Chapter 3. Project Route Descriptions

INTRODUCTION

Descriptions of each project route in Williams' proposed California network are provided in this chapter, along with summaries of the proposed construction methods, the types of rights-of-way to be used, and mileage of fiber optic cable for each route. More detail on the construction methods is provided in Chapter 2. Environmental setting information is provided in Chapter 4. Environmental compliance and permitting requirements for each project route are described in detail in **Appendix B**.

The overall proposed project is to install, operate, and maintain fiber optic cable systems throughout California. Currently, 10 project routes are proposed. Fiber optic cable systems will be installed in cities including, but not limited to, the following:

- Alhambra
- Anaheim
- Antioch
- Atascadero
- Bakersfield
- Banning
- Beaumont
- Belmont
- Brisbane
- Burlingame
- Clearlake
- Colfax
- Colton
- Daly City
- El Monte
- Fullerton
- Industry
- La Puente
- Lakeport
- Los Angeles
- Menlo Park
- Millbrae
- Mission Viejo
- Morro Bay
- Mountain View
- Ontario
- Palo Alto
- Pittsburg
- Point Arena
- Pomona
- Redwood City
- Riverside
- Sacramento
- San Bruno
- San Carlos
- San Francisco
- San Gabriel
- San Luis Obispo
- San Mateo
- Santa Clara
- South San Francisco
- Sunnyvale
- Truckee
- Whittier
- West Sacramento

Fiber optic cable systems will be installed in the counties of:

- Colusa
- Contra Costa
- Imperial
- Kern
- Lake
- Los Angeles
- Mendocino
- Nevada
- Orange
- Placer
- Riverside
- Sacramento
- San Francisco
- San Mateo
- San Luis Obispo
- Santa Clara
- Solano
- Sutter
- Yolo

POINT ARENA TO SACRAMENTO

Proposed Project Route Description

The project route will connect the AT&T Japan cable landing near Point Arena in Mendocino County with the community of Robbins, primarily following state, county, and private road rights-of-way. Sacramento, the urban center nearest to Robbins, was used in the project title because of the recognition factor for readers. The proposed locations of this route and the associated optical amplification (OP-AMP) stations are shown in **Figures 3-1a, 3-1b**, and **3-1c**. **Table 3-1** summarizes the right-of-way miles and construction methods.

Table 3-1. Right-of-Way Miles and Construction Methods - Point Arena to Sacramento

	Right-of-Way Miles					Construction Methods			
Route Segment	Local Roads	State High-ways	Rail-road	Utility/ Pipeline	New Road	Plow or Trench	Existing Pipeline or Duct	Bore	Bridge Attach
Kinney Road	1.0					✓			
State Route 1		4.1				✓			
Eureka Hill Road	2.9					✓			
Ten Mile Cutoff Road	6.0					✓			
Iverson Road	1.8					✓			
Fish Rock Road	23.5					✓			
State Route 128		11.9				✓			
Mountain House Road	1.5					✓			
Unnamed 4WD road	8.7					✓			
Old Toll Road	1.8					✓			
Highland Springs Road	8.0					✓			
Bell Hill Road	0.3					✓			
Adobe Creek Road	1.1					✓			
Wight Way	3.3					✓			
Unnamed 4WD road	0.2					✓			
Live Oak Drive	0.9					✓			
Cole Creek Road	1.0					✓			
State Route 175/29		11.8				✓			
State Route 53		7.5				✓			
State Route 20		18.6				✓			
State Route 16		33.1				✓			
Yolo County Road 85	5.2					✓			
Yolo County Road 14	15.1					✓			
State Route 113		8.5				✓			
Total	82.3	95.5							
				GRAND TOTAL	177.8				

The project route will be located predominantly in state highway and county road rights-of-way and will pass through private lands and federal lands managed by U.S. Bureau of Land Management's (BLM's) Ukiah Field Office. It will cross Mendocino, Lake, Colusa, Yolo, and Sutter counties and the communities of Manchester, Point Arena, Yorkville, Highland Springs, Lower Lake, Clearlake, Brooks, Capay, Knights Landing, and Robbins.

From the AT&T Japan cable landing, the project route will follow Kinney Road for 1 mile to the intersection with State Route (SR) 1, follow SR 1 south for 4 miles to Eureka Hill Road, east on Eureka Hill Road for 3 miles to Ten Mile Road, south on Ten Mile Road for 6 miles to Iverson Road, south on Iverson Road for 2 miles to Fish Rock Road, east on Fish Rock Road for 24 miles to the intersection with SR 128, south on SR 128 for 10 miles to the intersection with Mountain House Road, and northeast on Mountain House Road for 1.5 miles to an unnamed private dirt road. The route will then proceed east on private roads for 9 miles, crossing the Russian River and U.S. Highway (U.S. 101) to Old Toll Road. The route will then proceed east on Old Toll Road for 2 miles, Highland Springs Road for 8 miles, Bell Hill Road for 0.5 mile, Adobe Creek Road for 1 mile, and Wight Way for 3.3 miles to an unnamed dirt road. The route will then follow the dirt road for 0.2 mile, cross Kelsey Creek, and intersect Live Oak Drive. The route will follow Live Oak Drive 1 mile to Cole Creek Road, follow Cole Creek Road for 1 mile to SR 175/29, east on SR 175/29 for 12 miles to SR 53, north on SR 53 for 8 miles to SR 20, east on SR 20 for 19 miles, to SR 16, south on SR 16 for 33 miles to Yolo County Road 85. The route then follows Yolo County Road north for 5 miles to Yolo County Road 14 miles, east on Yolo County Road 14 for 15 miles to SR 113, and north on SR 113 for 9 miles to Robbins.

The project route will pass through rural coastal forest lands in Mendocino County; blue oak woodland, chamise chaparral, and annual grasslands in Lake, western Colusa, and western Yolo counties; and agricultural areas in eastern Yolo County and southern Sutter County. Although the route is largely rural, it will pass through commercial areas in Lower Lake, Clearlake, and Knights Landing.

Proposed Regenerator/OP-AMP Station Locations

Five OP-AMP stations will be constructed (**Figures 3-1b** and **3-1c**). These stations will be located on SR 16 near the community of Guinda (Guinda site), at the northwest corner of the intersection of Mountain House Road and SR 128 (Mountain House site), at the northwest corner of the intersection of SR 128 and Fish Rock Road near the community of Yorkville (Yorkville site), at 7200 SR 53 in Clearlake (Clearlake site), and in Robbins (Robbins site). All the OP-AMP stations will be located on private property outside existing rights-of-way.

Proposed Construction Methods

Major streams and rivers crossed by the project route include the Garcia River, Russian River, Cache Creek, and Sacramento River. The following construction methods will be used:

- plowing or trenching within state route, county road, and railroad rights-of-way;
- boring under the Sacramento River at Knights Landing, the Russian and Garcia rivers and Cache Creek, and sensitive streams, drainages, and archeological and biological resources, if necessary;
- bridge attachment over streams and rivers where this method is available.

SACRAMENTO TO CALIFORNIA/NEVADA BORDER

Proposed Project Route Description

As part of Williams' proposed national network, a route will connect Reno, Nevada, to Sacramento, California. For the purposes of CEQA compliance, only the California portion of this route is analyzed in this document. The locations of this route and the associated OP-AMP stations are shown in **Figures 3-2a** and **3-2b**. **Table 3-2** summarizes the right-of-way miles and construction methods.

Table 3-2. Right-of-Way Miles and Construction Methods - Sacramento to the California/Nevada Border

	Right-of-Way Miles					Construction Methods			
Route Segment	Local Roads	State High-way	Private* Property	Rail-road	Utility/ Pipeline	Plow or Trench	Existing Pipeline or Duct	Bore	Bridge Attach
Border to Hirschdale Road underpass				9.7		✓		✓	
From Hirschdale Rd underpass to point on Nevada County Road 788 in southwest quarter of Section 6 (T.17N. R.17E.) ~ 4,000 ft. northeast of UPRR	5.8					✓		✓	
From above to point on Nevada County Rd 788 in northwest quarter of Sec. 6 (T.17 N.,R.17 E.) ~2,000 ft east of I-80			0.6			✓			
From above to point on Prosser Dam Road in southwest quarter of Sec. 2 (T.17 N.,R.16 E.) ~1,000 ft east of Hwy 89	1.9					✓		✓	
From above to intersection of Northwoods Blvd and Zurich Place			2.5			✓		✓	
From above to intersection of Skilope Way and Copenhagen Drive	2.0					✓		✓	
From above to terminus of unnamed jeep trail near intersection of Sections 11, 12, 13, and 14 (T.17N.,R 15 E.)			1.4			✓		✓	
From above to point on freeway overpass at Cisco Grove ~ 300 ft south of I-80	18.5					✓		✓	
From above to point on unnamed unimproved road in southeast quarter of Section 28 (T. 17 N., R. 12 E.)			5.4			✓		✓	
From above to point on Placer Co Rd 9002 ~2,000 ft south of Emigrant Gap	2.4					✓			
From above to point~ 500 ft west			0.1			✓			
From above to point~ 100 ft south of Emigrant Gap freeway interchange	0.6					✓			
From above to point on southeast shore of Lake Putt			0.4			✓			
From above to point on unnamed unimproved road in Sec 15 (T.16 N.,R.11 E.) ~ 0.7 mile east of Canyon Creek and ~ 0.2 mile south of Placer-Nevada Co line	4.0					✓		✓	

Table 3-2. Right-of-Way Miles and Construction Methods - Sacramento to the California/Nevada Border

Route Segment	Right-of-Way Miles					Construction Methods			
	Local Roads	State High-way	Private* Property	Rail-road	Utility/ Pipeline	Plow or Trench	Existing Pipeline or Duct	Bore	Bridge Attach
From above to point in southeast quarter of Section 30 (T. 16 N., R. 11 E.) on unnamed unimproved road ~ 0.4 mi north of Baxter			3.7			✓		✓	
From above to point on Monte Vista freeway overpass ~ 100 ft south of I-80	4.4					✓		✓	
From above to point on an unimproved road ~ 800 ft west			0.2			✓			
From above to U.S. 174 at Shady Glen	9.7					✓		✓	
From Shady Glen to Colfax		1.0				✓			
From Colfax to point on UPRR overpass ~ 500 ft west of I-80 Sacramento facility				52.3		✓	✓		
Total	49.3	1.0	14.3	62.0	0.0				
				GRAND TOTAL	126.6				

* Indicates portions of the route not within existing rights-of-way (most of the route on private property will be located within 3 feet of an existing utility pipeline, except for a 0.6-mile section from County Road 788, which will be located on privately owned, non-utility right-of-way).

The project route will be located within the (Union Pacific Railroad) UPRR right-of-way from the California border to Hirschdale, east of Truckee in Nevada County. At Hirschdale, the route will leave the UPRR right-of-way because UPRR has indicated that the right-of-way is not available between Hirschdale and Colfax. From Hirschdale to Shady Glen in Placer County, the route will be located in the rights-of-way of existing local roads (primarily U.S. Highway 40) or an existing AT&T corridor, except for segments totaling 0.7 mile to be installed in previously undisturbed right-of-way. From Shady Glen to Colfax, the route will be located in the right-of-way of SR 147. Land uses along these portions of the route are generally rural, with urban development centered in Truckee and Colfax. At Colfax, the route will reenter the UPRR right-of-way and follow this right-of-way into downtown Sacramento.

The portions of the route through the Sierra Nevada are mountainous and dominated by forested habitats. The typical construction window for the higher elevations is June through October, depending on weather. In areas where the route will cross the western foothills, grazing land and oak woodlands are dominant, along with low-density residential uses. Once past Colfax, the route will pass through increasingly urbanized areas until terminating in Sacramento.

The route will cross private land and federal lands managed by the U.S. Forest Service's Tahoe National Forest. The Truckee River, South Fork of the Yuba River near Soda Springs, and lower American River in Sacramento will be crossed by directional boring or by bridge attachment where available. All sensitive streams and drainages also will be crossed by boring beneath the channel or by bridge attachment where available. Rollins Lake in Placer County will be crossed by trenching into the causeway supporting the old U.S. 40 roadbed. The conduit will be bored or trenched under three trails: the historic California Trail near Truckee, the Pacific Crest Trail near Donner Pass, and the Jedediah Smith Trail near Sacramento.

Proposed OP-AMP Station Locations

Three OP-AMP stations will be constructed: one near Blue Canyon, one near Auburn, and one in Truckee (**Figure 3-2b**). All OP-AMP stations will be located on private property outside existing rights-of-way. The Blue Canyon site is located approximately 0.5 mile south of the Blue Canyon exit on I-80, near the Blue Canyon Weather Station and landing field in north-central Placer County. The site is located approximately 35 miles northeast of Auburn. The facility will be constructed on timberland. The Bowman-Auburn site is located adjacent to Ravine Road near Auburn in Placer County and approximately 0.25 mile southwest of the Foresthill interchange on I-80. Two parcels are being considered as possible sites for the facility: a 1.8-acre parcel (Placer County Appraiser's Parcel Number [APN] 054-181-032) and a 1.5-acre parcel (APN 054-181-034). The parcels, which are separated from each other by the UPRR right-of-way, are at elevation 1,500 feet mean sea level. The Truckee site is located in the town of Truckee, Nevada County, adjacent to Samuel Drive, 0.4 mile west of Airport Road and approximately 0.8 mile southeast of the Prosser Reservoir interchange on I-80. The site consists of a 1.5-acre area within a 40-acre parcel (Nevada County Appraiser's Parcel Number 49-011-78) at elevation 5,840 feet mean sea level. It is approximately 0.5 mile north of Glenshire Drive, the UPRR, and the Truckee River.

Proposed Construction Methods

The project route will cross the Truckee River twice east of the town of Truckee, the South Fork of the Yuba River six times between Donner Summit and Blue Canyon, and the American River once in the City of Sacramento.

The following construction methods will be used:

- plowing or trenching within state route, county road, and railroad rights-of-way and the existing AT&T corridor between Truckee and Blue Canyon,
- directional boring under sensitive streams and drainages and sensitive archaeological and biological resources, and
- directional boring for all major rivers.

SAN FRANCISCO TO SANTA CLARA

Proposed Project Route Description

This project route will cross portions of San Francisco, San Mateo, and Santa Clara counties. The location of this route is shown in **Figure 3-3**. **Table 3-3** summarizes the right-of-way miles and construction methods.

Table 3-3. Right-of-Way Miles and Construction Methods - San Francisco to Santa Clara

	Right-of-Way Miles				Construction Methods			
Route Segment	Local Roads	State High-ways	Rail-road	Utility/ Pipeline	Plow or Trench	Existing Pipeline or Duct	Bore	Bridge Attach
Pacific Bell Leased Duct	6.30					✓		
Gilman Avenue	1.00				✓		✓	

Table 3-3. Right-of-Way Miles and Construction Methods - San Francisco to Santa Clara

Route Segment	Right-of-Way Miles				Construction Methods			
	Local Roads	State High-ways	Rail-road	Utility/ Pipeline	Plow or Trench	Existing Pipeline or Duct	Bore	Bridge Attach
Harney Way	0.50				✓		✓	
Tunnel Avenue	0.50				✓		✓	
Existing Pipeline	3.70					✓		
El Camino Real	4.00				✓		✓	
California Drive	2.00				✓		✓	
North San Mateo	1.25				✓		✓	
East 3rd Avenue	0.25				✓		✓	
South Delaware Street	0.50				✓		✓	
Old County Road	3.00				✓		✓	
Industrial Way	4.00				✓		✓	
Broadway Street	0.25				✓		✓	
Main Street	0.25				✓		✓	
Middlefield Road	14.00				✓		✓	
Loque Avenue	0.25				✓		✓	
West Maude Avenue	3.00				✓		✓	
East Arques Avenue	3.00				✓		✓	
Scott Boulevard	0.25				✓		✓	
Total	48.00							
			GRAND TOTAL	48.00				

The initial 6.2 miles of the route will travel within an existing Pacific Bell duct from the BART system in Daly City to a facility in San Francisco. From this point, the route will travel south along local street rights-of-way for approximately 2 miles to an idle pipeline in the City of Brisbane. The route will continue in the pipeline for approximately 3.7 miles to the City of San Bruno where it will move back to local streets.

The route will follow local streets and El Camino Real (SR 82) for approximately 38 miles to its terminus in the City of Santa Clara, crossing through the cities of San Bruno, Millbrae, Burlingame, San Mateo, Belmont, San Carlos, Redwood City, Atherton, Menlo Park, Palo Alto, Mountain View, and Sunnyvale in the heavily urbanized San Francisco Peninsula. Land uses are industrial, commercial, and residential, with commercial development predominant along El Camino Real.

Proposed Regenerator/OP-AMP Station Locations

No regenerator/OP-AMP stations will be constructed.

Proposed Construction Methods

The following construction methods will be used:

- installation within idle pipeline and existing ducts,
- plowing or trenching within existing road rights-of-way, and
- directional boring under sensitive streams and drainages and sensitive archaeological and biological resources, and
- directional boring under major intersections and other urban features.

PITTSBURG TO SACRAMENTO

Proposed Project Route Description

The project route will cross portions of Contra Costa, Solano, Yolo, and Sacramento counties. The locations of this route and the associated OP-AMP stations are shown in **Figures 3-4a** and **3-b**. **Table 3-4** summarizes the right-of-way miles and construction methods.

Table 3-4. Right-of-Way Miles and Construction Methods - Pittsburg to Sacramento

	Right-of-Way Miles				Construction Methods			
Route Segment	Local Roads	State High-ways	Railroad	Utility/ Pipeline	Plow or Trench	Existing Pipeline or Duct	Bore	Bridge Attach
Canal Road	0.02				✓			
Madison Road	0.50				✓			
Willow Pass Road	0.10				✓			
Bella Monte Road	0.20				✓			
UPRR			8.50		✓			
PG&E transmission line corridor				2.80	✓			
Viera Road	0.50				✓			
Wilbur Road	1.10				✓			
State Route 160		4.00			✓			✓
PG&E transmission line corridor				2.80	✓		✓	
Toland Road	1.40				✓			
Montezuma Road	1.70				✓			
Anderson Road	2.20				✓			
Emigh Road	2.00				✓			
Azevedo Road	2.00				✓			
Canright Road	2.00				✓			
Flannery Road	0.50				✓			

Table 3-4. Right-of-Way Miles and Construction Methods - Pittsburg to Sacramento

Route Segment	Right-of-Way Miles				Construction Methods			
	Local Roads	State High-ways	Railroad	Utility/ Pipeline	Plow or Trench	Existing Pipeline or Duct	Bore	Bridge Attach
Robinson Road	4.50				✓			
State Route 113		3.00			✓			
Hastings Road	0.50				✓			
Salem Road	1.50				✓			
Brown Road	0.50				✓			
Robben Road	1.50				✓			
Main Prairie Road	1.50				✓			
Bunker Station	1.50				✓			
Bunker Station/Binghampton	0.50				✓			
Swan Road	0.50				✓			
Sikes Road	2.50				✓			
Trefoil Road	1.50				✓			
Bulkley Road	7.00				✓			
Tremont Road	1.50				✓			
Mace Boulevard	4.00				✓			
Chiles Road	2.40				✓			
PG&E pipeline/Interstate 80				0.20			✓	
UPRR			7.10		✓			
Pacific Bell Conduit				0.50		✓		
7th Street	0.25				✓			
Total	45.87	7.00	15.60	6.30				
			GRAND TOTAL	74.77				

The route will begin at the Bay Area Rapid Transit District's (BART's) Bay Hill station in the City of Pittsburg (Contra Costa County). Between Pittsburg and the Antioch Bridge (approximately 10 miles), the route will be located within UPRR right-of-way. Small segments of county roads will be used between the Bay Hill BART station and the UPRR right-of-way and between the eastern end of the UPRR right-of-way and the Antioch Bridge. The route will cross the Antioch Bridge (the conduit will be attached to the bridge) and will continue in California Department of Transportation (Caltrans) right-of-way for approximately 4 miles. The route will turn northwest within an existing Pacific Gas and Electric (PG&E) transmission line right-of-way and will cross under the Sacramento River. The Sacramento River crossing will be located within the existing PG&E right-of-way between two PG&E pipelines.

On the north side of the Sacramento River, the route will continue within city and county road rights-of-way, beginning with Toland Road in Solano County and ending along Chiles Road, 2 miles east of Mace Boulevard in the City of Davis. This portion of the project route will be approximately 44 miles long.

The route will cross under I-80 between Chiles Road and the UPRR right-of-way to the north within an existing PG&E transmission line right-of-way. After crossing I-80, the route will follow within the UPRR right-of-way and will travel east approximately 7 miles to the City of West Sacramento. At this point, the route will join an existing Pacific Bell duct and continue within the duct approximately 5 more miles, crossing under the Sacramento River and into the City of Sacramento. New duct will be constructed for a short segment along J and 7th streets.

The route will be situated within a variety of land uses, originating in the relatively urbanized area of Contra Costa County. From Pittsburg to Antioch, the route will cross mixed residential, commercial, and industrial areas. From Antioch to Davis, the route will be located in a rural setting, mostly in agricultural use and with very few nearby residences. The route through the City of Davis will be primarily urban. From Davis to West Sacramento, the setting will be agricultural. Once in West Sacramento, the route will again be located in a highly urbanized area.

Proposed Regenerator/OP-AMP Station Locations

Two OP-AMP stations will be installed (**Figure 3-4b**). One station will be located near the beginning of the route in West Pittsburg west of Madison Avenue along Canal Road (Honker Bay site). The other station will be located along the route at the northwest corner of Creek Road at SR 113 in the rural area of Solano County (Birds Landing site). Both OP-AMP stations will be located on private property outside existing rights-of-way.

Proposed Construction Methods

The following construction methods will be used:

- plowing or trenching within existing railroad and PG&E electrical transmission line rights-of-way;
- trenching via longitudinal encroachment within public road rights-of-way;
- bridge attachment on the Antioch Bridge and other available bridges;
- within existing Pacific Bell duct between West Sacramento and downtown Sacramento (under the Sacramento River); and
- directional boring under sensitive streams and drainages, including the Sacramento River (which will be within the PG&E right-of-way), under sensitive archeological and biological resources, and under I-80.

SAN LUIS OBISPO TO BAKERSFIELD

Proposed Project Route Description

The locations of this route and the associated OP-AMP stations are shown in **Figures 3-5a** and **3-5b**. **Table 3-5** summarizes the right-of-way miles and construction methods.

Table 3-5. Right-of-Way Miles and Construction Methods - San Luis Obispo to Bakersfield

Route Segment	Right-of-Way Miles				Construction Methods			
	Local Roads	State High-ways	Rail-road	Utility/ Pipeline	Plow or Trench	Existing Pipeline or Duct	Bore	Bridge Attach
Granada	0.25				✓			
South Higuera	1.50					✓		
South Street	0.75					✓	✓	
Broad Street	0.25					✓		
Chorro Street	0.75					✓	✓	
Mill Street	0.50					✓		
Johnson Street	0.12					✓	✓	
Monterey Street	0.75					✓		
Miossi Street	0.50					✓	✓	
Pacific Bell right-of-way (generally follows U.S. Highway 101)				5.10	✓	✓		
UPRR to Atascadero			5.10		✓			
Atascadero to Shandon Pump Station				20.75		✓		
Shandon to Middle Station				37.00		✓		
Middle Station to Wasco Road				34.00		✓		
Wasco Road to Morris Road				5.00		✓		
Morris Road	1.00				✓			
Bellevue (Stockdale) to UPRR	7.00				✓			
UPRR to Bakersfield			20.20		✓			
Open space	0.30				✓		✓	
20th Street	0.30				✓			
Total	13.97		25.3	101.85				
		GRAND TOTAL		141.12				

This project route will begin at 254 Granada Drive in central San Luis Obispo and extend west to South Higuera Street. The route will connect to an existing Pacific Bell duct and turn north on Higuera Street within duct to Madonna Road, continue north in Higuera Street to South Street, and east on South Street to King Street where it will connect to another Pacific Bell duct. The route will continue east on South Street in the Pacific Bell duct to Broad Street and then northwest on Broad Street to Chorro Street. The route will travel north and then northwest in Chorro Street until it turns northeast at Mill Street. Continuing on Mill Street, the route will turn southeast on Johnson and then northeast on Monterey Street, where it will cross under U.S. 101 in a Pacific Bell duct to near Loomis Street then to Miossi Road. The route will follow an existing Pacific Bell right-of-way, which will extend north from Miossi Road generally along the western side of U.S. 101 to the intersection with the UPRR near Cuesta Springs Road. The route will continue in the UPRR right-of-way north to the City of Atascadero where the route connect to an idle 10-inch Chevron pipeline near where the UPRR right-of-way crosses SR 41. Adjacent land use in this area is characterized by areas of urban development with annual grassland, blue oak woodland, and ruderal areas in between.

Most of the remainder of the route will be constructed within an idle 10- or 12-inch-diameter pipeline beginning in Atascadero. The pipeline extends through urban/residential areas in Atascadero south of the junction of SR 41 and U.S. 101. From Atascadero, the pipeline generally follows the SR 41 corridor east through rural grazing land, crossing this rural highway several times en route to the vicinity of the small community of Cholame (San Luis Obispo County). The pipeline turns southeast and follows the Palo Prieta/Bitterwater Road corridor to the junction with Bitterwater Valley Road. The pipeline extends east on Bitterwater Valley Road and leaves the roadway corridor, continuing east to near the Belridge Oilfields. The pipeline will turn southeast through the oil fields to a crossing of SR 33. East of SR 33, the pipeline will continue southeast across open range land to a crossing of the California Aqueduct and then east toward I-5 across agricultural land. Approximately 2.5 miles west of I-5, the route leaves the Chevron pipeline at Morris Road and travels north to Stockdale Highway. At Stockdale Highway, also referred to as Bellevue Road on U.S. Geological Survey 7.5-minute topographic quadrangles, the cable will turn east for approximately 7 miles then southeast along the UPRR. The UPRR right-of-way will be followed into the City of Bakersfield. The route will follow city streets for a short distance to connect to the termination point at 2020 P Street. From Atascadero to Bakersfield, the cable will pass through open space, mixed light and heavy agricultural land, and urban development. The western segment of the route near San Luis Obispo and Atascadero will be located in the Santa Lucia Range, and the eastern segment will be located on flatter terrain in Kern County.

Proposed Regenerator/OP-AMP Station Locations

Three OP-AMP stations will be located at approximately 40-mile intervals along the route (**Figure 3-5b**). The stations will be located at the Shandon pump station (Shandon site), at the Middle pump station (Middle site), and at a site just east of the California Aqueduct along the pipeline right-of-way (McGarvey site). The Shandon and Middle sites will be located within existing rights-of-way, and the McGarvey site will be located on private property outside existing rights-of-way.

Proposed Construction Methods

Fiber optic cable will be installed primarily within an idle 10- to 12-inch-diameter Chevron pipeline. Fiber optic cable will be pulled through the existing pipeline with pull points or assist points excavated along the pipeline at intervals of approximately 1 mile. Construction methods will involve a combination of:

- installation within an existing Pacific Bell duct,
- plowing and trenching,
- directional boring under sensitive streams and drainages and sensitive archaeological and biological resources, and
- directional boring.

SAN LUIS OBISPO TO LOS OSOS LOOP

Proposed Project Route Description

Construction of two routes will provide a diverse connection between the proposed AT&T China cable landing site at 1101 Los Olivos Avenue in the town of Los Osos (northern route) and the San Luis Obispo County facility at 254 Granada Drive in San Luis Obispo (southern route). Both routes generally will cross

urban and industrial areas in the portions of the routes east of U.S. 101 and will be located adjacent to agricultural and grazing land along Los Osos Valley Road. The locations of these routes are shown in **Figure 3-6**. **Table 3-6** summarizes the right-of-way miles and construction methods.

Table 3-6. Route Right-of-Way Miles and Construction Methods - San Luis Obispo to Los Osos Loop

	Right-of-Way Miles				Construction Methods			
Route Segment	Local Roads	State High-ways	Railroad	Utility/ Pipeline	Plow or Trench	Existing Pipeline or Duct	Bore	Bridge Attach
Northern Route								
Granada	0.25				✓			
South Higuera	1.35					✓		
South Street	0.75					✓		
Broad	0.12					✓	✓	
Chorro	1.71					✓	✓	
Meinecke	0.12					✓		
Broad	0.15					✓		
Foothill	2.65					✓	✓	
Los Osos Valley Road	6.64				✓	✓	✓	
South Bay	0.10					✓	✓	
17th	0.10				✓	✓	✓	
Los Olivos	0.30				✓	✓	✓	
Total	14.24							
		GRAND TOTAL		14.24				
Southern Route						✓		
Granada	0.25				✓			
South Higuera	0.25					✓		
Prado Road	0.35					✓		
Elks Lane	0.35					✓		
El Mercado	0.40					✓		
Madonna	0.85					✓	✓	
Los Osos Valley Road	9.20				✓	✓	✓	
10th Street	0.35				✓	✓	✓	
Los Olivos	0.15				✓	✓	✓	
Total	12.15							
		GRAND TOTAL		12.15				

Northern Route

The northern route will begin at Granada Drive and extend west to South Higuera Street and north to South Street. The route will extend east in South Street and turn northwest on Broad Street to Chorro Street. The route will continue north and then northwest in Chorro Street across U.S. 101/SR 227 to Meinecke Avenue. The route will extend west on Meinecke Avenue and north on Broad Street to Foothill Road west of SR 1. The route will extend west and southwest in Foothill Road to Los Osos Valley Road. The route will travel northwest in the northern road shoulder in Los Osos Valley Road, turn north at South Bay briefly then cross over to 17th Street, and turn west on Los Olivos Avenue on to the proposed AT&T China cable landing site.

Southern Route

The southern route will begin at Granada Drive and extend west to South Higuera Street and north to Prado Road. The route will turn west on Prado Road and north on Elks Lane. From Elks Lane, the route will turn northwest under U.S. 101 to Madonna Road near Dalidio Drive. At Madonna Road, the route will enter a Pacific Bell duct and continue southwest to Los Osos Valley Road. The route will follow Los Osos Valley Road to the northwest, using the southern road shoulder, and connect to the existing AT&T vault. From the AT&T vault, the route will continue in the southern road shoulder of Los Osos Valley Road to Tenth Street in Los Osos. The route will extend north in Tenth Street and turn east on Los Olivos Street Avenue on to the proposed AT&T China cable landing site.

Proposed Regenerator/OP-AMP Station Locations

No regenerator/OP-AMP stations will be constructed.

Proposed Construction Methods

The following construction methods will be used:

- installation within existing Pacific Bell duct;
- plowing or trenching within state route, county road, and city street rights-of-way; and
- directional boring under major roadways, sensitive streams and drainages, and sensitive archaeological and biological resources.

RIVERSIDE TO CALIFORNIA/ARIZONA BORDER

Proposed Project Route Description

The project route will begin at the California/Arizona border (near Yuma, Arizona) and run northwest to a location in the City of Riverside. This project route is a portion of a longer proposed route to connect Riverside, California to Phoenix, Arizona, as part of Williams' national network. The locations of this route and the associated regenerator and OP-AMP stations are shown in **Figures 3-7a** through **3-7c**. **Table 3-7** summarizes the right-of-way miles and construction methods.

Table 3-7. Right-of-Way Miles and Construction Methods - Riverside to California/Arizona Border

Route Segment	Right-of-Way Miles				Construction Methods			
	Local Roads	State High-ways	Railroad	Utility/ Pipeline	Plow or Trench	Existing Pipeline or Duct	Bore	Bridge Attach
Orange Street	2.75				✓		✓	
Center Street	0.40				✓		✓	
West La Cadena Drive	0.45				✓		✓	
South La Cadena Drive	1.80				✓		✓	
Kinder-Morgan Pipeline				189.80		✓		
UPRR right-of-way			0.75		✓			
Colorado River bank			0.10				✓	
Total	5.40		0.85	189.80				
			GRAND TOTAL	196.05				

The route will cross the desert from the California/Arizona border to the northern edge of the Imperial Valley near Niland (Imperial County). From this agricultural valley, it again will traverse northwest across desert areas to the Coachella Valley in eastern Riverside County, where it will pass agricultural and urban lands. Grass and scrub lands dominate where the route will cross San Gorgonio Pass. The route will become increasingly urban as it passes the cities of Banning and Beaumont, with small rural breaks. Within San Timoteo Canyon, the route will pass through scrub lands and rural residential areas. After exiting the canyon, the route will pass through urban and agricultural areas and into downtown Riverside.

At the California/Arizona border near Yuma, the route will be bored under the Colorado River near the existing UPRR bridge. From the California side of the river, the route will be trenched within the UPRR right-of-way for approximately 0.75 mile. At this point, the cable will be installed inside an existing idle 12-inch underground pipeline being leased by Williams from Kinder-Morgan Energy Partners (KMEP). The cable will remain within this pipeline from this point to an area in the City of Colton. This pipeline was used in the past to transport petroleum products and shares a right-of-way with UPRR for much of its length in California. Ground disturbance within this portion of the route will be limited to potholes excavated for handholes or assist points at approximately 3,000- to 5,000-foot intervals along the pipeline.

Once in the KMEP pipeline, the route will continue within the railroad right-of-way to a point near the Salton Sea, where the route leaves the railroad right-of-way for approximately 9 miles between the railroad sidings of Frink and Durmid. From this location, the route will reenter and remain primarily within the UPRR right-of-way through most of the Coachella Valley. The route will continue within the right-of-way across San Gorgonio Pass to a point near the east end of the Banning Airport where it will turn south to Westward Avenue. The route will travel west within the Westward Avenue right-of-way near and through the communities of Banning and Beaumont. From the western end of Westward Avenue, the route will travel northwest along the southern edge of San Timoteo Canyon. Within San Timoteo Canyon, the route occasionally will enter the UPRR right-of-way and San Timoteo Canyon Road, and will exit the canyon near the intersection of Washington Street and Barton Road in the City of Colton. The route will proceed west along Washington Street, cross over the Santa Ana River, and intersect with La Cadena Drive.

Within the right-of-way of South and West La Cadena Roads, the route will travel south to Center Street, continue west on Center Street, and then turn south and travel within the right-of-way of Orange Street to the route terminus at 3581 Orange Street in Riverside.

Proposed Regenerator/OP-AMP Station Locations

One regenerator station and four OP-AMP stations will be installed at approximately 40-mile intervals along the route (**Figures 3-7b** and **3-7c**). Traveling from Riverside to the border, the first OP-AMP station (the Banning site) will be located in the City of Banning, adjacent to the south side of Westward Avenue (which provides site access), approximately 600 feet west of Scott Road. The site is disturbed pasture land with mostly non-native grasses and is surrounded by urban uses. The second OP-AMP site is located within a planned industrial area in the City of Indio that is unvegetated due to site grading (Thousand Palms site). This site is located on the south side of Oleander Avenue, which provides access to the site. The third OP-AMP site is located in Riverside County in the community of Mortmar (Mortmar site). The OP-AMP site is located on the south side of SR 111, which provides access to the site. The fourth OP-AMP site (Flowing Wells site) will be located in Imperial County near Niland. This station will be located on the south side of Noffsinger Road (which provides site access) at its intersection with Pond Road. The final facility along the route is a regenerator station site located in Imperial County near the community of Ogilby (Ogilby site). All the OP-AMP stations will be located on private property outside existing rights-of-way.

Proposed Construction Methods

The following construction methods will be used:

- installation in existing idle pipeline;
- plowing, trenching, and boring within UPRR and road rights-of-way;
- installing in existing utility ducts where available;
- directional boring under sensitive streams and drainages and sensitive archaeological and biological resources, and
- bridge attachments, if available.

LOS ANGELES TO RIVERSIDE

Proposed Project Route Description

The project route will begin in the City of Riverside and will end in downtown Los Angeles. Most of this route (51 out of 66 total miles) will be built within a UPRR right-of-way. The locations of this route and the associated OP-AMP station are shown in **Figure 3-8**. **Table 3-8** summarizes the right-of-way miles and construction methods.

Table 3-8. Right-of-Way Miles and Construction Methods - Los Angeles to Riverside

	Right-of-Way Miles				Construction Methods			
Route Segment	Local Roads	State Highways	Railroad	Utility/ Pipeline	Plow or Trench	Existing Pipeline or Duct	Bore	Bridge Attach
South Grand Avenue	0.15				✓	✓	✓	
7th Street	2.00				✓	✓	✓	✓
UPRR from Downtown			6.75		✓		✓	✓
Mission Road	2.30				✓		✓	✓
UPRR			44.70		✓		✓	✓
Cedar Avenue	0.35				✓		✓	
Slover Avenue	1.75				✓		✓	
Kinder-Morgan Pipeline				3.10		✓		
South La Cadena Drive	1.80				✓		✓	
West La Cadena Drive	0.45				✓		✓	
Center Street	0.40				✓		✓	
Orange Street	2.75				✓		✓	
Total	11.95		51.45	3.10				
			GRAND TOTAL	66.50				

From the point of origin in downtown Riverside (3581 Orange Street), the route will head north within the Orange Street right-of-way for 2.75 miles, turn east within the right-of-way of Center Street, and then continue north within the right-of-way of West and South La Cadena streets. Immediately after crossing the Santa Ana River, the route will enter the KMEP pipeline and travel northwest for 3.1 miles. At this point, the route will leave the KMEP pipeline and travel west in the right-of-way of Slover Avenue, turning north for a short distance on Cedar Avenue, and entering the UPRR right-of-way. From this point, the route will continue west toward Los Angeles within the UPRR right-of-way (formerly belonging to Southern Pacific Railroad).

The UPRR right-of-way travels west through several cities, including Ontario, Pomona, and La Puente. After crossing the San Gabriel River, the route will continue through the City of El Monte, cross the Rio Hondo channel, and continue through the cities of San Gabriel and Alhambra. Within the City of Alhambra, the rail line goes below grade into a trench that extends for approximately 2.3 miles. At this point, the route will continue within adjacent road rights-of-way along Mission Road. Once the rail line returns to a surface grade, the route will again be placed within the UPRR right-of-way and continue into downtown Los Angeles.

In downtown Los Angeles, the route will leave the UPRR right-of-way and terminate at 624 South Grand Avenue. Between the UPRR right-of-way and South Grand Avenue, the cable will either be installed in existing conduit in 7th Street or be trenched or bored under 6th Street. At South Grand Avenue, the conduit and cable will be routed under the avenue by either trenching or boring. A majority of this route will be located within the urbanized Los Angeles metropolitan area. It will pass through industrial, commercial, and residential areas.

Proposed Regenerator/OP-AMP Station Locations

One OP-AMP station will be constructed near the center of the route at 2000 Pomona Boulevard in the City of Pomona (Pomona site) (**Figure 3-8**). The station will be located between two UPRR tracks and has been previously disturbed by railroad-related use. The OP-AMP station will be located on private property outside existing rights-of-way.

Proposed Construction Methods

The following construction methods will be used:

- plowing, trenching, and boring along UPRR, road rights-of-way, and utility corridors;
- installing in existing utility ducts under city streets where available;
- directional boring under sensitive streams and drainages and sensitive archaeological and biological resources, and
- bridge attachment, where available.

LOS ANGELES TO ANAHEIM

Proposed Project Route Description

The project route will begin in the City of Los Angeles and will end to the southeast in the City of Anaheim. The location of this route is shown in **Figure 3-9**. **Table 3-9** summarizes the right-of-way miles and construction methods.

Table 3-9. Right-of-Way Miles and Construction Methods - Los Angeles to Anaheim

	Right-of-Way Miles				Construction Methods			
Route Segment	Local Roads	State High-ways	Rail-road	Utility/ Pipeline	Plow or Trench	Existing Pipeline or Duct	Bore	Bridge Attach
South Grand Avenue	0.15				✓	✓	✓	
7th Street	2.00				✓	✓	✓	✓
UPRR to Branchline Split			6.55		✓		✓	✓
Branchline Split to Gilbert Street			14.55		✓		✓	✓
Gilbert Street	0.20				✓	✓	✓	
La Palma Street	0.15				✓	✓	✓	
Total	2.50		21.10					
		GRAND TOTAL		23.6				

This route will begin within the urbanized Los Angeles metropolitan area at 624 South Grand Avenue and will continue, by way of an existing conduit or by means of trenching in or boring under 7th Street, across the Los Angeles River, and enter the MTA rail right-of-way northwest of the Pomona and Santa Monica freeway interchange. Once in the Metropolitan Transit Authority (MTA) right-of-way, the route will continue south to the intersection with Soto Street where it enters the ACTA right-of-way and parallel Washington Boulevard.

It then enters the Port of Los Angeles/Port of Long Beach (POLA/POLB) railroad right-of-way and turns south, parallel to South Downey Road, through the communities of Vernon and Maywood. After crossing Gage Avenue, the route parallels Salt Lake Avenue in the City of Huntington Park. Near the intersection of Salt Lake Avenue and Atlantic Avenue, the route exits the POLA/POLB railroad right-of-way and enters the UPRR right-of-way. At that point, the route will continue east, crossing over or under the Los Angeles River, Bell Gardens, and Downey and under the San Gabriel River and Interstate 605, and then southeast parallel to Firestone Boulevard through the cities of Norwalk, Cerritos, and Buena Park before entering the City of Anaheim. In Anaheim, the route will leave the UPRR right-of-way near Gilbert Street and end at 2461 West La Palma Avenue.

Proposed Regenerator/OP-AMP Station Locations

No regenerator/OP-AMP stations will be constructed.

Proposed Construction Methods

The following construction methods will be used:

- plowing or trenching along UPRR and road rights-of-way;
- installing in existing telecommunications or utility duct where available;
- boring under major roadway intersections, including Interstate 710, Interstate 5, Interstate 605, and SR 91;
- directional boring under sensitive streams and drainages and sensitive archaeological and biological resources, and
- bridge attachments or installing in existing conduit across the Rio Hondo and Los Angeles rivers, or boring under these rivers, if necessary.