and the use of recycled water for irrigation of landscaping and maintenance, there would be no impacts in regards to water supply for the project.

Solid Waste Collection and Removal

The project will rehabilitate the existing rail, create a new by-pass track, and build new stations and a Layover Facility. This work will generate limited solid waste because the rail and ties that will be removed will be reused within the overall rail system and not disposed of in a landfill. The remaining work will be new construction which will generate used concrete forms and other waste.

The proposed project would comply with federal, state and local statutes and regulations related to solid waste, which includes recycling programs developed by the cities of Riverside and Perris. During construction, small quantities of non-recyclable solid waste, in the form of construction waste and other debris will be generated by the project. This material would be recycled, reused to the full extent practicable. Any remaining material would be disposed of at an approved Class III landfill in compliance with applicable rules and regulations. This includes the California Integrated Waste Management Act requirements for municipalities to divert 50% of their solid waste to recycling facilities by 2000.

During the operation and maintenance of the PVL, very small quantities of solid waste (miscellaneous litter and debris from the trains), proposed stations, and Layover Facility would be disposed at a Class III landfill in compliance with applicable rules and regulations. Therefore, no impacts would occur from the implementation of the project.

3.9.4 Mitigation Measures

There are no impacts, therefore, no mitigation measures are proposed.

This Page Intentionally Left Blank

3.10 SECTION 4(F) EVALUATION AND PARKLANDS

This section identifies Section 4(f) parkland and historic resources within and adjacent to the PVL corridor, and evaluates the proposed PVL project with respect to Section 4(f) of the Department of Transportation Act of 1966.

3.10.1 Regulatory Setting

Section 4(f) of the Department of Transportation Act of 1966 (49 USC 303) states that it is "the policy of the United States Government that special effort should be made to preserve the natural beauty of the countryside and public park and recreation lands, wildlife and waterfowl refuges, and historic sites."

Section 4(f) applies only to the actions of agencies within the USDOT. The proposed PVL is a transportation project that is scheduled to receive federal funding, in part, through the FTA's Small Starts category and would also be subject to review by the FRA. As the lead federal transportation agency, FTA must demonstrate compliance with Section 4(f).

> *Section 4(f) specifies that:*
>
> *"[t]he Secretary [of Transportation] may approve a transportation program or project…requiring the use of publicly owned land of a public park, recreation area, or wildlife and waterfowl refuge of national, State, or local significance, or land of an historic site of national, State, or local significance (as determined by Federal, State, or local officials having jurisdiction over the park, area, refuge, or site) only if:*
>
> *(1) there is no prudent and feasible alternative to using that land; and*
>
> *(2) the program or project includes all possible planning to minimize harm to the park, recreation area, wildlife and waterfowl refuge, or historic site resulting from the use."*

Section 4(f) "Use"

As defined in 23 CFR 774.17, the "use" of a protected Section 4(f) resource occurs when any of the following conditions are met:

- Land is permanently incorporated into a transportation facility through partial or full acquisition (that is, "direct use");
- There is a temporary occupancy of land that is adverse in terms of the preservationist purposes of Section 4(f) (that is, "temporary use"); or
- There is no permanent incorporation of land, but the proximity of a transportation facility results in impacts so severe that the protected activities, features, or attributes that qualify a resource for protection under Section 4(f) are substantially impaired (that is, "constructive use").

Direct Use

A direct use of a Section 4(f) resource occurs when property is permanently incorporated into a proposed transportation project (23 CFR 774.17). This may occur as a result of partial or full acquisition of a fee simple interest, permanent easements, or temporary easements that exceed regulatory limits noted below.

Temporary Use

A temporary use of a Section 4(f) resource occurs when there is a temporary occupancy of property that is considered adverse in terms of the preservationist purposes of the Section 4(f) statute. Under the Federal Highway Administration (FHWA)/FTA regulations (23 CFR 774.13), a temporary occupancy of property does not constitute a use of a Section 4(f) resource when the following conditions are met:

- The occupancy must be of temporary duration (that is, shorter than the period of construction) and not involve a change in ownership of the property;
- The scope of work must be minor, with only minimal changes to the protected resource;
- There are no permanent adverse physical effects on the protected resource, and there would be no temporary or permanent interference with activities or purpose of the resource;
- The property being used must be fully restored to a condition that is at least as good as that which existed prior to the proposed project; and
- There must be documented agreement of the appropriate officials having jurisdiction over the resource regarding the foregoing requirements.

Constructive Use

A constructive use of a Section 4(f) resource occurs when a transportation project does not permanently incorporate land from the resource, but the proximity of the project results in impacts (for example, noise, vibration, visual, access, and/or ecological impacts) so severe that the protected activities, features, or attributes that qualify the resource for protection under Section 4(f) are substantially impaired. Substantial impairment occurs only if the protected activities, features, or attributes of the resource are substantially diminished. A determination of constructive use is based on the following:

- Identification of the current activities, features, or attributes of the Section 4(f) resource that may be sensitive to proximity impacts;
- Analysis of the potential proximity impacts on the resource; and
- Consultation with the appropriate officials having jurisdiction over the resource (23 CFR 774.17).

3.10.2 Affected Environment

As described above, resources considered under Section 4(f) include public park and recreation areas, wildlife and waterfowl refuges, and historic sites. For the PVL project, only those public parks, recreation lands, wildlife and waterfowl refuges within one-half mile of the project corridor, and only those historic sites within the project's APE (refer to Section 3.7 Cultural Resources for a description of the project APE), have been identified for Section 4(f) consideration. The one-half mile distance was determined as the typical distance, or standard of care, for a transportation related project.

Public Parks and Recreation Areas

Several public parks and recreations areas have been identified adjacent to or within one-half mile of the PVL corridor. These public parks and recreation areas are summarized in Table 3.10-1 and their locations depicted on Figure 3.10-1.

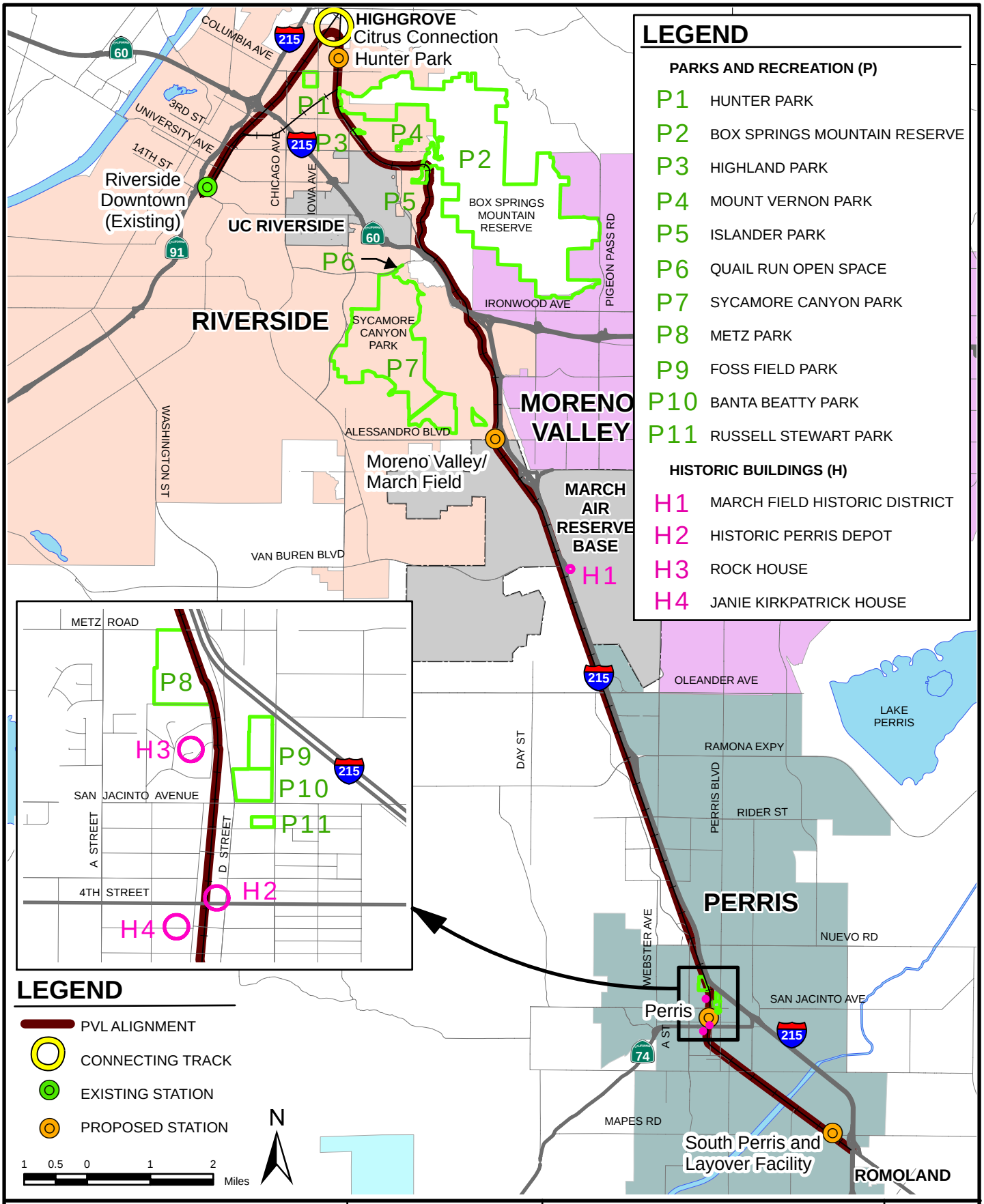
Table 3.10-1
Public Parks and Recreation Areas

Map ID	Name	Jurisdiction
P1	Hunter Park	City of Riverside
P2	Box Springs Mountain Reserve	County of Riverside
P3	Highland Park	City of Riverside
P4	Mount Vernon Park	City of Riverside
P5	Islander Park	City of Riverside
P6	Quail Run Open Space	City of Riverside
P7	Sycamore Canyon Park	City of Riverside
P8	Metz Park	City of Perris
P9	Foss Field Park	City of Perris
P10	Banta Beatty Park	City of Perris
P11	Russell Stewart Park	City of Perris

Wildlife or Waterfowl Refuges

There are no waterfowl refuges within one-half mile of the PVL corridor. There are, however, seven areas that cross or are within one-half mile of the PVL which have been reserved for the protection of threatened and endangered wildlife species. These conservation areas are the result of comprehensive municipal planning efforts, which are documented in the Western Riverside County MSHCP and the SKR HCP. A brief overview of these plans is provided below. Section 3.14 Biological Resources presents a detailed description of the MSHCP and the SKR HCP, and provides a discussion of the PVL project's compliance with the requirements of these plans.

This Page Intentionally Left Blank



PROJECT NO.	92666
DRAWN:	1/5/10
DRAWN BY:	JP
CHECKED BY:	RM
FILE NAME:	92666park1.MXD

PARKLANDS AND SECTION 4(f) RESOURCES WITHIN 1/2 MILE OF SJBL

SUPPLEMENTAL ENVIRONMENTAL ASSESSMENT
RIVERSIDE COUNTY TRANSPORTATION COMMISSION
PERRIS VALLEY LINE
RIVERSIDE, CALIFORNIA

FIGURE
3.10-1

Western Riverside County Multiple Species Habitat Conservation Plan

The MSHCP is a means for consolidating and preserving core areas with suitable vegetation and soils to support species, while at the same time preventing fragmented habitat. The MSHCP covers 146 plant and wildlife species, and is administered by the Western Riverside County Regional Conservation Authority (RCA). One of the primary objectives of the MSCHP is to assemble a total of 500,000 acres for management as the MSHCP Conservation Area. The MSHCP identifies a number of existing and proposed features – including cores, habitat blocks, and linkages – which form the basis of the plan's Conservation Area (refer to Section 3.2.3 of the MSHCP). There are five MSHCP Conservation Area Features located within one-half mile of the PVL corridor (refer to Section 3.14 Biological Resources and Figure 3.14-1 for the location of these features).

Stephens' Kangaroo Rat Habitat Conservation Plan

The SKR HCP is administered by the Riverside County Habitat Conservation Agency (RCHCA). The Sycamore Canyon-March Air Force Base Core Reserve is located west of I-215 and the existing PVL corridor. The SKR area reserve covers approximately 2,502 acres across two components. The proposed Moreno Valley/March Field Station; as part of the Meridian Business Park, has been removed from the SKR Sycamore Canyon-March Air Force Base Core Reserve by agreement between USFWS and March JPA. Since the station site is identified within this Specific Plan, no further impacts would result from the construction of the Moreno Valley/March Field Station. All other PVL project components are located outside the SKR Core Reserves. (refer to Figure 3.14-3)

Historic Sites

The FHWA/FTA regulations state that Section 4(f) is only applicable to *significant* historic sites (that is, those resources listed on or determined eligible for listing on the NRHP), unless the lead federal transportation agency determines that the application of Section 4(f) is otherwise appropriate (23 CFR 774.11 (e)).

Section 4(f) also applies to all archaeological sites that are listed on or determined eligible for listing on the NRHP, including those discovered during construction (23 CFR 774.11 (f)). Section 4(f) does not apply to archaeological sites where the lead federal transportation agency has determined that the archaeological site is important chiefly because of what can be learned by data recovery (even if it is agreed not to recover the resource) and has minimal value for preservation in place (23 CFR 774.13 (1)); such sites are not evaluated.

The historic sites listed on or eligible for listing on the NRHP are summarized in Table 3.10-2 and depicted on Figure 3.10-1. The NRHP eligibility of three of the four archaeological sites identified within the APE (that is, CB-2, CA-RIV-2384, and CA-RIV-4497H/3817H) is unknown. For the purposes of Section 4(f) consideration, these resources are assumed to be eligible in order to evaluate whether the PVL project would constitute a "use" of these resources. The exact locations of archaeological sites are confidential, and therefore are not included on Figure 3.10-1.

Table 3.10-1
NRHP Listed or Eligible Resources

Map ID	Resource	Description	Eligibility Status	Distance from PVL Corridor
H1	March Field Historic District (within March Air Reserve Base)	District of military buildings	Listed, Criteria A and C	< 1 mile east of SJBL alignment
H2	Perris Depot (120 West 4th Street)	One story Victorian railroad depot	Listed, Criteria A and C	Adjacent to east side of SJBL alignment
H3	Rock House (246 Lomita Drive, Perris)	Two story stone clad Mission Revival style single-family residence	Recommended Eligible, Criterion C[1]	500 ft west of SJBL alignment, elevated 100 ft
H4	Janie Kirkpatrick House (504 South C Street, Perris)	One story Victorian cottage	Recommended Eligible, Criteria B and C[1]	300 ft west of SJBL alignment
--	CB-2	Bedrock milling site	Not evaluated	East of SJBL alignment
--	CA-RIV-805	Prehistoric artifact scatter	Not eligible	Adjacent to SJBL alignment
--	CA-RIV-2384	Bedrock milling site	Not evaluated	Adjacent to SJBL alignment
--	CA-RIV-4497H / 3817H	Box Springs siding; historic artifact scatter; prehistoric features	Not evaluated	Adjacent to SJBL alignment

Notes:
1 = Pending SHPO concurrence

3.10.3 Environmental Consequences/Impacts

Citrus Connection

No resources protected under Section 4(f) have been identified in the vicinity of the proposed Citrus Connection, and therefore no Section 4(f) "use" would occur.

SJBL Alignment

Several Section 4(f) resources have been identified within one-half mile of the existing SJBL alignment, and include public parks and recreation areas, wildlife areas, and historic sites.

These resources include:

- Highland Park
- Islander Park
- Box Springs Mountain Reserve

- Mount Vernon Park
- Quail Run Open Space
- Sycamore Canyon Park
- Metz Park
- Foss Field Park
- Banta Beatty Park
- Russell Stewart Park
- MSHCP Existing Noncontiguous Habitat Block A
- MSHCP Proposed Constrained Linkage 7
- MSHCP Proposed Constrained Linkage 8
- MSHCP Existing Core D
- MSHCP Proposed Noncontiguous Habitat Block 4
- Proposed Constrained Linkage 19
- Archaeological site CB-2 (site has been grouped under SJBL alignment so as not to disclose the actual location of this confidential resource)
- Archaeological site CA-RIV-805 (site has been grouped under SJBL alignment so as not to disclose the actual location of this confidential resource)
- Archaeological site CA-RIV-2384 (site has been grouped under SJBL alignment so as not to disclose the actual location of this confidential resource)
- Archaeological site CA-RIV-4497H / 3817H (site has been grouped under SJBL alignment so as not to disclose the actual location of this confidential resource)
- March Field Historic District
- Perris Depot
- Rock House
- Janie Kirkpatrick House

Rehabilitation or replacement of the existing track and ties along the SJBL alignment to achieve commuter rail track standards for operation of the PVL would not require the acquisition or temporary occupancy of land from any of the identified Section 4(f) resources. Therefore, neither a direct use nor a temporary use of a Section 4(f) resource would occur as a result of the PVL.

As described in Section 3.10.1 Regulatory Setting, a constructive use of a Section 4(f) resource occurs when the proximity of a project results in impacts (for example, noise and vibration, visual, access, and/or ecological impacts) so severe that the protected activities, features, or attributes that qualify the resource for protection under Section 4(f) are substantially impaired. Each Section 4(f) resource category is considered below for potential constructive use with respect to the SJBL alignment, and is shown in Table 3.10-3.

Table 3.10-2
PVL Project Effects on 4(f) Resources

4(f) Resource	Project Effect
Public Parks and Recreation Areas	
Hunter Park	None
Box Springs Mountain Reserve	None
Highland Park	None
Mount Vernon Park	None
Islander Park	None
Quail Run Open Space	None
Sycamore Canyon Park	None
Metz Park	None
Foss Field Park	None
Banta Beatty Park	None
Russell Stewart Park	None
Wildlife or Waterfowl Refuges	None
Existing Noncontiguous Habitat Block A	None
Proposed Constrained Linkage 7	None
Proposed Constrained Linkage 8	None
Existing Core D	None
Proposed Noncontiguous Habitat Block 4	None
Proposed Constrained Linkage 19	None
Sycamore Canyon – March Air Force Base Core Reserve	None
Historic Sites	
March Field Historic District (within March Air Reserve Base)	None
Perris Depot (120 West 4th Street)	None
Rock House (246 Lomita Drive, Perris)	None
Janie Kirkpatrick House (504 South C Street, Perris)	None
CB-2	None
CA-RIV-805	None
CA-RIV-2384	None
CA-RIV-4497H / 3817H	None

Parks and Recreation Areas

Implementation of the PVL would occur, for the most part, along an existing rail corridor within a largely urban setting. Access to and from public parks and recreation areas would not be restricted by the proposed project. In fact, the PVL may contribute to a net benefit on access to public parks and recreation areas through localized circulation improvements (for example, grade crossing enhancements, traffic signal installation, and roadway restriping).

Most of the identified public parks and recreation areas are separated from the rail corridor by streets, parking lots, or buildings, which eliminate the potential for the parks to be impacted by operational noise from the PVL. There are four parks, however, which are immediately adjacent to the PVL ROW, including Highland Park, Islander Park, Box Springs Mountain Reserve, and Metz Park (refer to Figure 3.10-1). The noise and vibration study prepared for the PVL determined that none of the parks adjacent to the rail corridor would be impaired so as to preclude the use and enjoyment by area residents, and therefore no constructive use of parks or recreation areas would occur as a result of the PVL.

Wildlife Areas

As described in greater detail in Section 3.14 Biological Resources, the purpose of the MSHCP and SKR HCP is to maintain the biological and ecological diversity in an urbanizing region through the assembly of key reserves for the protection of covered species. Although the SKR HCP was established in 1996 prior to the MSHCP, relevant terms of the SKR HCP were incorporated into the MSHCP to ensure the greatest conservation for the largest number of covered species. The core reserves established by the SKR HCP are managed as part of the MSHCP conservation area.

Because the MSHCP was developed in conjunction with the Riverside County General Plan and the Community and Environmental Transportation Acceptability Process (CETAP), the cores, habitat blocks, and linkages that have been set aside for assembly as conservation areas were developed in consideration of existing and future land uses, in particular, the region's transportation requirements. The PVL project is subject to the compliance requirements of the SKR HCP and MSHCP, in particular the Urban / Wildlands Interface Guidelines outlined in the MSHCP, which provide guidance on addressing the indirect effects on wildlife species when projects are located in proximity to reserve areas. Through compliance with the Guidelines and coordination with RCA and RCHCA, implementation of the PVL along the existing SJBL alignment would not conflict with any of the conservation or habitat goals established by the SKR HCP or the MSHCP, impair the value of wildlife habitat, or cause an ecological intrusion into the existing and proposed conservation areas. Therefore, no constructive use of a wildlife area would occur as a result of the PVL.

Historic Sites

The March Field Historic District is situated east of the proposed PVL corridor and is separated (physically and visually) from the existing railroad by I-215, and therefore the proposed project would not constitute a visual impairment to the historic district. The buildings comprising the historic district are already subject to auditory intrusions from traffic-related noise on I-215. The proposed PVL project would not cause additional changes that would adversely affect the

qualities for which the district is listed on the NRHP, and therefore no constructive use of the property would occur.

The Rock House sits atop an elevated hill approximately 300 feet west of the existing SJBL alignment. The property would not be removed, altered, or physically damaged by the proposed PVL. Between the Rock House and the PVL corridor, there is an intervening open space, parking lot, and street, which are topographically lower and provide a visual buffer from the railroad tracks (MFA, 2003). The Rock House is already subject to local and regional auditory intrusions from D Street in Perris and from the I-215 corridor, respectively. As a result, any incremental increase in noise resulting from the operation of the PVL would not constitute a constructive use under Section 4(f).

The Janie Kirkpatrick House is located west of the proposed PVL corridor at the intersection of C and 4th Streets. The property would not be removed, altered, or physically damaged by the proposed PVL project. None of the elements proposed for the PVL project in the vicinity of the Janie Kirkpatrick House, which would be limited to track and tie replacement, would introduce a visual intrusion. Local noise levels are not expected to increase above existing conditions, which include vehicular traffic noise along C, D, and 4th Streets, and therefore no constructive use would occur.

As described above, Section 4(f) applies to archaeological sites that are listed on or determined eligible for listing on the NRHP. Because site CA-RIV-805 could not be avoided during project construction, limited testing was undertaken to determine the NRHP eligibility of the site. The results of the archaeological testing concluded that no intact buried deposits are present within the railroad ROW at site CA-RIV-805 and that the surface artifacts represent the only remnants of the site. Accordingly, the portion of the site within the ROW would not contribute to the NRHP eligibility of the site, if the site, in its entirety is found to be eligible for listing on the NRHP in the future.

Archaeological sites CB-2, CA-RIV-2384, and CA-RIV-4497H/3817H, if presumed to be eligible for listing on the NRHP for the purpose of Section 4(f) consideration, would be eligible under Criterion D (that is, for information potential). Section 4(f) does not apply to archaeological sites where the lead federal transportation agency has determined, through consultation with the SHPO, that the archaeological site is important chiefly because of what can be learned by data recovery and has minimal value for preservation in place (23 CFR 774.13(1)). If eligible, each of the three archaeological sites would be valued chiefly for its respective potential to inform on prehistoric or historic use of the area, and therefore Section 4(f) would not apply to these resources. It should be noted that all three resources can be avoided during project construction through archaeological monitoring (refer to Section 3.7 Cultural Resources and Section 106 Compliance for a more detailed discussion).

Because the proposed PVL project would not introduce any substantial visual, noise, or vibration impacts, or conflict with existing access to any of the identified historic sites, no constructive use would occur as a result of the PVL. As summarized in Section 3.7 Cultural Resources and Section 106 Compliance, Section 106 consultation is complete.

Stations

Hunter Park Station

Hunter Park station would be located at one of the three proximate sites: Palmyrita Avenue Station, Columbia Avenue Station, and Marlborough Avenue Station. Hunter Park is located west of Iowa Avenue between Columbia and Marlborough Avenues, and in the vicinity of two of the three proposed Hunter Park Station options. The park is situated in an industrial area, and separated from the railroad and proposed stations by existing streets, parking lots, and buildings. Given the existing urban setting, Hunter Park would not be subject to any additional visual or auditory intrusions than what already exists in the park's vicinity. As a result, no constructive use would occur as a result of the PVL project.

Moreno Valley/March Field Station

Two noncontiguous wildlife reserves are in the vicinity of the proposed Moreno Valley/March Field Station. The SKR Sycamore Canyon – March Air Force Base Core Reserve (which coincides with Sycamore Canyon Park and the MSHCP Existing Core D) is located north and south of Alessandro Boulevard and west of the PVL corridor.

As described above, the purpose of the MSHCP and SKR HCP is to maintain the biological and ecological diversity in an urbanizing region through the assembly of protected reserves for covered species. These planning efforts have been coordinated with municipal and transportation entities, and in consideration of existing and future land uses. The PVL project is subject to the compliance requirements of the SKR HCP and MSHCP, in particular the Urban / Wildlands Interface Guidelines outlined in the MSHCP, which provide guidance on addressing the indirect effects on wildlife species when projects are located in proximity to reserve areas. Through compliance with the Guidelines and coordination with RCA and RCHCA, construction and operation of the proposed Moreno Valley/March Field Station would not impair the value of wildlife habitat or cause an ecological intrusion into the nearby reserve areas. As a result, no constructive use of a wildlife area would occur.

Downtown Perris Station

Construction of the proposed Downtown Perris Station would not require the direct use or temporary occupancy of the historic Perris Depot. Railroad facilities are an intrinsic element to the historic setting of the Perris Depot, and therefore the proposed PVL project, including the construction of the Downtown Perris Station, would not alter, impair, or diminish any of the qualities for which the historic depot is valued. Furthermore, the appurtenances proposed for the Downtown Perris Station, which include an at-grade platform and a track-side canopy structure, would not introduce a significant visual intrusion that would obstruct or eliminate architectural views of the depot. Access to the historic depot, which now houses the Perris Valley Historical and Museum Association, would remain unchanged.

The noise and vibration study prepared for the PVL project concluded that there would be no auditory or atmospheric impacts to the historic depot (or its immediate vicinity) which could detract from the significance of the historic site or affect the structural integrity of the depot. Accordingly, no constructive use of the historic Perris Depot would occur as a result of the PVL

project. As summarized in Section 3.7 Cultural Resources and Section 106 Compliance, Section 106 consultation is complete.

South Perris Station

MSHCP Proposed Constrained Linkage 19 encompasses the San Jacinto River area, which is located approximately 500 feet west of the proposed South Perris Station. As previously described, the PVL project is subject to the compliance requirements of the MSHCP, in particular its Urban / Wildlands Interface Guidelines, which provide guidance on addressing the indirect effects on wildlife species when projects are located in proximity to reserve areas. Through compliance with the Guidelines and coordination with RCA, construction and operation of the proposed South Perris Station would not impair the value of wildlife habitat or cause an ecological intrusion of MSHCP Proposed Constrained Linkage 19. As a result, no constructive use of a wildlife area would occur.

Layover Facility

No resources protected under Section 4(f) have been identified in the vicinity of the proposed Layover Facility, and therefore no Section 4(f) use would occur.

3.10.4 Mitigation Measures

As defined by Section 4(f), no direct, temporary, or constructive use would occur as a result of the PVL project, and therefore no mitigation measures are required.

3.11 ENVIRONMENTAL JUSTICE AND SOCIOECONOMICS

This section addresses issues of environmental justice in minority and low-income populations and evaluates the proposed PVL with respect to the 1994 Presidential Executive Order 12898.

3.11.1 Regulatory Setting

Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, directs that federal programs, policies, and activities do not deny or exclude populations from benefits and that no discrimination occurs under such programs, policies, or activities because of a population's race or income status. The fundamental principles underlying Environmental Justice assessments are to:

- Avoid, minimize, or mitigate disproportionately high and adverse human health or environmental effects, including social and economic effects, on minority and low-income populations;
- Ensure the full and fair participation by all potentially affected communities in the transportation decision-making process; and
- Prevent the denial of, reduction in, or significant delay in the receipt of benefits by minority and low-income populations.

The communities of particular concern to the assessment of Environmental Justice (EJ) are those identified as minority or low-income communities. These "EJ Communities" are defined in accordance with Executive Order 12898 as identifiable groups of people, typically living in geographic proximity; the low-income and minority populations are defined as follows:

Low-income population: A population having an annual income that is less than the poverty threshold. Poverty thresholds are established by the U.S. Census Bureau, based on the income relative to household size and ages of members.

Minority population: A population that is identified or recognized by the U.S. Census Bureau as African-American or Black, American Indian, Asian, Hispanic/Latino, or other (non-white) race.

3.11.2 Affected Environment

The study area is delineated to provide full disclosure of information pertaining to EJ Communities surrounding the SJBL alignment. The study area represents the physical range within which environmental effects of the PVL may be experienced by the resident population, whether adverse or beneficial.

The study area comprises 28 whole census tracts. The selected tracts intersect or are contiguous with the alignment and the proposed stations and Layover Facility. Additionally, the study area includes each tract having at least 50 percent of its area located within one mile of the alignment. (Note that Tract 427.06 is also included because it is entirely surrounded by other tracts that meet the aforementioned criteria).

As noted in the land use analysis (see Section 3.1 Land Use and Zoning), development is not evenly or homogenously distributed along the alignment, which runs through a mix of urban, semi-urban and rural residential areas, industrial parks, and agricultural areas. Likewise, population is not evenly dispersed throughout the region or, itself, homogenous or evenly mixed. Therefore, as delineated, this study area represents the various communities present along the corridor; it includes locations that could experience potentially adverse environmental effects, as well as portions of larger communities that would benefit from the PVL.

Data describing population characteristics, including data describing demographic and income characteristics, are available from the 2000 U.S. Census at the Block Group level. A Block Group (BG) is a unit smaller than a tract, and it is the smallest geographic area for which the Census Bureau tabulates EJ population data, thereby lending itself to determining the geographic distribution of EJ population groups as precisely as possible. Because these data are only available for the study area as products of the decennial Census, the 2000 Census data are the most current and are, therefore, used in this analysis.

In all, 79 BGs represent the population of the study area. Portions of the cities of Riverside (45 BGs), Moreno Valley (five BGs), and Perris (20 BGs) are included in the study area; these three cities would be served by the PVL. In addition, nine BGs of unincorporated Riverside County, which are proximate to the rail corridor, are also included in the study area.

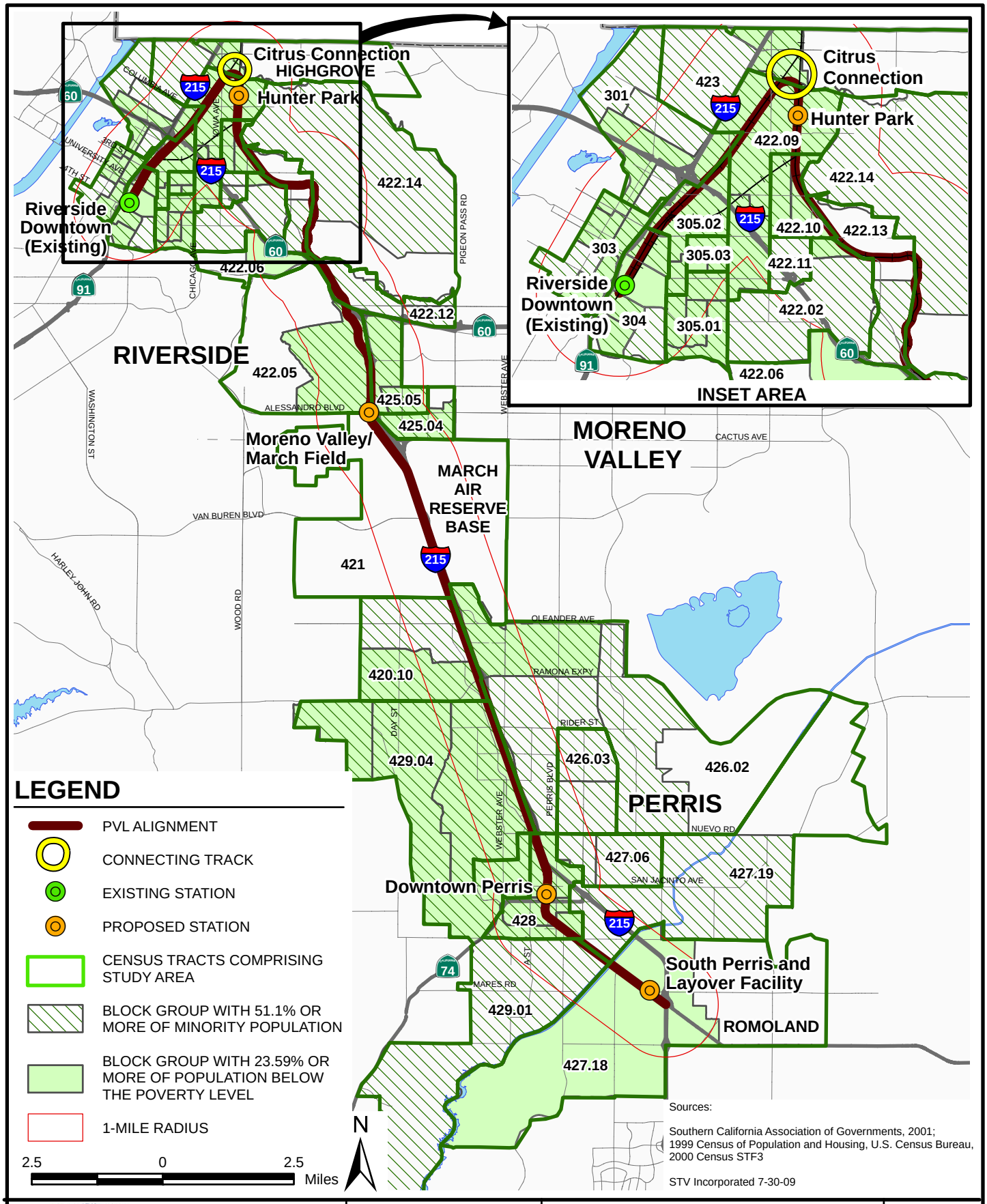
An EJ Community, then, for the purposes of this analysis may be defined such that any BG meeting or exceeding the following thresholds for a low-income or minority community, would be considered an EJ Community for that variable:

Low-income community: A census block group or contiguous area with multiple census block groups, having a low-income population equal to or greater 23.59 percent of the total population.

Minority community: A census block group or contiguous area with multiple census block groups, having a minority population equal to or greater 51.1 percent.

Approximately 49.1 percent of Riverside County's population in 2000 was minority and about 14.2 percent of Riverside County's households were low-income. The study area represents a concentration of EJ population compared to the county as a whole, which has lower percentages of minority population and low-income households overall (see Figure 3.11-1 and Appendix C).

Of the 76 BGs comprising the study area, 22 BGs qualify as EJ Communities according to minority status alone, two qualify according to poverty status alone, and 39 of the 76 BGs qualify according to both minority and low-income status. A total of 85,853 minority persons reside in the study area (approximately 61.2 percent of the total study area population), and there are 7,026 low-income households in the study area (approximately 16.3 percent of all households within the study area).



PROJECT NO.	92666
DRAWN:	1/5/10
DRAWN BY:	JP
CHECKED BY:	RM
FILE NAME:	92666EJ.MXD

ENVIRONMENTAL JUSTICE COMMUNITIES

SUPPLEMENTAL ENVIRONMENTAL ASSESSMENT
RIVERSIDE COUNTY TRANSPORTATION COMMISSION
PERRIS VALLEY LINE
RIVERSIDE, CALIFORNIA

FIGURE
3.11-1

- Approximately 49.1 percent of county population is minority, and all three cities (Riverside, Moreno Valley, and Perris) have minority percentages greater than that of the county. Considering demographic profiles of those BGs included in the study area, minority populations of the three cities are respectively represented in the study area;

- Approximately 66.0 percent of the study area population in the city of Riverside is minority population, compared to 54.5 percent for city as whole;

- Approximately 69.0 percent of the study area population in the city of Moreno Valley is minority population, compared to 67.6 percent for city as whole; and

- Approximately 71.2 percent of the study area population in the city of Perris is minority population, compared to 78.4 percent for city as whole.

All three cities have a larger percentage of low-income population than the county. Considering demographic profiles of those BGs included in the study area, low-income populations of the three cities are for the most part well represented in the study area:

- Approximately 23 percent of study area households in the Riverside City BGs are low-income, compared to 15.8 percent for city as whole; and

- Approximately 17 percent of study area households in Moreno Valley BGs are low-income, compared to 14.2 percent for city as whole.

- Approximately ten percent of study area households in the Perris BGs are low-income, compared to 20.4 percent for the city as a whole, though 17 of the 20 Perris BGs included in the study area qualify as EJ Communities.

As the majority of the study area comprises BGs qualifying as EJ Communities, the public outreach and community involvement meetings have been located in these communities throughout the AA, EA, and SEA processes. The public involvement program has been undertaken to reach the affected population, the majority of whom qualify as EJ population. Community meetings have been held to engage the community in the AA process to develop the LPA (the PVL), and to elicit comment from the public. RCTC has reached out to the public via public meetings with bilingual project materials, newsletters, published notices, and a website dedicated to PVL. For more information regarding Public Outreach see Chapter 5.0.

Based on community input received as part of the EA process, critical and sensitive components of the communities and neighborhood environs were identified throughout the corridor to ensure potential effects would be appropriately assessed. Field survey data collected for the analyses of land use, traffic, air, noise, etc., also informed the EJ assessment. Data were collected in the field to identify sensitive receptors for air and noise monitoring, for which three separate noise data collection programs were conducted in 2002, 2005, and 2008/2009. As described in Section 2.0 Project Alternatives, the former UP RIL LPA was replaced by the current LPA in order, in part, to avoid potential impacts to an EJ Community in Riverside.

3.11.3 Environmental Consequences/Impacts

For the purposes of EJ assessment, the potential environmental consequences of the PVL are considered in order to determine whether there would be disproportionately high and adverse effects on EJ Communities; specifically, whether there would be an adverse effect predominantly borne by or suffered by an EJ Community in a more severe fashion or greater magnitude than the adverse effect would be suffered by the non-EJ population.

Preliminary engineering has informed the SEA process sufficiently to determine that there would be no disproportionately high or adverse effects on EJ Communities, as all impacts would be avoided or mitigated. Certain impacts, which have been predicted in SEA analyses would be fully mitigated through such measures as the erection of noise barriers to protect sensitive receptors from unwanted noise created by the PVL; and the expected provision of signals and the adjustment of signal timing, or lane re-striping, to address predicted traffic impacts. Significant adverse air quality impacts would not occur, and there would be a net benefit to regional air quality through the reduction of greenhouse gases.

Positive environmental consequences, that is, those project-induced effects benefiting an EJ Community are also considered in an EJ analysis. The most significant positive impact from the PVL would be the provision of a new mode of transportation. RCTC would install new crossing controls to improve safety, and new traffic signals that would be necessary even without the PVL to improve traffic flow and reduce idle time.

It is the intent of the project to provide improved public transportation services to the region. With each of the four stations located directly within an EJ Community and proximate to others, the PVL would be accessible to the EJ Communities and jurisdictions it is intended to serve, including the cities of Riverside, Moreno Valley, and Perris. The PVL would therefore be of potential indirect socioeconomic value to the EJ Communities it serves, providing improved access and mobility within the region. Not only would the EJ Communities comprising and represented by the study area not be burdened by adverse effects, these communities would benefit from improved access to jobs, housing, schools, and other community services available within the Riverside County and region as a whole.

The PVL would accommodate a portion of existing transportation demand in Riverside County but would not induce population growth or significantly alter demographic trends; therefore, the PVL would not directly or indirectly lead to changes in demographic conditions, including the makeup of EJ Communities in the study area. By providing commuter rail service to the study area and the region generally, the PVL would satisfy community plans and policies that anticipate the PVL (see Section 3.1 Land Use and Zoning). Communities that would be served by the PVL have indicated their support for the project.

No direct economic losses or significant adverse effects would result from the project, as it would not require acquisition, relocation or construction of residences or businesses. The PVL itself would not generate significant numbers of new jobs, though the operation of the PVL may entail some increase in personnel or reallocation of human resources by SCRRA/Metrolink to maintain the trains, stations and Layover Facility. Through the provision of a new transportation service, in conformity with county, city, and specific area plans, the PVL may enable new economic development planning in the region following the start-up of service.

Construction Impacts

As described throughout this SEA, effects related to construction activities would be temporary and limited. For any ground-disturbing activities along the SJBL ROW, station sites, and Temporary Construction Easements (TCEs), RCTC would establish BMPs to control fugitive dust, erosion and sedimentation related to construction, and provide for appropriate restoration after construction. The BMPs would be incorporated into construction documents. Therefore, no significant adverse effects to EJ Communities would result.

Construction activities, during a period of approximately 18 months, would generate a stimulus for the local economy due to construction-period expenditures for equipment, materials, supplies, and employment of workers by contractors. Indirect economic benefits would also occur due to the multiplier effect as construction-generated revenues would be re-spent by suppliers and workers.

3.11.4 Mitigation Measures

With mitigation measures in place to address potential adverse effects related to noise and traffic, as detailed in Sections 3.4 Noise and Vibration and 3.5 Traffic and Parking, respectively, EJ Communities would not be burdened with any significant adverse effects associated with the PVL. No further analysis is required for environmental justice and no mitigation would be required to satisfy Executive Order 12898.

This Page Intentionally Left Blank

3.12 SAFETY AND SECURITY

This section presents a discussion of safety and security issues as they pertain to the construction, operation and maintenance of the PVL, and in particular the relationship of the PVL to hazards that may already be present in the environs.

Federal Policies and Regulations

3.12.1 Regulatory Setting

There are various federal orders, final rules, notices, FRA regulations, and legislation concerning rail safety (FRA, 2009). These orders, rules, and regulations address passenger train emergency preparedness, equipment safety, upgraded technology, inspection, testing, and maintenance. The main areas of concern are passenger safety and the safety of those located near the railroad ROW. Additionally, access to the rail ROW is controlled by BNSF and access is only allowed by properly trained individuals who have the appropriate permissions. Several of the key overall safety policies are discussed below:

Federal Railroad Administration Final Rules

In 1998, the FRA issued the "Passenger Train Emergency Preparedness Standards" Final Rule to ensure that passenger railroads engage in advanced planning for emergencies. The rule requires the preparation, adoption, and implementation of emergency preparedness plans. The FRA's comprehensive "Passenger Equipment Safety Standards" Final Rule, issued in 2006, includes requirements for equipment crashworthiness, and inspection, testing, and maintenance of passenger rail cars.

Positive Train Control

Section 104 of the Rail Safety Improvement Act of 2008 sets a deadline of 2015 for implementation of Positive Train Control (PTC) technology across most of the U.S. rail network. PTC refers to a developing technology intended to prevent train-to-train collisions, over-speed derailments, and casualties or injuries to roadway workers (e.g., maintenance workers, bridge workers, signal maintainers). Generally, a typical PTC system would involve a Collision Avoidance System using GPS equipment on the locomotive, data radio at the control center, and a bi-directional wireless data link between the train and the control center. Warnings and overrides would be made if the train measures exceed parameters, or a potential danger of collision is identified. Currently, there is only one FRA-approved PTC system in use. There are eleven other PTC projects in varying stages of development and implementation involving nine different railroads in 16 different states. These pilot projects are allowing railroads to continue to advance the various technologies used to implement PTC systems. SCRAA/Metrolink has completed conceptual planning for PTC implementation and recently selected a vendor to complete design and then install PTC throughout the Metrolink rail network. The PVL project will utilize the same PTC system as the rest of the Metrolink rail network.

State Policies and Regulations

State Safety Oversight Program

Under FTA Regulations (49 CFR Part 659.15), the SSO Programs manages the safety and security of rail transit for each respective state. The SSO agencies are responsible for establishing standards for rail safety, establishing security practices and procedures, and ensuring compliance by rail transit agencies. In April 2005, the FTA published its revised "Rail Fixed Guideway Systems: State Safety Oversight" Final Rule (49 CFR Part 659), which directs each SSO agency to conduct an on-site review at least once every three years to assess the implementation of the rail transit agency's System Safety Program Plan (SSPP).

California Public Utilities Commission

The CPUC is the SSO agency for California. The CPUC's Rail Transit Safety Section is responsible for ensuring that transit agencies follow the federal system safety programs. CPUC GO 164-D, "Rules and Regulations Governing State Safety Oversight of Rail Fixed Guideway Systems" includes requirements for SSPP, system security plans, internal safety and security audits, corrective action plans, grade crossings, and safety certification (CPUC, 2007). CPUC staff review the design of new systems/extensions, inspect construction, work with transit agencies to mitigate safety hazards, and oversee operational safety (CPUC, 2009).

3.12.2 Affected Environment

Portions of the SJBL alignment are within the boundaries of the city of Riverside, the city of Perris and unincorporated portions of the county of Riverside. The city of Riverside zoned areas near the corridor principally for business parks and industrial land uses; however, residential areas exist adjacent to this corridor. The corridor generally extends southward through business parks, urbanized areas (largely residential and educational), and open space.

Grade Crossings

Within all the local jurisdictions there are locations where the roadways cross over the existing railroad ROW. These locations are known as grade crossings. In high traffic areas, a grade crossing normally uses a traffic control device such as a stop sign, traffic light, signal or combination of these devices. There are several existing grade crossings along the SJBL as shown in Table 3.12-1. Many of the existing grade crossings along the SJBL consist of passive crossing warning systems, such as a crossbuck sign (a railroad sign that identifies and grade crossing and serves as a yield sign), which are not train activated.

Freight Usage

Existing conditions within the SJBL alignment include established freight lines that were constructed in the 19th century, currently used for local freight deliveries. BNSF currently provides limited freight service along the existing BNSF rail corridor, as well as the SJBL rail corridor (under agreement with RCTC).

Pipelines

Pipelines currently operate within this rail corridor. The pipelines were installed in accordance with the safety requirements of the owners. The pipelines are buried at a minimum of three feet below ground surface, or deeper if they are closer than 40 feet to the rail line, and/or are encased.

Table 3.12-1
Existing Grade Crossings
Perris Valley Line Corridor, Riverside County, California

Location	Existing Device Type
Crossbuck Signs	
Citrus Street, Riverside County and City of Riverside border, Mile Post (MP) 0.57	Two standard reflective signs
Gernert/Poarch Road, Riverside County, MP 5.02	Warning sign
San Jacinto Avenue, City of Perris, MP 18.05	One standard crossbuck sign
West 6th Street, City of Perris, MP19.03	One standard crossbuck sign
West 7th Street, City of Perris, MP 19.10	One standard crossbuck sign
South D Street., City of Perris, MP 19.17	One standard crossbuck sign
South Perris Street, City of Perris, MP 19.37	One standard crossbuck sign
G Street, City of Perris, MP 19.68	One standard crossbuck sign
East Ellis Avenue, City of Perris, MP 19.87	One standard crossbuck sign
Warning Lights/Bell	
Spruce Street, City of Riverside, MP 2.02	Two No. 8 flashers
Mapes Road, City of Perris, MP 21.59	Two flashing warning signs
Gates	
Palmyrita Avenue, City of Riverside, MP 1.00	Two standard No. 9 gates with flashing lights
Columbia Avenue, City of Riverside, MP 1.24	New standard No. 9 crossing gates for the existing tracks
Marlborough Avenue, City of Riverside, MP 1.50	BNSF installed two new standard No. 9 gates with flashing lights
West Blaine and Watkins Drive, City of Riverside, MP 2.66	Standard No. 9 gate with flashing lights
Mt. Vernon Avenue, City of Riverside, MP 3.41	Four standard No. 9 gates with flashing lights
Box Springs-Rivercrest Drive, City of Riverside, MP 7.00	Standard No. 9 gates with flashing lights
West 4th Street, City of Perris, MP 18.34	Two standard No. 9A gates with flashing lights

Hazardous material pipelines within the PVL corridor include a 6-inch diameter jet fuel transmission pipeline operated by Kinder Morgan and a natural gas transmission pipeline operated by Southern California Gas Company (PIMMA, 2007). The jet fuel pipeline extends from the Colton Terminal (2359 South Riverside Avenue) to the March AFB (Cactus Avenue). Additional segments of the Kinder Morgan pipeline are located within the SJBL ROW from Service Road southward to Watkins Drive, and then reconnecting near Box Springs Boulevard to Cactus Avenue.

Two additional natural gas transmission pipelines operated by Southern California Gas Company intersect the PVL corridor: one pipeline extends east-west at Cottonwood Avenue, and one pipeline extends east-west just south of Alessandro Boulevard.

Maintenance

Currently, maintenance of the SJBL ROW is the responsibility of BNSF under agreement with RCTC.

3.12.3 Environmental Consequences/Impacts

Potential hazards involved with rail travel include collision, derailment, and fire. As mentioned above, the FRA has regulations and supports industry standards for the safety of passenger rail, including equipment standards, crashworthiness, fire safety, and emergency preparedness. Applicable federal and state safety policies would be incorporated into project equipment design, construction, operational controls, and infrastructure and in addition, the SCRRA/Metrolink has internal procedures and initiatives to further enhance operational safety. The initiatives and safety measures, which would be incorporated into the proposed project, are described in this section.

SCRRA/Metrolink rail equipment used on this project would incorporate federal and state standards regarding fire resistant materials, electrical systems, and emergency preparedness. Any rail vehicles that would be operated on the PVL corridor would fall under FTA, FRA, and *Manual of Standards and Recommended Practices, Section A, Part III: Passenger Car Requirements* (*Association of American Railroads',* 1984), which includes standards and recommended practices for construction of railcars and equipment, electrical standards, inspection and maintenance, mechanical systems, and passenger systems.

Operational controls are integrated into the Metrolink operating plans and design, in accordance with the SCRRA/Metrolink's SSPP. Train speed and operating rules would be prescribed along the entire PVL alignment intended to avoid potential derailment.

Positive Train Control

Operational safety is a major concern of RCTC and SCRRA, and safety is designed into the PVL and all rail projects starting with FRA track safety standards. SCRRA has assured safety through the design of its locomotives, which are outfitted with light sources at the lower half of the train to illuminate the track for the safety of the train and surrounding areas. At the national level, FRA is developing the standards for implementation of Positive Train Control (PTC) for passenger rail operators. PTC refers to technology that is capable of preventing train-to-train collisions, over-speed derailments, and casualties or injuries to roadway workers (e.g., maintenance workers, bridge workers, signal maintainers, contractors) operating within their limits of authority. PTC systems vary widely in complexity and sophistication based on the level of automation and functionality they implement, the system architecture utilized, and the degree of train control they are capable of assuming. Current PTC system designs act as a safety overlay of existing train control systems. PTC has been mandated nationally, and the SCRRA/Metrolink fleet will be compliant once SCRRA has finalized the design and implementation of the system. Space provisions have been incorporated into the signal equipment and enclosures to accommodate the PTC upgrade when the SCRRA's program is finalized, with the intent that PTC will be functional at the opening of service on the PVL.

In southern California, installation of PTC is the agency's highest safety priority project. As a result, SCRRA is developing an accelerated strategy with a goal to have PTC operational on all

Metrolink rolling stock by 2012, in conjunction with the BNSF and Union Pacific (UP) freight railroads aim to complete the implementation of wayside PTC along their ROW in the Los Angeles basin by 2012. SCRRA's objective is to have the full PTC system in place in advance of the 2015 federal mandate (Solow, 2009).

Grade Crossings

Appropriate grade crossing modifications are required by CPUC to ensure public safety and to facilitate safe train movements. As part of the proposed project, two grade crossings would be closed and 15 grade crossings would be improved. The closings are at Poarch Road (MP 5.02) in the city of Riverside and at West 6th Street (MP 19.03) in the city of Perris. The proposed improvements would include flashing warning devices and gates, bells, raised center medians, striping, signage and pavement markings, crossing safety lighting, and pedestrian safety improvements. The locations of these grade crossings to be improved or closed are shown on Figure 1.7-20.

Proposed improvements would reduce the potential for pedestrian and motor vehicle conflict at these grade crossings. The exact warning device configuration is to be determined by a diagnostic team consisting of the CPUC, SCRRA, and BNSF representatives. To date, four field diagnostic meetings have been held to review grade crossings for the PVL with members from the CPUC, SCRRA, BNSF, RCTC, county of Riverside, city of Riverside, and city of Perris and a list of the proposed modifications, which includes improved crossings and warning devices, is provided in Appendix D.

Station areas are designed to direct pedestrian foot traffic across the railroad tracks toward designated crossings. Signs will be posted warning of the danger of crossing active railroad tracks. As necessary, pedestrian crossings would also include safety devices such as bells, flashing lights, and/or gates. The Layover Facility would have controlled access through the use of fencing, K-rail, and gated entrances.

Communication Systems

With the proposed project, rubberized or asphalt crossings would be replaced with concrete panel crossings. The work would also include new or upgraded grade crossing warning devices and new pedestrian crossing warning devices; signal system upgrades; and replacement of control cables, housings, and equipment. The electronics at all crossings would be upgraded with crossing predictors to sense the speed and presence of trains. The crossing predictors would enable the crossing gates to lower and rise in equal time durations regardless of the speed of approaching trains. Overlay circuits would be installed at each crossing to detect trains while they are still at least one crossing away.

Freight Usage

According to the findings of a freight usage study, it is unlikely that the improvements would benefit shippers in any material way. No shippers indicated that the improvements would result in an increase of their rail shipments. Track improvements and other upgrades proposed as part of the PVL are aimed at improving operations and safety to accommodate commuter rail service. These improvements would provide safety benefits that accrue to both commuter and

freight operations (for example, grade and pedestrian crossing improvements and improved communications).

Pipelines

The PVL service would not involve the routine transport or disposal of hazardous materials. Hazardous materials and emergency response plans are discussed in Section 3.8 Hazards and Hazardous Materials. Air quality impacts, including air toxics, are discussed in Section 3.3 Air Quality.

Track Improvement and Maintenance

Under the proposed action, the PVL track would be upgraded to SCRRA/Metrolink safety standards as dictated by industry maintenance practices and design criteria. To be specific, the existing BNSF and SJBL track would be rehabilitated (e.g., new or upgraded ties, crossings, grade crossing warning devices, signal system, control cables, housings, and equipment). All rehabilitation work is required to meet commuter rail standards.

RCTC anticipates that the operating agreement with SCRRA/Metrolink would transfer the maintenance for the ROW from BNSF to SCRRA/Metrolink. The tracks would be routinely inspected and maintained. RCTC provides funds to SCRRA/Metrolink to conduct maintenance, and the SCRRA/Metrolink would regularly inspect the track to quality assure that the track is well-maintained and that the tracks are suitable for passenger service. In addition, SCRRA/Metrolink designed its locomotives with light sources at the lower half of the train to illuminate the track for the safety of the train and surrounding areas.

Construction

The work would be performed in a manner that allows freight deliveries to continue while the PVL improvements are being undertaken. Freight delivery schedules would be adjusted to accommodate the work, balancing the need to support business activity of the freight shippers/receivers with the need to remove old track and install new track. Some construction work may be performed at night or on weekends and some train operations may shift to nights or weekends to accomplish the project schedule. In the event that nighttime and weekend work are determined necessary, coordination with the affected local jurisdictions would be undertaken.

Federal regulations (and traditional safety practice) require that train operations and workers on or near the tracks be protected from each other. This separation is performed by flagmen who assure that workers near the track are safe from oncoming trains, direct the workers to retreat to a place of safety when trains pass, and assure that the tracks are safe for train operation before permitting trains to pass.

Operations

Operation of the trains on the PVL route would be the responsibility of SCRRA/Metrolink under agreement with RCTC.

Hazardous materials may be used or stored at the proposed South Perris Station and Layover Facility. The release of hazardous materials into the environment may pose a public safety concern depending on the nature of release. As further discussed in Section 3.8 Hazards and Hazardous Materials, proposed construction activities and operations would involve the use of small quantities of hazardous materials. Hazardous materials would be stored, used, and disposed of in accordance with existing hazardous materials regulations.

Security

The proposed project includes new train service and new related stations. Security on the trains themselves is the responsibility of SCRRA/Metrolink and would be conducted according to standard SCRRA/Metrolink security protocols. Security at the station locations is the responsibility of RCTC and security guards would be posted as directed by RCTC personnel to ensure the safety of train riders while at the stations.

Fifteen schools are located within 0.25 mile of the SJBL ROW. For most PVL operations, schools would not be in session because most scheduled runs occur either before the start of the school day or after its completion. SCRRA/Metrolink has developed a Safety Education Program as a service to schools and communities along Metrolink lines. This Safety Education Program incorporates Operation Lifesaver, which is a non-profit international public education program established in 1972 to end collisions, deaths, and injuries at highway-rail grade crossings and on railroad ROWs. The program addresses rail safety and teaches students, at age-appropriate levels, to understand rail signage, the importance of avoiding the railroad ROW, and safe driving skills in the vicinity of railroads. Operation Lifesaver provides free presentations to schools and community groups. SCRRA/Metrolink with RCTC encourages school and community group participation in Operation Lifesaver. Mitigation Measures

3.12.4 Mitigation Measures

The proposed project is designed to comply with federal, state requirements related to rail construction, operation and maintenance. These requirements meet the current industry safety standards and therefore no mitigation is necessary for project related impacts.

This Page Intentionally Left Blank

3.13 AMERICANS WITH DISABILITIES ACT COMPLIANCE

The proposed PVL project would include four stations and associated facilities, including station areas and a Layover Facility. These proposed facilities would be fully compliant in accordance with the ADA of 1990 and the Architectural Barriers Act of 1968 (ABA); design standards from the SCRRA Design Criteria Manual and the RCTC Commuter Rail and Multimodal Facility Design Criteria Manual; and the accessibility provisions of the 2007 California Building Code (CBC), as described below.

The advent of the ADA legislation has required the SCRRA/Metrolink to focus on issues of access in the planning of facilities. The ADA, under Title II-Public Services (Title II), requires public transportation systems to not discriminate against persons with disabilities. The resulting design changes inspired by compliance with the ADA have increased the general accessibility of transit structures to a broad range of the traveling public. The ADA also includes accessibility guidelines (ADAAG) for the design of transportation facilities so that they are usable by people with disabilities. The guidelines cite the need for accessible routes to and from accessible entrances to stations and boarding platforms used by the public. All facilities associated with the PVL project would comply with the ADA.

3.13.1 Regulatory Setting

Americans with Disabilities Act of 1990

The ADA prohibits discrimination on the basis of disability in employment, state and local government, public accommodations, commercial facilities, transportation, and telecommunications (U.S. Department of Justice, 2005). The ADA recognizes and protects the civil rights of people with disabilities and is modeled after earlier landmark laws prohibiting discrimination on the basis of race and gender. To ensure that buildings and facilities are accessible to and usable by people with disabilities, the ADA establishes accessibility requirements for state and local government facilities under Title II. The transportation provisions of Title II cover public transportation services, such as city buses and public rail transit (e.g. commuter rail). Public transportation authorities may not discriminate against people with disabilities in the provision of their services (U.S. Department of Justice, 2005). The ADA applies to facilities in the private sector (places of public accommodation and commercial facilities) and to state and local government facilities. Transportation facilities are subject to standards maintained by the United States Department of Transportation (USDOT).

On July 26, 1991, one year after the ADA was signed into law, the ADAAG were published. The ADAAG are regulations governing accessibility to places of public accommodation and commercial facilities. Additional requirements specific to transportation facilities were added on September 6, 1991. USDOT incorporated ADAAG into their ADA implementing regulations, thus making ADAAG the enforceable standard under Title II of the ADA. USDOT has adopted new ADA standards which apply to bus stops, rail stations, airports, and other transportation facilities. These standards apply to the construction and alteration of transportation facilities covered by the ADA. They became effective November 29, 2006.

Architectural Barriers Act of 1968

The ABA requires that buildings and facilities that are designed, constructed, or altered with federal funds, or leased by a federal agency, comply with federal standards for physical accessibility. ABA requirements are limited to architectural standards in new and altered buildings and in newly leased facilities (U.S. Department of Justice, 2005).

SCRRA Design Criteria Manual, 2003

The SCRRA Design Criteria Manual serves to define the procedures that govern the initiation, progress and execution of design work for the SCRRA. The basic requirement for railroad geometric design is to provide a track structure that is consistent with safe, regulatory compliant, economical and efficient train operation. SCRRA, as a commuter operator, places a high priority on passenger safety and on minimum travel times. The design, operation and maintenance of the Metrolink System are governed by FRA regulations and CPUC General Orders.

ADA Issues, Platform, Parking Lot and Street Access

Access to stations shall conform to the requirements of the ADA, Title II, and California accessibility regulations, Title 24. A conforming path of travel must be provided continuously from the street to the platform and platform and parking lot facilities must comply with the referenced codes. An example of a SCRRA barrier-free path of travel from accessible parking to platforms is shown on Figure 3.13-1. Pedestrian access shall be provided along dedicated walkways complying with ADA and Title 24 requirements from the street to the platform. Access to a contiguous dedicated sidewalk or walkway system is desirable.

Mini-High Platform

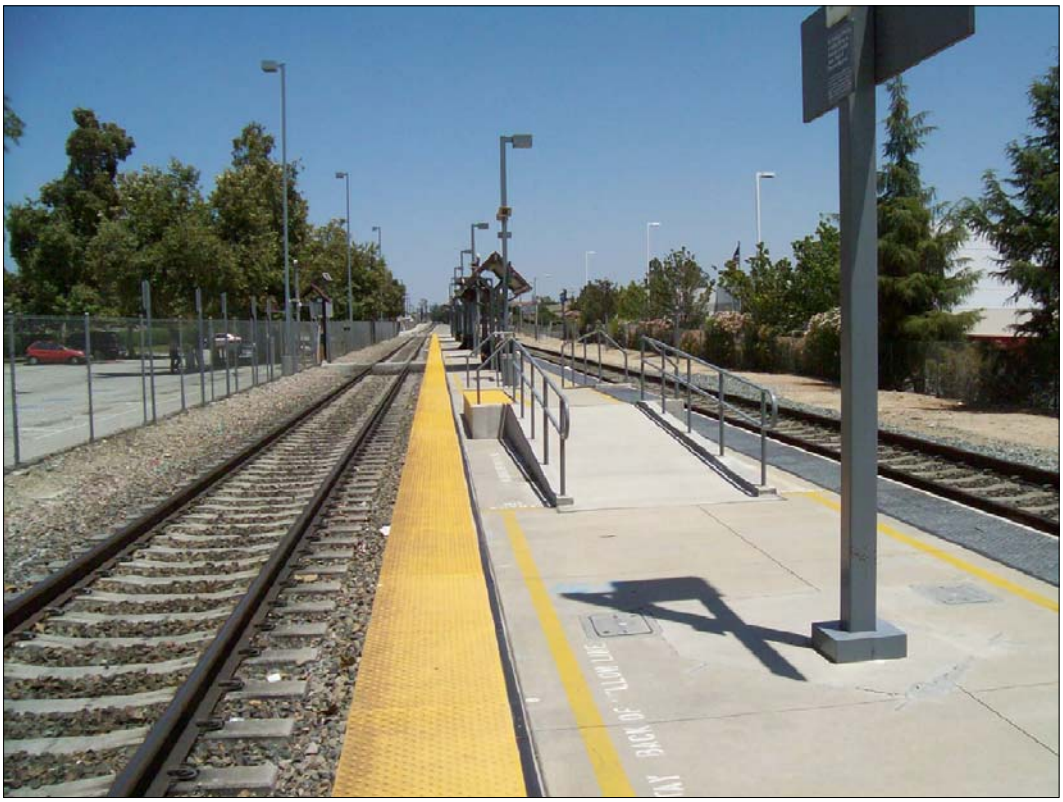
In order to provide for level boarding of the train through the use of a bridge plate, a mini-high platform is required. An example of a “mini-high” platform is shown on Figure 3.13-1. The mini-high platform is 1’-1” above the general platform level and is set back 7’-11” from the centerline of track. On all lines except the Inland Empire/Orange County and 91 Lines, the mini-high platform is centered 61’-4” from the Los Angeles end of the station.

RCTC Commuter Rail and Multimodal Facility Design Criteria Manual

The RCTC Commuter Rail and Multimodal Facility Design Criteria Manual was developed to establish the design guidelines to be used for future facilities. This manual provides guidelines for developing commuter rail stations, park and ride facilities, and multimodal transit centers developed by RCTC. Commuter rail stations would meet SCRRA design requirements. Platforms would be designed to be safe, clear, and free of obstruction with all required safety and ADA features. For the Layover Facility, the Commission would follow SCRRA’s standards for Layover Facility design.



BARRIER-FREE PATH OF TRAVEL FROM PARKING LOT TO PLATFORM



MINI-HIGH PLATFORM FOR BOARDING AT FLOOR LEVEL OF TRAIN CARS

PROJECT NO. 92666 DRAWN: 1/18/10 DRAWN BY: JP CHECKED BY: RM FILE NAME: 92666PHOTO1.dwg	**TYPICAL STATION FEATURES FOR ADA MOBILITY** SUPPLEMENTAL ENVIRONMENTAL ASSESSMENT RIVERSIDE COUNTY TRANSPORTATION COMMISSION PERRIS VALLEY LINE RIVERSIDE, CALIFORNIA	FIGURE **3.13-1**

The intent of this manual is to provide station designers a basis for design of new RCTC commuter rail stations. This manual is used in conjunction with the SCRRA Design Criteria Manual and all other relevant codes and requirements. The manual is used as a basis for the design of the new stations along the PVL, and any additional stations or multimodal facilities in Riverside County. RCTC commuter rail station design complies with the codes/design manuals listed above, plus local building, planning and zoning codes and standards. If a conflict between the codes/design manuals arises, then the most restrictive code shall apply.

For ADA issues, platform, parking lot and street access, requirements outlined in the SCRRA Design Criteria Manual (Section 7.4.2, ADA Issues, Platform, Parking Lot and Street Access) shall be applied to RCTC station design. The stations would also meet required CPUC safety standards as appropriate. SCRRA's new design criteria require at-grade crossings at the ends of the platforms with pedestrian gates and signals. For Mini-High Platforms, all requirements outlined in the SCRRA Design Criteria Manual (Section 7.5.5 Mini-High Platform) shall be applied to RCTC station design.

2007 California Building Code

The CBC was adopted and approved by the California Building Standards Commission on January 30 2007 (and became effective on January 1, 2008). The building standards adopted by the Commission for the 2007 CBC (Part 2 of Title 24) were based on the 2006 International Building Code.

3.13.2 Affected Environment

Each of the four stations constructed as part of the proposed PVL project would meet the federal mandate of ADA access, providing safe, barrier-free pedestrian access to the stations and each platform. The PVL stations would be constructed at-grade, with 680-feet long side platforms. The "typical" platform is constructed of concrete with steps up, or walkways, from the surrounding grade to reach track elevation. Accessible "mini-high" platforms would be located on platforms to provide for level boarding onto the trains by ADA passengers. All parking areas would be at-grade. The accessibility features of each of the proposed stations would be similar, with the primary differences between individual stations related to the specific topography of each site. All platforms would be fully compliant, and station areas would be provided with ADA-compliant pedestrian access from all perimeter streets. The four proposed stations and Layover Facility are described in terms of their specific accessibility features below.

Hunter Park Station

There would be approximately 28 accessible parking spaces provided. All would be sidewalk-adjacent with compliant paths of travel from parking spaces to platform.

Moreno Valley/March Field Station

There would be continuous compliant pedestrian access provided from Meridian Parkway, the only site-adjacent public street.

The trackway is located in cut approximately 20 feet below the parking lot level. A compliant pedestrian ramp would provide parking lot access to/from the station platform.

Approximately 24 accessible parking spaces would be provided. All would be sidewalk-adjacent with compliant paths of travel from parking spaces to platform.

Downtown Perris Station

There would be continuous ADA-compliant pedestrian access provided from perimeter streets at north, west, and south sides, as well as at site-approaching stub streets at east side (First, Second, and 3rd Streets).

Approximately 28 accessible parking spaces would be provided. All would be sidewalk-adjacent with compliant paths of travel from parking spaces to platform.

South Perris Station

Approximately 40 accessible parking spaces would be provided. All would be sidewalk-adjacent with compliant paths of travel from parking spaces to platform.

Layover Facility

The Layover Facility would include an employee support building with modular offices, storage, parking, and a crew restroom and break room. The Layover Facility would have ADA-accessible parking and the employee support building would have ADA-accessible showers and bathrooms. As the employee support building is located within a 100-year floodplain, it would be constructed six feet above grade level and a wheelchair lift (instead of a ramp) would be provided to allow access.

3.13.3 Environmental Consequences/Impacts

With the range of ADA-compliant codes that pertain to the PVL in place, the proposed project would be fully compliant with the accessibility requirements of the ADA.

3.13.4 Mitigation Measures

The RCTC fully supports ADA compliance, and it is anticipated that public meetings associated with the PVL would be held in public spaces, which in their own design must be ADA-compliant. RCTC fully commits to compliance with ADA requirements, including construction projects and public meeting locations.

3.14 BIOLOGICAL RESOURCES

Biological resources include protected natural plant communities, wetlands and other waters, and state and federal threatened, endangered, and sensitive (TES) plant and animal species, as well as their associated habitats. This section addresses biological resources within and adjacent to the PVL project. Impacts associated with the construction of the PVL project are also described in the following sections.

3.14.1 Regulatory Setting

Biological resource regulations from the federal, state, and local levels focus on sensitive species and habitats.

Federal Endangered Species Act 16 USC 1531-1544)

The Endangered Species Act (ESA) directs all federal agencies to participate in endangered species conservation. The federal ESA provides protection for endangered and threatened species, and requires conservation of designated species' critical habitats. An "endangered" species is a species in danger of extinction throughout all or a significant portion of its range. A "threatened" species is one that is likely to become "endangered" in the foreseeable future without further protection. Other special status species include "proposed", "candidate", and "species of concern." Proposed species are those that have been officially proposed in the FR for listing as threatened or endangered. Candidate species are those for which sufficient information is available to propose listing as endangered or threatened. "Species of concern" are species for which not enough scientific information has been gathered to support a listing proposal, but still may be appropriate for listing in the future after further study. A "delisted" species is one whose population has reached its recovery goal is no longer in jeopardy.

The ESA is administered by the U.S. Fish & Wildlife Service (USFWS) and the National Marine Fisheries Services (NMFS). Under the ESA, it is prohibited to take, harm, or harass species listed as threatened or endangered by the USFWS. A permit for taking a federally listed threatened or endangered species may be obtained either through Section 7 consultation (where the proposed action requires approval of a federal agency) or Section 10(a) (i.e., where the proposed non-federal action requires development of a Habitat Conservation Plan [HCP]). Both cases require consultation with the USFWS and/or NMFS, which ultimately issues a final opinion determining whether the federally listed species would be adversely impacted by a proposed project. Under Section 4(d), an alternative permitting approach can be written by the Secretary of the Interior for use with federally threatened species.

Fish and Wildlife Coordination Act (16 USC 661-667E)

The Fish and Wildlife Coordination Act (1934), authorized the Secretaries of Agriculture and Commerce to assist and cooperate with federal and state agencies to protect, rear, stock, and increase the supply of game and fur-bearing animals, and to study the effects of domestic sewage, trade wastes, and other polluting substances on wildlife. Amendments to the Act require consultation with the USFWS, NMFS, and state agencies responsible for fish and wildlife resources for all proposed federal undertakings and non-federal actions needing a federal permit or license that would impound, divert, deepen, or otherwise control or modify a

stream or water-body; and to make mitigation and recommendations to the involved federal agency.

Migratory Bird Treaty Act (16 USC 703-712)

The Migratory Bird Treaty Act (MBTA) provides special protection for migratory families of birds (i.e., those avian species that winter south of the U.S. but breed within the U.S.) by regulating hunting and trade. The Act prohibits anyone to take, possess, buy, sell, purchase, or barter any migratory bird listed in 50 CFR 10, including feathers or other parts, nests, eggs, or products, except as allowed by implementing regulations (50 CFR 21). “Take” includes any disturbance that causes nest abandonment and/or loss of reproductive effort (e.g., killing or abandonment of eggs or young). Such activity may be punishable by fines and/or imprisonment. The use of families as opposed to individual species within the Act means that numerous non-migratory birds are extended protection under the MTBA. Most nesting birds are covered by the MBTA.

Executive Order 13112: Invasive Species

The purpose of this Executive Order is to prevent the introduction and control the spread of invasive plant and animal species. This law prohibits the federal government from authorizing or funding of actions that may cause or promote the introduction and/or spread of invasive species unless the agency has determined that the action’s benefits clearly outweigh potential harm caused by invasive species; and that all feasible and prudent measures would be taken to minimize risk of harm. This Executive Order also requires federal agencies to consult with the Invasive Species Council, consistent with the Invasive Species Management Plan.

Western Riverside County Multiple Species Habitat Conservation Plan

The Western Riverside County MSHCP is a comprehensive, multi-jurisdictional Habitat Conservation Plan (HCP) focusing on conservation of species and their associated habitats in Western Riverside County. The MSCHP is a large, multi-jurisdictional habitat-planning effort in with the overall goal of maintaining biological and ecological diversity within a rapidly urbanizing region. The MSHCP is an element of RCIP to conserve open space, nature preserves and wildlife to be set aside in some areas. It is designed to protect over 150 species and conserve over 500,000 acres in Western Riverside County. RCTC is also a signatory on the MSHCP Implementing Agreement and a permitee under the Plan.

The MSHCP Plan Area encompasses approximately 1.26 million acres (1,966 square miles); it includes all unincorporated Riverside County land west of the crest of the San Jacinto Mountains to the Orange County line, as well as the jurisdictional areas of the cities of Temecula, Murrieta, Lake Elsinore, Canyon Lake, Norco, Corona, Riverside, Moreno Valley, Banning, Beaumont, Calimesa, Perris, Hemet, and San Jacinto. It covers multiple species and multiple habitats within a diverse landscape, from urban centers to undeveloped foothills and montane forests, all under multiple jurisdictions.

The MSHCP serves as an HCP pursuant to Section 10(a)(1)(B) of the federal Endangered Species Act of 1973, as well as a Natural Communities Conservation Plan (NCCP) Act of 2001. The MSHCP is used to allow the participating jurisdictions to authorize "Take" of plant and wildlife species identified within the MSHCP area. The USFWS and CDFG have authority to regulate the take of TES species. Under the MSHCP, the USFWS and CDFG would grant "Take

Authorization" for otherwise lawful actions, such as public and private development that may incidentally “take” or harm individual species or their habitat outside of the MSHCP Conservation Area, in exchange for the assembly and management of a coordinated MSHCP Conservation Area. It should be noted that compliance with the Plan provides full mitigation for all species and habitat impacts.

Executive Order 11990: Protection of Wetlands

Executive Order 11990 directs that federal agencies provide leadership and take action to minimize destruction, loss, or degradation of wetlands associated with: (1) acquisition, management, and disposition of federal land and facilities; (2) federally funded or assisted construction and improvement; or, (3) federal activities and programs affecting land use, including but not limited to water and related land resources planning, regulating, and licensing activities.

Clean Water Act (33 USC 1251-1376)

The CWA provides guidance for the restoration and maintenance of the chemical, physical, and biological integrity of the nation’s waters. There are numerous sections of the CWA that provide guidance related to implementation of this type of project.

Section 401 requires that an applicant for a federal license or permit that allows activities resulting in discharge to jurisdictional waters (including wetland/riparian areas) of the United States must obtain a state water quality certification that the discharge complies with other provisions of CWA. The Regional Water Quality Control Boards (RWQCBs) administer the certification program in California.

Section 402 is regulated by the USEPA and establishes a permitting system for the discharge of any pollutant (except dredge or fill material) into waters of the United States. It establishes a framework for regulating municipal and industrial stormwater discharges under the NPDES program. The RWQCBs also administer the NPDES permits for construction activities and operations.

Section 404 establishes a permit program administered by the U.S. Army Corps of Engineers (USACE) regulating the discharge of dredge or fill material into waters of the United States, including wetlands, and jurisdictional non-wetland waters. The USACE has permit authority derived from Section 404 of the CWA (33 CFR Parts 320-330). The permit review process includes an assessment of potential adverse impacts to wetlands and streambed habitats and determination of any required mitigation measures. As a condition of the 404 permitting process, a 401 Water Quality Certification or waiver is required from the RWQCB. Where federally-listed species may be affected, a Section 7 consultation with the USFWS under the federal ESA is required.

3.14.2 Affected Environment

MSHCP Areas

Based on a review of the MSHCP Area Plans, the PVL project was determined to be within multiple Area Plans that include the cities of Riverside and Norco Area Plan, Highgrove Area

Plan, March Area Plan, Mead Valley Area Plan, and the Harvest Valley / Winchester Area Plan. Portions of an Area Plan contain Area Plan Subunits that have target conservation acreages that have been established based on planning species, biological issues and considerations, and criteria for each Subunit.

Within the cities of Riverside and Norco Area Plan, the Sycamore Canyon West, Subunit 2 is located adjacent to the PVL alignment. Within the Highgrove Area Plan the PVL project bisects the Sycamore Canyon/Box Springs Central, Subunit 1. Within the Mead Valley Area Plan, the PVL alignment intersects the San Jacinto River Lower, Subunit 4.

Within the Area Plans are specifically designated habitat blocks and linkages. Approximately 1,400 feet east of the SJBL, between Marlborough and Spruce Streets is Noncontiguous Habitat Block A. Proposed Constrained Linkage 7 crosses the I-215 and SJBL line at Poarch Road. Proposed Constrained Linkage 8 is located 1,000 feet east of SJBL line at Big Springs Road. MSHCP also identifies Existing Core D at two locations within the study area; to the west of I-215 and SJBL line at Central Avenue and Gernert Road, and less than 500 feet south of the Moreno Valley/March Field Station site. The southern portion of the study area, within the city of Perris, identified Proposed Noncontiguous Habitat Block 4 is located approximately 1,500 feet west of I-215 and the SJBL line. In the southern portion, MSHCP identified Proposed Constrained Linkage 19 that crosses the SJBL line (east and west of I-215) at the San Jacinto River. Cores and Linkages, including connections and species provided for, with the presence of live-in and/or movement habitat are provided below in Table 3.14-1 and shown on Figure 3.14-1.

- **Existing Noncontiguous Habitat Block A** is located in the Box Springs Mountains, near the northern boundary of the cities of Riverside and Norco Area Plan. This Block includes two pieces of land connected by Proposed Constrained Linkage 8 and in turn connected to other MSHCP conserved lands via Proposed Constrained Linkage 7 and Proposed Linkage 4. This Block provides Live-In Habitat for species, and it likely contains movement habitat for common mammals such as the bobcat. It is partially constrained by existing urban development and is surrounded by a city planned land use designation.

- **Proposed Constrained Linkage 7** is comprised of upland habitat in the vicinity of Central Avenue. It is the only connection from Sycamore Canyon Park to Box Springs Reserve. This Linkage is important for species dispersal and would reduce the likelihood of species extinction as a result of population isolation. Habitat Planning Species such as cactus wren and Bell's sage sparrow occur within this Linkage. This Linkage likely provides for movement of common mammals such as bobcat. The Linkage is constrained by existing urban development and roadways.

- **Proposed Constrained Linkage 8** is comprised of upland habitat in the Pigeon Pass Valley and connects to two existing Noncontiguous Habitat Blocks in the Box Springs Mountain area. Planning species such as cactus wren and bobcat may move through the area. Maintenance of contiguous habitat with appropriate refugia for resting, such as rockpiles, brushpiles, windfalls, hollow snags and hollow trees, is important for dispersal of juvenile animals. This Linkage is constrained by planned Rural Mountainous development to the north.

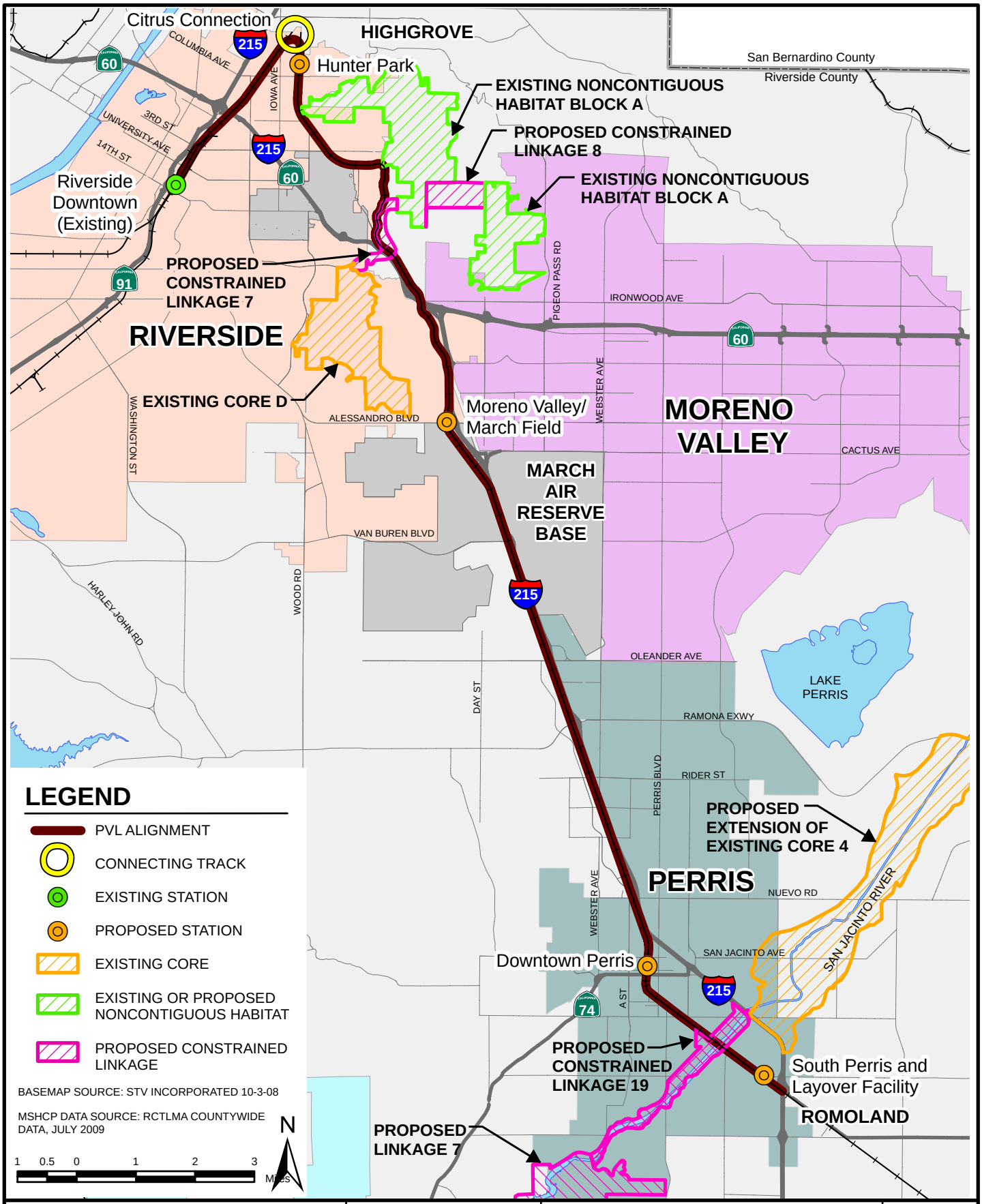
- **Existing Core D** consists of Sycamore Canyon Park and is the most isolated of all proposed and existing cores. It is connected to Existing Noncontiguous Habitat Block A via Proposed Constrained Linkage 7. This Core provides Live-In Habitat for the granite spiny lizard and likely provides movement habitat for bobcat. Management control within this Core includes March JPA and the City of Riverside Park and Recreation Department.

- **Proposed Noncontiguous Habitat Block 4** is comprised of the Motte Rimrock Reserve. It provides habitat for a number of Planning Species, including Quino checkerspot butterfly, coastal California gnatcatcher, and Stephens' kangaroo rat.

- **Proposed Constrained Linkage 19** (Lower San Jacinto River) is located approximately in the center of the Mead Valley Area Plan. This Linkage connects Proposed Linkage 7 in the southwest with Proposed Extension of Existing Core 4 (San Jacinto River Core) in the northeast. Existing agricultural use and a small amount of existing urban development constrain the Linkage along much of its length. Although there are plans to channelize the river to control flooding, the Linkage would maintain connectivity along the river and provide for movement of common mammals such as the bobcat. Narrow Endemic Plant Species (NEPS) are also known to occur near San Jacinto River.

- **Criteria Cells** are used to identify the specific habitat requirements within the Area Plans, Criteria Cells are identified based on land parcel information. The PVL borders and bisects a total of five Criteria Cells in two of the five Area Plans (Criteria Cells 545, 362, 721, 3276, and 3378), as shown on Figure 3.14-2. Table 3.14-2 summarizes the conservation criteria for each Criteria Cell and the PVL study area's relationship to that particular Cell.

This Page Intentionally Left Blank



LEGEND

- PVL ALIGNMENT
- CONNECTING TRACK
- EXISTING STATION
- PROPOSED STATION
- EXISTING CORE
- EXISTING OR PROPOSED NONCONTIGUOUS HABITAT
- PROPOSED CONSTRAINED LINKAGE

BASEMAP SOURCE: STV INCORPORATED 10-3-08

MSHCP DATA SOURCE: RCTLMA COUNTYWIDE DATA, JULY 2009

N

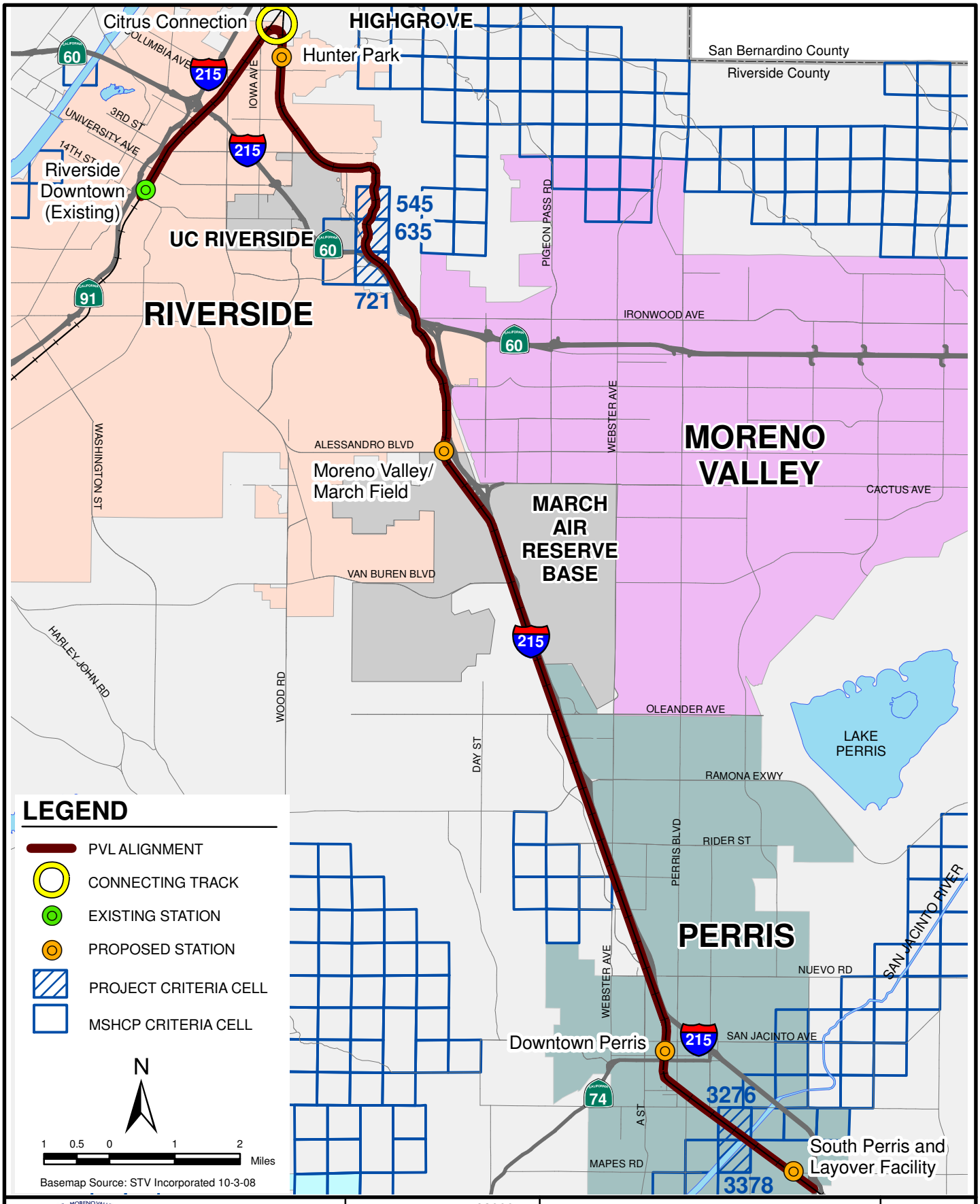
1 0.5 0 1 2 3 Miles

PROJECT NO.	92666
DRAWN:	5/10/10
DRAWN BY:	JP
CHECKED BY:	RM
FILE NAME:	92666landEA2sea.MXD

MSHCP CORES AND LINKAGES

SUPPLEMENTAL ENVIRONMENTAL ASSESSMENT
RIVERSIDE COUNTY TRANSPORTATION COMMISSION
PERRIS VALLEY LINE
RIVERSIDE, CALIFORNIA

FIGURE 3.14-1



PROJECT NO.	92666
DRAWN:	1/15/10
DRAWN BY:	JP
CHECKED BY:	RM
FILE NAME:	92666MSCHP2EA.MXD

MSHCP CRITERIA CELLS

SUPPLEMENTAL ENVIRONMENTAL ASSESSMENT
RIVERSIDE COUNTY TRANSPORTATION COMMISSION
PERRIS VALLEY LINE
RIVERSIDE, CALIFORNIA

FIGURE

3.14-2

Table 3.14-1
Cores and Linkages related to PVL

Feature	Species	PVL Relationship	Adjacent General Plan Land Use	Covered Activities
Existing Noncontiguous Habitat Block A	southern California rufous-crowned sparrow, Bell's sage sparrow, cactus wren, loggerhead shrike, Stephens' kangaroo rat, bobcat, and Nevin's barberry	1,400 ft east of SJBL Line between Marlborough and Spruce Streets (Box Springs Mountain Reserve)	Rural Mountainous, City (Riverside, Moreno Valley), Open Space/ Conservation	Pigeon Pass Road, San Bernardino to Moreno Valley CETAP Corridor
Proposed Constrained Linkage 7	Bell's sage sparrow, cactus wren, and bobcat	Crosses SJBL Line and I-215 at Poarch Road	City (Riverside) and Community Development	I-215
Proposed Constrained Linkage 8	southern California rufous-crowned sparrow, Bell's sage sparrow, cactus wren, loggerhead shrike, and bobcat	1,000 ft east of SJBL Line at Big Springs Road	Rural Mountainous and Open Space/ Conservation	None
Existing Core D	Wilson's warbler	West of I-215 and SJBL Line at Central Avenue and Gernert Road; Less than 500 ft south of the Moreno Valley/March Field Station (Sycamore Canyon Park)	City (Riverside), Community Development	Alessandro Boulevard
Proposed Constrained Linkage 19	mountain plover, loggerhead shrike, white-faced ibis, bobcat, Los Angeles pocket mouse, San Jacinto Valley crownscale, Davidson's saltscale, thread-leaved brodiaea, vernal barley, Coulter's goldfields, spreading navarretia, and Wright's trichocoronis	Crosses the SJBL Line along the Lower San Jacinto River	City (Perris)	Ethanac Road, I-215
Proposed Noncontiguous Habitat Block 4	Bell's sage sparrow, cactus wren, coastal California gnatcatcher, Stephens' kangaroo rat, and long-spined spine flower	1,500 ft west of I-215 and SJBL Line (Motte Rimrock Reserve)	Community Development and Rural	None

Table 3.14-2
MSHCP Cell Number Conservation Criteria

Cell Number	Conservation Criteria	PVL Study Area Relationship
Highgrove Area Plan: Sycamore Canyon/Box Springs Central Subunit 1		
545	Conservation within Cell# 545 will contribute to assembly of Proposed Constrained Linkage 7. Conservation within this Cell will focus on coastal sage scrub habitat. Areas conserved within this Cell will be connected to coastal sage scrub habitat proposed for conservation to the south in Cell# 635. Conservation within Cell# 545 will range from 15%-25% of the southeastern portion of the Cell.	The existing railroad tracks have historically bisected the cell. Since the existing footprint is staying the same, there is not a conflict with the conservation objectives of the cell.
635	Conservation within Cell# 635 will contribute to assembly of Proposed Constrained Linkage 7. Conservation within this Cell will focus on coastal sage scrub habitat. Areas conserved within Cell# 635 will be connected to coastal sage scrub habitat proposed for conservation to the south in Cell# 721 and to the north in Cell# 545. Conservation within this Cell will range from 25%-35% of the central portion of the Cell.	The existing railroad tracks have historically bisected the cell. Since the existing footprint is staying the same, there is not a conflict with the conservation objectives of the cell.
721	Conservation within Cell# 721 will contribute to assembly of Proposed Constrained Linkage 7. Conservation within this Cell will focus on coastal sage scrub habitat and riparian scrub, woodlands and forests. Areas conserved within this Cell will be connected to coastal sage scrub habitat proposed for conservation to the north in Cell# 635 and to the west in Cell# 719 in the city of Riverside. Conservation within Cell# 721 will range from 35%-45% of the northeastern and central portions of the Cell.	The existing railroad tracks have historically bisected the cell. Since the existing footprint is staying the same, there is not a conflict with the conservation objectives of the cell.
Mead Valley Area Plan: San Jacinto River Lower Subunit 4		
3276	Conservation within Cell# 3276 will contribute to assembly of Proposed Constrained Linkage 19. Conservation within Cell# 3276 will focus on assembly of grassland habitat associated with the San Jacinto River. Areas conserved within Cell# 3276 will be connected to grassland habitat and agricultural land proposed for conservation in Cell# 3277 to the east and to agricultural land proposed for conservation in Cell# 3378 to the south. Conservation within Cell# 3276 will range from 45%-55% of the Cell focusing in the southern portion of the Cell.	The existing railroad tracks have historically intersected this cell. The project proposes track upgrades in the area and the replacement of two bridges over the San Jacinto River and Overflow Channel. Since the bridges are replacements of existing structures, there is not a conflict with the conservation objectives of the cell.
3378	Conservation within Cell# 3378 will contribute to assembly of Proposed Constrained Linkage 19. Conservation within Cell# 3378 will focus on assembly of agricultural land associated with the San Jacinto River. Areas conserved within this Cell will be connected to agricultural land proposed for conservation in Cell# 3377 to the west, to grassland habitat proposed for conservation in Cell# 3276 to the north, and to agricultural land proposed for conservation in Cell# 3277 to the northeast. Conservation within Cell# 3378 will range from 30%-40% of the Cell focusing in the northwestern portion of the Cell.	The existing railroad tracks have historically intersected this cell. The project proposes track upgrades in the area and the replacement of two bridges over the San Jacinto River and Overflow Channel. Since the bridges are replacements of existing structures, there is not a conflict with the conservation objectives of the cell.

Stephens' Kangaroo Rat Areas

The SKRHCP established seven permanent core area reserves for SKR, one of which is in the vicinity of the proposed PVL project as shown on Figure 3.14-3. The Sycamore Canyon-March Air Force Base Core Reserve is located west of I-215 and the existing PVL corridor. The SKR area reserve covers approximately 2,502 acres across two components. The proposed Moreno Valley/March Field Station is located both adjacent and within the SKR Sycamore Canyon-March Air Force Base Core Reserve. The impacts to this Core Reserve were anticipated and mitigated during the planning of the Meridian Specific Plan. Since the station site is identified within this Specific Plan, no further impacts would result from the construction of the Moreno Valley/March Field Station. All other PVL project components are located outside the SKR Core Reserves. The PVL project is still within the SKR Fee Area. Any project located within the fee area is required to pay a mitigation fee to fully mitigate project impacts.

Habitats within the PVL Corridor

The potential presence of the burrowing owl, Southwestern willow flycatcher, least Bell's vireo, and California gnatcatcher represent the only potentially affected species within the PVL corridor. There is potential burrowing owl habitat present at the Citrus Connection and at points along the SJBL alignment between MP 3.0 and MP 9.0.

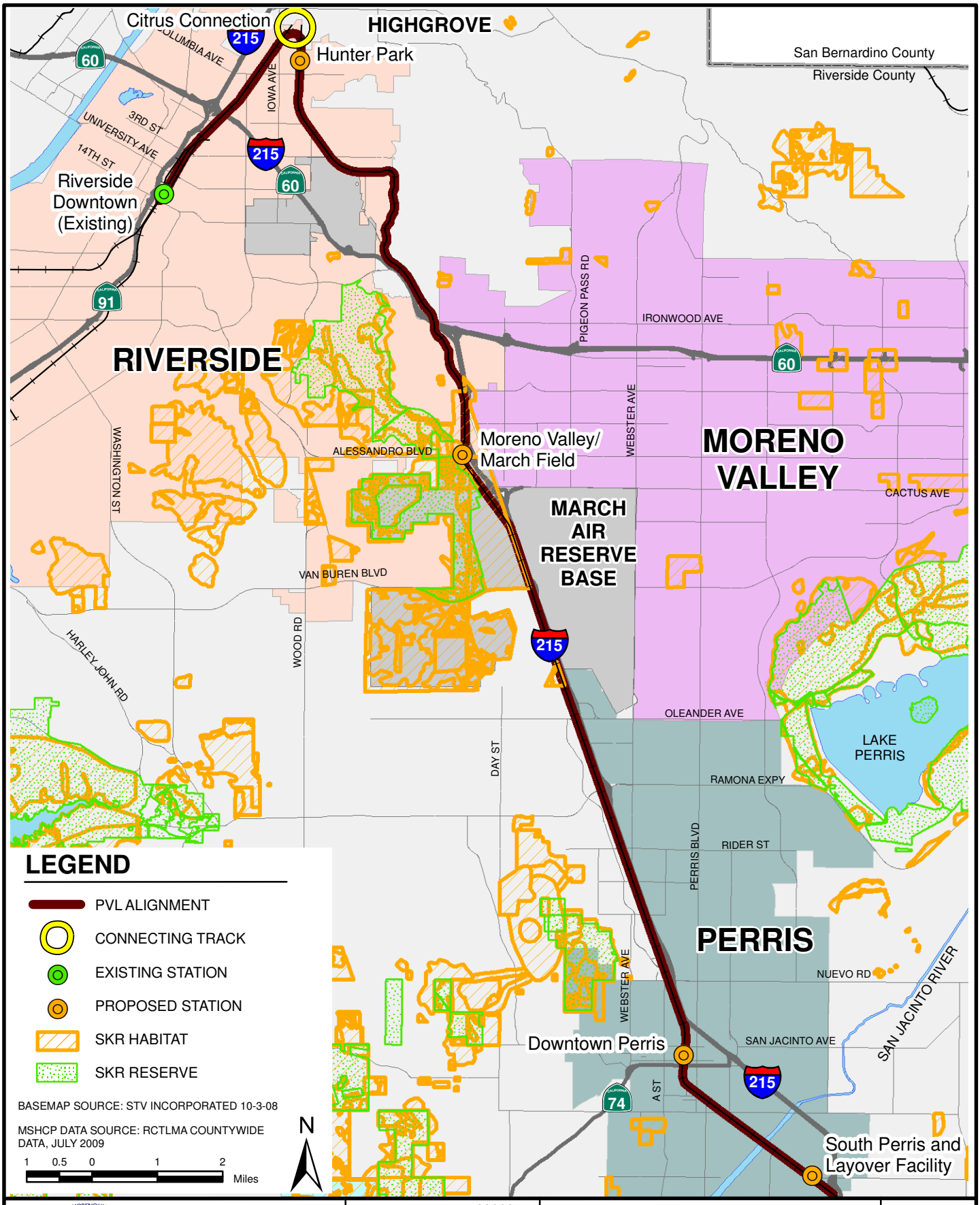
The following provides a description of the habitat types within, and adjacent to the PVL ROW as shown on Figure 3.14-4.

Citrus Connection

The Citrus Connection is located north of Springbrook Wash and would be used for new track to connect the BNSF mainline (in the west), to the SJBL (in the east). Both the BNSF mainline and the SJBL tracks already cross the wash on earthen berms, within existing ROW's and the new connecting track would be completely outside the wash. This land, north of the wash, has been approved for development as warehouse buildings by a private developer. As part of that development agreement, the land within the Springbrook Wash has been transferred into a conservation parcel. This parcel is anticipated to remain a conservation parcel in perpetuity.

The habitat of the Citrus Connection is very poor quality, disturbed non-native grassland as shown on Figure 3.14-5. This non-native grassland area has been determined to be potential habitat for burrowing owl by the MSHCP criteria determination and confirmed during a field visit.

This Page Intentionally Left Blank

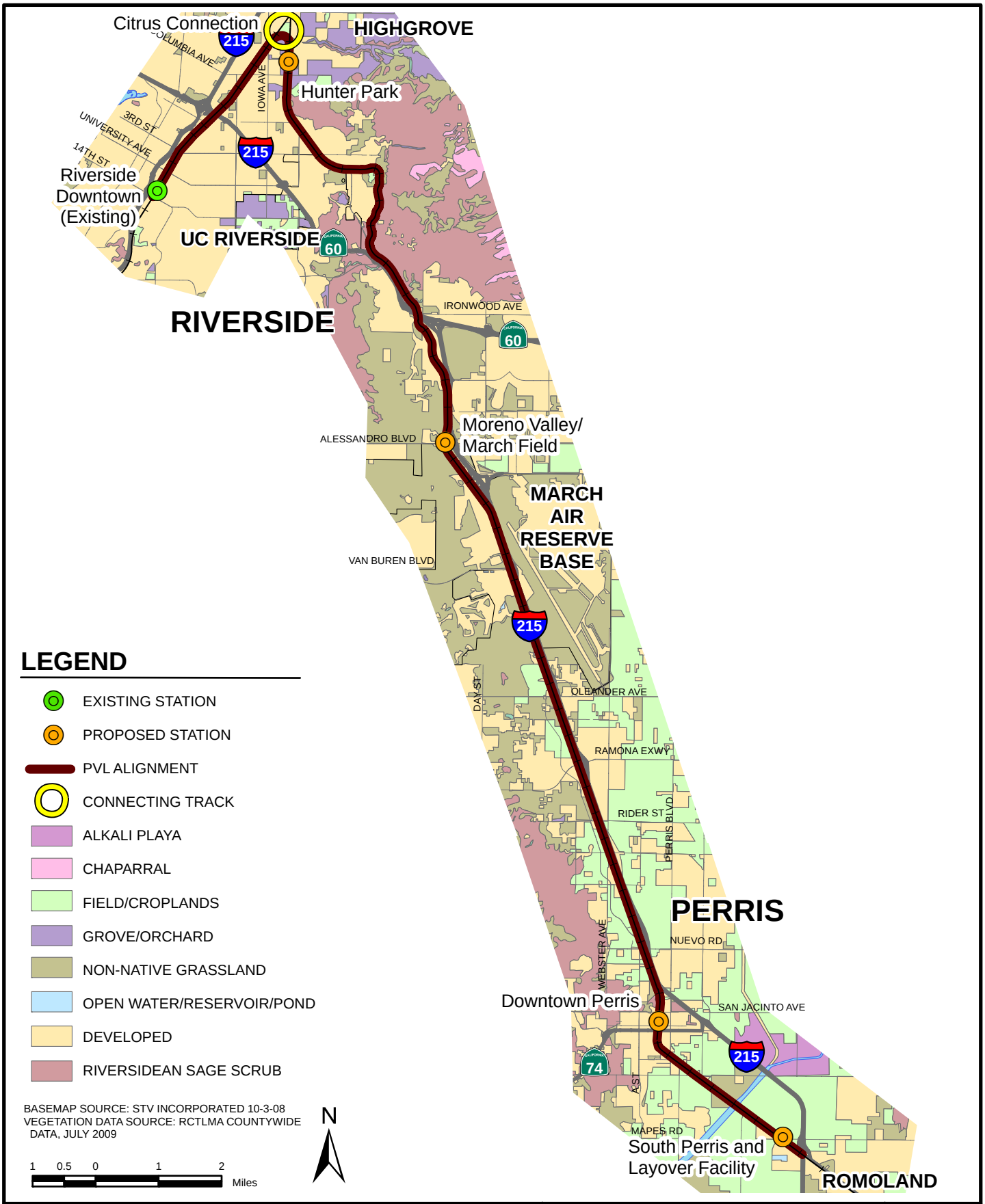


PROJECT NO.	92666
DRAWN:	1/15/10
DRAWN BY:	JP
CHECKED BY:	RM
FILE NAME:	92666SKrat.MXD

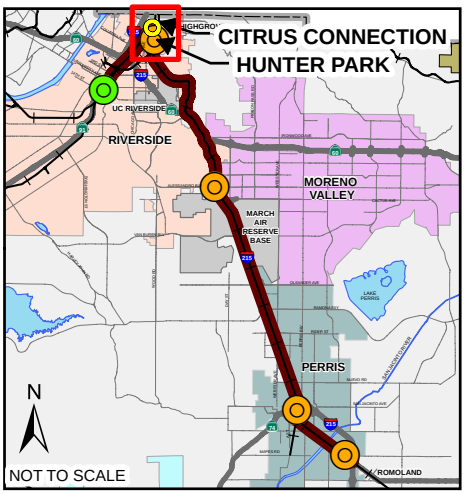
STEPHENS' KANGAROO RAT HABITATS AND RESERVES

SUPPLEMENTAL ENVIRONMENTAL ASSESSMENT
RIVERSIDE COUNTY TRANSPORTATION COMMISSION
PERRIS VALLEY LINE
RIVERSIDE, CALIFORNIA

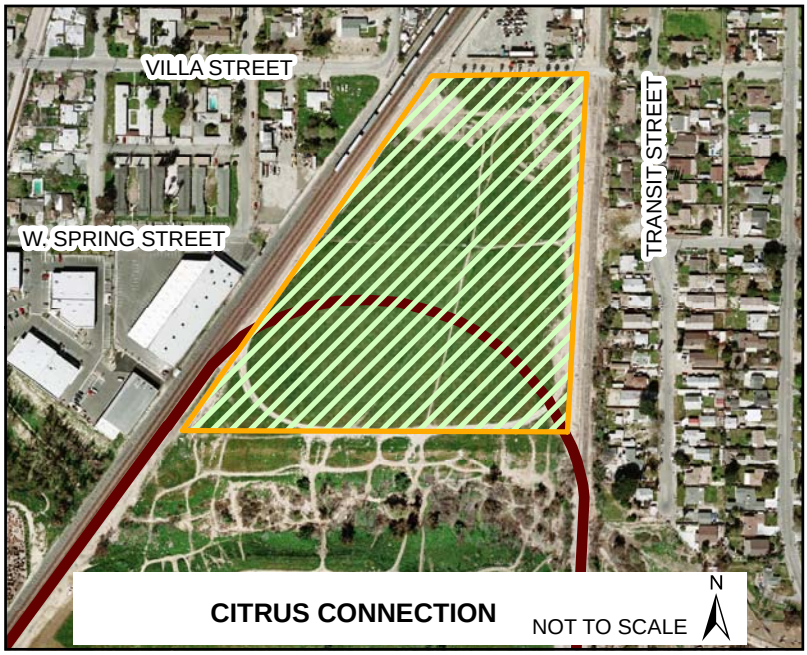
FIGURE
3.14-3

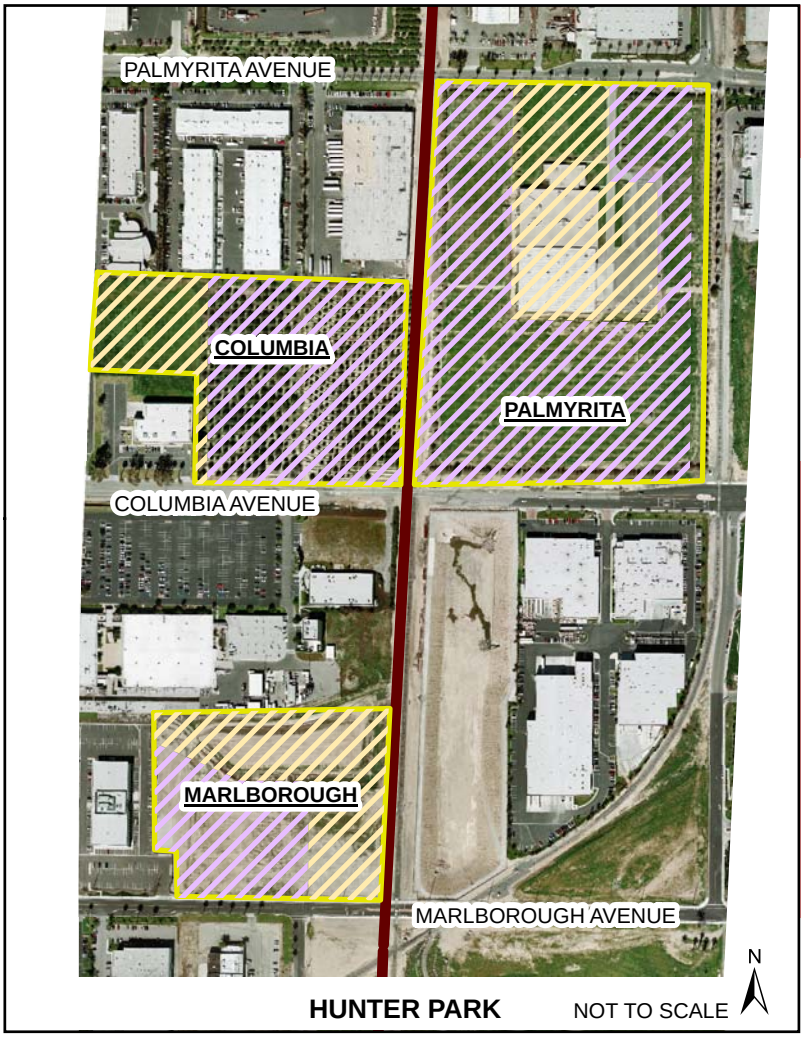


PROJECT NO.	92666	HABITAT AND VEGETATION TYPES	FIGURE 3.14-4
DRAWN:	5/10/10		
DRAWN BY:	JP		
CHECKED BY:	RM	SUPPLEMENTAL ENVIRONMENTAL ASSESSMENT RIVERSIDE COUNTY TRANSPORTATION COMMISSION PERRIS VALLEY LINE RIVERSIDE, CALIFORNIA	
FILE NAME: 92666veg_EA.MXD			



KEY MAP FOR INSET AREAS





LEGEND

- PVL ALIGNMENT
- SITE BOUNDARY
- CITRUS CONNECTION BOUNDARY
- FIELD/CROPLANDS
- GROVE/ORCHARD
- DEVELOPED

BASEMAP SOURCE: STV INCORPORATED 10-3-08
VEGETATION DATA SOURCE: RCTLMA COUNTYWIDE DATA, JULY 2009

PROJECT NO.	92666
DRAWN:	5/10/10
DRAWN BY:	JP
CHECKED BY:	RM
FILE NAME:	92666veg_cit_hpEA.MXD

HABITAT AND VEGETATION TYPES AT STATION SITES

SUPPLEMENTAL ENVIRONMENTAL ASSESSMENT
RIVERSIDE COUNTY TRANSPORTATION COMMISSION
PERRIS VALLEY LINE
RIVERSIDE, CALIFORNIA

FIGURE
3.14-5

SJBL Alignment

The SJBL alignment is existing rail ROW and extends approximately 21 miles from the Citrus Connection to the Layover Facility located south of the city of Perris. This ROW has been maintained by BNSF crews for approximately 100 years, and as a result is highly disturbed in most areas. The following provides a summary of habitat types both within the ROW and immediately adjacent to the ROW.

- Citrus Connection to MP 1.0: The ROW is highly disturbed with hard compacted soil and occasional ornamental trees, including various species of palm. The area adjacent to the ROW is industrial/commercial west of the alignment and residential transitioning to industrial east of the ROW. There is no potential habitat available for burrowing owl because of the disturbed nature of the ROW and adjacent areas.

- MP 1.0 to MP 2.0: Within the ROW for the first half of this section the ground conditions are highly disturbed and have hard pack soil. The areas adjacent to the ROW transition from industrial areas to more open uses varying from a large stormwater detention basin (east side of the ROW), with citrus orchards (west side of the ROW) to undeveloped area. The second half mile (south of Marlborough) the ROW expands with the area immediately adjacent to the tracks being disturbed and transitioning into non-native grasslands outside of the ROW. Nearing MP 2.0, there the residential areas close in to the ROW limits on both sides of the alignment. There is degraded habitat both within and adjacent to the ROW until the ROW expands. After the ROW expands there is higher quality burrowing owl habitat both within and adjacent to the ROW.

- MP 2.0 to MP 3.0: The ROW between MP 2.0 and MP 3.0 is highly disturbed with hard pack soil. The areas adjacent to the ROW are residential and therefore no available habitat for burrowing owl.

- MP 3.0 to MP 4.0: The ROW between MP 3.0 and approximately MP 3.5 is highly disturbed with hard pack soil. There is also a concrete drainage channel within the ROW through this area. After MP 3.5 the ROW enters Box Springs Mountain Reserve and the track is on an elevated berm and compacted dirt slopes away from the track on both sides to the ROW limits. The areas adjacent to the ROW are Box Springs Mountain Reserve on one side, or Islander Park on the other, therefore there is available habitat for burrowing owl, as well as California coastal gnatcatcher. It should also be noted that through this area are very small fragments of riparian vegetation centered on the drainage culverts. Additionally, there would be limited work on the tracks in this area, but there would be noise barriers installed to shield adjacent residents from the train noise. One of these walls would extend south of the last residence and is not anticipated to act as a barrier to wildlife use of the park areas.

- MP 4.0 to MP 5.0: The ROW expands again between MP 4.0 and MP 5.0. This is the distance of the Box Springs Mountain Reserve and beyond into the undeveloped land near Poarch Road. The area within the ROW is predominately sage scrub with occasional ornamental trees. West of the ROW is residential and east of the ROW is the Reserve land. There is available habitat for burrowing owl as well as California coastal gnatcatcher.

- MP 5.0 to MP 6.0: The ROW contracts just south of the MP 5.0 and continues with this more contained ROW to beyond MP 6.0. Near the MP 5.0 area the soil is eroded near the tracks

and the maintained area appears closer to the ballast rock. From MP 5.0 to approximately MP 5.5 paved roads and freeway on-ramp are located west of the alignment, and undeveloped land with dirt roads and a cellular communications tower are located east of the alignment. From approximately MP 5.5 to MP 6.0 the maintained area is very narrow with riparian habitat located west of the tracks and mixed sage scrub habitat located east of the tracks. The riparian area is available habitat for willow flycatcher, least Bells vireo, and western yellow-billed cuckoo. The sage scrub habitat is available for both burrowing owl and California gnatcatcher. There is very limited work planned in this area. The work would be to rehabilitate the existing track and limited culvert replacement.

- MP 6.0 to MP 7.0: From MP 6.0 to approximately MP 6.25 the riparian area between the freeway and the ROW continues. East of the ROW there is limited riparian habitat and the sage scrub habitat continues. At approximately MP 6.25 the PVL corridor passes under the I-215/SR-60. Below the bridges is concrete lined with no available habitat. Once south of the overpass the ROW widens and is disturbed compacted soil. The west side of the tracks contains scattered remnants of habitat. The remnant habitat includes isolated eucalyptus trees, and riparian vegetation associated with the drainage culverts. The area adjacent to the ROW north of the interstate underpass is open space east of the alignment, and freeway corridor west of the alignment. South of the interstate underpass the area adjacent to the alignment to the west is industrial/commercial development and freeway corridor east of the alignment. Near the MP 7 area there is industrial/commercial development both east and west of the alignment. There is available burrowing owl habitat along this section of alignment as well as limited riparian areas at the culvert locations.

- MP 7.0 to MP 8.0: The area within the ROW is highly disturbed with hard pack soil and one concrete culvert under the track. The culvert connects two concrete v-ditches, east and west of the ROW. Both concrete v-ditches are heavily vegetated. The area adjacent to the ROW consists of industrial/commercial warehouses to the west and the I-215 corridor to the east. In many cases the warehouse and associated spaces are encroaching into the ROW. There is limited burrowing owl habitat available along this section of the SJBL.

- MP 8.0 to MP 9.0: The area within the ROW is disturbed with small areas of non-native grassland. Starting at approximately MP 8.2 there is a concrete v-ditch west of the alignment that continues south until approximately MP 9.0. Outside of the ROW is the I-215 on the east and industrial/commercial development to the west. On the west side of the alignment, between the industrial/commercial development, are small pockets of limited habitat. The habitat is primarily disturbed non-native grassland but would be available for burrowing owls to inhabit.

- MP 9.0 to MP 10.0: The area within the ROW is disturbed habitat consisting of non-native grassland changing to highly compacted soil adjacent to the ballast rock supporting the tracks. The areas adjacent to the ROW are currently disturbed and do contain potential burrowing owl habitat.

- MP 10.0 to MP 18.0: The area within the ROW is compacted soil with fragments of disturbed habitat. In addition, there are occasional culverts that contain very small, isolated, riparian areas that are not sufficient to allow for any nesting or other species use. The area east of the ROW is the I-215 and contains no available habitat. The area to the west of the ROW is highly disturbed with land use varying from industrial/commercial to disturbed with some

large parcels being graded for construction. There are landscape trees scattered along the ROW boundary that may contain nesting birds.

- MP 18.0 to MP 19.0: This area is within the city of Perris. The ROW is hard compacted soil, free of any vegetation with no available habitat. The areas adjacent to the ROW are residential with occasional landscape trees within the private yards.

- MP 19.0 to the end: This area starts at the south end of Perris and continues to the end of the proposed project. The ROW contains disturbed compacted soil near the ballast and transitions into non-native grasslands further away from the ballast. There are two bridges in this section, one that crosses the San Jacinto River and the second that crosses the San Jacinto River Overflow Channel. These bridges are currently constructed of timber and would be replaced as part of the project. The areas adjacent to the bridges are highly disturbed with no riparian habitat associated with the San Jacinto River and San Jacinto River Overflow Channel. It should also be noted that the river bed is used by trucks and all-terrain vehicles to traverse area. There is no riparian vegetation present, or associated with the river channel or overflow channel; however, there is both USACE and CDFG jurisdictional areas. The quantitative impact of these bridge replacements was also included in the jurisdictional area calculations.

Stations

The following provides a description of the vegetation and habitat types at the proposed station sites and shown on Figure 3.14-6.

Hunter Park Station

- Palmyrita Station: This potential station site is located east of the existing railroad ROW and consists of disturbed non-native grassland. A relatively new building has been built on a portion of this site and it appears that the entire site was graded during that construction.

- Columbia Station: The potential station site is located west of the ROW and is currently an active orange grove. There are small fragments of disturbed non-native grassland within the site, but no potential sensitive species are anticipated.

- Marlborough Station: This potential station site is located west of the ROW and is currently highly disturbed by grading and the importation of fill material. There is no available habitat on this site.

Moreno Valley/March Field Station

This station site is located west of the alignment and is currently disturbed non-native grassland. This station site is part of another project, the Meridian Specific Plan. The Meridian Specific Plan has completed a project specific Environmental Impact Report (EIR). Impacts associated with this station site were anticipated in the Meridian Specific Plan EIR and the appropriate mitigation incorporated. The Meridian project is preparing the site and would transfer the site to the PVL project for construction.

Downtown Perris Station

The Downtown Perris station is located in downtown Perris in a developed area with no available habitat.

South Perris Station

The potential South Perris Station is planned to be located south of the San Jacinto River and west of the I-215. The station site would be located east of the alignment on land that is currently under agricultural production. There are small remnants of scrub habitat, but the entire area is highly disturbed from the rail operations and the agricultural operations.

Layover Facility

The Layover Facility would be located adjacent to the South Perris Station on the east side of the alignment and west of the I-215. The site would be located on agricultural land and highly disturbed vacant land. The vacant land is located between Mapes Road and the I-215.

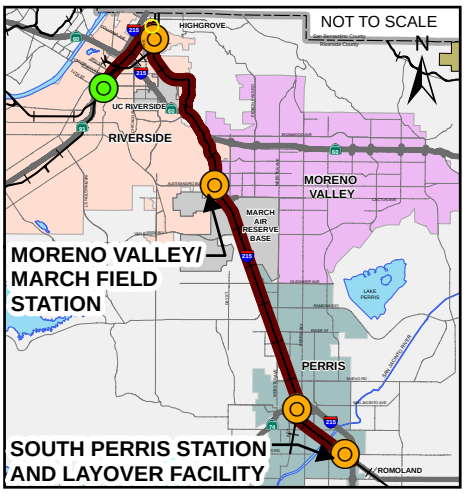
3.14.3 Environmental Consequences/Impacts

Based on the habitat evaluation of the PVL, the sensitive habitat locations identified within the PVL alignment include culvert locations, riparian habitat within Proposed Linkage Area 7, and areas associated with bridges over San Jacinto River and overflow. There are thirty culverts that would be improved as part of the project as shown in Table 3.14-4. A 50-foot study area surrounding each culvert was evaluated.

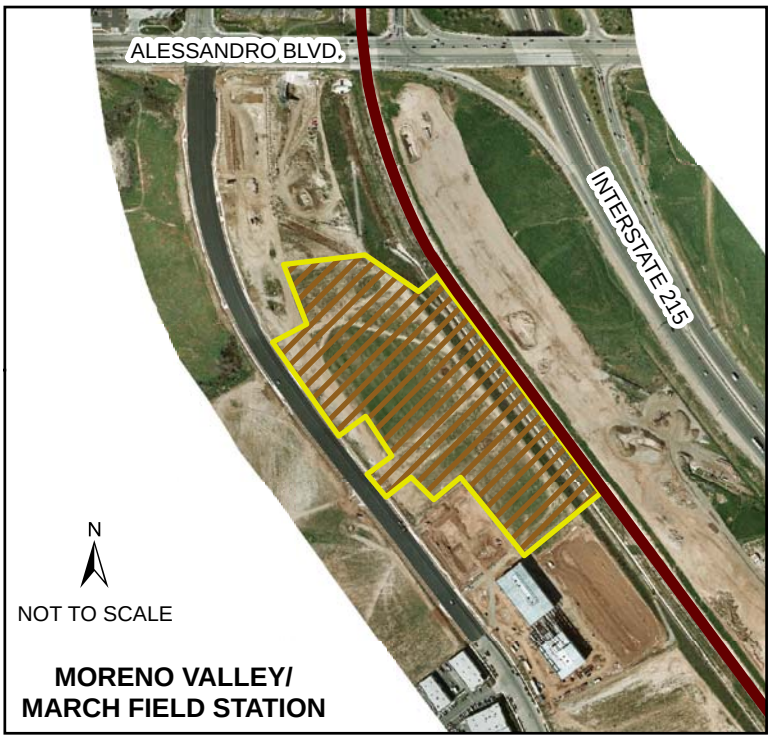
The study areas were evaluated according to USACE and CDFG jurisdictional requirements to determine both permanent and temporary impacts, as shown in Table 3.14-3. The permanent impacts will occur in areas where new culverts would be placed and temporary impacts would be related to areas affected by construction at the ends of the culverts.

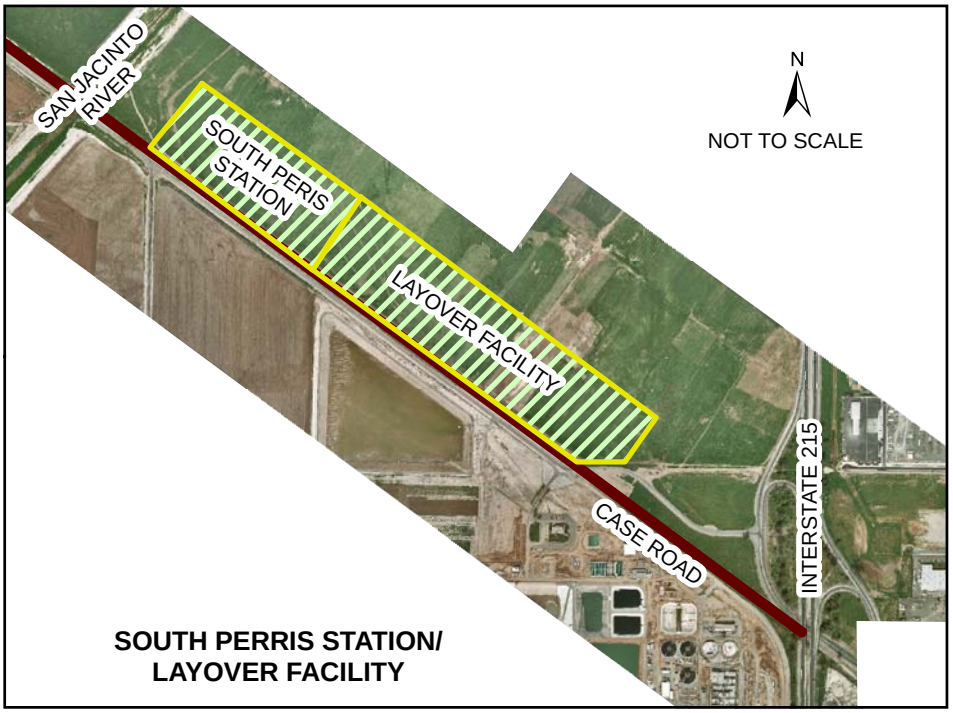
Table 3.14-3
Jurisdictional Areas of Impact

Jurisdiction	Impacts (Temporary)	Impacts (Permanent)
USACE	0.169 acres	0.029 acres
CDFG	0.334 acres	0.032 acres



KEY MAP FOR INSET AREAS





LEGEND

- PVL ALIGNMENT
- SITE BOUNDARY
- FIELD/CROPLANDS
- NON-NATIVE GRASSLAND

BASEMAP SOURCE: STV INCORPORATED 10-3-08
VEGETATION DATA SOURCE: RCTLMA COUNTYWIDE DATA, JULY 2009

PROJECT NO.	92666
DRAWN:	5/10/10
DRAWN BY:	JP
CHECKED BY:	RM
FILE NAME:	92666veg_mvly_perEA.MXD

HABITAT AND VEGETATION TYPES AT STATION SITES

SUPPLEMENTAL ENVIRONMENTAL ASSESSMENT
RIVERSIDE COUNTY TRANSPORTATION COMMISSION
PERRIS VALLEY LINE
RIVERSIDE, CALIFORNIA

FIGURE 3.14-6

Table 3.14-4
Proposed Culvert Improvements

Area	Location (Mile Post)	Type	Change
SJBL	1.30	36"x24" wood box	36"x24" concrete box, extended 20' east
SJBL	1.40	(2) 36" RCP	existing to extend, w/drop inlet
SJBL	5.30	(2) 48"x48" wood box	(2) 48"x48" concrete box same footprint
SJBL	5.80	36"x24" elliptical RCP	existing to extend 7' east
SJBL	6.11	(3) 12" pipes	5'x1.5' concrete box, deeper than existing
SJBL	6.50	42" RCP	add riser extension
SJBL	6.60	48" RCP on skew	extend west 19' 6"
SJBL	6.70	48" RCP	extend west 21' 6"
SJBL	9.70	36"x24" wood box	36"x24" concrete box, extended 18' east
SJBL	9.90	(2) 48" CMP	extend east 12'
SJBL	10.10	(2) 42" CMP	extend east 12' and fix west end (crushed)
SJBL	11.13	(2) 48" RCP	extend east 16'
SJBL	11.32	42" RCP	extend east 16'
SJBL	11.59	(2) 36"x24"x16" ORCP	extend east 16'
SJBL	12.10	(2) 36" CMP	extend east 14'
SJBL	12.40	(2) 54" RCP	extend east 14'
SJBL	12.52	(2) 42" RCP	extend east 8'
SJBL	12.58	(2) 36" RCP	extend east 16'
SJBL	13.20	24" RCP	extend east and west 4'
SJBL	13.40	36"x 24" wood box	removed and not replaced
SJBL	13.43	new culvert	(3) 5'x3' opening concrete box
SJBL	14.50	(2) 36" RCP	extend east 4'
SJBL	14.80	36" CMP	extend east 4'
SJBL	14.90	(2) 14" CMP	36"x18" concrete box, and extended 10' east
SJBL	15.30	(2) 36"x36" wood box	48"x72" concrete box and extended 4' east
SJBL	15.80	(2) 24"x24" wood box	48"x24" concrete box and extend 4' e. and 3'w
SJBL	16.16	18"x30" CMP	extend 8' east
SJBL	16.20	36" CMP	extend 3' 6" east
SJBL	17.10	(2) 36"x24" wood box	(2) 36"x24" RCB
SJBL	18.10	36"x36" wood box	replace with 36"x36" RCP

3.14.4 Mitigation Measures

- **BR-1:** A project biologist shall conduct a training session for all project personnel prior to any grading/construction activities. At a minimum, the training shall include a description of the target species of concern, its habitats, the general provisions of the ESA and the MSHCP, the need to adhere to the provision of the MSHCP, the penalties associated with violating the provisions of the ESA, the general measures that are being implemented to conserve target species of concern as they relate to the project, any provisions for wildlife movement, and the access routes to and project site boundaries within which the project activities must be accomplished.

- **BR-2:** Equipment storage, fueling and staging areas will be located to minimize the risks of direct drainage into riparian areas or other environmentally sensitive habitats. The project specific SWPPP will identify appropriate construction related BMPs to control anticipated pollutants (oils, grease, etc.).

- **BR-3:** Stockpiling of materials will be limited to disturbed areas without native vegetation, areas to be impacted by project development or in non-sensitive habitats. These staging areas will be approved by the project biologist, and be located more than 500 feet from environmentally sensitive areas.

- **BR-4:** "No-fueling zones" will be established within a minimum of 10 meters (33 feet) from drainages and fire sensitive areas.

- **BR-5:** The qualified biologist will monitor construction activities at a minimum of three days per week throughout the duration of the project to assess if practicable measures are being employed to avoid incidental disturbance of habitat and any target species of concern outside the project footprint. Construction monitoring reports will be completed with applicable conditions. The project biologist will be empowered to halt work activity if necessary to confer with RCTC staff to ensure the proper implementation of species habitat and habitat protection measures.

- **BR-6:** To avoid attracting predators that may prey upon protected species, the project site will be kept clean of debris. Food related trash items will be enclosed in a sealed container and removed from the site with regular trash removal, at least weekly. Pets of project personnel will not be allowed on site.

- **BR-7:** If dead or injured listed species are located, initial notification must be made within three working days, in writing to the USFWS Division of Law Enforcement in Torrance California, and by telephone and in writing to the applicable jurisdiction, Carlsbad Field Office of the USFWS, and the CDFG.

- **BR-8:** Narrow Endemic Plants have the potential to occur in the areas near the San Jacinto River. If Narrow Endemic Plants are identified 90% of the population will be preserved, as required in the MSHCP.

- **BR-9:** There is a potential to impact spadefoot toads with the work on the San Jacinto River Bridge and Overflow Channel Bridge. A pre-construction survey for toads will determine if

toads are present within the designated construction area. Should spadefoot toads be identified within the construction area, an approved mitigation program will be implemented.

- **BR-10:** The MSHCP requires both protocol surveys and preconstruction surveys for burrowing owls. If owls are identified during the preconstruction survey, the appropriate action will be determined. The appropriate action could include avoidance and passive or active relocation efforts.

- **BR-11:** If nests are identified at the billboards located on the I-215 corridor, then a qualified biologist must determine if the nests are active. If the biologist determines a nest to be active, appropriate buffers will be used until the birds have fledged and the nest will be removed with the approval of regulatory agencies.

- **BR-12:** There is a potential for impacts to southwestern willow flycatchers in the southern area of the Box Springs Reserve. To avoid potential impacts to nesting birds, culvert work proposed for this area will be completed outside the bird breeding season (end of April to early September) (SAWA, 2009).

- **BR-13:** There is a potential for impacts to least Bell's vireo in the southern area of Box Springs Reserve. To avoid potential impacts to nesting birds, culvert work proposed for this area will be completed outside the bird breeding season (end of March to the end of September) (SAWA, 2009).

- B**R-14:** The project is within the SKR Fee area. RCTC will pay, to the SKR fund managed by Riverside Habitat Conservation Agency, the required $500 per acre fee for developing the Hunter Park Station, Downtown Perris Station, South Perris Station, and Layover Facility.

- **BR-15:** There is a potential for impacts to California horned lark in the area of the South Perris Station option and the Layover Facility if the agricultural fields are allowed to fallow. To avoid potential impacts to nesting birds, the ground preparation work will be conducted outside of the bird nesting season (March to July) and maintained to ensure that no birds then use the area for nesting prior to construction.

- **BR-16:** There is a potential for impacts to the coastal California gnatcatcher within the Box Springs Canyon Reserve. To avoid potential impacts to nesting birds, culvert work proposed for this area will be completed outside the bird breeding season (mid-February to mid-September) (SAWA, 2009).

- **BR-17:** Jurisdictional areas associated with the replacement of culverts would result in impacts to habitat within both USACE and CDFG jurisdictional areas. Prior to any construction these impacts would require permit approval from the USACE, CDFG and the RWQCB. The mitigation ratios are finalized by the USACE and CDFG during permitting for the project. The permitting application is not deemed complete until the CEQA document is adopted by RCTC. Therefore, the final mitigation ratios are not determined until after the CEQA is complete. The appropriate ratio will be determined during permit negotiations.

This Page Intentionally Left Blank

3.15 GEOLOGY AND SOILS

This section evaluates the effect of geological hazards within the PVL project area. These include: seismicity and faulting; liquefaction and seismically induced settlement potential; landslides, rockslides, and debris flow; and subsidence, corrosivity, and expansiveness of soils.

Regional Geology

The PVL corridor is situated within the northern portion of the Peninsular Ranges Geomorphic Province (Peninsular Ranges) of California. The Peninsular Ranges, which define the province, are a northwest-southeast oriented complex of blocks separated by similarly trending faults which extend 125 miles from the Transverse Ranges to the north and another 775 miles further south to the tip of Baja California. The Peninsular Ranges are bounded on the east by the Colorado Desert and on the west by the Pacific Ocean.

Area and Site Geology

The PVL corridor traverses three main geologic units consisting of young alluvial fan and valley deposits, older alluvial fan deposits, and granitic rock of the Peninsular Ranges Batholith. Sandstone is also mapped approximately 0.25-mile south of Box Springs Road and I-215, but is limited in depth and lateral extent. Additionally, artificial fill is present, essentially along the entire length of the PVL corridor that is associated with the construction of the existing railway. The PVL corridor geology is mapped on Figure 3.15-1.

Young alluvial and valley deposits are present in the northern and southern segments of the PVL corridor (Norton and Miller, 2008). The older alluvial fan deposits overlay most of the PVL corridor from the I-215/SR-60 interchange to south of the city of Perris and the east side of the city of Riverside in the area near the UCR. Cretaceous age, igneous intrusive tonalite phase bedrock underlies the alluvium in the region and is exposed in outcrops in the Box Springs Mountains and the hills west of the PVL corridor near the city of Perris.

The artificial fill (Qaf) soil within the PVL corridor is generally less than a few feet thick, but was observed to be up to approximately ten feet thick (approximately one-mile north of the proposed Moreno Valley/March Field Station). These soils are generally derived from the adjacent or underlying alluvial materials and composed of silty sand, sandy silt, clayey sand and clean sand with silt. The materials generally range from loose and medium dense, fine to medium grained, and dry to moist. It should be noted that specific observations pertaining to Qaf were made during field activities pursuant to work for the project's geotechnical study (Kleinfelder, 2009) and all areas of the material may not be presented on Figure 3.15-1 for site geology.

3.15.1 Regulatory Setting

The geological hazards and soils assessment of the PVL corridor are regulated by federal, state, county, and local entities. Applicable laws, ordinances, regulations, and a discussion of standards applicable to soil resources are presented below:

Federal Policies and Regulations

Uniform Building Code

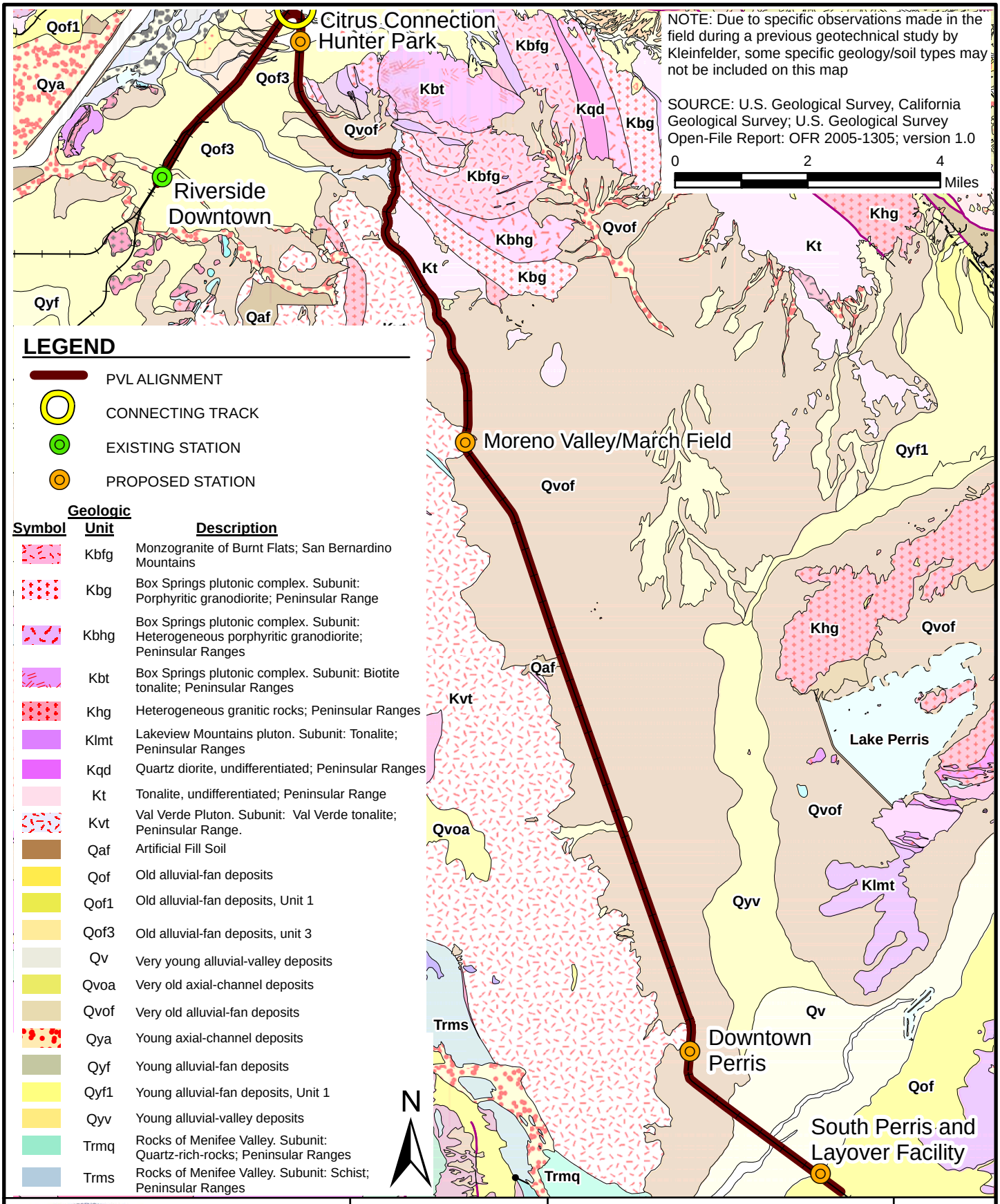
The Uniform Building Code (UBC) was first enacted by the International Conference of Building Officials (ICBO) on October 18-21, 1927. Revised editions of this code are published approximately every three years (ICBO, 1997). The CBC was approved and incorporated into the UBC in 1988. The regulatory environment for design and construction consists of building codes and standards covering local, state, federal, land use, and environmental regulations which are developed specifically for the purpose of regulating the life safety, health and welfare of the public. Once adopted, building codes become law (ICBO, 1997). The building code (which covers all new building construction, additions and renovations) is where the applicable seismic provisions are typically enforced. In addition to structural design requirements, the building code also covers fire resistance, disabled access and other life safety requirements (Fennie, 2005).

National Engineering Handbook

The National Engineering Handbook (NRCS, 1983), Sections 2.0 and 3.0 provide standards for soil conservation during planning, design, and construction activities. The PVL corridor would need to conform to these standards during grading and construction to limit soil erosion. These measures would be defined and outlined within the Project's specific stormwater plans.

American Railway Engineering and Maintenance-of-Way Association Manual for Railway Engineering

The American Railway Engineering and Maintenance-of-Way Association Manual (AREMA) was formed on October 1, 1997, as the result of a merger of three engineering support associations, namely the American Railway Bridge and Building Association, the American Railway Engineering Association and the Roadmasters and Maintenance-of-Way Association, along with functions of the Communications and Signal Division of the Association of American Railroads (AREMA, 2009). The AREMA Manual for Railway Engineering is an annually updated publication that explains the development and advancement of both technical and practical knowledge and recommended practices pertaining to the design, construction and maintenance of railway infrastructure.



NOTE: Due to specific observations made in the field during a previous geotechnical study by Kleinfelder, some specific geology/soil types may not be included on this map

SOURCE: U.S. Geological Survey, California Geological Survey; U.S. Geological Survey Open-File Report: OFR 2005-1305; version 1.0

LEGEND

- PVL ALIGNMENT
- CONNECTING TRACK
- EXISTING STATION
- PROPOSED STATION

Geologic Symbol	Unit	Description
	Kbfg	Monzogranite of Burnt Flats; San Bernardino Mountains
	Kbg	Box Springs plutonic complex. Subunit: Porphyritic granodiorite; Peninsular Range
	Kbhg	Box Springs plutonic complex. Subunit: Heterogeneous porphyritic granodiorite; Peninsular Ranges
	Kbt	Box Springs plutonic complex. Subunit: Biotite tonalite; Peninsular Ranges
	Khg	Heterogeneous granitic rocks; Peninsular Ranges
	Klmt	Lakeview Mountains pluton. Subunit: Tonalite; Peninsular Ranges
	Kqd	Quartz diorite, undifferentiated; Peninsular Ranges
	Kt	Tonalite, undifferentiated; Peninsular Range
	Kvt	Val Verde Pluton. Subunit: Val Verde tonalite; Peninsular Range.
	Qaf	Artificial Fill Soil
	Qof	Old alluvial-fan deposits
	Qof1	Old alluvial-fan deposits, Unit 1
	Qof3	Old alluvial-fan deposits, unit 3
	Qv	Very young alluvial-valley deposits
	Qvoa	Very old axial-channel deposits
	Qvof	Very old alluvial-fan deposits
	Qya	Young axial-channel deposits
	Qyf	Young alluvial-fan deposits
	Qyf1	Young alluvial-fan deposits, Unit 1
	Qyv	Young alluvial-valley deposits
	Trmq	Rocks of Menifee Valley. Subunit: Quartz-rich-rocks; Peninsular Ranges
	Trms	Rocks of Menifee Valley. Subunit: Schist; Peninsular Ranges

PROJECT NO.	92666
DRAWN:	1/5/10
DRAWN BY:	JP
CHECKED BY:	RM
FILE NAME:	92666geoEA.MXD

PVL CORRIDOR GEOLOGY

SUPPLEMENTAL ENVIRONMENTAL ASSESSMENT
RIVERSIDE COUNTY TRANSPORTATION COMMISSION
PERRIS VALLEY LINE
RIVERSIDE, CALIFORNIA

FIGURE
3.15-1

The Federal Water Pollution Control Act

The Federal Water Pollution Control Act of 1972, commonly referred to as the CWA following amendment in 1977, establishes requirements for discharges of stormwater or wastewater from any point source that would affect the beneficial uses of waters of the United States (USEPA, 2009). The SWRCB adopted one statewide NPDES General Permit that would apply to stormwater discharges associated with construction, industrial, and municipal activities. Regional Water Quality Control Board (RWQCB) is the administering agency for the NPDES permit program. The CWA's primary effect on adjacent agriculture areas and soils within the PVL corridor consists of control of soil erosion and sedimentation during construction, including the preparation and execution of erosion and sedimentation control plans and measures for any soil disturbance during construction (SWRCB, 2009).

State Policies and Regulations

Alquist-Priolo Earthquake Fault Zoning Act

The Alquist-Priolo Earthquake Fault Zoning Act (A-PA) was enacted in 1975 and amended in 1993. The intent of the A-PA was to provide policies and criteria to assist cities, counties, and state agencies in the exercise of their responsibility to prohibit the location of developments and structures for human occupancy across the trace of active faults. The A-PA only addresses the hazard of surface fault rupture and is not directed toward other earthquake hazards. Further, it is the intent of the A-PA to provide the citizens of the state with increased safety and to minimize the loss of life during and immediately following earthquakes (California Geological Survey (California Geological Survey [CGS], 2003).

Seismic Hazard Mapping Act

The Seismic Hazard Mapping Act was enacted by the California legislature in April 1997, primarily as a result of the Northridge earthquake of 1994. The Seismic Hazard Mapping Act requires the creation and publication of maps showing areas where earthquake induced liquefaction or landslides could occur (CGS, 2003). If a property is located in a Seismic Hazard Zone as shown on a map issued by the State Geologist, the seller or the seller's agent must disclose this fact to potential buyers (CGS, 2007).

Disaster Recovery Reconstruction Act

The Disaster Recovery Reconstruction Act of 1986 authorizes local governments to prepare for expeditious and orderly recovery before a disaster and reconstruction afterward. It enables localities to prepare pre-disaster plans and ordinances that may include: an evaluation of the vulnerability of specific areas to damage from a potential disaster; streamlined procedures for appropriate modification of existing General Plans or zoning ordinances affecting vulnerable areas; a contingency plan of action; organization for post-disaster, short-term and long-term recovery and reconstruction; and a pre-disaster ordinance to provide adequate local authorization for post-disaster activities (CGC, 1986).

California Building Code

The California Building Standards Commission approved a series of amendments to the UBC, which was published in 1998, and known as the CBC. This is the Building Code used throughout California. Local codes are permitted to be more restrictive than the CBC, but are required to be no less restrictive (Fennie, 2005).

Local Policies and Regulations

Riverside County Building and Fire Codes

The Riverside County Department of Building and Safety reviews and enforces the Building and Fire Codes. These codes establish site-specific investigation requirements, construction standards, and inspection procedures so that development does not pose a threat to the health, safety, and welfare of the public. Every three years, the County's Building and Fire Codes are adapted from the Uniform Building and Fire Codes. The Uniform Building and Fire Codes contain minimum baseline standards to guard against unsafe development (Riverside County, 2003).

Riverside Municipal Code (Title 14, §14.08.030)

The Riverside Municipal Code Title 14, §14.08.030 states all homes and any other structures must be properly connected to a public sewer whenever the property abuts upon a ROW in which there exists a public sewer to which connection may be made (City of Riverside, 2007).

Ordinance 1253 (City of Perris)

This Ordinance, added to the Perris Municipal Code in March 2009, has adopted Chapter 7 of the CBC and relates to fire protection building standards and the adoption of a Fire Hazard Severity Zone Map (City of Perris, 2009).

City of Riverside General Plan Public Safety Element (Seismicity and Faulting)

Policy PS-1.2, part of the City of Riverside General Plan, was written to physically locate public facilities of City importance outside of geologically hazardous areas (City of Riverside, 2007).

County of Riverside General Plan Public Safety Element (Hazard Reduction)

A Hazard Reduction Program has been written within the Safety Element of the County of Riverside General Plan. Hazard reduction programs are designed to improve the safety of existing development. For example, older structures, built to before Code standards, may need seismic upgrading. Other examples of the Program include strengthening pipelines and developing emergency back-up capability by public utilities serving the County; conducting regular fire safety inspections and fire flow tests to identify areas with cracked or damaged water lines; encouraging the construction of auxiliary water systems to supplement existing water lines; planning for emergency response at the government and individual level to reduce the risk to the public from hazards; and identifying unsafe structures and posting public notices.

Several policies pertaining to landslides, subsidence, expansive and collapsible soils are included in the Riverside County General Plan Public Safety element as noted below (Riverside County, 2003):

Landslide Potential

Require grading plans, environmental assessments, engineering and geologic technical reports, irrigation and landscaping plans, including ecological restoration and revegetation plans, as appropriate, in order to assure the adequate demonstration of a project's ability to mitigate the potential impacts of slope and erosion hazards and loss of native vegetation.

Subsidence, Expansive, and Collapsible Soils

S 3.8: Require geotechnical studies within documented subsidence zones, as well as zones that may be susceptible to subsidence. Within the documented subsidence zones of the Coachella, San Jacinto, and Elsinore valleys, the studies must address the potential for reactivation of these zones, consider the potential impact on the project, and provide acceptable mitigation measures.

3.15.2 Affected Environment

Soils

Soil survey mapping units characterizing the types and distribution of soils within the PVL corridor are taken from the Soil Survey of Western Riverside Area, California (NRCS, 1971). Detailed soil descriptions were developed from the soil survey publications (NRCS, 1971 and National Cooperative Soil Survey [NCSS], 2008) and from the Official Soil Descriptions (OSD) (NRCS, 2008). Specific site soils and their characteristics are noted below and in Table 3.15-1. Site soils within the PVL corridor and adjacent properties have been mapped on Figure 3.15-2.

Citrus Connection

Two soil mapping units are present within the Citrus Connection of the PVL corridor, (HcC) Hanford Coarse Sandy Loam and (TeG) Terrace Escarpments. HcC (2 to 8 percent slope) is prime farmland with slow runoff and slight erosion hazard, while TeG (30 to 75 percent slope) presents severe water erosion hazard (Figure 3.15-2).

SJBL Alignment

There are 38 soil mapping units present within the SJBL alignment. The majority (approximately 80 percent) of the soil types are classified as sandy loams, which generally have slow to moderately slow runoff and exhibit slight erosion hazard; however, some hydric soils have formed in local areas due to soil saturation indicating the potential presence of wetland areas. Two soils mapping units with a high susceptibility to erosion, Cieneba rocky sandy loam (CkF2) and Terrace escarpments (TeG) are located within the SJBL alignment. One soil series, willow silty clay (Wf, Wg, Wm, and Wn), found within one mile radius of the San Jacinto River crossing has a high shrink-swell potential (Figure 3.15-2).

Hunter Park Station

There were five soil mapping units present within the Hunter Park area, all loams: Arlington fine sandy loam (AoC), Buren fine sandy loam (BuC2), Cieneba rocky sandy loam (CkF2), Greenfield sandy loam (GyC2), and Hanford coarse sandy loam (HcC). Three soils (AoC, BuC2, and CkF2) present moderate or moderate to severe erosion hazard. All types are two to eight percent slopes, except for CkF2, which is 15 to 30 percent slope and present only at the Hunter Park - Marlborough station option site (Figure 3.15-2).

Moreno Valley/March Field Station

There were four soil mapping units present on the Moreno Valley/March Field Station site, all loams: Cieneba rocky sandy loam (CkF2), which presents a moderate to severe erosion hazard, and Monserate sandy loams (MmB, MmC2, and MmD2), for which erosion hazard is slight. Slopes range from 15 to 30 percent with the Cieneba rocky sandy loam, and are 15 percent or less in the Monserate sandy loams (Figure 3.15-2).

Downtown Perris Station

Exeter very fine sandy loam (EwB) was the only soil mapping unit present on the Downtown Perris Station site. Characteristics of this soil mapping unit are described as a slight to moderate erosion hazard with very slow to moderate runoff and 0 to 2 percent slopes.

South Perris Station

The three soil mapping units present on the South Perris Station site are all Willows silty clays (Wg, Wm, and Wn). While water erosion hazard is slight, these poorly to very poorly drained soils have high shrink-swell potential (Figure 3.15-2).

Layover Facility

There were two soil mapping units present on the Layover Facility site, both loams, are Exeter very fine sandy loam (EwB) and Madera fine sandy loam (MaA). Both present slight to moderate erosion hazard. EwB exhibits very slow to moderate runoff, and MaA, which exhibits slow to moderate runoff, is an NRCS classified hydric soil (Figure 3.15-2).

Hazards

A geologic hazard is one of several types of adverse geologic conditions capable of causing damage or loss of property and life. These hazards can consist of sudden or slow phenomena, which are discussed in detail below:

Regional Faulting and Seismicity

The PVL corridor is located in the highly seismic southern California region within the influence of several fault systems that are considered to be active or potentially active. The terms “sufficiently active” and “well-defined” are used by the CGS as criteria for categorizing faults under the Alquist-Priolo Earthquake Fault Act. A “sufficiently active” fault is one that shows evidence of Holocene surface displacement along one or more of its segments and branches, while a “well-defined fault” is a fault whose trace is clearly detectable by a trained geologist as a physical feature at, or just below, the ground surface. The definition “inactive” generally implies

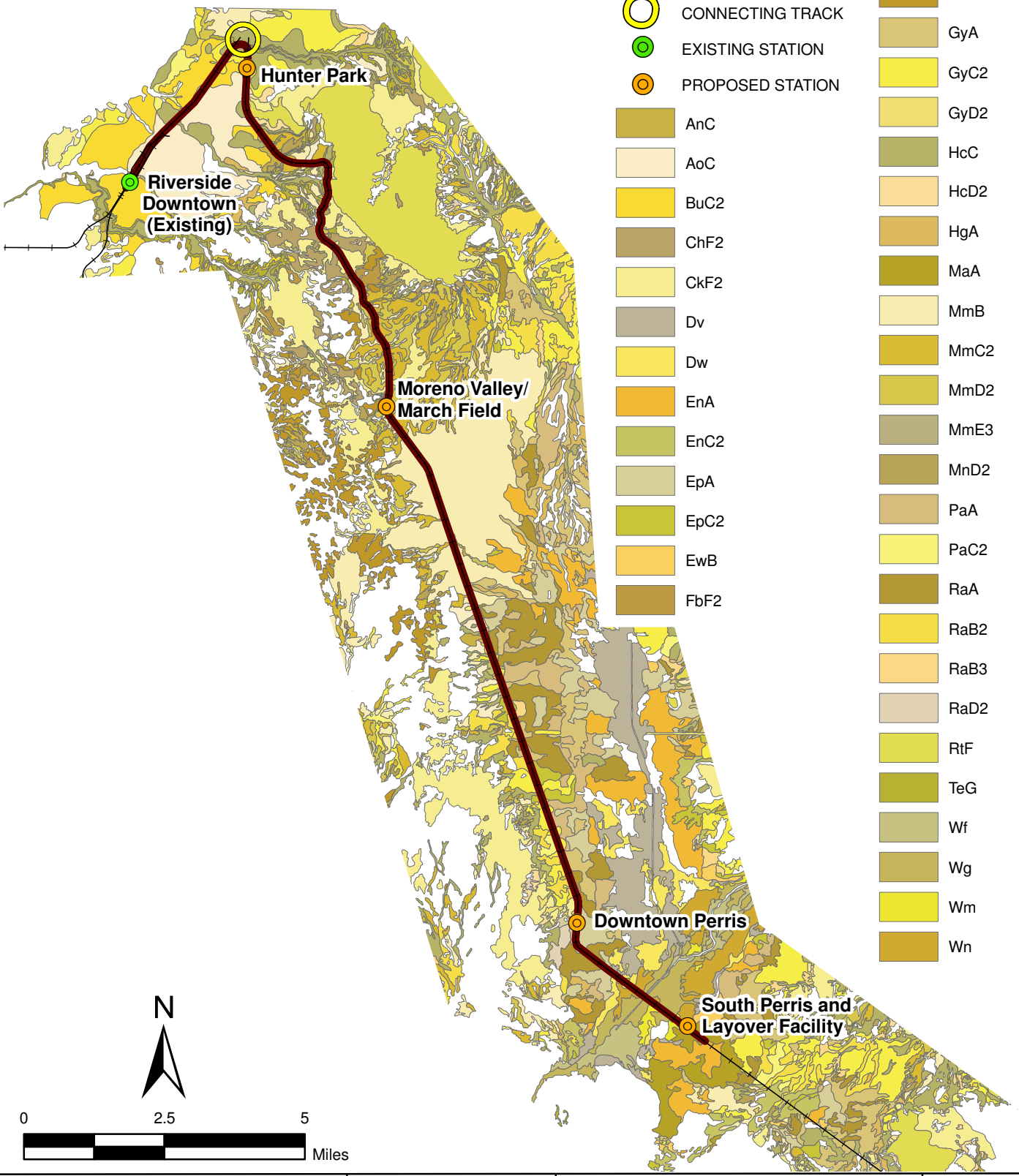
that a fault has not been active since the beginning of the Pleistocene Epoch (older than 1.7 million years old). Locations of the officially delineated active and potentially active faults are shown on Figure 3.15-3.

Table 3.15-1
SJBL Alignment Soil Mapping Units
Soil Survey of Western Riverside Area California (NRCS, 2008)

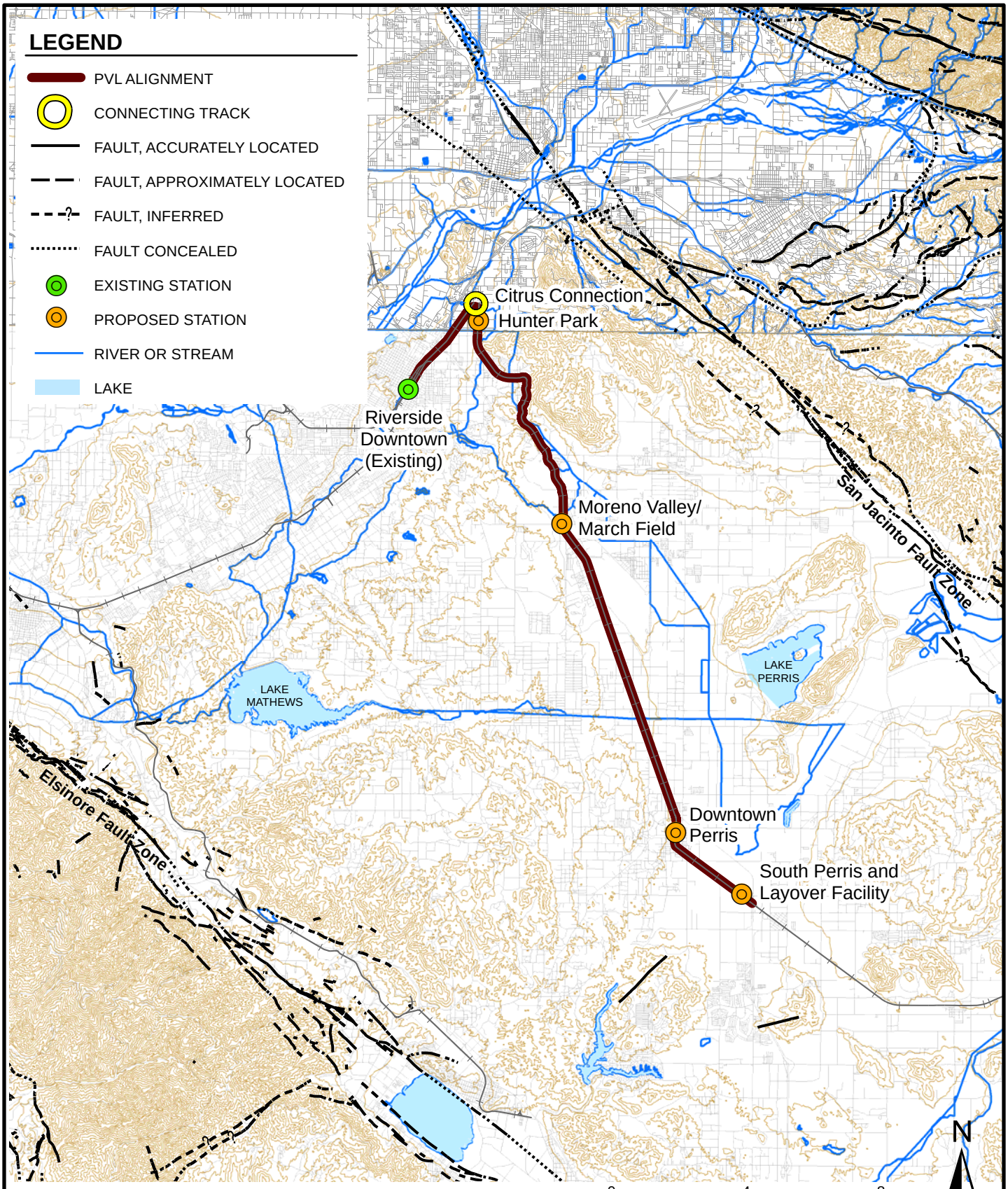
Map Unit Symbol	Map Unit Name
AnC	Arlington fine sandy loam, 2 to 8 percent slopes
AoC	Arlington fine sandy loam, deep, 2 to 8 percent slopes (H)
BuC2	Buren fine sandy loam, deep, 2 to 8 percent slopes (H)
ChF2	Cieneba sandy loam, 15 to 50 percent slopes, eroded
CkF2	Cieneba rocky sandy loam, 15 to 50 percent slopes eroded (H,M)
Dv	Domino silt loam, saline-alkali, hydric
Dw	Domino silt loam, strongly saline-alkali, hydric
EnA	Exeter sandy loam, 0 to 2 percent slopes
EnC2	Exeter sandy loam, 2 to 8 percent slopes, eroded
EpA	Exeter sandy loam, deep, 0 to 2 percent slopes
EpC2	Exeter sandy loam, deep, 2 to 8 percent slopes, eroded (D)
EwB	Exeter very fine sandy loam, 0 to 5 percent slopes (H)
FbF2	Fallbrook fine sandy loam, shallow, 15 to 35 percent slopes, eroded
FkD2	Fallbrook fine sandy loam, shallow, 8 to 15 percent slopes, eroded
GyA	Greenfield sandy loam, 2 to 8 percent slopes
GyC2	Greenfield sandy loam, 2 to 8 percent slopes, eroded (H)
GyD2	Greenfield sandy loam, 8 to 15 percent slopes, eroded
HcC	Hanford coarse sandy loam, 2 to 8 percent slopes (C)
HcD2	Hanford coarse sandy loam, 8 to 15 percent slopes, eroded
HgA	Hanford fine sandy loam, 0 to 2 percent slopes
MaA	Madera fine sandy loam, 0 to 2 percent slopes, hydric (L)
MmB	Monserate sandy loam, 0 to 5 percent slopes (M)
MmC2	Monserate sandy loam, 5 to 8 percent slopes, eroded (M)
MmD2	Monserate sandy loam, 8 to 15 percent slopes, eroded (M)
MmE3	Monserate sandy loam, 15 to 25 slopes, severely eroded
MnD2	Monserate sandy loam, shallow, 5 to 15 percent slopes, eroded
PaA	Pachappa fine sandy loam, 0 to 2 percent slopes
PaC2	Pachappa fine sandy loam, 2 to 8 percent slopes, eroded
RaA	Ramona sandy loam, 0 to 2 percent slopes
RaB2	Ramona sandy loam, 2 to 5 percent slopes, eroded
RaB3	Ramona sandy loam, 0 to 5 percent slopes, severely eroded
RaD2	Ramona sandy loam, 8 to 15 percent slopes, eroded
RtF	Rockland
TeG	Terrace escarpments (C)
Wf	Willows silty clay
Wg	Willows silty clay, saline-alkali (S)
Wm	Willows silty clay, deep, saline-alkali (S)
Wn	Willows silty clay, deep, strongly saline-alkali (S)

Notes: All soils are found throughout the corridor along the SJBL alignment, except where indicated by an asterisk; such soils are found only at the indicated locations; Hunter Park Station options (H), Downtown Perris Station (D), Moreno Valley/March Field Station (M), South Perris Station (S), Layover Facility (L), and the Citrus Connection (C).

This Page Intentionally Left Blank



PROJECT NO.	92666	**PVL CORRIDOR SOILS**	FIGURE **3.15-2**
DRAWN:	1/14/10		
DRAWN BY:	JP		
CHECKED BY:	RM	SUPPLEMENTAL ENVIRONMENTAL ASSESSMENT RIVERSIDE COUNTY TRANSPORTATION COMMISSION PERRIS VALLEY LINE RIVERSIDE, CALIFORNIA	
FILE NAME:	92666usda_EA.MXD		



SOURCE: U.S. Geological Survey, California Geological Survey
U.S. Geological Survey Open-File Report: OFR 2005-1305; version 1.0

PROJECT NO.	92666
DRAWN:	1/5/10
DRAWN BY:	JP
CHECKED BY:	RM
FILE NAME:	92666faults.MXD

REGIONAL FAULTS

SUPPLEMENTAL ENVIRONMENTAL ASSESSMENT
RIVERSIDE COUNTY TRANSPORTATION COMMISSION
PERRIS VALLEY LINE
RIVERSIDE, CALIFORNIA

FIGURE
3.15-3

Two of California's most active faults, the San Andreas and the San Jacinto faults, traverse Riverside County. Both of these faults, as well as the Elsinore fault zone, have the potential to generate future earthquakes within Riverside County and the PVL corridor. The seismic hazards that have the greatest potential to severely affect Riverside County are seismic ground shaking, liquefaction, and surface fault rupture. Secondary hazards such as seismically induced settlement, seismically induced slope instability, and (non-damaging) seiches may also occur as the result of a significant seismic event (Riverside County, 2003). A summary of significant faults is presented in Table 3.15-2.

Table 3.15-2
Summary of Significant Faults

Fault Name	Approximate Fault Length (Miles)	Approximate Distance to Sites (Miles)	Magnitude of Maximum Earthquake*	Slip Rate (in/yr)	Average Recurrence Interval (years)
San Jacinto-San Jacinto Valley Segment	27	11	6.9	0.47	83
Elsinore-Temecula Segment	27	12	6.8	0.20	240
Elsinore-Glen Ivy Segment	22	12	6.8	0.20	340
San Jacinto-Anza Segment	57	17	7.2	0.47	250
San Jacinto-San Bernardino Segment	22	17	6.7	0.47	100
Chino-Central Avenue	17	21	6.7	0.04	885
San Andreas-San Bernardino Segment	66	24	7.5	0.95	433
San Andreas-All Southern Segments	317	24	8.1	0.95-1.34	220
Whittier	24	25	6.8	0.10	641
Elsinore-Julian Segment	47	29	7.1	0.20	340
San Joaquin Hills Thrust **	17	29	6.6	0.02	2500

Notes:
* Moment Magnitude is an estimate of an earthquake's size by utilizing rock rigidity, amount of slip, and area of rupture.
** A blind thrust fault.

These active and potentially active faults are capable of producing seismic shaking along the PVL corridor, and it is anticipated that the PVL corridor would periodically experience ground acceleration as the result of moderate to large magnitude earthquakes. The approximate distances to the nearest faults to the PVL corridor considered to have the greatest impact to the PVL corridor are presented in Table 3.15-3.

Table 3.15-3
Approximate Distance to Nearest Faults (Miles)

PVL Corridor Site (Approximate Station Nos.)	Approx. Distance to San Jacinto Fault Zone (miles)	Approx. Distance to San Andreas Fault Zone (miles)	Approx. Distance to Elsinore Fault Line, Glen Ivy Section (miles)
Citrus Connection	4.1 northeast	11.3 northeast	18.0 southwest
SJBL Alignment – North End	4.3 northeast	11.5 northeast	18.2 southwest
SJBL Alignment – South End	9.9 northeast	22.0 northeast	9.8 southwest
Palmyrita Option	4.3 northeast	12.8 northeast	18.2 southwest
Columbia Option	4.3 northeast	12.8 northeast	18.2 southwest
Marlborough Option	4.7 northeast	13.3 northeast	18.0 southwest
Moreno Valley/March Field Station	7.0 northeast	17.3 northeast	16.5 southwest
Downtown Perris Station	11.6 northeast	21.0 northeast	10.1 southwest
South Perris Station	11.5 northeast	21.0 northeast	10.1 southwest
Layover Facility	11.5 northeast	21.0 northeast	10.1 southwest
Source: Kleinfelder (2009)			

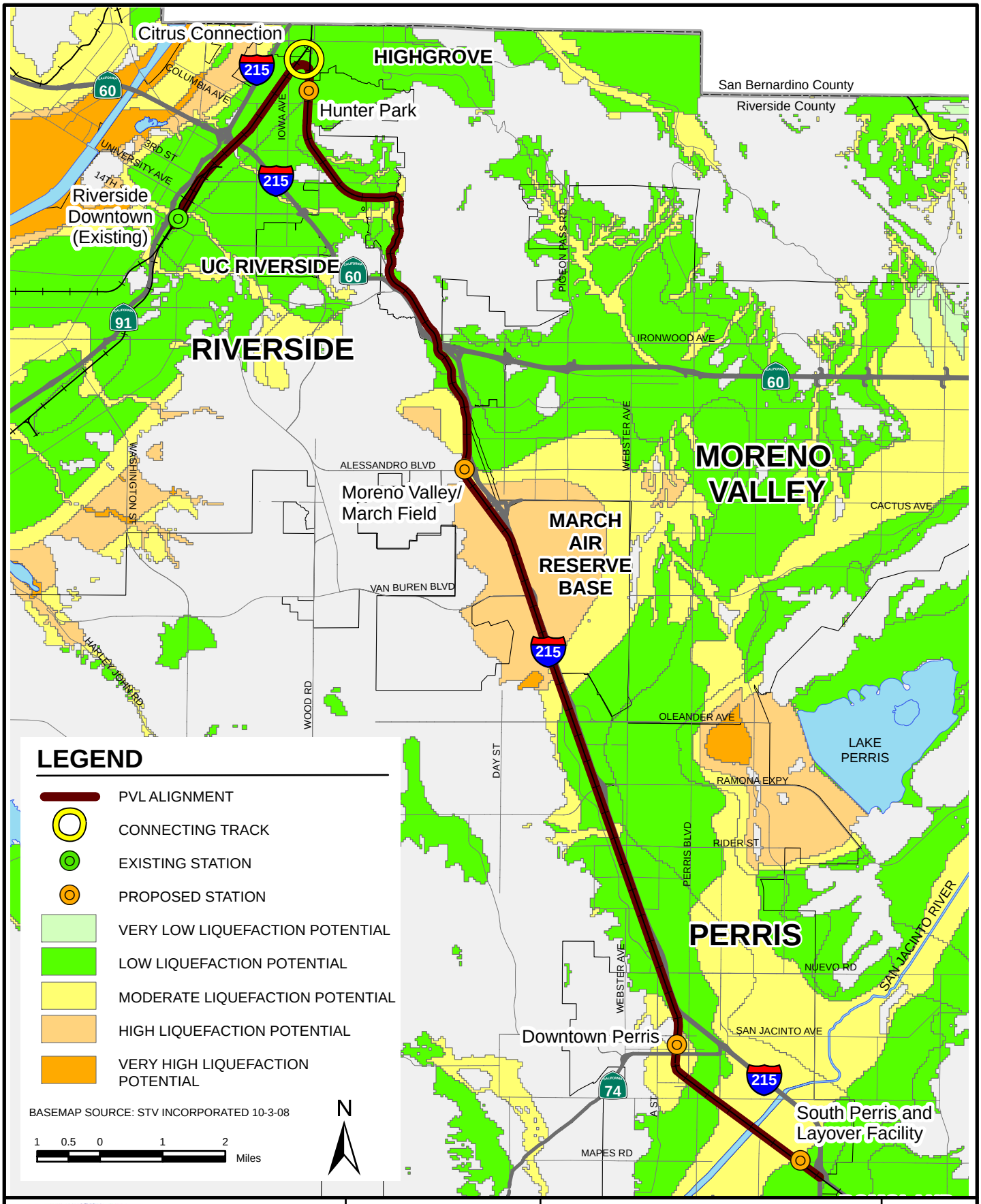
An east-striking potentially active fault splay, a series of minor faults at the extremities of an associated major fault (Ailsa et al., 1999), of the Elsinore fault, the Murrieta Hot Springs fault, is located approximately 14.3 miles south of the South Perris Station site (Riverside County, 2003).

Liquefaction and Seismically Induced Settlement Potential

Liquefaction and seismically induced settlement potential refer to another type of geologic hazard, in which loose sand and silt that is saturated with water and behaves like a liquid when shaken by an earthquake.

Seismically induced soil liquefaction generally occurs in loose, saturated, cohesionless soil when pore pressures within the soil increase during ground shaking. The increase in pore pressure transforms the soil from a solid to a semi-liquid state. The primary factors affecting the liquefaction potential of a soil deposit are: 1) intensity and duration of earthquake shaking, 2) soil type and relative density, 3) overburden pressures, and 4) depth to groundwater.

Soils most susceptible to liquefaction are clean, loose, uniformly graded, fine-grained sands, and non-plastic silts that are saturated. Silty sands have also been shown to be susceptible to liquefaction. According to the Riverside County General Plan, the potential for liquefaction has been mapped as shown on Figure 3.15-4. Areas particularly susceptible include the vicinity of the MARB and proposed March Field/Moreno Valley Station.



PROJECT NO.	92666
DRAWN:	1/5/10
DRAWN BY:	JP
CHECKED BY:	RM
FILE NAME:	92666LIQ.MXD

LIQUEFACTION POTENTIAL

SUPPLEMENTAL ENVIRONMENTAL ASSESSMENT
RIVERSIDE COUNTY TRANSPORTATION COMMISSION
PERRIS VALLEY LINE
RIVERSIDE, CALIFORNIA

FIGURE
3.15-4

Landslides, Rockslides and Debris Flow

Landslides, rockslides, and debris flow constitute another category of geologic hazard. Landslide refers to the lateral displacement of earth materials on a slope or hillside; while rockslide refers to a geological phenomenon which includes a wide range of ground movement, such as rock falls, deep failure of slopes and shallow debris flows. Landslides commonly occur in connection with other major natural disasters such as earthquakes, volcanoes, wildfires, and floods. Steep, bare slopes; clay-rich rock; deposits of stream or river sediment; and heavy rains can also cause landslides (Kleinfelder, 2008).

The annual precipitation in western Riverside County is low, about 15 inches per year, which is one component generally associated with low risk of debris flow disaster. The PVL corridor, because of the low annual precipitation, limited presence of clay soils, and relatively level topography, is at a low risk overall for landslides (RCIP, 2003).

Subsidence

Ground subsidence results from fluid (e.g. groundwater, petroleum) withdrawal in weakly consolidated materials. The loss of fluid causes consolidation of the empty pore spaces, which means that any voids in the soil previously filled with fluid are compressed by the mass of the overlying materials, effectively decreasing the soil volume and resulting in land subsidence.

The PVL corridor is susceptible to subsidence; according to the County of Riverside General Plan, special circumstances for mitigation are only given to areas of documented subsidence (Riverside County Land, 2003).

Expansive Soils

Certain soils, known as “expansive soils,” are subject to changes in volume and settlement in response to wetting and drying, often resulting in severe damage to structures. Expansive soils have a significant amount of clay particles which can exude water (shrink) or absorb and hold water (swell). The resultant changes in soil volumes exert stress on buildings and other loads placed on these soils. The distribution of expansive soils may be widely dispersed, and they may be present on hillsides as well as in low-lying alluvial basins (RCIP, 2003).

Based on published soil survey soil descriptions, one soil series, Willow silty clay (Wf, Wg, Wm, and Wn), is characterized as having a high shrink-swell potential. The Willow soil series is present on the SJBL alignment in an area within one-mile of the San Jacinto River crossing, in either direction (NRCS, 1971, NCSS, 2008, and NRCS, 2008) (Figure 3.15-2).

Corrosive Soils

Corrosivity of soils is related to several key parameters: soil resistivity, presence of chlorides and sulfates, oxygen content, and pH. Typically, the most corrosive soils are those with the lowest pH and highest concentration of chlorides and sulfates. High sulfate soils are corrosive to concrete and may prevent complete curing reducing its strength considerably. Low pH and/or low resistivity soils could corrode buried or partially buried metal structures.

3.15.3 Environmental Consequences/Impacts

Potential impacts of the proposed PVL, related to geologic, seismic, and soils hazards are as follows:

Fault Rupture

According to the 2007 Interim Revision to the Alquist-Priolo Earthquake Fault Zoning Map (CGS, 2007), western Riverside County is a seismically active region. The project boundaries themselves are not within the Alquist-Priolo Zone. The northern portion of the PVL corridor is located approximately 6 miles southwest of the San Jacinto fault zone, while the southern portion of the corridor is located approximately 15 miles northeast of the Elsinore fault zone. Because no known faults intersect the existing rail corridor, implementation of the PVL commuter rail service would not expose people or structures to adverse effects related to surface fault rupture. Therefore, there would be no impacts from a known earthquake fault.

Seismic Shaking

The PVL corridor is located within the seismically active southern California region. Project elements including track, bridges, and stations would be designed in accordance with appropriate industry standards, including established engineering and construction practices and methods per the CBC, the National Engineering Handbook, current AREMA guidance documents, and existing SCRRA standards. Therefore, there would be no impacts from seismic shaking.

Landslides

The Safety Element of the Riverside County General Plan indicates that the northern portion of the PVL corridor adjacent to the Box Springs Mountain Reserve is highly susceptible to seismically induced landslides (Riverside County, 2003). Limited track work relating to construction is proposed for this area; therefore, there would be less than significant impacts during the construction of the PVL. Moreover, while the steep terrain around Box Springs may be subject to rock fall, igneous tonolite and granodiorite bedrock generally is not susceptible to landslides. Therefore, the PVL corridor is considered to have a low landslide potential (Kleinfelder, 2009). Engineering and design would comply with CBC, Riverside County Building and Safety Department Code, the National Engineering Handbook, AREMA guidance documents, and SCRRA standards. Because of engineering recommendations before and during construction, there would be no impacts during the operations and maintenance of this within the PVL corridor.

Liquefaction and Seismically Induced Settlement Potential

Although portions of the rail corridor are in areas subject to potential for liquification, there is generally a low potential for liquefaction along the PVL corridor (Figure 3.15-4). Engineering and design would account for liquefaction potentially affecting structural elements such as bridges, stations, and the Layover Facility.

Subsidence

Although the entire PVL corridor is susceptible to subsidence, the proposed Layover Facility and stations are most susceptible. Subsidence-related impacts could affect buildings at these locations, though subsidence would not affect the health and safety of the general public or railroad workers during operation and maintenance of the PVL. Engineering design will address any potential subsidence along the project corridor.

Expansive Soils and Corrosive Soils

Expansive soils (Willow series) are present along the SJBL alignment in the area around both San Jacinto River bridges and South Perris Station (Figure 3.15-2). Changes in soil volumes due to shrink-swell potential could result in adverse impacts to buildings at these locations, but would not affect the health and safety of the general public or railroad workers during operation and maintenance of the PVL. Engineering design will address any potential expansive soil areas; therefore, no impact is anticipated from expansive soils.

Soils with a moderate to high corrosion potential are present around the Hunter Park station options and South Perris Station (Figure 3.15-2). These soils have the potential to corrode concrete and steel. Soil corrosion shall be incorporated into final engineering design, based on site-specific testing around the selected Hunter Park station option and South Perris Station. Corrosive soils would not affect the health and safety of the general public or railroad workers during operation and maintenance of the PVL.

Potential for Soil Erosion

Because the PVL commuter rail service would be implemented within an existing railroad corridor and adjacent properties, earth moving activities would be limited to the construction of the proposed stations and associated parking lots, communication equipment shelters and towers, and Layover Facility. Site preparation and excavation activities associated with construction of the new facilities may result in soil erosion or the loss of topsoil because of local precipitation and runoff.

3.15.4 Mitigation Measures

Engineering design will address site specific conditions and therefore no mitigation measures are identified related to geology and soils.

This Page Intentionally Left Blank

3.16 WATER QUALITY

Water quality is the physical, chemical, and biological characteristics of water. Changes to water quality can result from flowing through developed areas, soil, or rock material. The effects can be identified in both surface water and/or groundwater depending on local surface topography as well as subsurface soil types. The general surface and groundwater conditions were evaluated and identified with Water Quality Control Plans for each area within the State of California. This section describes the existing water quality, the beneficial uses of the region's surface and groundwater, local water-quality conditions and problems, and compares them to the proposed project to evaluate whether the project would have impact on existing conditions within the project area.

3.16.1 Regulatory Setting

Federal Policies and Regulations

Water Pollution Control Act

The federal Water Pollution Control Act (also known as the Clean Water Act [CWA]) was amended in 1972 to prohibit discharge of any pollutant into waters of the United States unless the discharge is authorized by a NPDES permit. Originally, the NPDES permit focused on reducing pollutants from discharges from industrial process wastewater and municipal sewage treatment plants. In 1987, the CWA was amended to require the USEPA to regulate stormwater discharges through the use of the NPDES stormwater permits. In California, the USEPA has delegated authority of NPDES permits to the SWRCB. The SWRCB and nine RWQCBs carry out regulations, protection, and administration of water quality. Each RWQCB is required to develop and update a Water Quality Control Plan, also known as a Basin Plan that recognizes and reflects the regional differences in existing water quality, the beneficial uses of the region's groundwater and surface waters, and local water quality conditions and problems. The project area is located within Region 8, the Santa Ana RWQCB.

State Policies and Regulations

Water Quality Control Plan

Beneficial Uses

Beneficial Uses are defined, within the Basin Plan, as the uses of water necessary for the survival or well being of man, plants, and wildlife. These uses of water serve to promote the tangible and intangible economic, social, and environmental goals of man.

Section 303 of the CWA defines the term water quality standards as both the uses of the surface water and the water quality criteria which are applied to protect those uses. A water quality standard defines the water quality goals of a water body by setting criteria to protect uses, and by protecting water quality through anti-degradation provisions. Under the Porter-Cologne Water Quality Act (California Water Code, Division 7, Chapter 2, Section 13050), these concepts are defined separately as beneficial uses and water quality objectives. Beneficial uses and water quality objectives are required to be established for all water in the state, both surface and groundwater. The following beneficial uses, as defined statewide, are designated within the Santa Ana Region and are shown in Table 3.16-1 and Table 3.16-2.

- Municipal and Domestic Supply (MUN) – for community, military, or individual water supply systems including, but not limited to drinking water supply,

- Agricultural Supply (AGR) – for farming, horticulture, or ranching including, but not limited to, irrigation, stock watering, or support of vegetation for range grazing,

- Industrial Process Supply (PROC) – for industrial activities that depend on primarily on water supply,

- Industrial Service Supply (IND) – for industrial activities that do not depend primarily on water quality, including by not limited to mining, cooling water supply, hydraulic conveyance, gravel mining, fire protection, or oil well re-pressurization.

- Groundwater Recharge (GWR) – for natural and artificial recharge of groundwater for purposes of future extraction, maintenance of water quality, or halting of salt water intrusion into freshwater aquifers.

- Water Contact Recreation (REC-1) – for recreational activities involving body contact with water, where ingestion of water is reasonably possible. These uses may include, but not limited to, swimming, wading, water-skiing, skin and SCUBA diving, surfing, whitewater activities, fishing and use of natural hot springs.

- Non-contact Recreation (REC-2) – for recreational activities involving proximity to water, but not normally involving body contact with water where ingestion of water would be reasonably possible. These uses may include, but are not limited to, picnicking, sunbathing, hiking, beachcombing, camping, boating, tidepool and marine life study, hunting, sightseeing and aesthetic enjoyment in conjunction with the above activities.

- Warm Freshwater Habitat (WARM) – supports warm water ecosystems including, but not limited to, preservation or enhancement of aquatic habitats, vegetation, fish or wildlife including invertebrates.

- Wildlife Habitat (WILD) – supports wildlife habitats that may include, but are not limited to, the preservation and enhancement of vegetation and prey species used by waterfowl and other wildlife.

- Spawning, Reproduction, and/or Early Development (SPWN) – supports high quality aquatic habitats suitable for reproduction and early development of fish. This use is applicable only for the protection of anadromous fish (e.g., those fish that transition between saltwater and freshwater conditions).

Table 3.16-1
Surface Water Beneficial Uses within the Project Area

Basin	Hydrologic Unit	Beneficial Use							
		MUN	AGR	GWR	REC-1	REC-2	WARM	WILD	SPWN
Upper Santa River Basin									
Santa Ana River									
Reach 4 - Mission Blvd. in Riverside to San Jacinto Fault in San Bern.	801.27	*			X	X	X	X	X
San Jacinto River Basin									
San Jacinto River									
Reach 3 - Canyon Lake to Nuevo Road	802.11	*	I	I	I	I	I	I	
Notes: I Intermittent Beneficial Use * Excerpted from MUN									

Table 3.16-2
Groundwater Beneficial Uses within the Project Area

Basin	Hydrologic Unit	Beneficial Use			
		MUN	AGR	IND	PROC
Middle Santa River Basin					
Riverside - E	801.27	X	X	X	X
Riverside - F	801.27	X	X	X	X
San Jacinto River Basin					
Perris North	802.11	X	X	X	X
Perris South	802.11	X	X	X	X

Water Quality Objectives

Water quality objectives are necessary to protect designated uses. The water quality objectives must protect the most sensitive of the beneficial uses which have been designated for a water body. The designation of water quality objectives must satisfy all of the applicable requirements of the California Water Code, Division 7 (Porter-Cologne Act) and the CWA. The CWA Section 303 requires the state adopt water quality objectives for surface waters.

Through water quality objectives, the RWQCB provides for the reasonable protection of all beneficial uses which are designated for protection, taking into account existing water quality, environmental and economic considerations. These objectives set limits on the chemical constituents of water that should not be exceeded.

Anti-degradation Policy

Santa Ana RWQCB water quality objectives conform to USEPA regulations covering anti-degradation (40 CFR 131.12) and State Board Resolution No. 68-16, Statement of Policy with Respect to Maintaining High Quality of Waters in California. Applications for the anti-degradation provisions to the standard process requires supporting documentation and appropriate findings whenever a standard (water quality objective or beneficial use) is made less restrictive to accommodate the discharge of pollutants or other activities of man.

Resolution No. 68-16 establishes a general principle of non-degradation, with flexibility to allow some changes in water quality which is in the best interests of the state. Changes in water quality are allowed only where it is in the public interest and beneficial uses are not unreasonably affected. The terms and conditions of Resolution No. 68-16 serve as the general narrative water quality objective in all state water quality control plans.

The main objective of the anti-degradation policy is "Wherever the existing water quality of water is better than the quality of water established herein as objectives, such existing quality shall be maintained unless otherwise provided by the provisions of the SWRCB Resolution 68-16, "Statement of Policy with Respect to Maintaining High Quality of Waters in California", including any revisions thereto, or the Federal Anti-degradation Policy, 40 CFR 131.12 (for surface waters).

Construction General Permit

For projects that anticipate disturbing one or more acres of soil are required to obtain coverage under the General Permit for Discharges of Storm Water Associated with Construction Activity, the CGP (SWRCB, 2009). Construction activity subject to this permit includes clearing, grading and disturbances to the ground such as stockpiling, or excavation, but does not include regular maintenance activities performed to restore the original line, grade, or capacity of the facility.

The CGP requires the development and implementation of a site specific Storm Water Pollution Prevention Plan (SWPPP). The SWPPP should contain a site map(s) which shows the construction site perimeter, existing and proposed buildings, lots, roadways, storm water collection and discharge points, general topography both before and after construction, and drainage patterns across the project. The SWPPP must list BMPs the discharger will use to protect storm water runoff and the placement of those BMPs. Additionally, the SWPPP must contain a visual monitoring program; a chemical monitoring program for "non-visible" pollutants to be implemented if there is a failure of BMPs; and a sediment monitoring plan if the site discharges directly to a water body listed on the 303(d) list for sediment. Section A of the CGP describes the elements that must be contained in a SWPPP. It should be noted that the state has revised the CGP (2009-0009-DWQ). The new permit will be in place on July 1, 2010, prior to project construction starting, therefore the project will need to comply with the most current permit requirements.

Local Policies and Regulations

Riverside County Municipal Stormwater NPDES Permit

In 2000, the RCFCWCD agreed to the role of "Principal Permitee" for NPDES permit no. CAS 618033, (RWQCB Order No. R8-2002-0011). Co-Permitee's for this permit include the county of Riverside, and the incorporated cities of Beaumont, Calimesa, Canyon Lake, Corona, Hemet, Lake Elsinore, Moreno Valley, Murrieta, Norco, Perris, Riverside, and San Jacinto. The current NPDES permit applies to the entirety of Riverside County, and is primarily concerned with urban stormwater runoff. The NPDES permits for urban stormwater, or municipal separate storm sewer systems (MS4), require controls to reduce the discharge of pollutants to the Maximum Extent Practicable (MEP).

Section 13225 of the California Water Code identifies the RWQCB as the enforcement authority for NPDES permits, including the Construction Activity Storm Water Permit. However, in many

areas, the construction sites discharge directly into MS4s owned and operated by the Co-Permitees. Therefore it is the responsibility of each Co-Permitee to manage urban runoff within their respective jurisdictions. The urban runoff may contain elevated levels of pathogens, sediment, trash, fertilizers, pesticides, and petroleum products. The MS4 system can carry these pollutants into receiving areas which may then impact the beneficial uses of the receiving waters.

In order to effectively manage stormwater to the MEP, the Co-Permitees have completed Drainage Area Management Plans (DAMP). Each DAMP outlines the major programs and policies for controlling pollutants and is anticipated to be dynamic documents. Currently, there are five DAMP's that cover the project area. Within these documents are identified the BMPs for existing facilities and new development. Examples of some of the BMPs identified include; straw wattles/fiber rolls, silt fence, and street cleaning.

3.16.2 Affected Environment

The majority of the PVL is an existing rail corridor and, therefore, potential new sources of pollution are limited to construction and operation of the Citrus Connection, station parking lots, and the Layover Facility.

3.16.3 Environmental Consequences/Impacts

This project, as with all new projects, is required to meet state, county and local water quality regulations for stormwater protection with no impacts to beneficial uses or water quality objectives.

Citrus Connection

The Citrus Connection is located within the city of Riverside and would be approximately 2,000 feet of newly constructed railroad track to connect the BNSF to the SJBL. There are no stations, or stopping areas, identified within this section of new track. Since this is a curved section of track, wheel lubricators would be utilized to reduce wheel wear and reduce wheel noise going around the curve. Because the trains would be moving through the area at an estimated 20 to 30 mph, it is not expected that even incidental amounts of gear oil or lubrication would weep onto the tracks. Overall, the operations and maintenance of the Citrus Connection would be the same as SJBL alignment. Therefore, no significant impacts to water quality are anticipated.

SJBL Alignment

The SJBL is an existing 20-mile long rail corridor in which approximately nine miles of new track would be constructed. Along this corridor are drainage structures (culverts) to allow stormwater flow to pass beneath the railroad tracks. The drainage that flows through these culverts flows into the local stormwater drainage systems. These systems eventually lead to either the Santa Ana River or the San Jacinto River depending on the location along the alignment. Along the portion of the alignment where new track is being constructed, the existing culverts are being extended so that the drainage could continue beneath the railroad tracks. Since the culvert extensions are expected to continue to convey the local stormwater flow, there is not expected to be an impact to water quality, or a change in flow patterns, from these culverts.

Additionally, the increase of twelve trains per day would cause minor quantities of oil and lubricants to weep onto the track. It is not anticipated that these quantities are great enough to cause an increase in polluted runoff. Less than significant impacts to water quality are anticipated.

Stations

Stations would include paved parking lots. The stormwater flow from the parking areas would be directed into the local MS4 and would need to comply with the state, county and city stormwater discharge regulations. Less than significant impacts to water quality are anticipated.

Layover Facility

It is expected that up to four trains would be stored at this facility overnight. Drips pans would be installed where engines are spotted, in order to catch any fuel oil, lubrication, or hydraulic fluid drips from engines laid up in the yard. There would be a train inspection pit located under one of the tracks. The pit allows train mechanics to inspect the undercarriage of the train and perform any minor maintenance that may be necessary. The drainage from the drip pans and the inspection pit is directly connected to an oil/water separator system for treatment prior to discharge into the local MS4. The oil/water separator system would be periodically serviced to remove any accumulated waste. Less than significant impacts to water quality are anticipated.

Construction Impacts

For any construction-related activities at the Citrus Connection, station sites, and Layover Facility, RCTC would establish BMPs to control erosion and sedimentation related to construction, and provide for appropriate restoration after construction. The BMPs would be incorporated into construction documents.

3.16.4 Mitigation Measures

The project is required to meet federal, state, county and local stormwater regulations for stormwater protection. Because no impacts are identified, there are no mitigation measures required to lessen any potential impacts to local water quality.

3.17 FLOODPLAINS

The purpose of this section is to evaluate the potential flood risk and impacts of the proposed PVL project, both related to engineered PVL ROW drainage features (i.e., culverts and inlets) and also the natural drainage patterns associated with the San Jacinto River and surrounding area. This section includes a discussion of floodplains in the immediate area of the PVL project and capacity for 100-year events. The information in this section, unless otherwise specified, is based on the *Perris Valley Draft Hydrology Report Volume I* (J.L. Patterson & Associates, Inc., 2009) and the *Perris Valley Draft Hydrology Report Volume II San Jacinto River Analysis* (AECOM, 2009).

3.17.1 Regulatory Setting

Federal Emergency Management Agency

FEMA is an agency of the United States Department of Homeland Security created in 1979 with the primary purpose to coordinate response to disasters that overwhelm the resources of local and state authorities (FEMA, 2009). President Carter's 1979 Executive Order merged various functions of disaster assistance and civil defense (previously handled by multiple agencies) under the direction of a single agency. FEMA was created to coordinate the federal government's role in preparing for, preventing, mitigating the effects of, responding to, and recovering from all domestic disasters, whether natural or man-made, including acts of terror.

National Flood Insurance Program

Flood effects may be localized or very large, affecting neighborhoods and even entire river basins throughout multiple states. The 1968 NFIP is intended to reduce the loss of life, damage to property and rising disaster relief costs in these high-risk areas. The NFIP is managed by FEMA's Federal Insurance and Mitigation Administration and the Mitigation Directorate. The components of the NFIP are floodplain management and flood insurance and hazard mapping, described as follows:

- **Floodplain Management –** The NFIP works to enforce no-build zones in known floodplains and relocate or elevate some at-risk structures. These measures take a variety of forms and generally include requirements for zoning, subdivision or building, and special-purpose floodplain ordinances. FEMA insists on assurances that local upstream flood repair measures and development within floodplains would not exacerbate flooding in adjacent areas. It guides future development away from flood prone areas and transfers the costs of flood losses from taxpayers to floodplain property owners.

- **Flood Insurance Rate Map –** A Flood Insurance Rate Map (FIRM) map is the official map of a community on which FEMA has identified floodplain boundaries for 100-year and 500-year floodplains, BFEs, floodways, SFHA designations, and flood risk zone divisions. Floodplains are defined as the boundary of the flood that has a particular chance of being equaled or exceeded in a given year. A 100-year floodplain has a one percent chance of being equaled or exceeded in any given year, whereas a 500-year floodplain has a 0.2 percent chance. The BFE is identified on the FIRM map indicating the water surface elevation, or depth, of the base flood and is usually measured in feet. Floodways also appear on FIRMs to show a channel or stream and any adjacent floodplain areas that must

be kept free of encroachment so that the 100-year flood discharge can be conveyed without significantly increasing the water surface elevation by more than a specified amount (generally limited to one foot).

- **Flood Hazard Mapping –** Flood hazard maps create broad-based awareness of the flood hazards and provide the data needed for floodplain management programs and to actuarially rate new construction for flood insurance. SFHAs are areas subject to inundation by a 100-year flood. The SFHAs are identified on the FIRM using flood risk zone designations that indicate the magnitude of the flood hazard and reflect the severity or type of flooding in the area. Moderate- to low-risk areas include zones that are either outside the 100-year flood, areas that have a one percent annual chance where the average flood depth is less than one foot, or where the contributing drainage area is less than one square mile. Zone designations for these areas are defined as Zone B, C, and X and purchasing of flood insurance is not required in these zones. High-risk areas include Zones A, AE, AH, AO, AR, and A99 and for coastal areas Zones V and VE. It is mandatory that flood insurance be purchased within these zones. Flood zone designations are used by local floodplain management programs and the NFIP as the basis for insurance requirements nationwide.

Riverside County Flood Control and Water Conservation District

The RCFCWCD was created in 1945 to protect people, property, and watersheds from damage or destruction from flood and storm waters. The RCFCWCD is designated by FEMA to administer the NFIP program in the western parts of the County where the PVL project is located. The administrator coordinates, implements, and enforces the local floodplain ordinance by granting or denying development permits in accord with its provisions. Any development or encroachments made to the SFHA must be reviewed by the administrator to determine whether proposed building sites would be reasonably safe from flooding and base flood elevations are not raised which would negatively impact adjacent areas. This may include the submittal of studies, calculations, plans and other information required to meet FEMA requirements.

The SJBL crosses five areas subject to RCFCWCD Master Drainage Plans (MDPs); they include the city of Riverside (Box Springs Area), city of Riverside (UCR Area), city of Moreno Valley West End, Perris Valley Area, and Romoland. A MDP addresses the current and future drainage needs for a community. Facilities that are included in a MDP are channels, storm drains, basins, dams, wetlands, levees or any other conveyance capable of relieving flooding problems within the plan area.

RCFCWCD established an independent funding source for flood control projects, which included damming and channel construction, waterway regulation, and public education. When funding becomes available, the RCFCWCD intends to implement flood control measures on the San Jacinto River, which may include channelization between the Ramona Expressway (upstream of the SJBL) and the mouth of Railroad Canyon (downstream of the SJBL). The flood control project may reduce the 100-year flood event peak discharge flow to approximately 6,000 cubic feet per second at the Ramona Expressway, prior to reaching the SJBL (MSHCP, 2003).

The County approved Resolution No. 2005-220 (2005), setting forth policies and procedures to control developments within the San Jacinto River floodway and requiring permits or applicable approvals from the RCFCWCD, USACE, USFWS, CDFG, and the SARWQCB.

No-Rise Determination

The NFIP and participating communities insist that development within floodplains would not exacerbate flooding in adjacent areas. A 'regulatory floodway' and the adjacent land areas must be reserved in order to discharge the base flood without cumulatively increasing the water surface elevation. Therefore, the participating communities must regulate development in these floodways to ensure that there are no increases in upstream flood elevations. Title 44 of the CFR, Section 60.3(d)(3), states:

> *"A community shall prohibit encroachments, including fill, new construction, substantial improvements, and other development within the adopted regulatory floodway unless it has been demonstrated through hydrologic and hydraulic analyses performed in accordance with standard engineering practice that the proposed encroachment would not result in any increase in flood levels within the community during the occurrence of the base flood discharge" (CFR, 2001).*

Prior to issuing any development permits involving activities in a regulatory floodway, the community must obtain a certification stating the proposed development would not impact the pre-project base flood elevations, regulatory floodway elevations, or regulatory floodway widths. An engineering analysis must be conducted before a permit can be issued. The community's permit file must have a record of the results of this analysis, which can be in the form of a No-Rise Certification, obtained on behalf of RCTC as part of the design process.

General Code of Operating Rules

The General Code of Operating Rules (GCOR) was developed to document standardized operating practices for railroads. GCOR is currently used by the BNSF railroad, and every Class I railroad west of the Mississippi River, most of the Class II railroads, and numerous shortline railroads (U.S. Department of Transportation, 1999). GCOR is essentially a non-regulatory set of rules and guidelines that are in place to enhance railroad safety.

One guideline (6.21.2) addresses flooding along railroads. This guideline states that if rails have been overtopped by flooding, operations must be suspended until the railroad tracks have been inspected and verified as safe (GCOR, 2005).

3.17.2 Affected Environment

The SJBL runs along the western edge of Box Springs Mountain and through Box Springs Canyon. The general drainage flows from east to west out of the Box Springs Mountains. In Box Springs Canyon, the general flow follows the canyon, parallel to the SJBL. The SJBL runs through Perris Valley, where drainage flows out of the hills from west to east across the SJBL, then southwest toward the San Jacinto River. The San Jacinto River flows out from the San Jacinto Mountains, crosses under the alignment at the south end of the Perris Valley and continues to flow down Railroad Canyon, into Canyon Lake, and on to Lake Elsinore.

The Army Corps of Engineers built levees in the city of San Jacinto in the early 1960s. In the 30-mile reach of the river between the city of San Jacinto and Lake Elsinore, only minor channelization exists.

The San Jacinto River watershed upstream of the existing railroad bridges on the SJBL (MP 20.70 and 20.80) covers approximately 518 square miles (AECOM, 2009). Flow rates in the project area are significantly influenced by upstream detention provided by Mystic Lake and the wide flat topography that makes up the Perris Valley. The Perris Valley is extremely flat causing flood waters to move slowly and spread out over a broad area. The expanse of flooding in Perris Valley is further affected by the sudden constriction presented at the entrance to the upper end of Railroad Canyon located southwest of the city of Perris. The restriction of flow and flat topography of the valley causes a ponding situation and flood waters backup for a distance of over seven miles upstream.

Runoff in the upper valley flows to Mystic Lake, a natural sump formed by local subsidence. During large storms when water from the upper San Jacinto River overflows into the depression a lake forms. The lake is relatively shallow and has a large surface area. When full, Mystic Lake has been observed to maintain a substantial amount of volume with little or no transport back to the San Jacinto River. During torrential rainfall events or periods of extended rain, the storage capacity of the lake is exceeded resulting in outflow to the San Jacinto River.

The San Jacinto River flows south through the floodplain and intersects the SJBL at two bridges; the San Jacinto River Bridge and the San Jacinto River Overflow Channel Bridge. In 2005, the SCRRA commissioned a study to assess the existing conditions of the bridges along the alignment. In the report, *Perris Valley Line Existing Conditions Report*, replacement of the two bridges (MP 20.70 and MP 20.80) of the San Jacinto River is recommended (J.L. Patterson & Associates, Inc., 2008). Excerpts from the report describe the existing conditions of the bridges:

> *Currently, the San Jacinto River Bridge (MP 20.70) is a 140-foot long (While the Existing Conditions Report indicated the Bridge 20.7 was 142 feet in length, subsequent field survey performed for the PE confirmed the length to be 140 feet.), ten-panel timber open-deck pile trestle. The overall condition of this bridge was rated as poor. The bents consist of six-timber piles supporting a timber cap. The chords consist of stringers supporting hardwood timber ties. The overall condition of the chords and deck ties was rated as fair. The clear distance from the soffit of the bridge to the ground line, at the center of the channel, is 8.5 feet, with sloping berms at the end panels.*
>
> *San Jacinto Overflow Channel Bridge (MP 20.80) is a 56-foot long, 4-panel timber open deck trestle crossing an overflow channel for the San Jacinto River. This bridge appears to be of newer construction than the river bridge and the overall condition was rated as fair. The bents consist of six timber piles, supporting a timber cap, and the chords consist of timber stringers, supporting hardwood timber ties. The overall condition of the chords and deck ties was rated as fair. The clear distance from the soffit of the bridge to the ground line is approximately four feet, with sloping berms at the end panels.*

Flood Zone Designations

Ten FIRM panels were evaluated to identify flood designations and floodways including and proximate to the SJBL: 06065C0065G, 06065C0727G, 06065C0731G, 06065C0733G, 06065C0745G, 06065C1410G, 06065C1430G, 06065C1440G, 06065C1445G, and 06065C2060G. The four FIRM panels showing 100-year SFHAs are shown on Figure 3.17-1 and Figure 3.17-2 and are discussed below.

- FIRM Panel 06065C0065G: The area of Springbrook Wash has a 100-year flood Zone A designation. A small portion of the alignment between Spring Street and Citrus Street is within this high flood risk area.

- FIRM Panel 06065C0727G: A portion of the SJBL alignment at Blaine Street, within the UCR area, has a 100-year flood Zone A designation. The floodplain boundary ends at the alignment and is identified east along Blaine Street and curves north at Valencia Hill Drive. Zone A has a high potential for flood risk.

- FIRM Panel 06065C0731G: The University Wash located in Islander Park of the UCR area has a 100-year flood Zone AE designation. The floodplain boundary starts near Linden Street and is identified south to Big Springs Road, and is bounded by the alignment along the eastern boundary. Zone AE is a high risk area with known base flood elevations that range from 1182 to 1154 feet in this area.

- FIRM Panel 06065C1440G: The area adjacent to the west side of the alignment at Metz Road has a 100-year flood Zone A designation. This flood area is located in Metz Park within the city of Perris. Additionally, this panel includes the San Jacinto River and associated floodway. The floodplain boundary for the San Jacinto River includes both 100-year and 500-year flood areas, which include the railroad bridges (MP 20.70 and 20.80). The 500-year flood, which has a 0.2 percent chance of occurring any given year has a flood zone designation of Zone X, which is considered to be a moderate to low risk area. This Zone X is identified adjacent to Metz Park where the alignment intersects Ellis Avenue in Perris. The flood zone designation that crosses the remainder of the alignment to the PVL project termination point at I-215, approximately two miles upstream of the alignment has a 100-year flood Zone A designation. This FIRM Panel indicates that the 100-year BFE for the San Jacinto River at the location of the two bridges is 1,422, about five feet above the existing top of rail (1,417 top of rail elevation) (AECOM, 2009). Both bridges (MP 20.70 and 20.80) are mapped within the 6,600-foot wide floodway. Extending from the floodway is a 12,000-foot-wide floodplain boundary for the 100-year event in Zone AE. (Data provided in the Flood Insurance Study No. 06065CV001A, effective August 8, 2008, indicate that the 100-year peak discharge for the San Jacinto River at I-215 is 44,000 cfs. However, this peak discharge varies based on upstream and downstream locations; the hydraulic model shows an increase in discharge to 44,250 cfs upstream of I-215 and a decrease in discharge to 42,750 cfs downstream of the project, at the entrance to Railroad Canyon [AECOM, 2009]).

Drainage Characteristics

There were 34 culverts analyzed as part of the *Perris Valley Line Draft Hydrology Report Volume I* (J.L. Patterson & Associates, Inc., 2009), twelve culverts were found to be of inadequate capacity to handle flow during 100-year storm events. Modeling reported in a subsequent study, *Perris Valley Line Draft Hydrology Report Volume II San Jacinto River Analysis* (AECOM, 2009) predicted that stormwater would overtop (e.g., overflow) railroad bridges and rail in the vicinity of Case Road at a flow rate of 6,000 cubic feet per second (cfs). FEMA indicates that the ten-year flood in this location is 7,000 cfs (by comparison, I-215, in the area upstream of the railroad bridges, begins to overtop at a flow rate of about 9,500 cfs). At the 100-year flow rate, the depth of flow over the existing rail in this location would be 4.9 feet deep.

3.17.3 Environmental Consequences/Impacts

The San Jacinto River Bridge and the San Jacinto Overflow Channel Bridge would be constructed based on SCRAA design standard plans ES 4500-03 for MP 20.70 and ES 4600-02 for MP 20.80. The San Jacinto River Bridge (MP 20.7) is currently 140-feet long, and the replacement would be 156 feet in length. The existing timber trestle bridge has 14-foot spans, the new bridge would be prestressed concrete box girders with 28-foot spans. The total depth of the superstructure (top of rail to low chord [lowest part of bridges]) would increase from the current 2.67 feet to 4.75 feet. By keeping the top of rail consistent, the vertical clearance is reduced from approximately 9.5 feet to 6.8 feet. The San Jacinto Overflow Channel Bridge (MP 20.80) is currently 54 feet long, and the replacement bridge would be 70 feet long. The existing timber trestle bridge has 14-foot spans; the new bridge would use prestressed concrete slabs with the same 14-foot spans. As a result, the total depth of the superstructure would increase to 3.16 feet, which would reduce the vertical clearance from 3.6 feet to 3.0 feet for the replacement bridge. Additionally, the increase in the replacement bridge spans for both bridges would offset lost conveyance associated with the lower chord of the bridges. In addition to the bridge replacements, culverts would be replaced as part of the PVL project; these new culverts would maintain existing capacity, and would result in no impacts to floodplains.

Based on a review of the above identified FIRM panels, the southern portion of the SJBL is within a regulatory floodway with SFHA designation; the proposed South Perris Station and Layover Facility would be within the 100-year floodplain boundary. The PVL project, however, would not include elevating the top of rail, station platform and features (ticket kiosks and vending machines), station parking lot, or most of the Layover Facility to be above the BFE. The only element that would be constructed above the BFE is the office building at the Layover Facility, which would be elevated six feet above the BFE.

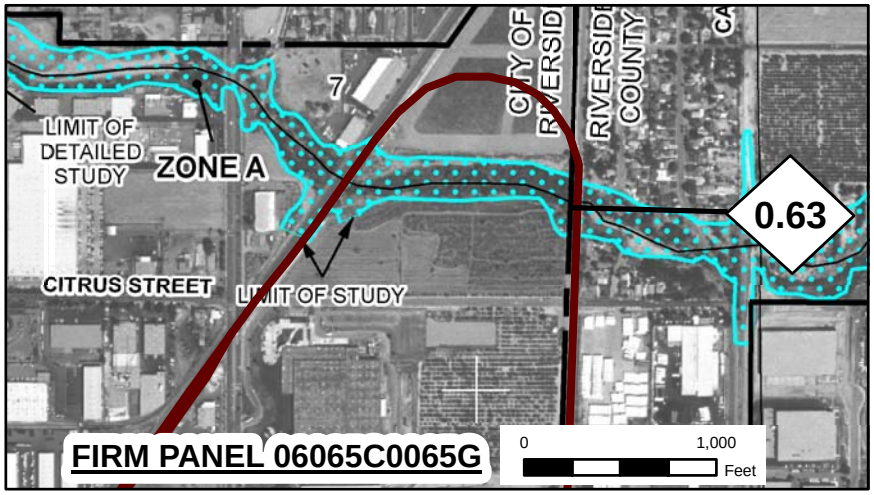
Based on the hydraulic analysis presented in the *Perris Valley Line Draft Hydrology Report Volume II San Jacinto River Analysis* report, it is expected that the bridges, rail alignment, station platform, station parking lot, and Layover Facility could be submerged as much as five feet during the 100-year flood (AECOM, 2009). During a 100-year flood (42,750 cfs) the depth over the top of PVL rail in the vicinity of the bridges would be 5.20 feet, 11,975 feet wide and flowing at a velocity less than one fps, compared to a flow rate of 6,000 cfs under existing conditions. However, the flood potential risk within the county of Riverside, specifically in regards to the PVL corridor, has been minimal as a result of low average annual rainfall (2.15 inches to 7.35 inches in Riverside County from 2005 to 2009) (Weather Currents, 2009).

Project design plans for the replacement of the San Jacinto River Bridge and San Jacinto Overflow Channel Bridge, and the construction of the South Perris Station and Layover Facility, would be in compliance with the NFIP's No-Rise requirements. It is anticipated that a No-Rise Certification would be obtained for the project through the RCFCWCD. According to the 30 percent engineering plans and the *Perris Valley Line Draft Hydrology Report Volume II San Jacinto River Analysis*, the bridge replacement, station, and Layover Facility designs would not result in an impact related to the base flood elevations, regulatory floodway elevations, and floodway widths. The PVL would require permits or applicable approvals from the RCFCWCD, USACE, USFWS, CDFG, and the SARWQCB.

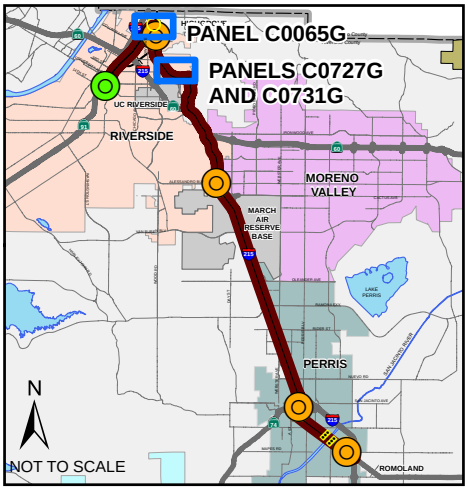
3.17.4 Mitigation Measures

The proposed PVL project will not have a significant impact on floodplains. No mitigation measures are required.

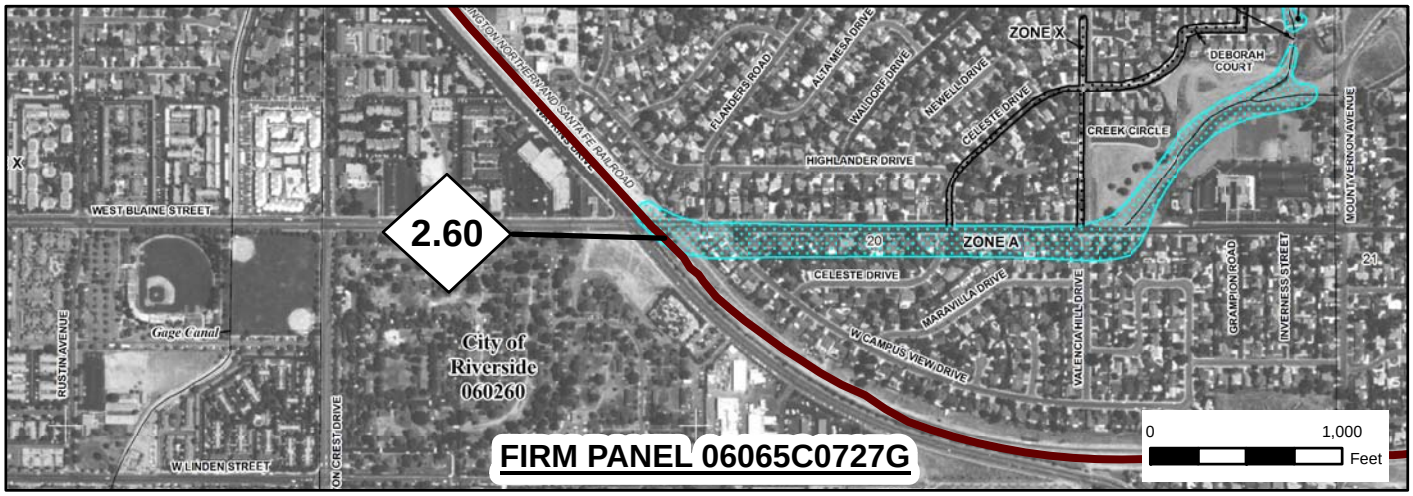
This Page Intentionally Left Blank



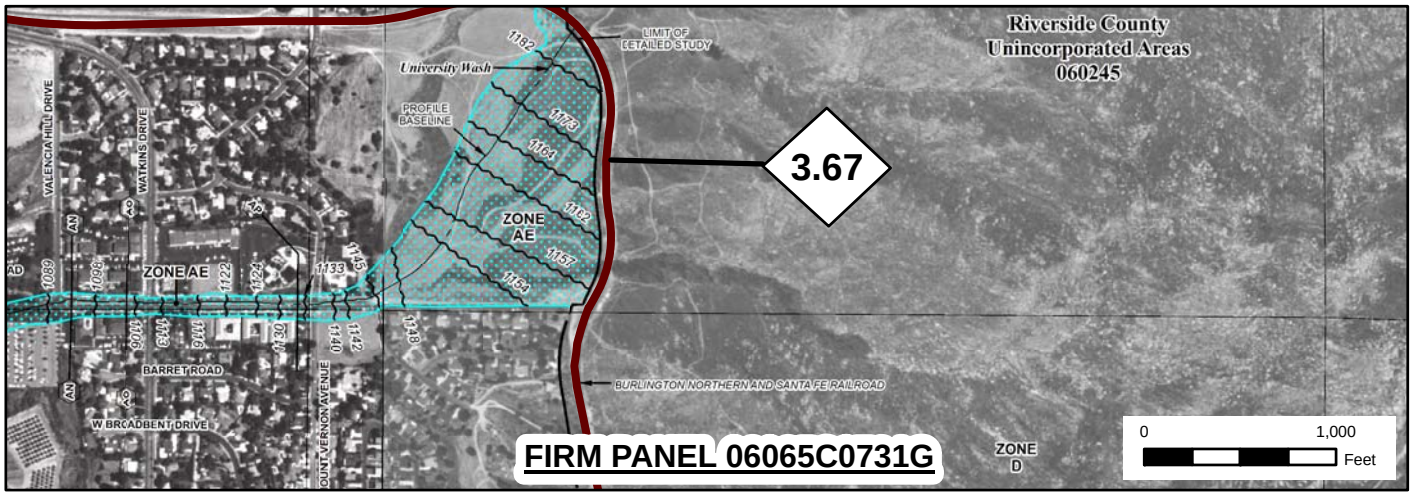
FIRM PANEL 06065C0065G



KEY MAP



FIRM PANEL 06065C0727G



FIRM PANEL 06065C0731G

LEGEND

- FLOOD ZONE
- PVL ALIGNMENT
- MILE POST

SOURCE: FEMA FLOOD INSURANCE RATE MAPS
EFFECTIVE DATE: AUGUST 8, 2008

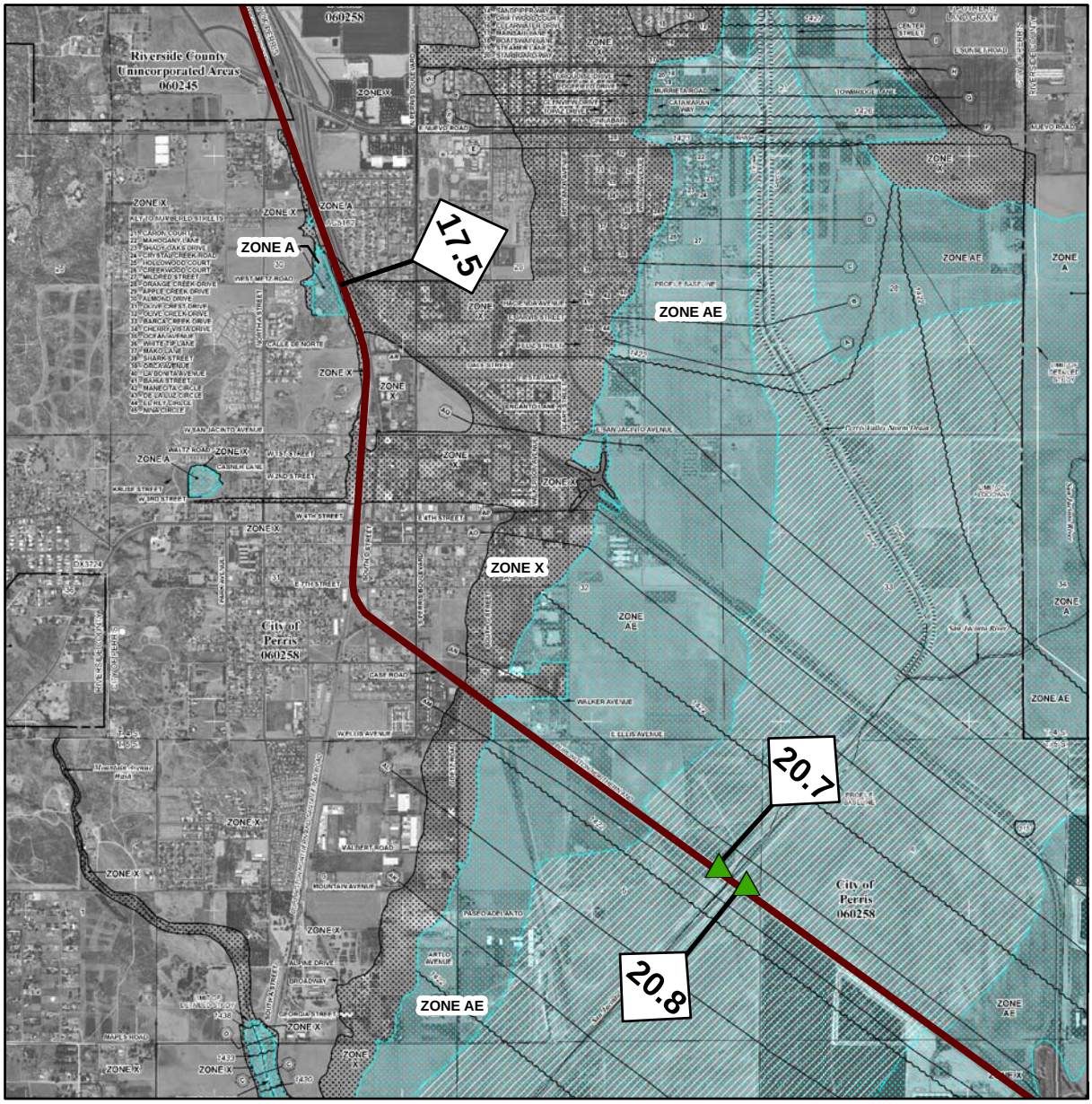
N

PROJECT NO.	92666
DRAWN:	1/5/10
DRAWN BY:	JP
CHECKED BY:	RM
FILE NAME:	92666firm.MXD

FEMA ZONES FOR FIRM PANELS C0065G, C0727G, AND C0731G

SUPPLEMENTAL ENVIRONMENTAL ASSESSMENT
RIVERSIDE COUNTY TRANSPORTATION COMMISSION
PERRIS VALLEY LINE
RIVERSIDE, CALIFORNIA

FIGURE 3.17-1



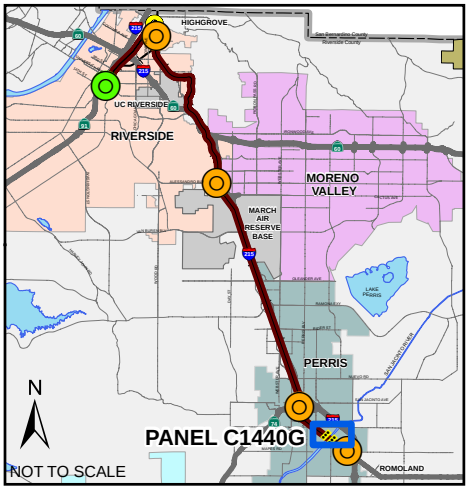
LEGEND

- FLOOD ZONE
- FLOODWAY
- PVL ALIGNMENT
- MILE POST
- BRIDGE

SOURCE: FEMA FLOOD INSURANCE RATE MAPS
EFFECTIVE DATE: AUGUST 8, 2008

0 3,000 6,000 Feet

N



KEY MAP

PROJECT NO.	92666
DRAWN:	1/5/10
DRAWN BY:	JP
CHECKED BY:	RM
FILE NAME:	92666firm1.MXD

FEMA ZONES FOR FIRM PANEL C1440G

SUPPLEMENTAL ENVIRONMENTAL ASSESSMENT
RIVERSIDE COUNTY TRANSPORTATION COMMISSION
PERRIS VALLEY LINE
RIVERSIDE, CALIFORNIA

FIGURE 3.17-2

3.18 PALEONTOLOGICAL RESOURCES

This section discusses the paleontological sensitivity of the PVL corridor and its vicinity, evaluates potential project-related impacts to identified paleontological resources, and provides mitigation measures to reduce, avoid, or minimize potential impacts.

Paleontological resources, or fossils, are the fossilized remains, traces, or imprints of organisms preserved in or on the earth's crust and that provide information about the history of life on earth. Paleontology does not include archaeological resources, or those items made or modified by humans. Paleontological remains include mineralized, partially mineralized, or unmineralized bones and teeth, soft tissues, shells, wood, leaf impressions, footprints, burrows, and microscopic remains. Fossils are considered nonrenewable resources because the organisms they represent no longer exist.

3.18.1 Regulatory Setting

Because fossils are classified as nonrenewable scientific resources, federal regulations include both general and specific provisions for the protection of paleontological resources, as summarized below.

Antiquities Act of 1906

The Antiquities Act of 1906 (16 USC 431-433) prohibits the destruction of "any historic or prehistoric ruin or monument, or any object of antiquity" on federal lands (no federal lands are involved in the PVL project). Although neither the Antiquities Act nor its implementing regulations (43 CFR Part 3) specifically addresses paleontological resources, many federal agencies have interpreted "objects of antiquity" to include fossils.

Paleontological Resources Preservation Act

The Paleontological Resources Preservation Act (PRPA) was signed into law on March 30, 2009 (Public Law 111-011. P.L. 111-011, Title VI, Subtitle D) and requires federal agencies to manage and protect paleontological resources on federal land. The PRPA affirms the authority of federal land managing agencies to issue permits for the collection and curation of paleontological resources by qualified researchers, and maintain the confidentiality of locality data. As previously stated, the PVL project does not include federal lands.

National Natural Landmarks Program

The National Natural Landmarks (NNL) Program was established in 1962 under the authority of the Historic Sites Act of 1935, and is administered by the National Park Service (NPS). The goals of the NNL Program are:

- To encourage the preservation of sites illustrating the geological and ecological character of the United States;
- To enhance the scientific and educational value of sites thus preserved; and
- To strengthen public appreciation of natural history, and to foster a greater concern for the conservation of the nation's natural heritage.

A National Natural Landmark is an area designated by the Secretary of the Interior as being of national significance to the United States because it is an outstanding example(s) of major biological and geological features found within the boundaries of the United States or its Territories or on the Outer Continental Shelf (36 CFR Part 62.2).

National significance describes an area that is one of the best examples of a biological community or geological feature within a natural region of the United States, including terrestrial communities, landforms, geological features and processes, habitats of native plant and animal species, or fossil evidence of the development of life (36 CFR Part 62.2). All designated NNLs are listed on the National Registry of Natural Landmarks. Examples of paleontological NNLs in California include: Rancho La Brea in Los Angeles, Sharktooth Hill in Kern County, and Rainbow Basin in San Bernardino County.

3.18.2 Affected Environment

The Division of Geological Sciences of the San Bernardino County Museum (SBCM) completed a literature review and records search for the PVL project (Scott, 2008). Previous geologic mapping of the project vicinity indicates that the PVL corridor traverses several sedimentary, igneous, and metamorphic rock units (Morton, 2001, 2003; Morton and Cox, 2001a, 2001b).

Sedimentary rock units mapped at the surface within the project corridor include: unnamed late Cenozoic sedimentary rocks of early Pleistocene to late Pliocene age; very old alluvial fan deposits of early Pleistocene age; old alluvial fan deposits of middle to later Pleistocene age; young alluvial fan deposits of Holocene and late Pleistocene age; young axial channel deposits of Holocene and late Pleistocene age; and active valley deposits of late Holocene age (Scott, 2008).

Of these, the Pleistocene alluvium and unnamed late Cenozoic sedimentary rocks have the potential to yield significant nonrenewable paleontological resources. In addition, Holocene alluvium mapped at the surface within the project corridor likely overlies older Pleistocene alluvium as a thin sedimentary veneer. Buried older alluvium beneath this thin layer of Holocene alluvium would have high paleontological sensitivity (Scott, 2008).

Pleistocene alluvial sediments throughout San Bernardino and Riverside counties and the Inland Empire have yielded significant fossils of extinct animals from the Ice Age. Fossils recovered from these sediments represent mammoths, mastodons, ground sloths, dire wolves, saber-toothed cats, large and small horses, large and small camels, bison, and plant macro- and microfossils (Anderson and others, 2002; Jefferson, 1991; Reynolds and Reynolds, 1991; Scott, 1997, 2008; Springer and others, 1998, 1999, 2007; Woodburne, 1991).

Igneous and metamorphic rock units mapped at the surface within the boundaries of the project corridor include: Cretaceous granitic rocks of the Box Springs Plutonic Complex; generic Cretaceous granitic rocks of the Peninsular Ranges batholith; Cretaceous granitic rocks of the Val Verde Pluton; and intermixed Paleozoic schist and gneiss and Cretaceous granitic rocks. None of these igneous or metamorphic rock types has potential to yield significant paleontological resources (Scott, 2008).

SBCM also conducted a search of the Regional Paleontologic Locality Inventory. The results of this search indicate that no previously recorded paleontological resource localities are present within the boundaries of or within one mile of the PVL corridor (Scott, 2008).

3.18.3 Environmental Consequences/Impacts

The results of the literature and records search conducted by SBCM indicate that portions of the project area are situated on Pleistocene and older sedimentary deposits, which have high potential to contain paleontological resources. Impacts to paleontological resources were analyzed based on the presence of fossil-bearing rock units and sediments, in combination with the identification of project-related activities which have the potential to impact these sensitive deposits.

Citrus Connection

The parcels proposed for construction of the Citrus Connection are located in an area mapped as middle Holocene alluvial fan deposits, which are not likely to yield paleontological resources. No impacts to paleontological resources would occur at the Citrus Connection as a result of construction, operation, or maintenance of the PVL.

SJBL Alignment

Portions of the existing SJBL ROW could contain buried Pleistocene alluvium beneath areas that have been previously disturbed by the original construction of the railroad. Proposed construction activities within the ROW (for example, double-tracking or track and tie replacement) in areas where the depth of previous disturbance is less than the maximum depth of construction may result in impacts to sensitive paleontological resources. However, operation and maintenance of the PVL would not result in impacts to paleontological resources. Mitigation measures are required to reduce potential construction impacts to a less than significant level (Mitigation Measures P-1 and P-2).

Hunter Park Station

Hunter Park Station would be located at one of three proximate sites: Palmyrita Avenue Station option, Columbia Avenue Station option, or the Marlborough Avenue Station option.

The mapped geological formations underlying the Palmyrita Avenue location for the proposed Hunter Park Station include old alluvial fan deposits, which have been known to yield paleontological resources (Morton and Cox, 2001; Scott 2008). Therefore, construction activities at this location have the potential to significantly impact unique paleontological resources and mitigation measures are required to reduce impacts to a less than significant level (Mitigation Measures P-1 and P-2).

The underlying sediments of the proposed Marlborough Avenue option consist mostly of old alluvial fan deposits and a small area of porphyritic granodiorite of the Box Springs Plutonic Complex. According to the SBCM (Scott, 2008), the granodiorite is a Cretaceous rock outcrop, which has no potential for paleontological resources. The areas mapped as old alluvial fan deposits, have the potential to yield paleontological resources; however, due to extensive grading and disturbance to native sediments, the likelihood of uncovering such resources is minimal. Therefore, the construction, operation, and maintenance of the Marlborough Avenue option for the proposed Hunter Park Station would not significantly impact paleontological resources.

The mapped geological formations underlying the proposed Columbia Avenue option include old alluvial fan deposits and middle Holocene age young alluvial fan deposits. Old alluvial fan deposits have been known to yield paleontological resources, while middle Holocene age young alluvial fan deposits are not considered sensitive for paleontological resources.

Grading and excavation for the construction of the proposed Hunter Park Station and associated facilities at two of the three locations could result in impacts to sensitive paleontological resources in areas where the depth of previous disturbance is less than the maximum depth of construction. However, operation and maintenance of the PVL would not result in impacts to paleontological resources. Mitigation measures are required to reduce potential construction impacts to a less than significant level (Mitigation Measures P-1 and P-2).

Moreno Valley/March Field Station

The proposed Moreno Valley/March Field Station is located in an area containing very old alluvial fan deposits, which have the potential to yield paleontological resources. Grading and excavation for the construction of the proposed Moreno Valley/March Field Station and associated facilities could result in impacts to sensitive paleontological resources in areas where the depth of previous disturbance is less than the maximum depth of construction. However, operation and maintenance of the PVL is not expected to impact paleontological resources. Mitigation measures are required to reduce potential construction impacts to a less than significant level (Mitigation Measures P-1 and P-2).

Downtown Perris Station

The proposed Downtown Perris Station is located in an area containing old and very old alluvial fan deposits, which have the potential to yield paleontological resources. Grading and excavation for the construction of the proposed Downtown Perris Station and associated facilities could result in impacts to sensitive paleontological resources in areas where the depth of previous disturbance is less than the maximum depth of construction. However, operation and maintenance of the PVL is not expected to impact paleontological resources. Mitigation measures are required to reduce potential construction impacts to a less than significant level (Mitigation Measures P-1 and P-2).

South Perris Station

This station and facility are located in areas mapped as old and very old alluvial fans, which have the potential to yield significant paleontological resources (AE, 2009; Scott, 2008). Construction activities at these locations have the potential to significantly impact unique paleontological resources and mitigation measures are required to reduce impacts to a less than significant level. Mitigation measures are required to reduce potential construction impacts to a less than significant level (Mitigation Measures P-1 and P-2).

Layover Facility

This facility are located in areas mapped as old and very old alluvial fans, which have the potential to yield significant paleontological resources (AE, 2009; Scott, 2008). Construction activities at these locations have the potential to significantly impact unique paleontological resources and mitigation measures are required to reduce impacts to a less than significant

level (Mitigation Measures P-1 and P-2). Mitigation measures are required to reduce potential construction impacts to a less than significant level.

3.18.4 Mitigation Measures

Mitigation measures identified following would avoid impacts to paleontological resources:

- **P-1**: Ground-disturbing activities shall be monitored by a qualified paleontologist at the following locations: portions of the SJBL alignments, Moreno Valley/March Field Station, Downtown Perris Station, South Perris Station, and Layover Facility, as well as two of the three potential locations for the Hunter Park Station (Columbia Avenue Station option and the Palmyrita Avenue Station option). The monitor shall have the power to temporarily halt or divert construction equipment to allow for the removal of specimens. The monitor shall be equipped to salvage any fossils unearthed during project construction, and shall be prepared to collect sediment samples that are likely to contain the remains of small fossil invertebrates and vertebrates.

  To fully mitigate adverse impacts to any paleontological resources encountered during construction, all recovered specimens shall be identified, prepared for permanent preservation, and curated at the San Bernardino County Museum with permanent retrievable paleontological storage. Finally, a report of findings which includes an itemized inventory of specimens shall be prepared and submitted to RCTC along with confirmation of the recovered specimen curation.

- **P-2**: In the event that unanticipated paleontological resources are encountered during the proposed PVL project construction, all ground-disturbing activity shall cease in the immediate area until the services of a qualified paleontologist are retained. The paleontologist shall examine the findings, assess their significance, and offer recommendations for the procedures deemed appropriate to either further investigate or mitigate adverse impacts to those resources that have been encountered.

This Page Intentionally Left Blank

3.19 INDIRECT AND CUMULATIVE EFFECTS

As an existing rail corridor, the SJBL has long been part of the natural and built landscape of Riverside County. Land use patterns, wetlands, waterways, and other natural areas, including wildlife habitat, have already been altered in response to its presence. Development patterns have been established that reflect the active rail presence, where residential development is limited and industrial development and rail spurs are present alongside the alignment.

The introduction of the PVL would essentially represent a change only in the type of rail operations within this same general corridor, with localized physical changes at specific areas. While new facilities such as the Citrus Connection, stations, and Layover Facility would be constructed, they would lie within or adjacent to the existing rail corridor and be integrated within the existing landscape defined by rail operations. Only limited land acquisition would be required, and there would be few changes in land use as a result of the PVL. The PVL has been anticipated by county, city, and specific area planning efforts, and supportive and complementary uses have been planned around the corridor and the station locations. PVL is expected to have limited indirect or cumulative effects. The assessment of indirect and cumulative effects focuses on select environmental indicators, as discussed in detail below.

As noted in Chapter 1.0, the PVL is contemplated as a new mode of transportation to serve the existing population of Riverside County, and accommodate the projected future population anticipated by regional and city plans. It would not cause new development, but could allow for more transit-oriented development, as already contemplated in the plans for Riverside County.

3.19.1 Regulatory Setting

The analysis of indirect and cumulative effects of the proposed project incorporates the regulations of the Council on Environmental Quality (CEQ) as contained in 40 CFR 1500-1508. The CEQ defines three classes of effects (used synonymously with “impacts”). Effects include:

(a) Direct effects, which are caused by the action and occur at the same time and place;

(b) Indirect effects, which are caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable. Indirect effects may include growth inducing effects and other effects related to induced changes in the pattern of land use, population density or growth rate, and related effects on air and water and other natural systems, including ecosystems; and

(c) Cumulative effects, as the effects on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time.

Direct effects are considered within the Sections 3.1, Land Use and Zoning through 3.19, Indirect and Cumulative Effects. The scope of the indirect and cumulative effects assessment is limited to geographic boundaries that include the I-215/SJBL alignment, adjacent rail-freight uses along existing rail spurs, the Citrus Connection, new stations, and Layover Facility.

Areas were studied for indirect and cumulative effects to include the effects of projects that could overlap with or contribute to effects associated with the PVL. Topics comprising this evaluation are limited to the range of such subjects that would reasonably be anticipated to result in indirect or cumulative effects within the study area. These include Land Use and Zoning, Air Quality, Traffic and Parking, Environmental Justice and Socioeconomics, Safety and Security, and ADA Compliance. Certain effects may be local in nature, while others may be more regional in their potential effects. Both potentially adverse and beneficial effects are considered.

After consideration of the potential to result in indirect or cumulative effects, several resource areas were not advanced as part of the indirect and cumulative effects assessment. These resource areas are excluded due to the localized area of potential impact and the existing regulatory controls that protect the resource include;

- Agricultural Resources – The PVL would not result in increased demand for the conversion of agricultural lands, as they are protected by state and local plans.

- Noise and Vibration – Noise and vibration resulting from PVL would be localized impacts that can be fully mitigated.

- Aesthetics – The existing rail alignment has been a part of the visual environs for more than a century, and the architecture and landscaping for the stations would be within the context of commuter rail operations, near no potentially sensitive receptors. Passing commuter trains would not result in a visual impact, nor would the PVL induce activity that would indirectly or cumulatively affect aesthetic conditions.

- Cultural Resources – Construction and maintenance activities for the PVL project would be conducted with BMPs that have been approved by the regulating agencies. The cumulative impact of the project with project specific mitigation measures implemented would not result in either an indirect or a cumulative effect.

- Hazards and Hazardous Materials – SCRRA/Metrolink does not haul hazardous wastes on its system and the proposed PVL extension would not transport such materials. The project would have BMPs for the management of hazardous wastes and materials resulting from the maintenance and repair of the railroad. Taken in combination with existing freight operations along the SJBL, the PVL would not result in indirect or cumulative effects from hazardous materials.

- Utilities and Service Systems – The PVL would not induce the need for new or extended utility services and therefore would not result in demands for development of new sources of utility provisions.

- Section 4(f) and Parklands – The proposed project would not affect parklands or 4(f) resources. The proposed project would not generate activities that would indirectly or cumulatively reduce enjoyment or access to such resources.

- Biological Resources – The PVL would be in conformity with the MSHCP, and there would be no direct effects to biological resources. By not altering the planned implementation of the MSHCP, indirect or cumulative effects would not occur.

- Geology and Soils – Geotechnical investigation (Kleinfelder, 2008) indicates that the project area is not located within the Alquist-Priolo Earthquake Fault Zone. The Geotechnical report indicates that the development of the PVL is feasible, with the application of standard geotechnical considerations including excavation and replacement of weak/expansive soils. These excavation and grading activities would be limited to the corridor and would not create indirect/cumulative effects when conducted in accordance with the Grading and Building Permits, Drainage and Erosions Control Plans, and a Construction SWPPP.

- Water Quality – Based on the design approaches incorporated into the replacement of the several culverts along the SJBL alignment, and the permit BMPs and requirements that are established for the construction of the replacement facilities, water quality standards and objectives would be unaffected as part of the PVL. Effects would be localized and conditions would be unchanged after construction, no indirect or cumulative effects would occur with or because of the project.

- Floodplains – Although a portion of the PVL alignment lies within a 100-year floodplain, no direct effects would result. The PVL would not contribute to flooding that may occur as part of a 100-year event. The culvert changes along the corridor would not result in changes to downstream flows. PVL would not induce new development or other landscape changes that would be anticipated to increase flood potential in the area.

- Paleontological Resources – The project area is not designated as an important area of for paleontological resources, primarily due to the fact the corridor has been disturbed over the past century. The construction of the stations would not result in impacts to paleontological resources with project-specific mitigation measures implemented; impacts would be localized and would not be indirect or cumulative in nature.

3.19.2 Affected Environment

For the preparation of this indirect and cumulative effects assessment, county and city planning agencies were interviewed for the purpose of identifying potential impacts that may be foreseen related to the PVL and the county/city planning context. A log of the planning agencies that were contacted is included in Appendix E. All agencies indicated that the PVL was anticipated and accommodated within their planning efforts, including specific area plans.

Planned development and roadway projects that would be completed by 2012 within the study area were evaluated for their potential to contribute to indirect and cumulative effects to air quality and other environmental conditions. Several development projects are planned along the corridor that include the Meridian Business Park near the MARB, which is covered by the March JPA, and proposed roadway projects along the I-215/SJBL alignment. Projects are shown on Figure 3.19-1 and listed below:

- *Riverside Grade Separations*, projects of the city of Riverside, includes three railroad grade-separations of the BNSF at 3rd Street, Columbia Avenue, and Iowa Avenue. These projects are scheduled to be completed between 2010 and 2013.

- *Hunter Park Distribution Center* is a 520,000-square foot distribution center on the north side of Columbia Avenue and east of the ROW.

- *Perris Station Apartments* is a mixed use development that includes; 84 units of senior housing, 155,526 square feet of retail and office space, 77 parking spaces and 16,000 square feet of courtyard and open space.

- *The I-215 Freeway Widening Project* would be completed in three segments. These segments include I-215/SR-60 and Nuevo Road; between Nuevo Road and Scott Road, south of Perris; and between Scott Road and Murrieta Hot Springs Road.

- *The UCR Long Range Development Plan* the addition of 7,105,691 square feet of classrooms, labs, dormitories and office spaces to be completed by 2016. Because the UCR Long Range Plan does not identify specific pieces to be complete by 2012, the entire program is assumed to be in place for the PVL's opening year.

3.19.3 Environmental Consequences/Impacts

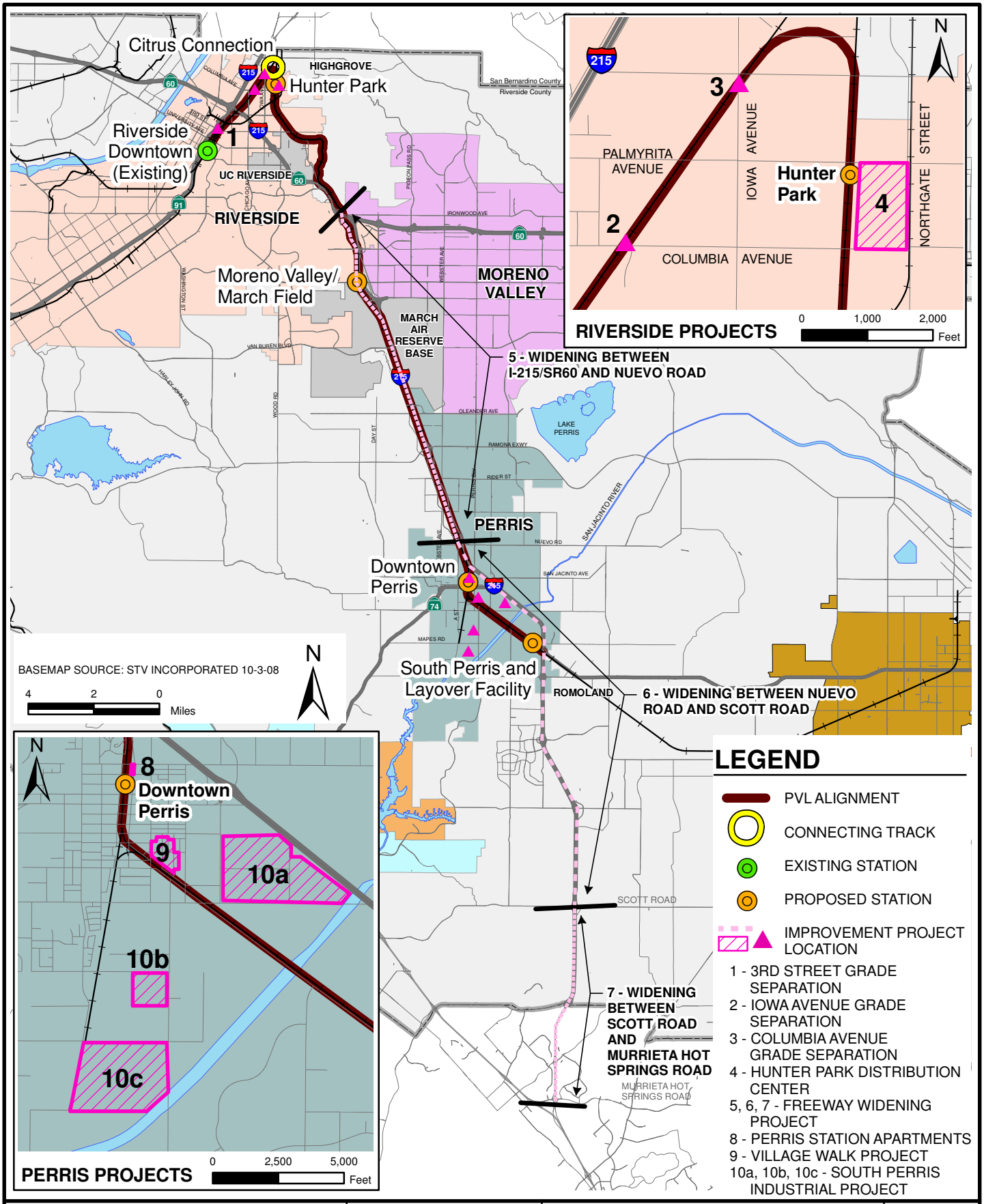
Indirect and cumulative effects for the PVL and the projects identified above are evaluated for Land Use and Zoning, Air Quality, Traffic and Parking, Environmental Justice and Socioeconomics, Safety and Security, ADA Compliance, and Construction Impacts.

Land Use and Zoning

Riverside County has adopted the RCIP General Plan to coordinate various aspects of the long-range planning process. As a part of this effort three plans have been created, including the MSHCP, the CETAP, and an updated Riverside County General Plan. The General Plan is designed to direct future land use decisions throughout Riverside County. It would combine the MSHCP and the CETAP recommendations along with land use, safety, noise, housing, and air quality guidelines. The plan advocates the extension of the Riverside rail service corridor along the San Jacinto Branch Line.

The overall growth of Riverside County and individual communities is driven by market forces, employment, the cost of housing, and availability of land. The location, types and amounts of development are directed and shaped by local jurisdictions through their land use powers. The PVL is contemplated in the land use elements of the Perris and Riverside General Plans, as well as the County's General Plan. The introduction of commuter rail service may have an influence on the types and timing of development, allowing local jurisdictions to develop more transit-oriented development as part of specific area plans. The PVL is expected to accommodate existing transportation demand that exists within the I-215/SJBL alignment. The proposed commuter rail service would not generate any new development or cumulative impacts. The UCR Long Range Development Plan, Perris Downtown Improvements, March Lifecare Village, various planned business parks and retail centers, and transit and traffic improvements would not be affected by the PVL.

No indirect, growth-inducing, or cumulative effects on land use and zoning would be expected as a result of the introduction of PVL service.



PROJECT NO.	92666
DRAWN:	1/14/10
DRAWN BY:	JP
CHECKED BY:	LF
FILE NAME:	92666impr2.MXD

2012 PROJECTS NEAR PVL CORRIDOR

SUPPLEMENTAL ENVIRONMENTAL ASSESSMENT
RIVERSIDE COUNTY TRANSPORTATION COMMISSION
PERRIS VALLEY LINE
RIVERSIDE, CALIFORNIA

FIGURE
3.19-1

Air Quality

While other transit and traffic projects planned for the region, noted above, may on their own or together affect air quality, any potential effects associated with these projects would not be induced or exacerbated by the PVL. PVL would reduce some trip-making that now occurs via automobile, resulting in a corresponding drop in Vehicle Miles Traveled (VMT) and a concomitant improvement in air quality.

The analysis of MSAT emissions indicates negligible direct emissions, and the cumulative contribution of the operations of SCRRA/Metrolink engines along the PVL would also not result in cumulative emissions impact.

The proposed rail service would result in a significant decrease in CO and GHG emissions, offsetting to a very limited degree the additional VMT and GHG directly and indirectly produced within the region. Air quality impacts from construction activities are not significant. In context with respect to cumulative air quality impacts from construction activities along the corridor including adjacent unrelated development projects are also not significant due to the time and distance in those projects and the expected construction of the PVL.

Although the total air quality improvement is small compared to the generation of pollutants throughout the region, the introduction of commuter rail service provides an ongoing opportunity for vehicle trip reduction and air quality improvement. PVL would result in no indirect or cumulative effects to air quality.

Traffic and Parking

Other transportation projects, as noted above, are expected to be complete by 2012, with the effect of accommodating anticipated development and addressing select traffic flow problems that currently exist. The traffic analyses conducted for the SEA included these projects and concluded that no unmitigatable significant adverse impacts to traffic and parking would result from the PVL. The introduction of the PVL would neither improve nor deteriorate the effectiveness of these other transportation projects.

The project could create an indirect and cumulative benefit through small improvements to regional traffic flow; the diversion of vehicle trips to PVL ridership would result in a measurable reduction in VMT. This improved traffic flow may not be represented as a net improvement to LOS along the regional arteries.

PVL may result in beneficial indirect and cumulative effects, including improved mobility and access for residents, workers and visitors, support of economic and community development in the region.

Environmental Justice and Socioeconomics

No impacts associated with environmental justice and socioeconomics would occur. The benefits of improved mobility would be a positive impact for communities along the entire corridor and would extend mobility to Orange and Los Angeles Counties. A small, indirect benefit to improved socioeconomic conditions through construction expenditures and increased localized spending by PVL commuters may occur.

Safety and Security

Safety and security would be directly improved by the PVL, and indirect and cumulative benefits would occur through area safety improvements for pedestrians and vehicles. Improved safety in the indirect and cumulative effects study area would also arise through Riverside's grade separation projects and the I-215 widening projects. Other safety improvements would likely be identified and corrected through the development approvals for the several development projects within the indirect and cumulative effects study area.

ADA Compliance

The PVL would be ADA compliant and it would further develop an existing network of ADA accessible transit ways in the region. A cumulative beneficial impact would occur, as Riverside County is linked by the ADA-compliant commuter service to Orange and Los Angeles Counties.

Construction Impacts

There is some potential for construction of the PVL to overlap construction of the I-215 widenings and other development projects detailed above. If concurrent cumulative construction occurs, there may be the potential for construction-related impacts. Each project is bound to comply with SCAQMD construction air quality requirements; would be generally contained and localized in nature; and would also need to provide for appropriate maintenance and protection of traffic, under the direction and authority of the approving city. Construction-related impacts are, by nature, localized and limited in duration. and are not expected to result in indirect or cumulative construction-related impacts.

Construction of the commuter rail elements would include mitigation measures required to assure that activities do not exceed SCAQMD quarterly impact thresholds. Measures to control fugitive dust would be used to avoid violation of the SCAQMD PM_{10} criterion, and the proposed sequencing of construction activities would avoid violation of the NO_x criterion. By compliance with these mitigation measures, the proposed project would avoid exceeding SCAQMD criteria and reduce the potential for cumulative construction period impacts. It is assumed that traffic management plans would also be implemented, so that the overall potential for cumulative traffic impacts would be reduced. No indirect or cumulative effects associated with construction activities would occur.

3.19.4 Mitigation Measures

With prescribed mitigation in place to control for the effects of direct traffic impacts, and with applicable construction BMPs and mitigation in effect, the PVL would result in no indirect or cumulative effects. No further mitigation would be required.

4.0 AGENCY COORDINATION

This document is being prepared as a project update to the Draft EA prepared and distributed in 2004. FTA has directed the preparation of this SEA to replace the previously prepared document because of the length of time that has elapsed since initial distribution. Therefore, agency coordination was reinitiated to solicit participation in this SEA process. Scoping letters were mailed out by RCTC to the following agencies on June 9, 2009.

4.1 FEDERAL AGENCIES

- U.S. Army Corps of Engineers
- U.S. Fish and Wildlife Service
- U.S. Environmental Protection Agency

4.2 STATE AGENCIES

- California Department of Fish and Game
- Native American Heritage Commission
- California State Historic Preservation Officer
- Regional Water Quality Control Board – Region 8
- California Department of Transportation – District 8
- University of California, Riverside

4.3 REGIONAL/LOCAL AGENCIES

- City of Moreno Valley
- City of Riverside
- City of Perris
- County of Riverside
- March Air Reserve Base
- March JPA
- Riverside Transit Authority
- South Coast Air Quality Management District
- Western Riverside County Regional Conservation Authority

4.4 OTHER

- BNSF Railway Company
- Southern California Regional Rail Authority
- Union Pacific Railroad

This Page Intentionally Left Blank

5.0 PUBLIC OUTREACH

This section summarizes the public involvement and coordination efforts during the preparation of the Draft EA and this SEA. Public outreach and opportunities to comment on the PVL project date back to 2002 and include agency coordination, public scoping, and the public comment processes. These public outreach opportunities provided for bilingual access and interpreters were also provided as requested.

5.1 AGENCY COORDINATION

The proposed PVL project was presented to various agencies at the federal, state, regional/local levels since initial inception. Presentations, policy and technical committee meetings, and information gathering sessions were conducted to identify corridor transportation concerns, potential solutions, and anticipated environmental impacts. Information about the proposed project and various alternatives were presented. These scoping/outreach opportunities allowed agencies to identify issues and concerns to be incorporated in the environmental documentation process. Prior to the circulation of the Draft EA in 2004 contact was made and meetings occurred with the following agencies:

- U.S. Army Corps of Engineers, November 2002;
- U.S. Fish and Wildlife Services, May 2002;
- Federal Railroad Administration, June 2008, September 2008, December 2008, March 2009, June 2009, ongoing;
- California Public Utilities Commission, October 2008, July 2009, ongoing;
- California Department of Fish and Game, May 2002.

5.2 PUBLIC SCOPING

Public scoping opportunities occurred previously to gather public input on the project. Participants were asked to identify environmental issues within the study corridor, comment on the proposed project, and alternatives. These meetings included presentations, an informal question and answer session, and group discussions.

Overall, six public scoping meetings were held at different times and locations during the preparation of the Draft EA. The first group of meetings was held in February 2002, with meetings occurring in Moreno Valley, Riverside, and Perris. The dates for the first group of public scoping meetings happened February 13, 19, and 20, 2002. A second group of three meetings was held at each of the three above mentioned locations in May 2003. These public scoping meetings happened May 7, 12, and 19, 2003.

5.3 PUBLIC COMMENT PROCESS

There have been numerous opportunities presented by RCTC to review and comment on the project environmental documents. Public comment was received on the Draft EA (2004) and on the separate CEQA Initial Study/Mitigated Negative Declaration (IS/MND) (2009) prepared for

the project. In addition to the environmental document review RCTC held several public information meetings and public hearings to solicit public participation for both NEPA and CEQA documents.

5.3.1 Initial NEPA Process

Previously, RCTC held four public hearings during the circulation of the Draft EA in 2004. The format for these meetings began with an informational session followed by a formal public hearing opportunity. Interested parties were asked to submit verbal or written comments. Verbal comments were transcribed and written comments could be submitted via letter, fax, or email until the end of the comment period. Comments received on the Draft EA are provided in a table that identifies issues by topic area and directs the reader to the appropriate section in this SEA and is provided in Appendix A. The public hearings were held on and at the following locations:

- University of California, Riverside on August 4, 2004 from 11:30 AM to 1:30 PM;
- Hyatt Elementary School on August 4, 2004 from 6:30 PM to 8:30 PM;
- Moreno Valley Center Hall on August 5, 2004 from 6:30 PM to 8:30 PM; and
- City of Perris Senior Citizen Center on August 7, 2004 from 10:00 AM to 12:00 PM.

5.3.2 CEQA Process

In 2009 RCTC conducted a similar environmental process to address the requirements of CEQA. An Initial Study/Mitigated Negative Declaration (IS/MND) was prepared for the project. The CEQA document was made available for public review and comment from January 16 through February 26, 2009. One public information meeting and two public hearings were held during the public review comment period. The public information meeting and public hearings were held on and at the following locations:

- Public Information Meeting: Moreno Valley Towngate Community Center on February 4, 2009 from 6:00 PM to 8:00 PM;
- Public Hearing: Riverside County Administrative Center – Board Room on February 11, 2009 at 9:30 AM; and
- Public Hearing: Riverside County Administrative Center – Board Room on February 26, 2009 at 6:00 PM. This additional hearing was requested by the UCR neighbors.

After careful consideration of public comments received, RCTC decided to discontinue the IS/MND process and instead prepare an Environmental Impact Report (EIR). The EIR process was initiated with the publication of the Notice of Preparation (NOP) on July 14, 2009. Two weeks after the NOP was posted by the State Clearinghouse on July 28, 2009, RCTC conducted a public scoping meeting at the Moreno Valley Towngate Community Center. The Draft EIR was made available for public review and comments from April 5, 2010 through May 24, 2010. In addition, three public hearings were held during the CEQA process:

- Public Hearing: Riverside County Administrative Center – Board Room on April 14, 2010 at 9:30 AM;
- Public Hearing: City of Perris – City Council Chambers on April 22, 2010 at 6:00 PM; and
- Public Hearing: UCR Extension – Room C on May 17, 2010 at 6:00 PM

5.3.3 Current NEPA Process

A new 30-day public comment period would be initiated with this SEA. The comments received on the document would be addressed in the final SEA document.

This Page Intentionally Left Blank

6.0 REPORT PREPARATION

6.1 LEAD AGENCY

FTA is the lead agency under NEPA for the preparation of the PVL Project SEA and Section 4(f) evaluation.

Federal Transit Administration Region 9
201 Mission Street
Suite 1650
San Francisco, CA 94105-1839
(415) 744-3133

FTA Agent:
Leslie T. Rogers
Federal Transit Administration Region 9
201 Mission Street, Suite 1650
San Francisco, California 94105

6.2 REPORT PREPARERS

Kleinfelder
5015 Shoreham Place
San Diego, California 92122

Project Staff:
Robert Motschall, Ph.D. (Project Manager)
Mark Peabody, P.E.
Chuck Cleeves
Lauren Ferrell, E.I.T.
Elyssa Figari
Jeremy Januszewicz
Blair Baker
Janet Patay
Melissa McKindley
Kathleen McCracken

STV Incorporated
9130 Anaheim Place, Suite 210
Rancho Cucamonga, California 91730

Project Staff:
Richard Quirk (Project Manager)
Molly MacQueen
Sarah Butler
Cade Hobbick
Steven Scalici, P.E.
Nil Simsek
Kenon Tutein
Douglas Swann

This Page Intentionally Left Blank

7.0 REFERENCES

AECOM, 2009. Perris Valley Line Draft Hydrology Report, Volume II San Jacinto River Analysis. Prepared for STV Incorporated and Riverside County Transportation Commission.

Albert A. Webb Associates, 2007. Towne Center Traffic Impact Study.

Anderson, R.S., M.J. Power, S.J. Smith, K.B. Springer, and E. Scott, 2002. Paleoecology of a Middle Wisconsin Deposit from Southern California. Quaternary Research 58(3): 310-317.

Applied EarthWorks, Inc. (AE), 2008. Archaeological Resources Report for the Perris Valley Rail Line Project, Riverside County, California. Prepared for the Riverside County Transportation Commission.

Applied Planning Inc., 2009. March Lifecare Campus Specific Plan Draft Program Environmental Impact Report.

AE, 2009. Archaeological Buried Site Testing Report for CA-RIV-805 for the Perris Valley Rail Line Project, Riverside County, California.

AE, 2009. Archaeological Testing Plan for CA-RIV-805 for the Perris Valley Rail Line Project, Riverside County, California. Prepared for the Riverside County Transportation Commission and the Federal Transit Administration.

ATS Consulting, 2005. Perris Valley Line Noise and Vibration Technical Report.

Boyle Engineering, 2000. Union Pacific Riverside Branchline Improvement Study. Prepared for Riverside County Transportation Commission.

Boyle Engineering and Barton-Aschman Associates, Inc., 1995. San Jacinto Branchline Commuter Rail Study. Prepared for Riverside County Transportation Commission.

California Air Resources Board (CARB), 2009. 1999-08-12 California Air Toxics Program Background. http://www.arb.ca.gov/toxics/background.htm

California Air Resources Board (CARB), 2009. California Ambient Air Quality Standards. http://www.arb.ca.gov/homepage.htm

California Building Code (CBC), 2007. California Code of Regulations, Title 24, Part 2, Volume 2.

California Department of Fish and Game (CDFG), 2009. Wildlife, Fish & Plan Information & Programs. http://www.dfg.ca.gov/about/wildlife.html

California Department of Transportation, 1997. Transportation Project-Level Carbon Monoxide Protocol (UCD-ITS-RR-97-21).

California Department of Transportation, 2007. California Scenic Highway Mapping System: Riverside County. http://www.dot.ca.gov/hq/LandArch/scenic_highways/index.htm

California Department of Transportation, 2001. Final Environmental Impact Statement (FEIS): I-215 Improvements.

California Geological Survey (CGS), 2003. Probabilistic Seismic Hazards Assessment - Peak Ground Acceleration. http://www.consrv.ca.gov/cgs/rghm/psha/pga.htm

California Public Utilities Commission (CPUC), 2007. Rules and Regulations Governing State Safety Oversight of Rail Fixed Guideway Systems. Amended May 3, 2007. http://docs.cpuc.ca.gov/published/GENERAL_ORDER/67952.htm.

California Public Utilities Commission (CPUC), 2009. Rail Transit Systems. http://www.cpuc.ca.gov/puc/transportation/transit.htm.

City of Moreno Valley, 2006. City of Moreno Valley General Plan, Adopted July 11, 2006. http://www.moreno-valley.ca.us/city_hall/general_plan.html

City of Perris, 2007. Village Walk District: Perris Downtown Draft Specific Plan Amendment, Adopted, January 2007. http://www.cityofperris.org/city-hall/specific-plans.html

City of Perris, 2005. Comprehensive General Plan 2030, Adopted June 14, 2005. http://www.cityofperris.org/city-hall/general-plan.html

City of Perris, 1992. Riverglen Specific Plan, Adopted April 1, 1992. http://www.cityofperris.org/city-hall/specific-plans.html

City of Perris, 1993. Downtown Specific Plan, Adopted March 6, 1993. http://www.cityofperris.org/city-hall/specific-plans.html

City of Perris, 1990. Green Valley Specific Plan, Adopted March 5, 1990. http://www.cityofperris.org/city-hall/specific-plans.html

City of Riverside, 2007. Riverside General Plan 2025, Adopted November 2007. http://www.riversideca.gov/planning/2008%2D0909/general-plan.asp

City of Riverside, 2007. Sycamore Highlands Specific Plan (formerly Lusk Highlander Specific Plan), Adopted November 27, 2007. http://www.riversideca.gov/planning/cityplans-csp-sychigh-sp.asp

City of Riverside, 2002. Hunter Business Park Specific Plan, Revised August 2002. http://www.riversideca.gov/planning/cityplans-csp-hunterbp.asp

City of Riverside, 1993. Specific Plan/EIR: Sycamore Canyon Business Park (formerly Box Springs Industrial Park), Adopted May 4, 1993. http://www.riversideca.gov/planning/cityplans

Code of Federal Regulations (CFR), Title 23, Section 771.135: Section 4(f), August 28, 1987.

Code of Federal Regulations (CFR), Title 36, part 800: Protection of Historic Properties, Amended August 5, 2004.

Code of Federal Regulations (CFR), Title 40, part 51, subpart A: Air Emissions Reporting Requirements, Updated December 17, 2008.

Code of Federal Regulations (CFR), Title 43, part 3: Preservation of American Antiquities, December 23, 1954.

Code of Federal Regulations (CFR) Title 44, part 60, section 3, paragraph (d)(3), October 1, 2001.

Code of Federal Regulations (CFR), Title 49, part 659: Rail Fixed Guideway Systems; State Safety Oversight, Updated June 22, 2005.

Davis, Daniel and Julie Davis, 2006. Hazardous Material Reference Book: Cross-Index.

Department of Toxic Substances Control (DTSC), 2009. California Hazardous Waste Classification. http://ccelearn.csus.edu/wasteclass/intro/intro_01.html

Executive Order 13112, Invasive Species, February 3, 1999.

Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, February 11, 1994.

Federal Emergency Management Agency (FEMA), 2008. Map Service Center: Riverside County Maps and DFIRM data. http://www.fema.gov/

Federal Emergency Management Agency (FEMA), 2009. Disaster Information: Flood. http://www.fema.gov/hazard/flood/index.shtm

Federal Emergency Management Agency (FEMA), 2009. The National Flood Insurance Program. http://www.fema.gov/about/programs/nfip/index.shtm

Federal Railroad Administration (FRA), 2009. Track Safety Standards Compliance Manual. http://www.fra.dot.gov/us/content/460

Federal Transit Administration (FTA), 2006. Transit Noise and Vibration Impact Assessment. FTA-VA-90-1003-06. Office of Planning and Environment, May 2006.

General Code of Operating Rules, Fifth Edition. 6.0 Movement of Trains and Engines: section 21, part 2, April 3, 2005.

International Code of Building Officials (ICBO), 1997. Handbook to the 1997 Uniform Building Codes

Institute of Transportation Engineers (ITE), 2007. Trip Generation, 7th Edition.

Jefferson, G.T., 1991. A Catalogue of Late Quaternary Vertebrates from California: Part Two, Mammals. Natural History Museum of Los Angeles County Technical Reports, No. 7.

J.L. Patterson & Associates, Inc., 2008. Perris Valley Line San Jacinto Branch Segment Between Highgrove, CA and South Perris, CA Draft Existing Conditions Report. Prepared for STV Incorporated and Riverside County Transportation Commission.

J.L. Patterson & Associates, Inc., 2009. Perris Valley Line Draft Hydrology Report, Volume I. Prepared for STV Incorporated and Riverside County Transportation Commission.

Kleinfelder, 2008. Hazardous Materials Corridor Study Technical Report. Prepared for STV Incorporated and Riverside County Transportation Commission.

Kleinfelder, 2008. Geotechnical Field Exploration and HazMat Investigation Work Plan (Revised from October 31, 2008). Prepared for STV Incorporated and Riverside County Transportation Commission.

Kleinfelder, 2009. Draft Initial Study/Mitigated Negative Declaration. Prepared for Riverside County Transportation Commission.

Kleinfelder, 2009. Preliminary Geotechnical Investigation Report: Perris Valley Line Corridor Project Station 200+00 to Station 1296+00. Prepared for STV Incorporated and Riverside County Transportation Commission.

LSA Associates, Inc., 2005. Ethanc Road Retail Center Traffic Study.

LSA Associates, Inc., 2006. Perris Marketplace Traffic Study.

March Air Reserve Base (MARB), 2009. March Air Reserve Base: Units. http://www.march.afrc.af.mil/units/

March Global Port, 2009. March Global Port: Connecting Riverside County to the World. http://www.marchglobalport.com/

March Joint Powers Authority (JPA), 2003. Meridian Specific Plan (formerly March Business Center), Adopted February 2003. http://www.marchjpa.com/planning.html

March Joint Powers Authority (JPA), 1997. General Plan of the March Joint Powers Authority, Adopted March 1997. http://www.marchjpa.com/planning.html

Meridian Specific Plan Amendment (SP-5) – Final Subsequent Environmental Impact Report, July 2010, March Joint Powers Authority.

Morton, D.M., 2001. Geologic Map of the Steele Peak 7.5' Quadrangle, Riverside County, California, version 1.0. United States Geological Survey Open-File Report 01-449. Digital preparation by R.M. Alvarez and V.M. Diep.

Morton, D.M., 2003. Preliminary Geologic Map of the Perris 7.5' Quadrangle, Riverside County, California, version 1.0. United States Geological Survey Open-File Report 03-270. Digital preparation by K.R. Bovard and R.M. Alvarez.

Morton, D.M. and B.F. Cox, 2001a. Geologic Map of the Riverside East 7.5' Quadrangle, Riverside County, California, version 1.0. United States Geological Survey Open-File Report 01-452. Digital preparation by M. Dawson and T. O'Brien.

Morton, D.M. and B.F. Cox, 2001b. Geologic Map of the Riverside West 7.5' Quadrangle, Riverside County, California, version 1.0. United States Geological Survey Open-File Report 01-451. Digital preparation by R.M. Alvarez and V.M. Diep.

Myra L. Franks & Associates, Inc., 2003. San Jacinto Branch Line, Riverside County, California, Determination of Eligibility and Effects Report. Prepared for STV Incorporated, Riverside County Transportation Commission, and the Federal Transit Administration.

National Cooperative Soil Survey Organization (NCSS), 2008. National Soil Survey Handbook, Updated July, 2008.

Natural Resources Conservation Service (NRCS), 1983. National Engineering Handbook.

Natural Resources Conservation Service (NRCS), 1971. Soil Survey Western Riverside Area, California.

Pipeline and Hazardous Materials Safety Administration (PIMMA), 2007. National Pipeline Mapping System. http://www.npms.phmsa.dot.gov

Reynolds, S.F.B. and R.L. Reynolds, 1991. The Pleistocene Beneath Our Feet: Near-Surface Pleistocene Fossils in Inland Southern California Basins, in Inland Southern California: the Last 70 Million Years, M.O. Woodburne, S.F.B. Reynolds, and D.P. Whistler, eds. Redlands, San Bernardino County Museum Special Publication 38 (3&4), p. 41-43.

Riverside County, 2003. Riverside County General Plan: Riverside County Integrated Project (RCIP), Adopted October 7, 2003.

Riverside County Habitat Conservation Agency, 2009. Habitat Conservation Plan (HCP) for the Stephens' Kangaroo Rat (SKR) in Western Riverside County, California. http://www.skrplan.org/skr.html

Riverside County Land Information System (RCLIS), 2008. County of Riverside Transportation and Land Management Agency Geographic Information Services. http://www3.tlma.co.riverside.ca.us/pa/rclis/index.html

Riverside County Transportation & Land Management Agency (TLMA), 2008. Riverside County General Plan 2008: Area Plan Volume 1 and Area Plan Volume 2. http://www.rctlma.org/genplan/general_plan_2008/general_plan_2008.aspx

Riverside County Transportation & Land Management Agency (TLMA), 2003. Riverside County General Plan: Area Plans Volume 1 and Area Plans Volume 2. http://www.rctlma.org/genplan/content/gp.aspx

Riverside County Transportation Commission (RCTC), 2006. Development Plan and Negative Declaration for the construction of Phase I of the proposed Perris Multimodal Facility.

Riverside County Transportation Commission (RCTC), 2009. I-215 Improving Mobility. http://www.i215project.info/

Riverside County Transportation Commission (RCTC), 2009. State Route 91/State Route 71 Interchange Improvement Project: http://www.sr91-sr71project.info/schedule.asp

Riverside County Transportation Commission (RCTC), 2009. State Route 91 Project. http://www.sr91project.info/facts.php

Riverside County Waste Management Department (RCWMD), 2006. http://www.rivcowm.org.

Riverside County Flood Control & Water Conservation District (RCFCWCD), 2009. District Overview. http://www.floodcontrol.co.riverside.ca.us/

Santa Ana Regional Water Quality Control Board (SARWQCB), 2009. California Environmental Protection Agency: Santa Ana Region. http://www.swrcb.ca.gov/rwqcb8/

Scott, Eric, 1997. A Review of Equus conversidens in Southern California, with a Report on a Second, Previously-Unrecognized Species of Pleistocene Small Horse from the Mojave Desert. Journal of Vertebrate Paleontology 17(3): 75-A.

Scott, Eric, 2008. Unpublished Paleontology Literature and Records Review, Perris Valley Commuter Rail Line Project, Riverside County, California. Letter from the Division of Geological Sciences of the San Bernardino County Museum to Applied Earthworks, dated July 21, 2008.

Springer, K.B., E. Scott, L.K. Murray, and W.G. Spaulding, 1998. Partial Skeleton of a Large Individual of Mammut americanum from the Domenigoni Valley, Riverside County, California. Journal of Vertebrate Paleontology 18(3): 78-A.

Springer, K.B., E. Scott, J.C. Sagebiel, and K.M. Scott, 1999. A Late Pleistocene Lake Edge Vertebrate Assemblage from the Diamond Valley, Riverside County, California. Journal of Vertebrate Paleontology 19(3): 77-A.

Springer, K.B., E. Scott, J.C. Sagebiel, and L.K. Murray, 2007. The Diamond Valley Lake Local Fauna: Late Pleistocene Vertebrates from Inland Southern California. Journal of Vertebrate Paleontology 27(3): 151A.

South Coast Air Quality Management District (SCAQMD), 2007. CEQA Air Quality Handbook (revised 1993). http://www.aqmd.gov/ceqa/oldhdbk.html

Southern California Association of Governments (SCAG), 2006. Regional Transportation Improvement Program (RTIP). http://www.scag.ca.gov/rtip/

Southern California Association of Governments (SCAG), 2008. Regional Transportation Plan (RTP). http://www.scag.ca.gov/rtp2008/

State of California. 2006. Department of Conservation: Farmland Mapping and Monitoring Program (FMMP). http://www.conservation.ca.gov/dlrp/FMMP/Pages/Index.aspx

State of California, 2003. Governor's Office of Planning and Research (OPR): State of California General Plan Guidelines, Adopted October 2003. www.opr.ca.gov/planning/publications/General_Plan_Guidelines_2003.pdf.

State of California, 1989. Governor's Office of Planning and Research (OPR): Preemption of Local Land Use Authority in California, Part 2, Adopted December 1989. http://ceres.ca.gov/planning/preemption/Stephens' Kangaroo Rat Habitat Conservation Plan, 1996. Riverside County Habitat Conservation Agency

State Water Resources Control Board (SWRCB), 2003. National Pollutant Discharge Elimination System. http://www.waterboards.ca.gov/water_issues/programs/npdes/

State Water Resources Control Board (SWRCB), 2009. Construction Stormwater Permit. http://www.swrcb.ca.gov/water_issues/programs/stormwater/constpermits.shtml

STV Incorporated, 2004. San Jacinto Branchline/I-215 Corridor Study/Alternatives Analysis. Prepared for Riverside County Transportation Commission.

STV Incorporated, 2010. Perris Valley Line Commuter Rail Air Quality Technical Report. Prepared for Riverside County Transportation Commission.

STV Incorporated, 2010. Perris Valley Line Commuter Rail Noise and Vibration Technical Report. Prepared for Riverside County Transportation Commission.

STV Incorporated, 2010. Perris Valley Line Commuter Rail Traffic Technical Report. Prepared for Riverside County Transportation Commission.

Transportation Research Board, 2000. Highway Capacity Manual.

Urban Crossroads, 2008. Cactus Avenue and Commerce Center Drive Commercial Center Traffic Impact Study.

U.S. Army Corps of Engineers (USACE), 2009. Wetlands and Waterways Regulation and Permitting. http://www.usace.army.mil/CECW/Pages/ww_reg_permit.aspx

U.S. Census Bureau, 2000. Census 2000 Fact Sheet: American Fact Finder. http://factfinder.census.gov/

U.S. Code (USC), Title 7, Section 4201: Farmland Protection Policy, Updated January 8, 2008.

U.S. Code (USC), Title 16, Sections 431-433: Antiquities Act of 1906, June 8, 1906.

U.S. Code (USC), Title 16, Sections 470: National Historic Preservation Act of 1966, October 15, 1966.

U.S. Code (USC), Title 16, Sections 661-667E: Fish and Wildlife Coordination Act, March 10, 1934

U.S. Code (USC), Title 16, Sections 703-712: Migratory Bird Treaty Act of 1918, July 13, 1918.

U.S. Code (USC), Title 16, Sections 1531-1544: Endangered Species Act, December 28, 1973.

U.S. Code (USC), Title 33: Navigation and Navigable Waters, Revised July 1, 2005.

U.S. Code (USC), Title 49, Section 303: Department of Transportation Act of 1966, October 15, 1966.

U.S. Code (USC), Title 49, Section 5309: Transportation, July 9, 1964.

U.S. Department of Agriculture, 2007. Census of Agriculture, Riverside County Profile. National Agricultural Statistics Service. www.agcensus.usda.gov.

U.S. Department of Justice, 2005. Civil Rights Division Disability Rights Section: A Guide to Disability Rights Laws.

U.S. Department of Transportation, 1982. Handbook of Urban Rail Noise and Vibration Control (UMTA-MA-06-0099-82-1).

U.S. Department of Transportation, 1983. State of the Art Review: Prediction and Control of Groundborne Noise and Vibration from Rail Transit Trains (UMTA-MA-06-0049-83-4).

U.S. Environmental Protection Agency (USEPA), 2009. History of the Clean Water Act. http://www.epa.gov/lawsregs/laws/cwahistory.html

U.S. Environmental Protection Agency (USEPA), 2009. Wastes - Non-Hazardous Waste, http://www.epa.gov/waste/nonhaz/index.htm

U.S. Environmental Protection Agency (USEPA), 1975. Hazard Materials Transportation Act.

U.S. Fish and Wildlife Service (USFWS), 2009. Endangered Species Program. http://www.fws.gov/endangered/

U.S. Geological Survey (USGS), M.P. Kennedy, and D.M. Morton, 2003, Preliminary Geologic map of the Murrieta 7.5' quadrangle, Riverside County, California, U.S. Geological Survey (USGS), Open-File Report OF-03-189, scale 1:24000.

Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP), 2003. Riverside County Habitat Conservation Agency, Adopted June 17, 2003.

Western Riverside County Natural Hazard Disclosure (Fire) Map, 2000. California Department of Forestry and Fire Protection (CDFFP), January 2000. http://www.fire.ca.gov/ab6/ab6lst.html

Wilbur Smith and Associates, 2008. Final Report, Perris Valley Line Freight Study presented by San Jacinto Branch Line Ad Hoc Committee, May 14, 2008, http://www.rctc.org/downloads/11.SW.PVL%20Freight%20Study.pdf.

Wiser, Ben, P. Blaikie, T. Cannon, and I. Davis, 2004. At Risk: Natural hazards, People's Vulnerability and Disasters.

Woodburne, M.O., 1991. The Cajon Valley, in Inland Southern California: the Last 70 Million Years, M.O. Woodburne, S.F.B. Reynolds, and D.P. Whistler, eds. Redlands, San Bernardino County Museum Special Publication 38(3&4), p. 41-43.

This Page Intentionally Left Blank

8.0 INDEX

Acquisition, 1-2, 1-3, 1-5, 1-10, 1-11, 1-67, 2-13, 2-14, 2-15, 2-18, 2-20, 3.8-14, 3.10-1, 3.10-2, 3.10-9, 3.11-6, 3.14-3, 3.19-1

Airport, 1-80, 3.8-2, 3.8-3, 3.8-12

Alternatives Analysis (AA), 1-1, 1-5, 1-66, 2-2, 2-4, 2-6, 2-8, 2-20, 3.11-5, 7-6

Americans with Disabilities Act (ADA), 1-15, 1-16, 1-48, 3.13-1, 3.13-2, 3.13-3, 3.13-5, 3.13-6, 3.19-2, 3.19-4, 3.19-9

Box Springs, 1-16, 1-66, 3.1-2, 3.1-3, 3.1-6, 3.1-7, 3.3-22, 3.4-27, 3.5-24, 3.6-3, 3.6-10, 3.6-11, 3.6-12, 3.6-13, 3.6-14, 3.6-15, 3.6-19, 3.7-5, 3.8-3, 3.8-13, 3.10-3, 3.10-8, 3.10-10, 3.10-11, 3.12-3, 3.12-4, 3.14-4, 3.14-11, 3.14-12, 3.14-21, 3.14-29, 3.15-1, 3.15-20, 3.17-2, 3.17-3, 3.18-2, 3.18-3, 7-2

Bridge, 1-48, 1-56, 3.14-28, 3.15-2, 3.17-4, 3.17-6, 3.17-7

California Department of Fish and Game (CDFG), 1-80, 3.1-1, 3.1-5, 3.14-3, 3.14-23, 3.14-24, 3.14-28, 3.14-29, 3.17-3, 3.17-7, 4-1, 5-1, 7-1

California Public Utilities Commission (CPUC), 1-48, 1-49, 1-80, 3.4-7, 3.4-15, 3.4-26, 3.9-2, 3.12-2, 3.12-5, 3.13-2, 3.13-5, 5-1, 7-2

City of Perris, 1-9, 1-80, 3.1-1, 3.1-4, 3.1-5, 3.1-10, 3.2-9, 3.3-22, 3.4-9, 3.5-2, 3.6-2, 3.6-12, 3.7-3, 3.8-3, 3.8-4, 3.8-13, 3.9-4, 3.9-5, 3.10-3, 3.12-3, 3.15-6, 4-1, 5-2, 5-3, 7-2

City of Riverside, 1-2, 1-11, 1-17, 1-49, 3.1-1, 3.1-2, 3.1-3, 3.1-6, 3.1-7, 3.2-3, 3.3-12, 3.5-2, 3.5-16, 3.6-2, 3.6-10, 3.8-3, 3.8-4, 3.9-3, 3.11-5, 3.12-2, 3.12-5, 3.14-12, 3.15-1, 3.16-5, 3.17-2, 3.19-4

Communication Tower, 1-11, 1-15, 1-49, 3.9-5, 3.9-6, 3.9-8, 3.6-14

Construction, 1-2, 1-4, 1-5, 1-10, 1-11, 1-17, 1-49, 1-62, 1-63, 2-14, 2-15, 3.1-8, 3.1-12, 3.2-4, 3.3-1, 3.3-6, 3.3-8, 3.3-16, 3.3-17, 3.3-18, 3.3-35, 3.3-36, 3.3-37, 3.4-1, 3.4-7, 3.4-8, 3.4-9, 3.4-10, 3.4-25, 3.4-27, 3.4-33, 3.4-34, 3.4-41, 3.4-51, 3.4-52, 3.5-36, 3.5-37, 3.6-2, 3.6-11, 3.6-12, 3.6-14, 3.6-20, 3.7-1, 3.7-5, 3.7-6, 3.7-7, 3.7-8, 3.7-9, 3.8-1, 3.8-5, 3.8-6, 3.8-9, 3.8-10, 3.8-11, 3.8-13, 3.8-14, 3.9-3, 3.9-4, 3.9-5, 3.9-6, 3.9-14, 3.10-2, 3.10-7, 3.10-12, 3.10-13, 3.10-14, 3.11-6, 3.11-7, 3.12-1, 3.12-2, 3.12-4, 3.12-7, 3.12-8, 3.13-1, 3.13-6, 3.14-1, 3.14-3, 3.14-13, 3.14-23, 3.14-24, 3.14-28, 3.14-29, 3.15-1, 3.15-2, 3.15-5, 3.15-6, 3.15-20, 3.15-21, 3.16-4, 3.16-5, 3.16-6, 3.17-2, 3.17-3, 3.17-4, 3.17-7, 3.18-3, 3.18-4, 3.18-5, 3.19-3, 3.19-8, 3.19-9, 7-5

County of Riverside, 1-49, 1-68, 3.1-1, 3.1-4, 3.7-3, 3.9-3, 3.15-6, 3.15-19, 4-1, 7-5

Culvert, 3.1-6, 3.4-34, 3.14-22, 3.14-24, 3.14-27, 3.14-29, 3.16-5, 3.19-3

Derailment, 1-50, 3.6-14, 3.8-11, 3.12-4

Farmland Protection Policy Act (FPPA), 3.2-1, 3.2-2, 3.2-10

Federal Railroad Administration (FRA), 2-14, 2-17, 2-20, 3.4-6, 3.4-26, 3.8-11, 3.9-1, 3.10-1, 3.12-1, 3.12-4, 3.13-2, 7-3

Federal Transit Administration (FTA), 1-1, 1-5, 1-10, 2-1, 3.3-16, 3.3-20, 3.3-24, 3.3-32, 3.4-1, 3.4-3, 3.4-6, 3.4-10, 3.4-14, 3.4-23, 3.4-24, 3.4-25, 3.4-26, 3.4-27, 3.4-30, 3.4-31, 3.4-32, 3.4-33, 3.4-34, 3.4-35, 3.4-41, 3.4-45, 3.4-47, 3.4-48, 3.4-49, 3.4-50, 3.7-1, 3.7-6, 3.7-8, 3.9-1, 3.9-2, 3.10-1, 3.10-2, 3.10-7, 3.12-2, 3.12-4, 4-1, 6-1, 7-1, 7-3, 7-4, 7-31-1

Freight, 1-2, 1-3, 1-5, 1-10, 1-16, 1-62, 1-65, 1-66, 2-12, 2-13, 3.1-4, 3.1-6, 3.3-16, 3.3-36, 3.4-15, 3.4-24, 3.4-27, 3.4-46, 3.4-47, 3.4-48, 3.8-2, 3.8-11, 3.8-12, 3.12-2, 3.12-5, 3.12-6, 3.12-7, 3.19-1, 3.19-2

Grade Crossing, 1-3, 1-5, 1-11, 1-15, 1-48, 1-49, 1-62, 2-14, 3.1-8, 3.3-20, 3.4-1, 3.4-7, 3.4-15, 3.4-23, 3.4-24, 3.4-26, 3.4-33, 3.4-35, 3.4-36, 3.4-51, 3.5-2, 3.5-23, 3.5-24, 3.5-36, 3.5-37, 3.8-13, 3.9-2, 3.9-5, 3.12-2, 3.12-5, 3.12-7, 3.13-5, 3.8-14, 3.9-2, 3.10-11, 3.12-2, 3.12-5, 3.12-6

Greenhouse Gas (GHG), 3.3-1, 3.3-7, 3.3-10, 3.3-16, 3.3-18, 3.3-19, 3.3-33, 3.3-34, 3.19-8

Landscape Walls, 1-11, 1-15, 1-50, 3.3-16, 3.6-3, 3.6-13, 3.6-14

Locally Preferred Alternative (LPA), 1-1, 2-20, 3.11-5

Los Angeles Union Station (LA Union Station), 1-2, 1-63, 1-64, 1-65, 3.3-25, 3.4-26, 3.8-9

Maintenance, 1-4, 1-17, 1-48, 1-65, 2-16, 3.3-2, 3.3-24, 3.4-6, 3.4-27, 3.7-2, 3.7-6, 3.7-7, 3.7-8, 3.8-6, 3.8-9, 3.8-10, 3.8-11, 3.8-13, 3.9-6, 3.9-14, 3.12-1, 3.12-4, 3.12-5, 3.12-6, 3.12-8, 3.13-2, 3.14-3, 3.15-2, 3.15-20, 3.15-21, 3.16-2, 3.16-4, 3.16-5, 3.16-6, 3.18-3, 3.18-4, 3.19-2, 3.19-9

March Joint Powers Authority (JPA), 1-17, 1-67, 1-80, 3.1-1, 3.1-3, 3.1-4, 3.1-7, 3.1-10, 3.2-9, 3.3-37, 3.6-12, 3.8-12, 3.9-4, 3.10-7, 3.14-5, 3.19-3, 4-1, 7-4

Multiple Species Habitat Conservation Plan (MSHCP) 1-80, 3.1-5, 3.1-10, 3.1-11, 3.1-12, 3.10-3, 3.10-7, 3.10-9, 3.10-11, 3.10-13, 3.10-14, 3.14-2, 3.14-3, 3.14-4, 3.14-12, 3.14-13, 3.14-28, 3.14-29, 3.17-2, 3.19-3, 3.19-4, 7-7

National Pollutant Discharge Elimination System (NPDES), 3.8-6, 3.9-1, 3.14-3, 3.15-5, 3.16-1, 3.16-4, 3.16-5

National Register of Historic Places (NRHP), 3.6-3, 3.7-1, 3.7-2, 3.7-3, 3.7-4, 3.7-5, 3.7-6, 3.7-7, 3.10-7, 3.10-8, 3.10-12

Noise Barrier, 1-49, 1-62, 3.3-16, 3.4-25, 3.4-33, 3.4-34, 3.4-35, 3.4-37, 3.6-3, 3.6-13, 3.11-6, 3.14-21

Operation, 1-4, 1-8, 1-17, 1-62, 2-12, 2-13, 2-15, 3.1-12, 3.3-1, 3.3-6, 3.3-16, 3.3-18, 3.3-20, 3.3-25, 3.3-34, 3.4-24, 3.4-26, 3.4-48, 3.4-51, 3.5-1, 3.5-41, 3.5-42, 3.7-6, 3.7-7, 3.7-8, 3.8-10, 3.8-11, 3.8-13, 3.9-4, 3.9-14, 3.10-9, 3.10-12, 3.10-13, 3.10-14, 3.11-6, 3.12-1, 3.12-7, 3.12-8, 3.13-2, 3.15-21, 3.16-5, 3.18-3, 3.18-4

Park, 2-18, 3.1-3, 3.1-4, 3.1-7, 3.1-8, 3.1-9, 3.2-3, 3.2-9, 3.4-17, 3.5-17, 3.5-21, 3.5-22, 3.5-23, 3.5-36, 3.6-10, 3.6-13, 3.6-19, 3.10-1, 3.10-3, 3.10-13, 3.13-2, 3.14-21

Parking, 1-3, 1-5, 1-17, 1-48, 3.1-7, 3.3-16, 3.3-20, 3.3-21, 3.3-22, 3.3-23, 3.3-26, 3.3-31, 3.3-32, 3.3-36, 3.4-24, 3.4-26, 3.4-34, 3.4-51, 3.5-14, 3.5-36, 3.6-2, 3.6-11, 3.6-13, 3.8-3, 3.8-12, 3.9-5, 3.9-14, 3.10-11, 3.10-12, 3.10-13, 3.13-2, 3.13-5, 3.13-6, 3.15-21, 3.16-5, 3.16-6, 3.17-6, 3.19-4, 3.19-8

Positive Train Control (PTC), 3.12-1, 3.12-4, 3.12-5

Regional Transportation Improvement Program (RTIP), 1-8, 1-11, 3.1-2, 3.1-8, 3.3-3, 3.3-26, 3.3-36, 7-6

Riverside County Integrated Project (RCIP), 1-8, 3.1-2, 3.14-2, 3.15-19, 3.19-4, 7-5

Riverside County Transportation Land Management Agency (TLMA), 3.1-2, 3.1-4, 7-5

Riverside Transit Agency (RTA), 1-10, 1-17, 1-80, 2-12, 2-15, 2-16, 3.5-13

Safety, 1-5, 1-48, 1-50, 1-62, 1-66, 2-14, 2-17, 2-20, 3.3-1, 3.3-4, 3.4-9, 3.5-24, 3.6-11, 3.6-14, 3.8-1, 3.8-4, 3.8-5, 3.8-10, 3.8-11, 3.8-13, 3.9-1, 3.9-2, 3.11-6, 3.12-1, 3.12-2, 3.12-3, 3.12-4, 3.12-5, 3.12-6, 3.12-7, 3.12-8, 3.13-2, 3.13-5, 3.15-2, 3.15-5, 3.15-6, 3.15-21, 3.17-3, 3.19-4, 3.19-9

School, 1-11, 1-15, 1-50, 3.1-7, 3.1-8, 3.3-21, 3.3-22, 3.4-17, 3.4-22, 3.4-23, 3.4-26, 3.4-32, 3.4-33, 3.4-37, 3.4-47, 3.4-50, 3.4-52, 3.6-3, 3.6-13, 3.6-14, 3.8-3, 3.8-4, 5-2

Southern California Regional Rail Authority (SCRRA), 1, 2, 1-1, 1-2, 1-3, 1-6, 1-8, 1-9, 1-11, 1-15, 1-16, 1-49, 1-63, 1-65, 1-80, 3.1-9, 3.1-10, 3.3-19, 3.3-24, 3.3-25, 3.3-34, 3.4-15, 3.4-27, 3.4-48, 3.4-50, 3.11-6, 3.12-4, 3.12-5, 3.12-6, 3.12-7, 3.13-1, 3.13-2, 3.13-5, 3.15-20, 3.17-4, 3.19-2, 3.19-8

Stormwater Pollution Prevention Plan (SWPPP), 3.8-9, 3.14-28, 3.16-4, 3.19-3

University of California Riverside (UCR), 1-3, 1-49, 3.1-7, 3.4-22, 3.4-23, 3.4-26, 3.4-32, 3.4-33, 3.4-50, 3.4-51, 3.4-52, 3.6-13, 3.7-3, 3.7-4, 3.15-1, 3.17-2, 3.17-5, 3.19-4, 5-2, 5-3

United States Army Corps of Engineers (USACE) , 1-80, 3.1-5, 3.14-3, 3.14-23, 3.14-24, 3.14-29, 3.17-3, 3.17-7, 7-7

United States Fish and Wildlife Service (USFWS), 3.1-5, 3.10-7, 3.14-1, 3.14-2, 3.14-3, 3.14-28, 3.17-3, 3.17-7, 7-7

Western Riverside County Regional Conservation Authority (RCA), 1-80, 3.1-11, 3.10-7

2010 Riverside County Congestion Management Program

Adopted: March 10, 2010

Riverside County Transportation Commission
County Regional Complex
4080 Lemon Street, 3rd Floor
Riverside, CA 92502-2208
Ph: (951) 787-7141 Fax: (951) 787-7920

TABLE OF CONTENTS

CHAPTER	DESCRIPTION	PAGE
	Executive Summary	ES-1
1	Designation of the Congestion Management Agency	1-1
2	Designation of the CMP System of Highways and Roadways	2-1
3	Transportation Modeling	3-1
4	Multimodal System Performance Standards	4-1
5	Enhanced Transportation System Management Program	5-1
6	LOS Deficiency Plans	6-1
7	Transportation Demand Management/ Air Quality	7-1
8	Capital Improvement Program	8-1
9	CMP Conformance and Monitoring	9-1
10	CMP Development and Implementation/ Update Process	10-1

LIST OF EXHIBITS

EXHIBIT	DESCRIPTION	PAGE
2-1	Riverside CMP System	2-2
4-1	Level of Service on CMP System	4-3
5-1	Smart Call Box (SCB) Implementation Sites	5-2
5-2	Transportation Management Center (TMC) Implementation Sites	5-5

LIST OF TABLES

TABLE	DESCRIPTION	PAGE
2-1	System of Highways & Roadways	2-5
4-1	Exempt Facilities in 2009	4-6
4-2	Highway Capacity Manual-Based LOS Methodology Applications	4-7
4-3	Transit System Performance Indicators	4-10
5-1	Floating Car Run Deficiency Analysis	5-7
9-1	CMP Updates Since Inception	9-4

EXECUTIVE SUMMARY

The Congestion Management Program (CMP) was first established in 1990 under Proposition 111. Proposition 111 established a process for each metropolitan county in California to designate a Congestion Management Agency (CMA) that would be responsible for development and implementation of the CMP within county boundaries. The Riverside County Transportation Commission (RCTC) was designated as the CMA in 1990, and therefore, prepares the CMP updates in consultation with the Technical Advisory Committee (TAC), which consists of local agencies, the County of Riverside, transit agencies, and subregional agencies. CMP legislation is provided in Appendix 1.

The intent of the CMP is to more directly link land use, transportation, and air quality, thereby prompting reasonable growth management programs that will effectively utilize new transportation funds, alleviate traffic congestion and related impacts, and improve air quality. A number of counties within California have developed a CMP with varying methods and strategies to meet the intent of the CMP legislation.

The Riverside County CMP was significantly modified in 1997 to focus on federal Congestion Management System (CMS) requirements as well as incorporate elements of the State CMP requirements. The 1997 CMP also focused on development of an Enhanced Traffic Monitoring System in which real-time traffic count data can be accessed by RCTC to evaluate the condition of the CMS, as well as meet other monitoring requirements at the state and federal levels. This monitoring effort was completed in 2004, which consisted of installing Smart Call Boxes (traffic counters in Call Box equipment) and traffic counters at Caltrans' Traffic Management Center (TMC) sites along the state highway system. Monitoring of the CMP system on local arterials will continue to occur through the Coachella Valley Association of Governments' (CVAG) monitoring program and through local agency monitoring efforts in Western Riverside County.

RCTC's adopted minimum Level of Service (LOS) threshold is LOS "E". Therefore, when a CMP street or highway segment falls to "F", a deficiency plan must be required. Preparation of a deficiency plan will be the responsibility of the local agency where the deficiency is located. Other agencies identified as contributors to the deficiency will also be required to coordinate with the development of the plan. The plan must contain mitigation measures, including consideration of Transportation Demand Management (TDM) strategies and transit alternatives, and a schedule for mitigating the deficiency.

To insure that the CMP is appropriately monitored to reduce the occurrence of LOS deficiencies, it is the responsibility of local agencies, when reviewing and approving development proposals, to consider the traffic impacts on the CMP System. When a deficiency is identified as part of the CMP Update LOS evaluation process, further

detailed analysis of LOS must be conducted to determine whether an actual deficiency has occurred. The LOS analysis conducted as part of the CMP Update process is only considered to be a "screening" level analysis, therefore additional, more detailed assessment of a potential deficiency would be required before a deficiency is formally identified. Coordination with the affected local jurisdiction(s) will be made to insure that appropriate data, geometrics, counts and other related information is applied to calculate LOS.

During preparation of the 2009 CMP, deficiencies were found on the CMP System based upon this year's monitoring effort. These segments will continue to be monitored to determine if the deficiencies reflect temporary or permanent conditions. If it is determined that deficiencies are permanent and not related to construction activities on the segment or anywhere else that could impact the segment or any other special circumstances a deficiency plan will be required to address the deficiency.

OTHER PROGRAM HIGHLIGHTS

This document is prepared to address each elements the State CMP legislation and federal CMS requirements. Below is a summary of each chapter highlighting the Riverside County CMP's approach in meeting the state CMP and federal CMS requirements.

Chapter 1 - Designation of the CMP Lead Agency:

- *The County Board of Supervisors, and a majority of cities representing a majority of population in the incorporated area, must designate by resolution, a public agency to prepare and adopt the Congestion Management Program.*

The Riverside County Transportation Commission was designated as the CMA for Riverside County on June 11, 1990. The County Board of Supervisors and a majority of the cities representing a majority of the population supported the designation.

Chapter 2 - Designation of the System of Highways and Roadways:

- *The CMA must designate a system of highways and roadways to include, at a minimum, all state highways and principal arterials.*

RCTC has designated, based upon a set of optional criteria referenced in Chapter 2, a system of Highways and Principal Arterials. All State highways within Riverside County have been included in accordance with CMP statutes, and a set of Principal Arterials has been identified (reference Exhibit 2-1 and Table 2-1).

Chapter 3 - Transportation Modeling:

- *The CMA is to provide a uniform database of traffic impacts "for use in a countywide transportation computer model."*

For purposes of this Program, the Commission has recognized use of the Southern California Association of Governments (SCAG) transportation model, the Coachella Valley Area Transportation System (CVATS) sub-regional transportation model, the Riverside County Traffic Analysis Model (RIVTAM) Final Report (May 2009), and local agency models to analyze traffic impacts associated with development proposals or land use plans.

Chapter 4 - Multimodal System Performance Standards:

- *AB 1963 identifies requirements in CMP legislation including development of multimodal system performance standards focusing on street and highway level of service and transit standards. This Chapter therefore incorporates minimum standards for both these important forms of transportation.*

CMP Street and Highway Standards

The methodology for measuring LOS must be that contained in Circular 212 or the most recent version of the Highway Capacity Manual (HCM); and traffic standards must be set no lower than LOS "E" for any segment or intersection on the CMP system, unless the current LOS is lower (i.e., "F").

For purposes of this CMP, LOS analysis for intersections and segments along the CMP System of Highways and Roadways, under current or existing conditions, is required to be developed using HCM-based methods.

Considering the transportation financing program in Riverside County established through Measure A, there are no advantages to set a higher minimum LOS standard than required by CMP legislation, LOS "E". As a result, the minimum LOS standard for intersections and segments along the CMP System of Highways and Roadways shall be "E" unless the intersection or segment had a lower LOS (LOS "F") in 1991 (reference Table 4-1 and Exhibit 4-1). Such facilities are exempt from CMP deficiency plan requirements.

Public Transit/Alternative Mass Transit System Standards

Transit standards must be established for service frequency (i.e., headways), routing, and coordination among multiple transit agencies operating within the CMP jurisdiction.

To meet the requirements of the Statutes, the performance measures outlined in the Short Range Transit Plans prepared by transit agencies in Riverside County are included in this chapter. In 2005, RCTC approved a Productivity Improvement Program (PIP) as part of a comprehensive effort to work with the county's eight public transit operators to provide better service and improve efficiency. The PIP identifies

performance targets in which transit operators will strive to meet in developing its SRTP service and financial plan.

Chapter 5 – Enhanced Transportation System Management Program:

- *The CMP must include a program to analyze the impact of land use decisions by jurisdictions on the regional transportation system, including an estimate of costs to mitigate those impacts.*

This element describes the traffic data collection process to assess land use decision impacts on the Congestion Management System. Under the program, RCTC, CVAG and Caltrans would be the agencies in Riverside County responsible for the traffic count data collection process. The count data can also be applied to comply with State and federal Congestion Management Plan/Congestion Management System/Transportation Management System (CMP/CMS/TMS) data collection requirements. CVAG currently has a Traffic Monitoring Program in place that addresses CMP System Monitoring requirements in the Coachella Valley. RCTC has implemented the Enhanced Traffic Monitoring Program using Smart Call Box (SCB) and Caltrans' Traffic Management Center (TMC) equipment at selected sites along the State Highway system in Riverside County. This system has resulted in significant increases in the number and location of traffic counts along the CMP System.

Chapter 6 - LOS Deficiency Plans:

- *AB 471 and AB 1791 provide for the development of deficiency plans. The bills state that "a city or county may designate individual segments or intersections as deficient when they do not meet the established level of service standards, if prior to the designation at a noticed public hearing, the city or county has adopted a deficiency plan".*

Deficient segments or intersections will be identified through the biennial traffic monitoring process. When a deficiency is identified as part of the CMP Update LOS evaluation process, further detailed analysis of LOS shall be conducted to determine whether an actual deficiency has occurred. The LOS analysis conducted as part of the CMP Update process is only considered to be a "screening" level analysis, therefore additional, more detailed assessment of a potential deficiency would be required before a deficiency is formally identified. Coordination with the affected local jurisdiction(s) will be made to insure that appropriate data, geometrics, counts and other related information is applied to calculate LOS.

The local agency where the deficiency is located will be responsible for the preparation of the deficiency plan. RCTC will prepare deficiency plans on the State Highway System when deficiencies are identified and will coordinate the development of the deficiency plan with affected local jurisdictions.

Chapter 7 - Transportation Demand Management (TDM)/Air Quality:

- *The CMP must include alternatives to single occupant auto use, such as transit, and van and carpooling; and must promote strategies to manage overall travel demand, such as a jobs/housing balance, flextime, telecommuting and parking strategies. Local agencies must also adopt a transportation demand management (TDM) ordinance to comply with CMP statutes.*

In 1991, all local agencies adopted TDM ordinances. In 1996, the State changed the CMP from a mandatory program to a voluntary program; therefore, RCTC has not required agencies to update their respective TDM ordinances. RCTC has facilitated the implementation of a number of Transportation Demand Management (TDM) projects independently through the Measure "A" Commuter Assistance Programs. RCTC has also facilitated implementation of a number of TDM projects in cooperation with Caltrans and local agencies in Riverside County and in adjoining counties to achieve TDM objectives such as rideshare services, commuter rail services and development of rail stations, park-n-ride lots, rail and feeder services, motorist aid services, and bus and specialized transit services. Taken together, the individual programs, projects, and TDM ordinances that continue to be implemented by local agencies constitute a broad base effort to reduce reliance on the single occupant vehicle and address CMP objectives.

Chapter 8 - Capital Improvement Program (CIP):

- *The CIP is a 7-year program; projects in the CIP may be incorporated into the Regional Transportation Improvement Program (RTIP) for the programming of Flexible Congestion Relief (FCR) and Urban and Commuter Rail funds; CIP Projects must maintain or improve performance of the multi-modal system; and projects must conform to transportation-related emission air quality mitigation measures.*

To comply with the statutes, the 2009 CIP incorporates all CMP System projects listed in the most recent TIP including STIP, Measure "A", Transportation Uniform Mitigation Fee (TUMF), and other federally funded projects. To streamline this process, CIP requirements shall be the same as, and accomplished through the Regional Transportation Improvement Program (RTIP) development.

Chapter 9 - CMP Conformance and Monitoring Process:

- *RCTC must make a determination that its member cities and the county are conforming to the CMP, including consistency with traffic LOS and transit performance standards and implementation of a program to monitor and evaluate the performance of the transportation system. SCAG must also find the CMP consistent with the Regional Transportation Plan and certify that the CMP meets federal CMS requirements.*

The specific requirements of Conformance and Monitoring Process are described in Chapter 9.

Chapter 10 - CMP Development and Implementation Update Process:

- *This chapter focuses on the procedural, administrative, and coordination activities related to CMP development, adoption, and update in accordance with CMP legislation.*

The CMP includes a process that addresses each of the activities identified above including CMP development, adoption, and update.

Environmental Assessment – The California Environmental Quality Act (CEQA) identifies the CMP as an exempt project. As a result, compliance with CEQA requirements is no longer necessary.

CHAPTER 1
DESIGNATION OF THE CONGESTION MANAGEMENT AGENCY

STATUTORY REQUIREMENTS

According to CMP legislation (AB 471, AB 1791, AB 1963, and AB 2419), the Riverside County Board of Supervisors and a majority of cities representing a majority of the population in the incorporated area, must designate by resolution, a public agency to prepare and adopt a Congestion Management Program (CMP). The Congestion Management Agency (CMA) has the authority to monitor compliance with the adopted program. An amendment to the Government Code requires the CMA to update and adopt the CMP every two years (biennially) consistent with development of the Regional Transportation Improvement Program (RTIP). A copy of AB 2419 is provided as Appendix 1.

A key feature of AB 471 is the requirement that every urbanized county with a population of 50,000 or more must prepare and adopt a comprehensive CMP. The CMP represents a directive for local governments to measure and mitigate the impact of land use decisions on streets, highways, and regional transportation systems.

In 1996, the State of California amended the CMP legislation to change the requirement from mandatory to voluntary. However, federal Metropolitan Planning provisions require Metropolitan Planning Organization's (MPO) serving a transportation management area (TMA) (i.e. area with a population over 200,000) to include a Congestion Management System (CMS) component as part of their transportation planning process. Each of the six counties in the Southern California Association of Governments (SCAG) region has adopted and implemented a CMP. The Federal Highway Administration (FHWA) and Federal Transit Administration (FTA) jointly determine if the MPO's planning process meets the requirements of 23 U.S.C. 134 among other provisions. In the event that the FHWA/FTA determines that the planning process in a TMA does not substantially meet the requirements and do not certify the process, they may withhold federal project and funding approvals.

RCTC DESIGNATED AS THE CMA

On June 11, 1990, the Riverside County Transportation Commission (RCTC) was designated as the CMA for Riverside County by resolution from member agencies. The Coachella Valley Association of Governments (CVAG) and the Western Riverside Council of Governments (WRCOG) also supported the designation. It is the Commission's intent to continue working closely with WRCOG, CVAG, the cities and the County, toward development and implementation of an effective CMP.

The Commission will continue to develop and biennially update the CMP to coincide with the development of the State Transportation Improvement Program (STIP) and Regional Transportation Improvement Program (RTIP) in cooperation with local governments, Air Quality Management Districts, and subregional planning agencies (WRCOG and CVAG). The CMP must also be submitted to the MPO, which for Riverside County is the Southern California Association of Governments (SCAG). SCAG is responsible for determining consistency of each CMP within the SCAG region with the Regional Transportation Plan (RTP) and air quality management plans.

The Riverside County Congestion Management Program combines the requirements of the State's CMP and the federal CMS with a greater emphasis on the CMS, resulting in an enhanced transportation monitoring system.

CHAPTER 2
DESIGNATION OF THE CMP SYSTEM OF HIGHWAYS AND ROADWAYS

STATUTORY REQUIREMENTS

Section 65089(a), referenced in AB 1963, requires development of a Congestion Management Program (CMP) to establish traffic level of service (LOS) standards for a system of highways and roadways designated by RCTC as the Congestion Management Agency (CMA). This system must include, at a minimum, all state highways and principal arterials, both new and existing facilities. Once designated, components of the system cannot be removed.

Designated System of Highways and Principal Arterials:

- All State Highway facilities in Riverside County.

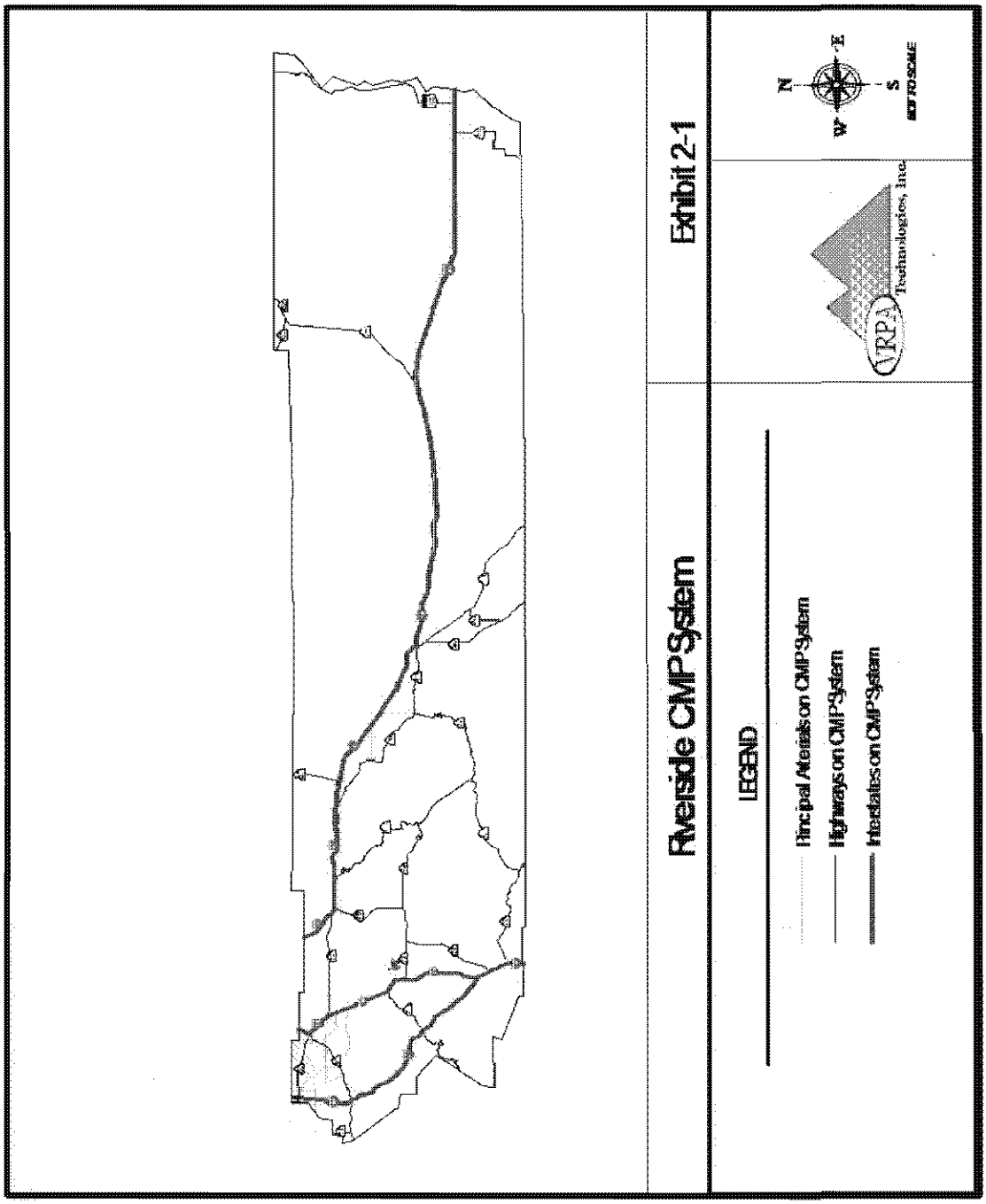
Consideration may be given to the following conditions when designating Principal Arterials:

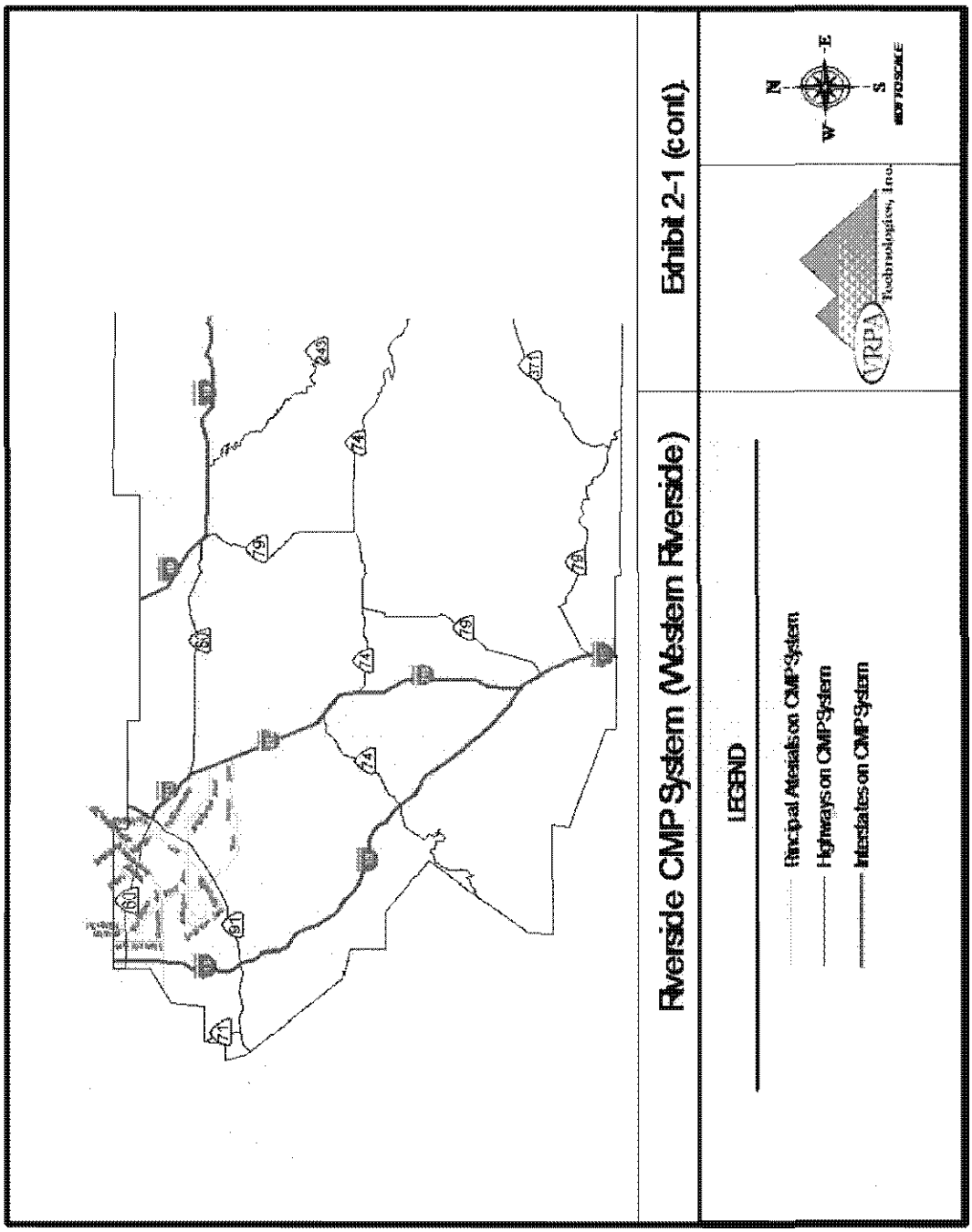
- ✓ Routes identified on Caltrans' "Functional Classification System" maps as "Principal Arterials";
- ✓ Designated expressways; and
- ✓ Facilities linking cities/communities (interregional facilities), and major activity centers (shopping malls, activity centers, major industrial/business parks, stadiums, etc).

2010 CMP SYSTEM UPDATE PROCESS

An update to the CMP System considers the criteria identified above, including arterial facilities added to the Federal Functional Classification System. Local agencies may nominate arterials for inclusion on the CMP System at any time. Nominated arterials will be reviewed by the RCTC Technical Advisory Committee (TAC) for approval and forwarded to the RCTC Board for final approval.

Exhibit 2-1 provides a graphic display of the CMP System of Highways and Roadways in Riverside County. Based upon review of the revised Functional Classification System and the considerations listed above, no additional facilities were designated as principal arterials during the 2010 CMP update process.


Riverside CMP System
Exhibit 2-1
LEGEND
Principal Arterials on CMP System
Highways on CMP System
Interstates on CMP System
VRPA Technologies, Inc.
N
S
W
E


Riverside CMP System (Western Riverside)
Exhibit 2-1 (cont.)
LEGEND
Principal Arterials on CMP System
Highways on CMP System
Interstates on CMP System
VRPA Technologies, Inc.
N
S
E
W

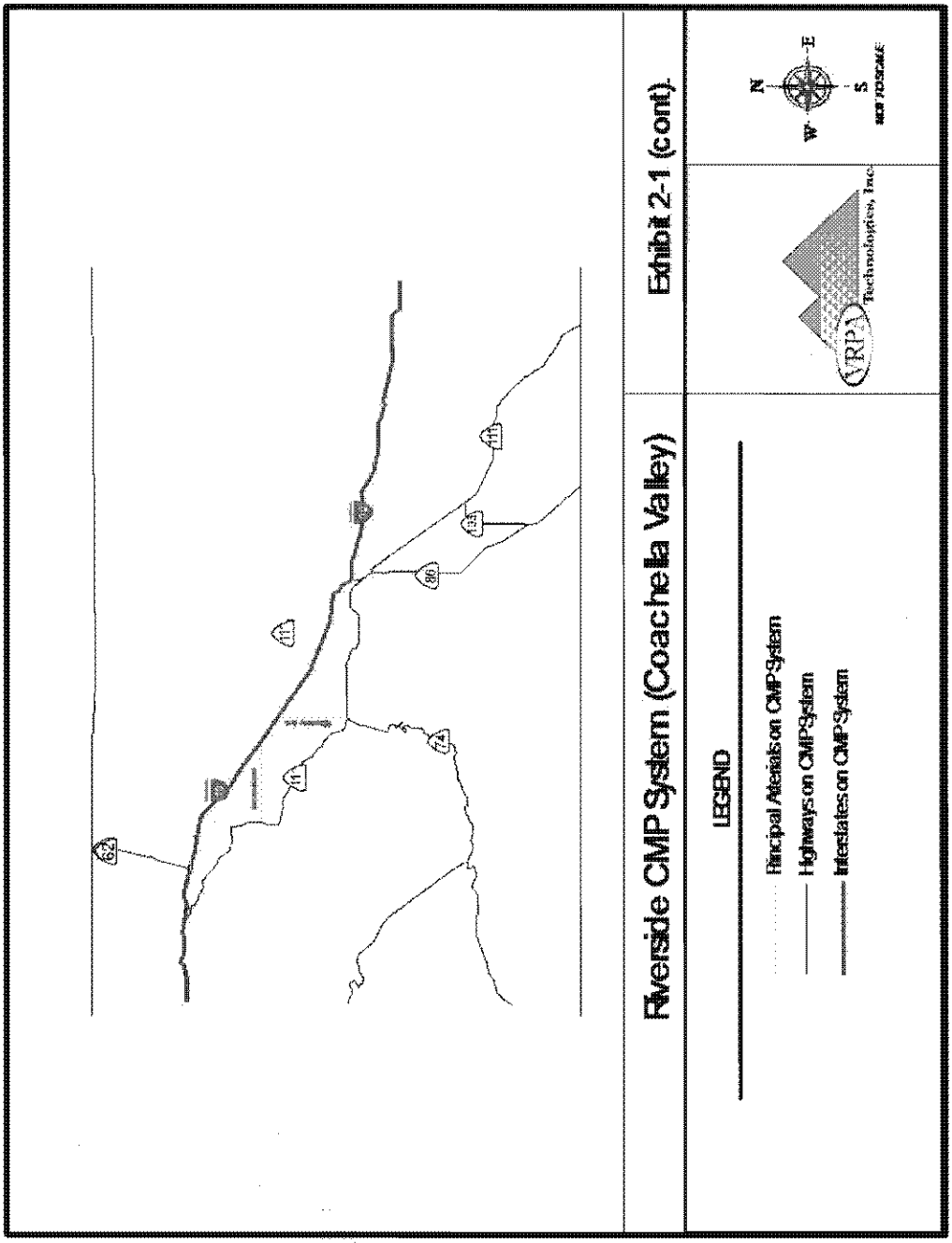

Exhibit 2-1 (cont.)
Riverside CMP System (Coachella Valley)
LEGEND
Principal Arterials on CMP System
Highways on CMP System
Interstates on CMP System
N
S
E
W
VRPA Technologies, Inc.
111
86
74
62

TABLE 2-1
CMP SYSTEM OF HIGHWAYS AND ROADWAYS

♦ *State Highways:*

Facility Name	*Limits*
1. I-10	San Bernardino Co. Line to the Arizona State Line
2. I-15	San Bernardino Co. Line to the San Diego Co. Line
3. I-215	San Bernardino Co. Line to I-15
4. US 95	San Bernardino Co. Line to I-10
5. SR 60	San Bernardino Co. Line to I-10
6. SR 62	San Bernardino Co. Line to I-10
7. SR 71	San Bernardino Co. Line to SR 91
8. SR 74	Orange Co. Line to SR 111
9. SR 78	Imperial Co. Line to I-10
10. SR 79	I-10 to San Diego Co. Line
11. SR 86	SR 111 to Imperial Co. Line
12. SR 91	Orange Co. Line to I-215
13. SR 111 / Highway 111[*1]	I-10 to Imperial Co. Line
14. SR 177	SR 62 to I-10
15. SR 195	SR 86 to SR 111
16. SR 243	I-10 to SR 74
17. SR 371	SR 79 to SR 74

♦ *Principal Arterials - Western Riverside County:*

Facility Name	*Limits*
1. Alessandro Blvd.	Intersection of Central, Arlington & Chicago to I-215
2. Agua Mansa Rd.	San Bernardino County Line to Market St.
3. Arlington Blvd.	California to Intersection of Central, Alessandro & Chicago
4. Armstrong Rd./Valley Way	Sierra Ave. to SR 60
5. Country Village Rd.	San Bernardino County Line to SR 60
6. La Sierra Ave.	Arlington Blvd. to SR 91
7. Limonite Ave.	San Bernardino County Line to Mission Blvd.
8. Magnolia Ave.	SR 91 to Market St.
9. Main St./First St.	San Bernardino County Line to Market St.
10. Market St./Rubidoux Blvd.	San Bernardino County Line to Magnolia Ave.
11. Seventh and University	Market to SR 91
12. Sierra Ave.	San Bernardino County Line to Valley Way/Armstrong Rd.
13. Etiwanda Ave.	Limonite Ave. - San Bernardino County Line
14. Van Buren Blvd.	San Bernardino County Line to I-215

♦ *Principal Arterials - Coachella Valley:*

Facility Name	*Limits*
1. Monterey Ave.	SR 111 to I-10
2. Ramon Rd.	SR 111 to I-10

[*1] SR 111 in Riverside County is a designated State Route (SR) between I-10 and Golf Club Drive and between SR 74 and the Imperial County Line. That section between Golf Club Drive and SR 74 was relinquished to adjacent jurisdictions.

CHAPTER 3
TRANSPORTATION MODELING

STATUTORY REQUIREMENTS

Section 65089.3 (c) of the Government Code requires that RCTC, as the Congestion Management Agency (CMA), in consultation with the Southern California Association of Governments (SCAG), cities and the County, develop a uniform database on traffic impacts for use in a countywide transportation model. Further, RCTC, in consultation with SCAG, must approve transportation computer models that will be used by local jurisdictions and the county to determine the quantitative impacts of development on the circulation system. Local transportation models shall be consistent with the databases used by SCAG.

RCTC TRANSPORTATION MODELING

Transportation computer models applied in Riverside County include the Riverside County Traffic Analysis Model (RIVTAM) and the SCAG Regional Transportation Model. The newly developed RIVTAM model was a multi-agency effort to develop a more detailed roadway network than the SCAG Regional Model. RIVTAM added 570 centerline miles of roadways to the network and incorporates all facilities in the Riverside County General Plan classified as Secondary and above. In addition, some Collectors were included, as necessary, to insure that all Traffic Analysis Zones (TAZs) are connected to the network of General Plan roadways. A Memorandum of Understanding has been approved by the Riverside County Transportation Department (RCTD), CVAG, WRCOG, and RCTC to establish roles and responsibilities for updating and maintaining the model including use of the model by the local agencies. The RCTD serves as the lead agency for RIVTAM.

During 2008, SCAG prepared an update to the SCAG models based upon new growth forecasts developed for the Year 2035. The RIVTAM model is based on the SCAG 2008 model with refinements to reflect local conditions within Riverside County. Local transportation models are also developed by local agencies to determine impacts on their transportation system.

TRANSPORTATION MODEL IMPROVEMENTS

The SCAG model was last revised/updated (calibrated/validated) in 2008 and has been available for use by local agencies in reviewing regionally significant development projects, or projects that generate greater than 500 peak hour trips through the Intergovernmental Review (IGR) process.

In addition, SCAG developed a regionwide demographic database system to collect accurate data for development of the Regional Transportation Plan (RTP). The RTP is the region's long range transportation plan that considers land use development patterns, transportation systems, population and housing needs to develop policies and strategies that will accommodate future growth and demand. Locally, WRCOG, CVAG, and the County of Riverside have taken lead roles in the development of a Geographic Information System (GIS) to monitor growth in the County so that socioeconomic and land use databases can be easily developed and maintained.

SCAG has developed model consistency guidelines to assist public agencies and traffic engineering professionals with the development of local models that are consistent with the SCAG regional transportation model. The objective of these guidelines is to comply with CMP consistency requirements, improve communications between affected agencies to simplify the exchange of data, and improve databases and modeling results at both the local and regional level. A copy of the current *Consistency Guidelines for Transportation Modeling - Riverside and San Bernardino Counties* is available at RCTC or at the SCAG Inland Empire Office in Riverside.

MODELING FOR CMP PURPOSES

During implementation of the Riverside County CMP, transportation computer models are used for several purposes, including:

- Determining and monitoring traffic levels of service (LOS) for the current and future years;
- Analyzing the impacts of land use decisions resulting from the IGR or CEQA processes and when an LOS deficiency occurs along the CMP System; and
- Evaluating and prioritizing transportation improvement projects, such as capital projects, transit projects, Transportation Systems Management (TSM) projects, Transportation Demand Management (TDM) strategies, and other programs that improve the transportation system and air quality.

CHAPTER 4
MULTIMODAL SYSTEM PERFORMANCE STANDARDS

STATUTORY REQUIREMENTS

Section 65089(b)(2) of the Government Code states that the Congestion Management Program (CMP) must contain a performance element that includes performance measures to evaluate current and future multimodal system performance for the movement of people and goods. At a minimum, the performance measures must incorporate highway and roadway system performance and measures established for the frequency and routing of public transit, and for the coordination of transit service provided by separate operators. The performance measures must also support mobility, air quality, land use, and economic objectives, and must be used in the development of the Riverside County Capital Improvement Program (CIP) required pursuant to paragraph (5), deficiency plans required pursuant to Section 65089.4, and the land use analysis program required pursuant to paragraph (4) of the Government Code.

According to AB 471 and AB 1791, traffic level of service (LOS) must be measured by: a) Circular 212; b) the most recent version of the Highway Capacity Manual (HCM); or c) by an alternative uniform methodology adopted by RCTC as the Congestion Management Agency (CMA), which the Southern California Association of Governments (SCAG) determines is consistent with the HCM. In no case can the standards established be below LOS "E" or the current level, whichever is farthest from LOS "A".

RCTC PERFORMANCE STANDARDS

This Chapter describes the multimodal system performance standards for Riverside County in accordance with CMP legislation. Therefore, standards are presented in this Chapter for the CMP System and for the Public Transit/Alternative Mass Transit System.

CMP System of Streets and Highways

- **Established Minimum Level of Service**

  With the intent of the legislation in mind, the RCTC Technical Advisory Committee (TAC) CMP Subcommittee approved a *"two-tiered"* approach to establish the minimum LOS standard. Tier 1 involves the *"locally established minimum traffic LOS - or - ceiling,"* while Tier 2 involves the CMP minimum LOS standard - or - *"floor."*

Most local agencies in Riverside County and Caltrans have adopted LOS standards of "C" or "D" (representing the *"ceiling"* in Tier 2) in an effort to maintain a desired LOS for the local circulation system. To address CMP legislative requirements, and establish a minimum LOS along the regional system of roadways and highways within the County (representing the *"floor"* in Tier 2), RCTC approved a minimum traffic LOS standard of "E."

- **Exempt Facilities**

Table 4-1 and Exhibit 4-1 identify facilities (roadway segments or intersections) along the CMP System of Highways and Roadways that had a LOS of "F" in 1991. As a result, these facilities continue to be "exempt" from CMP requirements in accordance with CMP Statutes.

- **Methodology to Determine Level of Service**

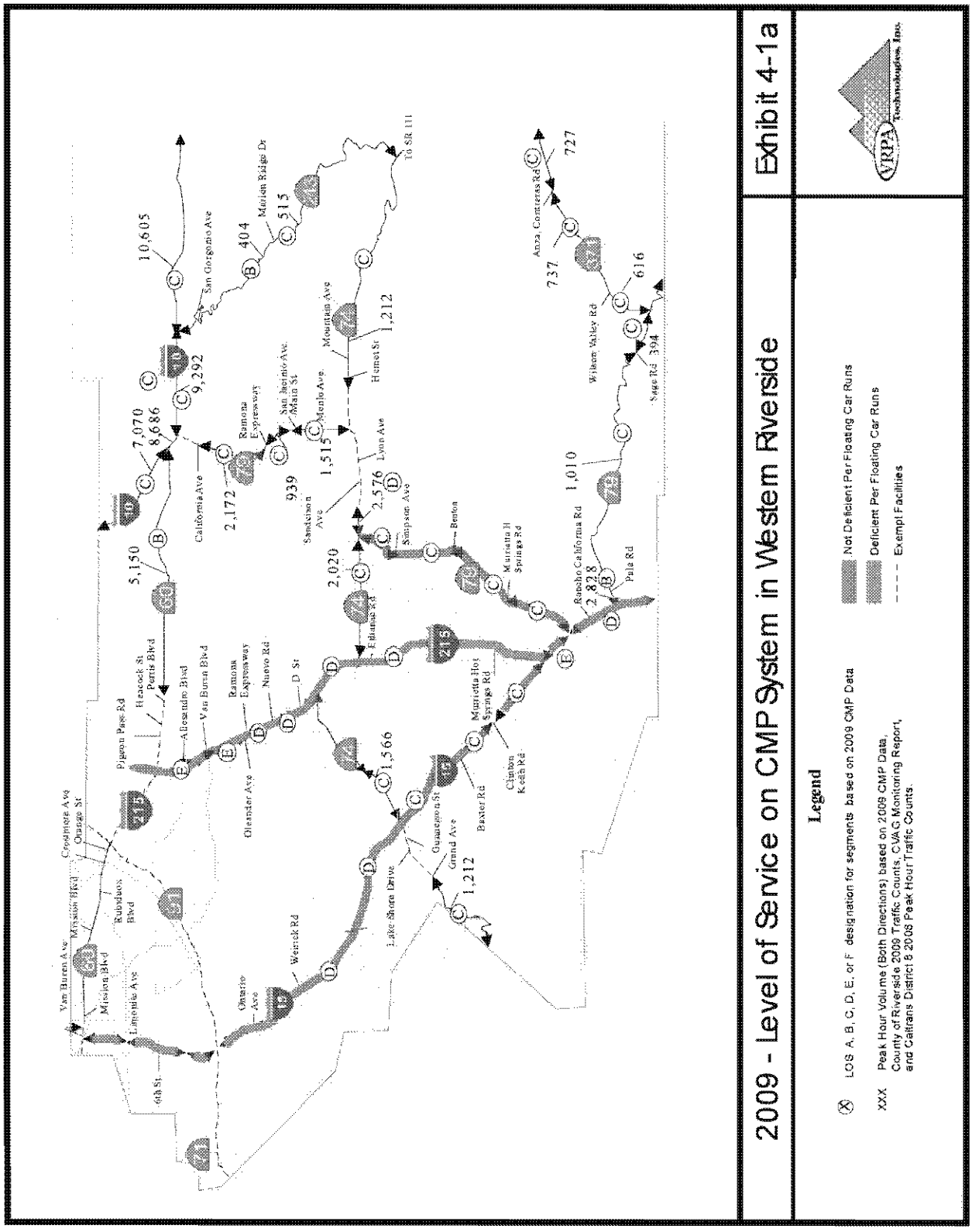
RCTC determined that the traffic LOS method that incorporated a "delay" analysis was the most applicable for CMP purposes. Consideration of delay through HCM-based software programs provided a closer approximation of LOS than under the Circular 212 or similar methodologies.

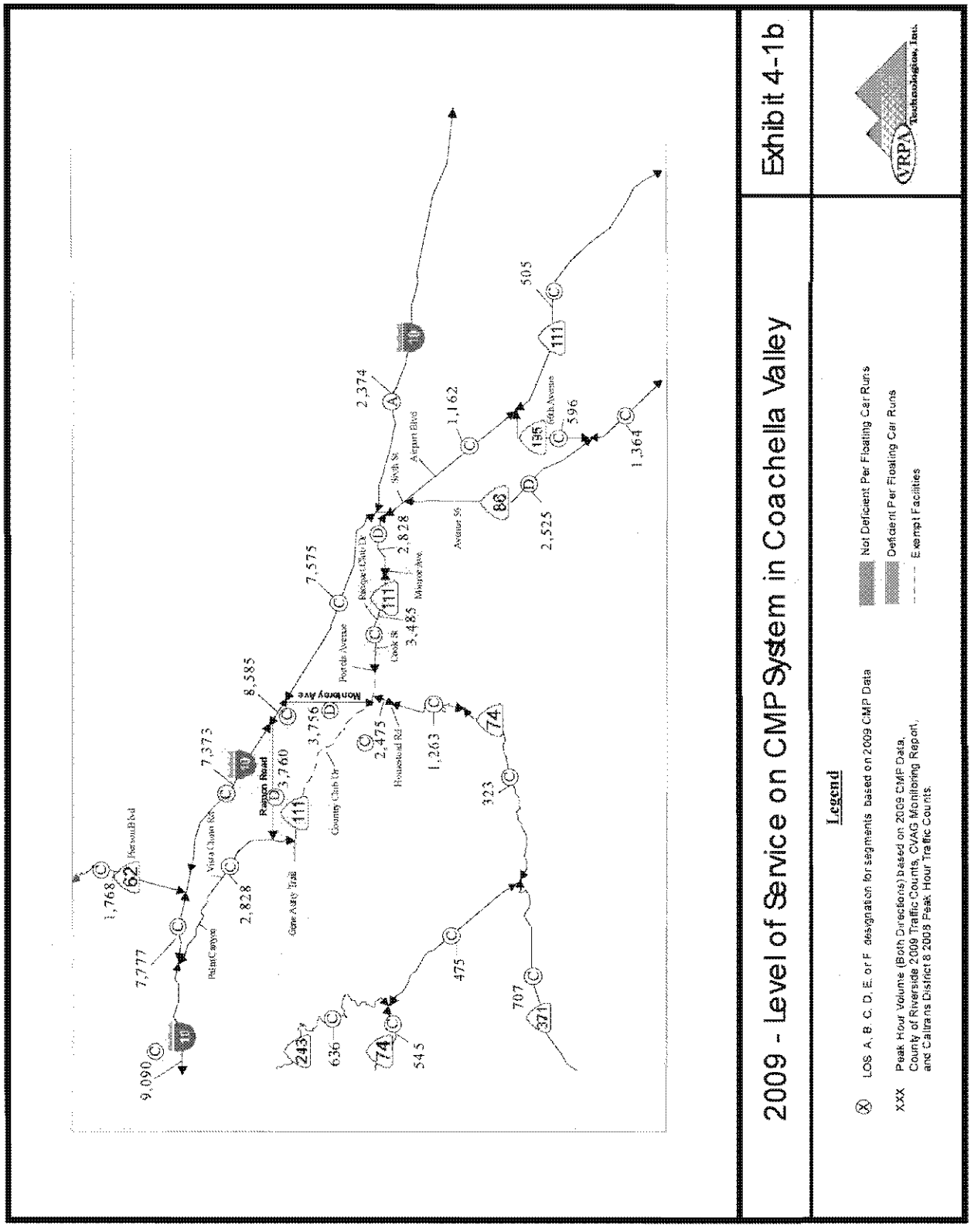
For purposes of this Program, LOS analysis for intersections and segments along the CMP System of Highways and Roadways (under current or existing conditions), should be developed or established using the following HCM-based methods in the order presented:

1. Segment (freeway and principal arterial) floating car runs or stopped delay LOS analysis at intersections;
2. Segment and intersection LOS analysis using HCM; and
3. Segment analysis using the Modified HCM LOS Tables (or revised Florida LOS Tables).

Staff continues to recommend the use of HCM methods through applicable software packages applied to various types of facilities (reference Table 4-2 -- LOS Methodology Applications). Appropriate defaults to be applied by local agencies in their analysis of LOS are referenced in Appendix 2.

HCM-based methodologies applied to calculate LOS for CMP purposes will be the responsibility of local agencies as new development or land use plan revisions/updates (reflective of specific development proposals) are considered. This process shall be consistent with the Enhanced Transportation System Management Program described in Chapter 5.


2009 - Level of Service on CMP System in Western Riverside
Exhibit 4-1a
Legend
LOS A, B, C, D, E, or F designation for segments based on 2009 CMP Data
XXX Peak Hour Volume (Both Directions) based on 2009 CMP Data, County of Riverside 2009 Traffic Counts, CVAG Monitoring Report, and Caltrans District 8 2008 Peak Hour Traffic Counts.
Not Deficient Per Floating Car Runs
Deficient Per Floating Car Runs
Exempt Facilities
VRPA Technologies, Inc.
Van Buren Ave
Mission Blvd
Limonite Ave
60th St
Ontario Ave
Riverside Ave
Orange St
Rubidoux Blvd
Pigeon Pass Rd
Hancock St
Perris Blvd
Alessandro Blvd
Van Buren Blvd
Chandler Ave
Ramona Expressway
Nuevo Rd
D St
Warrick Rd
Lake Skyline Drive
Quail Valley
Grand Ave
Baxter Rd
Clinton Keith Rd
Murrieta Hot Springs Rd
E Benton
Simpson Ave
Lyon Ave
Sandelson Ave
Main St
Monte Ave
Mountain Ave
Hemet St
California Ave
San Gorgonio Ave
Marion Ridge Dr
To SR 111
Anza, Cuneras Rd
Wilson Valley Rd
Sage Rd
394
Rancho California Rd
Pala Rd
10,605
9,292
8,686
7,070
5,150
404
515
1,212
939
1,515
2,576
2,020
2,172
1,566
1,212
1,010
2,828
737
727
616


2009 - Level of Service on CMP System in Coachella Valley
Exhibit 4-1b
Legend
LOS A, B, C, D, E, or F designation for segments based on 2009 CMP Data
XXX Peak Hour Volume (Both Directions) based on 2009 CMP Data, County of Riverside 2009 Traffic Counts, CVAG Monitoring Report, and Caltrans District 8 2008 Peak Hour Traffic Counts
Not Deficient Per Floating Car Runs
Deficient Per Floating Car Runs
Exempt Facilities
VRPA Technologies, Inc.
Monterey Ave
Ramon Road
Portola Avenue
Cook St
Airport Blvd
Avenue 66
Harrison St
Palm Canyon
Vista Chino Rd
Gene Autry Trail
County Club Dr
Bob Hope Dr
Deglet Dabel Dr
Miles Ave
Sixth St
Deth Avenue
Persoud Blvd
9,090
1,768
62
7,777
2,828
7,373
3,760
111
3,756
2,475
1,263
74
323
475
707
371
243
636
74
545
8,585
7,575
3,485
2,828
2,374
1,162
2,525
66
596
1,364
505
111
195

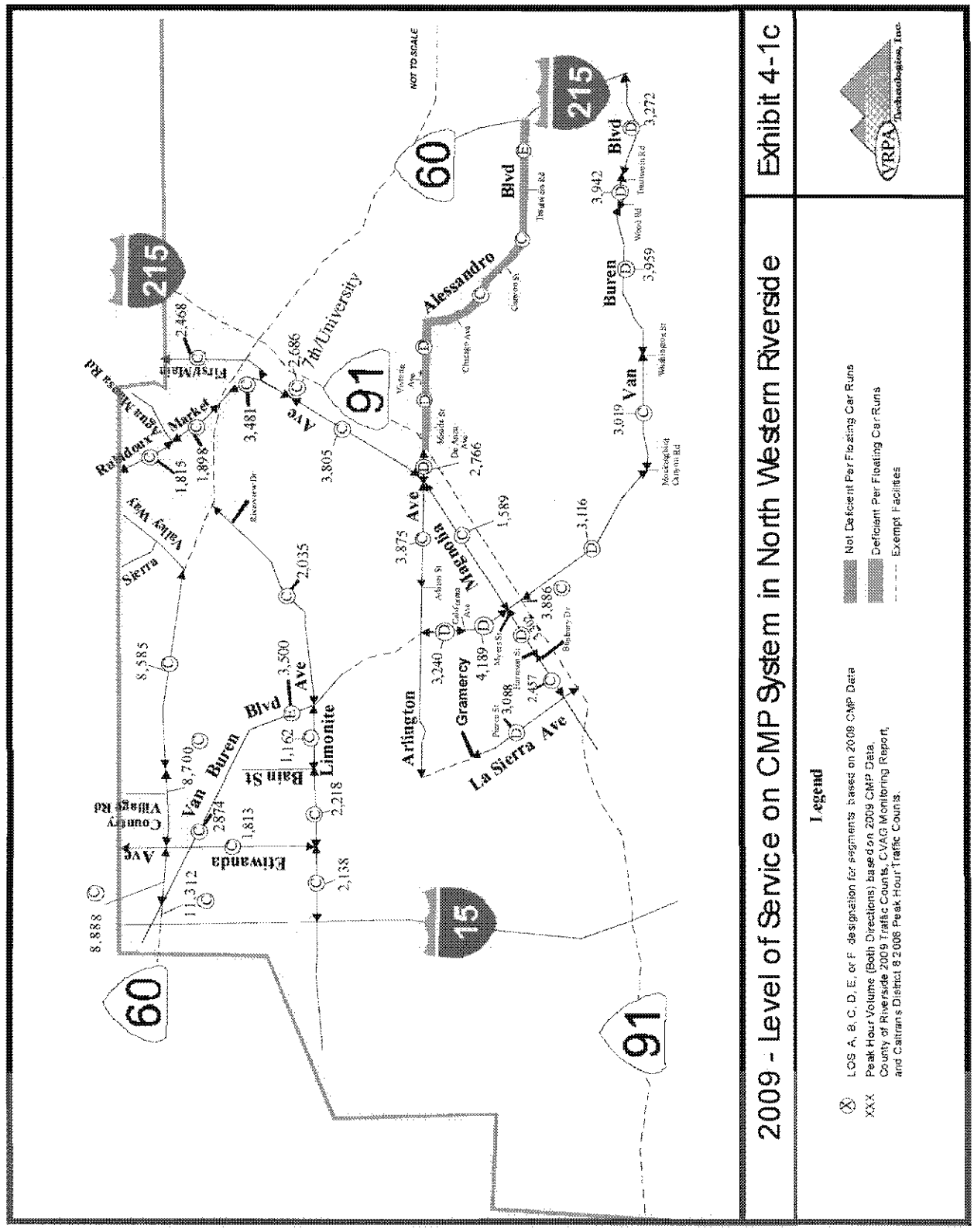

2009 - Level of Service on CMP System in North Western Riverside
Exhibit 4-1c
VRPA Technologies, Inc.
Legend
LOS A, B, C, D, E, or F designation for segments based on 2009 CMP Data
XXX Peak Hour Volume (Both Directions) based on 2009 CMP Data, County of Riverside 2009 Traffic Counts, CVAG Monitoring Report, and Caltrans District 8 2006 Peak Hour Traffic Counts.
Not Deficient Per Floating Car Runs
Deficient Per Floating Car Runs
Exempt Facilities
NOT TO SCALE
60
91
15
215
Alessandro Blvd
Van Buren Blvd
Arlington
Gramercy
La Sierra Ave
Magnolia Ave
Limonite Ave
Bain St
Elsinanda Ave
Country Village Rd
Sierra Valley Way
Rancho Vista Rd
Rubidoux
Market
First/Main
7th/University
Victoria Ave
Middle St
De Anza Ave
Chicago Ave
Ashton St
Cedarcrest Ave
Myers St
Harrison St
Pierce St
Blaisdell Dr
Riverview Dr
Mockingbird Canyon Rd
Wood Rd
Trautwein Rd
Washington St
Cranston St
2,468
2,686
3,481
3,805
1,898
1,815
2,766
1,589
3,875
3,116
3,019
3,959
3,942
3,272
2,035
3,500
8,585
8,700
2874
1,813
1,162
2,218
2,138
11,312
8,888
3,240
4,189
3,088
2,457
3,886

TABLE 4-1

EXEMPT FACILITIES IN 2009

STATE HIGHWAYS
ON STATE ROUTE 60:
RIVERSIDE COUNTY LINE TO JCT I-15
VALLEY WAY TO JCT SR 60/SR 91/I-215
JCT SR 60 EAST TO PERRIS BOULEVARD
ON STATE ROUTE 71:
SAN BERNARDINO COUNTY LINE TO JCT SR 91
ON STATE ROUTE 74:
GRAND AVENUE TO LAKESHORE DRIVE
LAKESHORE TO I-15
SANDERSON AVENUE TO CORNELL STREET
CORNELL STREET TO HEMET AVENUE
ON STATE ROUTE 91:
RIVERSIDE COUNTY LINE TO JCT SR 71
JCT SR 71 TO MAPLE STREET
MAPLE STREET TO JCT I-15
JCT I-15 TO 0.6 MILE WEST OF MCKINLEY
0.6 MILE WEST OF MCKINLEY TO MAGNOLIA AVENUE
MAGNOLIA AVENUE TO 14TH STREET
14TH STREET TO JCT SR 60/SR 91/I-215
ON I-215:
EAST JCT SR 60 TO JCT SR 60/SR 91/I-215
JCT SR 60/SR 91/I-215 TO SAN BERNARDINO COUNTY LINE
ON STATE ROUTE 111:
DISTRICT 11 BOUNDARY TO JCT SR 74
JCT SR 74 TO GENE AUTRY TRAIL
PRINCIPAL ARTERIALS – WESTERN RIVERSIDE COUNTY
ON LA SIERRA AVENUE:
ARLINGTON TO GRAMERCY
ON VAN BUREN BOULEVARD:
NORTHERLY CITY LIMIT TO JURUPA
JURUPA TO CENTRAL
CENTRAL TO ARLINGTON

TABLE 4-2

HIGHWAY CAPACITY MANUAL BASED - LEVEL OF SERVICE METHODOLOGY APPLICATIONS

	CAPSII*3	HCS	MODIFIED HCM LOS TABLES	HCM STOP DELAY ANALYSIS	HCM FLOATING CAR METHODOLOGY
BASE YEAR *1					
URBAN					
Signalized Intersections	x	x		x	
Unsignalized Intersections - 4-Way Stop Controls *4					
Unsignalized Intersections - 2-Way Stop Controls *4		x			
Links, Expressways, & Arterials		x	x		x
Freeway Links, Ramps, & Weaving Sections		x	x		x
RURAL					
Signalized Intersections	x	x		x	
Unsignalized Intersections - 4-Way Stop Controls *4					
Unsignalized Intersections - 2-Way Stop Controls *4		x			
Links, Expressways, & Arterials		x	x		x
Freeway Links, Ramps, & Weaving Sections		x	x		x
FUTURE YEAR *2					
URBAN					
Signalized Intersections	x	x		x	
Unsignalized Intersections - 4-Way Stop Controls *4					
Unsignalized Intersections - 2-Way Stop Controls *4		x			
Links, Expressways, & Arterials			x		x
Freeway Links, Ramps, & Weaving Sections			x		x
RURAL					
Signalized Intersections	x	x		x	
Unsignalized Intersections - 4-Way Stop Controls *4					
Unsignalized Intersections - 2-Way Stop Controls *4		x			
Links, Expressways, & Arterials			x		x
Freeway Links, Ramps, & Weaving Sections			x		x

NOTES:

*1 - Current year traffic conditions

*2 - Future year (2030) traffic conditions

*3 - Used as an example only, other HCM compatible software will also be accepted.

*4 - Results of analysis should be evaluated considering actual intersection conditions or 4-or 2-way stop or signal warrants.

The initial LOS analysis conducted as part of the CMP Update process is considered to be a "screening" level analysis. A more detailed assessment is conducted on key critical segments. If the analysis results in LOS deficiencies, the LOS analysis would continue on a quarterly basis to determine the average peak hour LOS and determine if the LOS deficiencies are due to temporary or permanent conditions. Coordination with the affected local agency(s) also will be made to insure that appropriate data, geometrics, counts and other related information is applied to calculate LOS.

♦ 2009 Level of Service (LOS) Results

✓ Coachella Valley

The Coachella Valley Associated Governments (CVAG) has implemented a valleywide traffic monitoring program over the past eight (8) years. Information provided by CVAG indicated that there are no deficiencies in the Coachella Valley for 2009.

✓ Western Riverside County

Based on level of service calculations along the CMP system in Western Riverside County using Caltrans and local agency counts, there were no deficiencies along local arterials included on CMP System in Western Riverside County for 2009. The 2007 CMP identified a deficiency along Alessandro between SR 91 and I-215. It was noted that the deficiency was likely the result of the I-215 corridor improvement project from the 60/91/215 interchange to the 60/215 East Junction. Given that the deficiency along Alessandro is no longer occurring, it has been concluded that the prior deficiency was indeed a result of traffic avoiding the construction activity along the I-215 corridor.

✓ State Highways

Traffic count information was collected from the Caltrans 2008 Traffic Monitoring Report and from existing Smart Call Boxes located along the State Highway system. In addition, peak hour traffic counts were taken by VRPA Technologies in late summer and early fall 2009, the data was evaluated by VRPA Technologies using HCM-based LOS tables. Following review of the initial screening results by the Technical Advisory Committee (TAC), floating car runs were performed along six major State Highway segments.

Results of this process are provided in Chapter 5 and indicate that there are two deficient segments operating at "LOS" F. The first segment is on I-215 (from I-15 to Scott Rd). RCTC is the lead agency of a widening project along this segment, which will begin construction next year. It is likely that the LOS will be improved to LOS "E" or better once construction of the I-215 is completed. Upon completion of the widening project the LOS will be re-analyzed to verify that the project mitigated the deficiency.

The second segment operating at LOS "F" is on I-15 (from Weirick Road to the Riverside/San Bernardino County line). This deficiency will likely be improved to LOS "E" or better once construction of the I-15 Corridor Improvement Project (CIP) is initiated and completed. Additionally, the SR 91 Corridor Improvement Project (CIP) will also have a significant impact on the I-15 as the project extends north and south of the I-15/SR-91 interchange along I-15 to improve the interchange connections and overall circulation in the vicinity of the SR-91/I-15 interchange. The SR-91 CIP is scheduled to be implemented in 2014.

In addition to those segments operating at LOS "F", it will be important to also closely monitor LOS "E" segments on a quarterly basis. Once a LOS "E" segment falls to LOS "F" during the quarterly monitoring process, the segment will be further analyzed as to what the cause may be. If the LOS is at "F" for more than one (1) year with no extenuating circumstances causing the deficiency (e.g., construction, special event, etc), the local agency and/or RCTC will be required to prepare a deficiency plan in accordance to Chapter 6.

Public Transit/Alternative Mass Transit Standards

- **Statutory Requirements**

Section 65089.(b)(2) of the Government Code specifically requires development of standards established for the frequency and routing of public transit, and for the coordination of transit service provided by separate operators.

- **Public Transit and Alternative Mass Transit Facility Standards**

RCTC, as the Regional Transportation Planning Agency, is responsible for planning and coordinating all public mass transit services within the jurisdiction of the Commission and between the jurisdiction of other county commissions or transit operators. On an annual basis, transit operators prepare a Short Range Transit Plan (SRTP), which is a three-year document detailing the operating and capital costs that are planned for transit services. Each operator adopts such a plan and then provides quarterly data to RCTC regarding performance. Once the SRTPs are approved by RCTC, transit operators are charged with the responsibility for providing the service levels and purchasing the capital equipment identified in year-one of the SRTP. Once approved by RCTC, the SRTPs must be amended if an operator wants to deviate from the original plan. The Commission encourages all operators to coordinate public transportation services including routes, fare structure and transfer agreements as the overall goal is the improvement of public transportation services to the general public. To assist with the coordination efforts, quarterly meetings are held with the public transit operators to ensure that efficient, effective transportation services are provided.

Public Utilities Code Section 99244 requires the Commission to annually identify, analyze and recommend potential productivity improvements for transit operators through the SRTP process. This process requires the transit operators to address recommendations made through the triennial performance audit. In 2005, the Commission reaffirmed its commitment to a Productivity Improvement Program (PIP), which was originally adopted in 1998 as part of a comprehensive effort to work with the county's eight public transit operators to provide better service and improve efficiency. Table 4-3 details the performance targets as identified in the PIP that transit operators will strive to meet in developing its SRTP service and financial plan:

TABLE 4-3
TRANSIT SYSTEM PERFORMANCE INDICATORS

Performance Indicator	Method for Establishing Performance Targets
1) Operating Cost per Revenue Hour	Increases no more than CPI
2) Fare Box Recovery Ratio	Per PUC requirements and RCTC policy
3) Subsidy per Passenger	+/- 15% variance
4) Subsidy per Passenger Mile	+/- 15% variance
5) Subsidy per Revenue Hour	+/- 15% variance
6) Subsidy per Revenue Mile	+/- 15% variance
7) Passengers per Revenue Hour	+/- 15% variance
8) Passengers per Revenue Mile	+/- 15% variance
9) Ridership growth	2% minimum growth annually (Applies to Commuter Rail)

As an alternative mode to the single-occupant vehicle, mass transit services (commuter rail services) should be considered during the assessment of local development proposals that impact the Congestion Management System and during the development of deficiency plans by local agencies. Further, future rail passenger services should be considered as appropriate mitigation measures to offset potential deficiencies. If feasible, future transit and passenger rail facility systems should be described as potential services that could reduce vehicle trips and relieve congestion at or above the minimum LOS standard.

RCTC CONFORMANCE AND MONITORING PROCESS

It is the local agency's responsibility to ensure implementation of development project mitigation measures identified by the project proponent. RCTC and local agencies will monitor the implementation of deficiency plans that include transit and roadway improvements intended to improve traffic LOS. If through the biennial traffic monitoring process, the LOS along a deficient arterial or highway facility improves to LOS "E" or

better, mitigation measures that have not been implemented as specified in the deficiency plan, would no longer be required for CMP compliance purposes.

CHAPTER 5
ENHANCED TRANSPORTATION SYSTEM MANAGEMENT PROGRAM

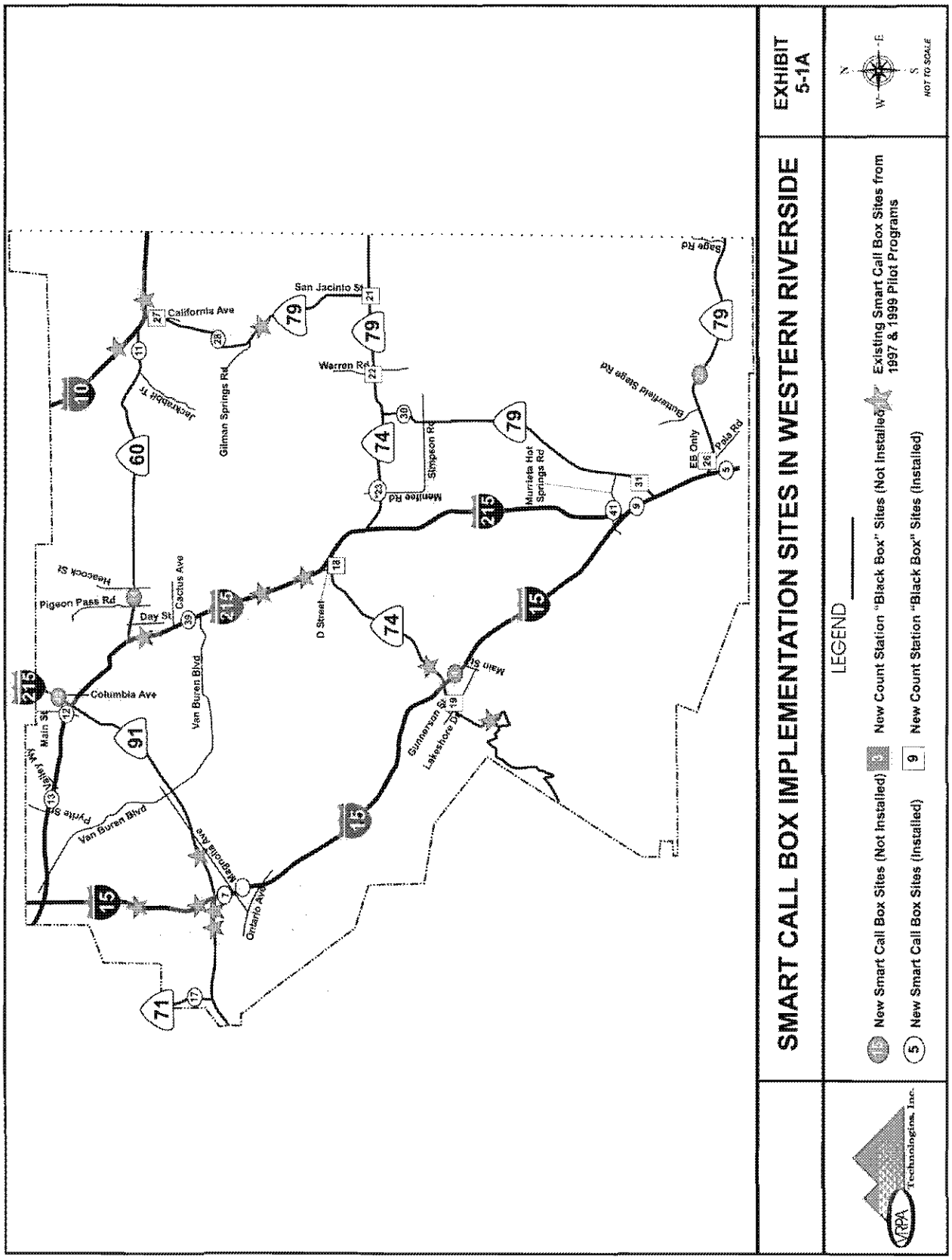
STATUTORY REQUIREMENTS

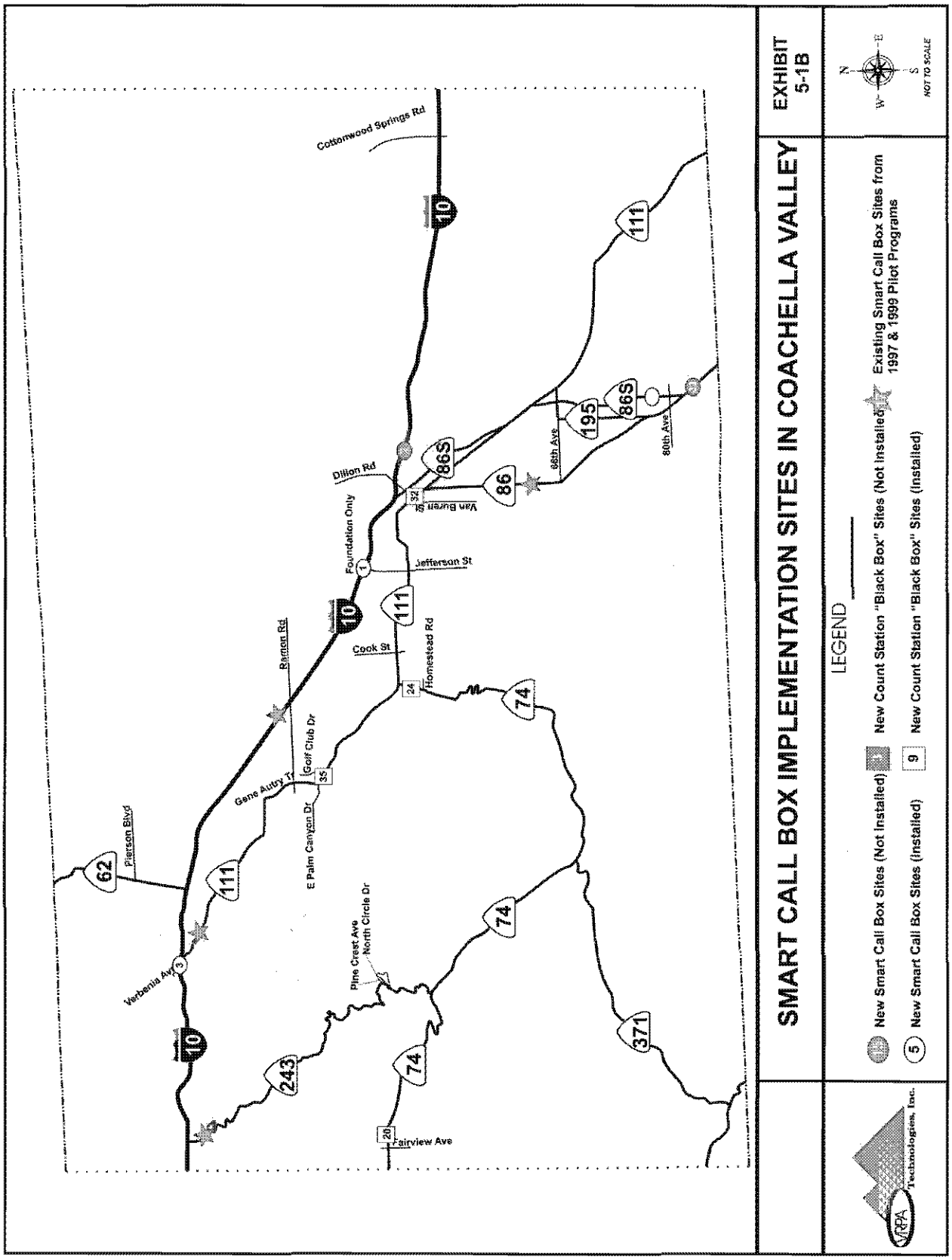
Section 65089 (b)(4) of the Government Code requires that RCTC develop a program to analyze the impacts of land use decisions made by local jurisdictions on regional transportation systems, including an estimate of the costs associated with mitigating those impacts. In no case must the program outlined in this Chapter include an estimate of the costs of mitigating the impacts of interregional travel, but it must provide credit for local public and private contributions to improvements on regional transportation systems. In the case of toll road facilities, credit must only be allowed for local public and private contributions, which are unreimbursed from toll revenues or other state or federal sources. RCTC must calculate the amount of the credit to be provided.

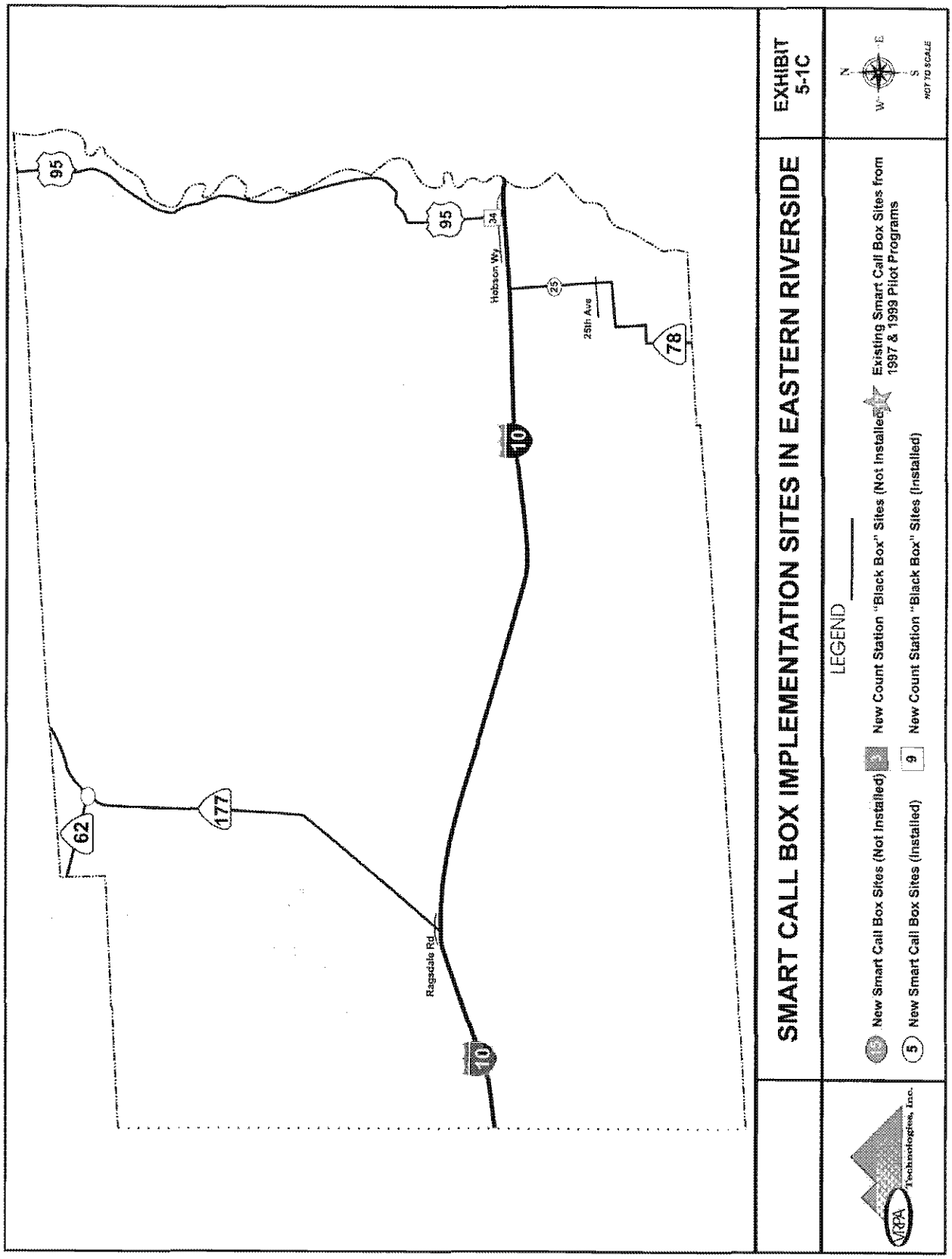
RCTC ENHANCED TRANSPORTATION SYSTEM MANAGEMENT PROGRAM

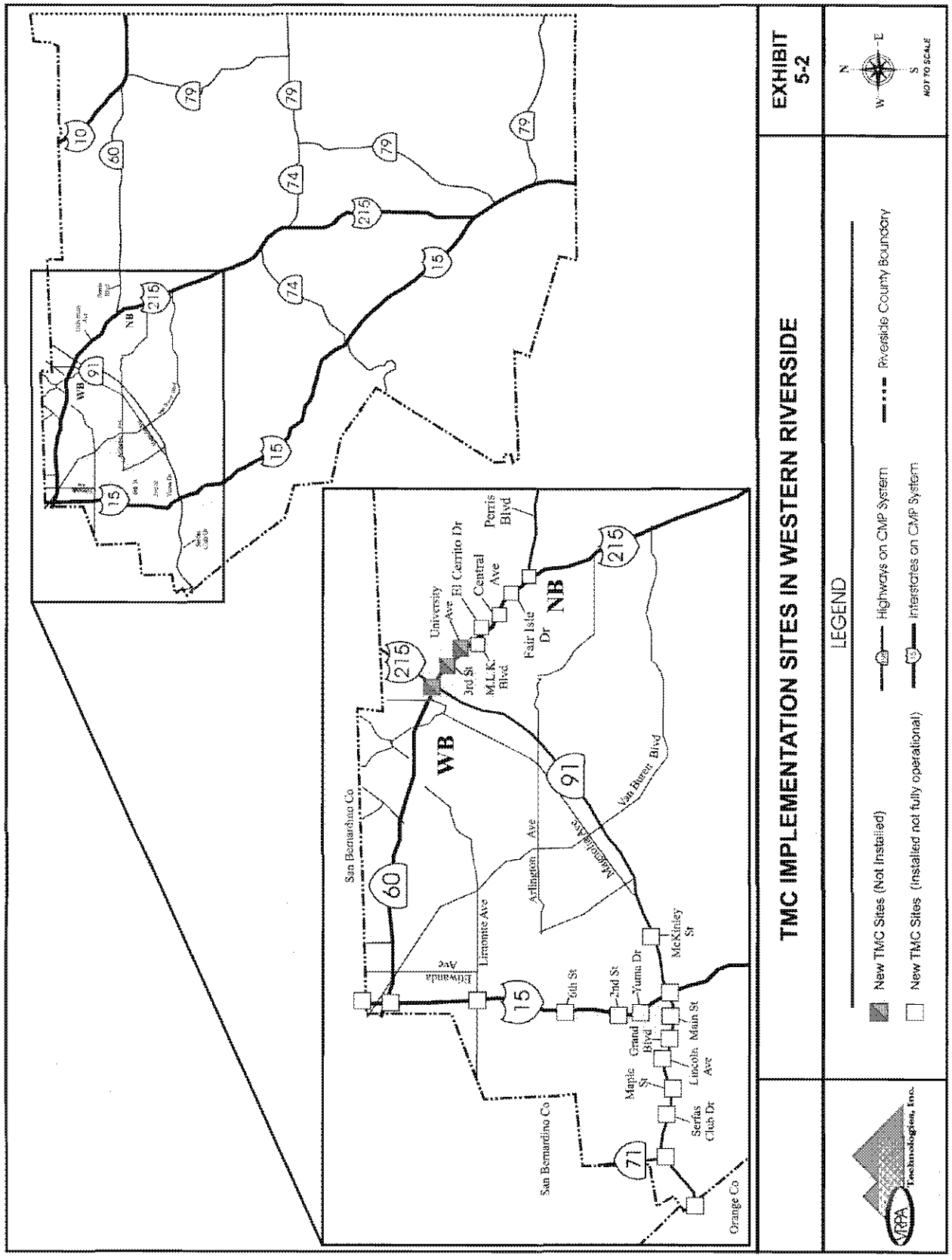
The RCTC CMP Enhanced Transportation System Management Program was designed to meet the federal Highway Performance Monitoring System (HPMS) and Congestion Management System/Traffic Management System (CMS/TMS) requirements, as well as to monitor the CMP System of Highways and Roadways. A review of Federal CMS/TMS requirements is provided in Appendix 3. The intent of the Enhanced Transportation System Management Program is to effectively identify those facilities that have congestion problems, track the degree of congestion, and apply evaluation criteria to the system so that federal and State funds are targeted or programmed to relieve the congestion.

The Enhanced Transportation System Management Program utilizes "loop or pavement sensors" currently installed along the State Highway system at call boxes and TMC sites. Traffic counters were installed at these sites allowing RCTC and Caltrans to retrieve count data. Future plans are to retrieve speed, vehicle classification, and turning movement data. The Enhanced Transportation System Management Program will improve traffic monitoring for the CMP and other planning or technical purposes.


SMART CALL BOX IMPLEMENTATION SITES IN WESTERN RIVERSIDE
EXHIBIT 5-1A
LEGEND
New Smart Call Box Sites (Not Installed)
New Count Station "Black Box" Sites (Not Installed)
Existing Smart Call Box Sites from 1997 & 1999 Pilot Programs
New Smart Call Box Sites (Installed)
New Count Station "Black Box" Sites (Installed)
NOT TO SCALE
VRPA Technologies, Inc.
California Ave
San Jacinto St
Warren Rd
Gilman Springs Rd
Jackrabbit Tr
Sage Rd
Butterfield Stage Rd
EB Only
Murrieta Hot Springs Rd
Simpson Rd
Menifee Rd
Pigeon Pass Rd
Day St
Cactus Ave
Heacock St
D Street
Columbia Ave
Main St
Van Buren Blvd
Pyrite St
Alessandro Ave
Ontario Ave
Main St
Gunnerson St
Lakeshore Dr
10
60
79
74
215
15
91
71


Cottonwood Springs Rd
Dillon Rd
Foundation Only
Van Buren St
Jefferson St
Cook St
Homestead Rd
Ramon Rd
Golf Club Dr
Gene Autry Tr
E Palm Canyon Dr
Pierson Blvd
Verbena Ave
Pine Crest Ave
North Circle Dr
Fairview Ave
68th Ave
80th Ave
10
111
62
74
243
371
195
86
86S
SMART CALL BOX IMPLEMENTATION SITES IN COACHELLA VALLEY
EXHIBIT 5-1B
LEGEND
New Smart Call Box Sites (Not Installed)
New Count Station "Black Box" Sites (Not Installed)
Existing Smart Call Box Sites from 1997 & 1999 Pilot Programs
New Smart Call Box Sites (Installed)
New Count Station "Black Box" Sites (Installed)
N
S
E
W
NOT TO SCALE
VRPA Technologies, Inc.


SMART CALL BOX IMPLEMENTATION SITES IN EASTERN RIVERSIDE
EXHIBIT 5-1C
LEGEND
New Smart Call Box Sites (Not Installed)
New Count Station "Black Box" Sites (Not Installed)
Existing Smart Call Box Sites from 1997 & 1999 Pilot Programs
5
New Smart Call Box Sites (Installed)
9
New Count Station "Black Box" Sites (Installed)
N
S
E
W
NOT TO SCALE
VRPA Technologies, Inc.
95
95
34
Hobson Wy
25
25th Ave
78
10
62
177
Ragsdale Rd
10


TMC IMPLEMENTATION SITES IN WESTERN RIVERSIDE
EXHIBIT 5-2
LEGEND
New TMC Sites (Not Installed)
New TMC Sites (installed not fully operational)
Highways on CMP System
Interstates on CMP System
Riverside County Boundary
NOT TO SCALE
VRPA Technologies, Inc.
WB
NB
San Bernardino Co
Orange Co
University Ave
El Cerrito Dr
Central Ave
Perris Blvd
Fair Isle Dr
3rd St
M.L.K. Blvd
Van Buren Blvd
Arlington Ave
Magnolia Ave
Limonite Ave
Etiwanda Ave
7th St
2nd St
Yuma Dr
McKinley St
Grand Blvd
Maple St
Lincoln Ave
Main St
Serfas Club Dr

TRAFFIC MONITORING

State Highways

Monitoring the state highways for CMP purposes involves the downloading of traffic count data from Caltrans' Traffic Management Center (TMC) sites and Smart Call Box (SCB) sites on a monthly basis. A level of service analysis will be performed to determine the condition of the CMP System. When a deficiency or LOS "F" is identified as part of the CMP Update LOS evaluation process, further detailed analysis of LOS shall be conducted to determine whether an actual deficiency has occurred. The best approach to determine LOS along freeway segments is through the use of floating car runs on a quarterly basis. In 2009, floating car runs were conducted under the direction of RCTC's CMP consultant VRPA Technologies. Results of these runs are provided in Chapter 4.

Local Arterials

Local arterial monitoring involves the continuation of the CVAG Traffic Monitoring Program in the Coachella Valley and the local traffic counting efforts on behalf of the local agencies in Western Riverside County.

To further insure that the CMP System is appropriately monitored to reduce the occurrence of CMP deficiencies, proposed development projects are evaluated by each affected agency to determine potential impacts along the regional and sub-regional Systems. As a result, these evaluations will likely reduce the incidence of LOS deficiencies along the CMP System given that each local agency has established LOS thresholds at higher levels. To insure that major development projects and plans are evaluated and reflected in the Southern California Association of Governments (SCAG) Transportation Model and local models, local agencies are encouraged to work with affected agencies to mitigate the impacts considering the California Environment Quality Act (CEQA).

Monitoring of Potential Deficiencies

As a result of the 2009 LOS screening analysis, two (2) LOS "F" segments along I-15 and I-215 were identified using floating car runs. Floating car runs provide the accurate measure of LOS (reference Table 5-1). The segment along I-215 (I-15 to Scott Rd) is operating at LOS "F". It is expected however, that the segment will be improved to LOS "E" or better once the I-215 widening project, from I-15 to Scott Road, is completed. The segment along I-15 (Weirick Road to Jurupa Street) is also operating at LOS "F". This segment is expected to be improved to LOS "E" or better once the I-15 Corridor Improvement Project (CIP) and/or SR-91 CIP are completed. Each of these deficient segments will continue to be monitored using floating car runs over the next 9 months on a quarterly basis to determine the LOS.

TABLE 5-1
FLOATING CAR RUN DEFICIENCY ANALYSIS

Roadway	Segment	Deficient Per Floating Car Runs (Y/N)	Overriding Considerations (Y/N)	Reason for Overriding Considerations
I-15	Wolnick Rd to Jurupa St	Y	Y	I-15 Corridor Improvement Project
I-215	I-15 to Scott Rd	Y	Y	I-215 South Project

If the LOS is at "F" for more than one (1) year with no extenuating circumstances causing the deficiency (e.g., construction, special event, etc), the affected local agency will be notified that a deficiency plan must be prepared in accordance with requirements set forth in Chapter 6. As a result, it will be important to continue to monitor the LOS along these segments on I-15 and I-215 to identify the LOS through the use of traffic counts or floating car runs on a quarterly basis in 2010 and 2011.

It will also be important to also closely monitor critical LOS "E" segments. Once a LOS "E" segment falls to LOS "F", the segment will be further analyzed as to what the cause may be. If the LOS is at "F" for more than one (1) year and is the average annual peak hour condition with no extenuating circumstances causing the deficiency (e.g., construction, special event, etc), the local agency will be notified that a deficiency plan must be prepared in accordance with requirements set forth in Chapter 6.

CHAPTER 6
LOS DEFICIENCY PLANS

STATUTORY REQUIREMENTS

Section 65089(b)(1)(B) of the Government Code specifically states that the Level of Service (LOS) standards established by RCTC, as the Congestion Management Agency (CMA) in Riverside County, not be below LOS "E" or the current level, whichever is farthest from LOS "A". When the LOS on a segment or at an intersection fails to attain the established level of service standard, a deficiency plan must be adopted pursuant to Section 65089.4.

In addition, Section 65089.4 requires a local jurisdiction to prepare a deficiency plan when highway or roadway LOS standards are not maintained on segments or intersections of the designated system. The deficiency plan must be adopted by the city or the County at a noticed public hearing.

RCTC DEFICIENCY PLAN PROCESS

RCTC will prepare deficiency plans or identify mitigation strategies for deficient segments along the State Highway System on behalf of local agencies. RCTC will coordinate development of such plans with affected local agencies, WRCOG or CVAG, Caltrans, and the AQMD. These agencies will have an opportunity to work with RCTC during the development of a deficiency plan, provide comments, and meet with other affected agencies to discuss issues prior to completion of a plan. To comply with the intent of the CMP legislation, a deficiency plan prepared by a city, the County or RCTC must include the principal elements specified in the CMP Legislation (reference Appendix 1). To date, the CMP minimum Levels of Service threshold has been met, therefore deficiency plans have not been required.

PROCEDURE TO IDENTIFY DEFICIENT SEGMENTS

The procedure for identifying deficient segments or intersections along the CMP System of Highways and Roadways is documented in Chapter 5, Enhanced Transportation System Management Program. Deficient segments would be identified through traffic monitoring. When a deficiency is identified as part of the CMP Update LOS evaluation process, further detailed analysis of LOS shall be conducted to determine whether an actual deficiency has occurred or if the initial analysis identified a deficiency due to extenuating circumstances or faulty data. Therefore additional, more detailed assessment of a potential deficiency would be required before a deficiency is formally identified. Coordination with the affected local jurisdiction(s) will be made to insure that appropriate data, geometrics, counts and other related information is applied to calculate LOS.

If a deficiency is identified, affected agencies will be notified. A review of mitigation measures, including capital improvement, transit, and TDM projects, will be conducted to determine how the deficiency can be mitigated. The recommended mitigation measure(s) will be reviewed by the Technical Advisory Committee (TAC).

CRITERIA TO DETERMINE APPROPRIATE MITIGATION MEASURES

Mitigation strategies that measurably improve the CMP System must be identified in the deficiency plan. Such strategies would include capital improvement projects or other measures that shift trips to alternative modes that may be included in or consistent with local Transportation Demand Management (TDM) ordinances. Further, mitigation measures should be developed considering both the existing and planned circulation system and the highest peak hour trip estimates or forecasts.

Coachella Valley and Western Riverside County TUMF Programs

Coachella Valley and Western Riverside County local agencies and the County of Riverside have adopted Transportation Uniform Mitigation Fee (TUMF) programs. In general, the programs impose fees on development specifically to address transportation impacts on local arterials. The fees are then used for selected transportation improvement projects along the adopted TUMF arterial network. The Coachella Valley Association of Governments (CVAG) implements the TUMF program in the Coachella Valley and the Western Riverside Council of Governments (WRCOG) implements the program in Western Riverside County.

If, during the annual LOS monitoring process, an intersection or segment along the CMP system within the Transportation Uniform Mitigation Fee (TUMF) areas fall below LOS "E," an evaluation of planned improvements necessary to mitigate the deficiency must be undertaken. The adopted arterial programs would then be reviewed to determine if the deficiency would be mitigated through the TUMF program and within a reasonable timeframe. If an improvement project(s) is programmed that will mitigate the

deficiency, the arterial program would be considered as a deficiency plan for CMP purposes. If projects in the arterial program do not meet the required mitigation for the deficiency, then RCTC will work with the appropriate agency(s) to identify mitigation measures. Agencies that do not participate in the TUMF programs would be required to prepare a deficiency plan in accordance with this chapter.

REVIEW OF DEFICIENCY PLANS

Deficiency Plans will be reviewed by the RCTC Technical Advisory Committee (TAC). A recommendation of approval or nonapproval of deficiency plans will be forwarded to the RCTC Board for action. In accordance with Chapter 5 - Enhanced Transportation System Management Program, mitigation measures must be identified to offset deficiencies. If the Board approves the deficiency plan, that plan will immediately become effective.

In accordance with Section 65089.4(d), upon receipt of a deficiency plan from a local agency, RCTC shall hold a noticed public hearing within sixty (60) days. Following the hearing, the RCTC may either accept or reject the plan in its entirety. Further, the Commission may not take action to amend the deficiency plan if it finds that it is not acceptable. If RCTC rejects the plan, the plan must be forwarded to the affected local agency indicating the reasons for rejection. RCTC would then meet and confer with the affected local agency to identify revisions that would provide for an adequate plan.

The affected local agency may resubmit a corrected deficiency plan and obtain approval by RCTC prior to the next annual allocation of tax increment funds. If the local agency does not correct and resubmit the plan, or receive approval prior to the next distribution of funds, RCTC must notify the State Controller to withhold such funds.

If through the biennial traffic monitoring process, the LOS along a deficient arterial or highway facility improves to LOS "E" or better, mitigation measures that have not been implemented as specified in the deficiency plan, would no longer be required for CMP compliance purposes.

In the Coachella Valley and in Western Riverside County, any funds withheld from a jurisdiction due to noncompliance, will be returned to the subregion that it was taken from (CVAG or WRCOG) to implement the respective TUMF Regional Arterial Program.

CHAPTER 7
TRANSPORTATION DEMAND MANAGEMENT/ AIR QUALITY

STATUTORY REQUIREMENTS

Section 65089(b)(3)(A) of the State code requires that RCTC prepare a CMP trip reduction and travel demand element that promotes alternative transportation methods. Such methods must include, but are not limited to, carpools, vanpools, transit, bicycles, and park-and-ride lots; improvements in the balance between jobs and housing; and other strategies, including, but not limited to, flexible work hours, telecommuting, and parking management programs. CMP Legislation also requires consideration of parking cash-out programs.

INTRODUCTION

There are effective ways of achieving trip reduction in Riverside County other than through the adoption of local agency TDM Ordinances, which was the focus of TDM efforts in the past. RCTC believes that there are other approaches that can be more effective and has facilitated the implementation of TDM projects through the Measure "A" Commuter Assistance Programs, and the implementation of a number of TDM projects (in cooperation with Caltrans and local agencies in Riverside County and in adjoining counties) to achieve TDM objectives. Such TDM strategies include the development of Park-N-Ride lots, commuter rail stations, and public transit feeder services. Taken together, the individual programs and projects constitute a broad base effort to reduce reliance on the single occupant vehicle in Riverside County.

In addition to TDM, Transportation Systems Management (TSM) strategies also provide for smoother traffic flow, especially along congested streets and highways in the County. Types of TSM strategies already implemented in Riverside County include bus bays, signal coordination systems, signal preemption for transit vehicles, improved signal timing projects, ramp metering, and focused intersection improvements. A project underway in the Coachella Valley that integrates both TDM and TSM solutions is the Washington Street and Highway 111 Commercial Corridors TDM/TSM Study affecting the cities of La Quinta, Palm Desert, Indio, Indian Wells, and the County of Riverside. TSM and TDM alternatives are being analyzed to determine if there are other cost effective ways of easing future congestion along the Washington/Highway 111 corridors. These alternatives may reduce travel delays either through a more effective use of existing capacity, adding capacity (if feasible), through traffic synchronization, encouraging motorists to use transit, car/van pooling, use of other alternative modes and TDM measures, encouraging motorists to travel at less congested times, and/or encouraging pedestrian and bicycle usage. The Study will explore a number of transportation solutions and strategies for getting people where they need to go by auto, foot, bicycle, or bus, and it will provide a baseline of data and analysis for helping to make those decisions in the future.

RCTC's approach to trip reduction and congestion relief through TDM and TSM can be particularly effective in a rapidly growing county such as Riverside. This chapter identifies the types of strategies that local agencies can also implement to achieve further reductions in trips and enhance traffic flow, especially along already congested CMP facilities and other major streets and highways.

TRAVEL DEMAND MANAGEMENT STRATEGIES

The intent of this section is to identify ways that local agencies can seek to maximize the efficient use and capacity of a roadway and/or transit facility, often with limited transportation resources. Developing a viable transportation system not only includes building new roadways and adding transit, but also involves managing the demand for travel on these systems. TDM is a term applied to a broad range of strategies that are primarily intended to reduce and reshape demand (use) of the transportation systems. TDM strategies are designed to make best use of existing transportation facilities and maximize future transportation investments. Using strategies that promote alternative modes, increase vehicle occupancy, maximize the efficient use of parking, reduce travel distances, and ease peak-hour congestion, TDM increases the efficiency and effectiveness of the transportation system.

TDM includes programs and strategies to promote alternatives to driving alone or single occupancy vehicle (SOV) travel. These include such activities as carpools, vanpools, transit, bicycles, park-and-ride lots, freeway service patrols, and Intelligent Transportation Systems (ITS). These programs will improve air quality in the region and help meet the goals of the Air Quality Attainment Plans, as well as address climate change goals. It is important that RCTC, Caltrans, and local governments throughout the County consider the application of TDM strategies during preparation of transportation plans, circulation elements, and transportation corridor studies.

Planning and preliminary engineering of major corridor investment projects in Riverside County present significant opportunities for the coordinated integration of TDM strategies. TDM is recognized as the quickest and least expensive component of transportation solutions, resulting in reduced construction impacts, increased use of new and existing transit services, and extension of the life of a roadway through reduced congestion. In addition, a basic tenet of TDM programs is developing partnerships between multiple organizations that have influence on commuting and travel habits, necessary to develop programs and policies that will reduce congestion and increase accessibility and mobility.

The solutions to contemporary transportation problems can no longer be found solely in the construction of new or even wider roadways. The TDM strategy recommendations presented below have been drafted with an understanding that any viable solution must include the participation of all available players in the County. RCTC, local agencies, land developers, local employers and their employees, the transit agencies, as well as the general public all need to work together cooperatively to resolve the transportation

related issues that are currently affecting, and will continue to affect, Riverside County's economic viability and environmental health.

TDM strategies that can be effective in the region have been organized under the following five categories:

- Enhance Vehicle Occupancy (carpools/vanpools/park-n-ride)
- Shift auto travel to Transit (bus and rail system improvements)
- Shift auto travel to Non-Motorized Transportation modes (bicycling and walking)
- Shift travel demand to "nonpeak" periods or eliminate trips through Alternative Work-Hour Programs and Telecommuting
- Maximize the efficient use of parking resources through Parking Management

Recommended strategies within any of these categories should be used as individual TDM methods where appropriate, but will have the most significant impact when they are used in combination with other strategies from the same and other categories. As in architectural design, an effective TDM program appears like an information network, in that each element can be effective for some level of benefit, but when the elements are connected and combined, the result is powerful beyond the sum of its parts. One example of this reality is when a company offers a flex time work schedule to its employees who live within moderate distances. They may feel able to change their commute travel mode from a single occupant vehicle to walking or bicycling due the increased flexibility of starting times. The research suggests that for shorter commute distances, the vehicle trips for an employment site may be reduced by 1% to 9%. However, when that same employer also provides lockers and shower facilities, employees that begin their work commute from an even further distance may also feel comfortable with a walking or bicycling commute.

The "TDM web or net" becomes much wider in terms of capturing more mode shifting employees based on a wider geographic scope. The actual trip reduction under the right conditions may be increased to as high as 30%. Following are some potential strategies:

- Complete Streets Analysis or Multimodal Level of Service (LOS): The modes analyzed in the multimodal LOS analysis should be dependent on the place type. For example, in most cases, rural inter-city travel need not look at pedestrian capacity. The plan should provide mitigation and a monitoring program to offset impacts to all modes through incident and demand management strategies.
- Corridor Analysis: Corridor impacts to a mode may be mitigated by providing capacity on a parallel facility. For example, an impacted facility may lack pedestrian and bike facilities; however, a parallel bike/pedestrian path within the corridor could offset this deficiency. In addition, impacts to transit buses stuck in the same traffic congestion as single occupancy vehicles could be mitigated by the provision of a transit/High Occupancy Vehicle (HOV) lane in the congested travel direction during peak periods. Additional mitigation for congestion could be through the provision of a freeway service patrol to rapidly clear traffic accidents and disabled vehicles during peak periods.

- Multimodal Circulation Plans: At their next regularly scheduled update, local circulation elements should consider multimodal LOS standards. In addition to the road network, circulation plans should include bike, pedestrian, and transit networks. The bike/pedestrian/transit networks should provide for transit oriented development centers that could serve as transfer points and nodes for future express and/or regional service. The centers also should provide a connected network linking to the future High Speed Trains and passenger rail stations. These centers should be reflected in the Land Use Elements of local agency General Plans with higher densities and a mix of land uses that make for a vibrant pedestrian oriented destination. The centers should use multi-modal LOS standards within their boundaries to ensure capacity for bike, walk, and transit.

Enhancing Vehicle Occupancy

TDM strategies designed to increase vehicle occupancy including casual and organized ridesharing, have been categorized under the concept of Enhancing Vehicle Occupancy. It is interesting that when non-rideshare participants are questioned about why they do not consider ridesharing, they often indicate that they think it would be inconvenient. However, when ridesharers are asked about their experience, they indicate that it is more convenient than driving alone. In any case, the issue of ridesharing requires a match of people that reside in the same general area and work at the same location or in close proximity. The region can promote the activity through marketing the services of ridematching firms and encouraging local companies to make the rideshare services a part of their TDM program. If a group of employees are interested in forming a formal rideshare arrangement, local agencies should assist them in applying for funding or in connecting them to another appropriate agency.

Perhaps the most significant deterrent to participating in a carpool of vanpool is the fear of not having a personal vehicle to use in case an emergency arises while at work. Local agencies in the region should develop a guaranteed ride home program for employees that participate in any alternative transportation mode, including walking or bicycling.

RCTC, through Inland Empire Commuter Services (IECS), offers these services and more to local employers. By partnering with IECS, employers have access to rideshare marketing materials and services to extend to their employees at no cost such as region-wide ridematching, a guaranteed ride home program, and RCTC's Rideshare Incentive and Rideshare Plus Rewards programs.

Transit System Improvements

The region and its communities share a common goal of insuring transit services are available to provide greater mobility for its residents. The presence of viable and sustainable transit services is critical to ensure the economic viability and the region's general well being. Transit system improvements that should continue to be implemented or researched include:

- Expansion of transit services, including additional regular or express service, Metrolink service, Bus Rapid Transit (BRT) systems, and other similar transit services.
- Multi-modal transit centers linking alternative modes of transportation including transit, non-motorized transportation, rail, etc., allowing intercity and regional connections
- Provision of alternative methods of transportation for paratransit riders
- Provision of current schedules, rates (including procedures for obtaining transit passes), and routes of mass transit service to employment sites or service areas.
- On-site waiting and loading facilities for transit.
- Provision of a convenient and safe shuttle service to transport workers/patrons to and from their residences, a park-and-ride lot, or other staging area to a workplace/service area.
- A monthly transit or rail pass subsidy of 50% or the maximum taxable benefit limit, whichever is greater.
- Transit shelters along a designated bus route or posting a bond for future construction when the transit route is extended to an employment/service site. Credit is given when the transit shelter is constructed in conformance with city/county regulations and when the employment/service site is on, or adjacent to, an existing or planned bus route.

Each of the local agencies in the County should work with affected transit providers to study transit enhancements and systems that will effectively reduce auto trips, especially along congested corridors.

Non-Motorized Transportation Improvements

Over the past several decades, walking and bicycling as a means of transportation and recreation have increased in popularity. This has led to a surge in the construction of trails and on-road accommodations for these modes of travel. While finishing the off-road trail system remains important, priorities in the region area are shifting to maintenance of the existing system and the provision of on-road accommodations. RCTC fully supports safe and comfortable facilities that fit the needs of the County.

The system of bicycle and pedestrian facilities, including off-road trails and on-road accommodations, must continue to be designed for all users. The skill level and preferences of bicycle riders can vary greatly. Riders who use bicycles to commute to work are likely comfortable on the majority of roads, including those without designated bicycle facilities. However, the casual user may be uncomfortable on routes that do not include separate bicycle designations, and children are likely best suited by facilities that are separate from the road. There are several types of bicycle facilities that can accommodate the various types of bicyclists.
While the system currently features predominately off-road trails, other type of accommodations will likely become more common in the future. All type of accommodations should be considered in the effort to provide the area with the best system of bicycle and pedestrian accommodations. The most common type of bicycle facilities are:

- Shared Use Path (Trail): These are generally referred to as trails or off-road accommodations. Shared use paths often serve corridors not served by roads, or where wide right of way exists next to the roadway, permitting their construction parallel to the road. Shared use paths generally do not allow motorized vehicles and can be utilized by bicyclists and pedestrians.
- Bicycle Lanes: Bicycle lanes are established by pavement markings and signage along streets where there is significant bicycle demand and the necessary street conditions to accommodate bike lanes. Bike lanes delineate the right of way by assigning separate lanes to motorists and bicyclists and lead to more predictable movements by each.
- Paved Shoulders: These are primarily implemented in rural areas, often on state and local highways. Paved shoulders provide a separated space for bicyclists, similar to bicycle lanes.
- Signed Shared Roadway: These roads are designated by bike route signs, generally either to provide continuity with other bicycle facilities (such as bike lanes) or to designate preferred routes through high-demand corridors. The purpose of signing the shared roadway is to indicate to bicyclists that there are advantages to using that particular route over others. Signage also alerts vehicle drivers that bicyclists are likely to be present.
- Shared Roadway (No Separate Bicycle Facility or Signage): Most minor residential streets would qualify as shared roadways as they have minimal and low-speed traffic and, therefore, do not need any bicycle designations or accommodations.

There are many factors to consider when determining the best type of bicycle accommodation for a particular road, including traffic volume, speed limit, lane widths, parking, and so on. It should be kept in mind that many streets, especially low-volume residential ones, are safe for bicycling without any modifications. Arterials and collectors may be best suited by signage, wide outside lanes, or designated bike lanes. Shared use paths are best utilized along very busy roads or to serve recreation interests in areas away from roads. When planning for new facilities, the following issues should be considered:

- Sidewalk Connections: Many areas in the metropolitan area have gaps in the sidewalk system. This is especially problematic along bus routes as pedestrians can have difficulty reaching the transit stops. There are many benches along bus routes for people who are waiting to catch a bus, but there are many locations where these benches are in the middle of grass with no sidewalk connection. These locations need to be improved. In addition, sidewalks are lacking in some of the metro area's commercial developments. While many of these improvements fall upon the local jurisdiction, RCTC has an interest in all areas of the region being properly linked by sidewalks.
- New Development and Redevelopment Connections: It is vital to connect new developments and redevelopment to the existing trail system. RCTC supports and strongly encourages local agencies to incorporate connections to the trail system from future residential, commercial, and industrial subdivisions and redevelopments. To ensure connectivity, this process should begin at the planning phase of new development or redevelopment and continue through its full implementation. This approach will provide for enhanced non-motorized access throughout the system.
- Traffic Signal Design: Traffic signals are not always capable of responding to the presence of a cyclist. In areas where signals change due to the presence of vehicles, a bicyclist may have to wait an excessive amount of time for a green light or may cross on a red light. Where appropriate, new traffic signal detectors should be implemented to recognize the presence of cyclists and cyclists should be educated on how to utilize detectors so the signal will change for them. Also, crossing lights for bicyclists/pedestrians and motorists should be examined, particularly on busy roadways, to ensure minimal points of conflict between road users.
- System Maintenance: While there are still trails to be built and on-road facilities to be designated or added, much of the existing system has been in place for many years. Maintenance of the existing system is becoming a critical issue as many trails will require significant resurfacing or reconstruction efforts in the coming years. Local jurisdictions will need to ensure that the existing system is adequately maintained.
- Bicycle Parking: Bike racks, lockers, or some other form of bicycle parking must be provided throughout the metropolitan area. While providing the route to get to a destination is often the primary consideration, bicyclists must have a place to secure their bikes once there. Areas that should provide bicycle parking include all public buildings, parks, transit stops, and places near businesses and multi-unit residential dwellings.

- Bicycle Racks on Transit Buses: Bicycling and transit are two transportation modes that are often used on the same trip. Bicycle racks on buses increases the mobility of bicyclists as it enables them to travel across the metropolitan area. Transit agencies should have bike racks installed on all new bus purchases.
- Showers/Locker Rooms: Bicycling to work would likely be more attractive to people if they were able to shower or freshen up and change in comfortable facilities. Local agencies can work on providing shower and changing areas in public buildings and work with private employers to provide these facilities to encourage bicycling to work.

Recently, there has been a movement to plan for and implement "Complete Streets". According to the *Complete the Streets* organization (www.completestreets.org), complete streets are designed and operated to enable safe access for all users. Pedestrians, bicyclists, motorists, and transit riders of all ages and abilities must be able to safely move along and across a complete street. There are many benefits to complete streets, the most prominent being improved safety for all users. In addition, complete streets encourage other modes of travel besides personal automobile, thereby improving health, decreasing air pollution from emissions, and decreasing congestion.

The design of a complete street can vary greatly, depending on the characteristics of the roadway. Local, residential streets that are low-speed and have low traffic volumes are likely already complete streets as they do not require separate accommodations for other modes of travel. Busier streets may require more infrastructure to make them complete. Items that could be part of a complete street include:

- Sidewalks
- Bike lanes
- Wide shoulders
- Separate trails
- Crosswalk striping/raised crosswalks
- Median refuges/islands
- Bus pullouts/bus only lanes
- Audible pedestrian signals/countdown pedestrian signals

The optimal design for a particular street will depend upon many factors, including its traffic volume, speed limit, lane widths, parking, and so on.

Creating a complete and user-friendly system of bicycle and pedestrian accommodations involves more than trails, sidewalks, and on-road accommodations. To fully incorporate these modes into the region's transportation system, there are several important elements to consider:

- Education: Teach all road users about the rights and responsibilities of cyclists; create educational publications; promote bicycling to target populations; work with schools to establish bicycling skills curricula; establish adult bicycle education programs.

- Engineering: Accommodate bicyclists on all roadways; provide convenient and secure bicycle parking; ensure bike lanes and pathways form an integrated and contiguous network; fund on-road bicycle facility improvements in conjunction with roadway projects; coordinate with surrounding jurisdictions.
- Encouragement: Establish a centralized program for interaction with and education of the public; increase local coverage of bicycle events.
- Enforcement: Update city codes and zoning to ensure that the interests of bicyclists are incorporated into existing and future developments; enhance enforcement measures of traffic rules and regulations to both cyclists and motorists.
- Evaluation: Track bicycle ridership; track the number of roads that have on-road bicycle accommodations added.

RCTC encourages each local agency to consider the elements noted above when designing new or improved transportation corridors, preparing transportation plans and circulation elements, developing a non-motorized transportation plan, or when reviewing new development proposals.

Article 3 of the California Transportation Development Act establishes 2% of Local Transportation Funds to be made available to cities and the county to build facilities for the exclusive use of pedestrians and bicyclists. Every April, the Commission releases a call for projects for pedestrian and bicycle facilities in which all Riverside County jurisdictions are eligible to apply for funding.

Alternative Work Schedules/Telecommuting

Alternative work schedules (also known as variable work hours) are comprised of three different strategies: flextime, compressed work weeks, and staggered shifts. The definition of each follows:

- Flextime—Employees work specified hours each week, but are given flexibility on when they arrive to work, take lunch, and leave work
- Compressed work weeks—Employees work more hours than typical, but work fewer days per week or pay period
- Staggered shifts—Employees arrive and depart work at different times in shifts. Shifts may be staggered anywhere from 15 minutes to two hours

In general, alternative work schedule strategies provide the following benefits:

- Reduce peak period congestion directly
- Make ridesharing and transit use more feasible
- Reduce parking lot and entrance/exit congestion
- Less employee stress/better productivity
- Facilitate better employee morale/retention
- Reduce tardiness
- Are economical to provide
- Can offer flexibility needed for other commute solutions

- Staggered hours allow for more coverage because of extended workday
- More flexibility for personal and work time
- Can offer flexibility needed for other commute solutions
- Often reduces commute time by avoiding rush hour traffic
- Less traffic congestion during peak hours
- Better air quality from reduced congestion

Studies have found that employees with flexible work schedules save an average of 7 minutes per day in commute time. Also, variable start times can reduce peak-period trips, particularly around large employment centers, and when combined, flextime and telecommuting can reduce peak-hour vehicle commute trips by 20-50%. While these programs are employer-based, local agencies can encourage or even require employers to participate. Local agencies should also develop a program to organize the enforcement of these programs as they are submitted by new developments.

Telecommuting involves a situation where an employee is working anywhere but in his/her traditional office. A typical scenario involves employees working at home either full or part time, but they could also be working on travel assignments, at remote work centers, or on the road day-by-day. Telecommuting benefits include:

- Reduced parking needs
- Reduced office space needs and overhead costs
- Less employee stress/better productivity
- Better employee morale/retention
- Decreased absenteeism and sick leave
- More flexibility for personal and work time
- Higher productivity
- Less traffic congestion
- Better air quality
- Reduced fuel use
- Eligibility in the IECS Rideshare Incentive/Rideshare Plus Rewards programs

Alternative work schedules and telecommuting should continue to be highlighted as TDM plans and programs are required by local agencies during review of development and redevelopment proposals. Both of these TDM strategies have the greatest potential for significant trip reduction in the region.

Parking Management

Parking management is arguably the most effective method of encouraging people to shift to alternative modes of travel. A study of the effectiveness of parking management programs in Los Angeles found that charging for parking can decrease the number of individuals driving alone to work by as much as eighty percent (80%). Programs reaching that level of success may be rare, but a more typical reduction is assumed at closer to thirty percent (30%). Another study of parking costs in the Portland, Oregon area found that parking charges of just $40 per month could increase transit use by twenty percent (20%) in both the suburban and central business districts. When parking costs were increased to $80 per month, the increase in transit use rose by 35 to 40 percent (35-40%) (Peng, Zhongren, Kenneth J. Dueker, and James G. Strathman. 1996). It is clear however, that Riverside County is unique in its characteristics that appear to demonstrate an unlimited amount of space to place parking and that space is available at a relatively low cost. Even though parking charges are not likely to produce changes in travel behavior at the same level in Los Angeles or Portland, Oregon, the management of parking can alter behavior and result in the reduction of vehicle trips.

Parking management techniques include a range of practices, such as preferred parking spaces for high occupancy vehicles and alternative fuel vehicles, reduced parking charges for carpools and vanpools, shared parking facilities, daily rather than monthly parking charges, establishing parking maximums for new developments, and the taxing of parking facilities. As is the case with most other TDM strategies, parking management can be even more effective when combined with other TDM techniques such as free transit passes, cash-incentive programs, and the availability of high-quality transit service. Local agencies should consider these management strategies as new developments and redevelopment projects are proposed and reviewed.

TRANSPORTATION SYSTEMS MANAGEMENT

Transportation Systems Management (TSM) is defined as a program to reduce demand on, and increase the capacity of, the existing transportation system. Specifically, TSM is an integrated program that will optimize the performance of existing infrastructure through the implementation of systems, services, and projects designed to preserve capacity and improve security, safety, and reliability. TSM strategies include the following:

- 511 Traveler Information Service which provides Riverside County with real-time traffic information and commute alternatives by calling 511 or visiting ie511.org
- Ramp metering
- Congestion pricing
- Changeable message signs
- Signal coordination
- Roadway improvements
- Improved signal timing
- Other Intelligent Transportation Systems (ITS) improvements, such as detection and

video surveillance
- Re-routing of traffic to less congested routes
- Pedestrian facilities including restricted pedestrian crossings and consideration of pedestrian overcrossings
- Placement of transit stops and bus bays
- Corridor access improvements
- Advanced traffic signal timing programs, such as SCOOT (Split Cycle Offset Optimization Technique) or SCAT (Sydney Coordinated Adaptive Traffic) systems

RCTC, Caltrans, and each of the local agencies within the County should consider the design and implementation of TSM improvements as they plan for and design street and highway improvement projects; especially along heavily congested streets and highways. The Inland Empire ITS Strategic Plan, approved by RCTC in 1998 provides a thorough discussion and assessment of the types of ITS and TSM strategies that can improve traffic flow and relieve congestion.

SCAG COMPASS BLUEPRINT

The SCAG Compass Blueprint was enacted to encourage creative and sustainable development strategies that fit local needs and support shared regional values. The SCAG Compass Blueprint is regional in scope and supports the integration of land use, transportation, and resource planning. The planning process considers the "Three Es" of sustainable communities: prosperous economy, quality environment, and social equity. Blueprint planning is a comprehensive undertaking that requires innovation, collaborative planning, thinking on a macro scale, and a willingness to follow through to implementation. Through partnerships with local governments, the SCAG Compass Blueprint serves communities by applying the best available tools to create successful examples to accommodate regional growth. A principal objective of the Compass Blueprint is to balance job growth with housing growth in order to reduce trips and vehicle miles traveled (VMT).

Local agencies in Riverside County that have completed or are currently working with SCAG on Compass planning include Cathedral City, Coachella, Corona, Desert Hot Springs, Hemet, Lake Elsinore, Moreno Valley, Norco, Perris, Riverside, Murrieta, and Temecula. Some of the various Compass-related projects in Riverside County that these and other agencies are currently implementing or will initiate shortly include the following:

- City of Corona Redevelopment Agency (RDA) - Land Use Infill Analysis, Market Feasibility
- Western Riverside Council of Governments (WRCOG) - Non-Motorized Transportation Plan Update
- Lake Elsinore - Design Standards and Visualization Products for the Planned Civic Center Development
- WRCOG - Conceptual Transportation Network and Scalable Implementation Strategy for Deployment of Neighborhood Electric Vehicles (NEVs) in the Cities of Riverside, Corona, Norco, and Moreno Valley

- WRCOG – Study to examine Bus Rapid Transit (BRT) opportunities along major transportation corridors including the Mid County Parkway, I-15, and I-215
- WRCOG - I-15 Interregional Partnership (IRP) with the San Diego Association of Governments (SANDAG). The Southern California Association of Governments (SCAG) to provide assistance to expand the study area and conduct smart growth analysis and prepare a transportation strategy implementation plan for I-15 and I-215
- City of Cathedral City – To develop a corridor strategy that considers land use, infill scenarios, transportation, and economic development while connecting various areas and linking existing plans within the City
- City of Moreno Valley – To explore Transit Oriented Development (TOD) opportunities around an emerging rapid transit line along Alessandro Boulevard, connecting a planned Metrolink station to Riverside County Hospital
- City of Desert Hot Springs – To develop a land use vision for the area adjacent to a conservation corridor area (the Coachella Valley Multiple Species Habitat Conservation Plan) that balances resource conservation and development

SENATE BILL (SB) 375

SB 375 (Steinberg) is California state law that became effective January 1, 2009. This new law requires California's Air Resources Board (CARB) to develop regional reduction targets for greenhouse gas emissions (GHG). Future growth and development in California and within the Riverside County region will be planned consistent with Senate Bill (SB) 375, which calls for the integration of transportation and land use and housing planning through the development of "Sustainable Community Strategies" (SCS). California's 18 Metropolitan Planning Organizations (MPOs) have been tasked with creating SCSs and demonstrating actions necessary to attain the proposed reduction targets by 2020 and 2035.

SB 375 also establishes the reduction of greenhouse gas (GHG) emissions as one of the overarching goals of regional planning consistent with Assembly Bill (AB) 32. The transportation sector is the single largest source of GHG in California. The California Air Resources Board (CARB) estimates that approximately 40% of the GHG statewide is transportation related.

The efforts presented in this Chapter are consistent with the objectives of SB 375 by supporting sustainable community strategies for the purpose of reducing GHG emissions, improving air quality, aligning planning for transportation and housing, and creating opportunities for the implementation of TDM and TSM strategies that reduce trips and vehicle miles traveled.

CHAPTER 8
CAPITAL IMPROVEMENT PROGRAM

STATUTORY REQUIREMENTS

Section 65089(b)(5) of the CMP Statutes requires that RCTC prepare a seven-year capital improvement program, developed using the performance measures described in paragraph (2) to determine effective projects that maintain or improve the performance of the multimodal system for the movement of people and goods, and to mitigate regional transportation impacts identified pursuant to paragraph (4).

RCTC CIP PROGRAM

For purposes of this CMP Update, the 2010 Capital Improvement Program (CIP) consists of the STIP, Measure "A", TUMF programs, and other federally funded projects programmed on the CMP system. RCTC submits state, local and federally funded projects to the Southern California Association of Governments (SCAG) for inclusion in the FTIP. Locally funded non-regionally significant projects are not required to be included in the FTIP.

CHAPTER 9
CMP CONFORMANCE AND MONITORING

STATUTORY REQUIREMENTS

Section 65089.3 of the Government Code requires RCTC to monitor the implementation of all elements of the Congestion Management Program (CMP). Caltrans is responsible for data collection and analysis on State highways, unless the agency designates that responsibility to another entity. RCTC may also assign responsibility of data collection and analysis to other owners and operators of facilities or services if the responsibilities are specified in its adopted program. RCTC must also consult with Caltrans and other affected owners and operators in developing data collection and analysis procedures and schedules prior to program adoption.

RCTC CONFORMANCE AND MONITORING

At least biennially, RCTC will determine if the County and cities are conforming to the CMP, including, but not limited, to all of the following:

(a) Consistency with levels of service standards, except as provided in Section 65089.4.
(b) Implementation of a program to monitor and evaluate the performance of the transportation system.
(c) Adoption and implementation of a deficiency plan pursuant to Section 65089.4 when highway and roadway level of service standards are not maintained on portions of the designated system.

In addition to conformity requirements referenced in specific sections of the Government Code, the County and cities must work with the Congestion Management Agency (CMA) to provide Level of Service (LOS) monitoring information along the CMP System. This process is detailed in Chapter 5, Enhanced Transportation System Management Program.

RCTC will continue to work with its Technical Advisory Committee (TAC) to introduce new or revised requirements. Additional CMP workshops, to be held at the request of individual jurisdictions, offer the opportunity for planning and engineering staff to gain a better understanding of the CMP in an informal environment.

1) Consistency with LOS Standards

To simplify the process of collecting traffic counts from Caltrans and the local agencies, RCTC has implemented the Enhanced Transportation System Management Program.

LOS calculations will primarily be based upon the newly installed traffic counting equipment along the state highway system. Counts along the local arterial system will be provided by the subregional agencies, affected local agencies, or from counts conducted by RCTC. Currently, thirty-six (36) Smart Call Boxes (SCB) sites and twenty-seven (27) Traffic Monitoring Center (TMC) sites have been installed to collect traffic counts along the state highway system. RCTC will consult with Caltrans for traffic count data along facilities where SCB or TMC counts are not available.

The Enhanced Transportation System Management Program utilizes "loop or pavement sensors" currently installed along the State Highway system at call boxes and TMC sites along the highway system. The program provides Caltrans and RCTC the ability to retrieve real-time count information. Chapter 5 of this CMP contains a full explanation of the SCB and TMC implementation program.

2) Program to Manage and Analyze the System

To insure that the CMP System is appropriately monitored to reduce the occurrence of CMP deficiencies, proposed development projects can be evaluated by each affected agency to determine potential regional and sub-regional impacts along the CMP Systems. As a result, such evaluation will reduce the incidence of LOS deficiencies along the CMP System.

Local agencies are encouraged to work with other affected agencies to mitigate the impacts considering California Environmental Quality Act (CEQA) and Intergovernmental Report (IGR) requirements to insure that major development projects and plans are evaluated and reflected in the Southern California Association of Governments (SCAG) Transportation Model.

When a LOS deficiency is identified as part of the CMP Update, further detailed analysis of LOS shall be conducted to determine whether an actual deficiency has occurred. The LOS analysis conducted as part of the CMP Update process is only considered to be a "screening" level analysis, and a more detailed assessment of a potential deficiency would be required before a deficiency is formally identified. Coordination with the affected local jurisdiction(s) will be made to insure that appropriate data, geometrics, counts and other related information is applied to calculate LOS.

3) Transportation Model Consistency Requirements

Transportation Modeling Guidelines have been developed by SCAG to assist local agencies in developing transportation models to analyze the circulation system within their jurisdiction or for special transportation studies. These guidelines are available at RCTC and at the SCAG Inland Empire office in Riverside. In addition, the Riverside County Transportation Department will be working with RCTC, WRCOG, CVAG, and local agencies in developing transportation modeling guidelines for the RIVTAM model. RCTC will require that these guidelines be followed during development of traffic models for all projects of regional significance. The guidelines have several objectives;

however, the primary objective is to insure that the legislative requirements for transportation modeling and database consistency are achieved. In addition, the guidelines have been designed to ease the transfer of information from the regional and subregional models to local models and vice-versa.

REQUIRED CMP UPDATES

The CMPs were required to be updated annually between 1992 and 1995. An amendment to the CMP legislation changed the update to occur biennially. Table 9-1 outlines the updates approved since inception: The 2010 CMP update consists of monitoring the CMP System, and reporting the results of the analysis including deficiencies, and incorporating TDM and TSM efforts implemented by RCTC and local agencies. The CMP was originally planned for adoption in December 2009; however, the adoption was rescheduled to March 2010 to allow more time for review of federal congestion management system requirements and MPO CMP consistency requirements.

SCAG CONSISTENCY REVIEW

The 2010 CMP will be reviewed by SCAG for consistency with the Regional Transportation Plan (RTP) and with CMPs of adjoining counties (San Bernardino, Orange, and Los Angeles Counties). Under the MPO planning regulations, SCAG is required to certify that it meets federal CMS requirements, which includes a review and consistency determination of all CMPs within the SCAG region.

TABLE 9-1

CMP UPDATES SINCE INCEPTION

Year	Major Effort/Revisions	Adopted
1992	The Commission originally adopted the CMP	December 1992
1993	The CMP was revised focusing on LOS evaluation	December 1993
1994	The Commission updated Chapters 3 and 5 of the CMP	December 1994
1995	The CMP was revised and updated, primarily focusing on Chapter 5, Land Use Coordination and the inclusion of legislative amendments	December 1995
1997	The CMP was thoroughly amended focusing on replacement of the Traffic Impact Assessment (TIA) process contained in the Land Use Coordination Program (Chapter 5). The TIA process was replaced with the Enhanced Traffic Monitoring Program	December 1997
1999	The CMP was revised focusing on LOS evaluation	December 1999
2001	Minor revisions were included in the update and RCTC issued the RFP for the traffic counter installations at Smart Call Box and Traffic Management Center Sites.	December 2001
2003	The 2003 CMP Update was focused on continued implementation of the CMP to meet Federal Congestion Management System (CMS) requirements. The traffic counter installations project was nearing completion. Test runs were initiated.	December 2003
2005	The 2005 CMP Update focused on a review of LOS and monitoring of various street and highway segments that were approaching deficient levels of service. Several segments were identified as deficient through the application of floating car runs. These segments fell deficient due to construction activity and road closures in adjacent areas. Continued monitoring of the segments has been undertaken and the segments continue to be deficient due to continued construction activity and road closures.	May 2006
2007	The 2007 CMP Update also focused on a review of LOS and monitoring of various street and highway segments that were approaching deficient levels of service as referenced for 2005. Several segments were identified as deficient through the application of floating car runs. These segments fell deficient due to construction activity and road closures in adjacent areas. Continued monitoring of the segments was undertaken and two of the segments continued to be deficient due to capacity constraints.	December 2007

CHAPTER 10
CMP DEVELOPMENT AND IMPLEMENTATION/ UPDATE PROCESS

STATUTORY REQUIREMENTS

Section 65089(a) of the Government Code requires that the Congestion Management Program (CMP) must be developed, adopted, and updated biennially, consistent with the schedule for the adoption and update of the Regional Transportation Improvement Program (RTIP), for every county that includes an urbanized area, and must include every city and the county. Development of the CMP must also be coordinated with the Southern California Association of Governments (SCAG), regional transportation providers, local governments, Caltrans, and respective air districts.

RCTC DEVELOPMENT, IMPLEMENTATION, AND UPDATE PROCESS

As described above, CMP legislation requires that the Program be developed, adopted, implemented, monitored, and updated biennially. This chapter primarily focuses on procedural, administrative, and coordination activities related to CMP development, adoption, implementation and update. To meet the requirements of the legislation, the CMP shall be developed, adopted, implemented, and updated in accordance with procedures described in the following sections.

CMP DEVELOPMENT

The CMP is developed to meet federal CMS requirements and also includes elements of the State's CMP guidelines. State CMP statutes AB 471, 1791, AB 3093, AB 1963, and AB 2419 (reference Appendix 1).

CMP ADOPTION PROCEDURE

The following procedure has been developed to outline the process toward preparation and adoption of the CMP. RCTC staff shall coordinate the development of the CMP with the RCTC Technical Advisory Committee (TAC).

- Local agencies should continue to monitor the CMP System. It is suggested that the local agency collect ground counts at least every four (4) months to provide for average annual traffic conditions.

- Beginning in April of each odd numbered year, RCTC will obtain counts or LOS analysis from Caltrans, CVAG, and local agencies.

- In May of each odd numbered year, RCTC must initiate a CMP update. RCTC staff will review individual Chapters with the RCTC TAC, as necessary.

- In October of each odd numbered year, RCTC must submit a Preliminary Draft of the CMP to SCAG and the RCTC TAC CMP Subcommittee for review and comment.

- In November of each odd numbered year, RCTC staff will submit the Draft CMP to the TAC for formal review and approval.

- Between November and December of each odd numbered year, RCTC staff will submit the Final Draft to the Commission for review and approval

CMP IMPLEMENTATION

The CMP is to be implemented and monitored in accordance with procedures described in Chapter 9 - CMP Conformance and Monitoring.

CMP UPDATE PROCEDURE

The CMP update process should be initiated at least six months prior to adoption. Revision of the CMP may occur any time during the year to address specific issues.

The update should include a thorough review of each Chapter or required element contained in the current CMP. A suggested review process follows:

- Legislative revisions or new enactments to CMP statutes should be thoroughly reviewed and incorporated into the CMP update. (Chapter 1, 2)

- Review agency requests for adding road segments to the CMP System. According to the CMP legislation, facilities may only be added to CMP system. All facilities included in the adopted CMP must be retained. (Chapter 1, 2)

- Review adjacent county CMP Systems to determine if facilities were added or are proposed for addition. Review and analyze any additions considering SCAG's Consistency Guidelines on file at RCTC. (Chapter 2)

- Review, in coordination with SCAG and local agencies, the existing and future year databases used for transportation modeling purposes to insure consistency in the development of socioeconomic estimates and projections. (Chapter 3)

- Review the adopted CMP Minimum level of service (LOS) standard. The CMP LOS standard can only be increased above the level identified in the adopted Program. (Chapter 4)

- Review LOS estimates to determine if the LOS along CMP facilities has dropped below LOS "E".

- Document the purpose for, and status of, deficiency plans that may have been prepared by local agencies during the previous year including proposed mitigation measures.

- Document segments or intersections that are at LOS "E", close to falling below the adopted CMP threshold.

- Review the Productivity Improvement Program Transit System Performance Indicators for any changes/updates.

- Document whether public transit or passenger rail service was identified as a mitigation measure or potential mitigation measure in the development of deficiency plans.

- Review the CMP Conformance and Monitoring Process to determine whether the process is consistent with changes or revisions identified within other CMP elements.

APPENDIX 1

CALIFORNIA GOVERNMENTS STATUTES REFERENCING CONGESTION MANAGEMENT PROGRAMS (AB 2419)

Assembly Bill No. 2419
CHAPTER 293
An act to amend Sections 65082, 65089, and 65089.3 of, and add Section 65088.3 to, the Government Code, relating to transportation.
[Approved by Governor July 25, 1996. Filed with Secretary of State July 25, 1996.]
LEGISLATIVE COUNSEL'S DIGEST
AB 2419, Bowler. Transportation: congestion management programs.
(1) Existing law requires the development, adoption, and updating of a congestion management program for each county that includes an urbanized area. Existing law requires congestion management programs to be incorporated into the regional transportation improvement program by December 15 of each odd-numbered year.
This bill would provide that this incorporation requirement does not apply in those counties that do not prepare a congestion management program in accordance with existing law.
(2) Under existing law, a congestion management program is required to contain specified elements.
This bill would delete the trip reduction element and would make corresponding changes.
(3) Under existing law, a congestion management program is required to be developed for specified counties and include every city and the county. The program is required to be developed and adopted by the county transportation commission or by another public agency designated by the county board of supervisors and the city councils of a majority of cities representing a majority of the population in the incorporated area of the county.
This bill would make those requirements inapplicable in a county in which a majority of local governments, collectively comprised of the city councils and the county board of supervisors which, in total, represent a majority of the population of the county, adopt resolutions electing to be exempt from the congestion management program.
The people of the State of California do enact as follows:
SECTION 1. Section 65082 of the Government Code is amended to read:
65082. (a) A seven-year regional transportation improvement program shall be prepared, adopted, and submitted to the California

Transportation Commission on or before December 15 of each odd-numbered year, updated every two years, pursuant to Sections 65080 and 65080.5 and the guidelines adopted pursuant to Section 14530.1, to include projects and programs proposed to be funded, in whole or in part, by funds which are any of the following:
(1) For flexible congestion relief projects, as defined in Section 164.2 of the Streets and Highways Code.
(2) For urban rail transit and commuter rail projects.
Major projects shall include an escalated current cost updated to at least November 1 of the year of submittal, and be listed by relative priority, taking into account need, delivery milestone dates, as defined in Section 14525.5, and the availability of funding.
(b) Congestion management programs adopted pursuant to Section 65089 shall be incorporated into the regional transportation improvement program submitted to the commission by December 15 of each odd-numbered year.
(c) The incorporation of the congestion management program into the regional transportation improvement program required to be submitted to the commission by December 1, 1991, may be delayed for a period not to exceed one year if an environmental impact report is required to be prepared for the congestion management program pursuant to Division 13 (commencing with Section 21000) of the Public Resources Code, and the following conditions are met:
(1) The agency, as defined by Section 65088.1, adopts written findings that the congestion management program cannot be incorporated into the regional transportation improvement program by December 1, 1991, due to the time required to prepare an environmental impact report pursuant to Division 13 (commencing with Section 21000) of the Public Resources Code.
(2) The agency adopts a schedule for development of the congestion management program that will result in its adoption no later than December 1, 1992, and submits a report to the Legislature by July 1, 1992, on the progress of complying with this section.
(3) The agency, county, and cities take every action necessary to assure the congestion management program will be adopted by December 1, 1992.
(d) If the incorporation of the congestion management program into the regional transportation improvement program is delayed pursuant to subdivision (c), both of the following shall apply:
(1) Any project included in the state transportation improvement program or the traffic systems management program prior to December 1, 1992, which is otherwise required to be included in the congestion management program, pursuant to subdivision (e), but which is not included in the congestion management program to be incorporated into the regional transportation improvement program pursuant to subdivision (b), shall be deleted from the state

transportation improvement program or the traffic systems management program.
(2) Local projects which are otherwise required to be included in the congestion management program, pursuant to subdivision (e), may be included in the regional transportation improvement program to be submitted to the California Transportation Commission by December 1, 1991. Any local project which is included in the regional transportation improvement program after December 1, 1991, but prior to December 1, 1992, which is otherwise required to be included in the congestion management program, but which is not included in the congestion management program to be incorporated into the regional transportation improvement program pursuant to subdivision (b), shall be deleted from the regional transportation improvement program.
(e) Local projects not included in a congestion management program shall not be included in the regional transportation improvement program. Projects and programs adopted pursuant to subdivision (a) shall be consistent with the seven-year capital improvement program adopted pursuant to paragraph (5) of subdivision (b) of Section 65089, and the guidelines adopted pursuant to Section 14530.1.
(f) Other projects may be included in the regional transportation improvement program if listed separately.
(g) Unless a county not containing urbanized areas of over 50,000 population notifies the Department of Transportation by July 1 that it intends to prepare a regional transportation improvement program for that county, the department shall, in consultation with the affected local agencies, prepare the program for all counties for which it prepares a regional transportation plan.
(h) The regional transportation improvement program may not change the project delivery milestone date of any state project as shown in the prior adopted state transportation program without the consent of the department or other agency responsible for the project delivery.
(i) The requirements for incorporating a congestion management program into a regional transportation improvement program specified in this section do not apply in those counties that do not prepare a congestion management program in accordance with Section 65088.3.
SEC. 2. Section 65089 of the Government Code is amended to read:
65089. (a) A congestion management program shall be developed, adopted, and updated biennially, consistent with the schedule for adopting and updating the regional transportation improvement program, for every county that includes an urbanized area, and shall include every city and the county. The program shall be adopted at a noticed public hearing of the agency. The program

shall be developed in consultation with, and with the cooperation of, the transportation planning agency, regional transportation providers, local governments, the department, and the air pollution control district or the air quality management district, either by the county transportation commission, or by another public agency, as designated by resolutions adopted by the county board of supervisors and the city councils of a majority of the cities representing a majority of the population in the incorporated area of the county.
(b) The program shall contain all of the following elements:
(1) (A) Traffic level of service standards established for a system of highways and roadways designated by the agency. The highway and roadway system shall include at a minimum all state highways and principal arterials. No highway or roadway designated as a part of the system shall be removed from the system. All new state highways and principal arterials shall be designated as part of the system. Level of service (LOS) shall be measured by Circular 212, by the most recent version of the Highway Capacity Manual, or by a uniform methodology adopted by the agency that is consistent with the Highway Capacity Manual. The determination as to whether an alternative method is consistent with the Highway Capacity Manual shall be made by the regional agency, except that the department instead shall make this determination if either (i) the regional agency is also the agency, as those terms are defined in Section 65088.1, or (ii) the department is responsible for preparing the regional transportation improvement plan for the county.
(B) In no case shall the LOS standards established be below the level of service E or the current level, whichever is farthest from level of service A. When the level of service on a segment or at an intersection fails to attain the established level of service standard, a deficiency plan shall be adopted pursuant to Section 65089.4.
(2) A performance element that includes performance measures to evaluate current and future multimodal system performance for the movement of people and goods. At a minimum, these performance measures shall incorporate highway and roadway system performance, and measures established for the frequency and routing of public transit, and for the coordination of transit service provided by separate operators. These performance measures shall support mobility, air quality, land use, and economic objectives, and shall be used in the development of the capital improvement program required pursuant to paragraph (5), deficiency plans required pursuant to Section 65089.4, and the land use analysis program required pursuant to paragraph (4).
(3) A travel demand element that promotes alternative transportation methods, including, but not limited to, carpools, vanpools, transit, bicycles, and park-and-ride lots; improvements in the balance between jobs and housing; and other strategies, including, but not limited to, flexible work hours, telecommuting,

and parking management programs. The agency shall consider parking cash-out programs during the development and update of the travel demand element.
(4) A program to analyze the impacts of land use decisions made by local jurisdictions on regional transportation systems, including an estimate of the costs associated with mitigating those impacts. This program shall measure, to the extent possible, the impact to the transportation system using the performance measures described in paragraph (2). In no case shall the program include an estimate of the costs of mitigating the impacts of interregional travel. The program shall provide credit for local public and private contributions to improvements to regional transportation systems. However, in the case of toll road facilities, credit shall only be allowed for local public and private contributions which are unreimbursed from toll revenues or other state or federal sources. The agency shall calculate the amount of the credit to be provided. The program defined under this section may require implementation through the requirements and analysis of the California Environmental Quality Act, in order to avoid duplication.
(5) A seven-year capital improvement program, developed using the performance measures described in paragraph (2) to determine effective projects that maintain or improve the performance of the multimodal system for the movement of people and goods, to mitigate regional transportation impacts identified pursuant to paragraph (4). The program shall conform to transportation-related vehicle emission air quality mitigation measures, and include any project that will increase the capacity of the multimodal system. It is the intent of the Legislature that, when roadway projects are identified in the program, consideration be given for maintaining bicycle access and safety at a level comparable to that which existed prior to the improvement or alternation. The capital improvement program may also include safety, maintenance, and rehabilitation projects that do not enhance the capacity of the system but are necessary to preserve the investment in existing facilities.
(c) The agency, in consultation with the regional agency, cities, and the county, shall develop a uniform data base on traffic impacts for use in a countywide transportation computer model and shall approve transportation computer models of specific areas within the county that will be used by local jurisdictions to determine the quantitative impacts of development on the circulation system that are based on the countywide model and standardized modeling assumptions and conventions. The computer models shall be consistent with the modeling methodology adopted by the regional planning agency. The data bases used in the models shall be consistent with the data bases used by the regional planning agency. Where the regional agency has jurisdiction over two or more

counties, the data bases used by the agency shall be consistent with the data bases used by the regional agency.
(d) (1) The city or county in which a commercial development will implement a parking cash-out program that is included in a congestion management program pursuant to subdivision (b), or in a deficiency plan pursuant to Section 65089.4, shall grant to that development an appropriate reduction in the parking requirements otherwise in effect for new commercial development.
(2) At the request of an existing commercial development that has implemented a parking cash-out program, the city or county shall grant an appropriate reduction in the parking requirements otherwise applicable based on the demonstrated reduced need for parking, and the space no longer needed for parking purposes may be used for other appropriate purposes.
(e) Pursuant to the federal Intermodal Surface Transportation Efficiency Act of 1991 and regulations adopted pursuant to the act, the department shall submit a request to the Federal Highway Administration Division Administrator to accept the congestion management program in lieu of development of a new congestion management system otherwise required by the act.
SEC. 3. Section 65089.3 of the Government Code is amended to read:
65089.3. The agency shall monitor the implementation of all elements of the congestion management program. The department is responsible for data collection and analysis on state highways, unless the agency designates that responsibility to another entity. The agency may also assign data collection and analysis responsibilities to other owners and operators of facilities or services if the responsibilities are specified in its adopted program. The agency shall consult with the department and other affected owners and operators in developing data collection and analysis procedures and schedules prior to program adoption. At least biennially, the agency shall determine if the county and cities are conforming to the congestion management program, including, but not limited to, all of the following:
(a) Consistency with levels of service standards, except as provided in Section 65089.4.
(b) Adoption and implementation of a program to analyze the impacts of land use decisions, including the estimate of the costs associated with mitigating these impacts.
(c) Adoption and implementation of a deficiency plan pursuant to Section 65089.4 when highway and roadway level of service standards are not maintained on portions of the designated system.
SEC. 4. Section 65088.3 is added to the Government Code, to read:
65088.3. This chapter does not apply in a county in which a majority of local governments, collectively comprised of the city

councils and the county board of supervisors, which in total also represent a majority of the population in the county, each adopt resolutions electing to be exempt from the congestion management program.

APPENDIX 2
RECOMMENDED HCM-BASED LEVEL OF SERVICE PROGRAM DEFAULTS

	CHARACTERISTICS																	
		TRAFFIC					ROADWAY						SIGNALIZATION					
FACILITY TYPE	Number of Through Lanes (Both Directions)	Planning Analysis Hour Factor (K100)	Directional Distribution Factor (D)	Peak Hour Factor (PHF)	Adjusted Saturation Flow Rate	% Turns from Exclusive Lanes	Urban, Transitioning, or Rural Area Type	Arterial Class	Free Flow Speed (MPH)	Base Length of Arterial	Medians (Y/N)	Left Turn Bays (Y/N)	Signalized Intersections	Arterial Type (1,2,3,4,5,6)	Signal Type (P=Pretimed, A=Actuated, S=Semi-Actuated	System Cycle Length	Weighted Through Movement (g/c)
URBAN																		
Freeways																		
Group 1	4	0.088	0.568	0.950	2,150				60									
	6	0.088	0.568	0.950	2,150				60									
	8-10	0.088	0.568	0.950	2,150				60									
	12	0.088	0.568	0.950	2,150				60									
Group 2	4	0.092	0.568	0.950	2,050				65									
	6	0.092	0.568	0.950	2,100				65									
	8-10	0.092	0.568	0.950	2,150				65									
	12	0.092	0.568	0.950	2,100				65									
State Arterials																		
Uninterrupted	2	0.091	0.568	0.925	1,850		U		50		N	Y						
	4-6	0.091	0.568	0.925	2,000		U		50		Y	Y						
Class I	2	0.093	0.568	0.925	1,850	12	U	1	50	1	N	Y	1	3	A	120	0.44	
	4-6	0.093	0.568	0.925	1,850	12	U	1	50	1	Y	Y	1	3	A	120	0.44	
	8	0.093	0.568	0.925	1,700	12	U	1	50	1	Y	Y	1	3	A	120	0.44	
Class II	2	0.093	0.568	0.925	1,850	12	U	2	45	1	N	Y	3	4	S	120	0.44	
	4-6	0.093	0.568	0.925	1,850	12	U	2	45	1	Y	Y	3	4	S	120	0.44	
	8	0.093	0.568	0.925	1,700	12	U	2	45	1	Y	Y	3	4	S	120	0.44	
Class III	2	0.092	0.568	0.925	1,850	12	U	3	35	1	N	Y	5	4	S	120	0.44	
	4-6	0.092	0.568	0.925	1,850	12	U	3	35	1	Y	Y	5	4	S	120	0.44	
	8	0.092	0.568	0.925	1,700	12	U	3	35	1	Y	Y	5	4	S	120	0.44	
Class IV	2	0.092	0.568	0.925	1,800	12	U	4	30	1	N	Y	8	4	S	120	0.44	
	4-6	0.092	0.568	0.925	1,800	12	U	4	30	1	Y	Y	8	4	S	120	0.44	
	8	0.092	0.568	0.925	1,650	12	U	4	30	1	Y	Y	8	4	S	120	0.44	
Non-State Roadways																		
Major City/County	2	0.091	0.568	0.925	1,850	14	U	2	40	1	N	Y	2.5	4	S	120	0.41	
	4-6	0.091	0.568	0.925	1,850	14	U	2	40	1	Y	Y	2.5	4	S	120	0.41	
Other Signalized	2	0.091	0.568	0.925	1,800	16	U				N	Y		3	S	120	0.31	
	4-6	0.091	0.568	0.925	1,800	16	U				Y	Y		3	S	120	0.31	
TRANSITIONING																		
Freeways																		
	4	0.097	0.568	0.950	2,000				70									
	6	0.097	0.568	0.950	2,050				70									
	8-10	0.097	0.568	0.950	2,100				70									
State Arterials																		
Uninterrupted	2	0.093	0.568	0.910	1,800		T		55		N	Y						
	4-6	0.093	0.568	0.910	1,925		T		55		Y	Y						
Class I	2	0.094	0.568	0.910	1,750	12	T	1	50	1	N	Y	1	3	A	120	0.44	
	4-6	0.094	0.568	0.910	1,750	12	T	1	50	1	Y	Y	1	3	A	120	0.44	
Class II	2	0.094	0.568	0.910	1,750	12	T	2	45	1	N	Y	3	4	S	120	0.44	
	4-6	0.094	0.568	0.910	1,750	12	T	2	45	1	Y	Y	3	4	S	120	0.44	
Class III	2	0.092	0.568	0.910	1,750	12	T	3	35	1	N	Y	5	4	S	120	0.44	
	4-6	0.092	0.568	0.910	1,750	12	T	3	35	1	Y	Y	5	4	S	120	0.44	
Non-State Roadways																		
Major City/County	2	0.093	0.568	0.925	1,750	14	T	2	40	1	N	Y	2.5	4	S	120	0.41	
	4-6	0.093	0.568	0.925	1,750	14	T	2	40	1	Y	Y	2.5	4	S	120	0.41	
Other Signalized	2	0.091	0.568	0.925	1,700	16	T				N	Y		3	S	120	0.31	
	4-6	0.091	0.568	0.925	1,700	16	T				Y	Y		3	S	120	0.31	
RURAL UNDEVELOPED																		
Freeways																		
	2-6	0.101	0.568	0.950	2,000				70		Y							
Highways																		
Level Terrain	2	0.100	0.568	0.880	2,600				55		N	Y						
	2	0.100	0.568	0.880	2,500				45		N	Y						
	4-6	0.100	0.568	0.880	1,850				60		-	Y						
Mountainous Terrain	2	0.100	0.568	0.880	2,200				40		N	-						
	2	0.100	0.568	0.880	2,000				35		N	-						
	2	0.100	0.568	0.880	1,800				35		N	-						
	4-6	0.100	0.568	0.880	1,700				45		-	-						

APPENDIX 3
FEDERAL CONGESTION MANAGEMENT SYSTEM/TRAFFIC MANAGEMENT SYSTEM (CMS/TMS) REQUIREMENTS

Summation of FHWA/FTA Final Rule: Management and Monitoring Systems

FINAL RULE IN GENERAL

The Final Rule is effective January 21, 1997, making Congestion Management Systems (CMS) in Transportation Management Areas (TMAs) and traffic monitoring systems (TMS) mandatory. The Final Rule requires the Secretary of Transportation (Federal Highway Administration and Federal Transit Administration) to issue regulations for state development, establishment, and implementation of:

- BMS (Bridge Management Systems);
- CMS (Congestion Management Systems);
- IMS (Intermodal Management Systems);
- PMS (Pavement Management Systems);
- PTMS (Public Transportation Management Systems); and
- SMS (Safety Management Systems).

All above management systems are optional [as of the 1995 National Highway Designation Act (NHS)], except for CMS and TMAs. In addition to the CMS, the development, establishment, and implementation of a TMS is required under the Final Rule.

TMAs are defined as:

> **"an urbanized area with a population over 200,000 (as determined by the latest decennial census) or other area when TMA designation is requested by the Governor and the MPO (or affected local officials), and officially designated by the Administrators of the FHWA and the FTA. The TMA designation applies to the entire metropolitan planning area(s)."**

Issues mentioned in the Final Rule concerning Federal Funds include:

- Federal funds may not be programmed in a carbon monoxide and/or ozone non-attainment TMA for any project that will result in a significant increase in SOV (single-occupant-vehicle) capacity unless the project is based on an approved CMS. Interim CMS procedures may be used to meet these requirements, until September 30, 1997. After this date, such projects must be based on a fully operational CMS; and

- Amendments in the 1995 NHS Act allow a state to elect not to implement, in whole or in part, any one or more of the management systems (except for CMS in TMAs, and the TMS). In addition, the certification requirement was removed and the Secretary may not impose any sanction on or withhold any benefit from a state that elects to take this approach.

Congestion management Systems (CMS)

In all TMAs, the CMS shall be developed, established, and implemented as part of the metropolitan planning process in accordance with 23 CFR 450.320© and shall include:

- Methods to:

  - Monitor and evaluate the performance of the multimodal transportation system;
  - Identify the causes of congestion;
  - Identify and evaluate alternative actions;
  - Provide information supporting the implementation of actions; and
  - Evaluate the efficiency and effectiveness of implemented actions.

- Definition of parameters for measuring the extent of congestion and for supporting the evaluation of the effectiveness of congestion reduction and mobility enhancement strategies for the movement of people and goods.

- Establishment of a program for data collection and system performance monitoring to:

  - Define the extent and duration of congestion;
  - Help determine the causes of congestion; and
  - Evaluate the efficiency and effectiveness of implemented actions.

- To the extent possible, existing data sources should be used, as well as appropriate application of the real-time system performance monitoring capabilities available through Intelligent Transportation System (ITS) technologies.

- Identification and evaluation of the anticipated performance and expected benefits of appropriate traditional and nontraditional congestion management strategies that will contribute to the more efficient use of existing and future transportation systems based on the established performance measures. The following categories of strategies, or combination of strategies, should be appropriately considered for each area:

  - Transportation demand management (TDM) measures, including growth, management, and congestion pricing;
  - Traffic operational improvements;
  - Public transportation improvements;

- ITS technologies; and
- Additional system capacity (where necessary).

- Identification of an implementation schedule, implementation responsibilities, and possible funding sources for each strategy (or combination of strategies) proposed for implementation.

"Section 500.102 – Policy (1}) Whether the systems are developing under the provisions of this part or under the State's own procedures, the following categories of FHWA administered funds may be used for development, establishment, and implementation of any of the management systems and the traffic monitoring system; National highway system; surface transportation program; state planning and research and metropolitan planning funds (including the optional use of minimum allocation funds authorized under 23 U.S.C. 157© and restoration funds authorized under Sec. 202 (f) of the National Highway System Designation Act of 1995 (Pub.L. 104-59) for carrying out the provisions of 23 U.S.C. 307©(1) and 23 USC 134(a)): congestion mitigation and air quality improvement program funds for those management systems that can be shown to contribute to the attainment of national ambient air quality standard; and apportioned bridge funds for development and establishment of the bridge management system. The following categories of FTA administered funds may be used for the development, establishment, and implementation of the CMS, PTMS, IMS, and TMS: Metropolitan planning; state planning and research, and formula transit funds."

- Implementation of a process for periodic assessment of the efficiency and effectiveness of implemented strategies, in terms of the area's established performance measures. The results of this evaluation shall be provided to decision makers to provide guidance on selection of effective strategies for future implementation.

- **In a TMA designated as non-attainment for carbon monoxide and/or ozone, the CMS shall provide an appropriate analysis of all reasonable (including multimodal) travel demand reduction and operational management strategies** for the corridor in which a project that will result in a significant increase in capacity for SOVs (adding general purpose lanes to an existing highway or constructing a new highway) is proposed. **If the analysis demonstrates that travel demand reduction and operational management strategies cannot fully satisfy the need for additional capacity in the corridor and additional SOV capacity is warranted, then the CMS shall identify all reasonable strategies to manage the SOV facility effectively (or to facilitate its management in the future).** Other travel demand reduction and operational management strategies appropriate for the

corridor, but not appropriate for incorporation into the SOV facility itself shall also be identified through the CMS. All identified reasonable travel demand reduction and operation management strategies shall be incorporated into the SOV project or committed to by the State and Metropolitan Planning Organization (MPO) for implementation.

- **Compliance with the requirement that the planning process in all TMAs include a CMS** will be addressed during metropolitan planning process certification reviews for all TMAs specified in 23 CFR 450.334. **If the metropolitan planning process in a TMA does not include a CMS that meets the requirements of this Section, deficiencies will be noted and corrections will need to be made in accordance with the schedule established in the certification review.**

- **Federal funds may not be programmed in a carbon monoxide and/or ozone non-attainment TMA for any project that will result in a significant increase of SOV (single occupant vehicle) capacity unless the project is based on an approved CMS.** Interim CMS procedures may be used to meet this requirement, until September 30, 1997. After this date, such projects must be based on a fully operational CMS.

Traffic Monitoring Systems (TMS)

General Requirements

- Each state shall develop, establish, and implement, on a continuing basis, a TMS to be used for obtaining highway traffic data when the data are:

  - Supplied to the U.S. Department of Transportation (U.S. DOT);
  - Used in support of transportation management systems;
  - Used in support of studies or systems which are the responsibility of the U.S. DOT;
  - Supported by the use of Federal funds provided from programs of the U.S. DOT;
  - Used in the apportionments or allocation of Federal funds by the U.S. DOT;
  - Used in the design or construction of an FHWA funded project; or
  - Required as part of a federally mandated program of the U.S. DOT.

- **The TMS for highway traffic data should be based on the concepts described in the American Association of State Highway and Transportation Officials (AASHTO) Guidelines for Traffic Data Programs" and FHWA "Traffic Monitoring Guide (TMG)," and shall be consistent with the FHWA Highway Performance Monitoring System Field Manual.**

- **The TMS shall cover all public roads except those functionally classified as local or rural minor collector or those that are federally owned.** Coverage of

federally owned public roads shall be determined cooperatively by the state, the FHWA, and the agencies that own the roads.

- The state's TMS shall apply to the activities of local governments and other public or private non-state governments entities collecting highway traffic data within the state of the collected data are to be used for any of the purposes enumerated in Section A of this subpart.

- Procedures other than those referenced in this subpart may be used if the alternative procedures are documented by the state to furnish the precision levels as defined for the various purposes enumerated in Sec. A of this subpart and are found acceptable by the FHWA.
- Nothing in this subpart shall prohibit the collection of additional highway traffic data if such data are needed in the administration or management of a highway activity or are needed in the design of a highway project.

- **Transit traffic data shall be collected in cooperation with MPOs and transit operators.**

- **The TMS for highways and public transportation facilities and equipment shall be fully operational and in use by October 1, 1997.**

Components for Highway Traffic Data

Each state's TMS, including those using alternative procedures, shall address the following components:

- A state's TMS shall meet the **statistical precisions established by FHWA for the HPMS.**

- **Continuous counter operations.** Within each state, there shall be sufficient continuous counters of traffic volumes, vehicle classification, and vehicle weight to provide estimates of changes in highway travel patterns and to provide for the development of day-of-week, seasonal, axle correction, growth factors, or other comparable factors approved by the FHWA. As appropriate, sufficient continuous counts of vehicle classification and vehicle weight should be available to address traffic data program needs.

- **Count data** for traffic volumes collected in the field shall be **adjusted to reflect annual average conditions.**

- **Vehicle classification** activities on the National Highway System (NHS). On a cycle of no greater than three years, every major system segment (i.e., segments between interchanges or intersections of principal arterials of the NHS with other principal arterials of the NHS) will be monitored to provide information on the

numbers of single-trailer combination trucks, multiple-trailer combination trucks, two-axle four-tire vehicles, buses and the total number of vehicles operating on an average day.

- **Vehicle occupancy monitoring.** Such vehicle occupancy data shall be reviewed at least every three years and updated as necessary. Acceptable data collection methods include roadside monitoring, traveler surveys, the use of administrative records (e.g., accident reports or reports developed in support of public transportation programs), or any other method mutually acceptable to the responsible organizations and the FHWA.

- **Field operations.** (1) Each state's TMS for highway traffic data shall include the testing of equipment used in the collection of the data. (2) **Documentation of field operations shall include the number of counts, the period of monitoring, the cycle of monitoring, and the spatial and temporal distribution of count sites.**
- Source **data retention.** For estimates of traffic or travel, the value or values collected during a monitoring session, as well as information on the date(s) and hour(s) of monitoring, will remain available until the traffic or travel estimates based on the count session are updated.

- Office **factoring procedures.** (1) Factors to **adjust data** from short-term monitoring sessions to estimates of average daily conditions shall be used to adjust **for month, day of week, axle correction, and growth** or other comparable factors approved by FHWA. These factors will be reviewed annually and updated at least every three years. (2) The procedures used by a state to edit and adjust highway traffic data collected from short-term counts at field locations to estimates of average traffic volume shall be documented.

MONITORING REQUIREMENTS OF FEDERAL/STATE PROGRAMS

REQUIREMENTS	PROGRAMS			
	CMS	TMS	HPMS	CMP
Monitor/Evaluate the Multimodal Transportation System	X			X
Identify Parameters for Evaluating the Extent of Congestion	X			
Evaluate the Effectiveness of Implemented Actions	X			
Identify/Implement a Program for Data Collection	X	X	X	X
Cover all Public Roads		X		
Collect Transit/Traffic Data	X	X		X
Meet AASHTO and FHWA Standards		X	X	
Continuous Counter Operations (volumes, vehicle class, weights, and highway travel patterns)		X	X	
Short-term Traffic Monitoring Every Two Years				X
Short-term Traffic Monitoring Every Three Years (sample data)		X	X	
Vehicle Classification (single/multi-trailer truck, 2-axle, 4-axle vehicles, buses, totals) – Every Three Years, Every Major System Segment		X	X	
Vehicle Occupancy (reviewed every three years)		X		
Testing/Documentation of Field Operations		X	X	
Factoring Procedures (reviewed annually and updated every three years)		X	X	
Interstate and State Highway System (Caltrans responsibility)	X	X	X	X
Principal Arterials (CMA/local agency responsibility)	X[1]	X	X	X
Minor Arterials (local agency responsibility)	X[1]	X	X	
Collectors	X[1]	X	X	
Recreational Routes		X	X	

[1] All are eligible under CMS requirements depending on whether or not federal funds are to be allocated to the facilities.

Construction/Demolition Debris Recyclers

Name	Address	City	Zip	Phone	Appliances	Asphalt	Brick	Broken Asphalt	Cardboard	Clean Concrete	Concrete w/Rebar	Dirt	Drywall	Metal	Mixed Asphalt/Concrete	Pallets	Rock / Arcos	Asphalt Roofing Shingles	Toilets	Wood Waste
Dan Copp Crushing Corp.	861 W. 4th Strret	Beaumont	92223	714-777-6400		X				X	X				X		X			
Palm Springs Recycling	36630 Sunair Plaza	Cathedral City	92234	760-321-4087	X				X					X		X				
Coachella Riverside Scrap Iron & Metal	86-015 Avenue 52	Coachella	92236	760-398-7772										X						
Imperial Western	86600 Avenue 54	Coachella	92236	760-398-0815												X				X
S A Recycling	48-100 Harrison Street	Coachella	92236	760-398-5651	X									X						
Reclaimed Aggregates Inc.	2110 W. Agua Mansa Road	Colton	92324	951-787-8955		X		X		X										
Viramontes Express	17130 Hellman Avenue	Corona	92880	909-597-7232												X				X
So. Cal. Sandbags, Inc.	12620 Bosley Lane	Corona	92880	951-277-3404						X							X			
Apollo Woodgrinding	14253 Whittram Avenue	Fontana	92335	951-356-2735												X				X
Boone Recycled Materials	1871 Warren Road	Hemet	92545	951-654-6869		X		X		X	X				X		X			
Granite Construction	38000 Monroe Street	Indio	92203	760-775-7500		X		X		X					X		X			
Wyroc, Inc.	31000 Lake Street	Lake Elsinore	92530	951-245-0490		X		X		X							X			
Philadelphia Recycling Mine	12000 E. Philadelphia St.	Mira Loma	91752	951-685-8343		X	X	X		X	X	X	X	X	X		X	X	X	
Ewles Materials	26160 Adams Avenue	Murrieta	92562	951-304-3274		X		X		X					X		X			
Artesia Sawdust Inc.	13434 Ontario Avenue	Ontario	91761	909-923-0563		X		X		X	X	X			X	X				X
Palm Springs Recycling	280 W. Oasis Road	Palm Springs	92262	760-325-3377					X											
Greenstone Materials & Recycling	1420 Nandina Avenue	Perris	92571	951-943-1500		X		X		X	X				X		X			
CST Organic Recycling	1745 Sessums Drive	Redlands	92374	909-794-3476												X				X
Geo. Engelauf Rental Equipment	5610 Market Street	Riverside	92509	951-684-1332		X		X		X	X				X					
Mac Tec Recycling	1755 Brown Avenue	Riverside	92501	951-680-0110					X				X	X		X				X
Ewles Materials	4595 Muth Way/Galena	Riverside	92509	951-681-5981		X		X		X					X		X			
Asphalt & Concrete Recycling Inc.	25630 Trumble Road	Romoland	92585	951-928-0717		X	X	X		X	X	X			X		X		X	
B. P. John Recycling	28700 Matthews Road	Romoland	92585	951-696-1144												X				X
Dan Copp Crushing Corp.	27050 Watson Road	Sun City	92585	714-777-6400		X		X		X					X		X			
California Biomass	83-109 Avenue 62	Thermal	92370	760-399-4128								X	X			X				X
Desert Recycling, Inc	27-105 Sierra Del Sol Road	Thousand Palms	92276	760-343-0095		X		X		X	X	X	X		X		X		X	X
S A Recycling	29-250 Rio del Sol Road	Thousand Palms	92276	760-343-0499						X				X						
Skanska USA Civil	27-950 Sierra Del Sol Road	Thousand Palms	92276	760-342-8004		X		X		X					X					
C & B Crushing	13552 Calimesa Blvd.	Yucaipa	92399	909-446-0100		X		X		X					X					

Habitat for Humanity (Lake Elsinore) (951) 471-1188
Habitat for Humanity (Riverside) (951) 784-9474
Habitat for Humanity (Palm Desert) (760) 770-3723
Habitat for Humanity (Temecula) (951) 676-1221

This information is offered as a public service in an effort to eliminate illegal and improper waste disposal. As the information may not be comprehensive, the Department encourages the public to research additional companies that are available for the services sought. The companies are not affiliated, endorsed or regulated by the Department. Accordingly, confirm the accuracy of the company's information, and verify that the company is properly licensed prior to utilizing its services. Under no circumstances, directly or indirectly, shall the Department be held responsible or liable for reliance on this information. If you would like to include your company on the list, please contact WasteCompRecyc@co.riverside.ca.us.

TABLE OF CONTENTS

Route information available in large print upon request.

Phone Number Index
- RTA Services....3
- Other Fixed-Route Services....3

RTA Information
- Customer Information Center....4
- RTA Business Office....4
- Lost and Found....4

How to Use Your Ride Guide
- Getting Started....4
- Service Animals and Pets....5
- Travel Tips....5
- Wheelchairs....5
- Surfboards/Boogie Boards....6
- Jury Duty....6
- Metrolink Passes....6

Fares, Fare Categories, Passes, Tickets & ID Cards
- Definitions of Fare Categories....6
- Fixed-Route Fares....7
- CommuterLink Fares....7
- U_Pass, GO Pass and City Pass....7
- Dial-A-Ride Fares....7
- Types of Passes....8
- Buying and Activating Your Pass....9
- Title VI....9

Tickets by Mail
- Pass/Ticket Order Form....10

RTA Pass Outlets
- City Listing of Pass Outlets....12

Bikes on Bus Program
- Bus Bike Rack Basics....14
- How to use the Bike Racks....14
- Children and Bike Racks....14

Sección en Español (Spanish Section)....16-23

Power Pass Locations....24-25

Service Guide....26

Route Directory....27-31

Boarding Diagrams
- Downtown Terminal....32
- Perris Station Transit Center....33
- Corona Transit Center....34
- CommuterLink Riverside Routing....35

ROUTE MAPS AND SCHEDULES

Route 1 | *UCR, Downtown Terminal and Riverside-Downtown Metrolink Station to Smith & 6th, W. Corona Metrolink*....36

Route 3 | *Swan Lake M.H. Park, Corona Transit Center to Belle & 10th - Norco, Corona*....43

Route 7 | *Inland Valley Hospital to Lake Elsinore Walmart & Outlet Center*....46

Route 8 | *Lake Elsinore Outlet Center to Lake Elsinore Walmart*....49

Route 10 | *Big Springs & Watkins, RTA to Galleria at Tyler - Riverside*....52

Route 11 | *Moreno Valley Mall, March ARB, Alessandro & Elsworth*....56

Route 12 | *Stephens & Center to Pierce & Sterling - Riverside*....59

Route 13 | *Spruce & Atlanta to Galleria at Tyler - Riverside*....63

Route 14 | *Galleria at Tyler to Downtown Terminal, Loma Linda Medical Center to VA Hospital*....67

Route 15 | *Downtown Terminal to Pierce & Sterling*....70

Route 16 | *Main & Russell, Riverside-Downtown Metrolink Station to Moreno ValleyMall*....74

Route 18 | *Sunnymead Ranch to Moreno Valley College*....79

Route 19 | *Moreno Valley Mall to Perris Station Transit Center*.....82

Route 20 | *Magnolia Center, Social Security Office, RCRMC, MoVal Comm Hosp, Moreno Valley College* 86

Route 21 | *Galleria at Tyler to Country Village*.....91

Route 22 | *Downtown Terminal to Lake Elsinore Outlet Center*.....94

Route 23 | *Temecula, Murrieta, Wildomar*....98

Route 24 | *Temecula, Pechanga Resort*....102

Route 27 | *Galleria at Tyler to Florida & Lincoln, Hemet - Riverside/Perris/Sun City/ Hemet*.....105

Route 29 | *Downtown Terminal to Eastvale, Hamner & Limonite*.....109

Route 30 | *Perris*.....112

Route 31 | *Beaumont, Banning to San Jacinto & Hemet Valley Mall*.....114

Route 32 | *Hemet Valley Mall to Mt. San Jacinto College - San Jacinto*.....117

Route 33 | *Hemet Valley Mall to E. Hemet* 120

Route 35 | *Beaumont, Banning, RCRMC to Moreno Valley Mall*.....122

Route 40 | *Lake Elsinore, Canyon Lake, Quail Valley, Sun City*.....124

Route 41 | *Mead Valley Community Center to RCRMC*.....126

Route 42 | *Hemet Valley Mall to Soboba Casino, San Jacinto* 129

Route 49 | *Downtown Riverside to Country Village*.....132

Route 50 Jury Trolley/Red Line | *Eden Lutheran Church, Riverside County Courthouse, Downtown Riverside*.....135

Route 51 Crest Cruiser | *UCR & Canyon Crest, Riverside* 138

Route 53 Bear Runner | *UCR & Canyon Crest, Riverside* 140

Route 55 Temecula Trolley/Green Line | *Harveston, Promenade Mall, County Center Dr.*.....142

Route 61 | *Sun City, Menifee, Murrieta, Temecula* 144

Route 74 | *San Jacinto, Hemet, Winchester, Menifee, Sun City, Perris* 146

Route 79 | *Hemet, Winchester, Temecula*..148

Route 202 | *Murrieta, Temecula, Oceanside Transit Center*.....150

Route 204 | *Riverside to Montclair Transcenter*.....152

Route 206 | *Temecula - Murrieta - Lake Elsinore - Corona Transit Center*.....154

Route 208 | *Temecula, Murrieta, Sun City, Perris, Moreno Valley, Riverside-Downtown Metrolink Station, Downtown Riverside*..... 156

Route 210 | *Banning, Beaumont, Moreno Valley, Riverside-Downtown Metrolink Station, Downtown Riverside*.....158

Route 212 | *Hemet, San Jacinto, Perris to Riverside-Downtown Metrolink Station, Downtown Riverside*.....160

Route 216 | *Downtown Terminal to Village at Orange - Riverside, Corona, Orange Co.* 162

Route 217 | *San Jacinto, Hemet, Temecula to Escondido*.....164

OCTA Route 794 | *La Sierra Metrolink, Canyon Community Church, South Coast Metro* ..166

NO SERVICE ON: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day and Christmas Day.

PHONE NUMBER INDEX

CUSTOMER INFORMATION CENTER ..... **(951) 565-5002 or 511**
Information about bus routes, schedules, fares, pass outlet locations and to make a comment. Hours: weekdays 6 a.m. - 8 p.m., weekends 8 a.m. - 8 p.m.

Hearing Impaired TTY Bus Information **1-800-800-7825**
or California Relay **1-800-735-2929**

LOST AND FOUND: RTA Lost and Found/Business Office, 1825 Third St., Riverside 92507 ..... (951) 565-5000

RTA Job Line ..... **(951) 565-5010**

RTA DIAL-A-RIDE SERVICES **1-800-795-7887**
Type of Dial-A-Ride service varies by city. Please call or visit our Web site at www.RiversideTransit.com for availability of service in your city. Hours: weekdays 7 a.m. - 6 p.m., weekends 8 a.m. - 5 p.m.

Hearing Impaired TTY Dial-A-Ride 1-800-369-3610
or California Relay 1-800-735-2929

Trip Cancellations ..... (866) 543-4782
After Hours ETA Hotline (Toll free) ..... (866) 543-4782
Cancel by e-mail ..... cancel@RiversideTransit.com

OTHER DIAL-A-RIDE SERVICES
Banning Dial-A-Ride ..... (951) 922-3252
Beaumont Dial-A-Ride ..... (951) 769-8532
Care-A-Van *(Hemet, San Jacinto)* ..... (951) 791-3572
Corona Dial-A-Ride ..... (951) 734-7220
MoVan *(Seniors & the disabled only)* ..... (951) 358-9202
Norco Senior Bus ..... (951) 270-5647
Riverside Special Transportation *(Seniors & the disabled only)* ..... (951) 687-8080

OTHER FIXED-ROUTE SERVICES
Amtrak (*Nationwide Rail Passenger Service*) 1-800-872-7245
Coaster *(Rail service in San Diego County)* ..... 1-800-COASTER or (619) 233-3004
Corona Cruiser *(Corona bus service)* ..... (951) 734-9418
Foothill Transit *(Service throughout San Gabriel Valley)* 1-800-743-3463
Greyhound *(Nationwide service)* 1-800-231-2222
LAX Flyaway Bus ..... (866) 435-9529
Metrolink (*Rail Passenger Service*) 1-800-371-5465
Metro *(Red Line, Blue Line, MTA, etc.)* 1-800-266-6883
MTS (*San Diego County bus service*) ..... (619) 557-4555
North County Transit District *(Service in North San Diego County)* ..... (760) 966-6500
OCTA *(Service throughout Orange County)* 1-800-636-7433
Omnitrans *(Service throughout Western San Bernardino County)* 1-800-966-6428
Palo Verde Valley Transit *(Service in the city of Blythe)* ..... (760) 922-1140
Pass Transit *(Service in Banning, Beaumont and Cabazon)* ..... (951) 769-8532 & (951) 922-3243
Sunline Transit (*Service throughout Palm Springs and Coachella Valley*) ..... (760) 343-3456
Super Shuttle *(Service to Ontario Airport)* ..... (909) 467-9600

NOTE: *RTA operators can only provide RTA information. Please call the appropriate services with questions regarding other transportation services. RTA cannot be responsible for changed phone numbers.*

RTA INFORMATION

CUSTOMER INFORMATION CENTER

RTA's Customer Information Center is staffed with friendly clerks ready to assist you with information about bus schedules, routes, fares and pass outlet locations. The center also takes reports of bus stops that need cleaning or repairs and they document customer complaints and commendations. Please note that some complaints may need to be submitted in writing by postal mail, e-mail or via RTA's Web site, RiversideTransit.com. The information center is open 6 a.m. to 8 p.m weekdays and 8 a.m. to 8 p.m. weekends. Closed on New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day and Christmas Day. Call the Customer Information Center at (951) 565-5002.

If you need help planning a trip, please be prepared to provide the following information to the information clerk:
1. The nearest street and main cross street of your starting point and destination, or address, not business name.
2. The time of day (a.m. or p.m.) you need to arrive.
3. Specify weekday schedule or weekend schedule.

The RTA Information Center can only assist you with RTA information. For information on other transportation services, please refer to the telephone index on Page 3.

RTA BUSINESS OFFICES

RTA's business office is located at 1825 Third Street in Riverside and is accessible by using Route 10. Office hours are 8 a.m. – 5 p.m. Monday through Friday, and closed Saturdays, Sundays and holidays. Additional closures will be posted at www.RiversideTransit.com.

Passes may be obtained from our Riverside office during business hours. You may pay using cash, check, Mastercard, Visa, Discover, or ATM card with a Visa or Mastercard logo. There is a $25 fee charged for all returned checks. You can also order passes securely on our Web site at RiversideTransit.com.

LOST AND FOUND

RTA's Lost and Found is located at the RTA business office at 1825 Third Street, Riverside, or call (951) 565-5000 Monday – Friday between 8 a.m. – 5 p.m. Lost and Found items will be held for five business days.

HOW TO USE YOUR RIDE GUIDE

The RTA Ride Guide contains route maps and timetables for all its fixed routes. Understanding how to use the route maps and timetables will allow you to use the Ride Guide to plan your trip.

GETTING STARTED

The first steps in planning your trip is to decide the starting point, where you want to go, and what day and time you want to travel. The RTA system map will help you determine which route or routes you will take. The route directory on Page 25 can also help you determine the bus route(s) that serve several key locations throughout the county.

Once you have determined the route(s) you need, follow these simple steps to plan your trip using the Ride Guide:

1. On the route map, locate the beginning and ending point of your bus trip.

2. Locate the time point closest to your beginning and ending bus trip location. Time points are indicated on the route maps by a number inside a circle.

NOTE: *Each time point on the route map has a corresponding column on the timetable. Not all bus stops are indicated on the map and there are many bus stops between each time point.*

3. Find the column on the correct timetable that corresponds with your selected time point. Be sure you are using the timetable for the correct day of the week and direction of travel. Read down the column below the time point to find the time closest to your desired departure. Time for stops between time points can be estimated by adding theount of time it will take the bus to get from the previous time point to your stop.

RTA routes have been designed for your convenience. In most instances, one route can serve your trip needs. On occasion, you may need to take more than one route to get to your destination. If you're having trouble planning your trip, please call the RTA Customer Information Center at (951) 565-5002, or visit our Web site at www.RiversideTransit.com.

SERVICE ANIMALS AND PETS

Service or guide animals necessary for travel by passengers with disabilities are allowed on all RTA vehicles.

Small pets and non-service or guide animals are allowed only if owners comply with the following rules:

1. Small animals such as birds and cats must be secured in a commercially made pet carrier or cage that can be safely placed on the passenger's lap and does not require a separate seat.
2. Glass, breakable or homemade carriers are not permitted.
3. The animal must be completely enclosed within the pet carrier or cage at all times.
4. The pet carrier or cage must completely prevent the animal from escaping or physically contacting another passenger.
5. The pet carrier or cage must be constructed so that no bedding material or pet waste can exit.

The animal must not interfere with, disrupt or disturb service or guide animals on the vehicle.

TRAVEL TIPS

While on board the bus, we ask that you observe a few courtesies to make your ride easier, safer and more pleasant for yourself and other passengers.

- Arrive to your bus stop at least 10 minutes early.
- No eating, drinking, smoking, loud music or changing of clothes or diapers.
- Carry-on bags limited to two. Shopping carts, strollers and walkers must be folded prior to boarding.
- Please refrain from shouting, using profanity, offensive language, or talking to the operator while the bus is in motion.
- No graffiti, alcohol, drugs or weapons of any kind permitted on the bus.
- Push the black or yellow strip between the windows to signal your stop.
- All passengers should remain seated until the bus comes to a complete stop.
- Please exit through the rear doors, if possible, to speed boarding of passengers.
- Fold-up seats and seats directly behind the operator are intended for seniors and passengers with disabilities. Please be prepared to relinquish them on request.
- Keep your buses and bus stops clean by using trash receptacles.
- Please keep your feet off the seats.
- Shirts and shoes must be worn at all times.

WHEELCHAIRS

RTA is pleased to offer accommodations for our customers in wheelchairs. To ensure proper fastening of the chair during travel, please limit the number of carry-on bags stowed in the back of the chair. To avoid injury to yourself and other passengers, please remove any protruding objects such a flag poles and reflectors with sharp points. Be aware that RTA buses deploy a wheelchair ramp for easy boarding and

alighting. When the ramp is deployed, the bus will emit a beeping sound. When exiting the rear doors, listen for the beeping sound and be observant of the ramp to avoid injuries. Wheelchairs and electric mobility scooters are allowed on the bus as long as they do not exceed 30 inches wide and 48 inches long and the combined weight does not exceed 600 pounds.

SURFBOARDS/BOOGIE BOARDS

Surfboards and boogie boards no longer than six feet and with a maximum 4" skeg are permitted on buses provided they are enclosed in a bag, can be positioned in front of the passenger while the bus is in motion and do not take up an additional seat or the seating or leg space of another passenger.

JURY / GRAND JURORS DUTY

All jurors summoned to serve in Riverside courthouses are able to ride for free on all RTA buses by showing their current and valid juror summons badge to the bus driver.

METROLINK PASSES

RTA will accept valid Metrolink passes for the full fare on routes that serve Metrolink stations during the period from one hour before to one after Metrolink's service hours. The Metrolink pass must be valid on the day of travel. New, unvalidated 10-trip Metrolink passes carried by passengers travelling to Metrolink stations will also be accepted on boardings as those pass-holders are required to validate their new passes at the stations.

FARES, FARE CATEGORIES, PASSES and TICKETS, and ID CARDS

DEFINITIONS OF FARE CATEGORIES AND IDENTIFICATION

General
All passengers except those who meet the qualifications for youth, senior, disabled or child fare categories. No identification is required for General fares.

Youth
First grade through 12th grade only. College students pay General fare. Youth fares are in effect at all times. Appropriate ID must be shown each time you board a bus to receive a 30-Day Pass. School-issued picture ID cards are appropriate identification. RTA also offers Youth identification cards to anyone in grades 1 through 12. A Youth ID card costs $2.00. Call (951) 565-5002 for more information on how to obtain one.

Senior / Disabled / Medicare
Any person who meets RTA disability requirements, presents a valid Medicare card, or seniors age 60 or above are eligible for a discounted fare on all RTA fixed-route services. Medi-Cal cards will not be accepted. Passengers must show appropriate ID each time they board a bus to receive the discounted fare.

RTA issued photo ID cards are available for senior and disabled passengers.
To receive a Disabled ID card, individuals must present a disabled application form completed by a doctor or licensed health care professional or one of the following as proof of disability: Medicare Identification Card, Department of Motor Vehicles Disabled Person Placard Identification Card receipt, Braille Institute Identification Card, Disabled Veteran

FIXED-ROUTE FARES				
Fare Categories	**Base Fares**	**Day Pass***	**7-Day Pass***	**30-Day Pass***
General	$1.50	$4	$16	$50
Youth (grades 1-12)**	$1.50	$4	$16	$35
Senior/Disabled**	70¢	$2	$16	$23
Medicare Card Holder	70¢	$2	$16	$23
Child (46" tall or under)	25¢	N/A	N/A	N/A

COMMUTERLINK FARES		COMMUTERLINK + LOCAL	
Fare Categories	**Base Fares**	**Day Passes**	**30-Day Pass**
General	$3	$7	$75
Youth (grades 1-12)**	$3	$7	$75
Senior/Disabled**	$2	$5	$50
Medicare Card Holder	$2	$5	$50
Child (46" tall or under)	$2	N/A	N/A

U-Pass, GO Pass and City Pass | RIDE FREE
U-Pass: UC Riverside, Cal Baptist University, La Sierra University
GO Pass: Moreno Valley College, Riverside City College, Mt. San Jacinto College
City Pass: All City of Riverside employees

DIAL-A-RIDE FARES | Not accepted on fixed-route buses		
Fare Categories	**Base Fares**	**10-Ticket Books**
Senior/Disabled	$3	$30
Medicare Card Holder	$3	$30
Child (46" tall or under)	50¢	N/A

* Accepted as base fare. CommuterLink trips require an additional $1.30 (senior/disabled) or $1.50 (general) per trip. ** If you plan to use a senior, disabled or youth discounted fare, you must show proper ID each time you board the bus. You must also show proper ID to purchase discounted passes at retail outlets. For a list of accepted forms of identification, see Page 13.

Service-Connected Identification Card, or a Social Security Disability Income Award Letter with proof of disability. Please bring the proper documentation and a photo ID to the Riverside YWCA, 8172 Magnolia Ave., on the second Tuesday of each month between 9 a.m. and noon or the YMCA at the Simpson Center at 305 E. Devonshire Ave., Hemet, on the third Thursday of each month between 10 a.m. and noon to receive your identification card. There will be a cost of $2 for the card. If you have any questions, please call (951) 565-5002. Medi-Cal cards will not be accepted. Applications are available at the RTA business office, on our Web site at www.RiversideTransit.com or by calling our Customer Information Center at (951) 565-5002.

Child
Height-based: 46" tall or under. Must be accompanied by a full-fare paying passenger.

ADA
The RTA Americans with Disabilities (ADA) ID card is for persons who have been specially certified through the RTA ADA Certification process. This ID may qualify

you for priority service on any RTA Dial-A-Ride, Corona Dial-A-Ride, Riverside Special Transportation and Beaumont Dial-A-Ride. If your ADA card indicates that you require the assistance of a personal care attendant, the attendant may ride for free. To become ADA certified, you are required to complete an application and provide a Healthcare Professional Verification form. For more information, call (951) 565-5002.

Commuter
Routes 202, 204, 206, 208, 210, 212, 216 and 217 are commuter routes with fares of $3 for general and youth and $2 for senior/disabled. Persons may also buy a Plus+Pass which may be used on both fixed routes and CommuterLink express routes.

Transfers
RTA does not accept free transfers from other bus agencies, including Pass Transit and Omnitrans.

TYPES OF PASSES

RTA uses electronic fareboxes in all buses and standard fareboxes in Dial-A-Ride buses. The electronic fareboxes will accept coins and cash but will also accept electronic passes. Passes are the size of a credit card, printed on sturdy paper with a magnetic stripe on the back. Rather than showing your pass to the driver, you will swipe your pass in the farebox similar to using an ATM card. For cash fares, please use exact fare only. No change will be issued from either the fareboxes or the drivers. To avoid delays, use quarters instead of smaller coins.

1-Day, 7-Day and 30-Day passes are available through the mail, at Agency headquarters, on the Agency's Web site at www.RiversideTransit.com or at some pass outlets. 1-Day passes may also be purchased on the bus.

1-Day Pass
1-Day passes are designed for the occasional rider who needs to transfer often. Customers may purchase a Local 1-Day Pass, valid on local fixed routes only, or a Local+CommuterLink 1-Day Pass valid on all local and commuter routes RTA operates. The 1-Day pass is good for unlimited travel on the day the pass is first used. Your 1-Day pass will be validated by the farebox and the effective date will be printed on the back of the pass. Please verify that the correct date has been printed. 1-Day passes are not transferable to another day and there are no refunds or exchanges for lost or stolen passes. Use of a Senior or Disabled 1-Day Pass requires proper identification each time you board a bus. 1-Day Passes are not accepted on Dial-A-Ride.

7-Day Pass
The 7-Day Pass is designed to provide an affordable alternative to RTA's monthly pass. Customers may purchase a Local 7-Day Pass, valid on local fixed routes only. The 7-Day Pass must be used over a consecutive seven-day period beginning after first use. The 7-Day Pass is not sold on the bus and is only available by presale. 7-Day passes are not valid on Dial-A-Ride.

30-Day Pass
30-Day passes are ideal for passengers who travel often on the RTA bus system. Customers may purchase a Local 30-Day Pass, valid on local fixed routes, or a Local+CommuterLink 30-Day Pass valid on all local and commuter routes RTA operates. The 30-Day Pass must be used over a consecutive 30-day period beginning after first use. The 30-Day Pass is not sold on the bus and is only available by presale.

Dial-A-Ride Tickets
Dial-A-Ride tickets are sold in books of ten. You will be required to present a ticket each time you board a Dial-A-Ride bus. Some trips may require more than one boarding. Dial-A-Ride tickets are only valid on RTA Dial-A-Ride buses and not valid on local fixed route, CommuterLink or other transit agency buses.

BUYING AND ACTIVATING YOUR PASS

7-Day and 30-Day passes are not sold on the bus. They may be purchased at a number of outlets throughout the county, through the mail or securely on our Web site at www.RiversideTransit.com. For the location of a pass sales outlet near you call (951) 565-5002. Remember, passes are not refundable and are not accepted on Dial-A-Ride.

When you purchase your 1-Day, 7-Day or 30-Day Pass, it will not be activated. You must activate the pass on the bus the first time you use it. To activate, insert the pass (printed side facing you with the arrow pointing down) in the activation slot on the top left side of the farebox. The farebox will print the effective dates on the back of the pass. Then, all you have to do is swipe your pass on all other buses you board and ride.

TITLE VI OF THE CIVIL RIGHTS ACT OF 1964

The Riverside Transit Agency is committed to providing non-discriminatory service and prohibits discrimination on the basis of race, color and national origin. To notify us of any perceived discrimination, please contact the Customer Information Center at (951) 565-5002.



DID YOU KNOW? *RTA's CommuterLink express buses offer free wi-fi Internet service.*

For faster delivery, order online at www.RiversideTransit.com

No stamps - No envelopes - No checks to write

Orders processed the next business day. Credit and Debit cards accepted

RTA BUS PASS AND TICKET ORDER FORM

BILL TO:	SHIP TO: ❑ Same as Bill To
Name: _____	Name: _____
Address: _____	Address: _____
City/ZIP Code: _____	City/ZIP Code: _____
Daytime Phone Number: _____	Daytime Phone Number: _____

Description	Price	Quantity	Total
LOCAL FIXED ROUTE: Not accepted on Dial-A-Ride. Accepted on CommuterLink when additional cash fare is paid with each boarding ($1.50 General/Youth, $1.30 Senior/Disabled)			
1-Day Pass - General	$4		
7-Day Pass - General	$16		
30-Day Pass - General	$50		
30-Day Pass - Youth (Grades 1-12)*	$35		
30-Day Pass - Senior/Disabled*	$23		
COMMUTERLINK+LOCAL: Accepted as full fare on CommuterLink and local fixed route. Not accepted on Dial-A-Ride.			
1-Day Pass - General	$7		
30-Day Pass – General/Youth	$75		
30-Day Pass - Senior/Disabled*	$50		
DIAL-A-RIDE (DAR) TICKETS: Not accepted on CommuterLink or local fixed route buses.			
Senior/Disabled DAR 10-Ticket Book**	$30		
		Total Enclosed* **	

MAIL ORDER TO: RTA: Attn. Passes & Tickets By Mail
1825 Third Street, Riverside, CA 92507

* Photo copy of appropriate ID (described on the back) must accompany order. **Original ID must be shown to operator each time you board a bus.** ** Dial-A-Ride Tickets **CANNOT** be used on Riverside Special Services or fixed route buses. *** Payment must accompany order. DO NOT SEND CASH. Make check or money order payable to RTA. **Please allow one week for delivery. There is a $25 service charge for returned checks.**

CREDIT CARD INFORMATION	
Circle the card being used	**Visa - MasterCard - Discover -American Express - Debit Cards***
Account or Card Number	
Name on Card	
Expiration Date	
Authorized Signature	

* Displaying Visa or MasterCard logos

NEW PROGRAM!

EXCLUSIVELY FOR CITY OF RIVERSIDE RESIDENTS

RIVERSIDE GO TRANSIT!



If you live within the City of Riverside you can

Ride for Less

The City of Riverside now offers discounted local bus passes to City of Riverside residents as shown below. *Limitations apply.*

Types of passes available	*Regular retail price*	*City resident exclusive price*	*Savings to residents*
30 Day General	*$50.00*	***$35.00***	***30%***
30 Day Youth	*$35.00*	***$24.50***	***30%***
30 Day Senior/Disabled	*$23.00*	***$16.10***	***30%***
7 Day General	*$16.00*	***$12.80***	***20%***

All other passes can be purchased from RTA or other certified vendors.

For information visit ***RiversideGoTransit.com*** *or* call (951) 826-5311 (311 local calls only).

The Riverside Go Transit Program is brought to you by the City of Riverside Public Works Department and is funded by AB2766 Subvention Funds designated specifically for air quality improvement programs. Discounted passes are subject to availability of funding.

CITY OF RIVERSIDE

PASS OUTLETS

RTA's passes are good for base fare on all fixed-route buses. Passes are not accepted on Dial-A-Ride. For pass prices, see page 7 of this guide. We recommend that you call the pass outlet to make sure they have passes available.

BEAUMONT
American Office Solutions
652 E. 6th St., Ste D
Beaumont, CA 92223
(951) 201-4525

CORONA
Cardenas Market
301 S. Lincoln Ave.
Corona, CA 92882
(951) 371-9030

Circle K
13120 Magnolia Ave.
Corona, CA 91720
(951) 737-8476

Kenny Donuts
1568 W. 6th St.
Corona, CA 92882
(951) 734-9239

GLEN AVON
Tony K Market
6104 Mission Blvd.
Riverside, CA 92509
(951) 369-0108

HEMET
Circle K
41995 Florida Ave., Ste. C
Hemet, CA 92544
(951) 925-1058

X-Press Cash 'til Payday
1799 E. Florida Ave.
Hemet, CA 92544
(951) 925-6166

HOMELAND
Highway 74 Market
31190 Hwy. 74
Homeland, CA 92548
(951) 926-4233

LAKE ELSINORE
Circle K
31701 Riverside Dr.
Lake Elsinore, CA 92530
(951) 674-7492

Lake Elsinore Senior Activity Center
420 E. Lakeshore Dr.
Lake Elsinore, CA 92530
(951) 674-2526

Mail Stop Etc.
18285 Collier Ave.Ste. K
Lake Elsinore, CA 92530
(951) 245-4600

MEADOWBROOK
Meadowbrook Market
27215 West Hwy. 74
Perris, CA 92570
(951) 943-3186

MENIFEE
The UPS Store # 5143
26025 Newport Rd, Ste. A
Menifee, CA 92584
(951) 246-4855

MORENO VALLEY
99¢ Plus Food Mart
23080 Alessandro Blvd.,
Ste. 208
Moreno Valley, CA 92553
(951) 697-4888

A-Postal Express
24461 Sunnymead Blvd.
Moreno Valley, CA 92553
(951) 242-3707

Cardenas Market
14930 Perris Blvd.
Moreno Valley, CA 92553
(951) 924-1377

Cardenas Market
25065 Sunnymead Blvd.
Moreno Valley, CA 92557
(951) 247-2829

Circle K
24051 JFK Dr.
Moreno Valley, CA 92551
(951) 247-7592

Circle K
12220 Pigeon Pass Rd.
Moreno Valley, CA 92557
(951) 496-0928

Circle K
13261 Perris Blvd.
Moreno Valley, CA 92553

Fastrip Food Store
23991 Sunnymead Blvd.
Moreno Valley, CA 92553
(951) 243-5104

Lavit Check Cashing
12235 Heacock St., Ste. F
Moreno Valley, CA 92557
(951) 243-0807

Mel's Liquor
14051 Indian St., Ste. O
Moreno Valley, CA 92553
(951) 924-5534

Moneytree
(Inside Food 4 Less)
24440 Alessandro Blvd.
Moreno Valley, CA 92553
(951) 243-3876

Moreno Valley Chamber of Commerce
12625 Frederick St., Ste. E3
Moreno Valley, CA 92553
(951) 697-4404

MURRIETA
The UPS Store #4379
23811 Washington Ave
C-110
Murrieta, CA 92562
951-600-8313

PostalNeeds.com
25320 Madison Ave. #A
Murrieta, CA 92562
(951) 674-7264

NORCO
Dollar Check Cashing
2456 Hamner Ave.
Norco, CA 92860
(951) 279-7935

Kunz Check Cashing
1825 Hamner Ave., Ste. U
Norco, CA 92860
(951) 278-0522

PERRIS
Cardenas Market
2560 N. Perris Blvd.
Perris, CA 92571
(951) 943-5809

Mi Pueblo Market
540 W. 4th St., Ste. 7
Perris, CA 92570
(951) 940-1430

One Stop Store
406 S. D Street
Perris, CA 92570
(951) 940-5177

Perris Senior Center
100 North D St.
Perris, CA 92570
(951) 657-7334

RIVERSIDE
AK Market
6411 Brockton Ave
Riverside, CA 92506
(951) 276-8333

Campus Shop-N-Go
3375 Iowa Ave., Ste. A
Riverside, CA 92507
(951) 788-4608

Cardenas Market
6350 Van Buren Blvd.
Riverside, CA 92503
(951) 343-7877

Chicago Smoke Shop
3858 Chicago
Riverside, CA 92507
(951) 683-2320

Circle K
3950 Pierce St.
Riverside, CA 92505
(951) 785-0859

Circle K
3223 Interchange St.
Riverside, CA 92501
(951) 683-1947

Circle K
6908 Indiana Ave.
Riverside, CA 92506
(951) 682-8408

Circle K
18965 Van Buren Ave.
Riverside, CA 92506

City of Riverside
Public Works Dept.
3900 Main St.
Riverside, CA 92522
(951) 826-5311
Discounted passes for City of Riverside residents only.

Community Access Cntr.
6848 Magnolia Ave.,
Ste. 150
Riverside, CA 92506
(951) 274-0358
TTY (951) 274-0834

Continental Currency Services Inc.
1788 University Ave.,
Ste. 116
Riverside, CA 92507
(951) 686-3223

Dollar Check Cashing
10051 Magnolia Ave.,
Ste. A5
Riverside, CA 92503
(951) 352-2727

El Tapatio Market
5800 Van Buren Blvd.,
Ste. 101
Riverside, CA 92503
(951) 710-1540

Friendly Liquor
3962 University Ave.
Riverside, CA 92501
(951) 787-9224

Moneytree
(Inside Food 4 Less)
4250 Van Buren Blvd.
Riverside, CA 92503
(951) 343-9680

Quick Pick Liquor & Market
3775 14th St.
Riverside, CA 92501
(951) 680-0835

Riverside Check Cash 'n' Loans
8151 Arlington Ave.
Ste. Q
Riverside, CA 92503
(951) 689-1691

Riverside Transit Agency
1825 Third St.
Riverside, CA 92507
(951) 565-5000

Word of Mouth Roots Reggae Culture
3976 Market St.
Riverside, CA 92501
(951) 779-9120

YWCA of Riverside County
8172 Magnolia Ave.
Riverside, CA 92504
(951) 687-9922

RUBIDOUX

Smart Buy Cigarette Shop
5675 Mission Blvd.
Rubidoux, CA 92509
(951) 369-1143

SAN JACINTO

Cardenas Market
1475 S. San Jacinto Ave.
San Jacinto, CA 92583
(951) 487-9466

SUN CITY

Kay Ceniceros Senior & Community Center
29995 Evans Rd.
Sun City, CA 92586
(951) 672-9673

TEMECULA

The Customer Service Experts
The Promenade Mall
40820 Winchester Rd.
Temecula, CA 92591
(951) 296-0975

Temecula Valley Chamber of Commerce
26790 Ynez Ct.
Temecula, CA 92591
(951) 676-5090

SCHOOLS / COLLEGES

Students may purchase bus passes at their school offices at the following schools.

Citrus Hill High School
ASB Office
18150 Wood Rd.
Perris, CA 92570
(951) 490-0400

John North High School
1550 Third St.
Riverside, CA 92507
(951) 788-7314

Kaplan College
4040 Vine St.
Riverside, CA 92507
(951) 781-7413

Mt. San Jacinto College Bookstore
1499 N. State St.
San Jacinto, CA 92583
(951) 487-6752

Ortega High School
520 Chaney St.
Lake Elsinore, CA 92530
(951) 245-1988

Ramona High School
7675 Magnolia Ave.
Riverside, CA 92504
(951) 352-8429

UCR Parking Services
683 Linden St.
Riverside, CA 92507
(951) 827-4395

Val Verde High School
972 W. Morgan St.
Perris, CA 92571
(951) 940-6155

To become a pass sales outlet, please contact the RTA Marketing Department at (951) 565-5002. For the most up-to-date list of pass outlets available in your areas, please call our Customer Information Center at (951) 565-5002. If you are unable to locate a convenient sales outlet, you can order passes and tickets securely on our Web site at RiversideTransit.com. Remember, for every 30-Day Pass you order online, RTA donates 5 percent of the purchase to local schools.

BIKES ON BUS PROGRAM

The Riverside Transit Agency (RTA) is pleased to offer you greater flexibility and more options to get to your destination by combining two popular modes of transportation — the bicycle and the bus. RTA's Bikes On Bus program features bike racks on all ***fixed-route*** *buses. Now all you have to do is ride your bike to the nearest RTA bus stop, load your bike onto the bike rack and go to your destination! It's easy, free and convenient.*

BUS BIKE RACK BASICS

TWO bikes are allowed per bike rack, and space is available on a first-come, first-served basis. No bikes will be allowed inside the bus.

• Single seat, two-wheeled bicycles, measuring no more than 69.5 inches long, 40 inches high, and 29 inches wide at the handle bars, and with a wheel diameter not in excess of 28 inches, will be permitted on the bike rack. No mopeds are allowed.

• Cyclist is responsible for loading and unloading the bicycle from rack.

• There is no bike permit required to use the racks. Just load your bike and go!

• There is no additional cost required to load your bike onto the racks.

• RTA is not responsible for bikes left on or damaged while on the bike racks.

• Folding bikes may be taken on board buses if they are folded.

• Do not leave items on bicycle handle bars while the bike is stowed on bike racks.

HOW TO USE THE BIKE RACKS

1. When waiting for the bus, stand a safe distance from the curb (NOT IN THE STREET), and wait until the bus has come to a complete stop before stepping out to use the bike rack. **Please signal to the driver that you will be loading your bicycle.**
2. Release the bike rack by squeezing the latch handle and slowly lowering the rack.
3. Look for the area labeled "**FRONT WHEEL**." Lift your bike into the rack so the front tire rests in the area labeled "**FRONT WHEEL**" and the back tire rests in the slot behind it.
4. To secure your bike for transport, grasp the silver metal "J-Hook" and pull out where labeled "**PULL.**" Pull up and slide the "J-Hook" so it rests on the top of your front tire. Your bike is now secure and you may board the bus.
5. When leaving the bus, exit through the front door and **REMIND THE DRIVER THAT YOU ARE REMOVING YOUR BIKE FROM THE RACK**.
6. After removing your bike, if there are no other bikes on the rack, lift the rack up until the latch clicks into place and is secure.
7. Move your bike onto the curb and wait until the bus passes.

CHILDREN AND BIKE RACKS

• Children under the age of 12 must be accompanied by an adult when loading or unloading their bicycle from the rack.

• Children's bicycles are permitted provided that the "J-Hook" fits snugly over the front tire of the bicycle.

Forgotten bikes will be held for no more than 5 business days.

Reduced Fare Identification

Identificación para tarifas reducidas

Do you qualify for a Senior, Disabled, or Youth discounted fare? If so, you must show proper ID each time you board the bus. You must also show proper ID to purchase discounted passes at all retail outlets, at RTA offices, on our Web site, or through the mail. If you do not have proper ID with you, you will be required to pay the full general fare even if you have a discounted pass. Below are forms of ID accepted on the bus for discounted fares:

Disabled: RTA issued disabled ID card, RTA ADA card, Medicare card, Veteran's Service connected ID card, or Braille Institute ID card.

Senior: RTA issued Senior ID card, CA Driver License or ID card or Medicare card.

Medicare Card: Any person who displays their valid Medicare Card is eligible for a discounted fare on all RTA fixed-route services. Passengers must show their Medicare Card each time they board a bus to receive the discounted fare.

Youth: RTA issued Youth ID card or school issued (grades 1-12) picture ID with current school year validation.

¿Es usted elegible para la tarifa con descuentos para personas de la tercera edad, discapacitadas o estudiantes? De ser así, deberá mostrar identificación adecuada cada vez que aborde el autobús. Al no mostrar la identificación adecuada, se le requerirá que pague la tarifa completa. También deberá mostrar identificación adecuada para comprar boletos o pases de descuento en todos los puestos de venta, en nuestras oficinas en Riverside, en nuestro sitio Web o por correo. Si no trae la identificación adecuada, puede que se le requiera que pague la tarifa total general, aún si usted tiene un boleto o pase de descuento. A continuación se detallan los medios de identificación que se aceptan en el autobús para las tarifas con descuento:

Personas incapacitadas: Tarjeta de identificación para personas descapacitadas expedida por RTA, tarjeta ADA de RTA, tarjeta Medicare, tarjeta de veteranos del servicio militar o la tarjeta de identificación del instituto Braille.

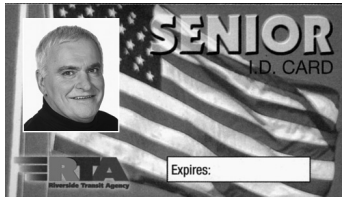
Personas de la Tercera Edad: Tarjeta para personas de la tercera edad expedida por RTA, licencia de conducir de California o tarjeta del Departamento de Vehículos Motorizados o la tarjeta Medicare.

Personas con Tarjeta de Medicare: Cualquier persona que muestre tarjeta valida de Medicare es elegible para tarifas con descuento en todas las rutas fijas de RTA. Para recibir las tarifas con descuento, los clientes deberan mostrar su tarjeta de Medicare cada vez que aborden el autobus.

Estudiantes: Tarjeta de identificación de estudiantes con fotografía expedida por RTA o por la escuela (grados del 1 al 12) con validación actual del año escolar.

Identification NOT accepted on the bus: Medi-Cal cards, Social Security Award letter, a note from a doctor, or other items not listed above will NOT be accepted as identification to purchase or use a reduced fare ticket or pass.

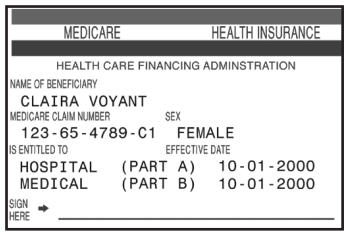
Identificación NO aceptada en el autobús: La tarjeta Medi-Cal, carta de beneficios del Seguro Social, una nota de su doctor, u otros documentos que no se hayan nombrado NO serán aceptados como medio de identificación para comprar o usar un boleto o pase descontado.



RTA issued Senior ID Card



RTA issued Youth ID Card



Medicare Card



RTA issued Disabled ID Card



ADA Identification Card



VA Service Connected ID Card

INFORMACIÓN SOBRE RTA

CENTRO DE ATENCIÓN AL CLIENTE

El Centro de Atención al Cliente de RTA es atendido por representantesables, listos y dispuestos a informarle sobre los horarios, rutas de autobuses, tarifas y ubicación de centros de distribuición de pases. Además, reciben reportes sobre las paradas de autobús que necesiten de limpieza o reparación, así como también documentan las quejas y cumplidos de los clientes. El Centro de Atención al Cliente está abierto de 6 a.m. a 8 p.m. de lunes a viernes. Durante fines de semana las horas de servicio son de 8 a.m. a 8 p.m. y cerrado el Año Nuevo, Día de la Independencia, Día de Recordación, Día de Acción de Gracias y Navidad. Para más información, llame al Centro de Atención al Cliente al (951) 565-5002.

Si necesita asistencia para planificar su viaje, por favor esté listo para proveer la siguiente información al personal del Centro de Atención al Cliente:

1. La calle más cercana e intersección principal de su punto de partida y destino o su domicilio. No es necesario darnos el nombre de un negocio.
2. La hora del día que usted necesita llegar a su destino (a.m. o p.m.)
3. Especifique si desea el horario de entre semana o de fines de semana.

El Centro de Atención al Cliente le puede ayudar únicamente con información relacionada con RTA. Para obtener información sobre otros servicios de transporte, por favor consulte el índice telefónico que empieza en la página 3.

OFICINAS DE RTA

Las oficinas administrativas de RTA están ubicadas en 1825 Third Street en Riverside y son accesibles con la Ruta 10. Las horas de oficina son de 8 a.m. a 5 p.m., de lunes a viernes. La oficina está cerrada los sábados, domingos, y días festivos.

Los pases de 1-día, 7-días y 30-días y boletos de Dial-A-Ride estan disponibles durante horas laborales en la oficina de Riverside. Se acepta efectivo, cheques, tarjetas de credito Visa, MasterCard, Discover, o tarjeta de debito con logo de Visa o MasterCard. Habrá un cargo de $25 por todo cheque devuelto por el banco. Los pases también están disponibles en nuestro sitio Web en www.RiversideTransit.com.

OBJETOS PERDIDOS

El Departamento de Objetos Perdidos está ubicado en las oficinas de RTA en 1825 Third Street, en Riverside. Teléfono (951) 565-5000 de lunes a viernes de 8 a.m. a 5 p.m. Se guardará cualquier objeto perdido por cinco días hábiles.

CÓMO USAR SU GUÍA DE VIAJE

La Guía de Viaje de RTA incluye los mapas con itinerarios y tablas de horarios de todas las rutas fijas. Saber usar los mapas de las rutas y las tablas de horarios le permitirá valerse de la Guía de Viajes para planear su viaje.

CÓMO COMENZAR

El primer paso al planear su viaje es decidir cuál es su punto de partida, adónde quiere ir, y qué día y hora desea viajar. El mapa del sistema de RTA le ayudará a determinar cuál(es) ruta o rutas necesitará tomar. El directorio de las rutas en la página 25 también le puede ayudar a determinar la(s) ruta(s) de autobús que prestan servicio a lugares clave en todo el condado.

Una vez que usted haya determinado cuál es la ruta(s) que necesita, siga estos simples pasos para planear su viaje usando la Guía de Viajes:

1. En el mapa de rutas, ubique los puntos de partida y de llegada de su viaje.

2. Localice el punto con horario programado más cercano a los puntos de partida y llegada de su viaje en autobús. Los puntos con horario programado se indican en los mapas de rutas con un número dentro de un círculo.

NOTA: Cada punto de horario en el mapa de rutas tiene una columna correspondiente en la tabla de horarios. No todas las paradas de autobús se encuentran en el mapa, y hay varias paradas entre cada punto con horario programado.

3. En la tabla de horarios, busque la columna que corresponda al punto con horario programado seleccionado. Asegúrese de usar la tabla de horarios que corresponda al día de la semana correcto y a la dirección de su viaje. Lea la columna debajo del punto de horario para encontrar la hora más cercana a la hora que usted desea partir. Las horas de las paradas entre los puntos de horarios se pueden calcular sumando el tiempo que tardará el autobús en llegar desde el punto de horario anterior hasta su parada.

Las rutas de RTA han sido diseñadas para su conveniencia. En la mayoría de los casos, usted puede completar su viaje con sólo una ruta. A veces necesitará tomar más de una ruta para llegar a su destino. Si llegara a tener alguna dificultad al planear su viaje, por favor llame al Centro de Atención al Cliente de RTA al (951) 565-5002, ó visite nuestro sitio Web en www.RiversideTransit.com.

ANIMALES DE SERVICIO / GUÍA Y MASCOTAS

Animales de servicio / guía necesarios para clientes con discapacidades son permitidos en los autobuses de RTA.

Mascotas pequeñas y animales que no sean de servicio / guía son permitidos siempre y cuando los dueños cumplan con las siguientes reglas:

1. Animales pequeños como pájaros y gatos deben permanecer seguros en una jaula o receptor que se pueda colocar en las piernas del cliente y que no requiera de otro asiento.
2. Jaulas o receptores frágiles o rompibles no son permitidos.
3. La mascota deberá permanecer adentro de la jaula o receptor en todo momento.
4. La jaula o receptor deberá estar bien cerrada(o) para evitar que la mascota tenga contacto físico con los otros clientes o para evitar que la mascota se salga.
5. La jaula o receptor deberá de ser construida(o) para evitar que desechos u otros objetos salgan.
6. La mascota no deberá interferir, molestar, o perturbar a otros animales de servicio / guía en el autobús.

DATOS PARA SU VIAJE

Mientras esté a bordo del autobús, le rogamos que tenga laabilidad de cumplir con los siguientes requisitos para que su viaje sea más fácil, seguro, y placentero, tanto para usted como para los otros clientes:

- No coma, beba, fume, ni escuche música con volumen alto ni cambie su ropa o pañales.
- No se permiten mascotas, a no ser que sean animales de servicio.
- Las bolsas con sus compras deben limitarse a dos. Los carritos de compras y los cochecitos de niños deben cerrarse antes de abordar.
- Por favor absténgase de conversar con el conductor mientras el autobús se encuentre en movimiento.
- No se permite graffiti, alcohol, drogas ni armas de ninguna índole en el autobús.
- Oprima la franja negra oarilla ubicada entre las ventanillas para indicar su parada.
- Todos los clientes deben permanecer

sentados hasta que el autobús se haya detenido por completo.
• Para facilitar el abordaje, de ser posible, baje por la puerta trasera.
• Los asientos portátiles y los asientos ubicados directamente detrás del conductor están reservados para las personas de tercera edad y personas discapacitadas. Por favor esté preparado a desocupar estos asientos cuando se les pida.
• Mantenga los autobuses y las paradas limpias usando los recipientes para la basura.
• Favor de no poner sus pies en los asientos.
• Los clientes deben tener camisa y zapatos puestos en todo momento.

SILLAS DE RUEDAS
RTA se complace en ofrecer alojamiento para nuestros clientes que usan sillas de ruedas. Para garantizar la correcta fijación de la silla durante los viajes, limite el número de bolsas de mano y ponerlas detrás de la silla. Para evitar lesiones a usted mismo y a otros pasajeros, quite cualquier objetos saliente tales un mántil de bandera y reflectores con fuertes puntos. Tenga en cuenta que los autobuses de RTA despliegan una rampa de silla de ruedas para fácil acceso y apearse. Cuando se implementa la rampa, el bus emitirá un sonido. Al salir de las puertas traseras, escuchar el sonido y ser observador de la rampa para evitar lesiones. Sillas de ruedas y scooters de movilidad eléctrica se permiten en el autobús siempre que no excedan 30 pulgadas de ancho y 48 pulgadas de largo y el peso combinado no supere las 600 libras. Pasajeros se recomienda usar un asiento del autobús cuando sea posible y evitar sentarse en scooters y sillas de ruedas de energía eléctrica, mientras el autobús está en movimiento debido a la inestabilidad y el alto centro de gravedad del dispositivo.

PÓLIZA PARA TABLAS DE OLEAJE "SURF"
Tablas de Oleaje "surf" que no sean mas largas de seis pies y con una aleta máxima de cuatro pulgadas son permitidas en los autobuses de RTA siempre y cuando se transporten adentro de una bolsa. Deben ser colocadas en frente del cliente mientras el autobús este en movimiento y no deben ocupar asiento adicional o el asiento o espacio de otros clientes.

SERVICIO DE JURADO
Todas las personas que se les cite a participar como jurado en los tribunals del Condado de Riverside tienen la ventaja de usar el servicio de autobús de RTA sin costo alguno solo con mostrar su identificación valida de jurado al conductor.

PASES DE METROLINK
RTA aceptará pases validos de Metrolink como pago de tarifa en las rutas que conectan en las estaciones del tren desde una hora antes y una hora después de las horas de operación de Metrolink. Los pases de Metrolink tienen que estar vigentes con el día del viaje. Los pases de 10-viajes de Metrolink aún no validados también serán aceptados ya que se les requiere a los clientes que validen sus pases en las estaciones del tren.

Tarifas, Categorías de Tarifas, Pases y Boletos, y Tarjetas de Identificación

DEFINICIÓN DE CATEGORÍAS DE TARIFAS E IDENTIFICACIÓN

General
Todos los clientes excepto aquellos que califican para tarifas de jóvenes, personas de la tercera edad, discapacitados o niños. No se necesita identificación para tarifas Generales.

Jóvenes
Estudiantes del 1er al 12avo grado solamente. Estudiantes de colegio pagan tarifa General.

TARIFAS DE RUTA FIJA				
Categorias de Tarifas	**Tarifa Básica**	**Pase Diario***	**Pase de 7-días***	**Pase de 30-Días***
General	$1.50	$4	$16	$50
Estudiante (grados del 1 al 12)**	$1.50	$4	$16	$35
Personas de Tercera Edad**	70¢	$2	$16	$23
Personas Discapacitadas**	70¢	$2	$16	$23
Personas con Tarjeta de Medicare	70¢	$2	$16	$23
Niños (46 pulgadas de altura o menos)	25¢	N/A	N/A	N/A

TARIFAS DE COMMUTERLINK		TARIFAS DE COMMUTERLINK + LOCAL	
Categorias de Tarifas	**Tarifa Básica**	**Pase Diario**	**Pase de 30-Días**
General	$3	$7	$75
Estudiante (grados del 1 al 12)**	$3	$7	$75
Personas de Tercera Edad**	$2	$5	$50
Personas Discapacitadas**	$2	$5	$50
Personas con Tarjeta de Medicare	$2	$5	$50
Niños (46 pulgadas de altura o menos)	$2	N/A	N/A

U-Pass, GO Pass y City Pass | VIAJEN GRATIS
U-Pass: UC Riverside, Cal Baptist University, La Sierra University
GO Pass: Moreno Valley College, Riverside City College, Mt. San Jacinto College
City Pass: Todos los empleados de la Ciudad de Riverside

TARIFAS DIAL-A-RIDE (DAR) | No se aceptan en los autobuses de ruta fija		
Categorias de Tarifas	**Tarifa Básica**	**Talonarios de Boletos** se venden en libros de 10 boletos
Personas de Tercera Edad	$3	$30
Personas Discapacitadas	$3	$30
Personas con Tarjeta de Medicare	$3	$30
Niños (46 pulgadas de altura o menos)	50¢	N/A

* Se acepta como tarifa básica en servicio de rutas fijas. Para usar en servicio de CommuterLink, se le requerirá que pague una cantidad adicional de $1.30 (Personas de Tercera Edad/ Personas Discapacitadas) o $1.50 (general) por viaje. ** Si usted planea usar tarifas de descuento para discapacitados o jóvenes, debe mostrar identificación adecuada cada vez que aborde el autobús. Usted también debe mostrar una identificación adecuada para comprar pases de descuento en los locales distribuidores. Para obtener una lista de las clases de identificación aceptables, consulte la página 13.

Las tarifas de jóvenes están vigentes todo el tiempo. Se requiere identificación apropiada al abordar el autobús para recibir la tarifa con descuento. Identificaciones escolares con fotografía se consideran apropiadas. RTA también ofrece identificaciones a estudiantes del 1er al 12avo grado. El costo de la identificación es de $2. Llame al (951) 565-5002 para más información de cómo obtener una identificación.

Personas de Tercera Edad/ Discapacitadas / Medicare

Personas elegibles para tarifas con descuento en las rutas fijas de RTA incluyen: personas que cumplan con los requisitos de discapacidad de RTA, personas que presenten una tarjeta valida de Medicare o personas de la tercera edad

de 60 años o mas. Para recibir descuentos, los clientes deben mostrar identificación apropiada cada vez que aborden el autobús.

RTA ofrece identificaciones con fotografía a personas de la tercera edad y discapacitadas. Por favor llamar al (951) 565-5002 para más información sobre el lugar y fecha donde puede obtener su identificación. El costo de la identificación es de $2. Para recibir una identificación de discapacidad, los clientes deben presentar una aplicación completada por su medico o profesional de salud autorizado o una de las siguientes pruebas de discapacidad: Tarjeta de Identificación de Medicare, recibo del Departamento de Motores y Vehículos comprobando la compra del cartel de discapacidad, tarjeta de identificación del Instituto Braille, identificación de discapacidad de veterano del ejercito, o carta de otorgación de beneficios de la Oficina del Seguro Social. Favor de traer la documentación adecuada y una identificación con fotografía a la YWCA de Riverside, 8172 Magnolia Avenue, el segundo martes del mes entre las 9 a.m. y mediodía; o al Centro Simpson, 305 E. Devonshire Ave., en Hemet, el tercer jueves del mes entre las 10 a.m. y mediodía para recibir su tarjeta de identificación. Habrá un cargo de $2 por cada tarjeta. Si tiene alguna pregunta, por favor llame al (951) 565-5002. Tarjetas de Medical no serán aceptadas. Las aplicaciones están disponibles en las oficias administrativas de RTA, en nuestro sitio Web www.RiversideTransit.com o llamando al Centro de Atención al Cliente al (951) 565-5002.

Niños
Basadas en estatura: 46 pulgadas o menos. Deben de ser acompañados por un adulto que pague tarifa completa.

ADA
La identificación de RTA de Americanos con Discapacidades (ADA) es para personas quienes han sido especialmente certificadas por el proceso de Certificación ADA de RTA. Esta identificación puede calificarlo para servicio de prioridad en cualquier servicio Dial-A-Ride de RTA, servicio Dial-A-Ride de Corona, Servicios Especiales de Transportación de Riverside, y servicio Dial-A-Ride de Beaumont. Para ser certificado bajo ADA, tiene que llenar una aplicación y proveer una forma de verificación de un profesional de salud. Para mas información, por favor llame al (951) 565-5002.

TIPOS DE PASES Y BOLETOS

RTA usa cajas de colección de tarifas electrónicas en todos los autobuses grandes y cajas regulares en los autobuses pequeños. Las cajas electrónicas aceptan monedas y billetes y también pases. Los pases son del tamaño de una tarjeta de crédito, impresos en papel firme con una banda magnética al dorso. En lugar de enseñar su pase al chofer, solo tiene que deslizar el pase en la caja de igual manera como lo hace con su tarjeta bancaria. Por favor use cambio exacto cuando pague en efectivo. Ni el chofer ni la caja tienen la capacidad de darle cambio. Para evitar demoras, use monedas de 25 centavos en lugar de monedas de menos denominación.

Pases de 1-día, 7-días y 30-días están disponibles por correo, en las oficinas administrativas de RTA, en nuestro sitio Web en www.riversidetransit.com o en algunos centros de distribución de pases. Pases de 1-día también se pueden comprar a bordo del autobús.

Pases de 1-día
Los pases de 1-día están diseñados para el cliente ocasional que necesita hacer varias conexiones. Los clientes pueden comprar el pase Local de 1-Día el cual es valido en las rutas locales de servicio fijo o el pase Local+CommuterLink de 1-Día valido en todas las rutas locales y rutas Express de RTA. El pase de 1-Día es valido para uso ilimitado en el día en que se usa por primera vez. Su pase de 1-Día será validado por la caja de colección de tarifas con la fecha actual impresa al dorso. Por favor verifique que la fecha esta correcta. Los pases de 1-Día no se podrán usar otro día y no se harán

devoluciónes de dinero o cambios por pases extraviados o robados. El uso del pase de 1-Día para personas de la tercera edad o discapacitados requiere de identificación apropiada cada vez que aborde el autobús. Los pases de 1-Día no se aceptan en las rutas de Dial-A-Ride.

Pases de 7-Días
El pase de 7-Días esta diseñado para proveer una alternativa costeable con el pase mensual de RTA. Los clientes pueden comprar un pase local de 7-Días valido en las rutas locales de servicio fijo solamente o un pase Local+CommuterLink valido en todas las rutas locales y Express de RTA. El pase de 7-Días se debe usar durante un periodo consecutivo de siete días comenzando con el primer día de uso. El pase de 7-Días no esta disponible a bordo del autobús y solo esta disponible por adelantado. Los pases de 7-Días no son validos en el servicio de Dial-A-Ride.

Pase de 30-Días
Los pases de 30-Días son ideales para clientes que usan el sistema de autobús de RTA con frecuencia. Los clientes pueden comprar un pase Local de 30-Días el cual es valido en las rutas locales de servicio fijo o un pase Local+CommuterLink de 30-Días el cual es valido en todas las rutas locales y Express de RTA. El pase de 30-Días debe usarse durante un periodo consecutivo de 30-días comenzando con el primer día de uso. El pase de 30-Días no se vende a bordo del autobús y solo esta disponible por adelantado.

Boletos de Dial-A-Ride
Los boletos de Dial-A-Ride solo se venden en libros de diez boletos cada uno. Deberá presentar un boleto cada vez que aborde un autobús de Dial-A-Ride. Algunos viajes requieren de más de un abordaje. Los boletos de Dial-A-Ride solo son validos en autobuses de servicio de Dial-A-Ride y no son validos en servicio de rutas fijas, CommuterLink u otros autobuses de RTA.

COMPRA Y ACTIVACIÓN DE SU PASE

Los pases de 7-Días y 30-Días so se venden a bordo del autobús. Se pueden comprar en varios centros de distribución de pases a través del condado, por correo o en nuestro sitio seguro Web en www.RiversideTransit.com. Para mas información sobre el centro de distribución de pases mas cercano, por favor llame al (951) 565-5002 o vea la pagina 10. Recuerde que los pases no son reembolsables y no se aceptan en los servicios de Dial-A-Ride.

Cuando compre su pase de 1-Día, 7-Días o 30-Días, no estará activado. El pase se debe de activar a bordo del autobús cuando se use por primera vez. Para activar abordo, introduzca el pase (el lado impreso de frente con la flecha apuntando hacia abajo) en la ranura de activación en el lado izquierdo de la caja de colección de tarifas. La caja imprimirá las fechas de vigencias al dorso del pase. Después, todo lo que tiene que hacer es deslizar el pase abordo de todos los autobuses en que viaje.

TÍTULO VI DE LA LEY DE DERECHOS CIVILES DE 1964

La Agencia de Transporte Público de Riverside (RTA) esta comprometida a proporcionar un servicio sin discriminación y no acepta que ninguno de nuestros clientes sea discriminado por motivos de raza, color u origen nacional. Para notificarnos de cualquier acto de discriminación, por favor, póngase en contacto con el Centro de Atención al Cliente al (951) 565-5002.

CUIDE SUS PASES Y BOLETOS

1. No doble su pase
2. Mantenga su pase limpio y seco (no lo lave)
3. No corte o marque su pase
4. No escriba en su pase
5. No lamine su pase
6. Los pases y boletos no son reembolsables o transferibles

Para entrega rápida, ordene en nuestro sitio Web en www.RiversideTransit.com

Ahórrese la estampilla, el sobre o cheque

Las órdenes son procesadas al siguiente día. Se aceptan tarjetas de crédito y debito

FORMULARIO DE PEDIDO PARA PASES Y BOLETOS DE RTA

PERSONA RESPONSABLE DE PAGO:	**DESTINATARIO:** ❑ **Igual a persona responsable**
Nombre: _____	**Nombre:** _____
Dirección: _____	**Dirección:** _____
Ciudad/Código Postal: _____	**Ciudad/Código Postal:** _____
Telefono (Día): _____	**Telefono (Día):** _____

Descripción	Precio	Cantidad	Total
RUTAS FIJAS LOCALES: No se aceptan en servicio de Dial-A-Ride. Se aceptan en CommuterLink al pagar la tarifa adicional al abordar ($1.50 General/Joven, $1.30 Personas de la Tercera Edad Discapacitadas)			
Pase de 1-Día – General	$4		
Pase de 7-Días – General	$16		
Pase de 30-Días – General	$50		
Pase de 30-Días – Jóvenes (Grados 1-12)*	$35		
Pase de 30-Días – Personas de la Tercera Edad/Discapacitadas*	$23		
COMMUTERLINK+LOCAL: Se aceptan como tarifa completa en las rutas CommuterLink y rutas locales de servicio fijo. No se aceptan en servicio de Dial-A-Ride.			
Pase de 1-Día – General	$7		
Pase de 30-Días – General/Jóvenes (Grados 1-12)*	$75		
Pase de 30-Días – Personas de la Tercera Edad/Discapacitadas*	$50		
Boletos de Dial-A-Ride (DAR): No se aceptan en rutas CommuterLink o rutas locales de servicio fijo.			
Libro de 10 Boletos para Personas de la Tercera Edad/Discapacitadas**	$30		
		Cantidad Incluida* **	

Envíe su orden a RTA: Passes & Tickets By Mail
1825 Third Street, Riverside, CA 92507

*Copia de identificación apropiada (descrito al dorso) debe acompañar la orden. **Se require identificación original cada vez que aborde el autobús.** ** Los boletos de Dial-A-Ride **NO SE** pueden usar en los Servicios Especiales de Transportación de Riverside o en las rutas fijas de RTA. ***El pago completo debe incluirse con la orden. **NO ENVÍE DINERO EN EFECTIVO**. Haga su cheque o giro postal pagadero a RTA. **Por favor permita una semana para la entrega. Habrá un cargo de $25 por cheques devueltos por el banco.**

INFORMACIÓN SOBRE SU TARJETA DE CRÉDITO	
Circule la tarjeta que usa	**Visa - MasterCard - Discover - American Express – Tarjeta de Debito***
Numero de Cuenta	
Nombre en la tarjeta	
Fecha de Caducidad	
Firma que Autoriza	

*Con logos de Visa o MasterCard

PROGRAMA DE BICICLETAS EN EL AUTOBÚS

La Agencia de Transporte Publico de Riverside (RTA) se complace en ofrecerle a usted mayor flexibilidad y más opciones para llegar a su destino combinando dos modos populares de transporte — la bicicleta y el autobús. El programa de bicicletas en el autobús de RTA incluye porta-bicicletas en todos los autobuses de ruta fija. Lo único que usted tiene que hacer es montar su bicicleta hasta la parada de autobús más cercana, cargar su bicicleta en el porta-bicicletas, e ir a su destino. Es fácil, gratis y conveniente.

REGLAS BÁSICAS PARA USO DE LOS PORTA- BICICLETAS EN LOS AUTOBUSES

Se permitirán DOS bicicletas por porta-bicicletas, el cual estará disponible de acuerdo al orden de llegada. No se permitirán bicicletas dentro del autobús.

• Las bicicletas de dos llantas y un asiento que no midan más de 69.5 pulgadas de largo, 40 pulgadas de alto, y 29 pulgadas de ancho al nivel de las manivelas, y con una rueda cuyo diámetro no exceda 28 pulgadas, serán permitidas en el porta- bicicletas. No se permitirán los ciclomotores.
• El cliente tiene la responsabilidad de montar y bajar la bicicleta del porta-bicicletas. **No se le permite al conductor del autobús ayudar al cliente.**
• No se requiere permiso para usar los porta-bicicletas. ¡Sólo monte su bicicleta y es todo!
• No hay costo adicional para montar su bicicleta en el porta-bicicletas.
• RTA no se hace responsable por bicicletas olvidadas o que se dañen mientras estén en el porta-bicicletas.
• La bicicletas portatiles se pueden subir al autobús con tal de que estén cerradas.
• No deje artículos en el manillar de la bicicleta mientras este montada en el porta-bicicletas.

NIÑOS Y PORTA-BICICLETAS

• Los niños menores de 12 años deberán ser acompañados de un adulto al montar o bajar su bicicleta del porta-bicicletas.
• Las bicicletas de niños son permitidas con tal de que el gancho (J-Hook) encaje cómodamente sobre la llanta delantera de la bicicleta.

CÓMO USAR EL PORTA-BICICLETAS (Por favor, lea cuidadosamente)

1. Al esperar el autobús, párese a distancia segura de la banqueta (**NO EN LA CALLE**), y espere hasta que el autobús se dentega completamente antes de pararse enfrente del porta-bicicletas. Por favor, informe al conductor que usted va a montar su bicicleta.
2. Libere el porta-bicicletas apretando la manija con seguro y bajando la parrilla lentamente.
3. Busque el área marcada "**FRONT WHEEL**." Coloque su bicicleta encima de la parrilla de manera que las llantas se posen en el área marcada "**FRONT WHEEL**" y la llanta trasera se pose en la ranura detrás de ella.
4. Para asegurar su bicicleta para el transporte, tome el gancho de metal plateado (J-Hook) y hálelo de donde está marcado "**PULL**." Hale y deslice el gancho (J-Hook) de manera que se pose encima de la llanta delantera. Su bicicleta ahora está segura y usted puede abordar el autobús.
5. Al bajar del autobús, salga por la puerta delantera y **RECUÉRDELE AL CONDUCTOR QUE VA A BAJAR SU BICICLETA DEL PORTA-BICICLETAS.**
6. Si no hay más bicicletas en el porta-bicicletas, después de bajar la suya, por favor levante la parrilla hasta que el seguro se tranque en su lugar y quede asegurada.
7. Mueva su bicicleta hacia la banqueta y espere hasta que el autobús se haya ido.

Las bicicletas que se hayan olvidado en el autobús no se guardaran por más de cinco días hábiles.



Show your pass. Get a deal. Feel the power.

Exclusive offers and discounts are waiting for you. Just show your valid 7-Day or 30-Day pass at any participating business and get the VIP treatment you deserve. RTA's weekly and monthly passes not only save you big bucks on the bus, they also help you afford life's necessities.

Passes are available at pass outlets, through the mail, at RiversideTransit.com or call

(951) 565-5002.

BANNING

Carl's Jr. Restaurant
300 S. Highland Springs Ave.
On Routes 31, 35
Free Famous Star with purchase of regular-priced Famous Star

Domino's Pizza
3083 W. Ramsey St.
On Route 210
Buy any large pizza at the regular menu price and get a second pizza of equal or lesser value Free

BEAUMONT

Country Junction Restaurant
704 E. 6th St.
On Route 210
10% discount on any food or beverage purchase

CORONA

Subway Sandwiches and Salads
635 N Main St.
On Routes 3, 206
Free six inch sandwich with purchase of a regular priced six inch sandwich and large drink

GLEN AVON

Tony K. Market
6104 Mission Blvd.
On Routes 29, 49
Buy one donut get one free

HEMET

Steve's Burgers
240 S. Sanderson Ave.
On Routes 27, 33, 74, 79
10% discount on any purchase

LAKE ELSINORE

Farmer Boys
18288 Collier Ave.
On Routes 7, 22
10% discount on any food or drink purchase. Offer not valid with any other coupon or discount.

Wienerschnitzel #788
18284 Collier Ave.
On Routes 7, 22
10% discount on any food or drink purchase. Offer not valid with any other coupon or discount.

MENIFEE

Carl's Jr. Restaurant 26100 Newport Rd.
On Routes 40, 61
Buy one regular-priced Western Bacon Cheeseburger, get a second free

Lil Joe's Pizza
26025 Newport Rd., Ste C
On Routes 40, 61
20% off any food purchase. Not vaild with any other coupon or offer

Submarina
26045 Newport Rd., Ste. C
On Routes 40, 61
Buy any 6", 9" or 12" sub and a regular drink and receive a free 6" sub.

MORENO VALLEY

Coffee Grinder
23580 Sunnymead Blvd.
On Route 19
10% discount on any beverage purchase

Marcello's Pizza
24485 Sunnymead Blvd.
On Route 19
10% discount on any purchase

Moreno Valley Flower Box
12625 Frederick St. #F2
On Routes 16, 18, 19, 35, 208
10% discount on all in-store purchases or local deliveries priced at $20 or more

Shakey's Pizza Parlor
23346 Sunnymead Blvd.
On Route 19
10% discount off all-you-can-eat lunch buffet, buy one large pizza, get second free

Taco Bell
23880 Alessandro Blvd.
On Routes 11, 20
10% discount on any purchase

Taco Bell
23010 Sunnymead Blvd.
On Routes 11, 19, 208
10% discount on any purchase

Wendy's
12410 Day St.
On Routes 16, 18, 19, 35, 208
Free 5-piece chicken nuggets with purchase of a medium fountain drink

MURRIETA

Jersey's Pizzeria & Restaurant
40557 California Oaks Road, Ste. H-1
On Route 23
Buy any sub or pizza for $5.99 or more and get a FREE small fountain drink.

NORCO

Carl's Jr. Restaurant 1120 Hamner Ave.
On Route 3
Buy one Western Bacon Cheeseburger, get a second free

Crusty's Pizza
2395 Hamner Ave. #A
On Route 3
15% discount on any purchase

Dairy Queen
1260 Hamner Ave. #A
On Route 3
10% discount on any purchase

PERRIS

Cash Plus
780 W. Ramona Expressway, Ste. G
On Routes 19, 41
VIP rate on check cashing and cash advance

Perris Donut and Burger Shop
15928 Perris Blvd., Suite G
On Route 19
15% discount on any purchase

Pizza Time
2055 N. Perris Blvd. #A7,
On Routes 19, 30
Buy one large pizza, get a second free

RIVERSIDE

Aloha Pizza
755 W. Blaine St.
On Routes 1, 10, 51
10% off food or drink purchase. Not vaild with any other coupon

Best Cleaners
3375 Iowa Ave.
On Routes 1, 14, 16
10 % discount on any purchase

Boba Café
1223 University Ave., # 110
On Routes 14, 16
10% discount on any purchase

Boy's Burgers
3720 Sunnyside Dr., #E
On Routes 1, 10, 12, 13, 14, 15, 20
Buy one quarter pound hamburger, get a second free

Brockton Arcade Laundry & Dry Cleaners
6771 Brockton Ave.
On Routes 1, 10, 12, 13, 14, 15
10% discount on any purchase

Carl's Jr. Restaurant
1250 University Ave.
On Routes 1, 14, 16
Buy one Western Bacon Cheeseburger, get a second free

City Gym
3485 University Ave.
On Routes 1, 10, 12, 13, 14, 15, 16, 22, 29, 49, 50, 204, 208, 210, 216
One week free membership and/or 10% discount on membership

Coffee Roasters
5225 Canyon Crest Dr., # 20
On Routes 16, 51, 53
10% discount on any purchase

Coffee Court
3649 10th St.
On Routes 1, 13, 15, 50, 208, 210, 212
Buy any blended latte or smoothie at regular price and get second one at 50% off

Cold Cutz Barber Shop
4029 Market St.
On Routes 1, 10, 12, 13, 14, 15, 16, 22, 29, 49, 50, 204, 208, 210, 212, 216
$2 discount on any haircut

Curves
3537 Main St.
On Routes 1, 10, 13,14, 15, 16, 22, 29, 49, 50, 204, 208, 210, 212, 216
50% off enrollment fee

Del Taco
3199 Van Buren Ave.
On Routes 10, 14, 27
Buy one half-pound burrito get a second free

Del Taco
4740 La Sierra Ave.
On Routes 10, 15
10% discount on any purchase

Downtown Cleaners and Shoe Repair
3544 9th St.
On Routes 1, 10, 12, 13, 14, 15, 16, 22, 29, 49, 50, 204, 208, 210, 216
10% discount on all services

Highlander Cleaners
3566 Adams Ave.
On Routes 1,14
10% discount on any drycleaning purchase.

Jack-in-the-Box
3434 14th St.
On Routes 1, 10, 12, 13, 15, 50, 208, 210, 212
10% off any food or drink purchase. Not valid with any other coupon or discount

Jones Dry Cleaners
5360 Arlington Ave.
On Routes 12, 13, 15
10% discount on any purchase

Mad Platter
1223 University Ave.
On Routes 14, 16
10% discount on any purchase

Mi Tortilla
3203 Mission Inn Ave.
On Routes 10, 13
15% off any purchase of $5.99 or more. Offer may not be combined with any other discount

New Hong Kong Chinese Restaurant
6055 Magnolia Ave.
On Routes 1, 12, 13, 14, 15
10% discount on any purchase

New Image Salon
1201 University Ave., # 105
On Routes 14, 16
$2 discount on any haircut

Papa John's Pizza
3850 Chicago Ave.
On Routes 13, 16, 22
15% discount on any purchase

Phenomenal Salon
10330 Hole Ave., Unit 9B
On Routes 1, 10, 12, 13, 14, 15, 21, 27, 216
$5.00 off any haircut or service

Photography by the Ninth St. Gallery
3522 9th St.
On Routes 1, 10, 12, 13, 14, 15, 16, 22, 29, 49, 50, 149, 204, 208, 210, 212
10% discount on a portrait package

Popeyes Chicken
9825 Magnolia Ave.
On Routes 1, 10, 12, 14
Purchase a leg or thigh and Regular fries for only $1.49!

Shakey's Pizza Restaurant
3767 Iowa Ave.
On Routes 14, 16
10% discount on any regular priced purchase

Subway Sandwiches & Salads
5225 Canyon Crest Dr., # 19
On Routes 16, 51, 53
Free six-inch regular sandwich after purchase of a regular beverage and 6-inch regular sandwich

Subway
4010 Chicago Ave.
On Routes 1, 51, 53
$2.99 for any six-inch sub (excludes double meat & extras)

Taco Bell
7940 Limonite Ave.
On Routes 21, 29
10% discount on any purchase

Taco Bell
1420 University Ave.
On Routes 14, 16, 51, 53
10% discount on any purchase

Taco Bell
10995 Magnolia Ave.
On Routes 1, 10, 12, 15
10% discount on any purchase

Taco Bell
181 Alessandro Blvd.
On Routes 20, 22
10% discount on any purchase

Taco Bell
5587 Arlington Ave.
On Routes 12, 13, 15
10% discount on any purchase

Taco Station
4088 Mission Inn Ave.
On Routes 1, 10, 12, 13, 14, 15, 16, 29, 204, 208, 210, 212, 216
10% off any food or drink purchase of $2.00 or more. Not valid with any other coupon or discount

The Crepe Shack
1223 University Ave., # 100
On Routes 14, 16
Free 16-oz drink with purchase of crepe

The Flame Broiler
1201 University Ave., # 109-A
On Routes 14, 16
Free medium drink after purchase of any combination plate or bowl

Village Wok
1201 University Ave., # 110
On Routes 14, 16
10% discount on any purchase

Wendy's
8320 Limonite Ave.
On Routes 21, 29
Free 5-piece chicken nuggets with purchase of a medium fountain drink

Wendy's
10225 Magnolia Ave.
On Routes 1, 10, 12, 13, 14, 15, 21, 27, 216
Free 5-piece chicken nuggets with purchase of a medium fountain drink

Word of Mouth Roots Reggae Culture
3976 Market St.
On Routes 1, 10, 12, 13, 14, 15, 16, 22, 29, 49,50, 204, 208, 210, 212, 216
10% discount on any purchase

SAN JACINTO

Farmer Boys
1385 S. State St.
On Routes 31, 74
10% off food or drink purchase. Not vaild with any other coupon

Taco Bell
785 North Ramona Blvd.
On Routes 31, 32, 74
10% discount on any purchase

TEMECULA

Stadium Pizza
31950 Highway 79 South, Ste B-1
On Route 24
$3.00 off any large 1-topping pizza

SERVICE GUIDE

CITY/COMMUNITY	RTA SERVICE & OTHER CONNECTING SERVICES
Banning	RTA 31, 35, 210, Pass Transit, Pass Transit DAR, Greyhound
Beaumont	RTA 31, 35, 210, Pass Transit, Pass Transit DAR, Amtrak Thruway
Canyon Lake	RTA 40
Corona	RTA 1, 3, 206, 216, 794, Corona DAR, ADA After Hours, Corona Cruiser, Metrolink
Country Village	RTA 21, 49, 204, Omnitrans
Eastvale	RTA 3, 29
Escondido	RTA 217, MTS, NCTD, Sprinter
French Valley	RTA 79
Glen Avon	RTA 21, 49
Hemet	RTA 27, 31, 32, 33, 42, 74, 79, 212, 217, Amtrak Thruway
Highgrove	RTA 12, 14, Omnitrans
Homeland/Romoland	RTA 27, 212
Jurupa	RTA 21, 29, 49
Lake Elsinore	RTA 7, 8, 22, 40, 206
Loma Linda	RTA 14, Omnitrans
Mead Valley	RTA 22, 41
Menifee	RTA 61, 74, Amtrak Thruway
Mira Loma	RTA 3, 21, 29, 49, 204
Moreno Valley	RTA 11, 16, 18, 19, 20, 35, 41, 208, 210, Amtrak Thruway
Montclair	204, Metrolink, Omnitrans, Foothill Transit
Murrieta	RTA 23, 61, 202, 206, 208
Norco	RTA 3, Norco DAR
Oceanside	202, Coaster, Metrolink, Amtrak California, NCTD Breeze
Ontario	RTA 204, Omnitrans, Metrolink
Pedley	RTA 21, 29, Metrolink
Perris	RTA 19, 22, 27, 30, 74, 208, 212, Amtrak Thruway, Greyhound
Quail Valley	RTA 40
Riverside	RTA 1, 10, 12, 13, 14, 15, 16, 20, 21, 22, 27, 29, 49, 50, 51, 53, 204, 208, 210, 212, 216, 794, Riverside Special Transportation, Amtrak Thruway, Metrolink, ADA After Hours, Omnitrans, Amtrak
Rubidoux	RTA 29, 49, Jurupa DAR
San Jacinto	RTA 31, 32, 42, 74, 212, 217
Sun City	RTA 27, 40, 61, 74, 208, Amtrak Thruway
Temecula	RTA 23, 24, 55, 61, 79, 202, 206, 208, 217, Greyhound
Wildomar	RTA 7, 23
Winchester	RTA 74, 79, 217
Woodcrest	RTA 22, 27

WESTERN RIVERSIDE COUNTY ROUTE DIRECTORY

The following guide summarizes just a few of the many RTA destinations throughout western Riverside County and the routes that serve them.

ATTRACTIONS

CORONA
The Fender Museum....3

LAKE ELSINORE
Lake Elsinore Diamond....7, 8, 40
Outlet Center....7, 8, 22, 206

MORENO VALLEY
Moreno Valley Bowl....19, 35

RIVERSIDE
Ben Lewis Hall at Convention Center...10, 12, 14, 16, 29
California Skate....1
Castle Park....1
Heritage House....1
Lorenzi Sports Complex....12
Mission Inn....1, 12, 14, 16, 50, 204, 212
Riverside Golf Club....12
Riverside Sports Center....1

SAN JACINTO
Soboba Casino....42

TEMECULA
Pechanga Resort & Casino....24

COLLEGES

LOMA LINDA
Loma Linda University....14

MENIFEE
Mt. San Jacinto Comm. College, Menifee....61, 74

MURRIETA
Azusa Pacific University....23, 208
Marinello School of Beauty....23, 208

MORENO VALLEY
Moreno Valley College....18, 19, 20, 41

NORCO
Norco College....3

RIVERSIDE
California Baptist University....1
California Paramedical College....15
Kaplan College....1, 16, 208, 210
La Sierra University....12, 15
Riverside City College....1,12, 13, 15, 50
University of California, Riverside....1, 16, 51, 53, 208, 210
Phillips College....13

SAN JACINTO
Mt. San Jacinto Comm. College....31, 32, 74, 212, 217

HOSPITALS/HEALTH CENTERS

BANNING - BEAUMONT
Banning Family Medical Center....31, 35

CASA BLANCA
Riverside Neighborhood Health Center....10, 14

CORONA
Corona Regional Medical Center....1, 3

HEMET
Hemet Valley Medical Center....32, 33, 74
Riverside County Health Center....31

LOMA LINDA
Loma Linda Community Hospital....14
Loma Linda University Medical Center....14
Jerry Pettis Veterans (V.A.) Hospital....14

MORENO VALLEY
Kaiser Clinic....11
Moreno Valley Community Hospital....20
RCR Medical Cntr....20, 35, 41

MURRIETA - WILDOMAR
Inland Valley Regional Medical Cntr....7, 23
Sharp Healthcare....23, 61
Rancho Springs Medical Cntr....23, 61
Loma Linda Medical Center....61

PERRIS
Valley Plaza Doctors Hospital 19
Perris Family Care Center 22, 30

RIVERSIDE
Kaiser Hospital 1, 12, 15
Parkview 1, 21
Riverside Comm. 1, 13, 14, 15, 22, 50
Riverside Medical Clinic (Arlington) 10, 14
Riverside Medical Clinic (Day St) 16

WILDOMAR
Kaiser 7, 23

LIBRARIES

CORONA
Corona Library 1, 3

HEMET
Hemet Library 27, 31, 32
Valle Vista Library 27

HIGHGROVE
Highgrove Library 14

LAKE ELSINORE
Lake Elsinore Branch 7
Mission Trail Community Library 8

MORENO VALLEY
Moreno Valley Library 20

MURRIETA
Murrieta Public Library 23

NORCO
Norco Library 3

PERRIS
Perris Branch 19, 22, 27, 30, 74

RIVERSIDE
Arlington Branch 1, 10, 21
Glen Avon Branch 21
La Sierra Branch 15
Marcy Branch 1, 10, 20
Main Library 1, 12, 13, 14, 15, 16, 22, 29, 49, 50, 204, 208, 210, 212, 216
Orange Terrace Branch 22, 27
Rubidoux Branch 49

SAN JACINTO
San Jacinto 42

SUN CITY
Sun City Branch 27, 40, 61, 74

TEMECULA
Mellman Community Library 23, 24, 55, 61, 79
Temecula Library 24

METROLINK STATIONS

CORONA - N. Main St. 3, 206
CORONA - West 1
LA SIERRA 15, 794
PEDLEY 21, 29
RIVERSIDE 1, 16, 208, 210, 212

PARKS

HEMET
Gibbel Park 27, 31, 32, 33, 74, 79
Welch Memorial Park 27, 31, 32
Weston Park 27, 33

LAKE ELSINORE
Lake Elsinore Recreation Area 7, 8
Lake Point Park 7

MORENO VALLEY
JFK Memorial Park 11
Moreno Valley Community Park 19, 35
Pedrorena Park 18, 20
Victoriano Park 18, 20
Vista Lomas Park 20

MURRIETA
Alta Murrieta Sports Park 23
Cal Oaks Sports Park 23
Firefighter Park 23, 61

PERRIS
Beatty Park 19, 22, 27, 30

RIVERSIDE
Andulka Park 22, 51
Arlington Park 21
Bobby Bonds Park 1, 14, 16, 22
Bordwell Park 13
Bryant Park 13
California Citrus State Historic Park 27
Challen Hill Park 12

Fairmount Park....29
Hunt Park....12, 13
Hunter Park....13, 14
La Sierra Park....15
Mt. Vernon Park....13
Reid Park....12
Shamel Park....10, 14, 15
Villegas Park....14
White Park....1, 13, 15, 22, 50

TEMECULA
Patricia Birdsall Sports Park....24
Ronald Reagan Sprots Park....24
Duck Pond....24
Harveston Lake Park....55
Margarita Community Park....24
Winchester Creek Park....61

PUBLIC SCHOOLS

CORONA
Corona High School....1

EASTVALE
Eleanor Roosevelt High School....3

HEMET
Acacia Middle School....27, 32
Hemet High School....33
Dartmouth Middle School....33
West Valley High School....74, 79

LAKE ELSINORE
Elsinore Middle School....7
Lake Elsinore High School....8
Lake Elsinore Middle School....7
Lakeside High School....8
Terra Cotta Middle School....8

MORENO VALLEY
Badger Springs Middle School....11
Canyon Springs High School....18
Bayside High School....11, 18, 19
Moreno Valley High School....11, 18
Mountain View Middle School....35
Rancho Verde High School....41
Sunnymead Middle School....11, 19
Valley View High School....35
Vista Del Lago High School....18, 41
Vista Heights Middle School....18
Vista Verde Middle School....18

MURRIETA
Creekside High School....23
Murrieta Valley High School....23
Thompson Middle School....23
Vista Murrieta High School....23

PERRIS
Citrus Hill High School....22
Perris High School....19, 27
Perris Lake High School....30

RIVERSIDE
Abraham Lincoln Continuation High School....10, 13
Arlington High School....10, 14
Chemawa Middle School....1
John North High School....10, 13
La Sierra High School....15
Martin Luther King High School....22, 27
Mission Middle School....49
Norte Vista High School....13, 15
Patriot High School....49
Poly High School....10, 20
Ramona High School....1
Rubidoux Academy....29
University Middle School....14

SAN JACINTO
N. Mountain Middle School....32
Monte Vista Middle School....32, 42
San Jacinto High School....32, 42

TEMECULA
Chaparral High School....23, 55, 79
Great Oak High School....24
Temecula Valley High School....24

SENIOR CENTERS

CORONA
Corona Senior Center....3

GLEN AVON
Glen Avon Senior Center....21

HEMET
James Simpson Center....31, 33

LAKE ELSINORE
Lake Elsinore Senior Center....7

MIRA LOMA
Country Village Ballroom....21, 49

MORENO VALLEY
Moreno Valley Senior Center....35

MURRIETA
Murrieta Senior Center....23

NORCO
DPSS....3
Norco Community Center....3
Norco Senior Center....3

PERRIS
Perris Senior Center....22, 30
Mead Valley Senior Center....22, 41

RIVERSIDE
Brockton Senior Center....12, 14
Bryant Park Senior Center....21
Dales Senior Center....14
Fairmount Adult Center....10, 12, 16, 29
Highgrove Senior Center....14
Janet Goeske Center....12
La Sierra Nutrition Center....15
Nichols Park....12
Reid Center....12
Renck Center....12
Rose Garden Village....1

RUBIDOUX
Eddie D. Smith Community Center....49

SUN CITY/MENIFEE
Kay Ceniceros Senior Center....40, 61

TEMECULA
Temecula Senior Center....24, 79

SERVICE/GOVERNMENT AGENCIES

BEAUMONT
City Hall....210

CORONA
City Hall....1
Social Security Admin....1

EAST VALE
City Hall....3

HEMET
D.M.V....31
DPSS....32
EDD....31
Hemet City Hall....27, 31, 33
Post Office....31
Social Security Office....33

LAKE ELSINORE
City Hall....7
Employment Development Office....7
Post Office....7
Sheriff's Department....7

MENIFEE
City Hall....61

MORENO VALLEY
City Hall....11, 20
Post Office - Main....20
Post Office - Postal Ave.....11

MURRIETA
City Hall....23

NORCO
City Hall....3
DMV....3

PERRIS
City Hall....19, 22, 27, 30, 74

RIVERSIDE
City Hall....1, 12, 13, 14, 15, 16, 29, 49, 50, 208, 210, 212
County Admin. Bldg....10, 12, 22, 50, 208, 210, 212
County Jail....10, 12, 50, 208, 210, 212
D.M.V. - Brockton Ave....12, 14
DPSS (County Center)....1, 10, 13
GAIN Office....14
Housing Authority....13, 15
Post Office (Main)....13, 14, 16, 22, 51
RTA Headquarters....10, 13
Social Security Office....20, 22
State Employment Office....13, 14
YWCA....1

SAN JACINTO
City Hall....32, 42
Post Office....32, 42, 74

TEMECULA
City Hall....79
County Building....23, 24, 55, 61, 79

WILDOMAR
City Hall....7

SHOPPING

BANNING/BEAUMONT
K-Mart, Super Walmart....31, 35

CORONA
Sears Essentials....3

EASTVALE
Cloverdale Marketplace....29
Eastvale Gateway....3, 29

HEMET
Hemet Plaza....27
Hemet Valley Mall... 27, 31, 32, 33, 42, 74, 79, 212, 217
Page Community Plaza....33, 74, 79, 217
Vons Shopping Center....27

LAKE ELSINORE
Lake Elsinore Outlet Center....7, 8, 22, 206
Vons....7, 8, 40
Walmart....7, 8, 40

MENIFEE
Countryside Marketplace....61

MONTCLAIR
Montclair Plaza....204

MORENO VALLEY
Alessandro Plaza....11, 20
Butterfield Valley Village....11, 19, 35
Canyon Springs Plaza....16
Lakeside Plaza....18, 19, 41
Moreno Valley Mall....11, 16, 18, 19, 35, 208, 210
Moreno Valley Plaza....11, 16
Pigeon Pass Center....18
Stoneridge Towne Centre....35, 210
Super Target....35, 210
TownGate Promenade....11, 16, 18, 19, 35

MURRIETA
California Oaks Shops....23
Madison Ave. Shop Ctrs....23, 202, 206
Murrieta Gateway....23
Murrieta Town Center....23, 61
Walmart....23, 202, 206

NORCO
Town & Country Center....3
Gateway Town Center....3
Target....3

ONTARIO
Ontario Mills....204

PERRIS
Cottonwood Plaza....19, 22, 27, 74, 208
Perris Plaza....19, 30
Stater Brothers (Nuevo Rd.)....19, 30
Walmart....19, 30

RIVERSIDE
Auto Center....14
Canyon Crest Towne Center....16, 51, 53
Galleria at Tyler....1, 10, 12, 13,14, 15, 21, 27, 216, 794
Hardman Center....12, 15
Mission Grove....20, 22
Riverside Plaza....1, 10, 12, 13, 14, 15, 20
Sears....12, 15
Target - Arlington & McMahon....10
Walmart - Van Buren & Colorado....1, 13
Ralphs - Elizabeth & Magnolia....1, 12, 13, 14, 15, 20

SAN JACINTO
Farmer's Corner....32, 74
Stater Bros. Plaza....31, 42
Super Walmart....31, 32, 42, 74

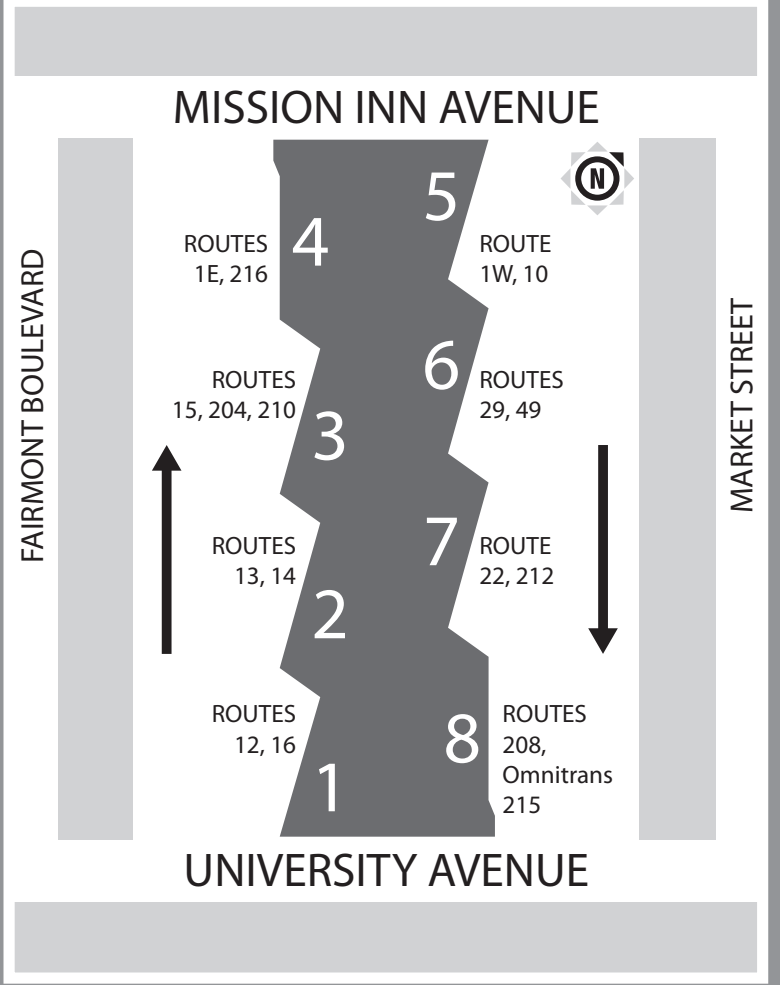
SUN CITY
Sun City Shopping Center....27, 40, 61, 74, 208

TEMECULA
Old Town....24, 79
Promenade Mall....23, 24, 55, 61, 79, 202, 208, 217
Target....24, 206
Walmart....24

WILDOMAR
Oak Creek Center....7

Riverside Downtown Terminal

BOARDING DIAGRAM



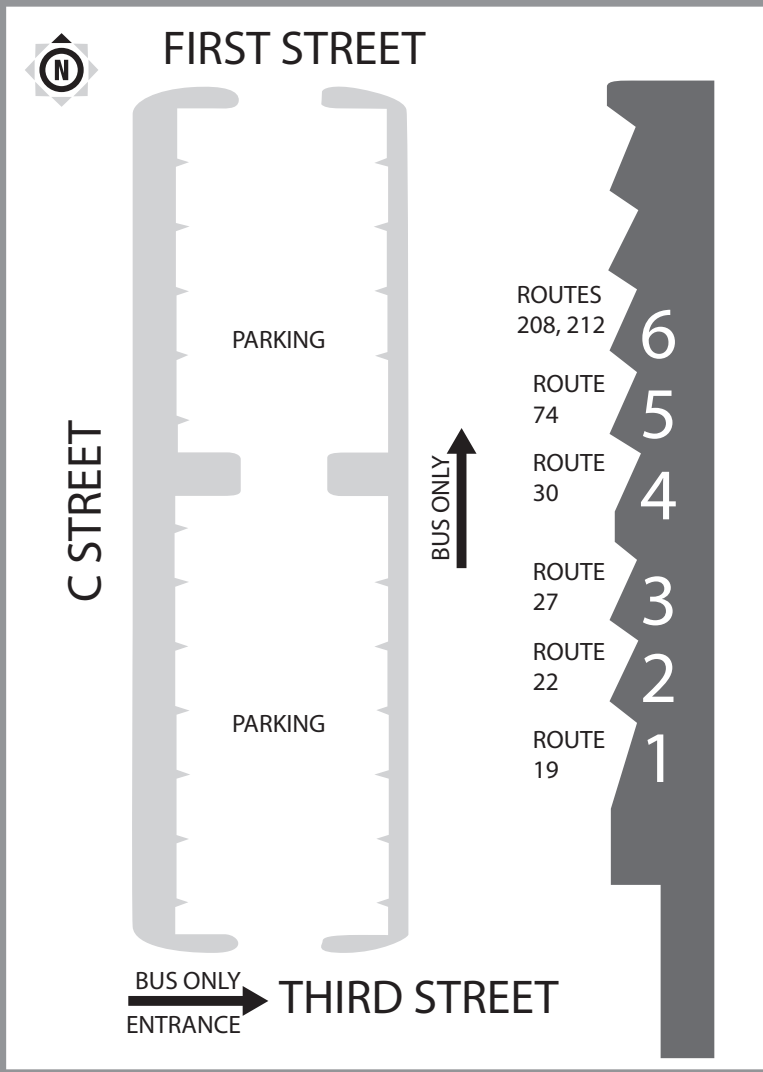
For route and schedule information call

(951) 565-5002

or visit www.RiversideTransit.com

Perris Station Transit Center

BOARDING DIAGRAM



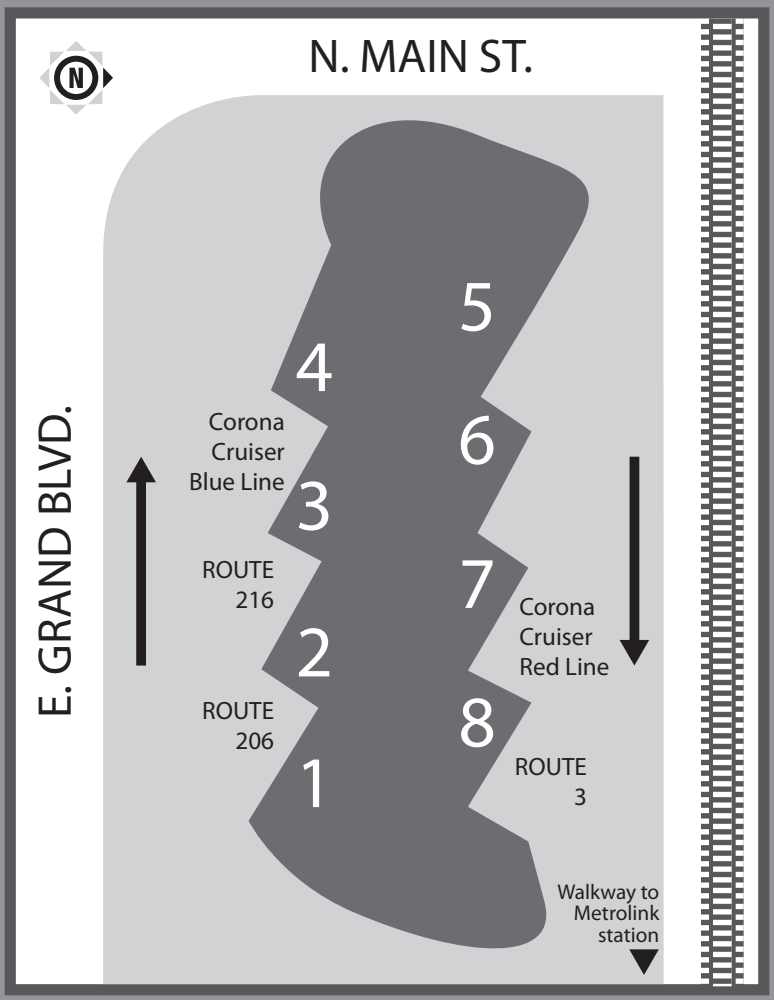
For route and schedule information call

(951) 565-5002

or visit www.RiversideTransit.com

Corona Transit Center

BOARDING DIAGRAM



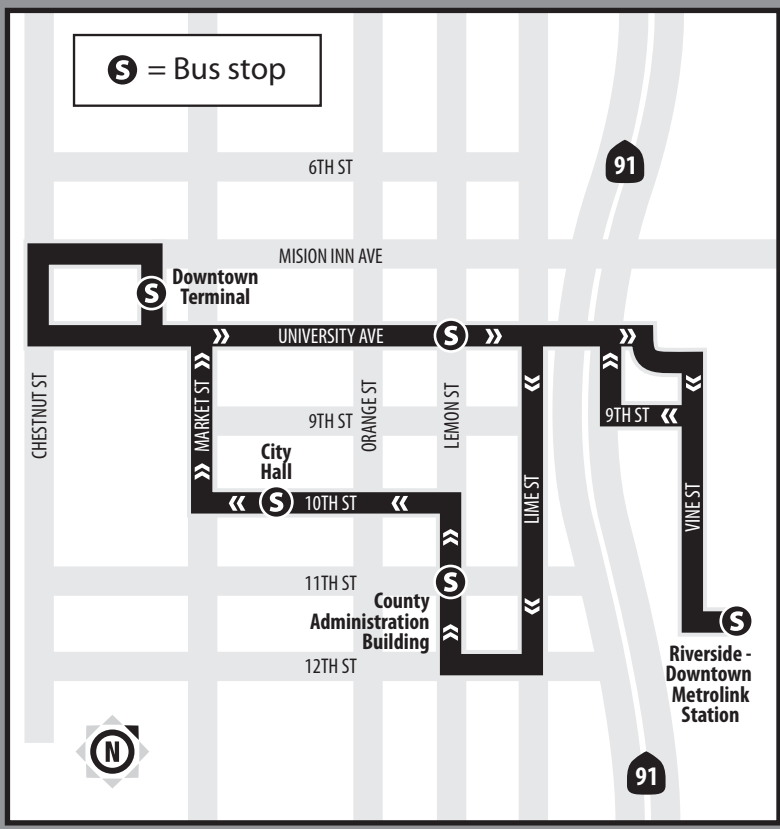
For route and schedule information call

(951) 565-5002

or visit www.RiversideTransit.com

CommuterLink 208, 210, 212 | DOWNTOWN

RIVERSIDE ROUTING



For route and schedule information call

(951) 565-5002

or visit www.RiversideTransit.com

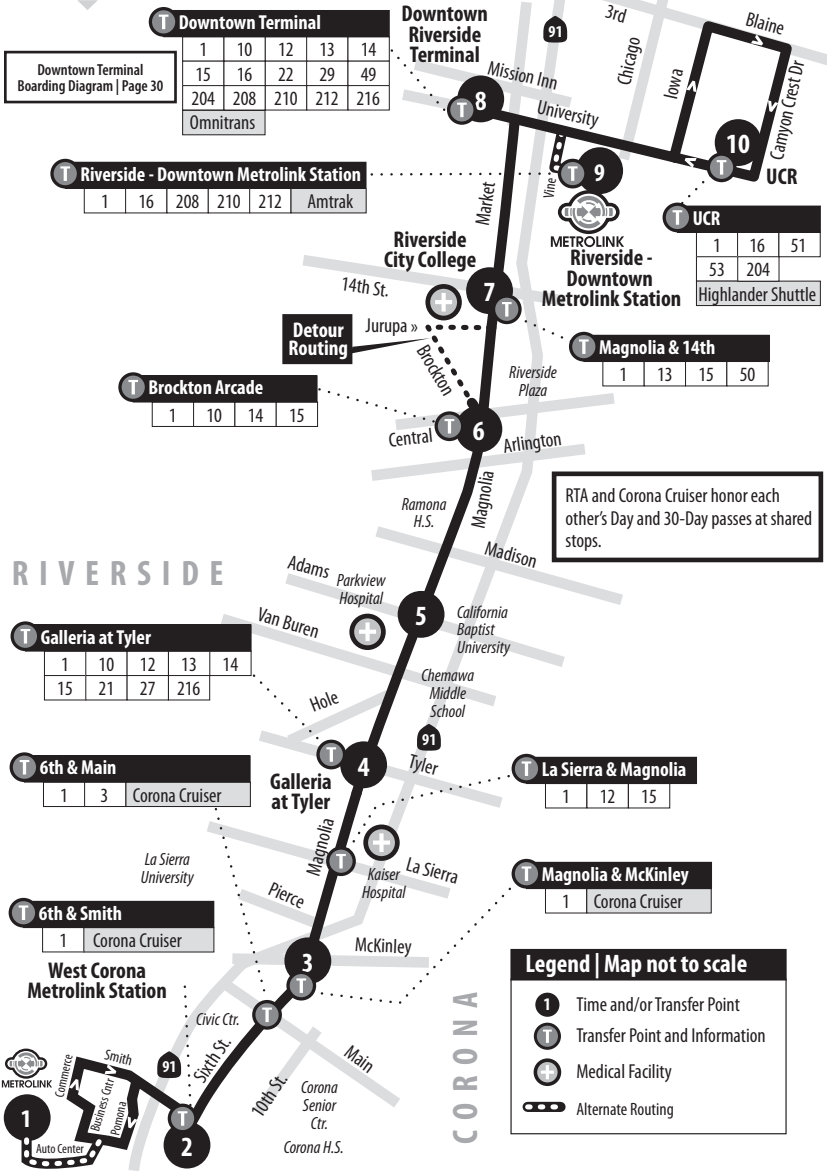
COMMUTER LINK

1 UCR/Downtown Terminal to W. Corona Metrolink Station

Information Center
(951) 565-5002
Web site
www.RiversideTransit.com

Routing and timetables subject to change.

Also serving: RCC, California Baptist University, Parkview Community Hospital, Galleria at Tyler, Kaiser Hospital, Corona. **No service on:** New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day and Christmas Day.



1 Weekdays | Eastbound to Downtown Terminal/UCR

A.M. times are in PLAIN, **P.M. times are in BOLD** | Times are approximate

W. Corona Metrolink Station	Smith & 6th	Magnolia & McKinley	Galleria at Tyler	Magnolia & Adams	Brockton Arcade	Riverside City College	Downtown Riverside Terminal	Riverside-Downtown Metrolink Station	UCR at Bannockburn
1	2	3	4	5	6	7	8	9	10
—	—	—	4:17	4:25	4:31	4:39	4:45	4:51	5:08
—	4:18	4:35	4:47	4:55	5:01	5:09	5:15	5:21	5:38
—	4:48	5:05	5:17	5:25	5:31	5:39	5:45	5:51	6:08
—	5:15	5:34	5:46	5:54	6:00	6:08	6:15	6:21	6:38
5:38	5:43	6:02	6:14	6:24	6:30	6:38	6:45	6:51	7:08
6:08	6:13	6:32	6:44	6:54	7:00	7:08	7:15	7:21	7:39
—	6:25	6:46	7:00	7:11	7:18	7:27	7:35	7:41	7:59
6:36	6:42	7:03	7:17	7:30	7:38	7:47	7:55	8:01	8:19
—	7:02	7:23	7:37	7:50	7:58	8:07	8:15	8:21	8:39
7:16	7:22	7:43	7:57	8:10	8:18	8:27	8:35	—	8:55
—	7:40	8:01	8:16	8:29	8:37	8:46	8:55	—	9:18
7:54	8:00	8:21	8:36	8:49	8:57	9:06	9:15	—	9:40
8:14	8:20	8:41	8:56	9:09	9:17	9:26	9:35	—	10:00
—	8:40	9:01	9:16	9:29	9:37	9:46	9:55	10:01	10:23
—	9:00	9:21	9:36	9:49	9:57	10:06	10:15	10:21	10:43
9:14	9:20	9:41	9:56	10:09	10:17	10:26	10:35	—	11:01
9:34	9:40	10:01	10:16	10:29	10:37	10:46	10:55	—	11:21
—	9:58	10:19	10:34	10:47	10:56	11:06	11:15	11:21	11:43
10:11	10:17	10:38	10:53	11:07	11:16	11:26	11:35	—	**12:01**
—	10:37	10:58	11:13	11:27	11:36	11:46	11:55	—	**12:21**
10:50	10:56	11:17	11:33	11:47	11:56	**12:06**	**12:15**	—	**12:41**
—	11:16	11:37	11:53	**12:07**	**12:16**	**12:26**	**12:35**	—	**1:01**
—	11:35	11:56	**12:12**	**12:27**	**12:36**	**12:46**	**12:55**	—	**1:21**
11:49	11:55	**12:16**	**12:32**	**12:47**	**12:56**	**1:06**	**1:15**	—	**1:41**
—	**12:15**	**12:36**	**12:52**	**1:07**	**1:16**	**1:26**	**1:35**	—	**2:01**
—	**12:35**	**12:56**	**1:12**	**1:27**	**1:36**	**1:46**	**1:55**	—	**2:21**
—	**12:55**	**1:16**	**1:32**	**1:47**	**1:56**	**2:06**	**2:15**	**2:21**	**2:45**
—	**1:15**	**1:36**	**1:52**	**2:07**	**2:16**	**2:26**	**2:35**	—	**3:01**
—	**1:34**	**1:55**	**2:12**	**2:27**	**2:36**	**2:46**	**2:55**	**3:01**	**3:25**
—	**1:53**	**2:15**	**2:32**	**2:47**	**2:56**	**3:06**	**3:15**	**3:21**	**3:45**
—	**2:13**	**2:35**	**2:52**	**3:07**	**3:16**	**3:26**	**3:35**	—	**4:01**
2:26	**2:32**	**2:54**	**3:11**	**3:26**	**3:35**	**3:46**	**3:55**	—	**4:21**
—	**2:52**	**3:14**	**3:31**	**3:46**	**3:55**	**4:06**	**4:15**	—	**4:41**
3:05	**3:11**	**3:34**	**3:51**	**4:06**	**4:15**	**4:26**	**4:35**	—	**5:01**
3:27	**3:33**	**3:56**	**4:13**	**4:28**	**4:36**	**4:46**	**4:55**	—	**5:21**
—	**3:54**	**4:17**	**4:34**	**4:48**	**4:56**	**5:06**	**5:15**	—	**5:41**
4:08	**4:14**	**4:37**	**4:54**	**5:08**	**5:16**	**5:26**	**5:35**	**5:41**	**6:05**
—	**4:36**	**4:58**	**5:14**	**5:28**	**5:36**	**5:46**	**5:55**	—	**6:21**
—	**4:57**	**5:19**	**5:35**	**5:49**	**5:57**	**6:07**	**6:15**	—	**6:40**
5:22	**5:28**	**5:50**	**6:06**	**6:20**	**6:28**	**6:38**	**6:45**	—	**7:10**
5:54	**6:00**	**6:22**	**6:38**	**6:52**	**6:59**	**7:08**	**7:15**	—	**7:39**
6:28	**6:33**	**6:55**	**7:11**	**7:23**	**7:30**	**7:39**	**7:45**	—	**8:09**
7:02	**7:07**	**7:27**	**7:41**	**7:53**	**8:00**	**8:09**	**8:15**	—	**8:39**
7:33	**7:38**	**7:58**	**8:12**	**8:23**	**8:30**	**8:39**	**8:45**	—	**9:09**
8:04	**8:09**	**8:28**	**8:42**	**8:53**	**9:00**	**9:09**	**9:15**	—	**9:39**
—	**8:43**	**9:01**	**9:14**	**9:25**	**9:31**	**9:40**	**9:45**	—	**10:09**
—	**—**	**—**	**9:44**	**9:55**	**10:01**	**10:10**	**10:15**	—	**10:39**

1 Weekdays | Westbound to W. Corona Metrolink Station

A.M. times are in PLAIN, **P.M. times are in BOLD** | Times are approximate

UCR at Bannockburn	Riverside-Downtown Metrolink Station	Downtown Riverside Terminal	Riverside City College	Brockton Arcade	Magnolia & Adams	Galleria at Tyler	Magnolia & McKinley	Smith & 6th	W. Corona Metrolink Station
10	9	8	7	6	5	4	3	2	1
—	—	4:10	4:13	4:18	4:23	4:30	4:43	5:01	5:06
—	—	4:40	4:43	4:50	4:56	5:04	5:17	5:35	5:40
4:52	—	5:10	5:14	5:21	5:28	5:37	5:50	6:08	6:13
5:22	—	5:40	5:44	5:52	5:59	6:10	6:24	6:43	6:48
5:52	—	6:10	6:15	6:24	6:33	6:44	6:59	7:20	7:25
6:22	—	6:40	6:45	6:54	7:03	7:15	7:30	7:51	7:56
6:52	—	7:10	7:15	7:24	7:33	7:45	8:00	8:21	—
7:16	7:30	7:40	7:45	7:54	8:03	8:15	8:30	8:51	8:56
7:41	—	8:00	8:05	8:14	8:23	8:35	8:50	9:11	9:16
8:01	—	8:20	8:25	8:34	8:43	8:55	9:10	9:31	—
8:16	8:30	8:40	8:45	8:54	9:03	9:15	9:30	9:51	9:56
8:41	—	9:00	9:05	9:15	9:25	9:38	9:53	10:13	—
9:01	—	9:20	9:26	9:36	9:46	9:59	10:15	10:35	10:40
9:21	—	9:40	9:46	9:56	10:06	10:19	10:35	10:55	—
9:35	9:50	10:00	10:06	10:16	10:26	10:39	10:55	11:15	—
10:00	—	10:20	10:26	10:36	10:46	10:59	11:15	11:35	11:40
10:15	10:30	10:40	10:46	10:56	11:06	11:19	11:35	11:55	—
10:40	—	11:00	11:06	11:16	11:26	11:39	11:55	**12:15**	**—**
11:00	—	11:20	11:26	11:36	11:46	**12:00**	**12:17**	**12:37**	**—**
11:20	—	11:40	11:46	11:56	**12:06**	**12:20**	**12:37**	**12:57**	**—**
11:40	—	**12:00**	**12:06**	**12:16**	**12:26**	**12:40**	**12:57**	**1:17**	**—**
12:00	**—**	**12:20**	**12:26**	**12:36**	**12:46**	**1:00**	**1:17**	**1:37**	**—**
12:20	**—**	**12:40**	**12:46**	**12:56**	**1:06**	**1:20**	**1:37**	**1:57**	**2:02**
12:40	**—**	**1:00**	**1:06**	**1:16**	**1:26**	**1:40**	**1:57**	**2:17**	**—**
1:00	**—**	**1:20**	**1:26**	**1:36**	**1:46**	**2:00**	**2:17**	**2:37**	**2:43**
1:20	**—**	**1:40**	**1:46**	**1:56**	**2:06**	**2:20**	**2:37**	**2:58**	**3:04**
1:40	**—**	**2:00**	**2:06**	**2:16**	**2:26**	**2:40**	**2:57**	**3:18**	**—**
2:00	**—**	**2:20**	**2:26**	**2:36**	**2:46**	**3:00**	**3:17**	**3:38**	**3:44**
2:14	**2:30**	**2:40**	**2:46**	**2:56**	**3:06**	**3:20**	**3:37**	**3:58**	**—**
2:34	**2:50**	**3:00**	**3:06**	**3:16**	**3:26**	**3:40**	**3:57**	**4:18**	**—**
3:00	**—**	**3:20**	**3:26**	**3:36**	**3:46**	**4:00**	**4:17**	**4:38**	**4:44**
3:14	**3:30**	**3:40**	**3:46**	**3:56**	**4:06**	**4:20**	**4:37**	**4:58**	**—**
3:40	**—**	**4:00**	**4:06**	**4:16**	**4:26**	**4:40**	**4:57**	**5:18**	**5:24**
4:00	**—**	**4:20**	**4:26**	**4:36**	**4:46**	**5:00**	**5:17**	**5:38**	**—**
4:20	**—**	**4:40**	**4:45**	**4:55**	**5:05**	**5:18**	**5:35**	**5:55**	**6:01**
4:40	**—**	**5:00**	**5:05**	**5:15**	**5:25**	**5:38**	**5:55**	**6:15**	**—**
5:00	**—**	**5:20**	**5:25**	**5:35**	**5:45**	**5:58**	**6:15**	**6:35**	**6:41**
5:17	**5:31**	**5:40**	**5:45**	**5:55**	**6:05**	**6:18**	**6:35**	**6:54**	**—**
5:37	**5:51**	**6:00**	**6:05**	**6:15**	**6:25**	**6:38**	**6:55**	**7:14**	**7:20**
6:07	**6:21**	**6:30**	**6:35**	**6:45**	**6:54**	**7:07**	**7:24**	**7:43**	**7:49**
6:38	**6:52**	**7:00**	**7:04**	**7:13**	**7:22**	**7:34**	**7:49**	**8:08**	**—**
7:08	**7:22**	**7:30**	**7:34**	**7:43**	**7:52**	**8:04**	**8:19**	**8:38**	**—**
7:38	**7:52**	**8:00**	**8:04**	**8:13**	**8:22**	**8:33**	**—**	**—**	**—**
8:08	**8:22**	**8:30**	**8:34**	**8:43**	**8:52**	**9:03**	**—**	**—**	**—**
8:39	**8:52**	**9:00**	**9:04**	**9:13**	**9:22**	**9:32**	**—**	**—**	**—**
9:14	**—**	**9:30**	**9:34**	**9:43**	**9:52**	**10:02**	**—**	**—**	**—**
9:44	**—**	**10:00**	**10:04**	**10:13**	**10:22**	**10:32**	**—**	**—**	**—**

1 Saturdays | Eastbound to Downtown Terminal/UCR

A.M. times are in PLAIN, **P.M. times are in BOLD** | Times are approximate

W. Corona Metrolink Station	Smith & 6th	Magnolia & McKinley	Galleria at Tyler	Magnolia & Adams	Brockton Arcade	Riverside City College	Downtown Riverside Terminal	Riverside-Downtown Metrolink Station	UCR at Bannockburn
1	2	3	4	5	6	7	8	9	10
—	—	—	5:36	5:45	5:51	5:59	6:05	6:11	6:25
—	—	—	6:26	6:35	6:41	6:49	6:55	—	7:13
—	6:37	6:54	7:06	7:15	7:21	7:29	7:35	7:41	7:55
—	7:16	7:33	7:45	7:55	8:01	8:09	8:15	—	8:33
7:48	7:53	8:11	8:23	8:34	8:40	8:49	8:55	9:01	9:15
—	8:31	8:49	9:02	9:13	9:19	9:28	9:35	—	9:53
—	9:00	9:18	9:31	9:43	9:49	9:58	10:05	—	10:23
9:23	9:28	9:47	10:01	10:13	10:20	10:28	10:35	—	10:53
—	9:55	10:15	10:29	10:41	10:48	10:58	11:05	—	11:24
—	10:23	10:43	10:57	11:11	11:18	11:28	11:35	—	11:55
—	10:52	11:12	11:27	11:41	11:48	11:58	**12:05**	**—**	**12:25**
—	11:22	11:42	11:57	**12:11**	**12:18**	**12:28**	**12:35**	**—**	**12:57**
—	11:51	**12:12**	**12:27**	**12:41**	**12:48**	**12:58**	**1:05**	**1:11**	**1:27**
—	**12:21**	**12:42**	**12:57**	**1:11**	**1:18**	**1:28**	**1:35**	**—**	**1:57**
—	**12:49**	**1:10**	**1:27**	**1:41**	**1:48**	**1:58**	**2:05**	**—**	**2:29**
—	**1:19**	**1:40**	**1:57**	**2:11**	**2:18**	**2:28**	**2:35**	**—**	**2:59**
—	**1:49**	**2:10**	**2:27**	**2:41**	**2:48**	**2:58**	**3:05**	**—**	**3:29**
—	**2:20**	**2:41**	**2:58**	**3:11**	**3:18**	**3:28**	**3:35**	**—**	**3:59**
—	**2:50**	**3:11**	**3:28**	**3:41**	**3:48**	**3:58**	**4:05**	**—**	**4:29**
—	**3:21**	**3:41**	**3:58**	**4:11**	**4:18**	**4:28**	**4:35**	**4:41**	**5:00**
—	**3:53**	**4:13**	**4:29**	**4:42**	**4:49**	**4:59**	**5:05**	**—**	**5:28**
—	**4:23**	**4:43**	**4:59**	**5:12**	**5:19**	**5:29**	**5:35**	**—**	**5:56**
4:48	**4:53**	**5:13**	**5:29**	**5:42**	**5:49**	**5:59**	**6:05**	**6:11**	**6:30**
—	**5:23**	**5:43**	**5:59**	**6:12**	**6:19**	**6:29**	**6:35**	**—**	**6:55**
—	**5:54**	**6:14**	**6:29**	**6:42**	**6:49**	**6:59**	**7:05**	**—**	**7:25**
6:19	**6:24**	**6:44**	**6:59**	**7:12**	**7:19**	**7:29**	**7:35**	**—**	**7:53**
—	**6:54**	**7:14**	**7:29**	**7:42**	**7:49**	**7:59**	**8:05**	**—**	**8:23**
—	**7:25**	**7:45**	**7:59**	**8:12**	**8:19**	**8:29**	**8:35**	**—**	**—**
—	**—**	**—**	**8:49**	**9:02**	**9:09**	**9:19**	**9:25**	**—**	**—**

1 Saturdays | Westbound to W. Corona Metrolink Station

A.M. times are in PLAIN, **P.M. times are in BOLD** | Times are approximate

UCR at Bannockburn	Riverside-Downtown Metrolink Station	Downtown Riverside Terminal	Riverside City College	Brockton Arcade	Magnolia & Adams	Galleria at Tyler	Magnolia & McKinley	Smith & 6th	W. Corona Metrolink Station
10	9	8	7	6	5	4	3	2	1
—	—	5:55	5:58	6:03	6:08	6:17	6:28	6:43	—
—	—	6:35	6:38	6:44	6:50	6:59	7:10	7:27	7:32
7:02	—	7:15	7:18	7:24	7:30	7:39	7:50	8:08	—
7:42	—	7:55	7:58	8:04	8:10	8:20	8:31	8:49	8:54
8:21	—	8:35	8:38	8:44	8:51	9:01	9:13	9:31	—
9:01	—	9:15	9:18	9:24	9:31	9:41	9:54	10:13	—
9:32	9:47	9:55	9:59	10:06	10:13	10:25	10:39	10:58	—
10:14	—	10:30	10:34	10:41	10:48	11:00	11:15	11:34	—
10:44	—	11:00	11:04	11:12	11:19	11:32	11:47	**12:06**	**—**
11:14	—	11:30	11:34	11:42	11:49	**12:02**	**12:17**	**12:36**	**—**
11:44	—	**12:00**	**12:04**	**12:12**	**12:19**	**12:32**	**12:48**	**1:09**	**—**
12:14	**—**	**12:30**	**12:34**	**12:42**	**12:50**	**1:04**	**1:20**	**1:41**	**—**
12:44	**—**	**1:00**	**1:04**	**1:12**	**1:21**	**1:35**	**1:51**	**2:12**	**—**
1:14	**—**	**1:30**	**1:35**	**1:43**	**1:52**	**2:07**	**2:23**	**2:44**	**—**
1:44	**—**	**2:00**	**2:05**	**2:13**	**2:22**	**2:37**	**2:53**	**3:14**	**—**
2:14	**—**	**2:30**	**2:35**	**2:43**	**2:52**	**3:07**	**3:23**	**3:44**	**—**
2:44	**—**	**3:00**	**3:05**	**3:13**	**3:22**	**3:37**	**3:53**	**4:14**	**4:19**
3:13	**—**	**3:30**	**3:35**	**3:43**	**3:51**	**4:06**	**4:22**	**4:43**	**—**
3:43	**—**	**4:00**	**4:04**	**4:12**	**4:20**	**4:35**	**4:51**	**5:11**	**—**
4:07	**4:22**	**4:30**	**4:34**	**4:42**	**4:50**	**5:05**	**5:21**	**5:41**	**5:46**
4:43	**—**	**5:00**	**5:04**	**5:12**	**5:20**	**5:34**	**5:50**	**6:10**	**—**
5:07	**5:22**	**5:30**	**5:34**	**5:42**	**5:50**	**6:04**	**6:20**	**6:40**	**—**
5:37	**5:52**	**6:00**	**6:04**	**6:11**	**6:18**	**6:31**	**6:46**	**7:06**	**—**
6:13	**—**	**6:30**	**6:34**	**6:41**	**6:48**	**7:01**	**7:16**	**7:36**	**—**
6:37	**6:52**	**7:00**	**7:04**	**7:11**	**7:18**	**7:31**	**7:46**	**8:06**	**—**
7:14	**—**	**7:30**	**7:33**	**7:40**	**7:47**	**7:59**	**—**	**—**	**—**
7:45	**—**	**8:00**	**8:03**	**8:10**	**8:17**	**8:29**	**—**	**—**	**—**
8:30	**—**	**8:45**	**8:48**	**8:55**	**9:02**	**9:14**	**—**	**—**	**—**

1 Sundays | Eastbound to Downtown Terminal/UCR

A.M. times are in PLAIN, **P.M. times are in BOLD** | Times are approximate

W. Corona Metrolink Station	Smith & 6th	Magnolia & McKinley	Galleria at Tyler	Magnolia & Adams	Brockton Arcade	Riverside City College	Downtown Riverside Terminal	Riverside-Downtown Metrolink Station	UCR at Bannockburn
1	2	3	4	5	6	7	8	9	10
—	6:18	6:35	6:51	7:04	7:12	7:22	7:30	—	7:49
—	6:49	7:06	7:22	7:35	7:43	7:52	8:00	—	8:19
—	7:23	7:40	7:56	8:09	8:17	8:27	8:35	8:41	9:00
—	7:53	8:10	8:26	8:39	8:47	8:57	9:05	—	9:25
—	8:27	8:44	9:00	9:13	9:21	9:32	9:40	—	10:00
—	8:58	9:15	9:31	9:44	9:52	10:02	10:10	—	10:30
9:29	9:33	9:50	10:06	10:19	10:27	10:37	10:45	—	11:05
—	10:03	10:20	10:36	10:49	10:57	11:07	11:15	—	11:35
—	10:33	10:51	11:08	11:22	11:30	11:41	11:50	—	**12:10**
—	11:03	11:21	11:38	11:52	**12:00**	**12:11**	**12:20**	—	**12:40**
—	11:38	11:56	**12:13**	**12:27**	**12:35**	**12:46**	**12:55**	**1:01**	**1:21**
—	**12:09**	**12:27**	**12:44**	**12:58**	**1:06**	**1:16**	**1:25**	—	**1:45**
—	**12:43**	**1:01**	**1:18**	**1:32**	**1:40**	**1:51**	**2:00**	—	**2:20**
—	**1:14**	**1:32**	**1:49**	**2:03**	**2:11**	**2:21**	**2:30**	—	**2:50**
—	**1:49**	**2:07**	**2:24**	**2:38**	**2:46**	**2:56**	**3:05**	—	**3:25**
—	**2:19**	**2:37**	**2:54**	**3:08**	**3:16**	**3:26**	**3:35**	—	**3:55**
—	**2:53**	**3:11**	**3:28**	**3:42**	**3:50**	**4:01**	**4:10**	—	**4:30**
—	**3:23**	**3:41**	**3:58**	**4:12**	**4:20**	**4:31**	**4:40**	—	**5:00**
—	**3:59**	**4:17**	**4:34**	**4:48**	**4:56**	**5:06**	**5:15**	—	**5:35**
—	**4:29**	**4:47**	**5:04**	**5:18**	**5:26**	**5:36**	**5:45**	—	**6:05**
—	**5:04**	**5:22**	**5:39**	**5:53**	**6:01**	**6:11**	**6:20**	—	**6:40**
—	**5:34**	**5:52**	**6:09**	**6:23**	**6:31**	**6:41**	**6:50**	—	**7:10**
—	**6:10**	**6:27**	**6:44**	**6:57**	**7:05**	**7:16**	**7:25**	—	**7:45**
6:37	**6:41**	**6:58**	**7:15**	**7:28**	**7:36**	**7:46**	**7:55**	—	—
—	**7:11**	**7:28**	**7:45**	**7:58**	**8:06**	**8:16**	**8:25**	—	—
—	**7:41**	**7:58**	**8:15**	**8:28**	**8:36**	**8:46**	**8:55**	—	—
—	—	—	**8:55**	**9:08**	**9:15**	**9:25**	**9:33**	—	—

1 Sundays | Westbound to W. Corona Metrolink Station

A.M. times are in PLAIN, **P.M. times are in BOLD** | Times are approximate

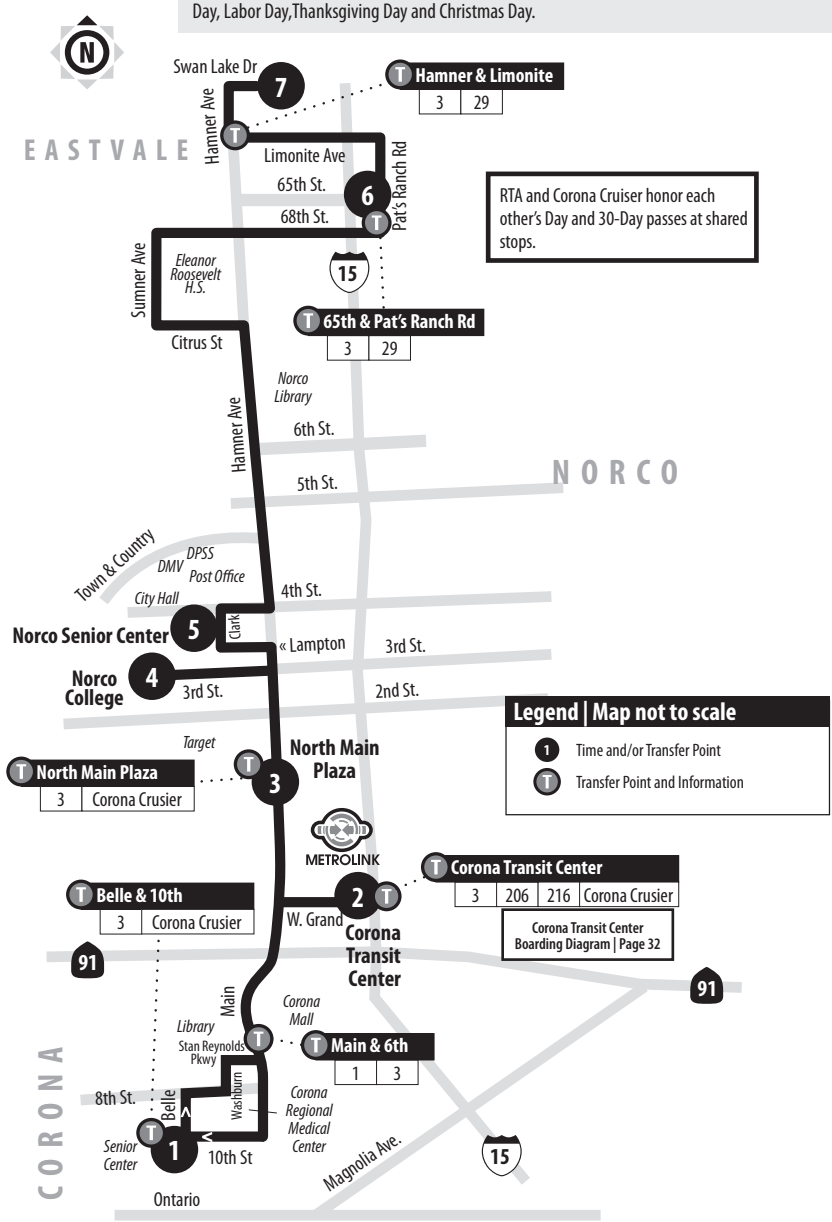
UCR at Bannockburn	Riverside-Downtown Metrolink Station	Downtown Riverside Terminal	Riverside City College	Brockton Arcade	Magnolia & Adams	Galleria at Tyler	Magnolia & McKinley	Smith & 6th	W. Corona Metrolink Station
10	9	8	7	6	5	4	3	2	1
6:29	—	6:45	6:50	7:00	7:09	7:22	7:38	7:57	—
7:04	—	7:20	7:25	7:34	7:43	7:56	8:12	8:37	—
7:34	—	7:50	7:55	8:05	8:14	8:27	8:43	9:08	9:14
8:09	—	8:25	8:30	8:40	8:49	9:02	9:18	9:37	—
8:39	—	8:55	9:00	9:11	9:20	9:33	9:49	10:14	—
9:14	—	9:30	9:35	9:46	9:55	10:08	10:24	10:49	—
9:44	—	10:00	10:05	10:16	10:25	10:38	10:54	11:19	—
10:17	—	10:35	10:40	10:51	11:00	11:13	11:29	11:54	—
10:47	—	11:05	11:10	11:21	11:30	11:43	11:59	**12:24**	**—**
11:22	—	11:40	11:45	11:55	**12:04**	**12:18**	**12:34**	**1:00**	**—**
11:52	—	**12:10**	**12:15**	**12:26**	**12:35**	**12:49**	**1:05**	**1:31**	**—**
12:27	**—**	**12:45**	**12:50**	**1:01**	**1:10**	**1:24**	**1:40**	**2:06**	**—**
12:57	**—**	**1:15**	**1:20**	**1:31**	**1:40**	**1:54**	**2:10**	**2:36**	**—**
1:32	**—**	**1:50**	**1:55**	**2:06**	**2:15**	**2:29**	**2:45**	**3:11**	**—**
2:02	**—**	**2:20**	**2:25**	**2:36**	**2:45**	**2:59**	**3:15**	**3:41**	**—**
2:37	**—**	**2:55**	**3:00**	**3:11**	**3:20**	**3:34**	**3:50**	**4:16**	**—**
3:07	**—**	**3:25**	**3:30**	**3:41**	**3:50**	**4:04**	**4:20**	**4:39**	**—**
3:42	**—**	**4:00**	**4:05**	**4:16**	**4:25**	**4:39**	**4:55**	**5:21**	**—**
4:09	**4:24**	**4:30**	**4:35**	**4:46**	**4:55**	**5:09**	**5:25**	**5:51**	**—**
4:47	**—**	**5:05**	**5:10**	**5:21**	**5:30**	**5:44**	**6:00**	**6:26**	**6:32**
5:17	**—**	**5:35**	**5:40**	**5:51**	**6:00**	**6:14**	**6:30**	**6:56**	**—**
5:52	**—**	**6:10**	**6:15**	**6:25**	**6:34**	**6:48**	**7:04**	**7:30**	**—**
6:20	**6:35**	**6:40**	**6:45**	**6:56**	**7:05**	**7:18**	**7:34**	**8:00**	**—**
6:53	**—**	**7:10**	**7:15**	**7:26**	**7:35**	**7:48**	**8:04**	**8:30**	**—**
7:23	**—**	**7:40**	**7:45**	**7:56**	**8:05**	**8:18**	**—**	**—**	**—**

3 Swan Lake/Pat's Ranch Rd to Belle & 10th

Information Center
(951) 565-5002
Web site
www.RiversideTransit.com

Routing and timetables subject to change.

Also serving: Norco, Norco Senior Center, Norco City Hall, RCC, North Main Plaza, Corona. **No service weekends or the following holidays:** New Year's Day, Memorial Day, Independence Day, Labor Day,Thanksgiving Day and Christmas Day.



3 Weekdays | Northbound to Swan Lake/Pat's Ranch

A.M. times are in PLAIN, **P.M. times are in BOLD** | Times are approximate

Belle & 10th	Corona Transit Center	Main & Parkridge	Norco College	Norco Senior Center	Pats Ranch Rd & 65th St	Swan Lake MHP
1	2	3	4	5	6	7
—	5:20	5:24	5:31	5:36	5:51	5:58
5:50	6:00	6:04	6:11	6:16	6:31	6:38
6:30	6:40	6:44	6:51	6:56	7:11	7:18
7:10	7:20	7:24	7:33	7:38	7:55	8:02
7:50	8:00	8:04	8:13	8:18	8:35	8:42
8:30	8:40	8:44	8:53	8:58	9:15	9:22
9:10	9:20	9:24	9:33	9:38	9:55	10:02
9:50	10:00	10:04	10:13	10:18	10:35	10:42
10:30	10:40	10:44	10:53	10:58	11:15	11:22
11:10	11:20	11:24	11:33	11:38	11:55	**12:02**
11:50	**12:00**	**12:04**	**12:13**	**12:18**	**12:35**	**12:42**
12:30	**12:40**	**12:44**	**12:53**	**12:58**	**1:15**	**1:22**
1:10	**1:20**	**1:24**	**1:33**	**1:38**	**1:55**	**2:02**
1:50	**2:00**	**2:04**	**2:13**	**2:18**	**2:35**	**2:42**
2:30	**2:40**	**2:44**	**2:53**	**2:58**	**3:15**	**3:22**
3:10	**3:20**	**3:24**	**3:33**	**3:38**	**3:55**	**4:02**
3:50	**4:00**	**4:04**	**4:11**	**4:16**	**4:31**	**4:38**
4:30	**4:40**	**4:44**	**4:51**	**4:56**	**5:11**	**5:18**
5:10	**5:20**	**5:24**	**5:31**	**5:36**	**5:51**	**5:58**
5:50	**6:00**	**6:04**	**6:11**	**6:16**	**6:31**	**6:38**

FYI: *Times are estimated. Please arrive at the bus stop at least 10 minutes early.*

3 Weekdays | Southbound to Belle & 10th

A.M. times are in PLAIN, **P.M. times are in BOLD** | Times are approximate

Swan Lake MHP	Pats Ranch Rd & 65th St	Norco Senior Center	Norco College	Main & Parkridge	Corona Transit Center	Belle & 10th
7	6	5	4	3	2	1
—	5:42	5:56	6:01	6:08	6:15	6:25
6:13	6:22	6:36	6:41	6:48	6:55	7:05
6:50	6:59	7:16	7:21	7:28	7:35	7:45
7:30	7:39	7:56	8:01	8:08	8:15	8:25
8:13	8:22	8:36	8:41	8:48	8:55	9:05
8:53	9:02	9:16	9:21	9:28	9:35	9:45
9:33	9:42	9:56	10:01	10:08	10:15	10:25
10:13	10:22	10:36	10:41	10:48	10:55	11:05
10:53	11:02	11:16	11:21	11:28	11:35	11:45
11:33	11:42	11:56	**12:01**	**12:08**	**12:15**	**12:25**
12:13	**12:22**	**12:36**	**12:41**	**12:48**	**12:55**	**1:05**
12:53	**1:02**	**1:16**	**1:21**	**1:28**	**1:35**	**1:45**
1:33	**1:42**	**1:56**	**2:01**	**2:08**	**2:15**	**2:25**
2:13	**2:22**	**2:36**	**2:41**	**2:48**	**2:55**	**3:05**
2:53	**3:02**	**3:16**	**3:21**	**3:28**	**3:35**	**3:45**
3:33	**3:42**	**3:56**	**4:01**	**4:08**	**4:15**	**4:25**
4:13	**4:22**	**4:36**	**4:41**	**4:48**	**4:55**	**5:05**
4:53	**5:02**	**5:16**	**5:21**	**5:28**	**5:35**	**5:45**



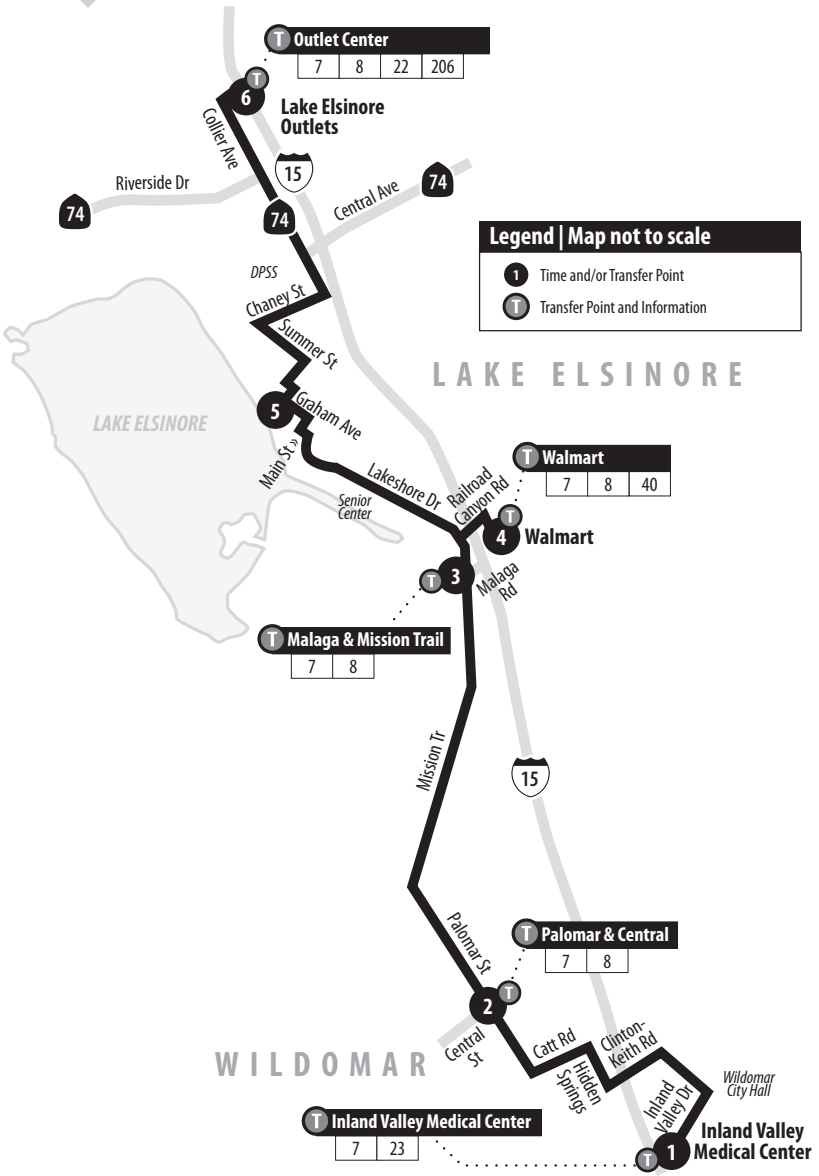
DID YOU KNOW? *In 2009, Americans took 10.2 billion trips on public transportation.*

7 Lake Elsinore Outlet Center to Inland Valley Medical Center

Information Center
(951) 565-5002
Web site
www.RiversideTransit.com

Routing and timetables subject to change.

Also serving: DPSS, Downtown Lake Elsinore, Senior Center. **No service on:** New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day and Christmas Day.



7 Weekdays | Northbound to Outlet Center

A.M. times are in PLAIN, **P.M. times are in BOLD** | Times are approximate

Inland Valley Hospital	Palomar & Central	Malaga & Mission Trail	Lake Elsinore Walmart	Graham & Langstaff	Lake Elsinore Outlet Center
1	2	3	4	5	6
5:49	5:59	6:15	6:19	6:28	6:40
6:49	6:59	7:15	7:19	7:28	7:40
7:48	7:59	8:15	8:19	8:28	8:40
8:47	8:59	9:15	9:19	9:28	9:40
9:47	9:59	10:15	10:19	10:28	10:40
10:47	10:59	11:15	11:19	11:28	11:40
11:47	11:59	**12:15**	**12:19**	**12:28**	**12:40**
12:47	**12:59**	**1:15**	**1:19**	**1:28**	**1:40**
1:47	**1:59**	**2:15**	**2:19**	**2:28**	**2:40**
2:47	**2:59**	**3:15**	**3:19**	**3:28**	**3:40**
3:47	**3:59**	**4:15**	**4:19**	**4:28**	**4:40**
4:47	**4:59**	**5:15**	**5:19**	**5:28**	**5:40**
5:47	**5:59**	**6:15**	**6:19**	**6:28**	**6:40**
6:47	**6:59**	**7:15**	**7:19**	**7:28**	**7:40**

7 Weekdays | Southbound to Inland Valley Medical Center

A.M. times are in PLAIN, **P.M. times are in BOLD** | Times are approximate

Lake Elsinore Outlet Center	Graham & Langstaff	Lake Elsinore Walmart	Malaga & Mission Trail	Palomar & Central	Inland Valley Hospital
6	5	4	3	2	1
5:45	5:57	6:06	6:11	6:19	6:33
6:45	6:58	7:08	7:13	7:22	7:36
7:45	7:59	8:09	8:14	8:23	8:37
8:45	9:00	9:11	9:16	9:25	9:39
9:45	10:00	10:11	10:16	10:25	10:39
10:45	11:01	11:12	11:17	11:26	11:40
11:45	**12:01**	**12:12**	**12:17**	**12:26**	**12:40**
12:45	**1:01**	**1:12**	**1:17**	**1:26**	**1:40**
1:45	**2:01**	**2:12**	**2:17**	**2:26**	**2:40**
2:45	**3:01**	**3:12**	**3:17**	**3:26**	**3:40**
3:45	**4:01**	**4:12**	**4:17**	**4:26**	**4:40**
4:45	**5:01**	**5:12**	**5:17**	**5:26**	**5:40**
5:45	**6:01**	**6:12**	**6:17**	**6:26**	**6:40**
6:45	**7:01**	**7:12**	**7:17**	**7:26**	**7:40**
7:45	**8:01**	**8:12**	**8:17**	**8:26**	**8:40**

7 Weekends | Northbound to Outlet Center

A.M. times are in PLAIN, **P.M. times are in BOLD** | Times are approximate

Inland Valley Hospital	Palomar & Central	Malaga & Mission Trail	Lake Elsinore Walmart	Graham & Langstaff	Lake Elsinore Outlet Center
1	2	3	4	5	6
6:32	6:41	6:49	6:53	7:02	7:10
7:30	7:39	7:48	7:52	8:01	8:10
8:28	8:38	8:48	8:52	9:01	9:10
9:26	9:36	9:47	9:51	10:00	10:10
10:26	10:36	10:47	10:51	11:00	11:10
11:26	11:36	11:47	11:51	**12:00**	**12:10**
12:26	**12:36**	**12:47**	**12:51**	**1:00**	**1:10**
1:26	**1:36**	**1:47**	**1:51**	**2:00**	**2:10**
2:26	**2:36**	**2:47**	**2:51**	**3:00**	**3:10**
3:26	**3:36**	**3:47**	**3:51**	**4:00**	**4:10**
4:26	**4:36**	**4:47**	**4:51**	**5:00**	**5:10**
5:26	**5:36**	**5:47**	**5:51**	**6:00**	**6:10**

7 Weekends | Southbound to Inland Valley Medical Center

A.M. times are in PLAIN, **P.M. times are in BOLD** | Times are approximate

Lake Elsinore Outlet Center	Graham & Langstaff	Lake Elsinore Walmart	Malaga & Mission Trail	Palomar & Central	Inland Valley Hospital
6	5	4	3	2	1
6:30	6:42	6:49	6:54	7:02	7:11
7:30	7:42	7:49	7:54	8:02	8:12
8:30	8:43	8:51	8:56	9:04	9:14
9:30	9:43	9:51	9:56	10:04	10:14
10:30	10:44	10:53	10:58	11:06	11:16
11:30	11:44	11:53	11:58	**12:06**	**12:16**
12:30	**12:44**	**12:53**	**12:58**	**1:06**	**1:16**
1:30	**1:44**	**1:53**	**1:58**	**2:06**	**2:16**
2:30	**2:44**	**2:53**	**2:58**	**3:06**	**3:16**
3:30	**3:44**	**3:53**	**3:58**	**4:06**	**4:16**
4:30	**4:44**	**4:53**	**4:58**	**5:06**	**5:16**
5:30	**5:44**	**5:53**	**5:58**	**6:06**	**6:16**

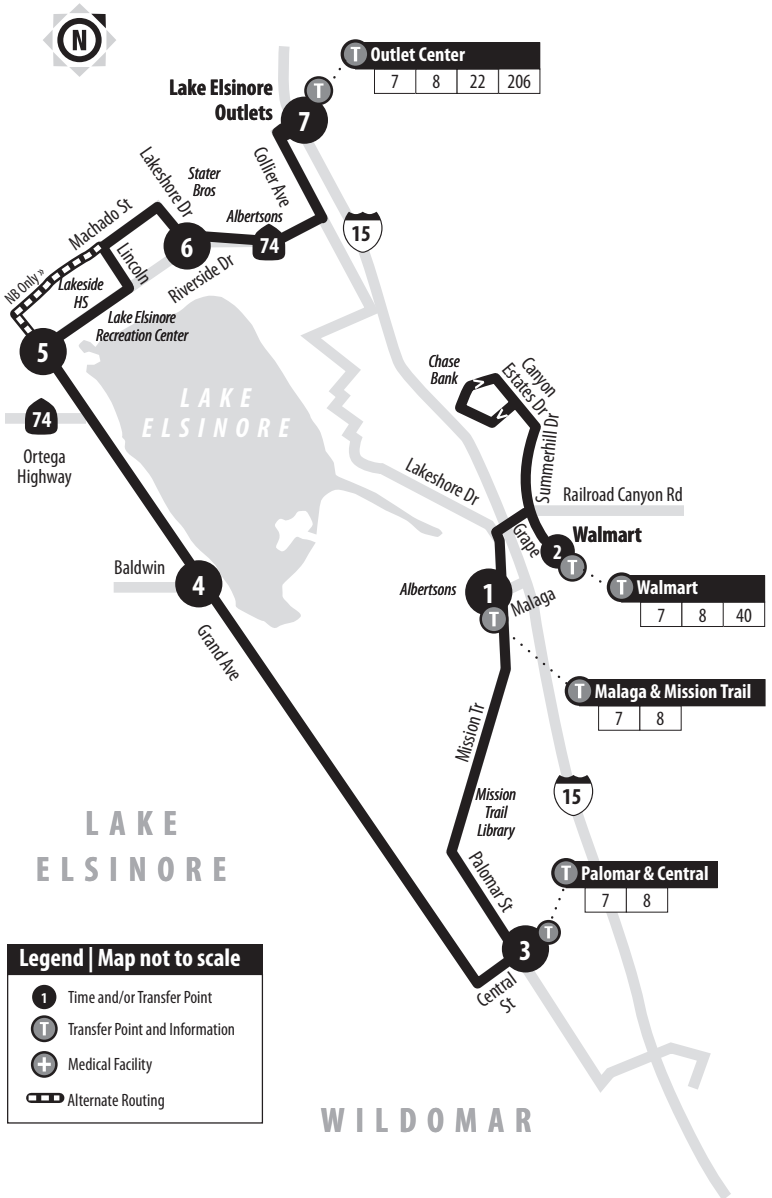
8

Lake Elsinore Walmart to Lake Elsinore Outlet Center

Information Center
(951) 565-5002
Web site
www.RiversideTransit.com

Routing and timetables subject to change.

Also serving: Stater Bros, Albertsons, Lake Elsinore Recreation Center. **No service on:** New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day and Christmas Day.



8 Weekdays | Northbound to Lake Elsinore Outlet Center

A.M. times are in PLAIN, **P.M. times are in BOLD** | Times are approximate
A = Alternate route to Grand & Machado

	Malaga & Mission Trail	Palomar & Central	Grand & Baldwin	Grand & Riverside	Lakeshore & Riverside	Lake Elsinore Outlet Center
	1	3	4	5	6	7
	5:56	6:06	6:16	6:22	6:34	6:40
	6:40	6:50	7:01	7:07	7:19	7:25
	7:53	8:04	8:16	8:22	8:34	8:40
A	8:52	9:04	9:16	9:22	9:34	9:40
A	9:52	10:04	10:16	10:22	10:34	10:40
A	10:52	11:04	11:16	11:22	11:34	11:40
A	11:52	**12:04**	**12:16**	**12:22**	**12:34**	**12:40**
	12:52	**1:04**	**1:16**	**1:22**	**1:34**	**1:40**
	1:52	**2:04**	**2:16**	**2:22**	**2:34**	**2:40**
	2:52	**3:04**	**3:16**	**3:22**	**3:34**	**3:40**
	3:52	**4:04**	**4:16**	**4:22**	**4:34**	**4:40**
	4:52	**5:04**	**5:16**	**5:22**	**5:34**	**5:40**
	5:52	**6:04**	**6:16**	**6:22**	**6:34**	**6:40**
	6:52	**7:04**	**7:16**	**7:22**	**7:34**	**7:40**

8 Weekdays | Southbound to Walmart & Malaga & Mission Trail

A.M. times are in PLAIN, **P.M. times are in BOLD** | Times are approximate
S = Operates when school is in session only

	Lake Elsinore Outlet Center	Lakeshore & Riverside	Grand & Riverside	Grand & Baldwin	Palomar & Central	Lake Elsinore Walmart	Malaga & Mission Trail
	7	6	5	4	3	2	1
	5:45	5:50	6:00	6:07	6:19	6:29	6:36
	6:45	6:51	7:01	7:09	7:22	7:32	7:39
	7:45	7:51	8:02	8:10	8:23	8:34	8:41
	8:45	8:51	9:02	9:10	9:24	9:36	9:43
	9:45	9:51	10:02	10:10	10:24	10:36	10:43
	10:45	10:51	11:02	11:10	11:24	11:36	11:43
	11:45	11:51	**12:02**	**12:10**	**12:24**	**12:38**	**12:45**
	12:45	**12:51**	**1:02**	**1:10**	**1:24**	**1:39**	**1:46**
	1:45	**1:51**	**2:02**	**2:10**	**2:24**	**2:39**	**2:46**
S	**2:34**	**2:40**	**2:51**	**2:59**	**3:13**	**3:28**	**3:35**
	2:45	**2:51**	**3:02**	**3:10**	**3:24**	**3:39**	**3:46**
	3:45	**3:51**	**4:02**	**4:10**	**4:24**	**4:39**	**4:46**
	4:45	**4:51**	**5:02**	**5:10**	**5:24**	**5:39**	**5:46**
	5:45	**5:51**	**6:01**	**6:09**	**6:22**	**6:37**	**6:44**
	6:45	**6:50**	**7:00**	**7:07**	**7:20**	**7:35**	**7:42**

8 Weekends | Northbound to Lake Elsinore Outlet Center

A.M. times are in PLAIN, **P.M. times are in BOLD** | Times are approximate
A = Alternate route to Grand & Machado

	Malaga & Mission Trail	Palomar & Central	Grand & Baldwin	Grand & Riverside	Lakeshore & Riverside	Lake Elsinore Outlet Center
	1	3	4	5	6	7
	6:36	6:46	6:54	6:59	7:10	7:15
	7:36	7:46	7:54	7:59	8:10	8:15
A	8:36	8:46	8:54	8:59	9:10	9:15
A	9:36	9:46	9:54	9:59	10:10	10:15
A	10:34	10:44	10:52	10:57	11:10	11:15
A	11:34	11:44	11:52	11:57	**12:10**	**12:15**
A	**12:34**	**12:44**	**12:52**	**12:57**	**1:10**	**1:15**
	1:36	**1:46**	**1:54**	**1:59**	**2:10**	**2:15**
	2:36	**2:46**	**2:54**	**2:59**	**3:10**	**3:15**
	3:36	**3:46**	**3:54**	**3:59**	**4:10**	**4:15**
	4:36	**4:46**	**4:54**	**4:59**	**5:10**	**5:15**
	5:36	**5:46**	**5:54**	**5:59**	**6:10**	**6:15**

8 Weekends | Southbound to Walmart & Malaga & Mission Trail

A.M. times are in PLAIN, **P.M. times are in BOLD** | Times are approximate

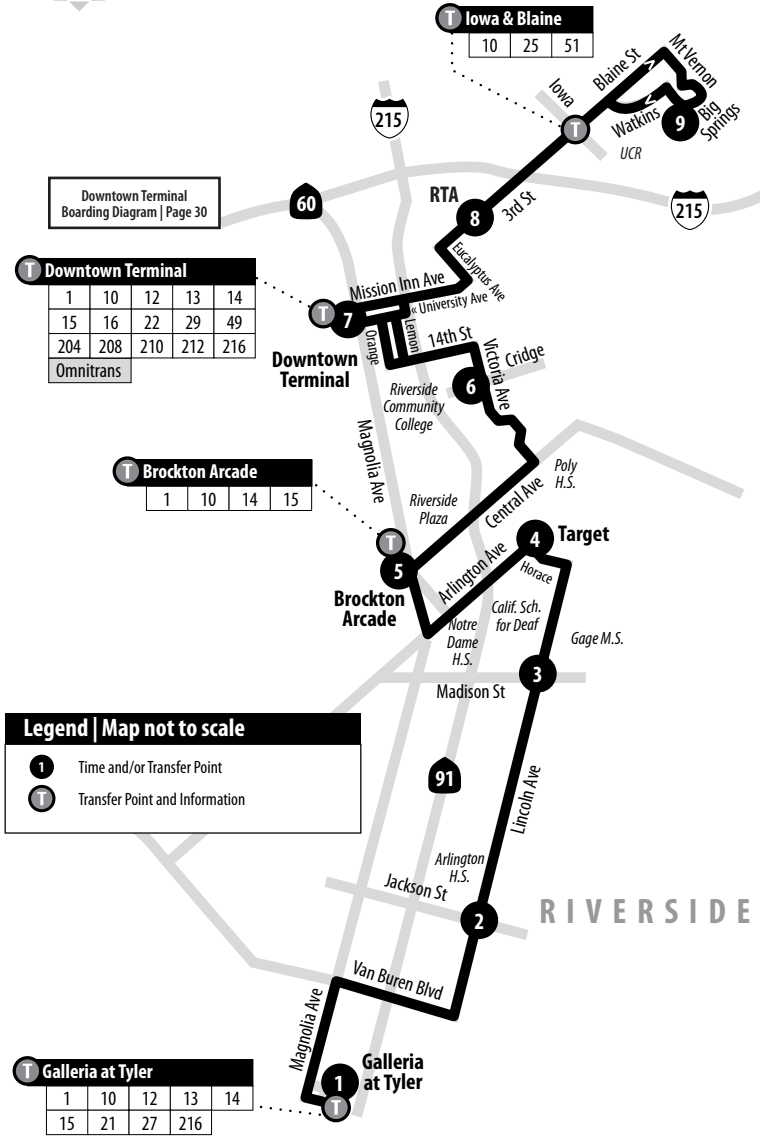
Lake Elsinore Outlet Center	Lakeshore & Riverside	Grand & Riverside	Grand & Baldwin	Palomar & Central	Lake Elsinore Walmart	Malaga & Mission Trail
7	6	5	4	3	2	1
6:30	6:36	6:47	6:52	7:02	7:18	7:27
7:30	7:36	7:47	7:52	8:02	8:18	8:27
8:30	8:36	8:47	8:52	9:02	9:18	9:27
9:30	9:36	9:47	9:52	10:02	10:18	10:27
10:30	10:36	10:47	10:52	11:02	11:18	11:27
11:30	11:36	11:47	11:52	**12:02**	**12:18**	**12:27**
12:30	**12:36**	**12:47**	**12:52**	**1:02**	**1:18**	**1:27**
1:30	**1:36**	**1:47**	**1:52**	**2:02**	**2:18**	**2:27**
2:30	**2:36**	**2:47**	**2:52**	**3:02**	**3:18**	**3:27**
3:30	**3:36**	**3:47**	**3:52**	**4:02**	**4:18**	**4:27**
4:30	**4:36**	**4:47**	**4:52**	**5:02**	**5:18**	**5:27**
5:30	**5:36**	**5:47**	**5:52**	**6:02**	**6:18**	**6:27**

10 Big Springs & Watkins to Galleria at Tyler

Information Center
(951) 565-5002
Web site
www.RiversideTransit.com

Routing and timetables subject to change.

Also serving: Downtown Riverside, Poly High, Gage Middle School, Notre Dame High, Calif. School for Deaf, Arlington High. **No service on:** New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day and Christmas Day.



10 Weekdays | Eastbound to Big Springs & Watkins

A.M. times are in PLAIN, **P.M. times are in BOLD** | Times are approximate
S = Operates when school is in session

	Galleria at Tyler	Lincoln & Jackson	Lincoln & Madison	Arlington at Target	Brockton Arcade	Cridge & Victoria	Downtown Terminal	RTA Offices	Big Springs & Watkins
	1	2	3	4	5	6	7	8	9
	5:49	5:58	6:06	6:13	6:18	6:27	6:35	6:47	6:59
S	—	—	—	—	—	—	7:23	7:35	7:47
	6:42	6:54	7:02	7:10	7:16	7:26	7:35	7:47	7:59
	7:37	7:52	8:00	8:08	8:15	8:26	8:35	8:48	9:00
	8:37	8:52	9:00	9:08	9:15	9:26	9:35	9:49	10:01
	9:36	9:52	10:00	10:08	10:15	10:26	10:35	10:49	11:00
	10:35	10:51	10:58	11:06	11:13	11:25	11:35	11:50	**12:01**
	11:35	11:51	11:58	**12:06**	**12:13**	**12:25**	**12:35**	**12:50**	**1:01**
	12:35	**12:51**	**12:58**	**1:06**	**1:13**	**1:25**	**1:35**	**1:50**	**2:01**
	1:34	**1:50**	**1:57**	**2:05**	**2:12**	**2:25**	**2:35**	**2:50**	**3:01**
	2:33	**2:49**	**2:57**	**3:05**	**3:12**	**3:25**	**3:35**	**3:49**	**4:00**
S	—	**3:05**	**3:13**	**3:21**	**3:28**	**3:41**	**3:51**	—	—
	3:33	**3:49**	**3:57**	**4:05**	**4:12**	**4:25**	**4:35**	**4:49**	**5:00**
	4:33	**4:50**	**4:58**	**5:06**	**5:13**	**5:26**	**5:35**	**5:49**	**6:00**
	5:39	**5:56**	**6:02**	**6:09**	**6:15**	**6:26**	**6:35**	**6:49**	**7:00**
	6:39	**6:56**	**7:02**	**7:09**	**7:15**	**7:26**	**7:35**	—	—
	7:43	**8:00**	**8:06**	**8:12**	**8:18**	**8:28**	**8:35**	—	—

DID YOU KNOW? *Every $1 billion invested in public transportation supports/ creates 36,000 jobs.*

10 Weekdays | Westbound to Galleria at Tyler

A.M. times are in PLAIN, **P.M. times are in BOLD** | Times are approximate
S = Operates when school is in session

	Big Springs & Watkins	RTA Offices	Downtown Terminal	Cridge & Victoria	Brockton Arcade	Arlington at Target	Lincoln & Madison	Lincoln & Jackson	Galleria at Tyler
	9	8	7	6	5	4	3	2	1
	—	—	5:30	5:36	5:44	5:48	5:54	6:00	6:07
	6:11	6:20	6:30	6:41	6:50	6:56	7:04	7:11	7:20
S	—	—	6:50	7:01	7:11	7:17	7:25	7:32	—
	7:10	7:19	7:30	7:42	7:52	7:59	8:07	8:14	8:24
	8:10	8:19	8:30	8:42	8:52	8:59	9:07	9:14	9:24
	9:10	9:19	9:30	9:42	9:52	9:59	10:07	10:14	10:24
	10:10	10:19	10:30	10:42	10:53	11:00	11:08	11:15	11:25
	11:10	11:19	11:30	11:42	11:53	**12:00**	**12:08**	**12:15**	**12:25**
	12:09	**12:18**	**12:30**	**12:42**	**12:54**	**1:01**	**1:09**	**1:16**	**1:26**
	1:09	**1:18**	**1:30**	**1:42**	**1:54**	**2:01**	**2:09**	**2:16**	**2:26**
	2:08	**2:18**	**2:30**	**2:42**	**2:54**	**3:02**	**3:10**	**3:17**	**3:27**
	3:09	**3:19**	**3:30**	**3:42**	**3:54**	**4:02**	**4:10**	**4:16**	**4:26**
	4:09	**4:19**	**4:30**	**4:42**	**4:54**	**5:02**	**5:09**	**5:15**	**5:25**
	5:09	**5:19**	**5:30**	**5:42**	**5:54**	**6:02**	**6:09**	**6:15**	**6:24**
	6:12	**6:20**	**6:30**	**6:40**	**6:50**	**6:56**	**7:02**	**7:08**	**7:17**
	7:13	**7:21**	**7:30**	**7:39**	**7:48**	**7:53**	**7:59**	**8:05**	**8:14**

DID YOU KNOW? *One person switching to public transit can reduce their carbon emissions by 20 pounds each day or more than 4,800 pounds in a year.*

10 Weekends | Eastbound to Big Springs & Watkins

A.M. times are in PLAIN, **P.M. times are in BOLD** | Times are approximate

Galleria at Tyler	Lincoln & Jackson	Lincoln & Madison	Arlington at Target	Brockton Arcade	Cridge & Victoria	Downtown Terminal	RTA Offices	Big Springs & Watkins
1	2	3	4	5	6	7	8	9
8:31	8:43	8:50	8:56	9:01	9:11	9:20	9:32	9:42
9:49	10:02	10:09	10:16	10:21	10:31	10:40	10:52	11:02
11:09	11:22	11:29	11:36	11:41	11:51	**12:00**	**12:12**	**12:22**
12:29	**12:42**	**12:49**	**12:56**	**1:01**	**1:11**	**1:20**	**1:32**	**1:42**
1:47	**2:02**	**2:09**	**2:16**	**2:21**	**2:31**	**2:40**	**2:52**	**3:02**
3:07	**3:22**	**3:29**	**3:36**	**3:41**	**3:51**	**4:00**	**4:12**	**4:22**
4:28	**4:43**	**4:50**	**4:57**	**5:02**	**5:12**	**5:20**	**5:32**	**5:42**
5:50	**6:04**	**6:11**	**6:17**	**6:22**	**6:32**	**6:40**	**6:52**	**7:02**

10 Weekends | Westbound to Galleria at Tyler

A.M. times are in PLAIN, **P.M. times are in BOLD** | Times are approximate

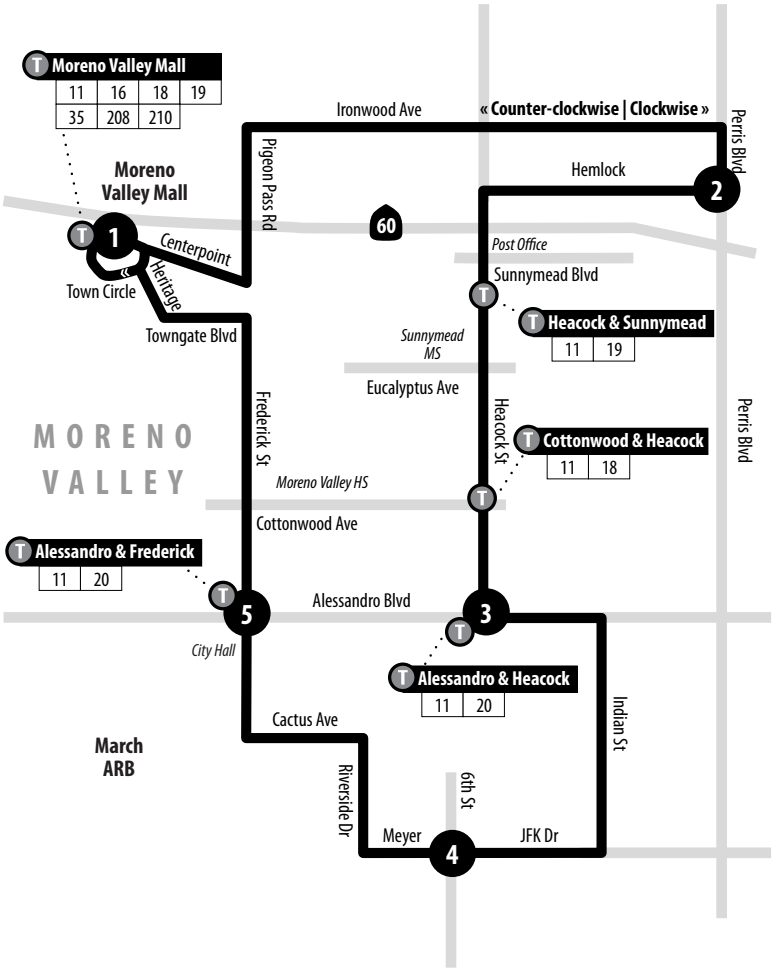
Big Springs & Watkins	RTA Offices	Downtown Terminal	Cridge & Victoria	Brockton Arcade	Arlington at Target	Lincoln & Madison	Lincoln & Jackson	Galleria at Tyler
9	8	7	6	5	4	3	2	1
8:32	8:39	8:50	8:59	9:09	9:15	9:22	9:28	9:37
9:52	9:59	10:10	10:19	10:29	10:35	10:42	10:48	11:01
11:12	11:19	11:30	11:39	11:49	11:55	**12:02**	**12:08**	**12:21**
12:32	**12:39**	**12:50**	**12:59**	**1:09**	**1:15**	**1:21**	**1:27**	**1:40**
1:52	**1:59**	**2:10**	**2:21**	**2:31**	**2:37**	**2:43**	**2:49**	**3:02**
3:12	**3:19**	**3:30**	**3:41**	**3:51**	**3:57**	**4:03**	**4:09**	**4:22**
4:32	**4:39**	**4:50**	**5:01**	**5:11**	**5:17**	**5:23**	**5:29**	**5:42**
5:52	**5:59**	**6:10**	**6:21**	**6:30**	**6:36**	**6:42**	**6:47**	**6:57**

11 Moreno Valley Mall/March ARB

Information Center
(951) 565-5002
Web site
www.RiverideTransit.com

Routing and timetables subject to change.

Also serving: Sunnymead Middle School, Moreno Valley High School. **No service on:** New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day and Christmas Day.



Legend | Map not to scale

- 1 Time and/or Transfer Point
- T Transfer Point and Information

11 Weekdays | Clockwise to March ARB

A.M. times are in PLAIN, **P.M. times are in BOLD** | Times are approximate

Moreno Valley Mall	Perris & Hemlock	Alessandro & Heacock	Meyer Dr & 6th St	Frederick & Alessandro	Moreno Valley Mall
1	2	3	4	5	1
5:30	5:39	5:50	5:56	6:03	6:12
6:30	6:40	6:52	6:59	7:06	7:16
7:30	7:40	7:53	8:00	8:07	8:17
8:30	8:41	8:54	9:01	9:08	9:18
9:30	9:41	9:54	10:01	10:08	10:18
10:30	10:41	10:55	11:02	11:09	11:20
11:30	11:42	11:56	**12:03**	**12:10**	**12:21**
12:30	**12:43**	**12:57**	**1:04**	**1:11**	**1:22**
1:30	**1:43**	**1:57**	**2:04**	**2:11**	**2:22**
2:30	**2:43**	**2:57**	**3:04**	**3:11**	**3:22**
3:30	**3:43**	**3:57**	**4:04**	**4:11**	**4:22**
4:30	**4:43**	**4:56**	**5:04**	**5:11**	**5:21**
5:30	**5:43**	**5:56**	**6:04**	**6:11**	**6:21**
6:30	**6:42**	**6:55**	**7:02**	**7:09**	**7:18**
7:30	**7:41**	**7:53**	**8:00**	**8:07**	**8:16**

11 Weekdays | Counter Clockwise to Moreno Valley Mall

A.M. times are in PLAIN, **P.M. times are in BOLD** | Times are approximate

Moreno Valley Mall	Frederick & Alessandro	Meyer Dr & 6th St	Alessandro & Heacock	Perris & Hemlock	Moreno Valley Mall
1	5	4	3	2	1
5:30	5:38	5:43	5:51	6:00	6:11
6:30	6:39	6:44	6:52	7:01	7:13
7:30	7:40	7:45	7:54	8:04	8:16
8:30	8:40	8:45	8:54	9:05	9:17
9:30	9:40	9:45	9:54	10:06	10:18
10:30	10:40	10:45	10:54	11:06	11:18
11:30	11:40	11:46	11:56	**12:08**	**12:20**
12:30	**12:40**	**12:46**	**12:56**	**1:08**	**1:20**
1:30	**1:40**	**1:46**	**1:56**	**2:08**	**2:20**
2:30	**2:40**	**2:46**	**2:56**	**3:08**	**3:20**
3:30	**3:40**	**3:46**	**3:56**	**4:08**	**4:20**
4:30	**4:40**	**4:46**	**4:56**	**5:08**	**5:20**
5:30	**5:40**	**5:46**	**5:55**	**6:06**	**6:18**
6:30	**6:39**	**6:45**	**6:54**	**7:04**	**7:16**
7:30	**7:39**	**7:44**	**7:53**	**8:02**	**8:13**

11 Weekends | Clockwise to March ARB

A.M. times are in PLAIN, **P.M. times are in BOLD** | Times are approximate
† = Saturdays only, **trip does not operate on Sundays.**

	Moreno Valley Mall	Perris & Hemlock	Alessandro & Heacock	Meyer Dr & 6th St	Frederick & Alessandro	Moreno Valley Mall
	1	2	3	4	5	1
†	8:30	8:39	8:49	8:59	9:05	9:14
	9:30	9:39	9:50	10:00	10:06	10:15
	10:30	10:40	10:52	11:02	11:08	11:18
	11:30	11:41	11:53	**12:04**	**12:10**	**12:20**
	12:30	**12:41**	**12:53**	**1:04**	**1:10**	**1:20**
	1:30	**1:42**	**1:54**	**2:05**	**2:11**	**2:21**
	2:30	**2:42**	**2:54**	**3:05**	**3:11**	**3:21**
	3:30	**3:42**	**3:54**	**4:05**	**4:11**	**4:21**
	4:30	**4:42**	**4:54**	**5:05**	**5:11**	**5:21**
	5:30	**5:41**	**5:53**	**6:04**	**6:10**	**6:19**
†	**6:30**	**6:41**	**6:53**	**7:04**	**7:09**	**7:17**

11 Weekends | Counter Clockwise to Moreno Valley Mall

A.M. times are in PLAIN, **P.M. times are in BOLD** | Times are approximate
† = Saturdays only, **trip does not operate on Sundays.**

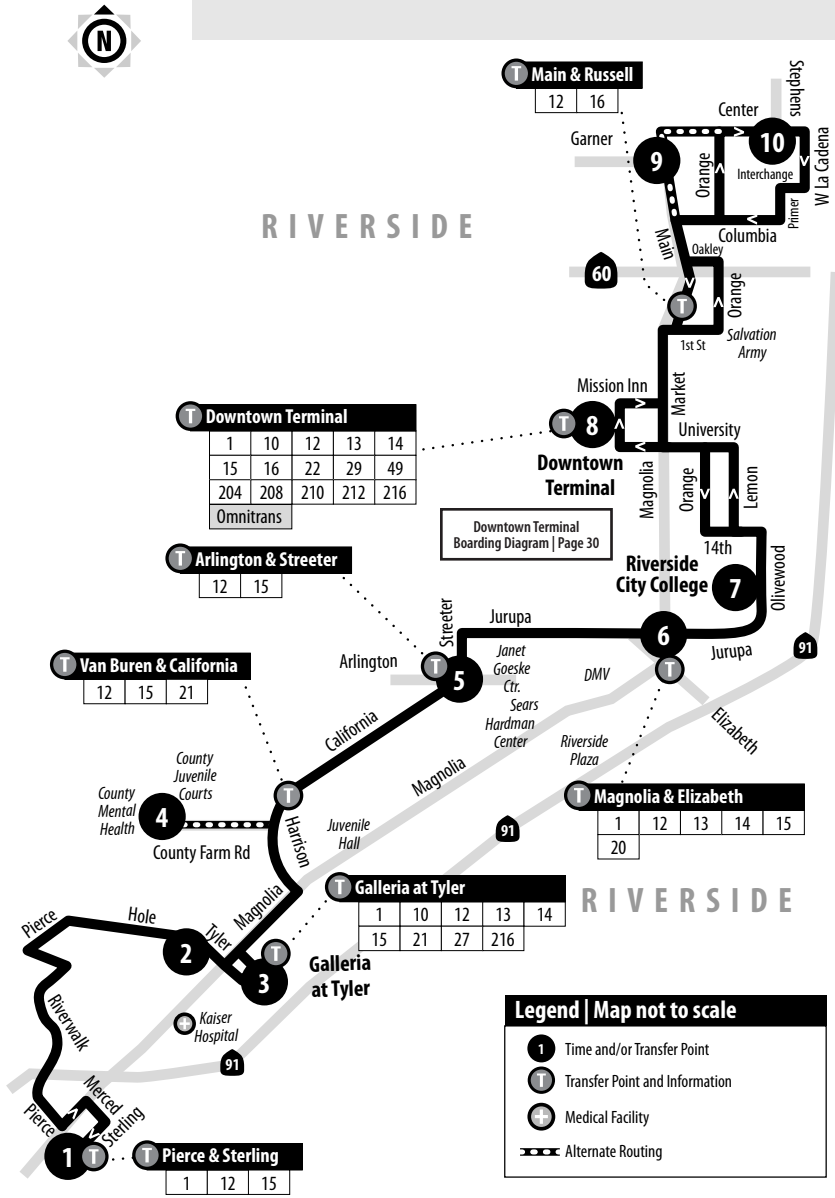
	Moreno Valley Mall	Frederick & Alessandro	Meyer Dr & 6th St	Alessandro & Heacock	Perris & Hemlock	Moreno Valley Mall
	1	5	4	3	2	1
†	8:30	8:37	8:42	8:50	9:01	9:14
	9:30	9:38	9:43	9:51	10:02	10:15
	10:30	10:38	10:43	10:52	11:03	11:16
	11:30	11:38	11:43	11:52	12:03	12:16
	12:30	12:38	12:43	12:52	1:03	1:16
	1:30	1:38	1:44	1:53	2:04	2:17
	2:30	2:38	2:44	2:53	3:04	3:17
	3:30	3:38	3:44	3:53	4:03	4:16
	4:30	4:37	4:42	4:50	5:00	5:13
	5:30	5:37	5:42	5:50	6:00	6:13
†	6:30	6:37	6:42	6:50	7:00	7:11

12 Stephens & Center to Pierce & Sterling - Riverside

Information Center
(951) 565-5002
Web site
www.RiversideTransit.com

Routing and timetables subject to change.

Also serving: Galleria at Tyler, DMV, Downtown Terminal, Salvation Army. **No service on:** New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day and Christmas Day.



12 Weekdays | Eastbound to Stephens & Center

A.M. times are in PLAIN, **P.M. times are in BOLD** | Times are approximate

Pierce & Sterling	La Sierra & Hole/ Pierce	Galleria at Tyler	County Mental Health	Arlington & Streeter	Jurupa & Magnolia	Olivewood & RCC	Downtown Terminal	Main & Garner	Stephens & Center
1	2	3	4	5	6	7	8	9	10
6:18	6:26	6:34	—	6:50	6:59	7:03	7:15	7:27	7:30
7:18	7:26	7:34	—	7:52	8:01	8:05	8:15	8:27	8:30
8:21	8:29	8:37	—	8:53	9:02	9:06	9:15	—	9:28
9:19	9:28	9:36	—	9:52	10:02	10:06	10:15	—	10:28
10:19	10:28	10:36	—	10:52	11:02	11:06	11:15	—	11:30
11:17	11:26	11:34	—	11:50	**12:00**	**12:04**	**12:15**	**—**	**12:30**
12:14	**12:23**	**12:31**	**—**	**12:49**	**1:00**	**1:04**	**1:15**	**—**	**1:30**
1:13	**1:22**	**1:31**	**—**	**1:49**	**2:00**	**2:04**	**2:15**	**—**	**2:30**
2:12	**2:21**	**2:30**	**—**	**2:48**	**3:00**	**3:04**	**3:15**	**3:30**	**3:33**
3:09	**3:18**	**3:27**	**3:34**	**3:49**	**4:00**	**4:04**	**4:15**	**4:30**	**4:33**
4:14	**4:23**	**4:32**	**—**	**4:50**	**5:00**	**5:04**	**5:15**	**—**	**5:30**
5:17	**5:26**	**5:34**	**—**	**5:52**	**6:02**	**6:06**	**6:15**	**—**	**6:29**
6:20	**6:29**	**6:37**	**—**	**6:53**	**7:02**	**7:06**	**7:15**	**—**	**7:29**
7:20	**7:29**	**7:37**	**—**	**7:53**	**8:02**	**8:06**	**8:15**	**—**	**8:29**

DID YOU KNOW? *Public transportation provides a link to more than 51 million Americans with disabilities.*

12 Weekdays | Westbound to Pierce & Sterling

A.M. times are in PLAIN, **P.M. times are in BOLD** | Times are approximate
S = Operates when school is in session only

	Stephens & Center	Downtown Terminal	Olivewood & RCC	Jurupa & Magnolia	Arlington & Streeter	County Mental Health	Galleria at Tyler	La Sierra & Hole/ Pierce	Pierce & Sterling
	10	8	7	6	5	4	3	2	1
	5:45	6:00	6:06	6:09	6:17	—	6:29	6:36	6:45
	The 5:45 a.m. trip will start service at the first stop on Orange St north of Columbia Ave at approximately 5:43 a.m.								
	6:44	7:00	7:06	7:10	7:19	7:29	7:34	7:41	7:50
	The 6:44 a.m. trip will start service at the first stop on Orange St north of Columbia Ave at approximately 6:42 a.m.								
	7:07	7:23	—	—	—	—	—	—	—
S	The 7:07 a.m. trip will start service at the first stop on Orange St north of Columbia Ave at approximately 7:05 a.m.								
	7:40	8:00	8:08	8:12	8:24	—	8:40	8:47	8:56
	8:40	9:00	9:08	9:12	9:22	—	9:38	9:46	9:55
	9:41	10:00	10:08	10:12	10:22	—	10:38	10:46	10:55
	10:41	11:00	11:08	11:12	11:22	—	11:39	11:47	11:56
	11:41	**12:00**	**12:08**	**12:12**	**12:23**	**—**	**12:40**	**12:48**	**12:59**
	12:41	**1:00**	**1:08**	**1:12**	**1:23**	**—**	**1:40**	**1:48**	**1:59**
	1:41	**2:00**	**2:08**	**2:12**	**2:23**	**—**	**2:40**	**2:48**	**3:01**
	2:39	**3:00**	**3:09**	**3:13**	**3:24**	**—**	**3:41**	**3:49**	**4:02**
	3:39	**4:00**	**4:09**	**4:13**	**4:24**	**—**	**4:41**	**4:49**	**5:02**
	4:42	**5:00**	**5:10**	**5:14**	**5:25**	**—**	**5:42**	**5:49**	**6:02**
	5:42	**6:00**	**6:07**	**6:11**	**6:22**	**—**	**6:39**	**6:46**	**6:58**
	6:42	**7:00**	**7:06**	**7:09**	**7:18**	**—**	**7:33**	**7:40**	**7:52**
	7:44	**8:00**	**8:06**	**8:09**	**8:17**	**—**	**8:32**	**8:39**	**8:51**



FYI: *Have exact fare ready. Fareboxes accept coins and dollar bills but do not make change.*

12 Weekends | Eastbound to Stephens & Center

A.M. times are in PLAIN, **P.M. times are in BOLD** | Times are approximate

Pierce & Sterling	La Sierra & Hole/ Pierce	Galleria at Tyler	Arlington & Streeter	Jurupa & Magnolia	Olivewood & RCC	Downtown Terminal	Stephens & Center
1	2	3	5	6	7	8	10
6:55	7:02	7:09	7:21	7:30	7:33	7:40	7:52
7:44	7:51	7:59	8:11	8:20	8:23	8:30	8:42
8:32	8:40	8:48	9:01	9:10	9:13	9:20	9:34
9:21	9:29	9:37	9:51	10:00	10:03	10:10	10:24
10:11	10:19	10:27	10:41	10:50	10:53	11:00	11:14
11:05	11:13	11:21	11:36	11:45	11:48	11:55	**12:11**
12:00	**12:08**	**12:16**	**12:31**	**12:40**	**12:43**	**12:50**	**1:06**
12:52	**1:00**	**1:08**	**1:25**	**1:34**	**1:38**	**1:45**	**2:01**
1:46	**1:54**	**2:02**	**2:19**	**2:28**	**2:32**	**2:40**	**2:56**
2:40	**2:48**	**2:56**	**3:14**	**3:23**	**3:27**	**3:35**	**3:54**
3:35	**3:43**	**3:51**	**4:09**	**4:18**	**4:22**	**4:30**	**4:49**
4:31	**4:39**	**4:47**	**5:04**	**5:13**	**5:17**	**5:25**	**5:44**
5:29	**5:37**	**5:45**	**6:01**	**6:09**	**6:12**	**6:20**	**6:39**
6:24	**6:32**	**6:40**	**6:56**	**7:04**	**7:07**	**7:15**	—

12 Weekends | Westbound to Pierce & Sterling

A.M. times are in PLAIN, **P.M. times are in BOLD** | Times are approximate
† = Saturdays only, **trip does not operate on Sundays.**

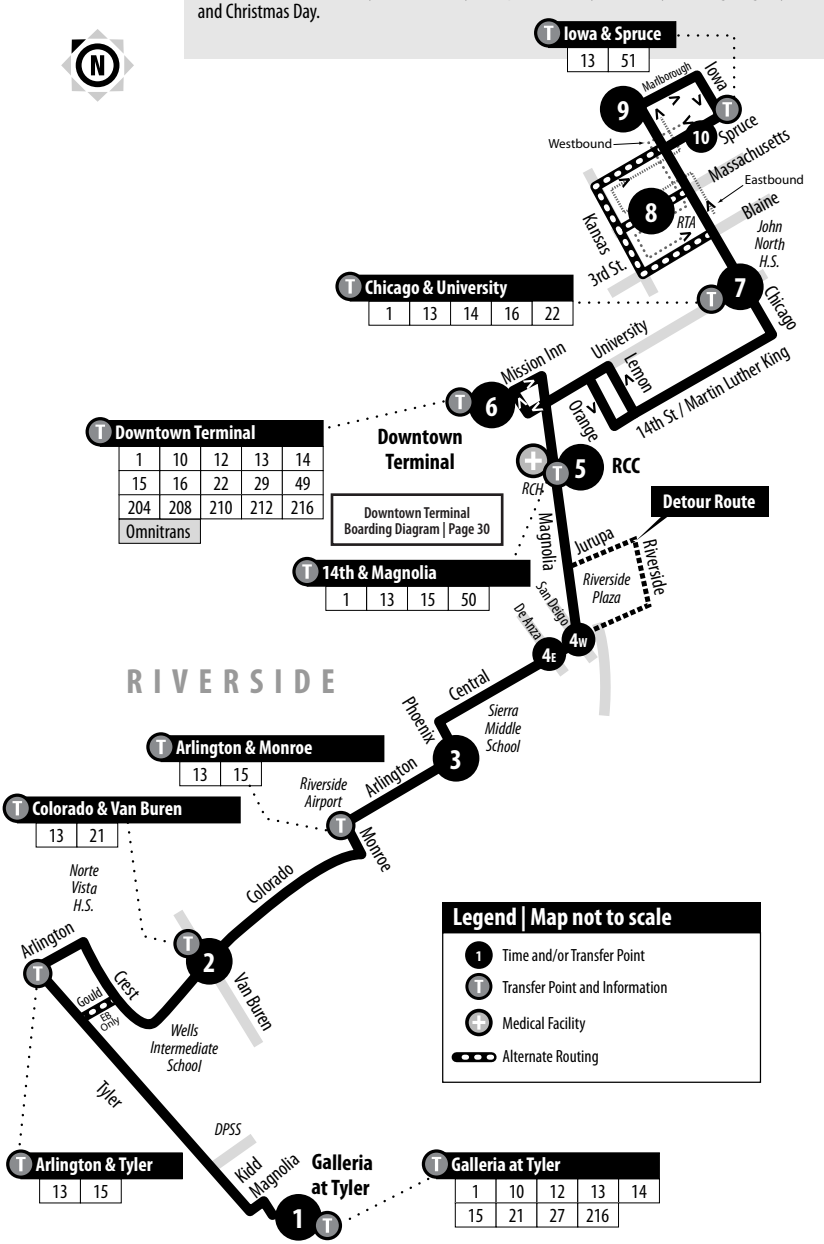
	Stephens & Center	Downtown Terminal	Olivewood & RCC	Jurupa & Magnolia	Arlington & Streeter	Galleria at Tyler	La Sierra & Hole/Pierce	Pierce & Sterling
	10	8	7	6	5	3	2	1
†	7:14	7:30	7:36	7:39	7:50	8:04	8:10	8:18
	The 7:14 a.m. trip will start service at the first stop on Orange St. north of Columbia Ave. at approximately 7:12 a.m.							
	8:04	8:20	8:26	8:29	8:40	8:54	9:00	9:08
	8:54	9:10	9:16	9:19	9:32	9:46	9:53	10:01
	9:43	10:00	10:06	10:09	10:22	10:36	10:43	10:51
	10:33	10:50	10:56	10:59	11:12	11:26	11:34	11:43
	11:28	11:45	11:51	11:54	**12:07**	**12:23**	**12:31**	**12:40**
	12:23	**12:40**	**12:46**	**12:49**	**1:03**	**1:19**	**1:27**	**1:36**
	1:18	**1:35**	**1:41**	**1:45**	**1:59**	**2:15**	**2:23**	**2:32**
	2:14	**2:30**	**2:36**	**2:40**	**2:54**	**3:10**	**3:18**	**3:27**
	3:09	**3:25**	**3:31**	**3:35**	**3:48**	**4:04**	**4:12**	**4:21**
	4:04	**4:20**	**4:26**	**4:30**	**4:43**	**4:58**	**5:06**	**5:15**
	4:59	**5:15**	**5:21**	**5:25**	**5:37**	**5:52**	**6:00**	**6:08**
	5:54	**6:10**	**6:16**	**6:20**	**6:32**	**6:47**	**6:55**	**7:03**

13 Spruce & Atlanta to Galleria at Tyler - Riverside

Information Center
(951) 565-5002
Web site
www.RiversideTransit.com

Routing and timetables subject to change.

Also serving: Galleria at Tyler, DPSS (Tyler office), Riverside Airport, RCC, RTA Headquarters. **No service on:** New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day and Christmas Day.



13 Weekdays | Eastbound to Spruce & Atlanta

A.M. times are in PLAIN, **P.M. times are in BOLD** | Times are approximate

Galleria at Tyler	Colorado & Van Buren	Phoenix & Arlington	Central & De Anza	Riverside City College	Downtown Terminal	Chicago & University	Massachusetts & Hulen	Chicago & Marlborough	Spruce & Atlanta
1	2	3	4 E	5	6	7	8	9	10
4:38	4:54	5:02	5:07	5:16	5:20	5:31	—	5:35	5:40
5:41	5:57	6:05	6:11	6:20	6:25	6:38	—	6:42	6:48
6:38	6:56	7:05	7:13	7:24	7:30	7:45	—	7:49	7:55
7:39	7:58	8:07	8:15	8:28	8:35	8:50	—	8:54	9:00
8:44	9:03	9:12	9:20	9:33	9:40	9:56	—	10:00	10:06
9:49	10:08	10:17	10:25	10:38	10:45	11:01	—	11:05	11:11
10:53	11:13	11:22	11:30	11:43	11:50	**12:06**	**—**	**12:10**	**12:16**
11:58	**12:18**	**12:27**	**12:35**	**12:48**	**12:55**	**1:11**	**—**	**1:16**	**—**
1:03	**1:23**	**1:32**	**1:40**	**1:53**	**2:00**	**2:17**	**—**	**2:22**	**—**
2:08	**2:28**	**2:37**	**2:45**	**2:58**	**3:05**	**3:22**	**—**	**3:27**	**—**
3:13	**3:33**	**3:42**	**3:50**	**4:03**	**4:10**	**4:27**	**4:31**	**4:35**	**—**
4:21	**4:41**	**4:50**	**4:58**	**5:08**	**5:15**	**5:32**	**5:36**	**5:40**	**—**
5:29	**5:48**	**5:56**	**6:04**	**6:14**	**6:20**	**6:36**	**6:40**	**6:44**	**—**
6:35	**6:53**	**7:01**	**7:09**	**7:19**	**7:25**	**7:41**	**7:45**	**7:49**	**—**
7:40	**7:58**	**8:06**	**8:14**	**8:24**	**8:30**	**—**	**—**	**—**	**—**

DID YOU KNOW? *Public transportation is a $48.4 billion industry that employs more than 380,000 people.*

13 Weekdays | Westbound to Galleria at Tyler

A.M. times are in PLAIN, **P.M. times are in BOLD** | Times are approximate

Chicago & Marlborough	Spruce & Atlanta	Massachusetts & Hulen	Chicago & University	Downtown Terminal	Riverside City College	Central & San Diego	Phoenix & Arlington	Colorado & Van Buren	Galleria at Tyler
9	10	8	7	6	5	4 W	3	2	1
4:58	5:04	5:08	5:11	5:25	5:29	5:35	5:42	5:50	6:05
—	6:04	6:09	6:14	6:30	6:35	6:42	6:51	7:01	7:21
—	7:08	7:13	7:19	7:35	7:40	7:49	7:59	8:09	8:29
—	8:12	8:17	8:23	8:40	8:46	8:55	9:05	9:15	9:35
—	9:23	—	9:28	9:45	9:51	10:00	10:10	10:20	10:40
—	10:28	—	10:33	10:50	10:56	11:05	11:15	11:25	11:45
—	11:33	—	11:38	11:55	**12:01**	**12:10**	**12:20**	**12:30**	**12:50**
—	**12:38**	**—**	**12:43**	**1:00**	**1:06**	**1:15**	**1:25**	**1:35**	**1:55**
1:33	**1:41**	**—**	**1:47**	**2:05**	**2:11**	**2:20**	**2:30**	**2:40**	**2:59**
2:48	**2:56**	**—**	**3:02**	**3:20**	**3:26**	**3:35**	**3:45**	**3:55**	**4:14**
3:43	**3:51**	**—**	**3:57**	**4:15**	**4:21**	**4:30**	**4:40**	**4:50**	**5:09**
4:50	**4:58**	**—**	**5:04**	**5:20**	**5:26**	**5:35**	**5:45**	**5:54**	**6:12**
5:55	**6:03**	**—**	**6:09**	**6:25**	**6:31**	**6:40**	**6:50**	**6:59**	**7:17**
7:02	**7:09**	**—**	**7:14**	**7:30**	**7:36**	**7:45**	**7:54**	**8:02**	**8:20**



DID YOU KNOW? *Every $1 invested in public transportation projects generates from $4 to $9 in local economic activity.*

13 Weekends | Eastbound to Spruce & Atlanta

A.M. times are in PLAIN, **P.M. times are in BOLD** | Times are approximate

Galleria at Tyler	Colorado & Van Buren	Phoenix & Arlington	Central & De Anza	Riverside City College	Downtown Terminal	Chicago & University	Massachusetts & Hulen	Spruce & Atlanta
1	2	3	4 E	5	6	7	8	10
7:01	7:17	7:25	7:30	7:38	7:45	7:57	—	8:05
8:00	8:16	8:24	8:30	8:38	8:45	8:57	—	9:05
8:57	9:14	9:22	9:29	9:38	9:45	9:59	—	10:07
9:55	10:13	10:22	10:29	10:38	10:45	10:59	—	11:07
10:54	11:13	11:22	11:29	11:38	11:45	11:59	—	**12:07**
11:54	**12:13**	**12:22**	**12:29**	**12:38**	**12:45**	**1:00**	**—**	**1:08**
12:54	**1:13**	**1:22**	**1:29**	**1:38**	**1:45**	**2:00**	**—**	**2:08**
1:53	**2:13**	**2:22**	**2:29**	**2:38**	**2:45**	**3:00**	**—**	**3:09**
2:53	**3:13**	**3:22**	**3:29**	**3:38**	**3:45**	**4:00**	**—**	**4:09**
3:54	**4:14**	**4:22**	**4:29**	**4:38**	**4:45**	**4:59**	**5:02**	**5:11**
4:51	**5:11**	**5:19**	**5:26**	**5:34**	**5:40**	**5:54**	**5:57**	**6:06**
5:46	**6:06**	**6:14**	**6:21**	**6:29**	**6:35**	**—**	**—**	**—**

13 Weekends | Westbound to Galleria at Tyler

A.M. times are in PLAIN, **P.M. times are in BOLD** | Times are approximate

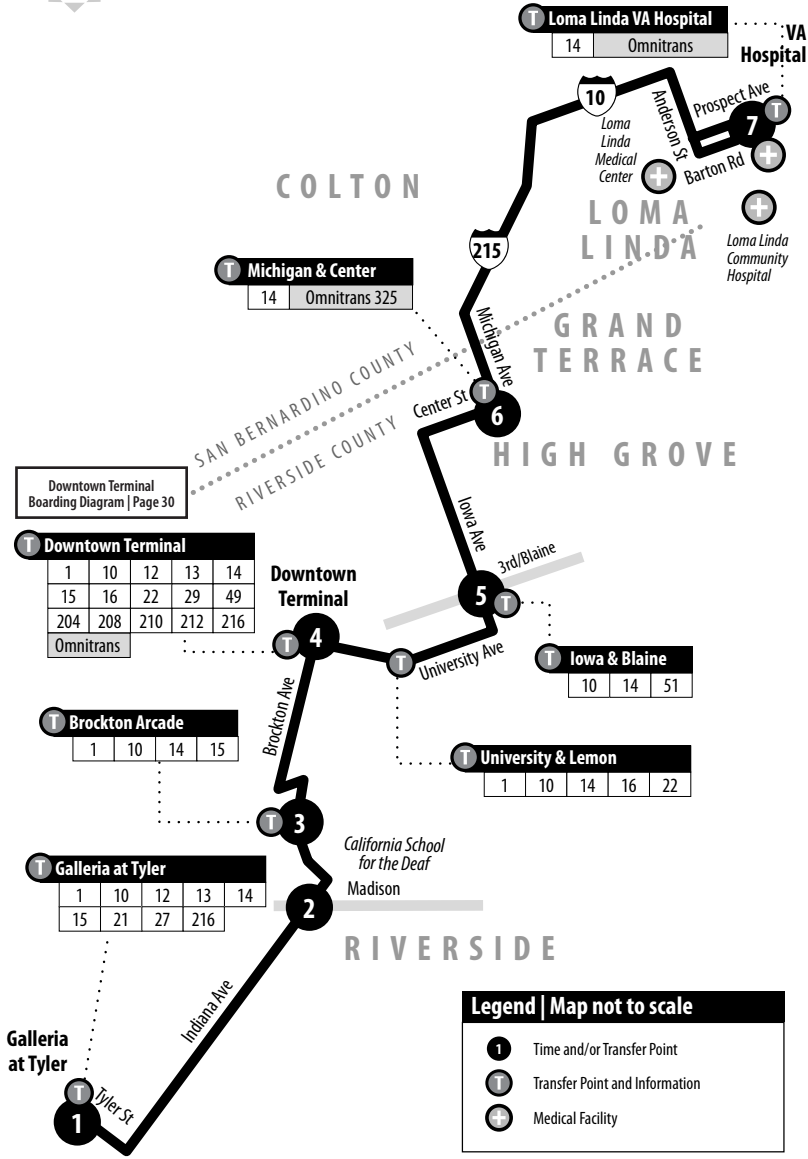
Spruce & Atlanta	Massachusetts & Hulen	Chicago & University	Downtown Terminal	Riverside City College	Central & San Diego	Phoenix & Arlington	Colorado & Van Buren	Galleria at Tyler
10	8	7	6	5	4 W	3	2	1
7:18	7:22	7:26	7:40	7:44	7:53	8:00	8:09	8:27
8:18	8:22	8:26	8:40	8:44	8:53	9:01	9:11	9:29
9:21	—	9:25	9:40	9:44	9:53	10:01	10:11	10:29
10:19	—	10:23	10:40	10:44	10:53	11:01	11:11	11:29
11:19	—	11:23	11:40	11:44	11:53	**12:02**	**12:12**	**12:30**
12:19	**—**	**12:23**	**12:40**	**12:44**	**12:53**	**1:02**	**1:12**	**1:30**
1:19	**—**	**1:23**	**1:40**	**1:44**	**1:53**	**2:02**	**2:12**	**2:30**
2:20	**—**	**2:24**	**2:40**	**2:44**	**2:53**	**3:02**	**3:11**	**3:29**
3:20	**—**	**3:24**	**3:40**	**3:44**	**3:53**	**4:01**	**4:10**	**4:28**
4:20	**—**	**4:24**	**4:40**	**4:44**	**4:53**	**5:01**	**5:10**	**5:28**
5:22	**—**	**5:26**	**5:40**	**5:44**	**5:53**	**6:00**	**6:08**	**6:26**

14 Galleria at Tyler to Downtown Terminal to Loma Linda VA Hospital

Information Center
(951) 565-5002
Web site
www.RiversideTransit.com

Routing and timetables subject to change.

Also serving: Galleria at Tyler, Riverside Auto Center, Calif. School for the Deaf, Riverside Medical Clinic, RCC. **No service on:** New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day and Christmas Day. **RTA DOES NOT SERVE MICHIGAN AVENUE. MICHIGAN AVENUE IS SERVED BY OMNITRANS' ROUTE 325.**



14 Weekdays | Eastbound to VA Hospital

A.M. times are in PLAIN, **P.M. times are in BOLD** | Times are approximate

Galleria at Tyler	Indiana & Madison	Brockton Arcade	Downtown Terminal	Iowa & Blaine	Center & Michigan	VA Hospital
1	2	3	4	5	6	7
—	—	—	5:21	5:37	5:50	6:11
5:52	6:07	6:11	6:31	6:47	7:00	7:21
6:59	7:15	7:20	7:40	7:57	8:10	8:33
8:08	8:24	8:30	8:50	9:07	9:20	9:43
9:18	9:34	9:40	10:00	10:17	10:30	10:53
10:27	10:43	10:49	11:09	11:27	11:40	12:03
11:37	11:53	11:59	**12:18**	**12:36**	**12:50**	**1:13**
12:47	**1:03**	**1:09**	**1:28**	**1:46**	**2:00**	**2:23**
1:56	**2:13**	**2:19**	**2:38**	**2:56**	**3:10**	**3:33**
3:06	**3:23**	**3:29**	**3:48**	**4:06**	**4:20**	**4:41**
4:16	**4:33**	**4:39**	**4:58**	**5:16**	**5:30**	**5:51**
5:29	**5:46**	**5:51**	**6:09**	**6:27**	**6:40**	**7:00**
6:47	**7:02**	**7:06**	**7:19**	—	—	—
7:59	**8:14**	**8:18**	**8:29**	—	—	—

14 Weekdays | Westbound to Galleria at Tyler

A.M. times are in PLAIN, **P.M. times are in BOLD** | Times are approximate

VA Hospital	Center & Michigan	Iowa & Blaine	Downtown Terminal	Brockton Arcade	Indiana & Madison	Galleria at Tyler
7	6	5	4	3	2	1
5:20	5:40	5:54	6:07	6:21	6:27	6:41
6:28	6:50	7:05	7:18	7:34	7:40	7:54
7:37	8:00	8:15	8:29	8:45	8:51	9:04
8:47	9:10	9:25	9:40	9:56	10:03	10:16
9:57	10:20	10:35	10:51	11:07	11:14	11:29
11:07	11:30	11:45	**12:01**	**12:18**	**12:25**	**12:40**
12:16	**12:40**	**12:56**	**1:12**	**1:29**	**1:36**	**1:51**
1:26	**1:50**	**2:06**	**2:22**	**2:40**	**2:47**	**3:02**
2:36	**3:00**	**3:16**	**3:32**	**3:50**	**3:57**	**4:12**
3:46	**4:10**	**4:26**	**4:42**	**5:00**	**5:07**	**5:22**
4:56	**5:20**	**5:36**	**5:52**	**6:10**	**6:16**	**6:29**
6:09	**6:30**	**6:43**	**6:58**	**7:16**	**7:21**	**7:33**
7:19	**7:40**	**7:53**	**8:03**	—	—	—

14 Weekends | Eastbound to VA Hospital

A.M. times are in PLAIN, **P.M. times are in BOLD** | Times are approximate
† = Saturdays only, **trip does not operate on Sundays.**

	Galleria at Tyler	Indiana & Madison	Brockton Arcade	Downtown Terminal	Iowa & Blaine	Center & Michigan	VA Hospital
	1	2	3	4	5	6	7
†	—	—	—	6:54	7:05	7:15	7:33
†	7:20	7:33	7:38	7:58	8:12	8:25	8:43
†	8:26	8:41	8:47	9:07	9:22	9:35	9:53
	9:34	9:50	9:56	10:16	10:32	10:45	11:03
	10:44	11:00	11:06	11:26	11:42	11:55	**12:13**
	11:54	**12:10**	**12:16**	**12:36**	**12:52**	**1:05**	**1:23**
	1:04	**1:20**	**1:26**	**1:46**	**2:02**	**2:15**	**2:33**
	2:16	**2:32**	**2:38**	**2:55**	**3:12**	**3:25**	**3:42**
	3:26	**3:42**	**3:48**	**4:05**	**4:22**	**4:35**	**4:52**
	4:40	**4:56**	**5:01**	**5:17**	**5:32**	**5:45**	**6:02**
	5:52	**6:08**	**6:13**	**6:27**	—	—	—
	7:06	**7:21**	**7:25**	**7:37**	—	—	—

14 Weekends | Westbound to Galleria at Tyler

A.M. times are in PLAIN, **P.M. times are in BOLD** | Times are approximate
† = Saturdays only, **trip does not operate from VA Hospital to Downtown Terminal on Sundays.**

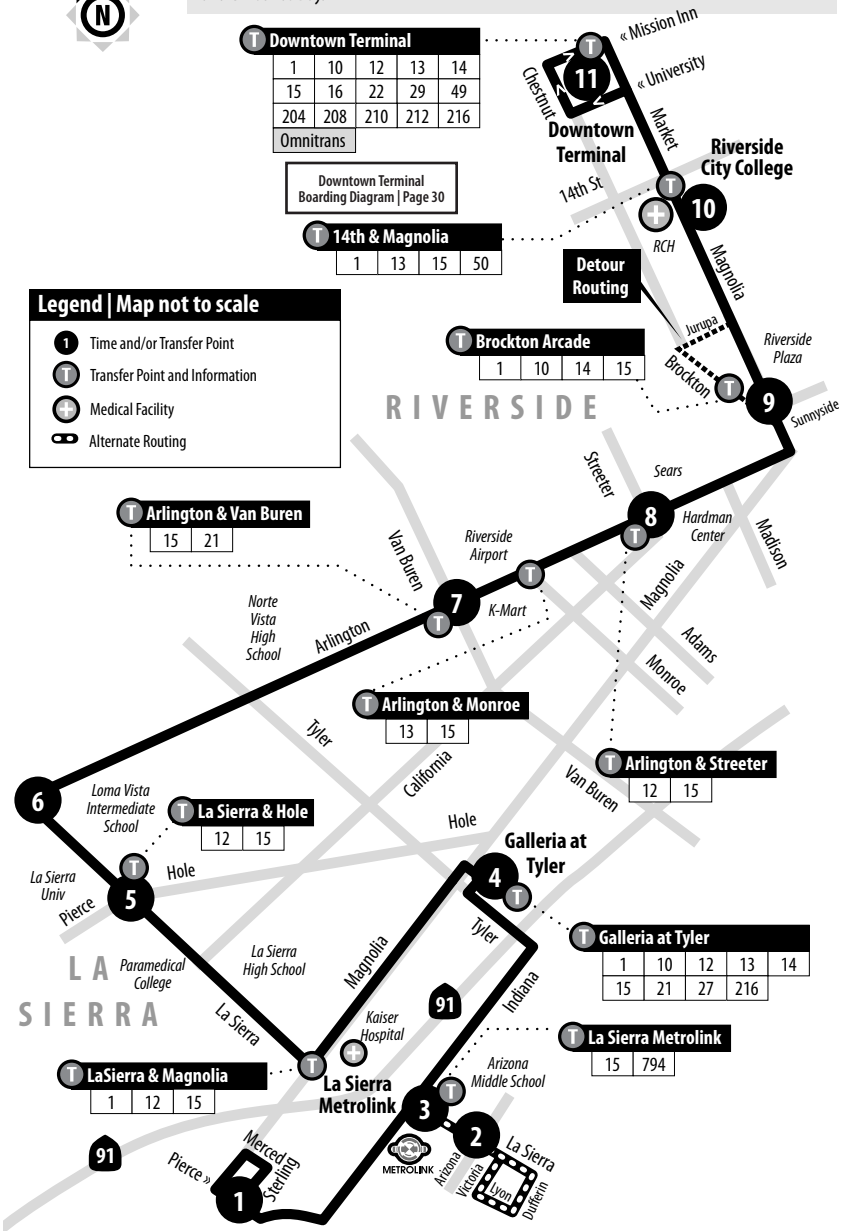
	VA Hospital	Center & Michigan	Iowa & Blaine	Downtown Terminal	Brockton Arcade	Indiana & Madison	Galleria at Tyler
	7	6	5	4	3	2	1
†	7:59	8:20	8:34	8:50	9:04	9:12	9:26
	9:09	9:30	9:44	10:00	10:14	10:22	10:36
	10:19	10:40	10:54	11:10	11:24	11:32	11:47
	11:28	11:50	**12:04**	**12:21**	**12:35**	**12:43**	**12:58**
	12:38	**1:00**	**1:14**	**1:31**	**1:46**	**1:54**	**2:09**
	1:48	**2:10**	**2:24**	**2:41**	**2:56**	**3:04**	**3:19**
	2:58	**3:20**	**3:33**	**3:50**	**4:06**	**4:14**	**4:29**
	4:08	**4:30**	**4:43**	**5:00**	**5:16**	**5:24**	**5:38**
	5:19	**5:40**	**5:53**	**6:10**	**6:26**	**6:34**	**6:47**
	—	—	—	**7:10**	**7:26**	**7:33**	**7:44**

15 Downtown Terminal to Pierce and Sterling

Information Center
(951) 565-5002
Web site
www.RiversideTransit.com

Routing and timetables subject to change.

Also serving: Hardman Center, Riverside Airport, Metrolink, La Sierra, Cal. Paramedical College.
No service on: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day and Christmas Day.



15 Weekdays | Eastbound to Downtown Terminal

A.M. times are in PLAIN, **P.M. times are in BOLD** | Times are approximate

Pierce & Sterling	La Sierra & Arizona	La Sierra Metrolink	Galleria at Tyler	La Sierra & Hole/Pierce	Arlington & La Sierra	Arlington & Van Buren	Arlington & Streeter	Brockton Arcade	Riverside City College	Downtown Terminal
1	2	3	4	5	6	7	8	9	10	11
5:42	—	—	5:54	6:03	6:09	6:20	6:25	6:30	6:38	6:45
6:23	—	—	6:35	6:46	6:52	7:03	7:09	7:14	7:22	7:30
7:01	—	7:08	7:16	7:27	7:34	7:45	7:52	7:58	8:07	8:15
7:46	—	7:53	8:01	8:12	8:19	8:30	8:37	8:43	8:52	9:00
8:33	—	—	8:45	8:56	9:02	9:13	9:20	9:26	9:37	9:45
9:12	—	9:19	9:27	9:39	9:45	9:56	10:03	10:09	10:20	10:30
10:02	—	—	10:12	10:24	10:30	10:41	10:48	10:54	11:05	11:15
10:35	—	10:42	10:55	11:07	11:13	11:24	11:31	11:37	11:47	**12:00**
11:27	—	—	11:40	11:52	11:58	**12:09**	**12:16**	**12:22**	**12:32**	**12:45**
12:11	**—**	**—**	**12:24**	**12:36**	**12:42**	**12:53**	**1:01**	**1:07**	**1:17**	**1:30**
12:56	**—**	**—**	**1:09**	**1:21**	**1:27**	**1:38**	**1:46**	**1:52**	**2:02**	**2:15**
1:43	**—**	**—**	**1:53**	**2:06**	**2:12**	**2:23**	**2:31**	**2:37**	**2:47**	**3:00**
2:18	**—**	**2:25**	**2:38**	**2:51**	**2:57**	**3:08**	**3:16**	**3:22**	**3:32**	**3:45**
3:03	**3:17**	**3:21**	**3:31**	**3:44**	**3:50**	**4:01**	**4:09**	**4:15**	**4:25**	**4:34**
4:01	**—**	**—**	**4:14**	**4:26**	**4:32**	**4:43**	**4:50**	**4:56**	**5:06**	**5:15**
4:44	**—**	**4:52**	**5:00**	**5:12**	**5:18**	**5:29**	**5:36**	**5:42**	**5:52**	**6:00**
5:31	**—**	**5:39**	**5:47**	**5:57**	**6:03**	**6:14**	**6:21**	**6:27**	**6:37**	**6:45**
6:12	**—**	**6:20**	**6:28**	**6:38**	**6:44**	**6:55**	**7:02**	**7:08**	**7:18**	**7:25**
6:59	**—**	**7:07**	**7:15**	**7:24**	**7:30**	**7:41**	**7:47**	**7:53**	**8:03**	**8:10**
7:36	**—**	**7:44**	**7:52**	**8:01**	**8:07**	**8:17**	**8:23**	**8:29**	**8:39**	**8:45**
8:16	**—**	**—**	**8:27**	**8:36**	**8:42**	**8:52**	**8:58**	**9:04**	**9:14**	**9:20**

15 Weekdays | Westbound to Pierce and Sterling

A.M. times are in PLAIN, **P.M. times are in BOLD** | Times are approximate

Downtown Terminal	Riverside City College	Brockton Arcade	Arlington & Streeter	Arlington & Van Buren	Arlington & La Sierra	La Sierra & Hole/Pierce	Galleria at Tyler	La Sierra Metrolink	La Sierra & Arizona	Pierce & Sterling
11	10	9	8	7	6	5	4	3	2	1
4:10	4:14	4:23	4:27	4:33	4:41	4:46	4:55	5:01	—	5:10
4:45	4:49	4:58	5:02	5:08	5:16	5:21	5:30	5:36	—	5:45
5:20	5:24	5:33	5:37	5:43	5:53	5:59	6:08	6:14	—	6:23
6:00	6:05	6:15	6:20	6:26	6:36	6:43	6:55	7:02	7:12	7:21
6:55	7:00	7:10	7:15	7:22	7:33	7:40	7:52	—	—	8:07
7:40	7:45	7:55	8:00	8:07	8:18	8:25	8:37	—	—	8:52
8:25	8:30	8:40	8:46	8:53	9:04	9:11	9:23	—	—	9:38
9:10	9:15	9:25	9:31	9:38	9:49	9:56	10:08	10:15	—	10:24
9:55	10:00	10:10	10:16	10:23	10:34	10:41	10:53	—	—	11:02
10:40	10:46	10:56	11:02	11:09	11:20	11:27	11:40	11:47	—	**12:01**
11:25	11:31	11:41	11:47	11:55	**12:06**	**12:13**	**12:26**	**—**	**—**	**12:40**
12:10	**12:16**	**12:26**	**12:32**	**12:40**	**12:51**	**12:58**	**1:11**	**—**	**—**	**1:25**
12:55	**1:01**	**1:11**	**1:17**	**1:25**	**1:37**	**1:44**	**1:57**	**2:04**	**—**	**2:13**
1:40	**1:46**	**1:56**	**2:02**	**2:10**	**2:22**	**2:29**	**2:41**	**2:48**	**—**	**2:57**
2:25	**2:31**	**2:41**	**2:47**	**2:55**	**3:07**	**3:14**	**3:26**	**—**	**—**	**3:40**
3:10	**3:16**	**3:26**	**3:33**	**3:41**	**3:53**	**4:00**	**4:12**	**—**	**—**	**4:26**
3:55	**4:01**	**4:11**	**4:18**	**4:26**	**4:38**	**4:45**	**4:56**	**—**	**—**	**5:10**
4:40	**4:46**	**4:56**	**5:03**	**5:11**	**5:23**	**5:30**	**5:41**	**5:47**	**—**	**5:56**
5:25	**5:31**	**5:41**	**5:47**	**5:55**	**6:07**	**6:14**	**6:25**	**—**	**—**	**6:39**
6:10	**6:16**	**6:26**	**6:32**	**6:40**	**6:51**	**6:58**	**7:09**	**—**	**—**	**7:23**
6:55	**7:00**	**7:10**	**7:16**	**7:24**	**7:35**	**7:42**	**7:53**	**—**	**—**	**8:07**

15 Weekends | Eastbound to Downtown Terminal

A.M. times are in PLAIN, **P.M. times are in BOLD** | Times are approximate

Pierce & Sterling	La Sierra Metrolink	Galleria at Tyler	La Sierra & Hole/Pierce	Arlington & La Sierra	Arlington & Van Buren	Arlington & Streeter	Brockton Arcade	Riverside City College	Downtown Terminal
1	3	4	5	6	7	8	9	10	11
7:12	—	7:23	7:30	7:34	7:44	7:49	7:53	8:00	8:05
8:21	—	8:32	8:43	8:48	8:58	9:04	9:08	9:15	9:20
9:31	—	9:42	9:55	10:00	10:10	10:16	10:21	10:29	10:35
10:46	—	10:57	11:10	11:15	11:25	11:31	11:36	11:44	11:50
12:02	**—**	**12:13**	**12:23**	**12:28**	**12:39**	**12:45**	**12:50**	**12:59**	**1:05**
1:20	**—**	**1:31**	**1:41**	**1:47**	**1:58**	**2:05**	**2:10**	**2:19**	**2:25**
2:40	**—**	**2:51**	**3:01**	**3:07**	**3:18**	**3:25**	**3:30**	**3:39**	**3:45**
4:01	**—**	**4:12**	**4:22**	**4:28**	**4:38**	**4:45**	**4:50**	**4:59**	**5:05**
5:12	**5:18**	**5:27**	**5:37**	**5:43**	**5:53**	**6:00**	**6:05**	**6:14**	**6:20**
6:31	**6:37**	**6:45**	**6:55**	**7:01**	**7:09**	**7:16**	**7:21**	**7:29**	**7:35**

15 Weekends | Westbound to Pierce and Sterling

A.M. times are in PLAIN, **P.M. times are in BOLD** | Times are approximate

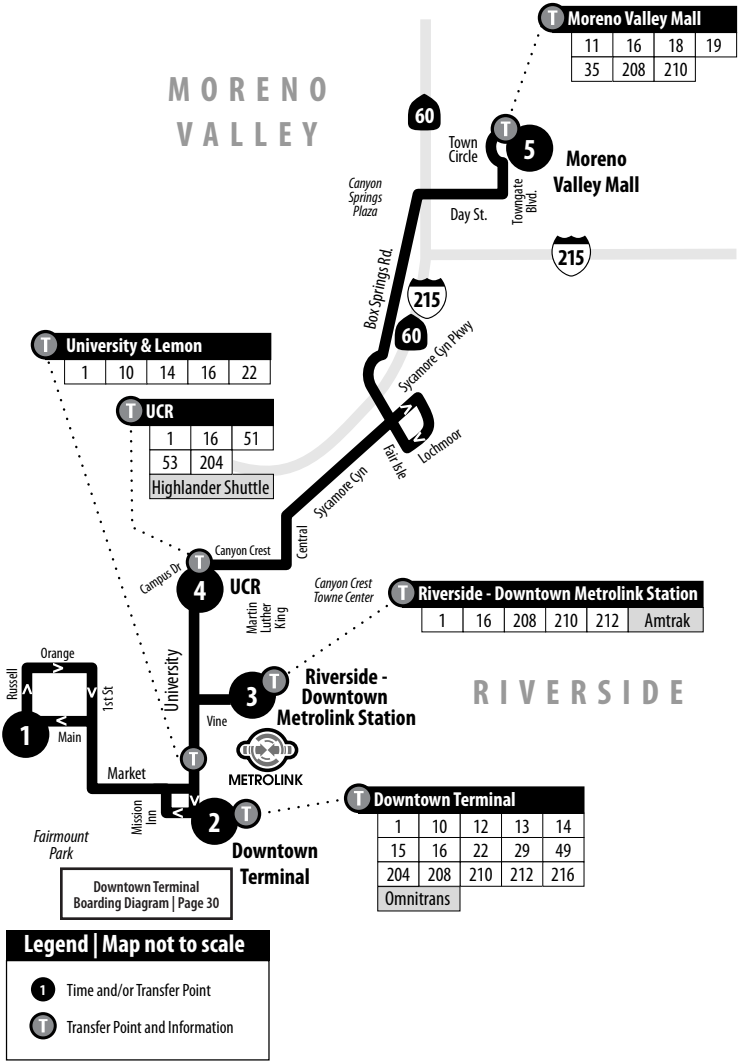
Downtown Terminal	Riverside City College	Brockton Arcade	Arlington & Streeter	Arlington & Van Buren	Arlington & La Sierra	La Sierra & Hole/Pierce	Galleria at Tyler	La Sierra Metrolink	Pierce & Sterling
11	10	9	8	7	6	5	4	3	1
7:00	7:03	7:10	7:13	7:18	7:27	7:34	7:41	7:46	7:51
8:15	8:19	8:26	8:30	8:35	8:44	8:51	9:00	9:06	9:13
9:30	9:34	9:41	9:45	9:51	10:00	10:07	10:16	—	10:27
10:45	10:49	10:56	11:00	11:06	11:16	11:23	11:34	—	11:45
12:00	**12:04**	**12:11**	**12:15**	**12:21**	**12:31**	**12:38**	**12:49**	**—**	**1:00**
1:15	**1:19**	**1:26**	**1:30**	**1:36**	**1:46**	**1:53**	**2:06**	**—**	**2:18**
2:35	**2:39**	**2:46**	**2:50**	**2:56**	**3:06**	**3:13**	**3:26**	**—**	**3:38**
3:55	**3:59**	**4:06**	**4:10**	**4:16**	**4:26**	**4:33**	**4:46**	**—**	**4:58**
5:15	**5:19**	**5:26**	**5:30**	**5:36**	**5:46**	**5:53**	**6:04**	**—**	**6:16**
6:30	**6:34**	**6:41**	**6:45**	**6:51**	**7:01**	**7:08**	**7:18**	**—**	**7:30**

16 Main & Russell to Moreno Valley Mall

Information Center
(951) 565-5002
Web site
www.RiversideTransit.com

Routing and timetables subject to change.

Also serving: Downtown, UCR, Canyon Crest Towne Center, Canyon Springs Plaza. **No service on:** New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day and Christmas Day.



16 Weekdays | Eastbound to Moreno Valley Mall

A.M. times are in PLAIN, **P.M. times are in BOLD** | Times are approximate

Main and Russell	Downtown Terminal	Riverside-Downtown Metrolink Station	UCR at Campus Dr	Moreno Valley Mall
1	2	3	4	5
—	5:18	5:23	5:33	5:55
5:39	5:46	5:52	6:02	6:25
6:08	6:15	6:21	6:32	6:55
6:37	6:44	6:50	7:01	7:25
7:06	7:13	7:19	7:30	7:55
7:32	7:40	7:46	7:59	8:25
8:02	8:10	8:16	8:29	8:55
8:32	8:40	8:46	8:59	9:25
9:02	9:10	9:16	9:29	9:55
9:30	9:39	9:46	9:59	10:25
10:00	10:09	10:16	10:29	10:55
10:28	10:37	10:44	10:58	11:25
10:58	11:07	11:14	11:28	11:55
11:27	11:36	11:43	11:57	**12:25**
11:55	**12:04**	**12:12**	**12:27**	**12:55**
12:24	**12:34**	**12:42**	**12:57**	**1:25**
12:54	**1:04**	**1:12**	**1:27**	**1:55**
1:24	**1:34**	**1:42**	**1:57**	**2:25**
1:52	**2:02**	**2:10**	**2:25**	**2:55**
2:22	**2:32**	**2:40**	**2:55**	**3:25**
2:51	**3:01**	**3:09**	**3:25**	**3:55**
3:21	**3:31**	**3:39**	**3:55**	**4:25**
3:51	**4:01**	**4:09**	**4:25**	**4:55**
4:21	**4:31**	**4:39**	**4:55**	**5:25**
4:51	**5:01**	**5:09**	**5:25**	**5:55**
5:21	**5:31**	**5:39**	**5:55**	**6:25**
5:59	**6:07**	**6:14**	**6:28**	**6:55**
6:30	**6:38**	**6:45**	**6:58**	**7:25**
7:01	**7:08**	**7:15**	**7:28**	**7:55**
—	**7:39**	**7:45**	**7:58**	**8:25**
—	**8:17**	**8:22**	**8:35**	**9:00**
—	**8:52**	**—**	**9:06**	**9:30**
—	**9:22**	**—**	**9:36**	**10:00**

16 Weekdays | Westbound to Main and Russell

A.M. times are in PLAIN, **P.M. times are in BOLD** | Times are approximate

Moreno Valley Mall	UCR at Campus Dr	Riverside-Downtown Metrolink Station	Downtown Terminal	Main and Russell
5	4	3	2	1
4:30	4:50	5:02	5:07	5:14
5:00	5:20	5:32	5:38	5:45
5:30	5:50	6:03	6:09	6:16
6:00	6:22	6:35	6:41	6:48
6:30	6:55	7:09	7:15	7:22
7:00	7:25	7:39	7:45	7:52
7:30	7:55	8:09	8:15	8:22
8:00	8:25	8:39	8:45	8:52
8:30	8:55	9:09	9:15	9:22
9:00	9:25	9:39	9:45	9:54
9:30	9:55	10:10	10:16	10:25
10:00	10:25	10:40	10:48	10:58
10:30	10:55	11:10	11:18	11:28
11:00	11:25	11:40	11:48	11:58
11:30	11:55	**12:10**	**12:18**	**12:28**
12:00	**12:25**	**12:40**	**12:48**	**12:58**
12:30	**12:55**	**1:10**	**1:18**	**1:28**
1:00	**1:25**	**1:41**	**1:49**	**1:59**
1:30	**1:56**	**2:12**	**2:20**	**2:30**
2:00	**2:26**	**2:42**	**2:50**	**3:00**
2:30	**2:56**	**3:12**	**3:20**	**3:30**
3:00	**3:26**	**3:42**	**3:50**	**4:00**
3:30	**3:56**	**4:12**	**4:20**	**4:30**
4:00	**4:26**	**4:42**	**4:50**	**5:00**
4:30	**4:56**	**5:12**	**5:20**	**5:30**
5:00	**5:26**	**5:42**	**5:50**	**6:00**
5:30	**5:55**	**6:11**	**6:18**	**6:28**
6:00	**6:25**	**6:39**	**6:46**	**6:56**
6:30	**6:54**	**7:08**	**7:14**	—
7:00	**7:24**	**7:38**	**7:44**	—
7:30	**7:53**	**8:07**	**8:13**	—
8:00	**8:23**	—	**8:42**	—
8:30	**8:53**	—	**9:08**	—
9:05	**9:28**	—	**9:43**	—

16 Weekends | Eastbound to Moreno Valley Mall

A.M. times are in PLAIN, **P.M. times are in BOLD** | Times are approximate
† = Saturdays only, **trip does not run on Sundays.**

	Main & Russell	Downtown Terminal	UCR at Campus Way	Moreno Valley Mall
	1	2	4	5
	6:16	6:25	6:37	6:59
	6:56	7:05	7:17	7:39
	7:36	7:45	7:57	8:19
	8:16	8:25	8:37	9:01
	8:56	9:05	9:17	9:41
	9:36	9:45	9:58	10:22
	10:16	10:25	10:39	11:04
	10:56	11:05	11:19	11:46
	11:36	11:45	**12:00**	**12:28**
	12:16	**12:25**	**12:40**	**1:09**
	12:56	**1:05**	**1:20**	**1:49**
	1:36	**1:45**	**2:00**	**2:29**
	2:16	**2:25**	**2:40**	**3:09**
	2:56	**3:05**	**3:20**	**3:49**
	3:36	**3:45**	**4:00**	**4:29**
	4:16	**4:25**	**4:40**	**5:09**
	4:56	**5:05**	**5:20**	**5:49**
	5:36	**5:45**	**6:00**	**6:29**
	6:16	**6:25**	**6:40**	**7:09**
	6:56	**7:05**	**7:20**	**7:49**
†	**7:36**	**7:45**	**8:00**	**8:29**
†	**8:16**	**8:25**	**8:40**	**9:09**



FYI: *All buses are accessible to persons with disabilities.*

16 Weekends | Westbound to Main and Russell

A.M. times are in PLAIN, **P.M. times are in BOLD** | Times are approximate
† = Saturdays only, **trip does not run on Sundays.**

	Moreno Valley Mall	UCR at Campus Way	Downtown Terminal	Main & Russell
	5	4	2	1
	6:40	6:59	7:11	7:17
	7:20	7:40	7:52	7:59
	8:00	8:21	8:33	8:40
	8:40	9:01	9:13	9:21
	9:20	9:42	9:55	10:04
	10:00	10:22	10:35	10:44
	10:40	11:02	11:15	11:24
	11:20	11:42	11:55	**12:04**
	12:00	**12:22**	**12:35**	**12:44**
	12:40	**1:02**	**1:16**	**1:25**
	1:20	**1:42**	**1:56**	**2:05**
	2:00	**2:22**	**2:36**	**2:45**
	2:40	**3:02**	**3:16**	**3:25**
	3:20	**3:42**	**3:56**	**4:05**
	4:00	**4:22**	**4:36**	**4:45**
	4:40	**5:02**	**5:16**	**5:25**
	5:20	**5:42**	**5:56**	**6:05**
	6:00	**6:22**	**6:36**	**6:45**
	6:40	**7:02**	**7:16**	**7:25**
	7:20	**7:42**	**7:56**	**8:05**
†	**8:00**	**8:22**	**8:36**	**8:45**

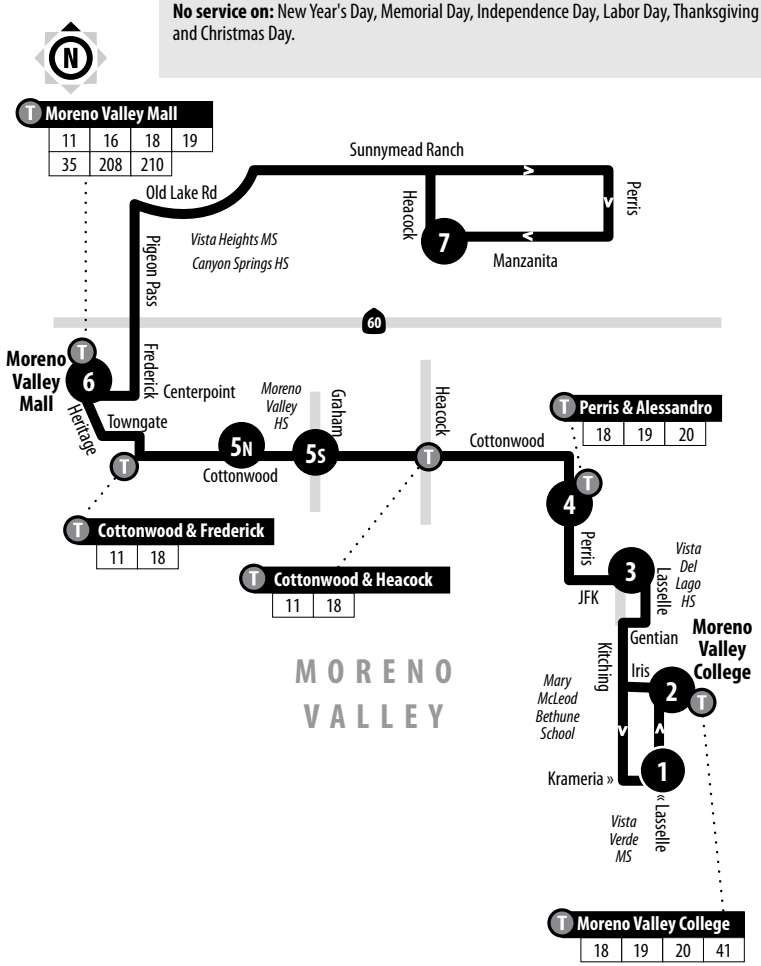
FYI: *Bus schedules can change. Watch for Riders Alerts on buses.*

18 Sunnymead Ranch to Moreno Valley College

Information Center
(951) 565-5002
Web site
www.RiversideTransit.com

Routing and timetables subject to change.

Also serving: Moreno Valley Mall/Hometown Buffet, Canyon Springs High School, Sunnymead Ranch, Moreno Valley High School, Vista Del Lago High School, Riverside Community College.
No service on: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day and Christmas Day.



Legend | Map not to scale

- 1 Time and/or Transfer Point
- T Transfer Point and Information
- Medical Facility

18 Weekdays | Northbound to Moreno Valley Mall & Sunnymead Ranch

A.M. times are in PLAIN, **P.M. times are in BOLD** | Times are approximate

Lasselle & Cahuilla Dr	Moreno Valley College	Lasselle & JFK	Alessandro & Perris	Cottonwood & Frederick	Moreno Valley Mall	Heacock & Manzanita
1	2	3	4	5N	6	7
5:53	5:55	6:04	6:12	6:20	6:30	6:50
6:55	6:57	7:08	7:16	7:25	7:35	7:55
8:00	8:02	8:13	8:21	8:30	8:40	8:59
9:07	9:09	9:18	9:26	9:35	9:45	10:04
10:12	10:14	10:23	10:31	10:40	10:50	11:09
11:16	11:18	11:27	11:36	11:45	11:55	**12:14**
12:21	**12:23**	**12:32**	**12:41**	**12:50**	**1:00**	**1:20**
1:24	**1:26**	**1:36**	**1:45**	**1:55**	**2:05**	**2:25**
2:29	**2:31**	**2:41**	**2:50**	**3:00**	**3:10**	**3:30**
3:33	**3:35**	**3:45**	**3:54**	**4:04**	**4:15**	**4:36**
4:39	**4:41**	**4:51**	**4:59**	**5:09**	**5:20**	**5:42**
5:46	**5:48**	**5:58**	**6:06**	**6:14**	**6:25**	**6:47**
6:52	**6:54**	**7:03**	**7:11**	**7:19**	**7:30**	**7:52**

18 Weekdays | Southbound to Moreno Valley College

A.M. times are in PLAIN, **P.M. times are in BOLD** | Times are approximate

Heacock & Manzanita	Moreno Valley Mall	Cottonwood & Graham	Alessandro & Perris	Lasselle & JFK	Lasselle & Cahuilla Dr
7	6	5S	4	3	1
—	6:10	6:19	6:27	6:34	6:46
6:50	7:15	7:24	7:33	7:40	7:52
7:55	8:20	8:28	8:37	8:44	8:52
8:59	9:25	9:33	9:42	9:49	9:57
10:04	10:30	10:38	10:47	10:54	11:02
11:09	11:35	11:44	11:53	**12:00**	**12:10**
12:14	**12:40**	**12:49**	**12:58**	**1:05**	**1:15**
1:20	**1:45**	**1:54**	**2:03**	**2:10**	**2:20**
2:25	**2:50**	**2:59**	**3:08**	**3:15**	**3:25**
3:30	**3:55**	**4:04**	**4:13**	**4:20**	**4:30**
4:36	**5:00**	**5:09**	**5:18**	**5:25**	**5:34**
5:42	**6:05**	**6:13**	**6:21**	**6:28**	**6:37**
6:47	**7:10**	**7:18**	**7:26**	**7:33**	**7:42**

18 Weekends | Northbound to Moreno Valley Mall & Sunnymead Ranch

A.M. times are in PLAIN, **P.M. times are in BOLD** | Times are approximate

Lasselle & Cahuilla Dr	Lasselle & JFK	Perris & Alessandro	Cottonwood & Frederick	Moreno Valley Mall	Heacock & Manzanita
1	3	4	5N	6	7
7:47	7:53	7:58	8:04	8:10	8:25
8:40	8:46	8:52	8:59	9:05	9:21
9:34	9:41	9:47	9:54	10:00	10:16
10:28	10:35	10:41	10:48	10:55	11:11
11:21	11:29	11:36	11:43	11:50	**12:06**
12:15	**12:23**	**12:30**	**12:38**	**12:45**	**1:03**
1:11	**1:19**	**1:26**	**1:34**	**1:40**	**1:59**
2:06	**2:14**	**2:21**	**2:29**	**2:35**	**2:54**
3:03	**3:11**	**3:17**	**3:24**	**3:30**	**3:49**
3:59	**4:06**	**4:12**	**4:19**	**4:25**	**4:44**
4:55	**5:02**	**5:08**	**5:15**	**5:20**	**5:38**
5:51	**5:58**	**6:03**	**6:10**	**6:15**	**6:31**
6:46	**6:53**	**6:58**	**7:05**	**7:10**	**7:26**

18 Weekends | Southbound to Moreno Valley College

A.M. times are in PLAIN, **P.M. times are in BOLD** | Times are approximate

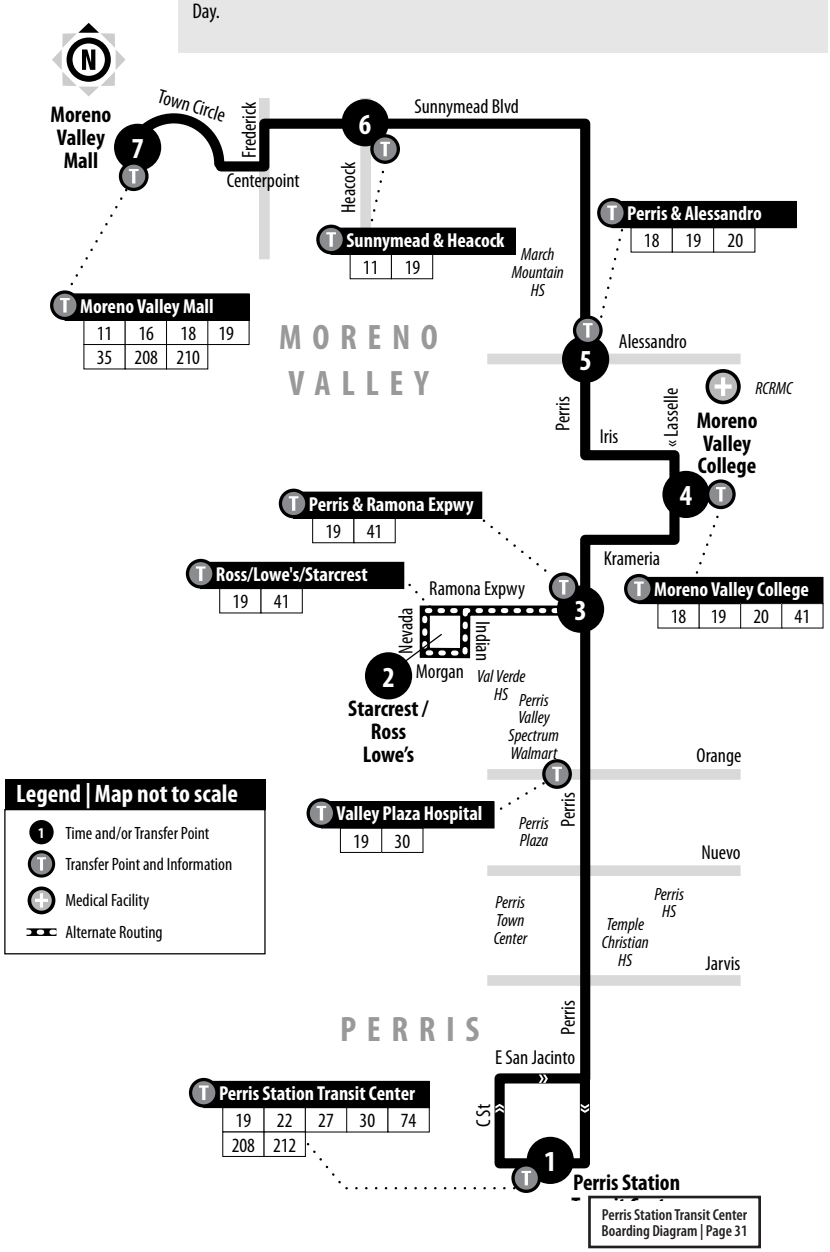
Heacock & Manzanita	Moreno Valley Mall	Cottonwood & Graham	Perris & Alessandro	Lasselle & JFK	Lasselle & Cahuilla Dr
7	6	5S	4	3	1
7:48	8:00	8:05	8:11	8:17	8:22
8:25	8:55	9:01	9:07	9:13	9:18
9:21	9:50	9:56	10:02	10:08	10:13
10:16	10:45	10:51	10:57	11:03	11:09
11:11	11:40	11:46	11:52	11:58	**12:05**
12:06	**12:35**	**12:42**	**12:48**	**12:54**	**1:01**
1:03	**1:30**	**1:37**	**1:44**	**1:50**	**1:57**
1:59	**2:25**	**2:32**	**2:39**	**2:45**	**2:52**
2:54	**3:20**	**3:27**	**3:34**	**3:39**	**3:45**
3:49	**4:15**	**4:22**	**4:29**	**4:34**	**4:40**
4:44	**5:10**	**5:16**	**5:22**	**5:27**	**5:33**
5:38	**6:05**	**6:11**	**6:17**	**6:22**	**6:28**
6:31	**7:00**	**7:06**	**7:12**	**7:17**	**7:23**

19 Moreno Valley Mall to Perris Station Transit Center

Information Center
(951) 565-5002
Web site
www.RiversideTransit.com

Routing and timetables subject to change.

Also serving: March Mountain High School, RCC, Perris, Perris High School. **No service on:** New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day and Christmas Day.



Perris Station Transit Center Boarding Diagram | Page 31

19 Weekdays | Northbound to Moreno Valley Mall

A.M. times are in PLAIN, **P.M. times are in BOLD** | Times are approximate

Perris Station Transit Center	Ross Lowe's Starcrest	Perris & Ramona Exp.	Moreno Valley College	Alessandro & Perris	Sunnymead & Heacock	Moreno Valley Mall
1	2	3	4	5	6	7
4:15	4:31	4:41	4:49	5:01	5:09	5:15
5:14	5:30	5:40	5:49	6:01	6:09	6:15
6:13	6:29	6:39	6:48	7:00	7:09	7:15
7:08	7:25	7:34	7:43	7:58	8:09	8:15
8:04	8:22	8:31	8:41	8:57	9:09	9:15
9:12	—	9:29	9:39	9:56	10:09	10:15
10:11	—	10:28	10:38	10:55	11:08	11:15
11:11	—	11:28	11:38	11:55	**12:08**	**12:15**
12:11	**—**	**12:28**	**12:38**	**12:55**	**1:08**	**1:15**
1:09	**1:29**	**1:38**	**1:48**	**2:05**	**2:18**	**2:25**
2:09	**2:29**	**2:38**	**2:48**	**3:05**	**3:18**	**3:25**
3:10	**3:30**	**3:39**	**3:49**	**4:06**	**4:18**	**4:25**
4:12	**4:32**	**4:41**	**4:50**	**5:07**	**5:18**	**5:25**
5:12	**5:32**	**5:41**	**5:50**	**6:07**	**6:18**	**6:25**
6:17	**6:37**	**6:46**	**6:55**	**7:08**	**7:18**	**7:25**
7:17	**—**	**7:31**	**7:40**	**7:53**	**8:03**	**8:10**
8:04	**—**	**8:18**	**8:26**	**8:38**	**8:48**	**8:55**
8:57	**—**	**9:11**	**9:19**	**9:31**	**9:41**	**9:48**



FYI: *Report suspicious behavior: If you see something, say something.*

19 Weekdays | Southbound to Perris Station Transit Center

A.M. times are in PLAIN, **P.M. times are in BOLD** | Times are approximate

Moreno Valley Mall	Sunnymead & Heacock	Alessandro & Perris	Moreno Valley College	Ross Lowe's Starcrest	Perris & Ramona Exp.	Perris Station Transit Center
7	6	5	4	2	3	1
5:30	5:36	5:46	5:55	6:08	6:17	6:30
6:30	6:36	6:46	6:56	7:09	7:18	7:30
7:30	7:36	7:46	7:56	8:09	8:19	8:40
8:30	8:37	8:48	8:58	—	9:10	9:34
9:30	9:37	9:48	9:58	—	10:10	10:34
10:30	10:37	10:48	11:00	—	11:12	11:36
11:30	11:38	11:52	**12:04**	**—**	**12:16**	**12:40**
12:40	**12:48**	**1:02**	**1:14**	**1:28**	**1:38**	**2:02**
1:40	**1:48**	**2:02**	**2:14**	**2:28**	**2:38**	**3:02**
2:40	**2:48**	**3:02**	**3:14**	**3:28**	**3:38**	**4:02**
3:40	**3:48**	**4:02**	**4:14**	**4:28**	**4:38**	**5:02**
4:40	**4:48**	**5:02**	**5:14**	**5:28**	**5:38**	**6:02**
5:40	**5:48**	**6:01**	**6:14**	**6:28**	**6:38**	**7:02**
6:40	**6:48**	**7:01**	**7:13**	**—**	**7:23**	**7:45**
7:40	**7:47**	**8:00**	**8:10**	**—**	**8:20**	**8:40**
8:40	**8:47**	**8:57**	**9:07**	**—**	**9:17**	**9:35**



DID YOU KNOW? *From 1995 to 2009, public transportation ridership increased by 31 percent.*

19 Weekends | Northbound to Moreno Valley Mall

A.M. times are in PLAIN, **P.M. times are in BOLD** | Times are approximate

Perris Station Transit Center	Perris & Ramona Exp.	Moreno Valley College	Alessandro & Perris	Sunnymead & Heacock	Moreno Valley Mall
1	3	4	5	6	7
6:27	6:40	6:47	6:58	7:08	7:15
7:34	7:48	7:56	8:08	8:18	8:25
8:39	8:54	9:03	9:17	9:28	9:35
9:45	10:02	10:11	10:26	10:38	10:45
10:55	11:12	11:21	11:36	11:48	11:55
12:04	**12:21**	**12:30**	**12:45**	**12:57**	**1:05**
1:14	**1:31**	**1:40**	**1:55**	**2:07**	**2:15**
2:24	**2:41**	**2:50**	**3:05**	**3:17**	**3:25**
3:36	**3:52**	**4:00**	**4:15**	**4:27**	**4:35**
4:48	**5:03**	**5:11**	**5:26**	**5:37**	**5:45**
6:03	**6:17**	**6:25**	**6:38**	**6:48**	**6:55**

19 Weekends | Southbound to Perris Station Transit Center

A.M. times are in PLAIN, **P.M. times are in BOLD** | Times are approximate

Moreno Valley Mall	Sunnymead & Heacock	Alessandro & Perris	Moreno Valley College	Perris & Ramona Exp.	Perris Station Transit Center
7	6	5	4	3	1
7:30	7:36	7:45	7:55	8:05	8:19
8:40	8:47	8:56	9:07	9:17	9:32
9:50	9:57	10:07	10:18	10:28	10:44
11:00	11:07	11:18	11:29	11:39	11:55
12:10	**12:17**	**12:28**	**12:40**	**12:50**	**1:08**
1:20	**1:27**	**1:38**	**1:50**	**2:00**	**2:18**
2:30	**2:37**	**2:48**	**3:00**	**3:10**	**3:28**
3:40	**3:47**	**3:58**	**4:09**	**4:19**	**4:37**
4:50	**4:57**	**5:08**	**5:19**	**5:29**	**5:47**
6:00	**6:07**	**6:18**	**6:29**	**6:39**	**6:55**
7:10	**7:17**	**7:28**	**7:39**	**7:49**	**8:03**

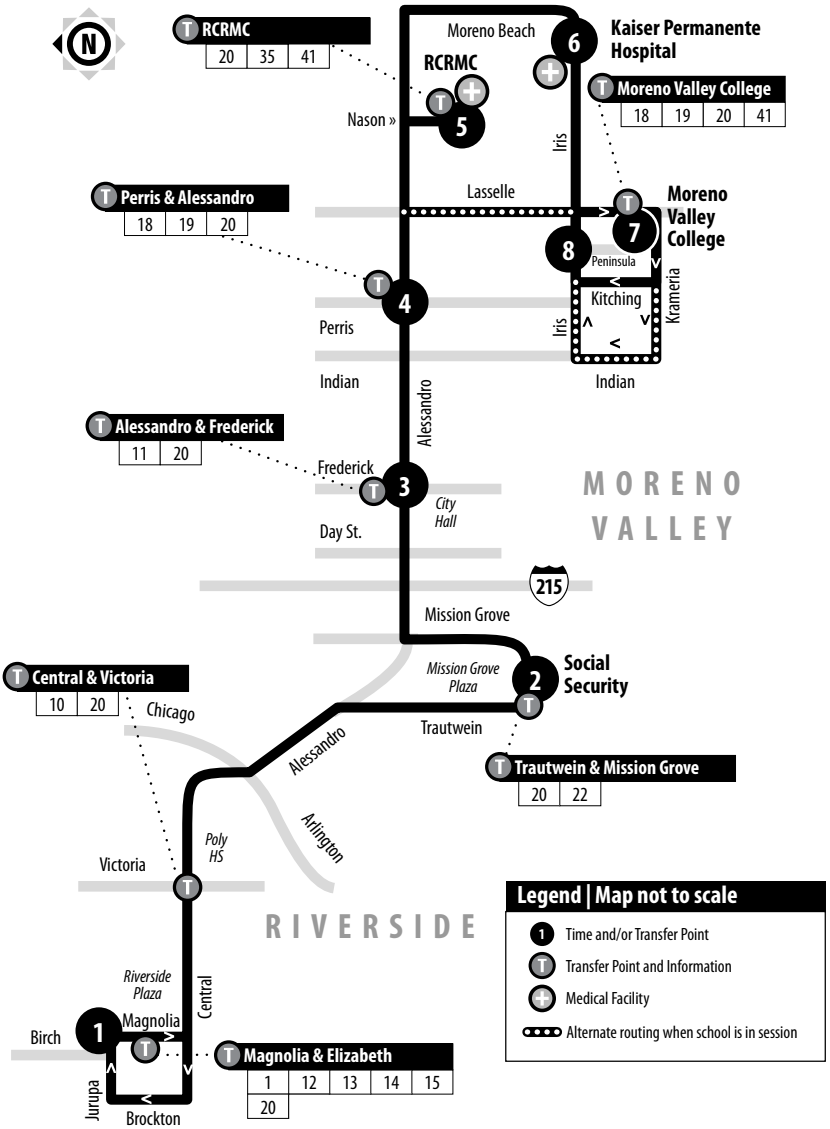
20

Magnolia Center, RCR Med Cntr, MoVal Comm Hosp, Moreno Valley College

Information Center
(951) 565-5002
Web site
www.RiversideTransit.com

Routing and timetables subject to change.

No service on: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day and Christmas Day.



20 Weekdays | Eastbound to Moreno Valley College

A.M. times are in PLAIN, **P.M. times are in BOLD** | Times are approximate
S = Operates when school is in session

	Magnolia & Jurupa	Mission Grove at Social Security	Alessandro & Frederick	Alessandro & Perris	RCRMC Moreno Valley	Iris at Kaiser Permanente Hospital	Moreno Valley College	Iris & Peninsula
	1	2	3	4	5	6	7	8
S	—	—	—	—	—	—	6:07	6:13
	5:28	5:48	5:57	6:05	6:12	6:21	6:25	6:31
	6:23	6:46	6:56	7:05	7:13	7:22	7:27	7:35
	7:21	7:45	7:55	8:05	8:14	8:23	8:28	8:36
	8:20	8:44	8:55	9:05	9:14	9:23	9:28	9:35
	9:19	9:43	9:54	10:05	10:14	10:24	10:29	10:36
	10:18	10:42	10:53	11:05	11:14	11:24	11:29	11:36
	11:17	11:42	11:53	**12:05**	**12:14**	**12:24**	**12:29**	**12:36**
	12:17	**12:42**	**12:53**	**1:05**	**1:14**	**1:24**	**1:29**	**1:36**
	12:50	**1:17**	**1:28**	**1:40**	**1:49**	**1:59**	**2:04**	**2:11**
	1:48	**2:16**	**2:28**	**2:40**	**2:49**	**2:59**	**3:04**	**3:11**
	2:48	**3:16**	**3:28**	**3:40**	**3:48**	**3:58**	**4:03**	**4:10**
S	**—**	**3:22**	**3:34**	**3:46**	**—**	**—**	**—**	**4:09**
	3:48	**4:16**	**4:28**	**4:40**	**4:48**	**4:58**	**5:03**	**5:09**
	4:48	**5:16**	**5:28**	**5:40**	**5:48**	**5:58**	**6:03**	**6:08**
	5:52	**6:18**	**6:29**	**6:40**	**6:48**	**6:57**	**7:01**	**7:06**
	6:53	**7:18**	**7:29**	**7:40**	**7:48**	**7:57**	**8:01**	**8:06**
	7:43	**8:08**	**8:19**	**8:30**	**8:38**	**8:47**	**8:51**	**8:56**

FYI: *Carry-on items should be stowed under your seat or on your lap.*

20 Weekdays | Westbound to Magnolia Center

A.M. times are in PLAIN, **P.M. times are in BOLD** | Times are approximate
S = Operates when school is in session

	Iris & Peninsula	Iris at Kaiser Permanente Hospital	RCRMC Moreno Valley	Alessandro & Perris	Alessandro & Frederick	Mission Grove at Social Security	Magnolia & Jurupa
	8	6	5	4	3	2	1
	5:57	6:02	6:11	6:20	6:27	6:37	6:57
S	6:13	—	—	6:38	6:45	6:55	—
	6:55	7:01	7:11	7:20	7:29	7:39	8:03
	7:51	7:58	8:09	8:20	8:30	8:40	9:01
	8:51	8:58	9:09	9:20	9:30	9:40	10:01
	9:51	9:58	10:09	10:20	10:30	10:40	11:01
	10:51	10:58	11:09	11:20	11:31	11:42	**12:06**
	11:50	11:57	**12:09**	**12:20**	**12:31**	**12:42**	**1:05**
	12:25	**12:32**	**12:44**	**12:55**	**1:06**	**1:17**	**1:40**
	1:25	**1:32**	**1:44**	**1:55**	**2:06**	**2:17**	**2:40**
	2:25	**2:32**	**2:44**	**2:55**	**3:06**	**3:17**	**3:40**
	3:25	**3:32**	**3:44**	**3:55**	**4:06**	**4:17**	**4:40**
	4:26	**4:33**	**4:45**	**4:55**	**5:05**	**5:16**	**5:39**
	5:28	**5:34**	**5:45**	**5:55**	**6:05**	**6:16**	**6:37**
	6:28	**6:34**	**6:45**	**6:55**	**7:04**	**7:14**	**7:33**
	7:18	**7:24**	**7:35**	**7:45**	**7:54**	**8:04**	**8:23**

DID YOU KNOW? *For every dollar spent, the average household spends 18 cents on transportation, and 94 percent of this goes to buying, maintaining and operating cars.*

20 Weekends | Eastbound to Moreno Valley College

A.M. times are in PLAIN, **P.M. times are in BOLD** | Times are approximate
† = Saturdays only, **trip does not operate on Sundays.**

	Magnolia & Jurupa	Mission Grove at Social Security	Alessandro & Frederick	Alessandro & Perris	RCRMC Moreno Valley	Iris at Kaiser Permanente Hospital	Iris & Peninsula
	1	2	3	4	5	6	8
	7:22	7:44	7:52	8:00	8:06	8:13	8:22
	8:11	8:33	8:42	8:50	8:56	9:04	9:13
	8:59	9:22	9:32	9:40	9:46	9:54	10:03
	9:49	10:12	10:22	10:30	10:36	10:44	10:53
	10:41	11:04	11:13	11:20	11:26	11:34	11:43
	11:31	11:54	**12:03**	**12:10**	**12:16**	**12:24**	**12:33**
	12:21	**12:44**	**12:53**	**1:00**	**1:06**	**1:14**	**1:23**
	1:10	**1:33**	**1:42**	**1:50**	**1:56**	**2:04**	**2:13**
	1:58	**2:22**	**2:32**	**2:40**	**2:46**	**2:55**	**3:04**
	2:48	**3:12**	**3:22**	**3:30**	**3:36**	**3:45**	**3:54**
	3:38	**4:02**	**4:12**	**4:20**	**4:26**	**4:35**	**4:44**
	4:29	**4:53**	**5:02**	**5:10**	**5:16**	**5:25**	**5:34**
	5:20	**5:43**	**5:52**	**6:00**	**6:06**	**6:14**	**6:23**
	6:10	**6:33**	**6:42**	**6:50**	**6:56**	**7:04**	**7:13**
	7:00	**7:23**	**7:32**	**7:40**	**7:46**	**7:54**	**8:03**
†	**7:50**	**8:13**	**8:22**	**8:30**	**8:36**	**8:44**	**8:53**

FYI: *Stay connected with RTA e-alerts, Twitter and Facebook.*

20 Weekends | Westbound to Magnolia Center

A.M. times are in PLAIN, **P.M. times are in BOLD** | Times are approximate
† = Saturdays only, **trip does not operate on Sundays.**

	Iris & Peninsula	Iris at Kaiser Permanente Hospital	RCRMC Moreno Valley	Alessandro & Perris	Alessandro & Frederick	Mission Grove at Social Security	Magnolia & Jurupa
	8	6	5	4	3	2	1
	7:44	7:48	7:56	8:05	8:12	8:22	8:42
	8:34	8:38	8:46	8:55	9:02	9:12	9:32
	9:24	9:28	9:36	9:45	9:52	10:02	10:22
	10:15	10:19	10:27	10:35	10:42	10:52	11:12
	11:05	11:09	11:17	11:25	11:31	11:41	**12:01**
	11:55	11:59	**12:07**	**12:15**	**12:21**	**12:31**	**12:51**
	12:45	**12:49**	**12:57**	**1:05**	**1:11**	**1:21**	**1:42**
	1:35	**1:39**	**1:47**	**1:55**	**2:01**	**2:12**	**2:33**
	2:25	**2:29**	**2:37**	**2:45**	**2:51**	**3:02**	**3:23**
	3:15	**3:19**	**3:27**	**3:35**	**3:41**	**3:52**	**4:13**
	4:05	**4:09**	**4:17**	**4:25**	**4:32**	**4:42**	**5:03**
	4:55	**4:59**	**5:07**	**5:15**	**5:22**	**5:32**	**5:53**
	5:45	**5:49**	**5:57**	**6:05**	**6:12**	**6:22**	**6:42**
	6:35	**6:39**	**6:47**	**6:55**	**7:02**	**7:12**	**7:31**
†	**7:25**	**7:29**	**7:37**	**7:45**	**7:52**	**8:02**	**8:21**

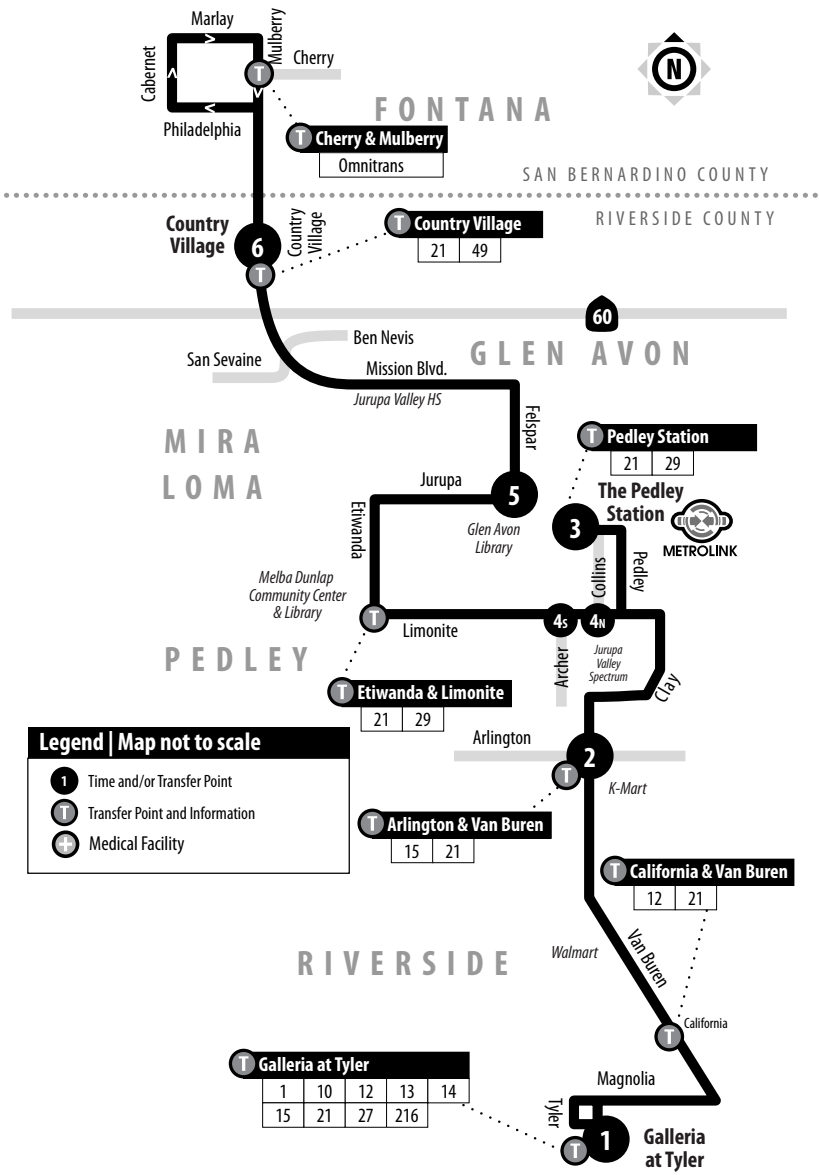
DID YOU KNOW? *Pass-holders can save up to 60 percent compared to cash-paying customers.*

21 Galleria at Tyler to Country Village

Information Center
(951) 565-5002
Web site
www.RiversideTransit.com

Routing and timetables subject to change.

Also serving: Glen Avon Library, Pedley Station Metrolink, Van Buren. **No service on:** New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day and Christmas Day.



21 Weekdays | Northbound to Country Village

A.M. times are in PLAIN, **P.M. times are in BOLD** | Times are approximate

Galleria at Tyler	Van Buren & Arlington	Pedley Metrolink Station	Limonite & Collins	Felspar & Jurupa	Country Village
1	2	3	4N	5	6
6:15	6:26	6:37	6:40	6:57	7:13
7:20	7:33	7:44	7:47	8:04	8:20
8:25	8:38	—	8:48	9:05	9:21
9:30	9:47	—	9:58	10:15	10:31
10:35	10:53	—	11:04	11:21	11:37
11:40	11:58	—	**12:10**	**12:27**	**12:43**
12:45	**1:03**	**—**	**1:15**	**1:32**	**1:48**
1:50	**2:08**	**—**	**2:20**	**2:38**	**2:54**
2:55	**3:12**	**3:23**	**3:26**	**3:44**	**4:00**
4:00	**4:17**	**—**	**4:29**	**4:47**	**5:03**
5:05	**5:21**	**5:32**	**5:35**	**5:53**	**6:09**
6:15	**6:29**	**6:40**	**6:43**	**7:01**	**7:16**
7:25	**7:38**	**7:49**	**7:52**	**8:08**	**8:23**

21 Weekdays | Southbound to Galleria at Tyler

A.M. times are in PLAIN, **P.M. times are in BOLD** | Times are approximate

Country Village	Felspar & Jurupa	Limonite & Archer	Pedley Metrolink Station	Van Buren & Arlington	Galleria at Tyler
6	5	4S	3	2	1
6:27	6:36	6:53	6:56	7:05	7:15
The 6:27 a.m. trip will start service at the first stop on Country Village Rd. north of Granite Hills Dr. at approximately 6:17 a.m.					
7:28	7:37	7:55	7:58	8:08	8:20
8:35	8:45	9:03	—	9:13	9:25
9:40	9:50	10:08	—	10:18	10:30
10:45	10:55	11:13	—	11:23	11:35
11:49	11:59	**12:17**	**—**	**12:27**	**12:40**
12:54	**1:04**	**1:22**	**—**	**1:32**	**1:45**
1:58	**2:08**	**2:27**	**—**	**2:37**	**2:50**
3:03	**3:13**	**3:32**	**—**	**3:42**	**3:55**
4:09	**4:19**	**4:38**	**—**	**4:48**	**5:00**
5:11	**5:21**	**5:40**	**5:43**	**5:53**	**6:05**
6:21	**6:30**	**6:47**	**6:50**	**7:00**	**7:10**
7:28	**7:37**	**7:53**	**7:56**	**8:05**	**8:15**

21 Weekends | Northbound to Country Village

A.M. times are in PLAIN, **P.M. times are in BOLD** | Times are approximate

Galleria at Tyler	Van Buren & Arlington	Limonite & Collins	Felspar & Jurupa	Country Village
1	2	4N	5	6
8:00	8:13	8:27	8:42	8:58
9:05	9:19	9:33	9:50	10:06
10:10	10:24	10:38	10:55	11:11
11:15	11:30	11:44	**12:01**	**12:16**
12:20	**12:35**	**12:49**	**1:06**	**1:21**
1:25	**1:41**	**1:54**	**2:11**	**2:26**
2:30	**2:46**	**2:59**	**3:16**	**3:31**
3:35	**3:51**	**4:04**	**4:21**	**4:35**
4:40	**4:56**	**5:09**	**5:26**	**5:40**
5:45	**6:01**	**6:14**	**6:31**	**6:45**

21 Weekends | Southbound to Galleria at Tyler

A.M. times are in PLAIN, **P.M. times are in BOLD** | Times are approximate

Country Village	Felspar & Jurupa	Limonite & Archer	Van Buren & Arlington	Galleria at Tyler
6	5	4S	2	1
8:12	8:21	8:37	8:49	9:00
The 8:12 a.m. trip will start service at the first stop on Country Village Rd. north of Granite Hills Dr. at approximately 8:02 a.m.				
9:14	9:24	9:41	9:53	10:05
10:16	10:26	10:44	10:56	11:10
11:21	11:31	11:49	**12:01**	**12:15**
12:24	**12:36**	**12:54**	**1:06**	**1:20**
1:29	**1:41**	**1:59**	**2:11**	**2:25**
2:34	**2:46**	**3:04**	**3:16**	**3:30**
3:41	**3:52**	**4:09**	**4:21**	**4:35**
4:49	**5:00**	**5:17**	**5:28**	**5:40**

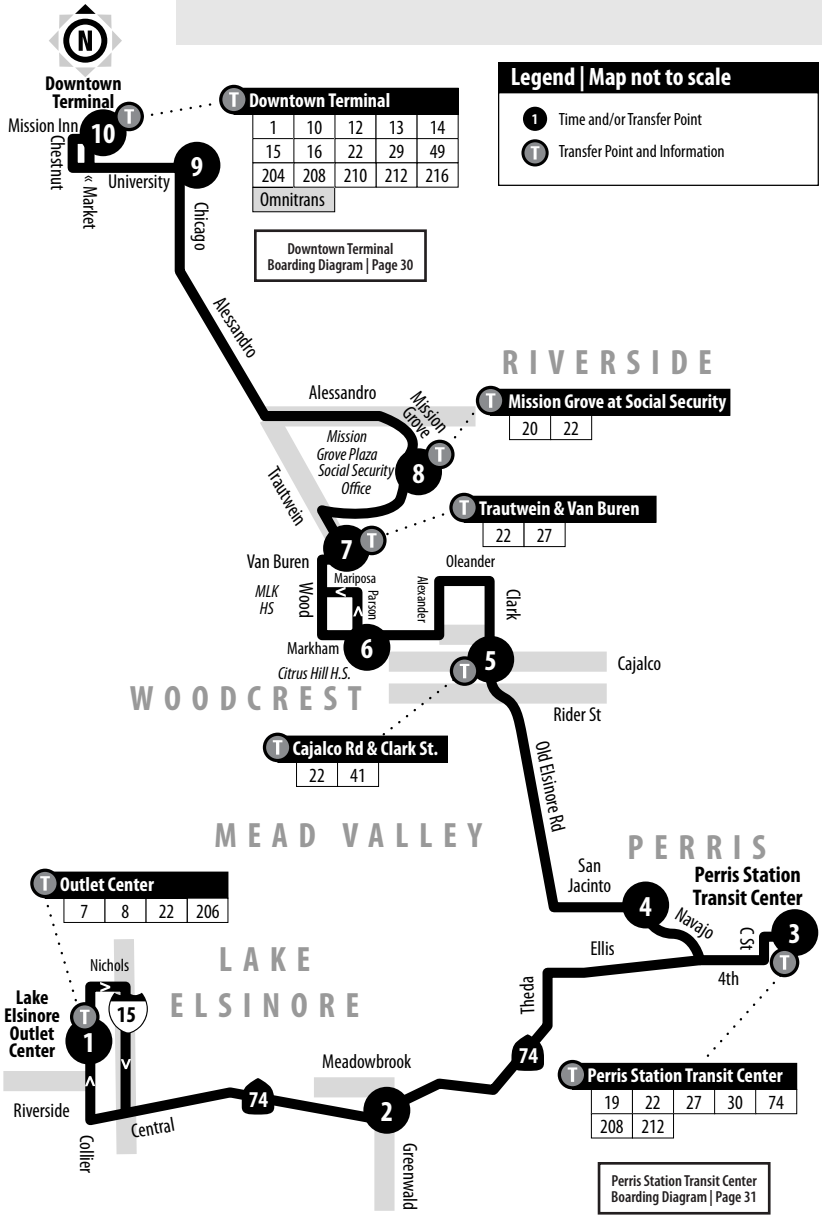
22

Downtown Terminal to Lake Elsinore Outlet Center

Information Center
(951) 565-5002
Web site
www.RiversideTransit.com

Routing and timetables subject to change.

Also serving: Lake Elsinore, Mead Valley, Woodcrest, & Kmart. **No service on:** New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day and Christmas Day.



22 Weekdays | Northbound to Downtown Terminal

A.M. times are in PLAIN, **P.M. times are in BOLD** | Times are approximate
S = Operates when school is in session

	Lake Elsinore Outlet Center	Hwy. 74 & Meadowbrook	Perris Station Transit Center	San Jacinto & Navajo	Clark & Cajalco	Parsons & Markham	Trautwein & Van Buren	Mission Grove at Social Security	Chicago & University	Downtown Terminal
	1	2	3	4	5	6	7	8	9	10
	—	—	4:36	4:43	4:52	5:01	5:11	5:16	5:26	5:34
	5:00	5:10	5:26	5:33	5:42	5:53	6:03	6:08	6:18	6:26
	5:50	6:00	6:16	6:23	6:33	6:44	6:54	6:59	7:14	7:22
S	—	—	6:45	6:52	7:02	7:13	7:23	7:28	7:43	—
	6:50	7:02	7:19	7:26	7:36	7:47	7:57	8:02	8:17	8:25
	7:50	8:02	8:19	8:26	8:36	8:47	8:57	9:02	9:17	9:25
	8:50	9:02	9:19	9:26	9:36	9:47	9:57	10:02	10:17	10:25
	9:50	10:02	10:19	10:26	10:36	10:47	10:57	11:02	11:17	11:25
	10:50	11:02	11:19	11:26	11:36	11:47	11:57	**12:02**	**12:17**	**12:25**
	11:50	**12:02**	**12:19**	**12:26**	**12:37**	**12:48**	**12:58**	**1:03**	**1:18**	**1:26**
	12:50	**1:02**	**1:19**	**1:26**	**1:37**	**1:48**	**1:58**	**2:03**	**2:18**	**2:26**
	1:50	**2:03**	**2:20**	**2:27**	**2:38**	**2:49**	**3:00**	**3:05**	**3:20**	**3:28**
S	—	—	—	—	—	**3:00**	**3:14**	**3:19**	—	—
	2:50	**3:03**	**3:20**	**3:27**	**3:38**	**3:48**	**3:59**	**4:04**	**4:19**	**4:27**
	3:50	**4:03**	**4:20**	**4:27**	**4:38**	**4:48**	**4:59**	**5:04**	**5:19**	**5:27**
	4:50	**5:03**	**5:20**	**5:27**	**5:38**	**5:48**	**5:59**	**6:04**	**6:18**	**6:26**
	5:50	**6:02**	**6:19**	**6:26**	**6:37**	**6:47**	**6:58**	**7:03**	**7:14**	**7:22**
	6:50	**7:02**	**7:16**	**7:23**	**7:33**	**7:43**	**7:53**	**7:58**	**8:09**	**8:17**
	7:50	**8:02**	**8:16**	**8:23**	**8:33**	**8:43**	**8:53**	**8:58**	**9:09**	**9:17**

22 Weekdays | Southbound to Lake Elsinore Outlet Center

A.M. times are in PLAIN, **P.M. times are in BOLD** | Times are approximate
S = Operates when school is in session

	Downtown Terminal	Chicago & University	Mission Grove at Social Security	Trautwein & Van Buren	Parsons & Markham	Clark & Cajalco	San Jacinto & Navajo	Perris Station Transit Center	Hwy. 74 & Meadowbrook	Lake Elsinore Outlet Center
	10	**9**	**8**	**7**	**6**	**5**	**4**	**3**	**2**	**1**
	—	—	—	—	—	—	—	5:59	6:15	6:25
	5:58	6:06	6:21	6:26	6:34	6:42	6:52	6:59	7:15	7:25
S	—	—	6:58	7:03	7:11	7:19	7:29	7:36	—	—
	6:52	7:01	7:16	7:21	7:29	7:37	7:48	7:57	8:14	8:25
	7:51	8:00	8:15	8:20	8:28	8:36	8:47	8:57	9:14	9:25
	8:51	9:00	9:15	9:20	9:28	9:36	9:47	9:57	10:14	10:25
	9:50	9:59	10:14	10:19	10:27	10:35	10:46	10:56	11:14	11:25
	10:47	10:57	11:13	11:18	11:26	11:34	11:45	11:56	**12:14**	**12:25**
	11:39	11:49	**12:05**	**12:10**	**12:22**	**12:34**	**12:45**	**12:56**	**1:14**	**1:25**
	12:39	**12:49**	**1:05**	**1:10**	**1:22**	**1:34**	**1:45**	**1:56**	**2:14**	**2:25**
	1:41	**1:51**	**2:08**	**2:13**	**2:25**	**2:37**	**2:48**	**2:56**	**3:14**	**3:25**
S	**—**	**—**	**—**	**2:38**	**3:00**	**3:12**	**3:23**	**3:34**	**—**	**—**
	2:43	**2:53**	**3:10**	**3:15**	**3:25**	**3:37**	**3:48**	**3:56**	**4:14**	**4:25**
	3:45	**3:55**	**4:12**	**4:17**	**4:27**	**4:39**	**4:50**	**4:58**	**5:15**	**5:25**
	4:46	**4:56**	**5:13**	**5:18**	**5:28**	**5:40**	**5:51**	**5:58**	**6:15**	**6:25**
	5:46	**5:56**	**6:13**	**6:18**	**6:28**	**6:40**	**6:51**	**6:58**	**7:15**	**7:25**
	6:42	**6:50**	**7:03**	**7:08**	**7:18**	**7:30**	**7:41**	**7:48**	**—**	**—**
	7:40	**7:48**	**8:01**	**8:06**	**8:14**	**8:22**	**8:31**	**8:38**	**—**	**—**
	8:30	**8:38**	**8:51**	**8:56**	**9:04**	**9:12**	**9:21**	**9:28**	**—**	**—**

22 Weekends | Northbound to Downtown Terminal

A.M. times are in PLAIN, **P.M. times are in BOLD** | Times are approximate

Lake Elsinore Outlet Center	Hwy. 74 & Meadowbrook	Perris Station Transit Center	San Jacinto & Navajo	Clark & Cajalco	Parsons & Markham	Trautwein & Van Buren	Mission Grove at Social Security	Chicago & University	Downtown Terminal
1	2	3	4	5	6	7	8	9	10
—	—	6:05	6:10	6:21	6:32	6:42	6:46	6:58	7:06
6:58	7:10	7:25	7:30	7:41	7:52	8:02	8:06	8:20	8:28
8:16	8:28	8:45	8:50	9:01	9:12	9:22	9:26	9:42	9:50
9:36	9:48	10:05	10:11	10:22	10:33	10:43	10:47	11:03	11:11
10:56	11:08	11:25	11:31	11:42	11:53	**12:03**	**12:07**	**12:23**	**12:31**
12:16	**12:28**	**12:45**	**12:51**	**1:02**	**1:13**	**1:23**	**1:27**	**1:42**	**1:50**
1:36	**1:48**	**2:05**	**2:11**	**2:22**	**2:33**	**2:43**	**2:47**	**3:02**	**3:10**
2:56	**3:08**	**3:25**	**3:31**	**3:42**	**3:53**	**4:03**	**4:07**	**4:22**	**4:30**
4:18	**4:29**	**4:45**	**4:51**	**5:01**	**5:12**	**5:21**	**5:25**	**5:40**	**5:48**
5:28	**5:39**	**5:55**	**6:01**	**6:11**	**6:22**	**6:31**	**6:35**	**6:50**	**6:58**
6:41	**6:51**	**7:05**	**7:11**	**7:21**	**7:32**	**7:40**	**7:44**	**7:58**	**8:06**

22 Weekends | Southbound to Lake Elsinore Outlet Center

A.M. times are in PLAIN, **P.M. times are in BOLD** | Times are approximate

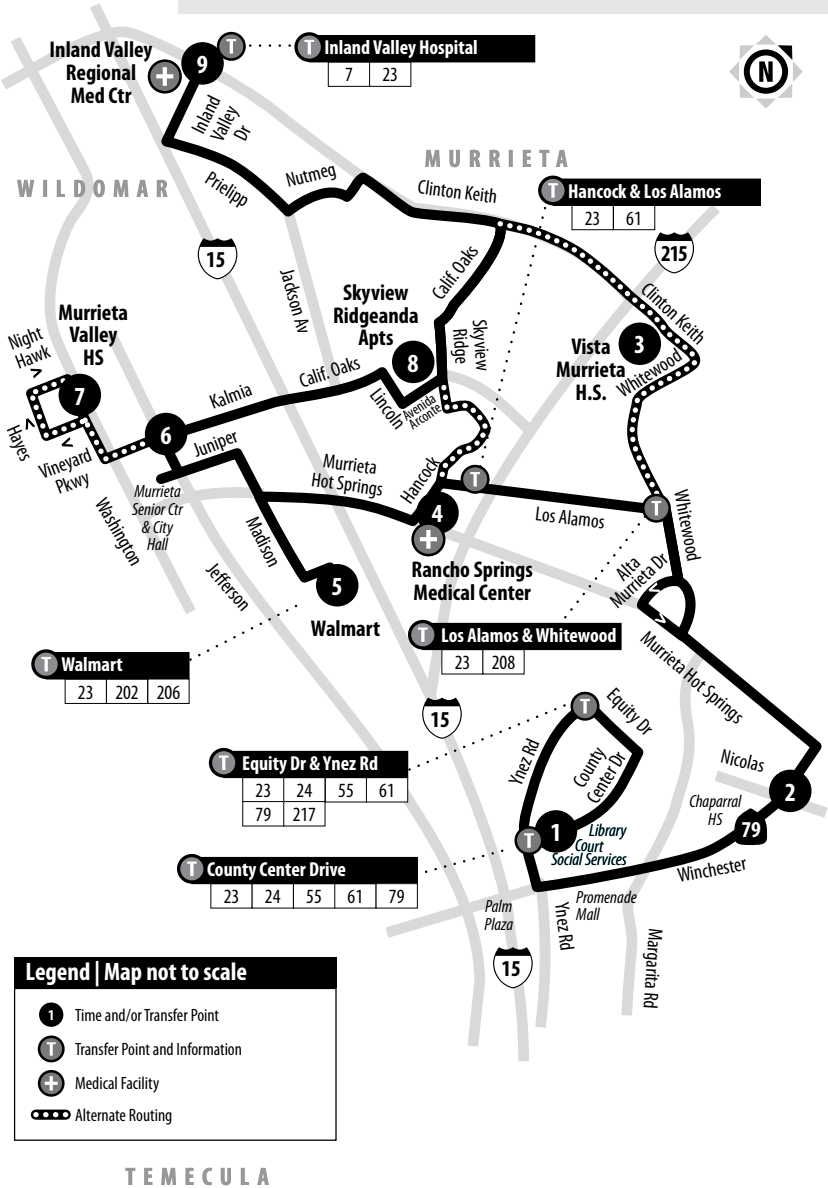
Downtown Terminal	Chicago & University	Mission Grove at Social Security	Trautwein & Van Buren	Parsons & Markham	Clark & Cajalco	San Jacinto & Navajo	Perris Station Transit Center	Hwy. 74 & Meadowbrook	Lake Elsinore Outlet Center
10	9	8	7	6	5	4	3	2	1
7:42	7:50	8:04	8:08	8:16	8:28	8:38	8:45	9:01	9:12
9:01	9:09	9:24	9:28	9:36	9:48	9:58	10:05	10:21	10:32
10:21	10:29	10:44	10:48	10:56	11:08	11:18	11:25	11:42	11:53
11:41	11:49	**12:04**	**12:08**	**12:16**	**12:28**	**12:38**	**12:45**	**1:02**	**1:13**
1:00	**1:08**	**1:23**	**1:27**	**1:35**	**1:47**	**1:58**	**2:05**	**2:22**	**2:33**
2:20	**2:28**	**2:43**	**2:47**	**2:55**	**3:07**	**3:18**	**3:25**	**3:42**	**3:53**
3:37	**3:47**	**4:03**	**4:07**	**4:15**	**4:27**	**4:38**	**4:45**	**5:02**	**5:13**
4:50	**4:58**	**5:13**	**5:17**	**5:25**	**5:37**	**5:48**	**5:55**	**6:12**	**6:23**
6:10	**6:18**	**6:33**	**6:37**	**6:45**	**6:57**	**7:08**	**7:14**	**7:31**	**7:42**

23 Temecula - Murrieta - Wildomar

Information Center
(951) 565-5002
Web site
www.RiversideTransit.com

Routing and timetables subject to change.

Also serving: Inland Valley Reg. Medical Center, Rancho Springs Medical Center, Chaparral High School, County Center Drive. **No service on:** New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day and Christmas Day.



Legend | Map not to scale

- 1 Time and/or Transfer Point
- T Transfer Point and Information
- Medical Facility
- Alternate Routing

TEMECULA

23 Weekdays | Northbound to Inland Valley Regional Medical Center

A.M. times are in PLAIN, **P.M. times are in BOLD** | Times are approximate
S = Operates when School is in session

	County Center Dr.	Winchester & Nicolas	Vista Murrieta High School	Rancho Spring Med Ctr	Murrieta Walmart	Kalmia & Jefferson	Murrieta Valley H.S.	Skyview Ridgeanda Apts	Inland Valley Hospital
	1	2	3	4	5	6	7	8	9
	6:00	6:10	—	6:35	6:40	6:45	—	6:51	7:03
S	—	6:48	7:15	—	—	—	—	—	—
S	—	—	—	6:52	6:57	7:02	7:15	—	—
	7:10	7:20	—	7:45	7:50	7:55	—	8:01	8:13
	8:20	8:30	—	8:55	9:00	9:05	—	9:11	9:23
	9:30	9:40	—	10:05	10:10	10:15	—	10:21	10:33
	10:40	10:50	—	11:15	11:20	11:25	—	11:31	11:43
	11:50	**12:00**	**—**	**12:25**	**12:30**	**12:35**	**—**	**12:41**	**12:53**
	1:00	**1:10**	**—**	**1:35**	**1:40**	**1:45**	**—**	**1:51**	**2:03**
	2:10	**2:20**	**—**	**2:45**	**2:50**	**2:55**	**—**	**3:01**	**3:13**
S	**—**	**—**	**2:45**	**3:09**	**—**	**—**	**—**	**—**	**—**
S	**—**	**—**	**—**	**—**	**—**	**—**	**2:45**	**2:56**	**3:08**
	3:20	**3:30**	**—**	**3:55**	**4:00**	**4:05**	**—**	**4:11**	**4:23**
	4:30	**4:40**	**—**	**5:05**	**5:10**	**5:15**	**—**	**5:21**	**5:33**
	5:40	**5:50**	**—**	**6:15**	**6:20**	**6:25**	**—**	**6:31**	**6:43**
	6:50	**7:00**	**—**	**7:25**	**7:30**	**7:35**	**—**	**7:41**	**7:53**

FYI: *When the bus stops, board through the front doors and exit through the rear doors.*

23 Weekdays | Southbound to Community Center

A.M. times are in PLAIN, **P.M. times are in BOLD** | Times are approximate
S = Operates when School is in session

	Inland Valley Hospital	Skyview Ridgeanda Apts	Murrieta Valley H.S.	Kalmia & Jefferson	Murrieta Walmart	Rancho Spring Med Ctr	Vista Murrieta High School	Winchester & Nicolas	County Center Dr.
	9	8	7	6	5	4	3	2	1
	5:59	6:09	—	6:15	6:20	6:25	—	6:50	7:00
S	6:46	6:56	7:15	—	—	—	—	—	—
S	—	—	—	—	—	6:51	7:15	—	—
	7:09	7:19	—	7:25	7:30	7:35	—	8:00	8:10
	8:19	8:29	—	8:35	8:40	8:45	—	9:10	9:20
	9:29	9:39	—	9:45	9:50	9:55	—	10:20	10:30
	10:39	10:49	—	10:55	11:00	11:05	—	11:30	11:40
	11:49	11:59	—	**12:05**	**12:10**	**12:15**	**—**	**12:40**	**12:50**
	12:59	**1:09**	**—**	**1:15**	**1:20**	**1:25**	**—**	**1:50**	**2:00**
	2:09	**2:19**	**—**	**2:25**	**2:30**	**2:35**	**—**	**3:00**	**3:10**
S	**—**	**—**	**2:45**	**2:51**	**2:56**	**3:01**	**—**	**—**	**—**
S	**—**	**—**	**—**	**—**	**—**	**—**	**2:45**	**3:12**	**—**
	3:19	**3:29**	**—**	**3:35**	**3:40**	**3:45**	**—**	**4:10**	**4:20**
	4:29	**4:39**	**—**	**4:45**	**4:50**	**4:55**	**—**	**5:20**	**5:30**
	5:39	**5:49**	**—**	**5:55**	**6:00**	**6:05**	**—**	**6:30**	**6:40**



DID YOU KNOW? *RTA's service area is 2,500 square miles, the second-largest in the USA.*

23 Weekends | Northbound to Inland Valley Regional Medical Center

A.M. times are in PLAIN, **P.M. times are in BOLD** | Times are approximate

County Center Dr.	Winchester & Nicolas	Rancho Spring Med Center	Murrieta Walmart	Kalmia & Jefferson	Skyview Ridgeanda Apts	Inland Valley Hospital
1	2	4	5	6	8	9
8:20	8:30	8:55	9:00	9:05	9:11	9:23
9:30	9:40	10:05	10:10	10:15	10:21	10:33
10:40	10:50	11:15	11:20	11:25	11:31	11:43
11:50	**12:00**	**12:25**	**12:30**	**12:35**	**12:41**	**12:53**
1:00	**1:10**	**1:35**	**1:40**	**1:45**	**1:51**	**2:03**
2:10	**2:20**	**2:45**	**2:50**	**2:55**	**3:01**	**3:13**
3:20	**3:30**	**3:55**	**4:00**	**4:05**	**4:11**	**4:23**
4:30	**4:40**	**5:05**	**5:10**	**5:15**	**5:21**	**5:33**
5:40	**5:50**	**6:15**	**6:20**	**6:25**	**6:31**	**6:43**

23 Weekends | Southbound to Community Center

A.M. times are in PLAIN, **P.M. times are in BOLD** | Times are approximate

Inland Valley Hospital	Skyview Ridgeanda Apts	Kalmia & Jefferson	Murrieta Walmart	Rancho Spring Med Center	Winchester & Nicolas	County Center Dr.
9	8	6	5	4	2	1
8:19	8:29	8:35	8:40	8:45	9:10	9:20
9:29	9:39	9:45	9:50	9:55	10:20	10:30
10:39	10:49	10:55	11:00	11:05	11:30	11:40
11:49	11:59	**12:05**	**12:10**	**12:15**	**12:40**	**12:50**
12:59	**1:09**	**1:15**	**1:20**	**1:25**	**1:50**	**2:00**
2:09	**2:19**	**2:25**	**2:30**	**2:35**	**3:00**	**3:10**
3:19	**3:29**	**3:35**	**3:40**	**3:45**	**4:10**	**4:20**
4:29	**4:39**	**4:45**	**4:50**	**4:55**	**5:20**	**5:30**
5:39	**5:49**	**5:55**	**6:00**	**6:05**	**6:30**	**6:40**

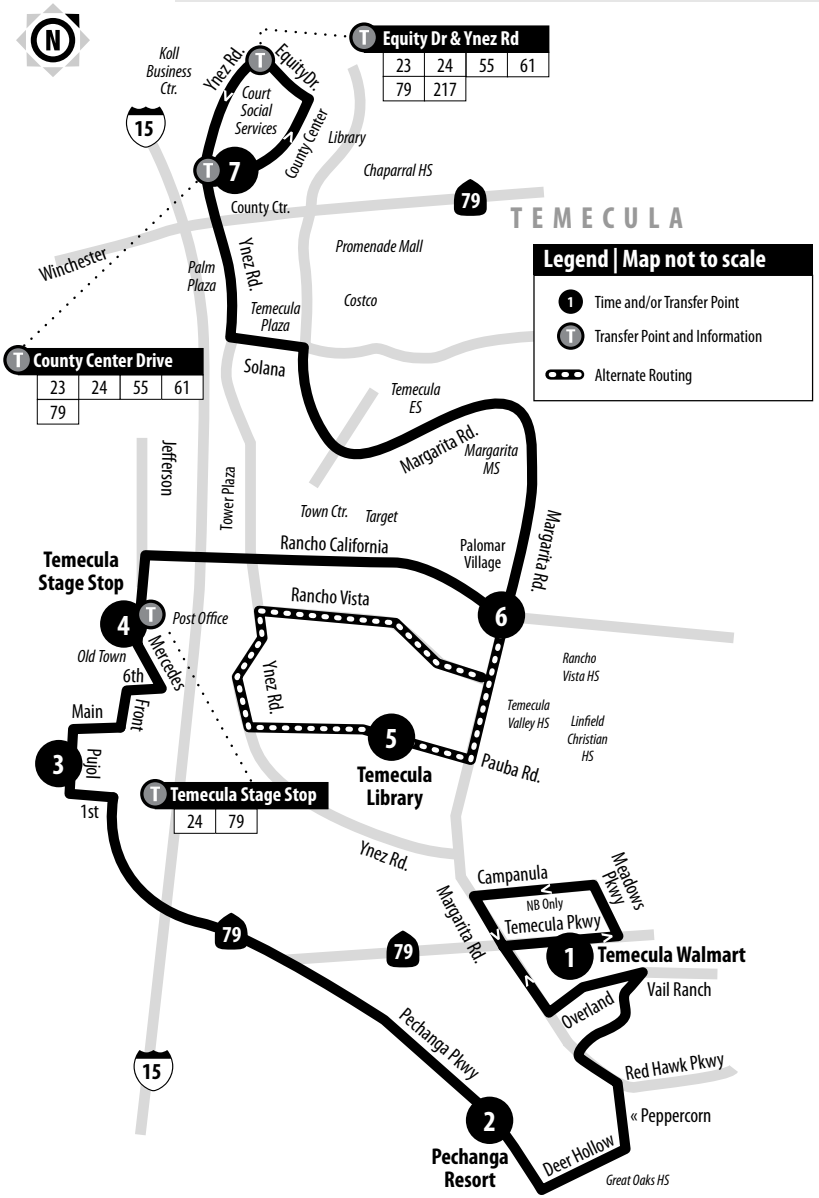
24

Temecula to Pechanga Resort to Temecula Walmart

Information Center
(951) 565-5002
Web site
www.RiverideTransit.com

Routing and timetables subject to change.

Also serving: County Center Drive, Temecula Schools, Temecula Stage Stop & Old Town. **No service on:** New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day and Christmas Day.



24 Weekdays | Northbound to County Center Drive

A.M. times are in PLAIN, **P.M. times are in BOLD** | Times are approximate
S = Operates when school is in session

	Temecula Walmart	Pechanga Resort	Pujol & Main	Temecula Stage Stop 6th & Front	Temecula Library	Margarita & Rancho California	County Center
	1	2	3	4	5	6	7
	6:03	6:22	6:33	6:40	—	6:48	7:00
S	6:21	6:40	6:51	6:58	7:10	—	—
	6:53	7:12	7:23	7:30	—	7:38	7:50
	8:23	8:42	8:53	9:00	—	9:08	9:20
	9:21	9:40	9:51	9:58	10:10	10:18	10:30
	10:42	11:02	11:13	11:20	—	11:28	11:40
	11:40	**12:00**	**12:11**	**12:18**	**12:30**	**12:38**	**12:50**
	1:02	**1:22**	**1:33**	**1:40**	**—**	**1:48**	**2:00**
	2:00	**2:20**	**2:31**	**2:38**	**2:50**	**2:58**	**3:10**
	3:22	**3:42**	**3:53**	**4:00**	**—**	**4:08**	**4:20**
	4:20	**4:40**	**4:51**	**4:58**	**5:10**	**5:18**	**5:30**
	5:42	**6:02**	**6:13**	**6:20**	**—**	**6:28**	**6:40**

24 Weekdays | Southbound to Pechanga Resort / Temecula Walmart

A.M. times are in PLAIN, **P.M. times are in BOLD** | Times are approximate
S = Operates when school is in session

	County Center	Temecula Library	Margarita & Rancho California	Temecula Stage Stop 6th & Front	Pujol & Main	Pechanga Resort	Temecula Walmart
	7	5	6	4	3	2	1
	5:50	—	6:04	6:13	6:16	6:27	6:40
	7:10	—	7:26	7:35	7:38	7:50	8:03
	8:20	—	8:36	8:46	8:49	9:01	9:14
	9:30	9:49	9:57	10:07	10:10	10:22	10:36
	10:40	—	10:56	11:06	11:09	11:21	11:35
	11:50	**12:10**	**12:18**	**12:28**	**12:31**	**12:43**	**12:57**
	1:00	**—**	**1:16**	**1:26**	**1:29**	**1:41**	**1:55**
	2:10	**2:30**	**2:38**	**2:48**	**2:51**	**3:03**	**3:17**
S	**2:35**	**2:55**	**3:03**	**3:13**	**3:16**	**3:28**	**3:42**
	3:20	**—**	**3:36**	**3:46**	**3:49**	**4:01**	**4:15**
	4:30	**4:50**	**4:58**	**5:08**	**5:11**	**5:23**	**5:37**
	5:40	**—**	**5:55**	**6:05**	**6:08**	**6:20**	**6:34**

24 Weekends | Northbound to County Center Drive

A.M. times are in PLAIN, **P.M. times are in BOLD** | Times are approximate
† = Saturdays only, trips do not operate on Sundays

	Temecula Walmart	Pechanga Resort	Pujol & Main	Temecula Stage Stop 6th & Front	Temecula Library	Margarita & Rancho California	County Center
	1	2	3	4	5	6	7
	—	—	—	8:00	—	8:08	8:20
	8:23	8:42	8:53	9:00	—	9:08	9:20
	9:21	9:40	9:51	9:58	10:10	10:18	10:30
	10:42	11:02	11:13	11:20	—	11:28	11:40
	11:40	**12:00**	**12:11**	**12:18**	**12:30**	**12:38**	**12:50**
	1:02	**1:22**	**1:33**	**1:40**	**—**	**1:48**	**2:00**
	2:00	**2:20**	**2:31**	**2:38**	**2:50**	**2:58**	**3:10**
	3:22	**3:42**	**3:53**	**4:00**	**—**	**4:08**	**4:20**
	4:20	**4:40**	**4:51**	**4:58**	**5:10**	**5:18**	**5:30**
†	**5:42**	**6:02**	**6:13**	**6:20**	**—**	**6:28**	**6:40**

24 Weekends | Southbound to Pechanga Resort / Temecula Walmart

A.M. times are in PLAIN, **P.M. times are in BOLD** | Times are approximate
† = Saturdays only, trips do not operate on Sundays

	County Center	Temecula Library	Margarita & Rancho California	Temecula Stage Stop 6th & Front	Pujol & Main	Pechanga Resort	Temecula Walmart
	7	5	6	4	3	2	1
	8:20	—	8:36	8:46	8:49	9:01	9:14
	9:30	9:49	9:57	10:07	10:10	10:22	10:36
	10:40	—	10:56	11:06	11:09	11:21	11:35
	11:50	**12:10**	**12:18**	**12:28**	**12:31**	**12:43**	**12:57**
	1:00	**—**	**1:16**	**1:26**	**1:29**	**1:41**	**1:55**
	2:10	**2:30**	**2:38**	**2:48**	**2:51**	**3:03**	**3:17**
	3:20	**—**	**3:36**	**3:46**	**3:49**	**4:01**	**4:15**
	4:30	**4:50**	**4:58**	**5:08**	**5:11**	**5:23**	**5:37**
†	**5:40**	**—**	**5:55**	**6:05**	**6:08**	**6:20**	**6:34**

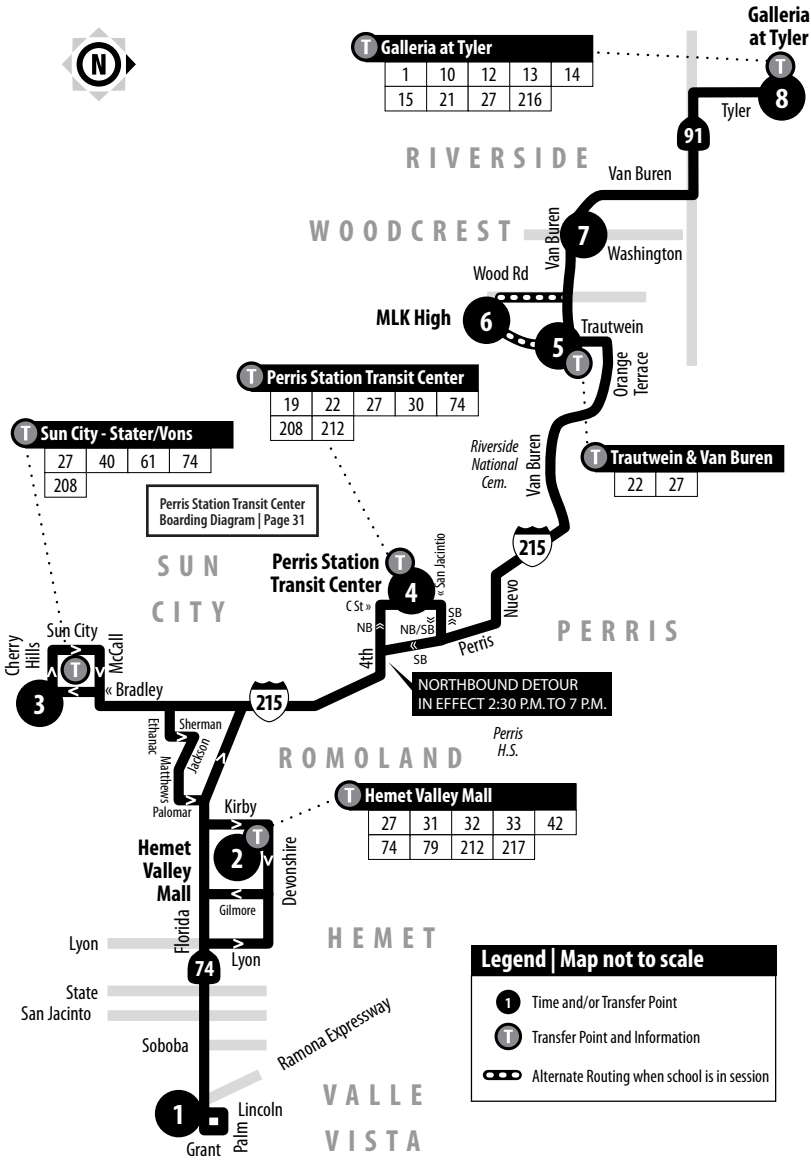
27

Galleria at Tyler to Hemet Valley Mall and Florida & Lincoln

Information Center
(951) 565-5002
Web site
www.RiversideTransit.com

Routing and timetables subject to change.

Also serving: Riverside National Cemetery, Perris High, & Valle Vista. **No service on:** New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day and Christmas Day.



27 Weekdays | Northbound to Riverside

A.M. times are in PLAIN, **P.M. times are in BOLD** | Times are approximate

Florida & Lincoln	Hemet Valley Mall	Cherry Hills & Bradley	Perris Station Transit Center	Trautwein & Van Buren	Wood Rd & MLK High	Van Buren & Washington	Galleria at Tyler
1	2	3	4	5	6	7	8
—	3:59	4:24	4:37	5:01	—	5:14	5:30
4:37	4:58	5:23	5:36	6:01	—	6:14	6:30
5:12	5:35	6:04	6:20	6:45	7:00	7:14	7:30
6:11	6:41	7:13	7:30	7:56	—	8:11	8:30
7:07	7:37	8:09	8:26	8:52	—	9:07	9:30
8:07	8:37	9:09	9:26	9:52	—	10:07	10:30
9:03	9:34	10:08	10:26	10:52	—	11:07	11:30
9:59	10:32	11:08	11:26	11:52	—	12:07	12:30
10:59	11:32	12:08	12:26	12:52	—	1:07	1:30
11:58	**12:31**	**1:07**	**1:26**	**1:52**	**—**	**2:07**	**2:30**
12:58	**1:31**	**2:07**	**2:26**	**2:52**	**—**	**3:07**	**3:30**
1:58	**2:31**	**3:07**	**3:26**	**3:52**	**—**	**4:07**	**4:30**
3:10	**3:39**	**4:15**	**4:34**	**5:00**	**—**	**5:15**	**5:35**
4:20	**4:48**	**5:21**	**5:40**	**6:06**	**—**	**6:20**	**6:40**
5:25	**5:53**	**6:26**	**6:45**	**7:11**	**—**	**7:25**	**7:45**
6:35	**7:02**	**7:34**	**7:50**	**—**	**—**	**—**	**—**
7:44	**8:10**	**8:39**	**8:55**	**—**	**—**	**—**	**—**

27 Weekdays | Southbound to Hemet

A.M. times are in PLAIN, **P.M. times are in BOLD** | Times are approximate
S = Operates when school is in session

	Galleria at Tyler	Van Buren & Washington	Wood Rd & MLK High	Trautwein & Van Buren	Perris Station Transit Center	Cherry Hills & Bradley	Hemet Valley Mall	Florida & Lincoln
	8	7	6	5	4	3	2	1
	5:55	6:09	—	6:24	6:48	7:02	7:41	8:07
	6:55	7:10	—	7:30	7:55	8:09	8:48	9:14
	7:55	8:10	—	8:30	8:56	9:11	9:51	10:17
	8:55	9:10	—	9:30	9:58	10:14	10:56	11:22
	9:55	10:10	—	10:30	10:58	11:14	11:58	**12:24**
	10:55	11:10	—	11:30	11:58	**12:15**	**12:59**	**1:25**
	11:55	**12:11**	**—**	**12:32**	**1:00**	**1:18**	**2:02**	**2:28**
	12:55	**1:11**	**—**	**1:33**	**2:02**	**2:20**	**3:04**	**3:30**
	1:55	**2:11**	**—**	**2:33**	**3:02**	**3:20**	**4:00**	**4:26**
S	**—**	**—**	**2:55**	**3:12**	**3:41**	**—**	**—**	**—**
	2:55	**3:11**	**—**	**3:33**	**4:02**	**4:20**	**5:00**	**5:26**
	4:00	**4:16**	**—**	**4:41**	**5:10**	**5:27**	**6:05**	**6:28**
	5:05	**5:21**	**—**	**5:46**	**6:15**	**6:31**	**7:09**	**7:32**
	6:10	**6:26**	**—**	**6:47**	**7:16**	**7:30**	**8:08**	**8:28**
	7:15	**7:31**	**—**	**7:50**	**8:19**	**—**	**8:57**	**9:13**
	8:15	**8:31**	**—**	**8:50**	**9:19**	**—**	**9:57**	**10:13**

FYI: *For your safety, please remain seated until the bus comes to a full and complete stop.*

27 Weekends | Northbound to Riverside

A.M. times are in PLAIN, **P.M. times are in BOLD** | Times are approximate
† = Saturdays only, **trip does not operate on Sundays.**

	Florida & Lincoln	Hemet Valley Mall	Cherry Hills & Bradley	Perris Station Transit Center	Trautwein & Van Buren	Van Buren & Washington	Galleria at Tyler
	1	2	3	4	5	7	8
†	—	5:30	5:56	6:11	6:32	6:44	7:05
	—	6:46	7:14	7:29	7:50	8:02	8:25
	7:29	7:59	8:30	8:46	9:07	9:19	9:45
	8:43	9:15	9:47	10:05	10:27	10:39	11:05
	10:01	10:34	11:07	11:25	11:47	11:59	**12:25**
	11:09	11:42	**12:17**	**12:35**	**12:57**	**1:09**	**1:35**
	12:18	**12:51**	**1:27**	**1:45**	**2:07**	**2:19**	**2:45**
	1:24	**1:57**	**2:33**	**2:55**	**3:17**	**3:29**	**3:55**
	2:42	**3:13**	**3:46**	**4:08**	**4:30**	**4:42**	**5:05**
	3:54	**4:25**	**4:57**	**5:19**	**5:40**	**5:52**	**6:15**
	5:04	**5:35**	**6:07**	**6:29**	**6:50**	**7:02**	**7:25**
	6:19	**6:50**	**7:22**	**7:39**	—	—	—
†	**7:36**	**8:03**	**8:35**	**8:49**	—	—	—

27 Weekends | Southbound to Hemet

A.M. times are in PLAIN, **P.M. times are in BOLD** | Times are approximate

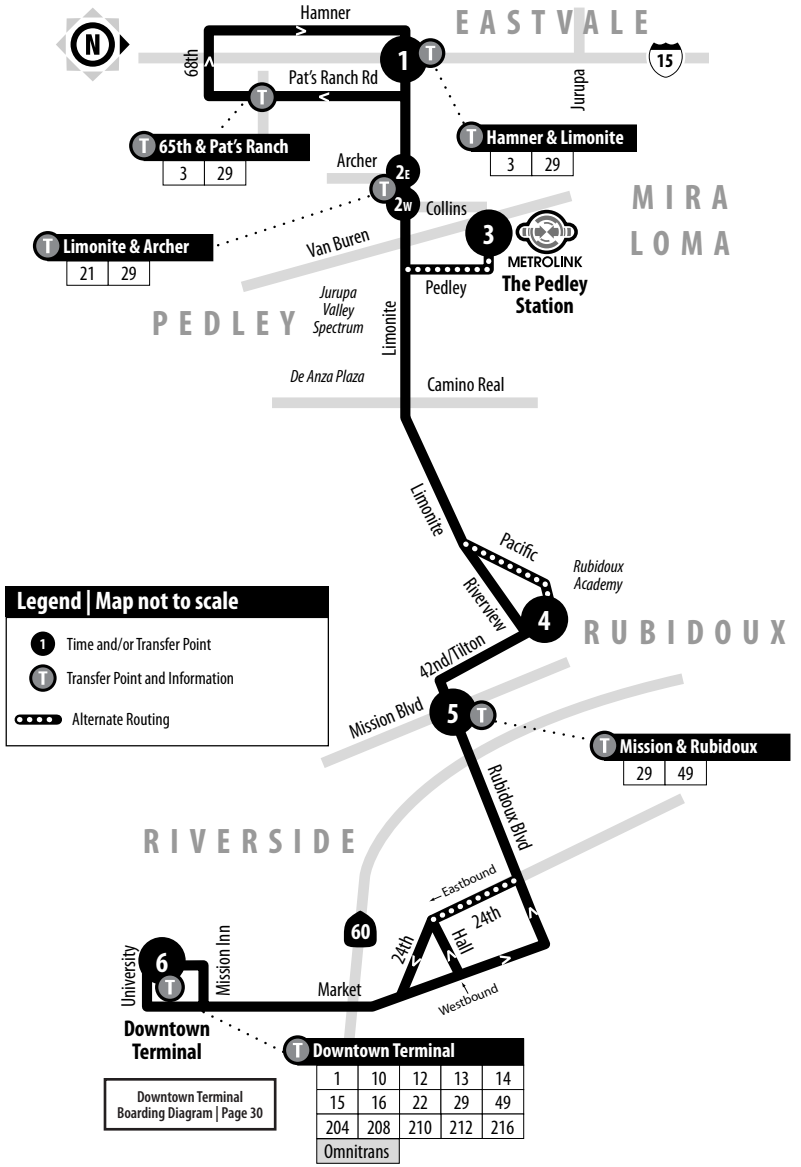
Galleria at Tyler	Van Buren & Washington	Trautwein & Van Buren	Perris Station Transit Center	Cherry Hills & Bradley	Hemet Valley Mall	Florida & Lincoln
8	7	5	4	3	2	1
6:15	6:29	6:47	7:10	7:23	7:59	8:21
7:35	7:49	8:07	8:30	8:45	9:24	9:46
8:55	9:09	9:30	9:53	10:08	10:47	11:09
10:15	10:29	10:51	11:16	11:32	**12:13**	**12:37**
11:35	11:49	**12:12**	**12:38**	**12:54**	**1:35**	**1:59**
12:55	**1:09**	**1:32**	**1:58**	**2:14**	**2:55**	**3:19**
2:05	**2:19**	**2:42**	**3:08**	**3:24**	**4:03**	**4:25**
3:15	**3:29**	**3:52**	**4:18**	**4:34**	**5:13**	**5:35**
4:25	**4:39**	**5:02**	**5:28**	**5:44**	**6:23**	**6:45**
5:35	**5:49**	**6:12**	**6:38**	**6:54**	**7:33**	**7:55**
6:45	**6:59**	**7:22**	**7:48**	**8:04**	**8:43**	—

29 Downtown Terminal to Hamner & Limonite

Information Center
(951) 565-5002
Web site
www.RiversideTransit.com

Routing and timetables subject to change.

Also serving: Belltown, Downtown Rubidoux, Rubidoux Academy, De Anza Plaza, Vons Shopping Center. **No service on:** New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day and Christmas Day.



Downtown Terminal

1	10	12	13	14
15	16	22	29	49
204	208	210	212	216
Omnitrans				

29 Weekdays | Eastbound to Downtown Terminal

A.M. times are in PLAIN, **P.M. times are in BOLD** | Times are approximate

Limonite & Hamner	Limonite & Archer	Pedley Metrolink Station	Pacific & 42nd	Mission & Rubidoux	Downtown Terminal
1	2E	3	4	5	6
4:56	5:06	5:09	—	5:24	5:35
6:02	6:13	6:16	6:27	6:32	6:45
7:12	7:23	7:26	—	7:42	7:55
8:25	8:36	—	—	8:52	9:05
9:35	9:46	—	—	10:02	10:15
10:45	10:56	—	—	11:12	11:25
12:09	**12:21**	**—**	**—**	**12:37**	**12:50**
1:09	**1:21**	**—**	**—**	**1:37**	**1:50**
2:08	**2:20**	**—**	**2:32**	**2:37**	**2:50**
3:05	**3:17**	**3:20**	**3:32**	**3:37**	**3:50**
4:09	**4:21**	**—**	**—**	**4:37**	**4:50**
5:06	**5:18**	**5:21**	**—**	**5:37**	**5:50**
6:06	**6:18**	**6:21**	**—**	**6:37**	**6:50**
7:06	**7:18**	**7:21**	**—**	**7:37**	**7:50**

29 Weekdays | Westbound to Hamner & Limonite

A.M. times are in PLAIN, **P.M. times are in BOLD** | Times are approximate

Downtown Terminal	Mission & Rubidoux	Pacific & 42nd	Pedley Metrolink Station	Limonite & Collins	Limonite & Hamner
6	5	4	3	2W	1
5:05	5:19	—	5:33	5:35	5:47
6:15	6:30	6:37	6:48	6:50	7:02
7:25	7:41	—	7:56	7:58	8:10
8:35	8:52	—	—	9:08	9:22
9:45	10:02	—	—	10:18	10:32
10:55	11:12	—	—	11:28	11:42
12:05	**12:22**	**—**	**—**	**12:38**	**12:52**
1:05	**1:22**	**—**	**—**	**1:38**	**1:52**
2:05	**2:22**	**2:29**	**2:41**	**2:44**	**2:58**
3:05	**3:22**	**—**	**—**	**3:38**	**3:52**
4:05	**4:22**	**—**	**—**	**4:38**	**4:52**
5:05	**5:22**	**—**	**5:36**	**5:38**	**5:52**
6:05	**6:22**	**—**	**6:36**	**6:38**	**6:52**
7:05	**7:22**	**—**	**7:36**	**7:38**	**7:52**

29 Weekends | Eastbound to Downtown Terminal

A.M. times are in PLAIN, **P.M. times are in BOLD** | Times are approximate

Limonite & Hamner	Limonite & Archer	Mission & Rubidoux	Downtown Terminal
1	2E	5	6
7:24	7:36	7:49	8:00
8:27	8:39	8:53	9:05
9:31	9:43	9:58	10:10
10:35	10:48	11:03	11:15
11:44	11:57	**12:12**	**12:25**
12:54	**1:07**	**1:22**	**1:35**
2:00	**2:13**	**2:30**	**2:45**
3:10	**3:23**	**3:40**	**3:55**
4:14	**4:28**	**4:45**	**5:00**
5:21	**5:35**	**5:50**	**6:05**
6:26	**6:40**	**6:55**	**7:10**
7:40	**7:52**	**8:04**	**8:15**

29 Weekends | Westbound to Hamner & Limonite

A.M. times are in PLAIN, **P.M. times are in BOLD** | Times are approximate

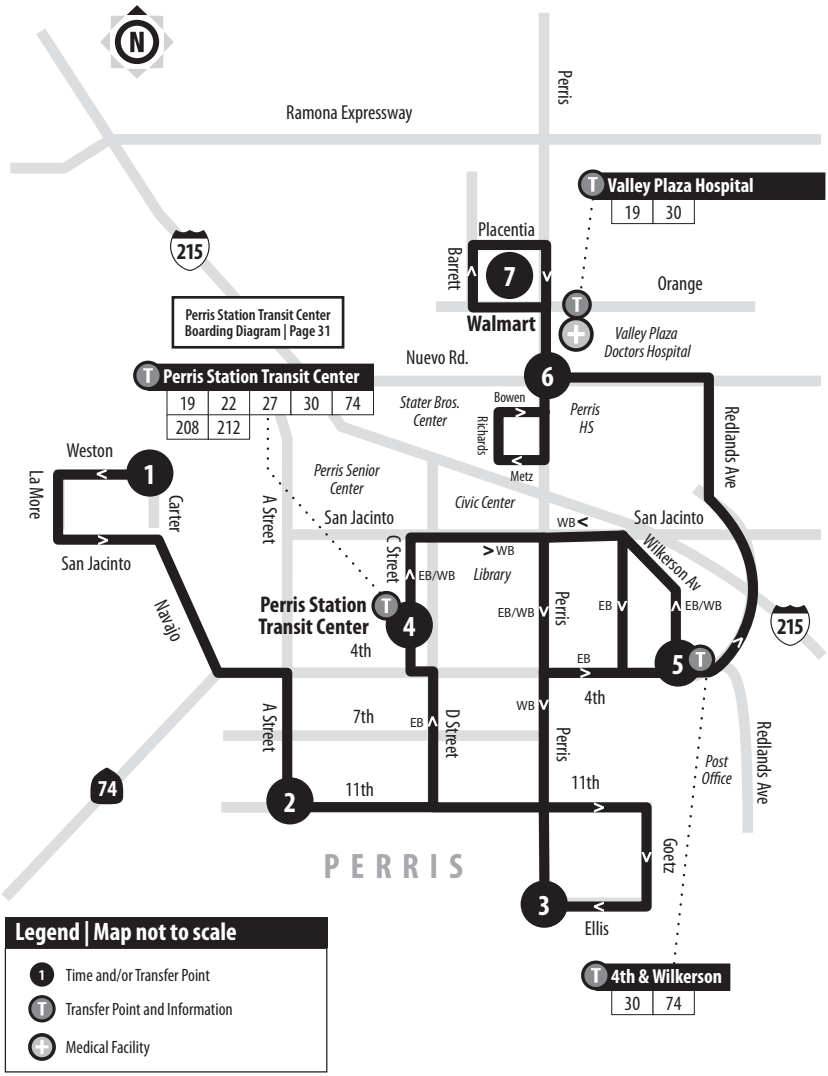
Downtown Terminal	Mission & Rubidoux	Limonite & Collins	Limonite & Hamner
6	5	2W	1
6:25	6:39	6:53	7:08
7:30	7:44	7:58	8:13
8:35	8:49	9:03	9:18
9:40	9:54	10:09	10:23
10:50	11:04	11:19	11:33
12:00	**12:14**	**12:29**	**12:43**
1:10	**1:24**	**1:39**	**1:53**
2:20	**2:34**	**2:49**	**3:02**
3:25	**3:39**	**3:54**	**4:06**
4:30	**4:44**	**4:59**	**5:11**
5:35	**5:49**	**6:03**	**6:14**
6:40	**6:54**	**7:07**	**7:18**

30 Perris - Weston & Carter to Walmart

Information Center
(951) 565-5002
Web site
www.RiversideTransit.com

Routing and timetables subject to change.

Also serving: Perris High School, Civic Center, Post Office, Library. **No service on:** New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day and Christmas Day.



30 Weekdays & Saturdays | Eastbound to Walmart

A.M. times are in PLAIN, **P.M. times are in BOLD** | Times are approximate
W = Operates on weekdays only.

	Weston & Carter	11th & A	Ellis & Perris	Perris Station Transit Center	4th & Wilkerson	Nuevo & Perris	Perris Walmart
	1	2	3	4	5	6	7
W	—	—	—	7:20	7:25	7:30	7:42
W	7:45	7:55	8:00	8:10	8:15	8:21	8:33
W	8:35	8:45	8:50	9:00	9:05	9:11	9:24
	9:25	9:34	9:40	9:49	9:54	10:00	10:13
	10:20	10:29	10:35	10:44	10:49	10:55	11:10
	11:10	11:19	11:25	11:34	11:39	11:45	**12:00**
	12:10	**12:19**	**12:25**	**12:34**	**12:39**	**12:45**	**1:00**
	1:05	**1:13**	**1:19**	**1:27**	**1:32**	**1:38**	**1:51**
	2:05	**2:13**	**2:19**	**2:27**	**2:32**	**2:38**	**2:51**
	3:00	**3:08**	**3:14**	**3:22**	**3:27**	**3:33**	**3:46**
	4:00	**4:08**	**4:14**	**4:22**	**4:27**	**4:33**	**4:48**
	4:55	**5:03**	**5:09**	**5:17**	**5:22**	**5:28**	**5:43**
	5:45	**5:53**	**6:00**	**6:07**	**6:13**	**6:19**	**6:33**
	6:40	**6:48**	**6:56**	**7:03**	**7:09**	**7:15**	**7:28**

30 Weekdays & Saturdays | Westbound to Weston & Carter

A.M. times are in PLAIN, **P.M. times are in BOLD** | Times are approximate
W = Operates on weekdays only.

	Perris Walmart	Nuevo & Perris	4th & Wilkerson	Perris Station Transit Center	Ellis & Perris	11th & A	Weston & Carter
	7	6	5	4	3	2	1
W	7:00	7:09	7:17	7:21	7:26	7:32	7:40
W	7:50	8:00	8:08	8:12	8:17	8:22	8:30
	8:40	8:51	8:59	9:03	9:08	9:13	9:21
	9:30	9:43	9:51	9:55	10:01	10:06	10:14
	10:20	10:33	10:43	10:48	10:54	10:59	11:06
	11:15	11:28	11:39	11:44	11:50	11:55	**12:02**
	12:05	**12:18**	**12:35**	**12:40**	**12:46**	**12:51**	**12:58**
	1:05	**1:18**	**1:33**	**1:38**	**1:44**	**1:49**	**1:57**
	2:00	**2:14**	**2:29**	**2:34**	**2:41**	**2:45**	**2:55**
	3:00	**3:15**	**3:30**	**3:35**	**3:42**	**3:46**	**3:56**
	3:55	**4:10**	**4:22**	**4:26**	**4:33**	**4:37**	**4:47**
	4:55	**5:08**	**5:16**	**5:20**	**5:26**	**5:31**	**5:41**
	5:50	**6:03**	**6:11**	**6:15**	**6:21**	**6:26**	**6:36**
	6:40	**6:53**	**7:01**	**7:05**	**7:11**	**7:16**	**7:26**

31

Beaumont/Banning to San Jacinto & Hemet Valley Mall

Information Center
(951) 565-5002
Web site
www.RiversideTransit.com

Routing and timetables subject to change.

Also serving: Walmart, Kmart, Riverside County Administration Complex, Mt. San Jacinto Community College. **No service on:** New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day and Christmas Day.



31 Weekdays | Northbound to Beaumont/Banning

A.M. times are in PLAIN, **P.M. times are in BOLD** | Times are approximate

Hemet Valley Mall	State & Stetson	State & Fruitvale	Mt San Jacinto College San Jacinto	Banning Kmart Sun Lakes
1	2	3	4	5
6:00	6:14	6:28	6:42	7:03
7:10	7:26	7:40	7:54	8:15
8:20	8:36	8:50	9:04	9:25
9:30	9:46	10:00	10:14	10:35
10:40	10:57	11:11	11:24	11:45
11:50	**12:07**	**12:21**	**12:34**	**12:55**
1:00	**1:17**	**1:31**	**1:44**	**2:05**
2:10	**2:27**	**2:41**	**2:54**	**3:15**
3:20	**3:37**	**3:51**	**4:04**	**4:24**
4:30	**4:45**	**4:58**	**5:11**	**5:31**
5:40	**5:55**	**6:08**	**6:19**	**6:39**
6:40	**6:55**	**7:08**	**7:19**	**7:39**

31 Weekdays | Southbound to Hemet Valley Mall

A.M. times are in PLAIN, **P.M. times are in BOLD** | Times are approximate

Banning Kmart Sun Lakes	Mt San Jacinto College San Jacinto	State & Fruitvale	State & Stetson	Hemet Valley Mall
5	4	3	2	1
6:11	6:33	6:47	7:00	7:15
7:21	7:43	7:57	8:10	8:25
8:30	8:52	9:06	9:20	9:35
9:38	10:01	10:15	10:29	10:45
10:48	11:11	11:25	11:39	11:55
11:58	**12:21**	**12:35**	**12:49**	**1:05**
1:08	**1:31**	**1:45**	**1:59**	**2:15**
2:18	**2:41**	**2:55**	**3:09**	**3:25**
3:28	**3:51**	**4:05**	**4:19**	**4:35**
4:40	**5:03**	**5:15**	**5:29**	**5:45**
5:50	**6:13**	**6:25**	**6:39**	**6:55**
6:50	**7:13**	**7:25**	**7:39**	**7:55**

31 Weekends | Northbound to Beaumont/Banning

A.M. times are in PLAIN, **P.M. times are in BOLD** | Times are approximate
† = Saturday only, **trip does not operate on Sundays.**

	Hemet Valley Mall	State & Stetson	State & Fruitvale	Mt. San Jacinto College San Jacinto	Banning Kmart Sun Lakes
	1	2	3	4	5
†	7:30	7:43	7:54	8:05	8:26
	8:45	8:59	9:10	9:21	9:42
	10:00	10:14	10:25	10:36	10:57
	11:15	11:29	11:40	11:51	**12:12**
	12:30	**12:43**	**12:54**	**1:05**	**1:26**
	1:45	**1:58**	**2:09**	**2:20**	**2:41**
	3:00	**3:13**	**3:24**	**3:35**	**3:56**
	4:15	**4:29**	**4:40**	**4:51**	**5:12**
	5:30	**5:44**	**5:55**	**6:06**	**6:27**

31 Weekends | Southbound to Hemet Valley Mall

A.M. times are in PLAIN, **P.M. times are in BOLD** | Times are approximate
† = Saturday only, **trip does not operate on Sundays.**

	Banning Kmart Sun Lakes	Mt. San Jacinto College San Jacinto	State & Fruitvale	State & Stetson	Hemet Valley Mall
	5	4	3	2	1
†	7:19	7:40	7:51	8:02	8:15
	8:34	8:55	9:06	9:17	9:30
	9:49	10:10	10:21	10:32	10:45
	11:04	11:25	11:36	11:47	**12:00**
	12:19	**12:40**	**12:51**	**1:02**	**1:15**
	1:34	**1:55**	**2:06**	**2:17**	**2:30**
	2:49	**3:10**	**3:21**	**3:32**	**3:45**
	4:04	**4:25**	**4:36**	**4:47**	**5:00**
	5:19	**5:40**	**5:51**	**6:02**	**6:15**
	6:34	**6:55**	**7:06**	**7:17**	**7:30**

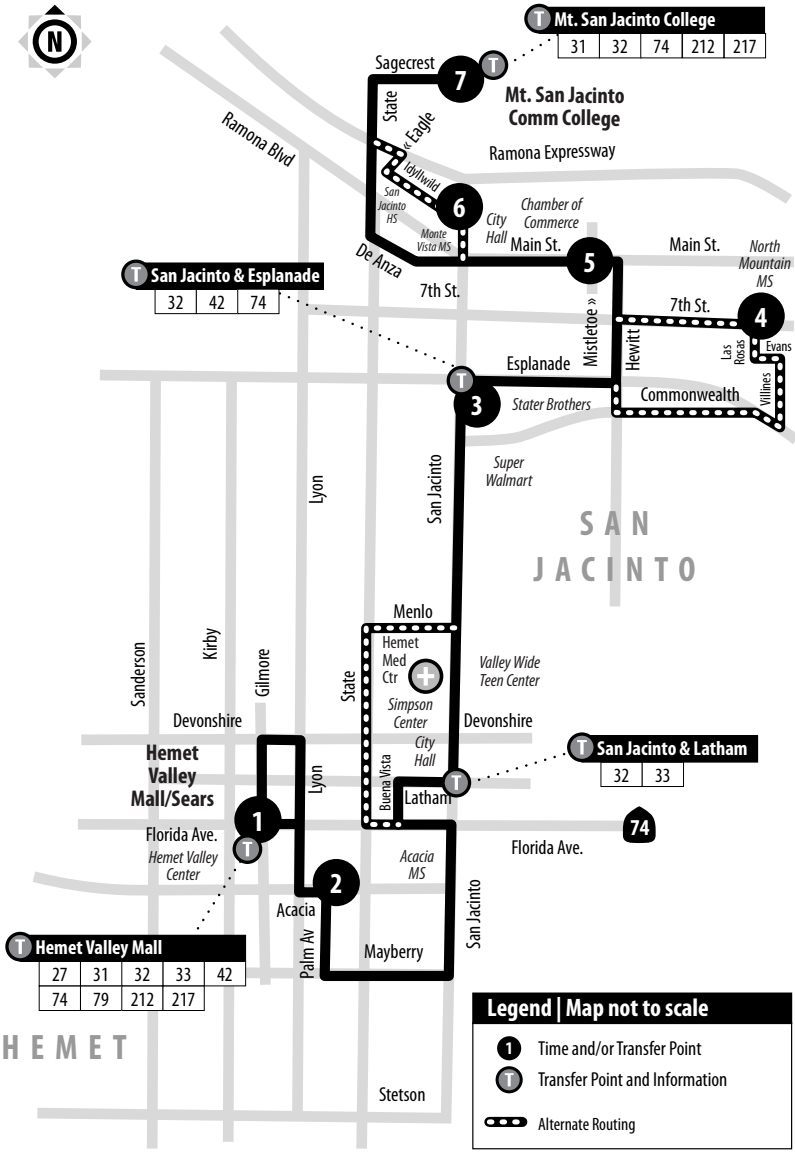
32

Hemet Valley Mall to Mount San Jacinto College

Information Center
(951) 565-5002
Web site
www.RiversideTransit.com

Routing and timetables subject to change.

Also serving: Hemet Hospital. **No service on:** New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day and Christmas Day.



32 Weekdays | Northbound to Mt. San Jacinto College

A.M. times are in PLAIN, **P.M. times are in BOLD** | Times are approximate

Hemet Valley Mall	San Jacinto & Mayberry	Esplanade & San Jacinto	Main & Mistletoe	Mt San Jacinto College San Jacinto
1	2	3	5	7
6:20	6:34	6:52	6:58	7:10
7:30	7:44	8:02	8:08	8:20
8:40	8:54	9:12	9:18	9:30
9:50	10:04	10:22	10:28	10:40
11:00	11:14	11:32	11:38	11:50
12:10	**12:24**	**12:42**	**12:48**	**1:00**
1:20	**1:34**	**1:52**	**1:58**	**2:10**
2:30	**2:44**	**3:02**	**3:08**	**3:20**
3:40	**3:54**	**4:12**	**4:18**	**4:30**
4:50	**5:03**	**5:20**	**5:26**	**5:38**
6:10	**6:23**	**6:40**	**6:46**	**6:58**

32 Weekdays | Southbound to Hemet Valley Mall

A.M. times are in PLAIN, **P.M. times are in BOLD** | Times are approximate
S = Operates when school is in session

	Mt San Jacinto College San Jacinto	Idyllwild Dr & Attenborough	Main & Mistletoe	Las Rosas & 7th St.	Esplanade & San Jacinto	San Jacinto & Mayberry	Hemet Valley Mall
	7	6	5	4	3	2	1
	6:13	—	6:24	—	6:31	6:41	6:55
	7:23	—	7:34	—	7:41	7:51	8:05
	8:33	—	8:44	—	8:51	9:01	9:15
	9:41	—	9:52	—	9:59	10:09	10:25
	10:51	—	11:02	—	11:09	11:19	11:35
	12:01	**—**	**12:12**	**—**	**12:19**	**12:29**	**12:45**
	1:11	**—**	**1:22**	**—**	**1:29**	**1:39**	**1:55**
	2:21	**—**	**2:32**	**—**	**2:39**	**2:49**	**3:05**
S	**2:35**	**2:45**	**2:52**	**2:56**	**3:03**	**3:13**	**—**
	3:31	**—**	**3:42**	**—**	**3:49**	**3:59**	**4:15**
	4:41	**—**	**4:52**	**—**	**4:59**	**5:09**	**5:25**
	5:51	**—**	**6:02**	**—**	**6:09**	**6:19**	**6:35**
	7:06	**—**	**7:17**	**—**	**7:24**	**7:34**	**7:50**

32 Weekends | Northbound to Mt. San Jacinto College

A.M. times are in PLAIN, **P.M. times are in BOLD** | Times are approximate

Hemet Valley Mall	San Jacinto & Mayberry	Esplanade & San Jacinto	Main & Mistletoe	Mt. San Jacinto College San Jacinto
1	2	3	5	7
8:20	8:33	8:51	8:57	9:08
9:35	9:48	10:06	10:12	10:23
10:50	11:03	11:21	11:27	11:38
12:05	**12:18**	**12:36**	**12:42**	**12:53**
1:20	**1:33**	**1:51**	**1:57**	**2:08**
2:35	**2:48**	**3:06**	**3:12**	**3:23**
3:50	**4:03**	**4:21**	**4:27**	**4:38**
5:05	**5:17**	**5:35**	**5:41**	**5:52**
6:20	**6:32**	**6:50**	**6:56**	**7:07**

32 Weekends | Southbound to Hemet Valley Mall

A.M. times are in PLAIN, **P.M. times are in BOLD** | Times are approximate
† = Saturdays only, **trip does not run on Sundays.**

	Mt. San Jacinto College San Jacinto	Main & Mistletoe	Esplanade & San Jacinto	San Jacinto & Mayberry	Hemet Valley Mall
	7	5	3	2	1
†	7:59	8:10	8:16	8:26	8:40
	9:14	9:25	9:31	9:41	9:55
	10:29	10:40	10:46	10:56	11:10
	11:44	11:55	**12:01**	**12:11**	**12:25**
	12:59	**1:10**	**1:16**	**1:26**	**1:40**
	2:14	**2:25**	**2:31**	**2:41**	**2:55**
	3:30	**3:41**	**3:46**	**3:56**	**4:10**
	4:45	**4:56**	**5:01**	**5:11**	**5:25**
	6:01	**6:12**	**6:16**	**6:26**	**6:40**
†	**7:16**	**7:27**	**7:31**	**7:41**	**7:55**

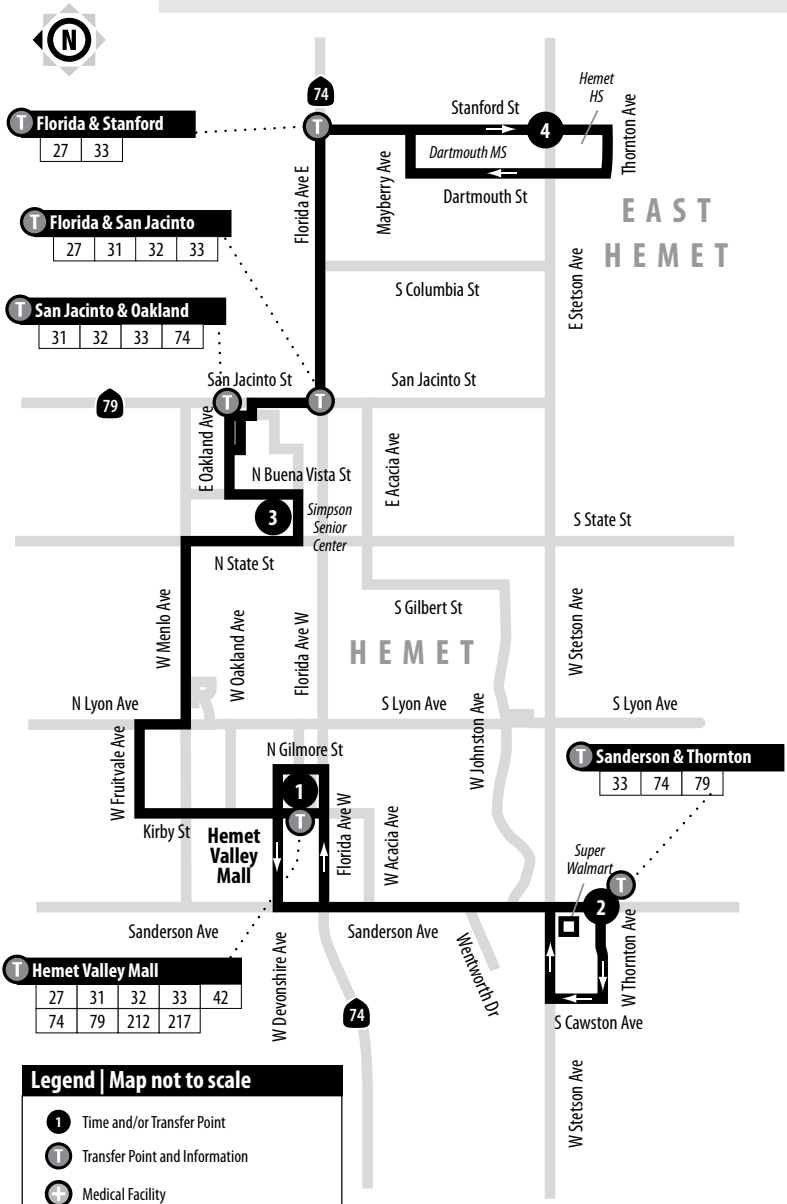
33

Hemet - Sanderson to East Hemet

Information Center
(951) 565-5002
Web site
www.RiversideTransit.com

Routing and timetables subject to change.

Also serving: Hemet Valley Mall, Hemet mobile home parks. **No service on weekends or on the following holidays:** New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day and Christmas Day.



33 Weekdays | Eastbound to East Hemet

A.M. times are in PLAIN, **P.M. times are in BOLD** | Times are approximate

Hemet Valley Mall	Simpson Senior Center	Stanford & Stetson
1	3	4
7:00	7:13	7:27
8:10	8:23	8:37
9:20	9:33	9:47
10:30	10:43	10:57
11:40	11:53	**12:07**
12:50	**1:03**	**1:17**
2:00	**2:13**	**2:27**
3:10	**3:23**	**3:37**
4:20	**4:33**	**4:47**
5:30	**5:43**	**5:57**
6:40	**6:53**	**7:07**

33 Weekdays | Westbound to Hemet Valley Mall & Sanderson

A.M. times are in PLAIN, **P.M. times are in BOLD** | Times are approximate
S = Operates when school is in session

	Stanford & Stetson	Simpson Senior Center	Hemet Valley Mall	Thornton & Sanderson	Hemet Valley Mall
	4	3	1	2	1
	7:35	7:59	8:11	8:22	8:35
	8:45	9:09	9:21	9:32	9:45
	9:55	10:19	10:31	10:42	10:55
	11:05	11:29	11:41	11:52	**12:05**
	12:15	**12:39**	**12:51**	**1:02**	**1:15**
	1:25	**1:49**	**2:01**	**2:12**	**2:25**
	2:35	**2:59**	**3:11**	**3:22**	**3:35**
S	**2:55**	**3:19**	**3:31**	**3:42**	—
	3:45	**4:09**	**4:21**	**4:32**	**4:45**
	4:55	**5:19**	**5:31**	**5:42**	**5:55**
	6:05	**6:29**	**6:41**	**6:52**	**7:05**

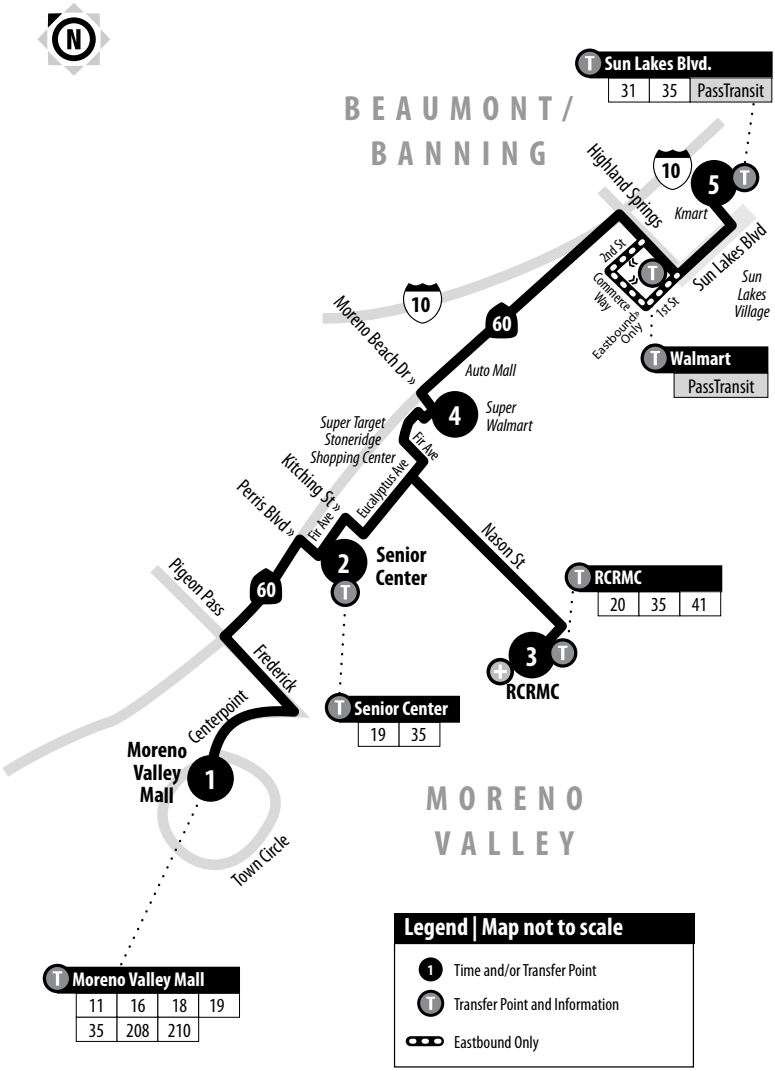
35

Beaumont/Banning to Moreno Valley Mall

Information Center
(951) 565-5002
Web site
www.RiversideTransit.com

Routing and timetables subject to change.

Also serving: Walmart, Kmart, City Hall, Riverside County Regional Medical Center. **No service on weekends or on the following holidays:** New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day and Christmas Day.



35 Weekdays | Eastbound to Beaumont/Banning

A.M. times are in PLAIN, **P.M. times are in BOLD** | Times are approximate

Moreno Valley Mall	Moreno Valley Senior Center	RCRMC Moreno Valley	Super Walmart at Moreno Beach Dr	Banning Kmart Sun Lakes
1	2	3	4	5
6:30	6:39	6:47	6:54	7:19
7:30	7:39	7:47	7:54	8:19
8:30	8:39	8:47	8:54	9:19
9:30	9:39	9:47	9:54	10:19
10:30	10:39	10:47	10:54	11:19
11:30	11:39	11:47	11:54	**12:19**
12:30	**12:39**	**12:47**	**12:54**	**1:19**
1:30	**1:39**	**1:47**	**1:54**	**2:19**
2:30	**2:39**	**2:47**	**2:54**	**3:19**
3:30	**3:39**	**3:47**	**3:54**	**4:19**
4:30	**4:39**	**4:47**	**4:54**	**5:19**
5:30	**5:39**	**5:47**	**5:54**	**6:19**
6:30	**6:39**	**6:47**	**6:54**	**7:19**

35 Weekdays | Westbound to Moreno Valley Mall

A.M. times are in PLAIN, **P.M. times are in BOLD** | Times are approximate

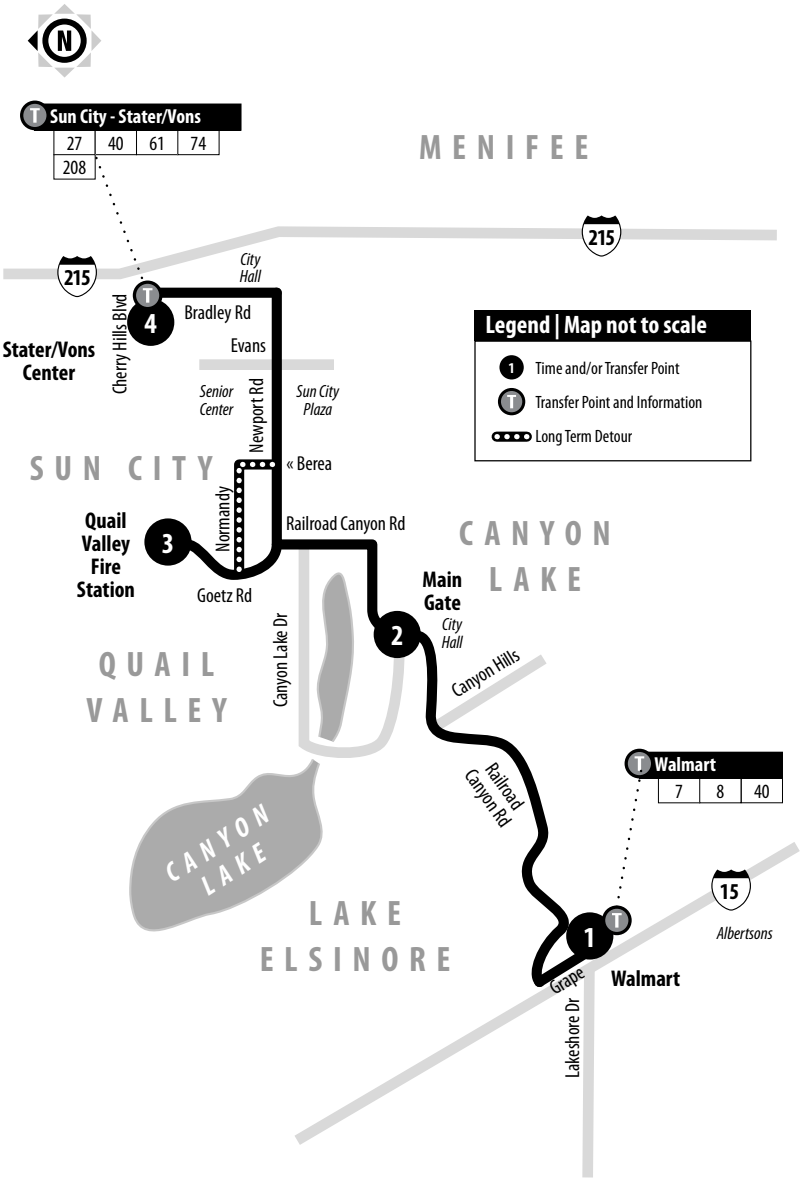
Banning Kmart Sun Lakes	Super Walmart at Moreno Beach Dr	RCRMC Moreno Valley	Moreno Valley Senior Center	Moreno Valley Mall
5	4	3	2	1
6:29	6:50	7:04	7:15	7:24
7:29	7:50	8:04	8:15	8:24
8:29	8:50	9:04	9:15	9:24
9:29	9:50	10:04	10:15	10:24
10:29	10:50	11:04	11:15	11:24
11:29	11:50	**12:04**	**12:15**	**12:24**
12:29	**12:50**	**1:04**	**1:15**	**1:24**
1:29	**1:50**	**2:04**	**2:15**	**2:24**
2:29	**2:50**	**3:04**	**3:15**	**3:24**
3:29	**3:50**	**4:04**	**4:15**	**4:24**
4:29	**4:50**	**5:04**	**5:15**	**5:24**
5:29	**5:50**	**6:04**	**6:15**	**6:24**
6:29	**6:50**	**7:04**	**7:15**	**7:24**

40 Lake Elsinore to Sun City

Information Center
(951) 565-5002
Web site
www.RiversideTransit.com

Routing and timetables subject to change.

Also serving: Lake Elsinore, Quail Valley, Canyon Lake, Sun City. **No service on Weekends or on the following holidays:** New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day and Christmas Day.



40 Weekdays | Eastbound to Sun City

A.M. times are in PLAIN, **P.M. times are in BOLD** | Times are approximate
X = Does not service the Senior Center

	Lake Elsinore Walmart	Canyon Lake Main Gate	Quail Valley Fire Station	Cherry Hills & Bradley
	1	2	3	4
	5:54	6:00	6:10	6:25
	7:14	7:21	7:32	7:50
	8:42	8:49	9:00	9:15
	10:07	10:14	10:25	10:40
	11:32	11:39	11:50	**12:05**
	12:56	**1:03**	**1:13**	**1:30**
	2:21	**2:28**	**2:38**	**2:55**
	3:44	**3:51**	**4:01**	**4:20**
X	**5:13**	**5:20**	**5:30**	**5:45**

40 Weekdays | Westbound to Lake Elsinore Walmart

A.M. times are in PLAIN, **P.M. times are in BOLD** | Times are approximate
X = Does not service the Senior Center

	Cherry Hills & Bradley	Quail Valley Fire Station	Canyon Lake Main Gate	Lake Elsinore Walmart
	4	3	2	1
	6:30	6:48	6:54	7:02
	7:55	8:13	8:19	8:27
	9:20	9:38	9:44	9:52
	10:45	11:03	11:10	11:18
	12:10	**12:28**	**12:35**	**12:43**
	1:35	**1:54**	**2:00**	**2:08**
	3:00	**3:21**	**3:27**	**3:35**
	4:25	**4:46**	**4:52**	**4:59**
X	**5:50**	**6:07**	**6:13**	**6:20**

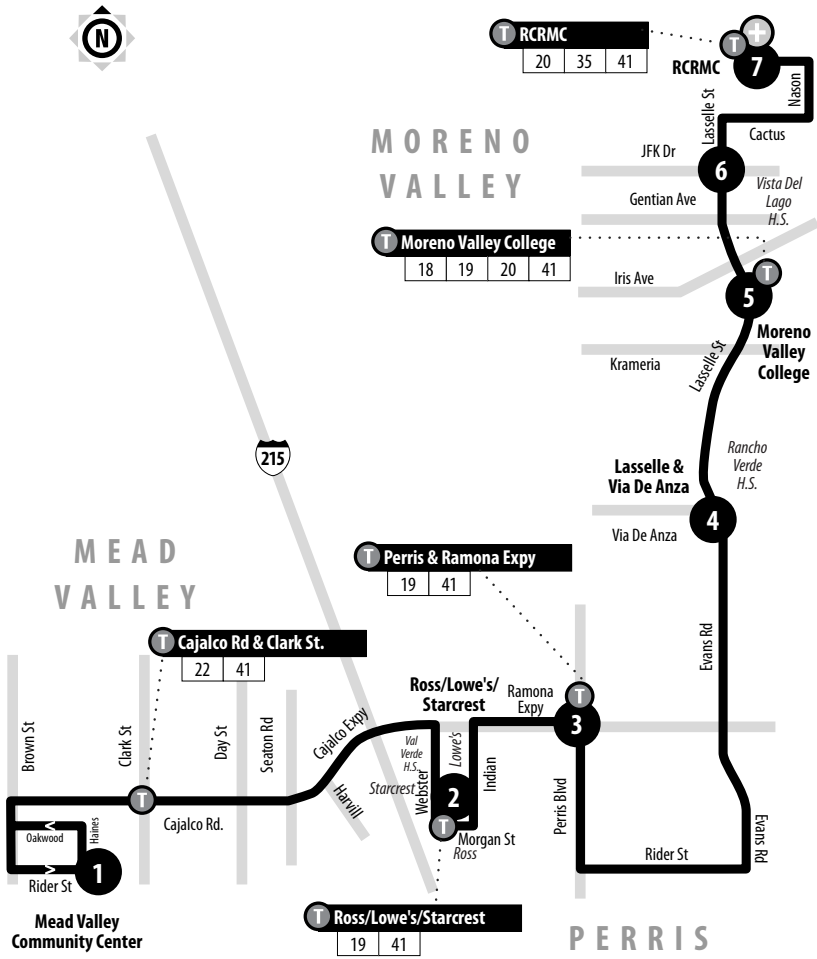
41

Mead Valley Community Center to Moreno Valley College and RCRMC

Information Center
(951) 565-5002
Web site
www.RiverideTransit.com

Routing and timetables subject to change.

Also serving: Rancho Verde High School, RCC Mo Val, Riverside County Regional Medical Center.
No service on the following holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day and Christmas Day.



Legend | Map not to scale

- 1 Time and/or Transfer Point
- T Transfer Point and Information
- Medical Facility

41 Weekdays | Eastbound to RCRMC Moreno Valley

A.M. times are in PLAIN, **P.M. times are in BOLD** | Times are approximate

Mead Valley Community Center	Ross Lowe's Starcrest	Perris & Ramona Expressway	Lasselle & Via DeAnza	Moreno Valley College	JFK & Lasselle	RCRMC Moreno Valley
1	2	3	4	5	7	8
5:05	5:21	5:26	5:39	5:47	5:52	5:57
6:05	6:21	6:26	6:39	6:47	6:52	6:57
7:05	7:21	7:26	7:39	7:47	7:52	7:57
8:05	8:21	8:26	8:39	8:47	8:52	8:57
9:05	9:21	9:26	9:39	9:47	9:52	9:57
10:05	10:21	10:26	10:39	10:47	10:52	10:57
11:05	11:21	11:26	11:39	11:47	11:52	11:57
12:05	**12:21**	**12:26**	**12:39**	**12:47**	**12:52**	**12:57**
1:05	**1:21**	**1:26**	**1:39**	**1:47**	**1:52**	**1:57**
2:15	**2:31**	**2:36**	**2:49**	**2:57**	**3:02**	**3:07**
3:15	**3:31**	**3:36**	**3:49**	**3:57**	**4:02**	**4:07**
4:05	**4:21**	**4:26**	**4:39**	**4:47**	**4:52**	**4:57**
5:05	**5:21**	**5:26**	**5:39**	**5:47**	**5:52**	**5:57**
6:05	**6:21**	**6:26**	**6:39**	**6:47**	**6:52**	**6:57**

41 Weekdays | Westbound to Mead Valley Community Center

A.M. times are in PLAIN, **P.M. times are in BOLD** | Times are approximate

RCRMC Moreno Valley	JFK & Lasselle	Moreno Valley College	Lasselle & Via DeAnza	Perris & Ramona Expressway	Ross Lowe's Starcrest	Mead Valley Community Center
8	7	5	4	3	2	1
5:05	5:10	5:20	5:25	5:38	5:42	5:55
6:05	6:10	6:20	6:25	6:38	6:42	6:55
7:05	7:10	7:20	7:25	7:38	7:42	7:55
8:10	8:15	8:25	8:30	8:43	8:47	9:00
9:10	9:15	9:25	9:30	9:43	9:47	10:00
10:10	10:15	10:25	10:30	10:43	10:47	11:00
11:10	11:15	11:25	11:30	11:43	11:47	**12:00**
12:10	**12:15**	**12:25**	**12:30**	**12:43**	**12:47**	**1:00**
1:10	**1:15**	**1:25**	**1:30**	**1:43**	**1:47**	**2:00**
2:15	**2:20**	**2:30**	**2:35**	**2:48**	**2:52**	**3:05**
3:15	**3:20**	**3:30**	**3:35**	**3:48**	**3:52**	**4:05**
4:05	**4:10**	**4:20**	**4:25**	**4:38**	**4:42**	**4:55**
5:05	**5:10**	**5:20**	**5:25**	**5:38**	**5:42**	**5:55**
6:05	**6:10**	**6:20**	**6:25**	**6:38**	**6:42**	**6:55**

41 Weekends | Eastbound to RCRMC

A.M. times are in PLAIN, **P.M. times are in BOLD** | Times are approximate

Mead Valley Comm Cntr	Ross/ Lowe's/ Starcrest	Perris & Ramona Expressway	Lasselle & Via DeAnza	Moreno Valley College	JFK & Lasselle	RCRMC Moreno Valley
1	2	3	4	5	6	7
8:05	8:16	8:22	8:29	8:33	8:35	8:40
8:52	9:03	9:09	9:18	9:22	9:24	9:30
9:37	9:48	9:54	10:03	10:07	10:09	10:15
10:27	10:38	10:44	10:53	10:57	10:59	11:05
11:12	11:23	11:29	11:38	11:42	11:44	11:50
12:02	**12:13**	**12:19**	**12:28**	**12:32**	**12:34**	**12:40**
12:47	**12:58**	**1:04**	**1:13**	**1:17**	**1:19**	**1:25**
1:37	**1:48**	**1:54**	**2:03**	**2:07**	**2:09**	**2:15**
2:22	**2:33**	**2:39**	**2:48**	**2:52**	**2:54**	**3:00**
3:12	**3:23**	**3:29**	**3:38**	**3:42**	**3:44**	**3:50**
3:57	**4:08**	**4:14**	**4:23**	**4:27**	**4:29**	**4:35**
4:50	**5:01**	**5:07**	**5:14**	**5:18**	**5:20**	**5:25**
5:35	**5:46**	**5:52**	**5:59**	**6:03**	**6:05**	**6:10**

41 Weekends | Westbound to Mead Valley Community Center

A.M. times are in PLAIN, **P.M. times are in BOLD** | Times are approximate

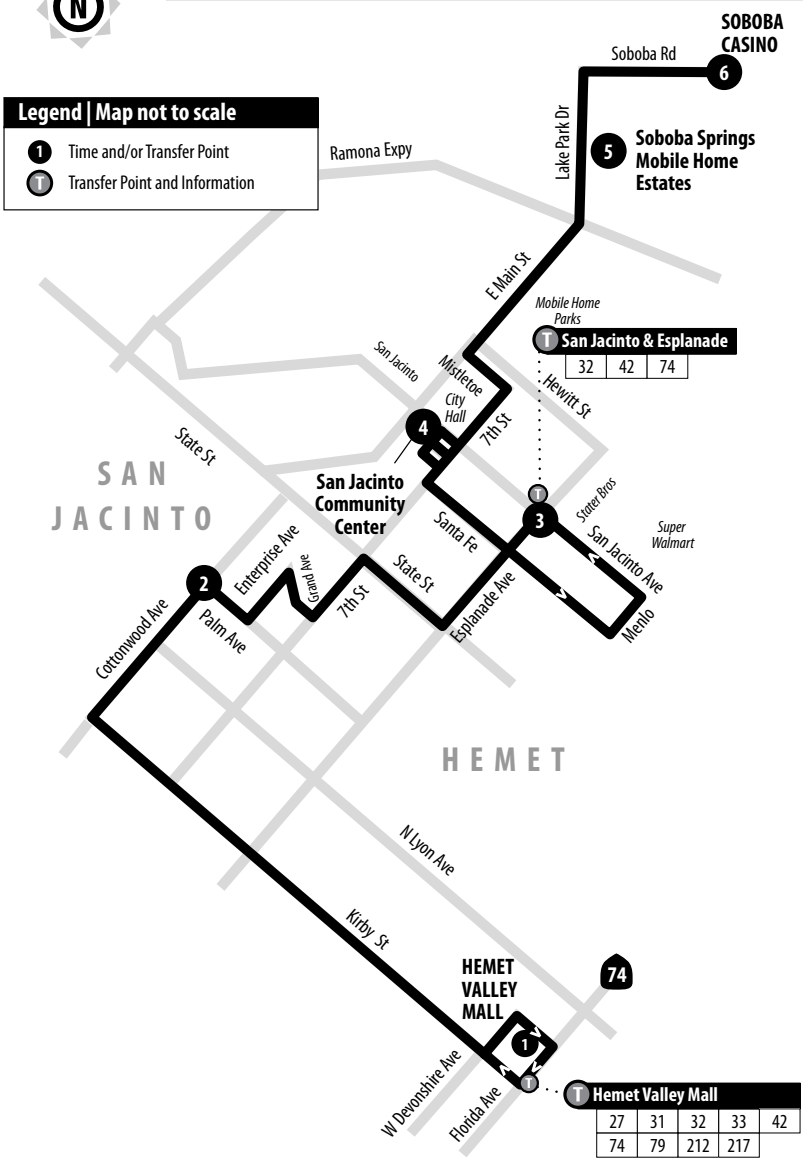
RCRMC Moreno Valley	JFK & Lasselle	Moreno Valley College	Lasselle & Via DeAnza	Perris & Ramona Expressway	Ross/ Lowe's/ Starcrest	Mead Valley Comm Cntr
7	6	5	4	3	2	1
8:00	8:05	8:09	8:13	8:22	8:25	8:34
8:45	8:50	8:55	9:00	9:13	9:17	9:30
9:35	9:40	9:45	9:50	10:03	10:07	10:20
10:20	10:25	10:30	10:35	10:48	10:52	11:05
11:10	11:15	11:20	11:25	11:38	11:42	11:55
11:55	**12:00**	**12:05**	**12:10**	**12:23**	**12:27**	**12:40**
12:45	**12:50**	**12:55**	**1:00**	**1:13**	**1:17**	**1:30**
1:30	**1:35**	**1:40**	**1:45**	**1:58**	**2:02**	**2:15**
2:20	**2:25**	**2:30**	**2:35**	**2:48**	**2:52**	**3:05**
3:05	**3:10**	**3:15**	**3:20**	**3:33**	**3:37**	**3:50**
3:55	**4:00**	**4:05**	**4:10**	**4:23**	**4:27**	**4:40**
4:40	**4:45**	**4:50**	**4:55**	**5:08**	**5:12**	**5:25**
5:30	**5:35**	**5:40**	**5:45**	**5:58**	**6:02**	**6:15**
6:15	**6:20**	**6:25**	**6:30**	**6:43**	**6:47**	**7:00**

42 San Jacinto - Hemet

Information Center
(951) 565-5002
Web site
www.RiverideTransit.com

Routing and timetables subject to change.

Also serving: San Jacinto, Soboba Springs MHE, Caravana ML, San Jacinto TP, Tradewinds ML, Grandview MHP, Las Casitas MHP, El Rancho MHE, Valley Hi MHP. **No service on:** New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day and Christmas Day.



42 Weekdays | Eastbound to Soboba Casino

A.M. times are in PLAIN, **P.M. times are in BOLD** | Times are approximate

Hemet Valley Mall	Palm & Cottonwood	San Jacinto & Esplanade	San Jacinto Community Center	Soboba Springs MH Estates	Soboba Casino
1	2	3	4	5	6
7:30	7:41	7:54	7:59	8:10	8:15
8:40	8:51	9:04	9:09	9:20	9:25
9:50	10:01	10:14	10:19	10:30	10:35
11:00	11:11	11:24	11:29	11:40	11:45
12:10	**12:21**	**12:34**	**12:39**	**12:50**	**12:55**
1:20	**1:31**	**1:44**	**1:49**	**2:00**	**2:05**
2:30	**2:41**	**2:54**	**2:59**	**3:10**	**3:15**
3:40	**3:51**	**4:04**	**4:09**	**4:20**	**4:25**
4:50	**5:01**	**5:14**	**5:19**	**5:30**	**5:35**
6:00	**6:11**	**6:24**	**6:29**	**6:40**	**6:45**

42 Weekdays | Westbound to Hemet Valley Mall

A.M. times are in PLAIN, **P.M. times are in BOLD** | Times are approximate

Soboba Casino	Soboba Springs MH Estates	San Jacinto Community Center	San Jacinto & Esplanade	Palm & Cottonwood	Hemet Valley Mall
6	5	4	3	2	1
7:18	7:23	7:32	7:40	7:49	8:00
8:28	8:33	8:42	8:50	8:59	9:10
9:38	9:43	9:52	10:00	10:09	10:20
10:48	10:53	11:02	11:10	11:19	11:30
11:58	**12:03**	**12:12**	**12:20**	**12:29**	**12:40**
1:08	**1:13**	**1:22**	**1:30**	**1:39**	**1:50**
2:18	**2:23**	**2:32**	**2:40**	**2:49**	**3:00**
3:28	**3:33**	**3:42**	**3:50**	**3:59**	**4:10**
4:38	**4:43**	**4:52**	**5:00**	**5:09**	**5:20**
5:48	**5:53**	**6:02**	**6:10**	**6:19**	**6:30**
6:58	**7:03**	**7:12**	**7:20**	**7:29**	**7:40**

42 Saturdays | Eastbound to Soboba Casino

A.M. times are in PLAIN, **P.M. times are in BOLD** | Times are approximate

Hemet Valley Mall	Palm & Cottonwood	San Jacinto & Esplanade	San Jacinto Community Center	Soboba Springs MH Estates	Soboba Casino
1	2	3	4	5	6
8:40	8:51	9:03	9:07	9:18	9:23
10:25	10:36	10:49	10:53	11:04	11:09
12:10	**12:21**	**12:34**	**12:38**	**12:49**	**12:54**
1:55	**2:06**	**2:19**	**2:23**	**2:34**	**2:39**
3:40	**3:51**	**4:04**	**4:08**	**4:19**	**4:24**
5:25	**5:36**	**5:49**	**5:53**	**6:04**	**6:09**

42 Saturdays | Westbound to Hemet Valley Mall

A.M. times are in PLAIN, **P.M. times are in BOLD** | Times are approximate

Soboba Casino	Soboba Springs MH Estates	San Jacinto Community Center	San Jacinto & Esplanade	Palm & Cottonwood	Hemet Valley Mall
1	2	3	4	5	6
9:29	9:34	9:43	9:51	9:59	10:10
11:14	11:19	11:28	11:36	11:44	11:55
12:59	**1:04**	**1:13**	**1:21**	**1:29**	**1:40**
2:44	**2:49**	**2:58**	**3:06**	**3:14**	**3:25**
4:29	**4:34**	**4:43**	**4:51**	**4:59**	**5:10**
6:14	**6:19**	**6:28**	**6:36**	**6:44**	**6:55**



FYI: *Bike racks are available on all fixed-route buses. Just ride your bike to the nearest bus stop, load your bike, and go!*

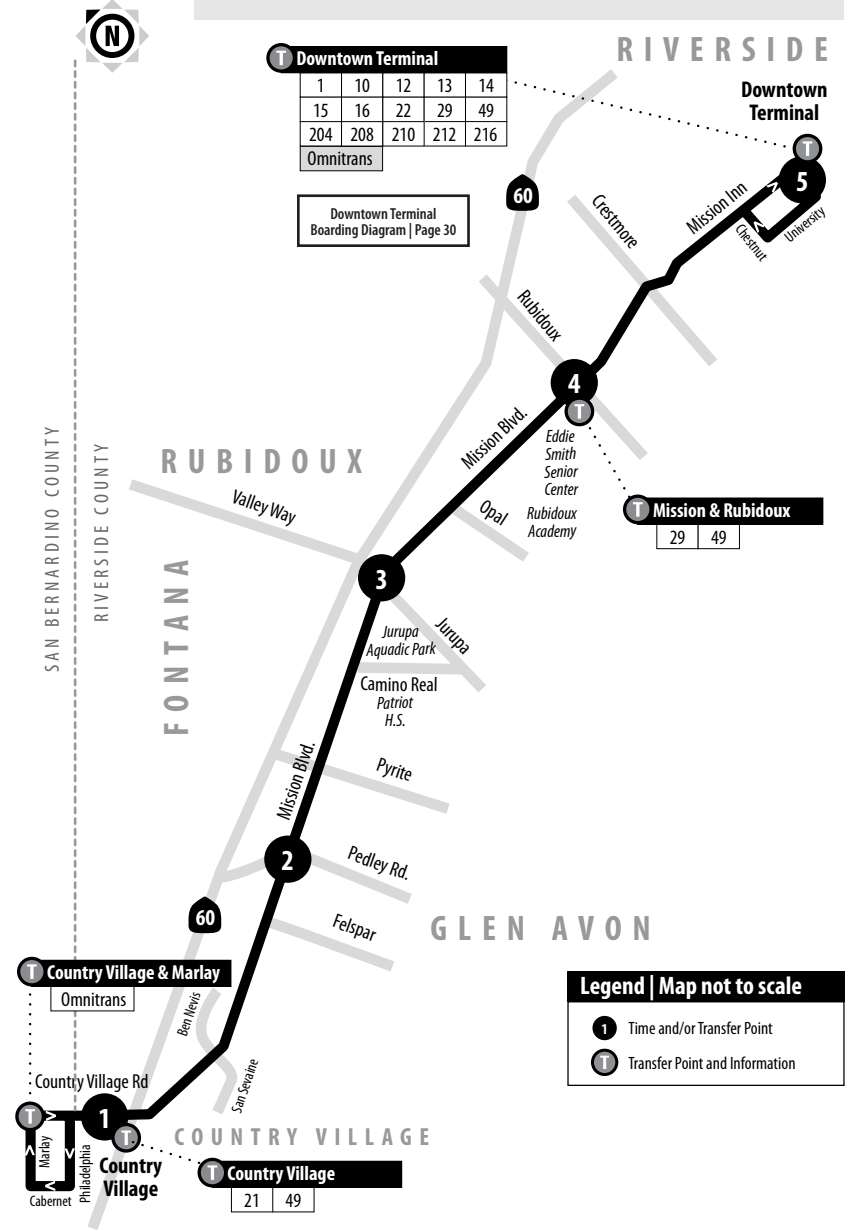
49

Downtown Terminal to Country Village

Information Center
(951) 565-5002
Web site
www.RiversideTransit.com

Routing and timetables subject to change.

Also serving: Riverside, Rubidoux, Pedley. **No service on:** New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day and Christmas Day.



49 Weekdays | Eastbound to Downtown Terminal

A.M. times are in PLAIN, **P.M. times are in BOLD** | Times are approximate

Country Village	Mission & Pedley	Mission & Valley Way	Mission & Rubidoux	Downtown Terminal
1	2	3	4	5
4:27	4:33	4:39	4:45	4:55
5:33	5:41	5:48	5:54	6:05
6:38	6:47	6:55	7:04	7:15
7:46	7:55	8:03	8:12	8:25
8:56	9:05	9:13	9:22	9:35
10:05	10:14	10:22	10:32	10:45
11:40	11:49	11:57	**12:07**	**12:20**
12:35	**12:44**	**12:52**	**1:02**	**1:15**
1:31	**1:40**	**1:47**	**1:57**	**2:10**
2:26	**2:35**	**2:42**	**2:52**	**3:05**
3:21	**3:30**	**3:37**	**3:47**	**4:00**
4:18	**4:27**	**4:34**	**4:44**	**4:55**
5:13	**5:22**	**5:29**	**5:39**	**5:50**
6:11	**6:20**	**6:27**	**6:34**	**6:45**
7:03	**7:12**	**7:19**	**7:29**	**7:40**

49 Weekdays | Westbound to Country Village

A.M. times are in PLAIN, **P.M. times are in BOLD** | Times are approximate

Downtown Terminal	Mission & Rubidoux	Mission & Valley Way	Mission & Pedley	Country Village
5	4	3	2	1
4:35	4:40	4:47	4:53	5:08
5:45	5:50	5:57	6:03	6:18
6:55	7:02	7:09	7:15	7:30
8:05	8:12	8:21	8:28	8:45
9:15	9:22	9:31	9:38	9:55
10:25	10:32	10:41	10:48	11:05
11:35	11:43	11:52	11:59	**12:16**
12:30	**12:38**	**12:47**	**12:54**	**1:11**
1:25	**1:33**	**1:42**	**1:49**	**2:06**
2:20	**2:28**	**2:37**	**2:44**	**3:01**
3:15	**3:23**	**3:34**	**3:41**	**3:58**
4:10	**4:18**	**4:29**	**4:36**	**4:53**
5:05	**5:13**	**5:24**	**5:31**	**5:48**
6:00	**6:08**	**6:19**	**6:26**	**6:43**
6:55	**7:03**	**7:14**	**7:21**	**7:38**
7:50	**7:58**	**8:09**	**8:16**	**8:33**

49 Weekends | Eastbound to Downtown Terminal

A.M. times are in PLAIN, **P.M. times are in BOLD** | Times are approximate

Country Village	Mission & Pedley	Mission & Valley Way	Mission & Rubidoux	Downtown Terminal
1	2	3	4	5
6:50	6:57	7:03	7:10	7:20
7:54	8:02	8:08	8:15	8:25
8:55	9:03	9:10	9:17	9:30
10:03	10:11	10:18	10:27	10:40
11:12	11:20	11:27	11:37	11:50
12:22	**12:30**	**12:37**	**12:47**	**1:00**
1:32	**1:40**	**1:47**	**1:57**	**2:10**
2:37	**2:45**	**2:52**	**3:02**	**3:15**
3:45	**3:53**	**4:00**	**4:07**	**4:20**
4:51	**4:59**	**5:05**	**5:12**	**5:25**
5:59	**6:07**	**6:13**	**6:20**	**6:30**
7:04	**7:12**	**7:18**	**7:25**	**7:35**

49 Weekends | Westbound to Country Village

A.M. times are in PLAIN, **P.M. times are in BOLD** | Times are approximate

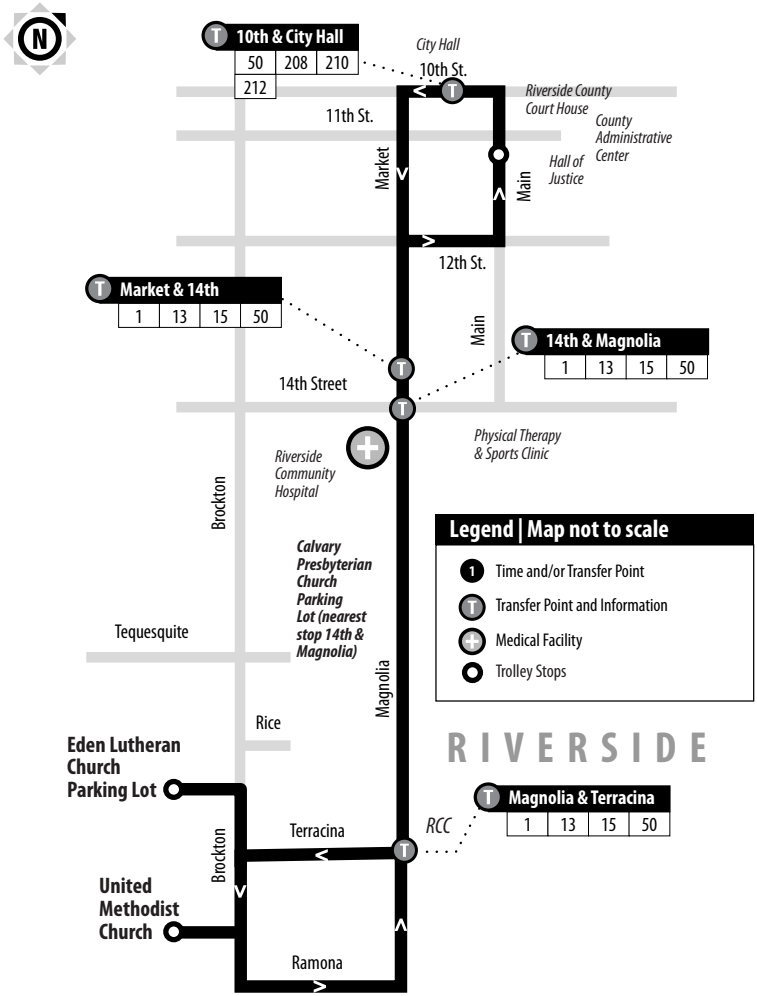
Downtown Terminal	Mission & Rubidoux	Mission & Valley Way	Mission & Pedley	Country Village
5	4	3	2	1
6:00	6:06	6:13	6:17	6:30
7:05	7:11	7:19	7:23	7:36
8:10	8:16	8:24	8:29	8:43
9:15	9:21	9:31	9:36	9:52
10:20	10:26	10:36	10:41	10:57
11:25	11:31	11:41	11:46	**12:02**
12:35	**12:41**	**12:51**	**12:56**	**1:12**
1:45	**1:51**	**2:01**	**2:06**	**2:22**
2:55	**3:01**	**3:11**	**3:16**	**3:31**
4:05	**4:11**	**4:21**	**4:26**	**4:41**
5:10	**5:16**	**5:26**	**5:31**	**5:45**
6:15	**6:21**	**6:28**	**6:33**	**6:47**
7:20	**7:26**	**7:33**	**7:38**	**7:52**

50 Jury Trolley | Red Line

Information Center
(951) 565-5002
Web site
www.RiversideTransit.com

Routing and timetables subject to change.

Also serving: Jury Remote Parking to 12th & Main, Riverside County Courthouse. **Runs Monday – Thursday Only. No service on the following holidays and court closure days:** New Year's Day, MLK Day, President's Day, Cesar Chavez Day, Memorial Day, Independence Day, Labor Day, Columbus Day, Veterans Day, Thanksgiving Day and Christmas Day.



50 Monday - Thursday | Jury Trolley (Red Line)

Hours of Operation	Service Frequency
7:20 a.m. to 9 a.m.	Every 13 minutes
9:01 a.m. to 5:40 p.m.	Every 25 minutes

Last trip departs the Court House (Main & 11th) at approximately 5:40 p.m.

JURY TROLLEY (Red Line)	
Fare Categories	**Base Fares**
General/Youth	25¢
Senior/Disabled/Medicare Card Holder	10¢
City employees, jurors and holders of a valid parking ticket or RTA Pass	FREE



FYI: *Fold-up seats and seats directly behind the coach operator are reserved for seniors and disabled customers.*



DID YOU KNOW? *RTA's large bus fleet is fueled by clean-burning Compressed Natural Gas (CNG).*

Now you can receive rider alerts, RTA news and job openings instantly via email or text message to your computer or cell phone.

ELECTRONIC ALERTS

Sign up for the free service at RiversideTransit.com.



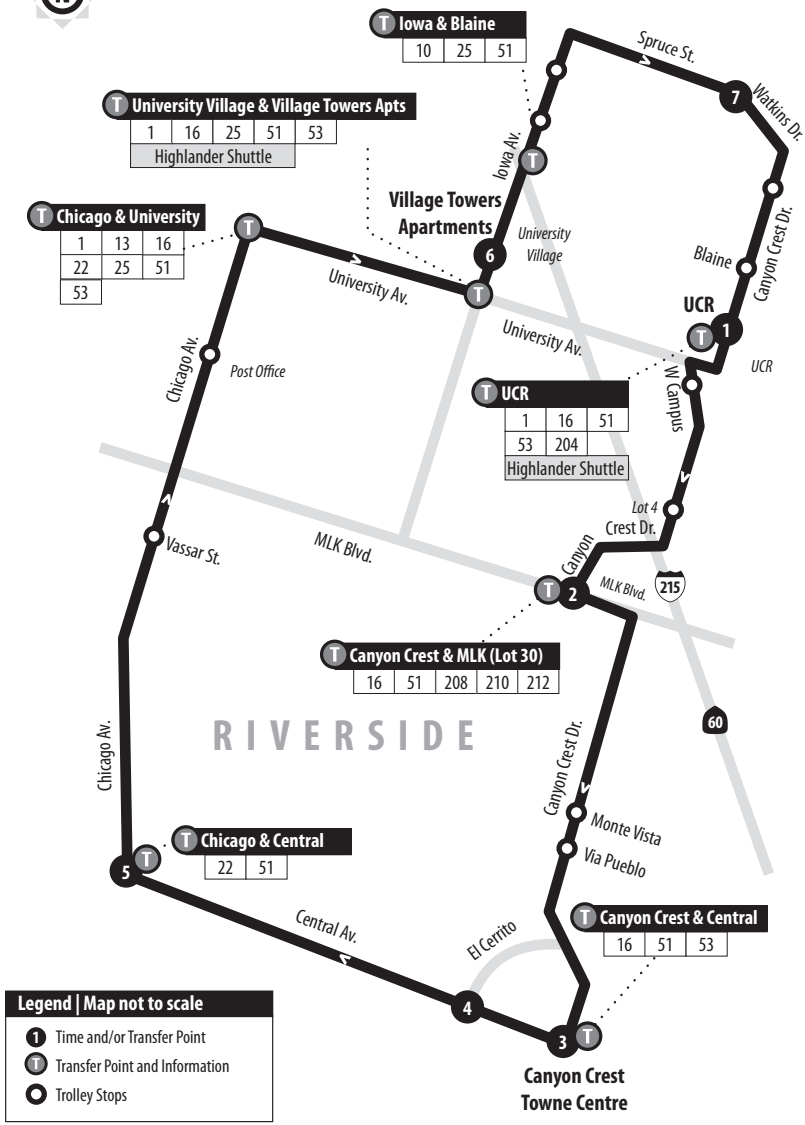
51

Crest Cruiser
UCR - Canyon Crest Towne Centre

Information Center
(951) 565-5002
Web site
www.RiversideTransit.com

Routing and timetables subject to change.

RUNS ON UCR ACADEMIC DAYS ONLY. Service resumes September 19. No service on weekends or the following holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day and Christmas Day. Does not run Nov. 11, 24-25, Dec. 12-30, Jan. 16.



51 Weekdays | UCR to Canyon Crest

A.M. times are in PLAIN, **P.M. times are in BOLD** | Times are approximate

UCR at Bannockburn	UCR Lot 30	Canyon Crest Towncenter	Central & El Cerrito	Central & Chicago	University Village & Village Tower Apartments	Watkins & Spruce	UCR at Bannockburn
1	2	3	4	5	6	7	1
7:00	7:04	7:09	7:10	7:13	7:23	7:29	7:32
7:40	7:44	7:49	7:50	7:53	8:03	8:09	8:12
8:20	8:24	8:29	8:30	8:33	8:43	8:49	8:52
9:00	9:04	9:09	9:10	9:13	9:23	9:29	9:32
9:40	9:44	9:49	9:50	9:53	10:03	10:09	10:12
10:20	10:24	10:29	10:30	10:33	10:43	10:49	10:52
11:00	11:04	11:09	11:10	11:13	11:23	11:29	11:32
11:40	11:44	11:49	11:50	11:53	**12:03**	**12:09**	**12:12**
12:20	**12:24**	**12:29**	**12:30**	**12:33**	**12:43**	**12:49**	**12:52**
1:00	**1:04**	**1:09**	**1:10**	**1:13**	**1:23**	**1:29**	**1:32**
1:40	**1:44**	**1:49**	**1:50**	**1:53**	**2:03**	**2:09**	**2:12**
2:20	**2:24**	**2:29**	**2:30**	**2:33**	**2:43**	**2:49**	**2:52**
3:00	**3:04**	**3:09**	**3:10**	**3:13**	**3:23**	**3:29**	**3:32**
3:40	**3:44**	**3:49**	**3:50**	**3:53**	**4:03**	**4:09**	**4:12**
4:20	**4:24**	**4:29**	**4:30**	**4:33**	**4:43**	**4:49**	**4:52**
5:00	**5:04**	**5:09**	**5:10**	**5:13**	**5:23**	**5:29**	**5:32**
5:40	**5:44**	**5:49**	**5:50**	**5:53**	**6:03**	**6:09**	**6:12**
6:20	**6:24**	**6:29**	**6:30**	**6:33**	**6:43**	**6:49**	**6:52**

For UCR shuttle service after 7 p.m., please refer to UCR's Bear Runner Schedule.



FYI: *Keep your buses and bus stops clean by using trash receptacles.*

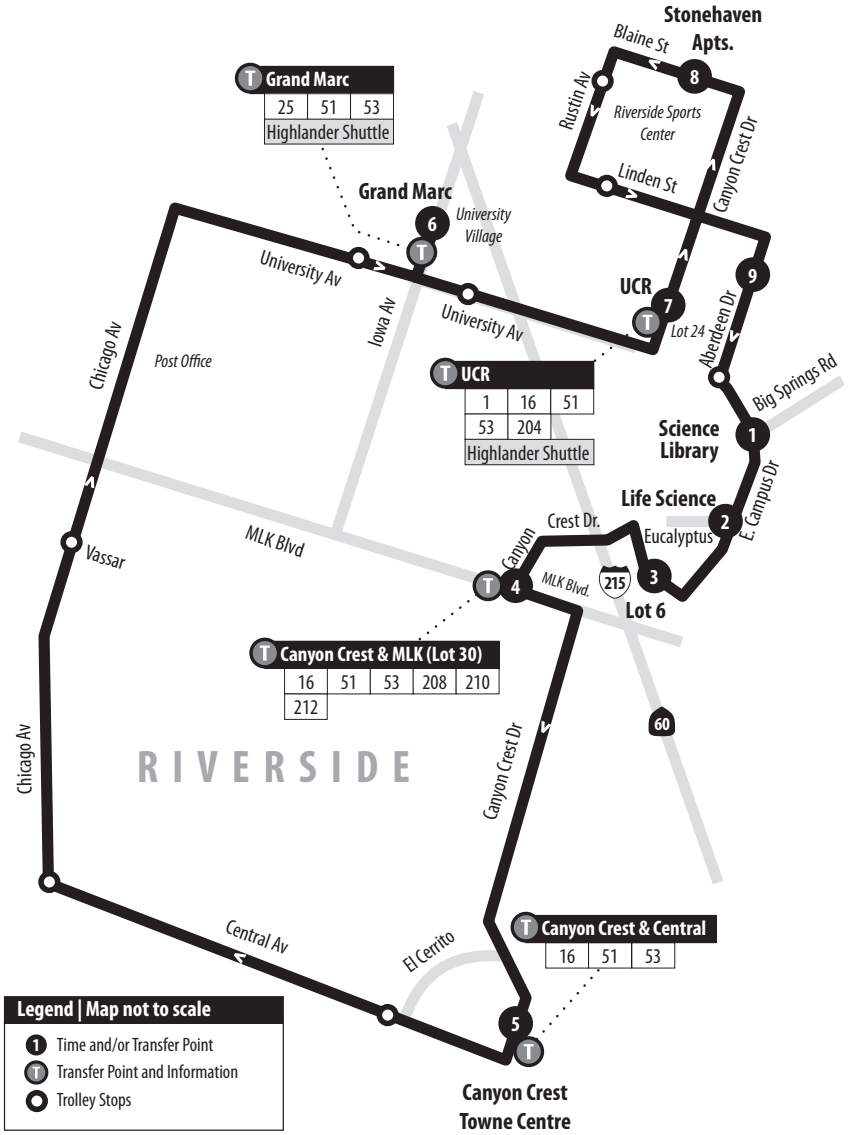
53

Bear Runner
UCR - Canyon Crest Towne Centre

Information Center
(951) 565-5002
Web site
www.RiversideTransit.com

Routing and timetables subject to change.

RUNS ON UCR ACADEMIC DAYS ONLY. Service resumes September 19. No service on weekends or the following holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day and Christmas Day. Does not run Nov. 11, 24-25, Dec. 12-30, Jan. 16.



53 Monday through Thursday | UCR to Canyon Crest - Bear Runner

A.M. times are in PLAIN, **P.M. times are in BOLD** | Times are approximate

E Campus Dr at Science Library	Life Science Rivera	UCR Lot 6	UCR Lot 30	Canyon Crest Town Centre	Grand Marc	UCR at Bannockburn	Stonehaven	Aberdeen & Linden	E Campus Dr at Science Library
1	2	3	4	5	6	7	8	9	1
—	—	—	—	—	—	—	**7:12**	**7:15**	**7:17**
7:22	**7:24**	**7:26**	**7:29**	**7:35**	**7:39**	**7:41**	**7:44**	**7:47**	**7:49**
7:54	**7:56**	**7:58**	**8:01**	**8:07**	**8:11**	**8:13**	**8:16**	**8:19**	**8:21**
8:26	**8:28**	**8:30**	**8:33**	**8:39**	**8:43**	**8:45**	**8:48**	**8:51**	**8:53**
8:58	**9:00**	**9:02**	**9:05**	**9:11**	**9:15**	**9:17**	**9:20**	**9:23**	**9:25**
9:30	**9:32**	**9:34**	**9:37**	**9:43**	**9:47**	**9:49**	**9:52**	**9:55**	**9:57**
10:02	**10:04**	**10:06**	**10:09**	**10:15**	**10:19**	**10:21**	**10:24**	**10:27**	**10:29**
10:34	**10:36**	**10:38**	**10:41**	**10:47**	**10:51**	**10:53**	**10:56**	**10:59**	**11:01**
11:06	**11:08**	**11:10**	**11:13**	**11:19**	**11:23**	**11:25**	**11:28**	**11:31**	**11:33**
11:38	**11:40**	**11:42**	**11:45**	**11:51**	**11:55**	**11:57**	12:00	12:03	12:05
12:10	12:12	12:14	12:17	12:23	12:27	12:29	12:32	12:35	12:37

FYI: *Lose something on the bus? Call RTA Lost and Found at (951) 565-5000.*

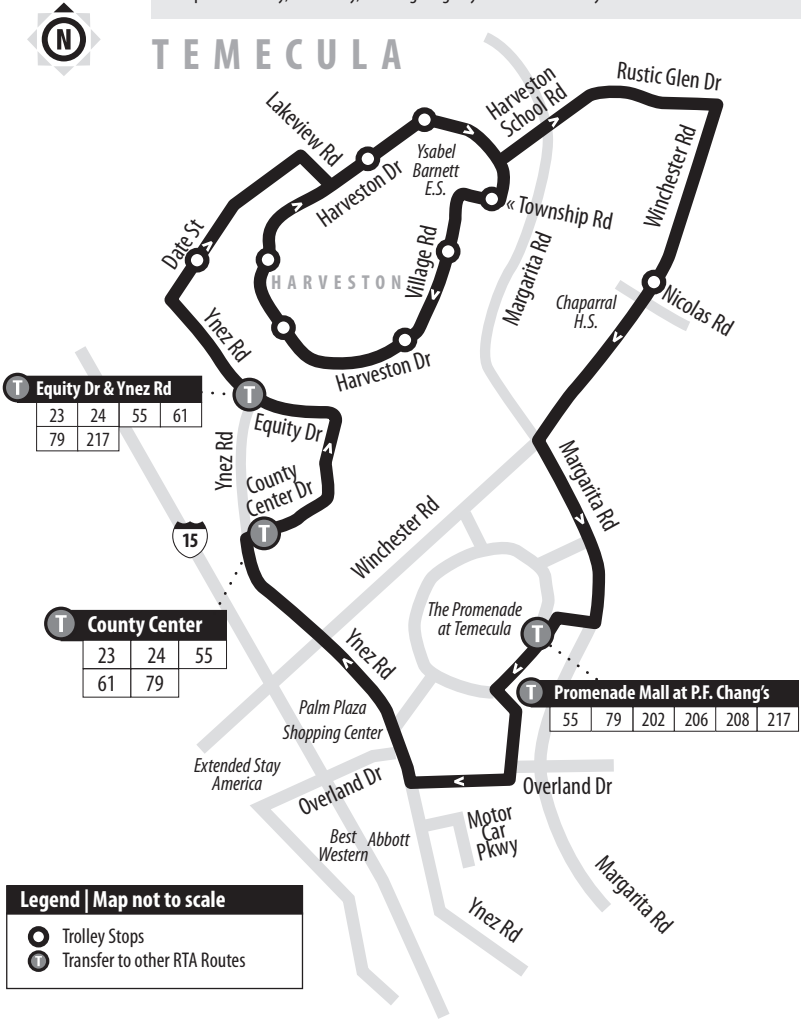
DID YOU KNOW? *An RTA bus is capable of taking 40 cars and their harmful emissions off the road.*

55 Temecula Trolley | Green Line
EVERYONE RIDES FREE

Information Center
(951) 565-5002
Web site
www.RiversideTransit.com

Routing and timetables subject to change.

Also serving: Chaparral High School, Ysabel Barnett Elementary School, Abbott, Promenade Mall, Harveston and County Center Drive. **No service on:** New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day and Christmas Day.



55 Temecula Trolley Weekday	
Hours of Operation	**Service Frequency**
6:30 a.m. to 8:00 a.m.	Every 15 minutes
2:30 p.m. to 4:15 p.m.	Every 15 minutes

POWERED BY CLEAN NATURAL GAS

Leading Clean



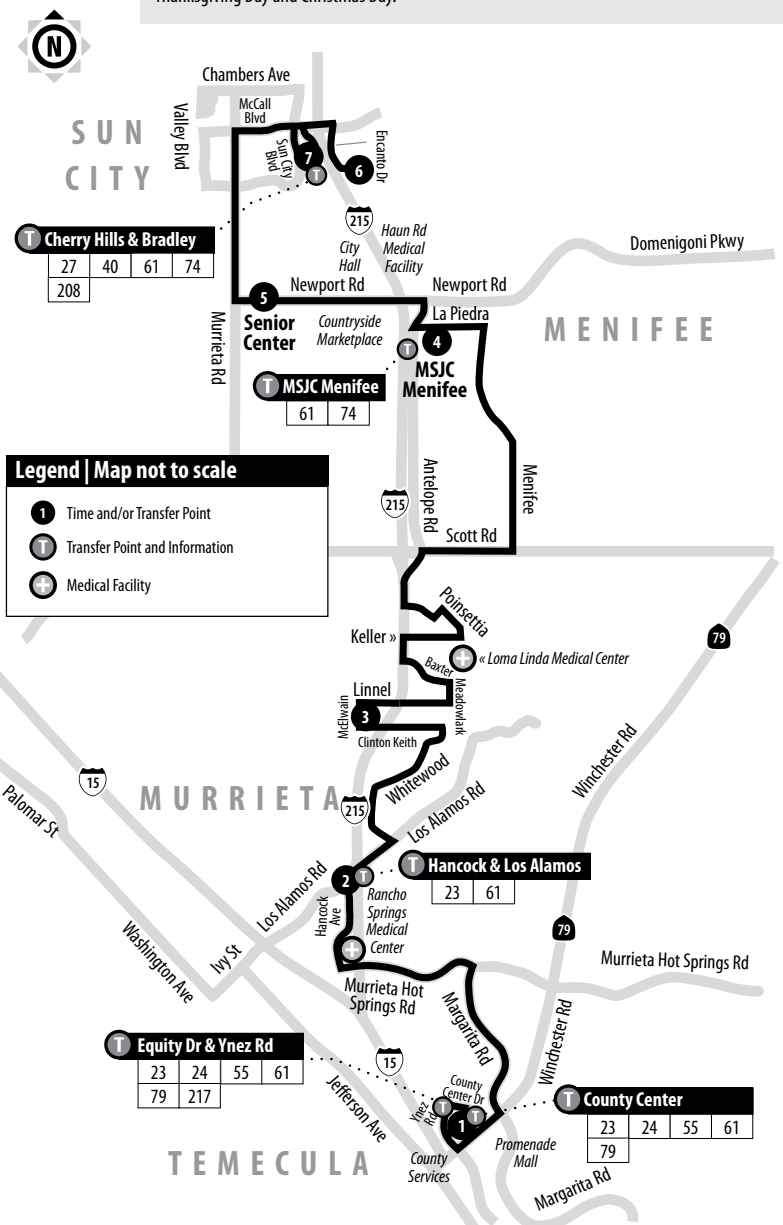
61

Sun City - Menifee - Murrieta - Temecula

Information Center
(951) 565-5002
Web site
www.RiverideTransit.com

Routing and timetables subject to change.

Also serving: Sun City Center, Loma Linda Medical Building. **No service on weekends or on the following holidays:** New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day and Christmas Day.



61 Weekdays | Northbound to Sun City

A.M. times are in PLAIN, **P.M. times are in BOLD** | Times are approximate

County Center Dr	Los Alamos & Hancock	McElwain at Super Target	Mt. San Jacinto College Menifee	Kay Ceniceros Senior Center	Cherry Hills & Bradley
1	2	3	4	5	7
6:37	6:57	7:05	7:27	7:39	7:50
8:02	8:22	8:30	8:52	9:04	9:15
9:26	9:47	9:55	10:17	10:29	10:40
10:51	11:12	11:20	11:42	11:54	**12:05**
12:16	**12:37**	**12:45**	**1:07**	**1:19**	**1:30**
1:41	**2:02**	**2:10**	**2:32**	**2:44**	**2:55**
3:06	**3:27**	**3:35**	**3:57**	**4:09**	**4:20**
4:31	**4:52**	**5:00**	**5:22**	**5:34**	**5:45**
5:56	**6:17**	**6:25**	**6:59**	—	**7:10**

61 Weekdays | Southbound to Temecula

A.M. times are in PLAIN, **P.M. times are in BOLD** | Times are approximate

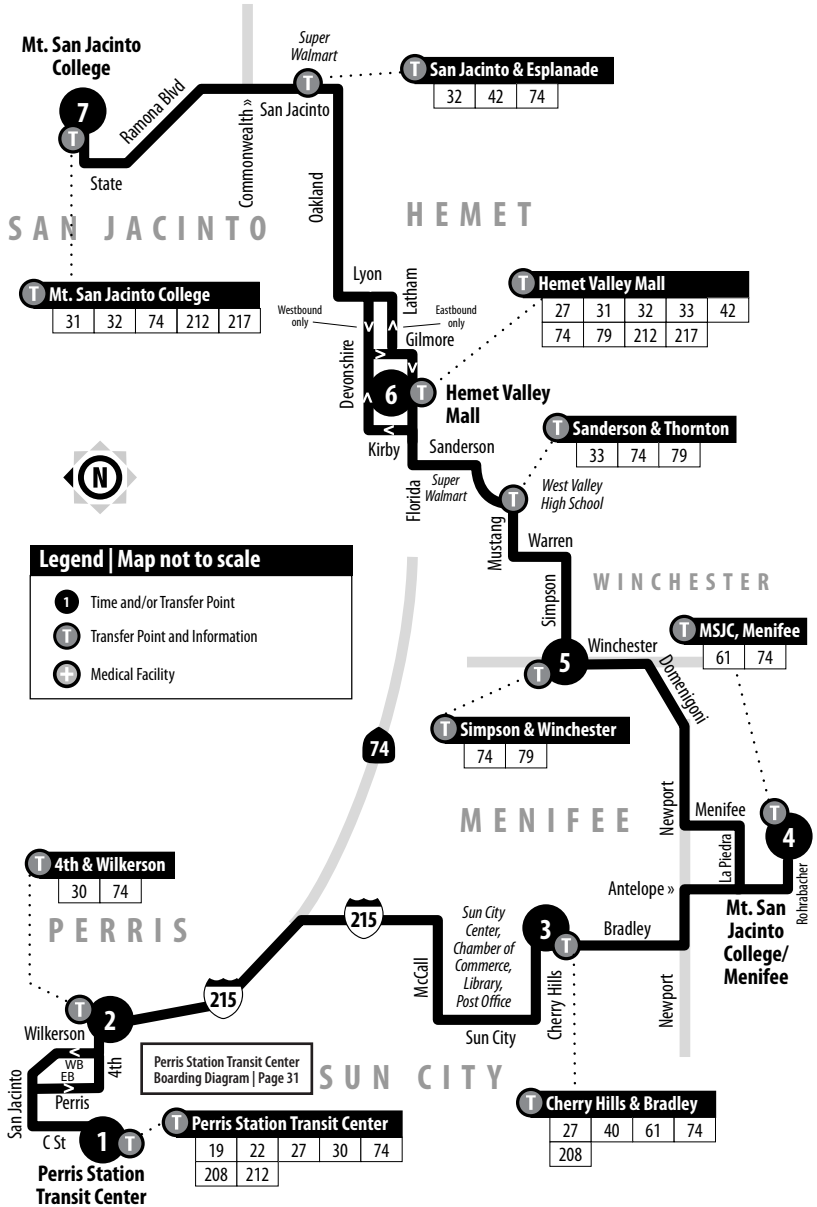
Cherry Hills & Bradley	Encanto Cul de Sac	Kay Ceniceros Senior Center	Mt. San Jacinto College Menifee	McElwain at Super Target	Los Alamos & Hancock	County Center Dr
7	6	5	4	3	2	1
6:30	6:35	6:50	7:00	7:24	7:32	7:47
7:55	8:00	8:15	8:25	8:49	8:57	9:13
9:20	9:25	9:41	9:51	10:15	10:23	10:39
10:45	10:51	11:07	11:18	11:42	11:50	**12:07**
12:10	**12:16**	**12:32**	**12:44**	**1:08**	**1:16**	**1:33**
1:35	**1:41**	**1:57**	**2:09**	**2:33**	**2:41**	**2:58**
3:00	**3:08**	**3:24**	**3:36**	**4:00**	**4:08**	**4:27**
4:25	**4:33**	**4:49**	**5:00**	**5:24**	**5:32**	**5:49**

74 San Jacinto - Hemet - Sun City - Perris

Information Center
(951) 565-5002
Web site
www.RiversideTransit.com

Routing and timetables subject to change.

Also serving: Hemet Valley Mall. **No service on weekends or on the following holidays:** New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day and Christmas Day.



74 Weekdays | Eastbound to Hemet Valley Mall and MSJC San Jacinto

A.M. times are in PLAIN, **P.M. times are in BOLD** | Times are approximate

Perris Transit Center	Cherry Hills & Bradley	Mt. San Jacinto College Menifee	Simpson & Winchester	Hemet Valley Mall	Mt. San Jacinto College San Jacinto
1	3	4	5	6	7
5:20	5:37	5:53	6:14	6:36	6:56
6:25	6:43	7:01	7:23	7:45	8:07
7:40	7:58	8:16	8:38	9:00	9:22
8:55	9:13	9:32	9:54	10:16	10:40
10:10	10:28	10:47	11:09	11:31	11:55
11:25	11:43	**12:02**	**12:22**	**12:44**	**1:08**
12:40	**12:58**	**1:17**	**1:37**	**1:59**	**2:23**
1:55	**2:13**	**2:32**	**2:52**	**3:14**	**3:38**
3:10	**3:28**	**3:47**	**4:07**	**4:29**	**4:53**
4:20	**4:38**	**4:57**	**5:14**	**5:36**	**6:00**
5:35	**5:52**	**6:11**	**6:28**	**6:50**	**7:14**

74 Weekdays | Westbound to Perris Station Transit Center

A.M. times are in PLAIN, **P.M. times are in BOLD** | Times are approximate

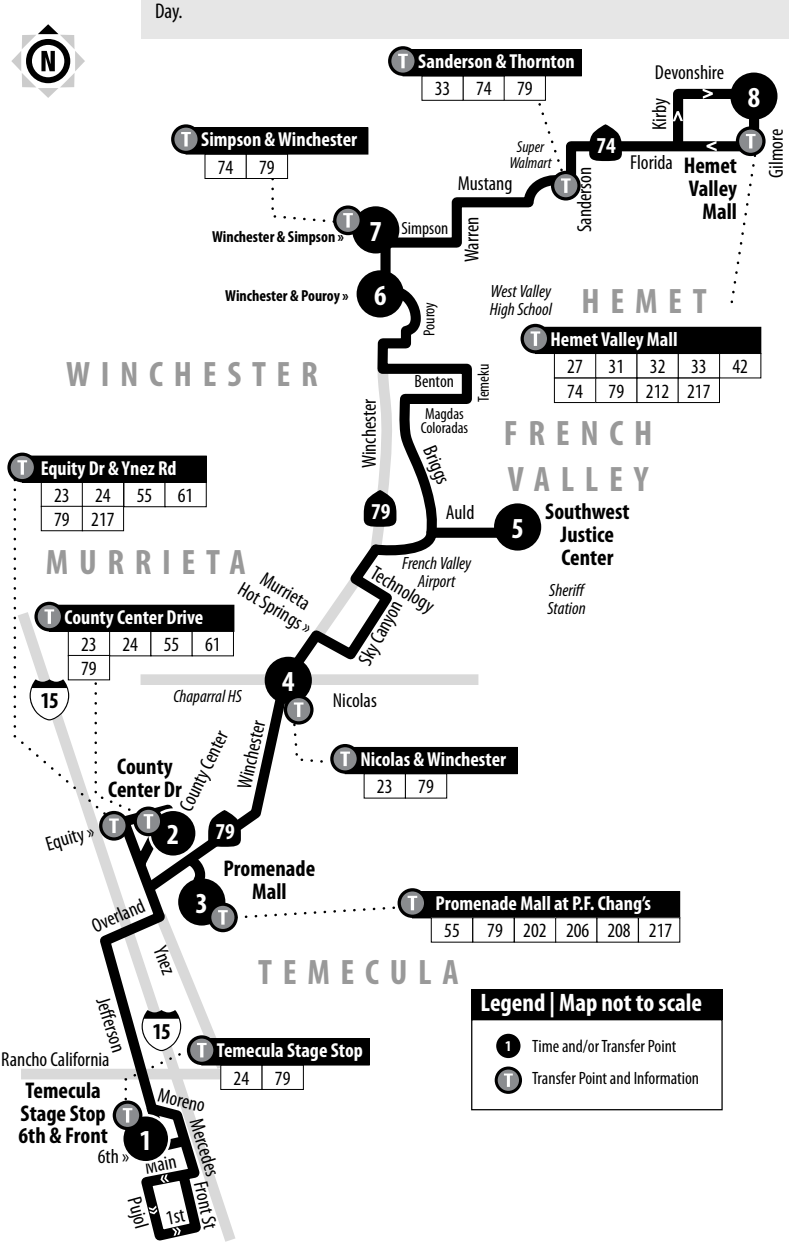
Mt. San Jacinto College San Jacinto	Hemet Valley Mall	Simpson & Winchester	Mt. San Jacinto College Menifee	Cherry Hills & Bradley	4th & Wilkerson	Perris Transit Center
7	6	5	4	3	2	1
4:45	5:07	5:27	5:42	5:54	6:07	6:15
6:00	6:22	6:42	6:57	7:09	7:22	7:30
7:11	7:33	7:54	8:09	8:22	8:37	8:45
8:22	8:46	9:08	9:23	9:37	9:52	10:00
9:37	10:01	10:23	10:38	10:52	11:07	11:15
10:52	11:16	11:38	11:53	**12:07**	**12:22**	**12:30**
12:09	**12:33**	**12:55**	**1:10**	**1:24**	**1:39**	**1:45**
1:24	**1:48**	**2:10**	**2:25**	**2:39**	**2:54**	**3:00**
2:39	**3:03**	**3:25**	**3:40**	**3:54**	**4:09**	**4:15**
3:54	**4:18**	**4:40**	**4:55**	**5:09**	**5:24**	**5:30**
5:11	**5:33**	**5:55**	**6:10**	**6:24**	**6:39**	**6:45**

79 Hemet - Winchester - Temecula

Information Center
(951) 565-5002
Web site
www.RiversideTransit.com

Routing and timetables subject to change.

Also serving: Hemet Valley Mall. **No service on weekends or on the following holidays:** New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day and Christmas Day.



79 Weekdays | Northbound to Hemet Valley Mall

A.M. times are in PLAIN, **P.M. times are in BOLD** | Times are approximate

Temecula Stage Stop 6th & Front	County Center Dr.	Promenade Mall	Winchester & Nicolas	Southwest Justice Center	Winchester & Pouroy	Simpson & Winchester	Hemet Valley Mall
1	3	4	5	6	7	8	9
—	6:01	6:10	6:17	6:30	6:43	6:54	7:14
—	7:15	7:24	7:31	7:44	7:57	8:09	8:30
8:20	8:35	8:44	8:51	9:04	9:17	9:29	9:50
9:30	9:45	9:54	10:01	10:15	10:28	10:40	11:01
10:39	10:55	11:04	11:11	11:25	11:38	11:50	**12:12**
11:49	**12:05**	**12:14**	**12:21**	**12:35**	**12:48**	**1:00**	**1:23**
12:59	**1:15**	**1:24**	**1:31**	**1:45**	**1:58**	**2:10**	**2:33**
2:09	**2:25**	**2:35**	**2:50**	**3:04**	**3:17**	**3:29**	**3:52**
3:19	**3:35**	**3:45**	**3:54**	**4:08**	**4:21**	**4:33**	**4:56**
4:29	**4:45**	**4:55**	**5:04**	**5:18**	**5:31**	**5:43**	**6:06**
5:39	**5:55**	**6:05**	**6:14**	**6:28**	**6:41**	**6:53**	**7:16**
6:49	**7:05**	**7:13**	**7:22**	**7:36**	**7:49**	**8:01**	**8:24**

79 Weekdays | Southbound to Temecula

A.M. times are in PLAIN, **P.M. times are in BOLD** | Times are approximate
S = Operates when school is in session

	Hemet Valley Mall	Simpson & Winchester	Winchester & Pouroy	Southwest Justice Center	Winchester & Nicolas	Promenade Mall	County Center Dr.	Pujol & Main	Temecula Stage Stop 6th & Front
	9	8	7	6	5	4	3	2	1
	4:56	5:12	5:24	5:34	5:43	5:51	5:55	—	—
	5:54	6:10	6:22	6:32	6:43	6:51	6:55	—	—
S	—	6:37	6:49	6:59	7:10	—	—	—	—
	6:51	7:09	7:21	7:31	7:42	7:50	7:55	8:04	8:11
	7:58	8:18	8:30	8:40	8:51	8:59	9:05	9:15	9:22
	9:08	9:28	9:40	9:50	10:01	10:09	10:15	10:25	10:32
	10:17	10:38	10:50	11:00	11:11	11:19	11:25	11:36	11:43
	11:27	11:48	**12:00**	**12:10**	**12:21**	**12:29**	**12:35**	**12:46**	**12:53**
	12:37	**12:58**	**1:10**	**1:20**	**1:31**	**1:39**	**1:45**	**1:56**	**2:03**
	1:46	**2:08**	**2:20**	**2:30**	**2:41**	**2:49**	**2:55**	**3:06**	**3:13**
	2:56	**3:18**	**3:30**	**3:40**	**3:51**	**3:59**	**4:05**	**4:16**	**4:23**
	4:06	**4:28**	**4:40**	**4:50**	**5:01**	**5:09**	**5:15**	**5:26**	**5:33**
	5:18	**5:39**	**5:51**	**6:01**	**6:11**	**6:19**	**6:25**	**6:36**	**6:43**
	6:18	**6:39**	**6:51**	**7:01**	**7:11**	**7:19**	**7:25**	—	—

202

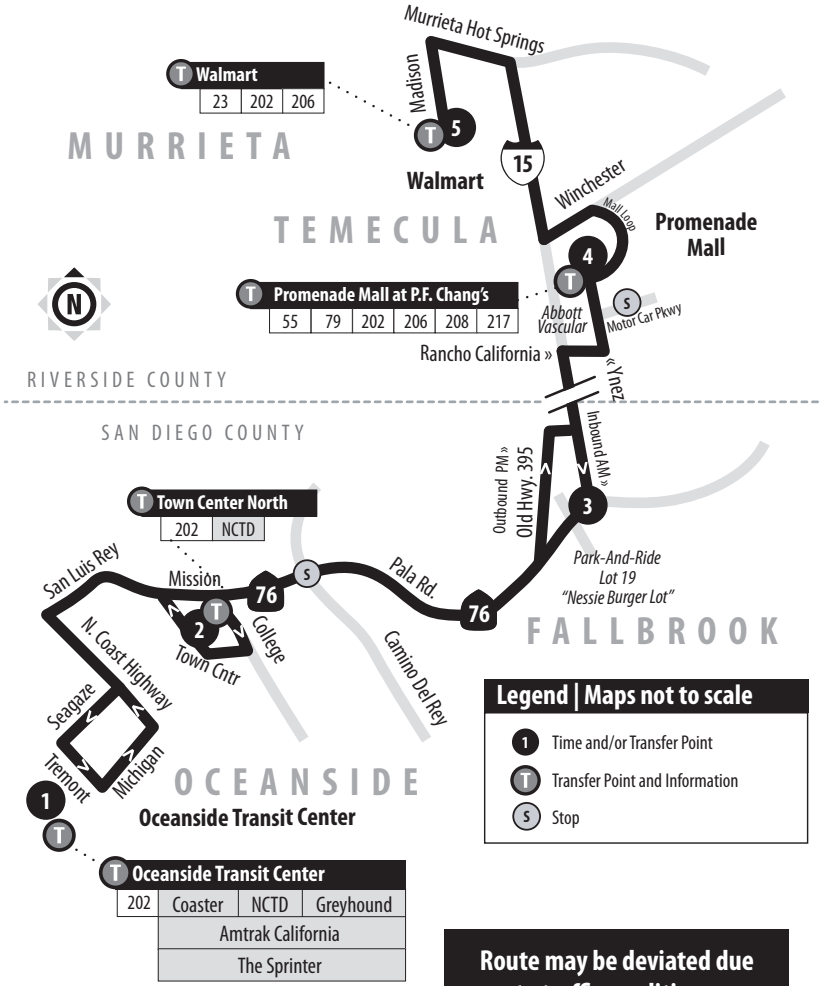
Murrieta - Temecula - Oceanside Transit Center

$3.00 GEN. FARE EACH WAY

FREE WITH VALID METROLINK PASS

Routing and timetables subject to change.

No service on weekends or the following holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day and Christmas Day.



Legend | Maps not to scale

- 1 Time and/or Transfer Point
- T Transfer Point and Information
- S Stop

Route may be deviated due to traffic conditions.

Wi-Fi EQUIPPED
*Subject to interruptions

COMMUTER LINK

202 Weekdays | Northbound to Temecula and Murrieta Walmart

A.M. times are in PLAIN, **P.M. times are in BOLD** | Times are approximate.

Oceanside Transit Center	Town Center North	Park-N-Ride Lot 19 I15 & Hwy 76	Promenade Mall	Murrieta Walmart
1	2	3	4	5
4:58	5:10	5:31	5:55	—
5:40	5:52	6:13	6:38	6:51
6:28	6:42	7:03	7:28	7:41
7:38	7:52	8:13	8:38	8:51
The 7:38 a.m. trip will wait for the 7:32 a.m. train to arrive				
5:31	**5:49**	**6:22**	**6:47**	**7:00**
The 5:31 p.m. trip will wait for the 5:23 p.m. and 5:26 p.m. trains but no later than 5:45 p.m. before departing the Oceanside Transit Center.				
6:04	**6:22**	**6:46**	**7:14**	**7:27**
The 6:04 p.m. trip will wait for the 5:54 p.m. and 5:56 p.m. trains but no later than 6:25 p.m. before departing the Oceanside Transit Center.				
6:47	**7:04**	**7:25**	**7:53**	**8:09**
The 6:47 p.m. trip will wait for the 6:26 p.m. and 6:29 p.m. trains to arrive.				

202 Weekdays | Southbound to Oceanside Transit Center

A.M. times are in PLAIN, **P.M. times are in BOLD** | Times are approximate.

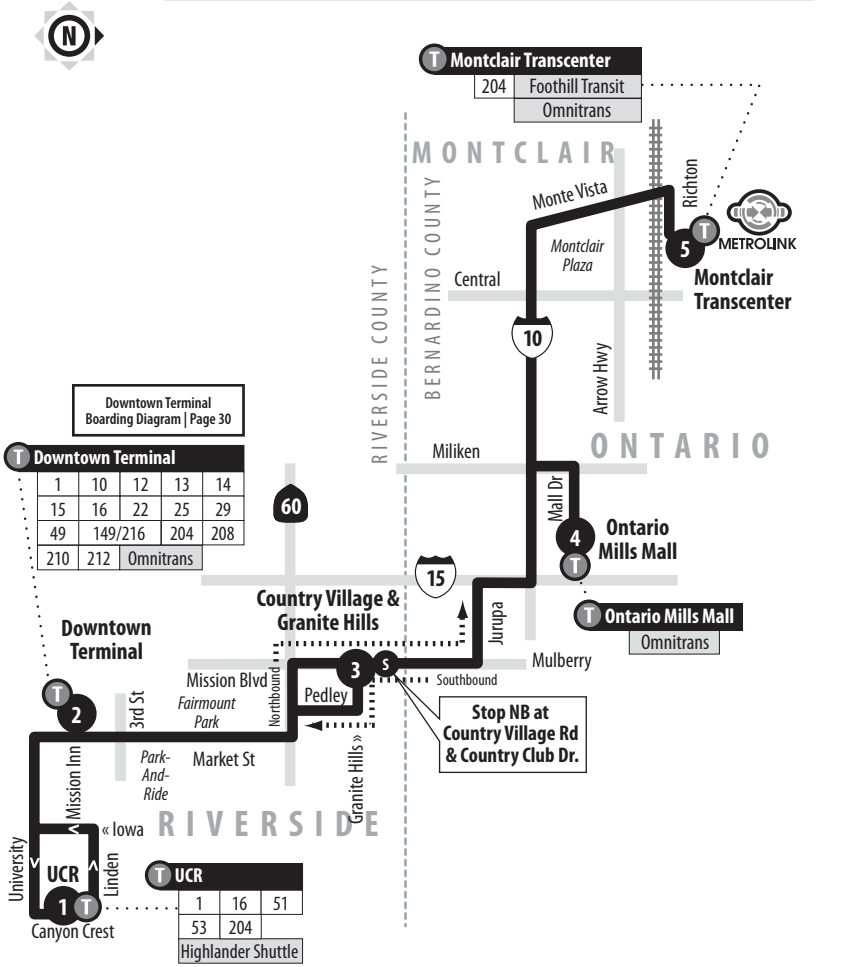
Murrieta Walmart	Promenade Mall	Park-N-Ride Lot 19 I15 & Hwy 76	Town Center North	Oceanside Transit Center
5	4	3	2	1
3:55	4:05	4:25	4:40	4:53
4:28	4:38	5:01	5:16	5:35
5:11	5:21	5:44	6:04	6:23
—	6:00	6:23	6:47	7:06
4:06	**4:20**	**4:48**	**5:07**	**5:26**
4:35	**4:50**	**5:16**	**5:40**	**5:59**
5:15	**5:31**	**5:59**	**6:23**	**6:42**

204 Riverside - Montclair Transcenter

$3.00 GEN. FARE EACH WAY
FREE WITH VALID METROLINK PASS

Routing and timetables subject to change.

No service on weekends or the following holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day and Christmas Day.



Route may be deviated due to traffic conditions.

Legend | Maps not to scale

- 1 Time and/or Transfer Point
- T Transfer Point and Information

Wi-Fi EQUIPPED
*Subject to interruptions

204 Weekdays | Northbound to Montclair Transcenter

A.M. times are in PLAIN, **P.M. times are in BOLD** | Times are approximate

UCR at Bannockburn	Downtown Terminal	Country Village PNR	Ontario Mills	Montclair Transcenter
1	2	3	4	5
—	4:50	5:04	5:19	5:38
—	5:35	5:49	6:04	6:24
6:02	6:15	6:29	6:44	7:05
6:52	7:05	7:19	7:34	7:57
2:07	**2:20**	**2:34**	**2:49**	**3:14**
2:57	**3:10**	**3:24**	**3:39**	**4:04**
3:47	**4:00**	**4:14**	**4:29**	**4:54**
4:37	**4:50**	**5:04**	**5:19**	**5:44**
5:27	**5:40**	**5:54**	**6:09**	**6:34**

204 Weekdays | Southbound to UCR

A.M. times are in PLAIN, **P.M. times are in BOLD** | Times are approximate

Montclair Transcenter	Ontario Mills	Country Village PNR	Downtown Terminal	UCR at Bannockburn
5	4	3	2	1
5:45	6:03	6:16	6:31	6:42
6:30	6:49	7:03	7:18	7:30
7:10	7:30	7:45	8:00	8:13
8:00	8:20	8:35	8:50	9:03
3:19	**3:44**	**4:01**	**4:16**	**4:29**
4:09	**4:34**	**4:51**	**5:06**	**5:19**
4:59	**5:24**	**5:41**	**5:56**	**6:09**
5:49	**6:14**	**6:31**	**6:46**	**6:59**
6:39	**7:04**	**7:21**	**7:36**	**7:49**

For Metrolink information, to go metrolinktrains.com or call 800-371-5465.

206

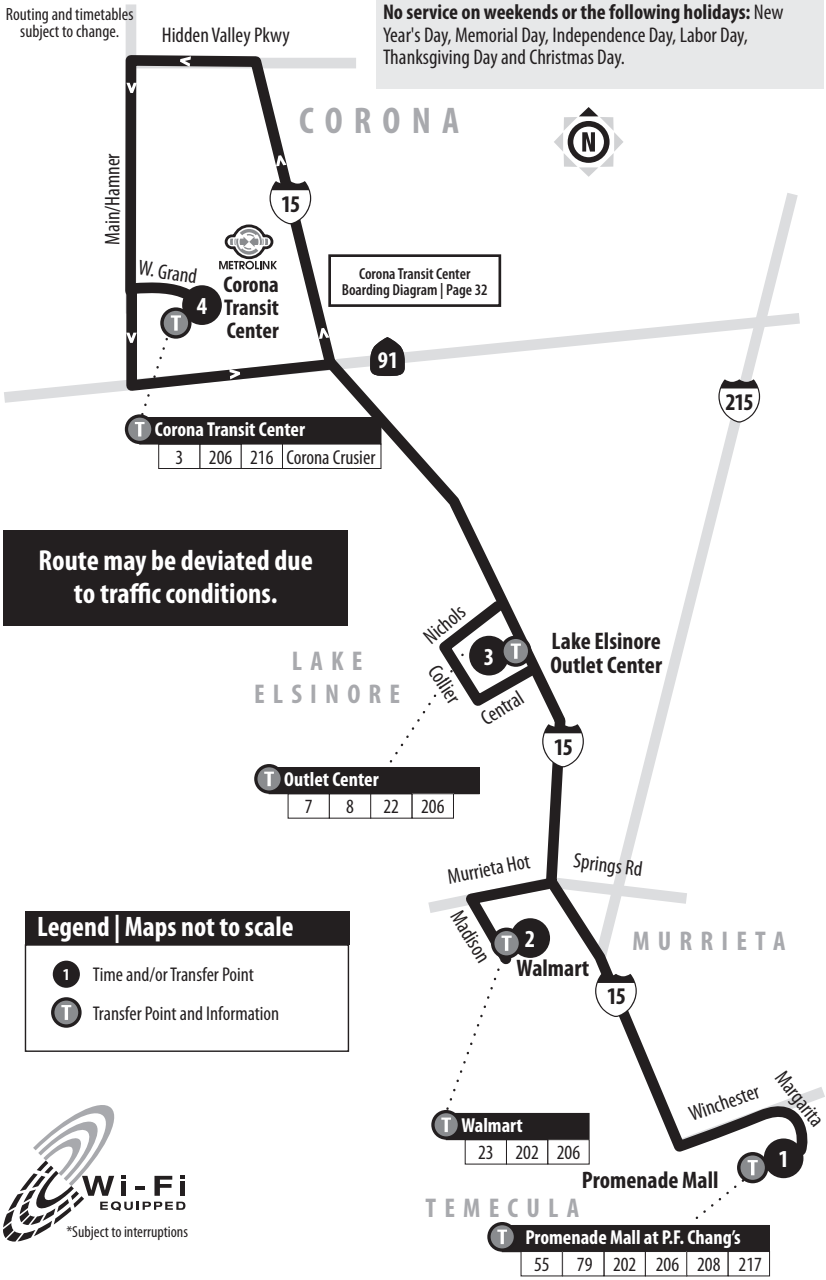
Temecula - Murrieta - Lake Elsinore - Corona Metrolink

$3.00 GEN. FARE EACH WAY

FREE WITH VALID METROLINK PASS

Routing and timetables subject to change.

No service on weekends or the following holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day and Christmas Day.



Legend | Maps not to scale

- 1 Time and/or Transfer Point
- T Transfer Point and Information

Wi-Fi EQUIPPED

*Subject to interruptions

COMMUTER LINK

206 Weekdays | Northbound to N. Main Corona Metrolink

A.M. times are in PLAIN, **P.M. times are in BOLD** | Times are approximate

Promenade Mall PNR	Murrieta Walmart	Elsinore Outlet Center PNR	Corona Transit Center
1	2	3	4
4:06	4:18	4:39	5:13
4:33	4:45	5:06	5:40
5:15	5:27	5:48	6:22
5:20	5:32	5:53	6:27
6:15	6:27	6:48	7:22
4:26	**4:41**	**5:02**	**5:36**
4:45	**5:00**	**5:21**	**5:55**

206 Weekdays | Southbound to Promenade Mall

A.M. times are in PLAIN, **P.M. times are in BOLD** | Times are approximate

Corona Transit Center	Elsinore Outlet Center PNR	Murrieta Walmart	Promenade Mall PNR
4	3	2	1
5:22	5:52	6:12	6:27
5:48	6:18	6:38	6:53
6:52	7:22	7:42	7:57
5:02	**5:32**	**5:52**	**6:07**
The 5:02 p.m. trip will wait for the 5:02 p.m. train, but no later than 5:15 p.m. before departing the Metrolink Station.			
5:25	**5:55**	**6:15**	**6:30**
The 5:25 p.m. trip will wait for the 5:25 p.m. train, but no later than 5:40 p.m. before departing the Metrolink Station.			
5:46	**6:16**	**6:36**	**6:51**
The 5:46 p.m. trip will wait for the 5:46 p.m. train, but no later than 6:05 p.m. before departing the Metrolink Station.			
6:30	**7:00**	**7:20**	**7:35**
The 6:30 p.m. trip will wait for the 6:21 p.m. and 6:30 p.m. trains, but no later than 6:50 p.m. before departing the Metrolink Station.			
7:31	**8:01**	**8:21**	**8:36**
The 7:31 p.m. trip will hold for the 7:31 p.m. train to arrive.			

For Metrolink information, to go metrolinktrains.com or call 800-371-5465.

208

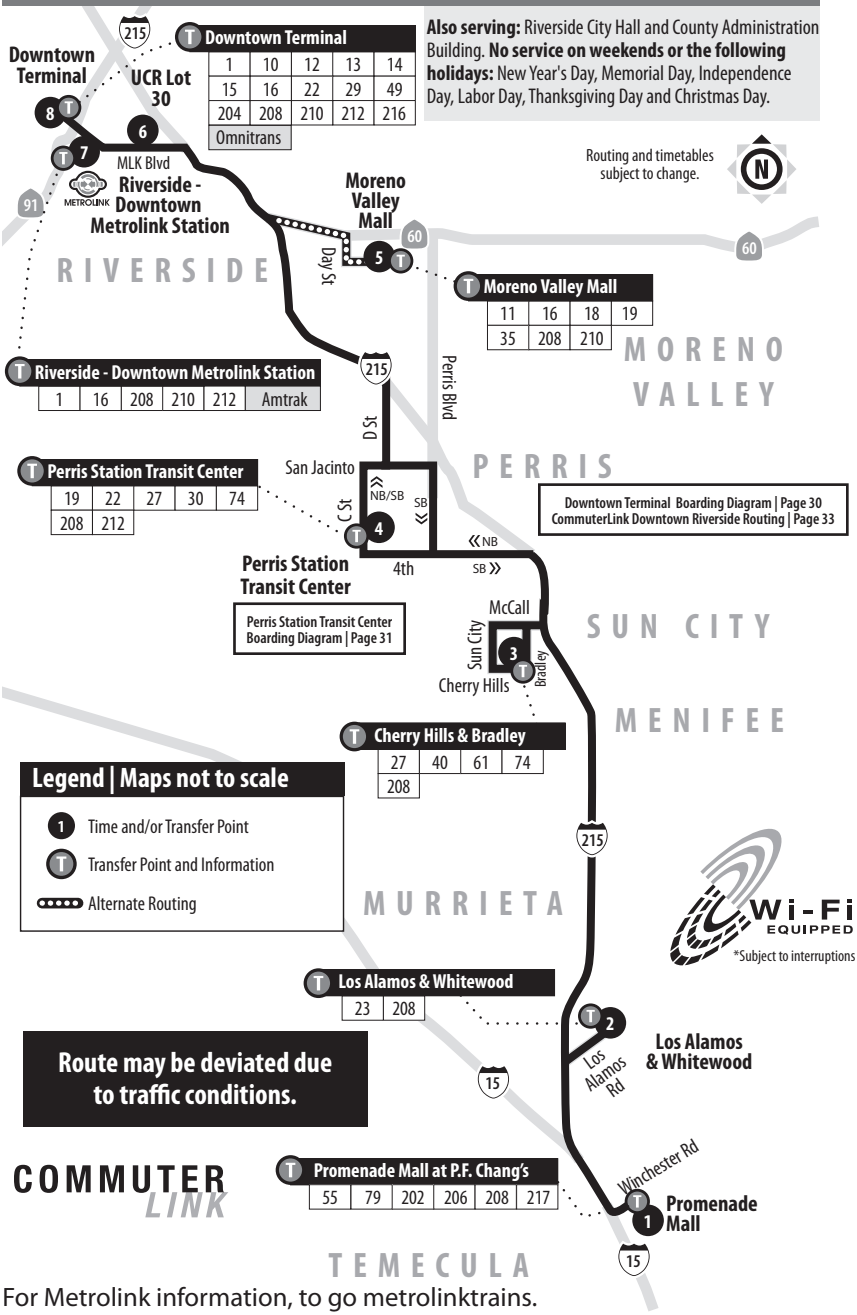
Temecula - Murrieta - Sun City - Perris - Moreno Valley - Downtown Terminal

$3.00 GEN. FARE EACH WAY

FREE WITH VALID METROLINK PASS

Also serving: Riverside City Hall and County Administration Building. **No service on weekends or the following holidays:** New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day and Christmas Day.

Routing and timetables subject to change.



Downtown Terminal

1	10	12	13	14
15	16	22	29	49
204	208	210	212	216
Omnitrans				

Moreno Valley Mall

11	16	18	19
35	208	210	

Riverside - Downtown Metrolink Station

1	16	208	210	212	Amtrak

Perris Station Transit Center

19	22	27	30	74
208	212			

Downtown Terminal Boarding Diagram | Page 30
CommuterLink Downtown Riverside Routing | Page 33

Perris Station Transit Center Boarding Diagram | Page 31

Cherry Hills & Bradley

27	40	61	74	
208				

Los Alamos & Whitewood

23	208

Promenade Mall at P.F. Chang's

55	79	202	206	208	217

Legend | Maps not to scale

- 1 Time and/or Transfer Point
- T Transfer Point and Information
- Alternate Routing

Wi-Fi EQUIPPED
*Subject to interruptions

Route may be deviated due to traffic conditions.

COMMUTER LINK

For Metrolink information, to go metrolinktrains.com or call 800-371-5465.

208 Weekdays | Northbound to Downtown Terminal

A.M. times are in PLAIN, **P.M. times are in BOLD** | Times are approximate

Promenade Mall	Los Alamos & Whitewood	Cherry Hills & Bradley	Perris Station Transit Center	Moreno Valley Mall	UCR Lot 30	Riverside-Downtown Metrolink Station	Downtown Terminal
1	2	3	4	5	6	7	8
3:50	3:57	4:12	4:24	—	—	4:54	5:04
4:40	4:48	5:03	5:16	—	5:41	5:57	6:11
5:50	5:58	6:13	6:26	—	6:51	7:07	7:21
6:08	6:19	6:34	6:47	—	7:17	7:33	7:47
6:44	6:55	7:10	7:23	—	7:53	8:11	8:25
2:44	**2:55**	**3:14**	**3:32**	**3:54**	**—**	**4:20**	**4:34**
3:26	**3:37**	**3:56**	**4:14**	**4:36**	**—**	**5:02**	**5:16**
4:11	**4:22**	**4:41**	**4:59**	**5:21**	**—**	**5:47**	**6:01**
4:46	**4:57**	**5:16**	**5:34**	**5:56**	**—**	**6:22**	**6:36**

208 Weekdays | Southbound to Promenade Mall

A.M. times are in PLAIN, **P.M. times are in BOLD** | Times are approximate

Downtown Terminal	Riverside-Downtown Metrolink Station	UCR Lot 30	Moreno Valley Mall	Perris Station Transit Center	Cherry Hills & Bradley	Los Alamos & Whitewood	Promenade Mall
8	7	6	5	4	3	2	1
5:04	5:16	—	5:36	5:56	6:10	6:29	6:44
6:11	6:24	—	6:47	7:09	7:24	7:43	7:58
7:21	7:34	—	7:57	8:19	8:34	8:53	9:08
3:30	**3:44**	**4:01**	**—**	**4:26**	**4:39**	**4:56**	**5:12**
4:34	**4:48**	**5:05**	**—**	**5:30**	**5:43**	**6:00**	**6:16**
5:16	**5:30**	**5:47**	**—**	**6:12**	**6:25**	**6:42**	**6:58**
The 5:30 p.m. trip departing Riverside-Downtown Station will wait for the 5:22 p.m. train but no later than 5:50 p.m. before departing the Riverside-Downtown Station							
6:01	**6:15**	**6:32**	**—**	**6:57**	**7:10**	**7:26**	**7:42**
The 6:15 p.m. trip departing Riverside-Downtown Station will wait for the 5:42 p.m., 5:55 p.m., 6:06 p.m., train but no later than 6:30 p.m. before departing the Riverside-Downtown Station							
6:36	**6:50**	**7:07**	**—**	**7:32**	**7:45**	**8:01**	**8:15**
The 6:50 p.m. trip departing Riverside-Downtown Station will wait for the 6:22 p.m. and 6:41 p.m. trains to arrive							

210

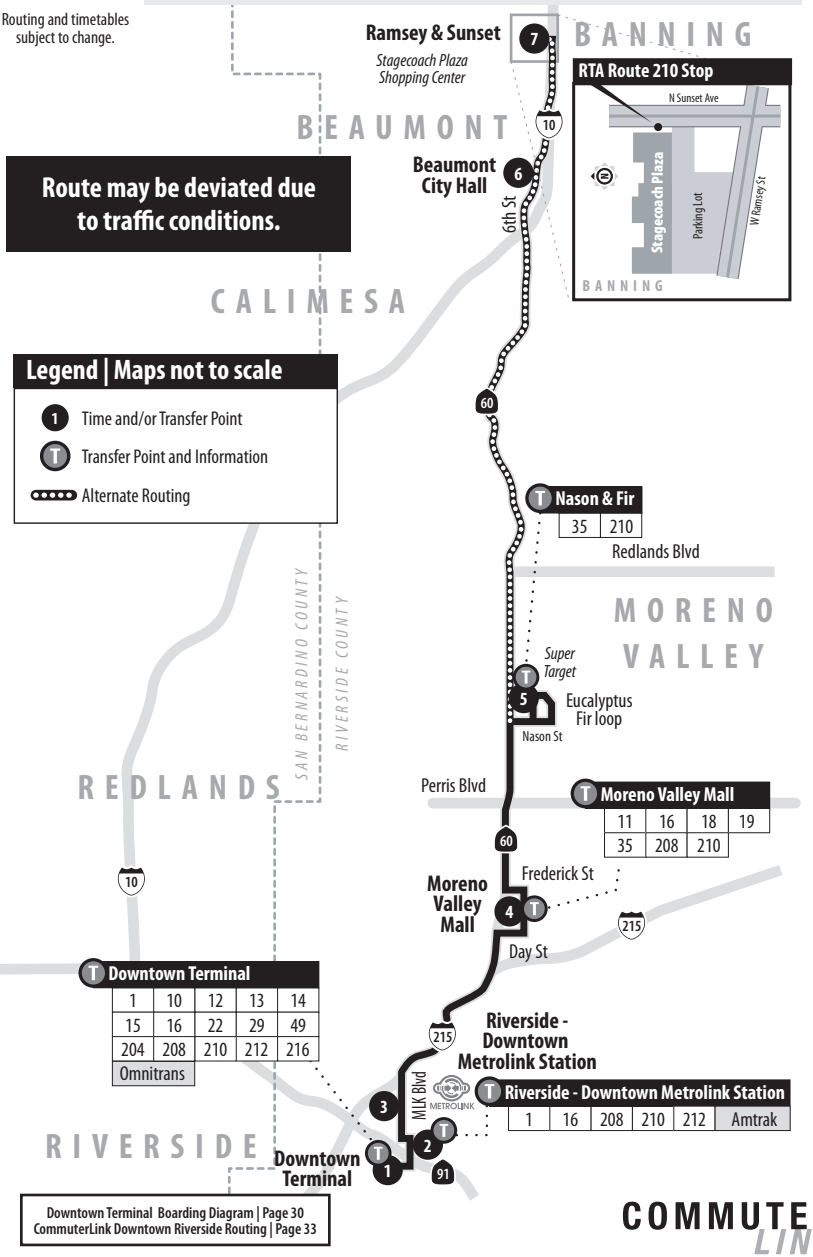
Banning - Beaumont - Moreno Valley - Riverside Metrolink

$3.00 GEN. FARE EACH WAY

FREE WITH VALID METROLINK PASS

Also serving: Riverside City Hall, County Admin. Building. **No service on weekends or the following holidays:** New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day and Christmas Day.

Routing and timetables subject to change.



COMMUTER LINK

210 Weekdays | Westbound to Downtown Terminal

A.M. times are in PLAIN, **P.M. times are in BOLD** | Times are approximate

Ramsey & Sunset	Beaumont City Hall	Nason & Fir	Moreno Valley Mall	Riverside-Downtown Metrolink Station	Downtown Terminal
7	6	5	4	2	1
—	—	3:50	4:00	4:20	4:30
3:56	4:04	4:24	4:35	4:55	5:05
—	—	5:23	5:34	5:58	6:12
5:58	6:06	6:26	6:37	7:07	7:21

210 Weekdays | Eastbound to Banning

A.M. times are in PLAIN, **P.M. times are in BOLD** | Times are approximate

Downtown Terminal	Riverside-Downtown Metrolink Station	UCR Lot 30	Moreno Valley Mall	Nason & Fir	Beaumont City Hall	Ramsey & Sunset
1	2	3	4	5	6	7
5:18	**5:25**	**5:39**	**5:54**	**6:04**	**6:28**	**6:38**
The 5:25 p.m. trip departing Riverside-Downtown Metrolink Station will wait for the 5:22 p.m. train but no later than 5:45 p.m. before departing the Riverside-Downtown Metrolink Station						
6:03	**6:10**	**6:24**	**6:39**	**6:49**	**7:13**	**7:23**
The 6:10 p.m. p.m. trip departing Riverside-Downtown Metrolink Station will wait for the 5:42 p.m., 5:55 p.m., 6:06 p.m. train but no later than 6:25 p.m. before departing the Riverside-Downtown Metrolink Station						
6:38	**6:45**	**6:59**	**7:14**	**7:24**	**7:48**	**7:58**
The 6:45 p.m. trip departing Riverside-Downtown Metrolink Station will wait for the 6:22 p.m. and 6:41 p.m. trains to arrive before departing the Riverside-Downtown Metrolink Station						

Wi-Fi EQUIPPED
*Subject to interruptions

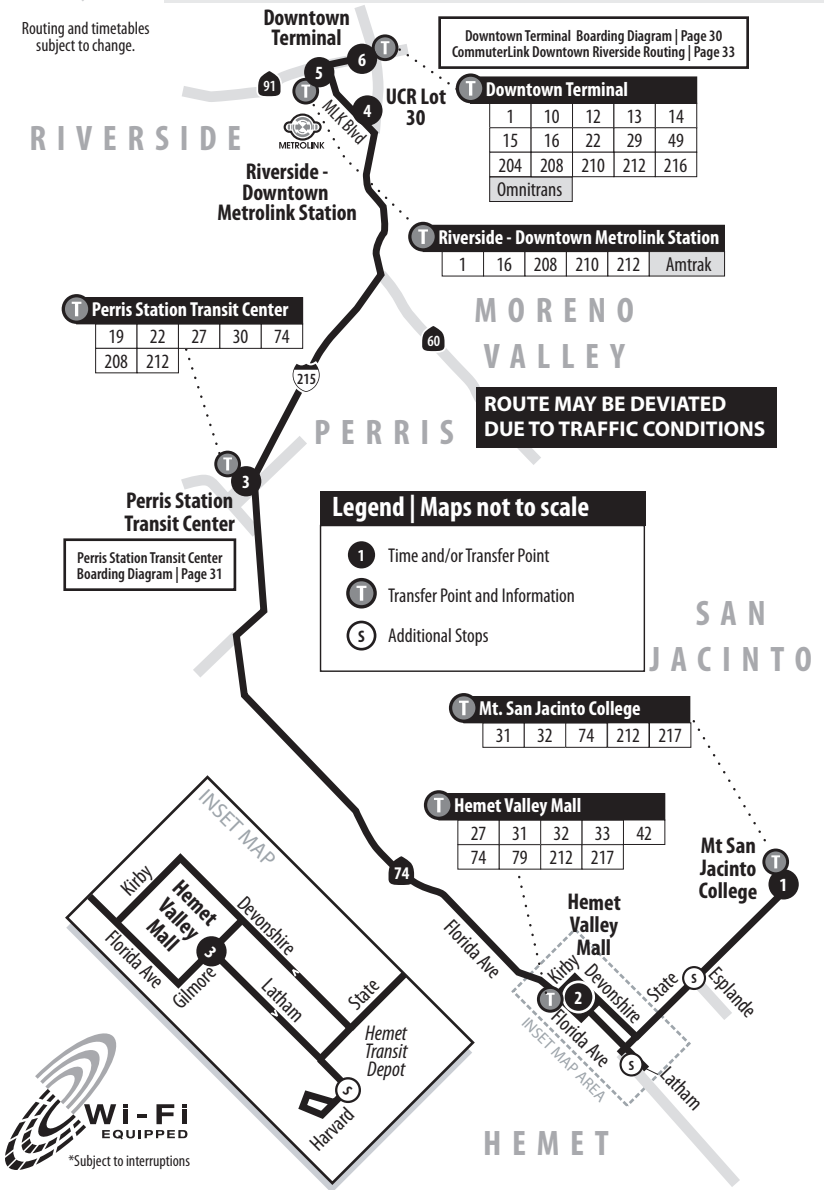
212

Hemet - San Jacinto - Riverside Downtown Metrolink Station - Downtown Terminal

$3.00 GEN. FARE EACH WAY
FREE WITH VALID METROLINK PASS

Also serving: Riverside City Hall and Riverside County Administration Building, MSJC. **No service on weekends or the following holidays:** New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day and Christmas Day.

Routing and timetables subject to change.



Wi-Fi EQUIPPED
*Subject to interruptions

212 Weekdays | Eastbound to Hemet and San Jacinto

A.M. times are in PLAIN, **P.M. times are in BOLD** | Times are approximate

Downtown Terminal	Riverside-Downtown Metrolink Station	UCR Lot 30	Perris Station Transit Center	Hemet Valley Mall	Mt. San Jacinto College San Jacinto
6	5	4	3	2	1
5:34	5:46	5:56	6:13	6:41	7:00
6:15	6:27	6:37	6:54	7:24	7:43
7:03	7:16	7:27	7:45	8:15	8:34
5:18	**5:32**	**5:43**	**6:11**	**6:44**	**7:03**
The 5:32 p.m. trip departing Riverside-Downtown Station will wait for the 5:22 p.m. train but no later than 5:50 p.m. before departing the Riverside-Downtown Station					
6:03	**6:17**	**6:28**	**6:53**	**7:26**	**7:45**
The 6:17 p.m. trip departing Riverside-Downtown Station will wait for the 5:42 p.m., 5:55 p.m., 6:06 p.m., train but no later than 6:30 p.m. before departing the Riverside-Downtown Station					
6:38	**6:52**	**7:02**	**7:27**	**7:55**	**8:14**
The 6:52 p.m. trip departing Riverside-Downtown Station will wait for the 6:22 p.m. and 6:41 p.m. trains to arrive					

212 Weekdays | Westbound to Downtown Terminal

A.M. times are in PLAIN, **P.M. times are in BOLD** | Times are approximate

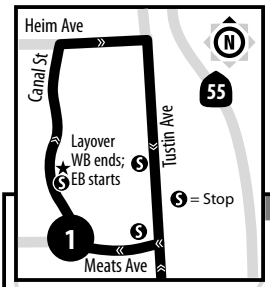
Mt. San Jacinto College San Jacinto	Hemet Valley Mall	Perris Station Transit Center	UCR Lot 30	Riverside-Downtown Metrolink Station	Downtown Terminal
1	2	3	4	5	6
4:03	4:21	4:44	5:09	5:24	5:34
4:38	5:00	5:23	5:48	6:03	6:15
5:30	5:43	6:11	6:36	6:51	7:03
7:07	7:27	7:55	8:25	—	8:47
7:50	8:10	8:38	9:08	—	9:31
3:43	**4:03**	**4:38**	**5:03**	**—**	**5:18**
4:28	**4:48**	**5:23**	**5:48**	**—**	**6:03**
5:08	**5:28**	**5:58**	**6:23**	**—**	**6:38**

216 Downtown Terminal to Village at Orange

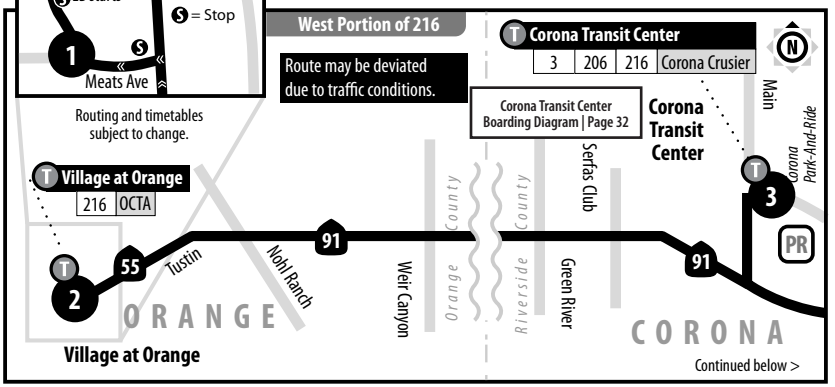
$3.00 GEN. FARE EACH WAY
FREE WITH VALID METROLINK PASS

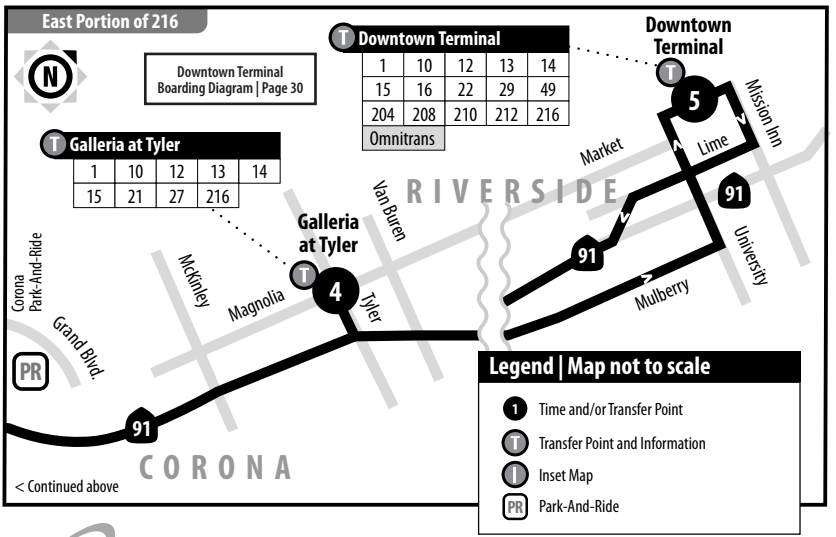
Also serving: Riverside, The Galleria at Tyler, Corona, and Village at Orange, Orange County. **No service on:** New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day and Christmas Day.

Routing and timetables subject to change.



Routing and timetables subject to change.





Wi-Fi EQUIPPED
*Subject to interruptions

COMMUTER LINK

OCTA passes are only accepted on Route 216 in Orange County and have the value of a base fare ($1.50 for General/Youth and 70 cents for Senior/Disabled customers).

216 Weekdays | Eastbound to Riverside

A.M. times are in PLAIN, **P.M. times are in BOLD** | Times are approximate

Canal & Meats	Village of Orange	Corona Transit Center	Galleria at Tyler	Downtown Terminal
1	2	3	4	5
5:50	6:02	6:34	6:51	7:11
7:12	7:24	7:56	8:13	8:33
8:46	8:58	9:30	9:47	10:07
2:28	**2:40**	**3:18**	**3:40**	**4:00**
3:33	**3:45**	**4:23**	**4:45**	**5:05**
5:04	**5:16**	**5:54**	**6:16**	**6:36**
6:29	**6:41**	**7:19**	**7:41**	**8:01**

216 Weekdays | Westbound to Orange County

A.M. times are in PLAIN, **P.M. times are in BOLD** | Times are approximate

Downtown Terminal	Galleria at Tyler	Corona Transit Center	Canal & Meats
5	4	3	1
4:35	4:51	5:06	5:40
5:50	6:06	6:28	7:02
7:21	7:37	7:59	8:36
1:15	**1:34**	**1:49**	**2:19**
2:20	**2:39**	**2:54**	**3:24**
3:50	**4:09**	**4:24**	**4:54**
5:15	**5:34**	**5:49**	**6:19**

216 Weekends | Eastbound to Riverside

A.M. times are in PLAIN, **P.M. times are in BOLD** | Times are approximate

Canal & Meats	Village of Orange	Corona Transit Center	Galleria at Tyler	Downtown Terminal
1	2	3	4	5
9:13	9:22	9:52	10:07	10:26
11:49	11:58	**12:28**	**12:43**	**1:02**
3:46	**3:55**	**4:27**	**4:48**	**5:07**
6:16	**6:25**	**6:57**	**7:18**	**7:37**

216 Weekends | Westbound to Orange County

A.M. times are in PLAIN, **P.M. times are in BOLD** | Times are approximate

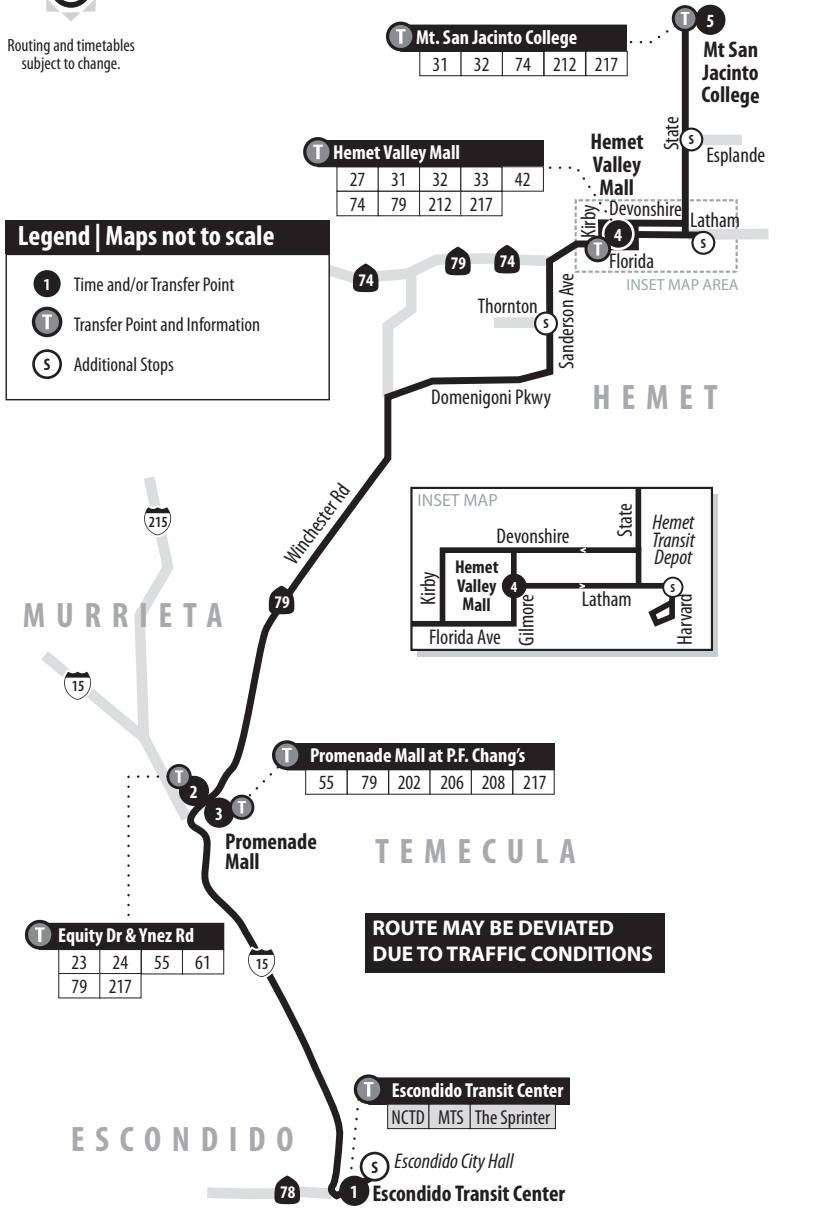
Downtown Terminal	Galleria at Tyler	Corona Transit Center	Canal & Meats
5	4	3	1
8:00	8:15	8:29	9:03
10:36	10:51	11:05	11:39
2:30	**2:49**	**3:04**	**3:36**
4:55	**5:14**	**5:34**	**6:06**

217 San Jacinto - Hemet - Temecula - Escondido

$3.00 GEN. FARE EACH WAY

Also serving: MSJC. **No service on weekends or the following holidays:** New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day and Christmas Day.

Routing and timetables subject to change.



COMMUTER LINK

217 Weekdays | Northbound to Hemet and San Jacinto

A.M. times are in PLAIN, **P.M. times are in BOLD** | Times are approximate

Escondido Transit Center	Equity Dr & Ynez	Promenade Mall	Hemet Valley Mall	Mt. San Jacinto College San Jacinto
1	2	3	4	5
6:30	7:15	7:20	—	—
6:50	7:35	7:40	—	—
7:10	7:55	8:00	—	—
7:40	8:25	8:30	—	—
4:55	**5:40**	**5:45**	**6:30**	**6:49**
5:30	**6:15**	**6:20**	**7:05**	**7:24**
5:55	**6:40**	**6:45**	**7:30**	**7:49**
6:30	**7:15**	**7:20**	**8:05**	**8:24**

The 6:30 p.m. trip departing Escondido Transit Center will wait for the MTS Route 810 bus at 6:03 p.m. and 6:28 p.m. to arrive.

217 Weekdays | Southbound to Temecula and Escondido Transit Center

A.M. times are in PLAIN, **P.M. times are in BOLD** | Times are approximate

Mt. San Jacinto College San Jacinto	Hemet Valley Mall	Promenade Mall	Equity Dr & Ynez	Escondido Transit Center
5	4	3	2	1
4:27	4:45	5:30	5:35	6:20
4:47	5:05	5:50	5:55	6:40
5:05	5:25	6:10	6:15	7:00
5:35	5:55	6:40	6:45	7:30
—	**3:10**	**3:55**	**4:00**	**4:45**
—	**3:45**	**4:30**	**4:35**	**5:20**
—	**4:10**	**4:55**	**5:00**	**5:45**
—	**4:35**	**5:20**	**5:25**	**6:10**

Wi-Fi EQUIPPED
*Subject to interruptions

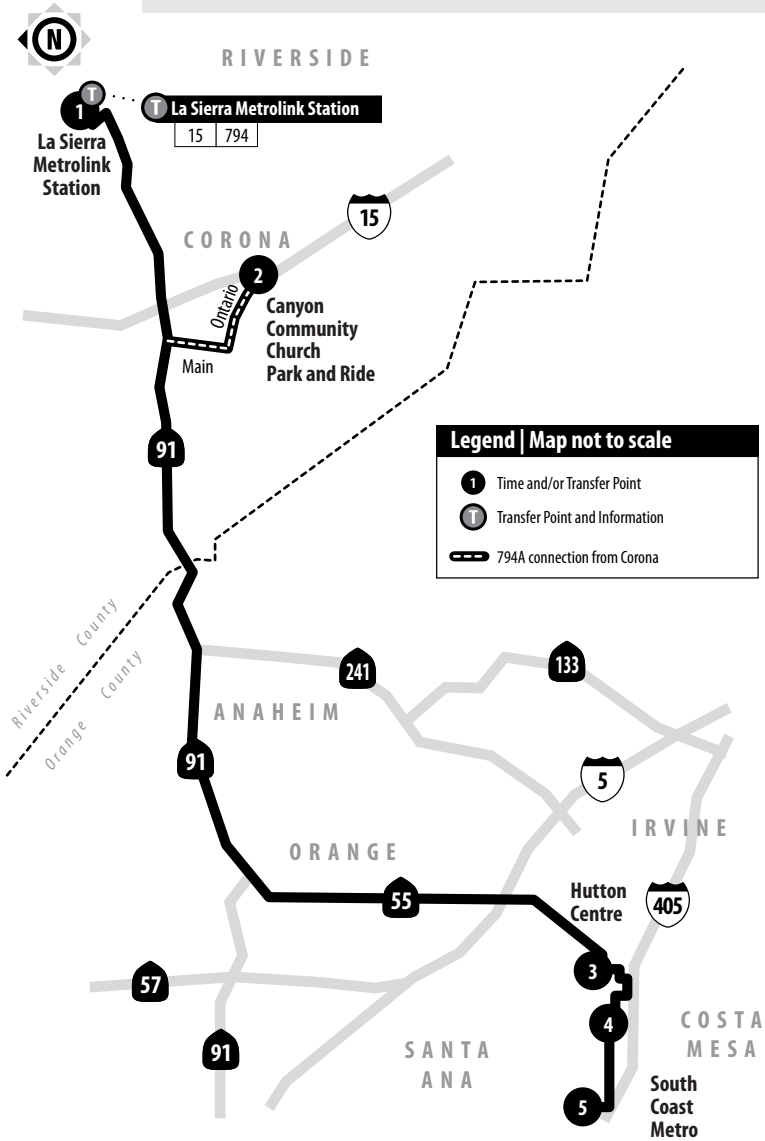
794

La Sierra Metrolink or Canyon Community Church - South Coast Metro

$4.50 EACH WAY

Routing and timetables subject to change.

Route operated by OCTA. Also serving: Canyon Community Church Park and Ride and Hutton Centre. **Runs Weekdays only. No service on:** New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day and Christmas Day.



794 Express WESTBOUND Weekdays				
La Sierra Metrolink Station	Canyon Community Church	MacArthur Blvd & S. Main St	Sunflower Ave & Plaza Dr	Hyland Ave & Scenic Ave
1	2	3	4	5
5:08	—	5:53	6:02	6:14
—	5:40	6:23	6:30	6:44
5:42	—	6:33	6:40	6:56
5:59	—	7:03	7:10	7:26
—	6:28	7:28	7:35	7:51
6:22	—	7:33	7:40	7:56
7:10	—	8:06	8:13	8:29
7:42	—	8:38	8:45	9:01

794 Express EASTBOUND Weekdays				
Hyland Ave & Scenic Ave	Sunflower Ave & Plaza Dr	MacArthur Blvd & S. Main St	Canyon Community Church	La Sierra Metrolink Station
5	4	3	2	1
3:30	**3:40**	**3:45**	**—**	**4:39**
4:05	**4:15**	**4:20**	**5:18**	**—**
4:10	**4:20**	**4:25**	**5:23**	**—**
4:10	**4:20**	**4:25**	**—**	**5:22**
4:35	**4:45**	**4:52**	**—**	**5:50**
5:05	**5:15**	**5:22**	**—**	**6:23**
5:10	**5:20**	**5:28**	**6:29**	**—**
5:55	**6:05**	**6:11**	**—**	**7:03**

A.M. times are in PLAIN, **P.M. times are in BOLD** | Times are approximate

Check with OCTA at octa.net for updates

What's New!

Schedule & Routing Changes

Route 1	Eastbound route has been adjusted near University of California, Riverside to avoid congestion and traffic on University Avenue. Route now travels east on University, north on Iowa Avenue, east on Blaine Street and south on Canyon Crest. Watch for rider alerts announcing the end of detour routing on Magnolia Avenue between Central and Jurupa avenues.
Route 10	The eastbound, afternoon school-days-only trip has been changed to 3:05 p.m. to meet passenger demand and school bell times.
Route 13	Schedule has been adjusted to improve on-time performance. The Third Street and Chicago Avenue timepoint has been moved to Chicago and University avenues. Watch for rider alerts announcing the end of detour routing on Magnolia Avenue between Central and Jurupa avenues.
Route 15	Schedule has been adjusted to improve connections with OCTA's Route 794 at the La Sierra Metrolink Station. Watch for rider alerts announcing the end of detour routing on Magnolia Avenue between Central and Jurupa avenues.
Route 18	Weekday schedule has been adjusted to improve on-time performance.
Route 19	The last weekday northbound trip has been moved to 8:57 p.m. to better meet connections at the Moreno Valley Mall.
Route 20	Weekday schedule has been adjusted to improve on-time performance.
Route 22	The northbound, school-days-only trip has been changed to 3 p.m., and the southbound school-days-only trips have been moved to 6:58 a.m. and 2:38 p.m.
Route 24	Schedule has been adjusted to improve on-time performance. Weekday service now includes a stop at Pujol and Main streets in Old Town Temecula.
Route 27	Customers catching this route on Orange Terrace Parkway and Trautwein Road should note the new changes in direction along those streets. The route no longer travels on Van Buren Boulevard between Orange Terrace Parkway and Trautwein. A new timepoint has been added at Van Buren Boulevard and Washington Street.
Route 29	Buses now travel in a clockwise manner on the western loop of Pat's Ranch Road, 68th Street and Hamner Avenue. The end of the line has been moved to the intersection of Limonite and Hamner avenues in front of Taco Bell.
Route 31	Schedule has been adjusted to enhance service frequency on weekdays.
Route 32	Schedule has been adjusted to enhance service frequency on weekdays.
Route 208	A new southbound trip has been added at 3:30 p.m. to meet passenger demand.