5.8 HYDROLOGY AND WATER QUALITY

5.8.1 Regulatory Setting

State and Federal Regulation

Regulatory authorities exist on both the state and federal levels for control of water quality in California. The U.S. Environmental Protection Agency (EPA) is the federal agency, governed by the Clean Water Act, responsible for water quality management. An EPA regional office (EPA Region IX) is located in San Francisco and delegates authority for water quality permitting to the State Water Resources Control Board (SWRCB).

The SWRCB, located in Sacramento, is the agency with jurisdiction over water quality issues in the state of California. The SWRCB is governed by the Porter-Cologne Water Quality Act (Division 7 of the California Water Code), which establishes the legal framework for water quality control activities by the SWRCB. Much of the implementation of the SWRCB's responsibilities is delegated to nine Regional Water Quality Control Boards (RWQCBs).

Regional Water Quality Board

The San Francisco Bay Area RWQCB is responsible for the protection of the beneficial uses of the San Francisco Bay and surrounding waters. The Los Angeles RWQCB and the Santa Ana Region RWQCB cover the Los Angeles and Orange County areas. Each RWQCB has adopted a *Water Quality Control Plan* (Basin Plan) to implement plans, policies, and provisions for water quality management. The most recent revision of the San Francisco Bay Area Basin Plan was adopted by the RWQCB in June 1995 and was approved by the SWRCB in November 1995. The Santa Ana RWQCB Basin Plan was prepared in 1994, and the Los Angeles RWQCB Basin Plan in 1995. Beneficial uses described in the Basin Plans are presented in Tables 5.8-1, 5.8-2, and 5.8-3. Water quality objectives defined in the Basin Plans serve as guidelines for all point source and non-point source discharges.

NPDES Permit

The RWQCB administers the National Pollutant Discharge Elimination System (NPDES) stormwater permitting program in the Bay Area. Construction activities of 5 acres or more (Phase II requirements for permitting areas between 1 and 5 acres will not be fully implemented until early 2003) are subject to the permitting requirements of the NPDES General Permit for Discharges of Stormwater Runoff Associated With Construction Activity (General Construction Permit). The project applicant must submit a Notice of Intent (NOI) to the SWRCB to be covered by the General Permit prior to the beginning of construction. The General Construction Permit requires the preparation and implementation of a Storm Water Pollution Prevention Plan (SWPPP). The SWPPP must be prepared before construction begins. The plan would include specifications for best management practices (BMPs) that would be implemented during project construction to control potential discharge of pollutants from the construction area. Additionally, the plan would describe measures to prevent pollutants in runoff after construction is complete and reference a plan for inspection and maintenance of the project facilities. Implementation of the plan starts with the commencement of construction and continues though the completion of the project. Upon completion, the applicant must submit a Notice of Termination to the SWRCB. Separate SWPPPs would be prepared for both the San Francisco Bay Area and Los Angeles Basin Networks.

Clean Water Act, Section 401 Certification

If water ways or wetlands were affected by the project, a Section 401 water quality certification (or waiver) from the RWQCB would be required under the Clean Water Act and would be obtained by meeting the terms and conditions in Section 404 Nationwide Permit No. 12, as appropriate, issued by the U.S. Army Corps of Engineers. Nationwide Permit No. 12 authorizes discharge of material for backfill or bedding for utility lines. Under Nationwide Permit No. 12 conditions, an applicant must demonstrate that any unavoidable in-channel work would occur within the state agency's preferred work windows and that all practicable erosion control measures would be implemented.

5.8.2 Environmental Setting

5.8.2.1 San Francisco Bay Area Network

The project alignments would be located in several major watersheds within the San Francisco Bay Area. These watersheds support significant and substantial beneficial uses for both wildlife and people where sustaining water quantity and quality is an important objective. Project activities associated with the Metromedia Backbone would occur in the regional watersheds of the East Bay Plains, Santa Clara Valley, and Santa Cruz Mountains within the San Francisco Bay geologic depression. New build portions of the Pacific Bell Structure are also located in these areas plus watersheds of San Pablo Bay and Susuin Bay.

Local Waters

Surface waters potentially affected by the project include creeks and drainages surrounding San Francisco Bay over or beneath which the alignments would cross. Major surface water drainages that occur within the project corridor include substantial creeks that drain the Oakland and Hayward Hills within the Diablo Range (East Bay Plains), the Santa Clara Valley, and the Santa Cruz Mountains. The new build segments of the Pacific Bell Structure do not cross any substantial drainages. Additionally, the project corridors would cross numerous flood control channels and drainages that drain stormwater runoff from urban areas. The major surface waters in the project area are listed in Table 5.8-1, which also identifies beneficial uses of drainages to be crossed by the project alignments. Table 5.8-2 provides definitions for the beneficial uses noted in Table 5.8-1. Beneficial uses are defined by the resources, services, and qualities of these aquatic systems and are the ultimate goals of protection and achieving high water quality by the State Water Resources Control Board and the U.S. Environmental Protection Agency. Beneficial uses serve as a basis for establishing water quality standards and discharge prohibitions as set by the San Francisco Bay RWQCB.

Also included in Table 5.8-1 are groundwater aquifers that lie beneath the project alignments. These aquifers are comprised of alluvial sediments deposited in the intermountain structural depression formed by the Santa Cruz Mountains and the Diablo Range. San Francisco Bay occupies the central portion of this structural depression and typically is separated from the major aquifers by a significant aquitard (layer of fine sediments that retards water transmission) formed by what is commonly referred to as “Bay Mud” (SCVWD 1989). This aquitard allows for the use of the deep aquifers in close proximity to the surface seawater body that is San Francisco Bay. Shallow and smaller unconfined aquifers do exist above the aquitard but typically have poor water quality.

San Francisco Bay

The San Francisco Bay is the largest coastal embayment on the Pacific Coast, with an area of over 400 square miles. Both the Sacramento and San Joaquin rivers drain to the Bay, carrying runoff from California's Central Valley. Many smaller rivers and creeks drain from the coastal mountain areas into the Bay as described above. The Bay is generally divided into five regions based upon differing physical characteristics — Suisun Bay, San Pablo Bay, Central Bay, Lower Bay, and South Bay. The Metromedia Backbone and portions of the Pacific Bell Structure new build segments would be located mainly in the Lower Bay and South Bay areas. The Lower Bay extends from the Bay Bridge to the Dumbarton Bridge. This part of the Bay receives flow from no major rivers, and thus is less influenced by fresh water inflow than the north Bay regions. This area does receive runoff from extensively urbanized areas. The major drainages in this area are San Leandro, San Lorenzo, Alameda, and San Mateo creeks. The South Bay extends from the Dumbarton Bridge south to the mouths of Coyote Creek and Guadalupe River. Additionally, northern new build segments of the Pacific Bell Structure would be located in the Suisun Bay area (Walnut Creek Segment), and the San Pablo Bay area (Marin County Segment).

Bay Water Quality

GENERAL WATER QUALITY PARAMETERS

Water quality is one of the important factors affecting the attainment of beneficial uses in San Francisco Bay. Water quality influences habitat conditions and affects the distribution and abundance of biota in the Bay. Water quality of the Bay is affected by freshwater inflows, tidal mixing, urban and construction runoff, municipal and industrial discharges, and atmospheric deposition. The water quality parameters of greatest interest for the Bay include salinity, temperature, pH, nutrients, dissolved oxygen, coliform bacteria, trace contaminants, and suspended particulates (sediment).

Suspended particulates include microorganisms and inorganic matter that may result in excessive turbidity, discoloration, or other nuisance conditions. Suspended particulate concentrations in the Bay are influenced by sediment resuspension, tidal mixing, primary productivity, and particulate loadings (erosion and sediment transport) from riverine and runoff sources. Fine particulates are transported and deposited throughout the Bay with heaviest deposits in quiescent, lower energy areas of the Bay. Suspended particulate levels attenuate the transmission of light in Bay waters. At elevated concentrations, particulates may deposit on the benthic layer, smothering bottom-dwelling organisms or causing anaerobic conditions. Construction activities that disturb land cover and expose soil layers can be substantial sources of suspended particulates.

Section 303(d) of the Clean Water Act has led to the generation of a list of water quality limited streams and other waterbodies. These waterbodies are impaired by the presence of pollutants, including sediment, and are more sensitive to disturbance. The Lower San Francisco Bay is impaired due to elevated levels of copper, mercury, nickel, exotic species, diazinon, PCBs, chlordane, DDT, Dieldrin, Dioxin, and Furan. These elevated levels are attributed to inputs from the following sources: atmospheric deposition, ballast water, industrial and municipal point sources, natural sources, nonpoint sources, resource extraction, and potential unknown sources (U.S. EPA 2000).

Table 5.8-1. Beneficial Uses of Major Natural Waterbodies along the San Francisco Bay Area Network

Waterbody	BENEFICIAL USES*															
	Agr	*Cold*	*Est*	*Frsh*	*Gwr*	*Ind*	*Migr*	*Mun*	*Nav*	*Proc*	*Rare*	*Rec[1]*	*Rec[2]*	*Spwn*	*Warm*	*Wild*
Lake Merritt												E	E	E		E
San Leandro Creek		E		E			P					P	P	P	P	P
San Lorenzo Creek		E		E	E		E	E				E	E	E	E	E
Alameda Creek	E	E			E		E					E	E	E	E	E
Coyote Creek		E					E				E	P	E	E	E	E
Guadalupe River							P					P	E	P	E	E
Saratoga Creek	E	E		E	E							E	E		E	E
Calabazas Creek	E	E			E				E			E	E		E	E
Permanente Creek		E										E	E	E		E
Stevens Creek		E		E			E					E	E	P	E	E
Matadero Creek		E					E					E	E	E	E	E
San Francisquito Creek		E					E					P	P	E	E	E
San Mateo Creek		P		E							E	P	P	E		E
Groundwater Basins																
East Bay Plain	E					E		E		E						
Alameda Creek / Niles Cone	E					E		E		E						
Santa Clara Valley	E					E		E		E						
San Mateo Plain	P					E		E		E						

E = existing beneficial use

P = potential beneficial use

*Beneficial uses:
Agr = agricultural supply
Cold = cold freshwater habitat
Est = estuarine habitat
Frsh = freshwater replenishment
Gwr = groundwater recharge
Ind = industrial service supply
Migr = fish migration
Mun = municipal / domestic supply
Nav = navigation
Proc = industrial process supply
Rare = preservation of rare, threatened, or endangered species
Warm = warm freshwater habitat
Rec[1] = water contact recreation
Rec[2] = non-contact water recreation
Spwn = fish spawning
Wild = wildlife habitat

Source: San Francisco Bay Water Quality Control Plan, June 1995.

1 **Table 5.8-2. Definitions of Beneficial Uses of Surface Waters**

Beneficial Use	*Description*
Agricultural Supply (AGR)	Uses of water for farming, horticulture, or ranching.
Cold Freshwater Habitat (COLD)	Uses of water that support cold water ecosystems, including the preservation or enhancement of aquatic habitats, vegetation, fish, or wildlife.
Estuarine Habitat (EST)	Uses of water that support estuarine ecosystems, including the preservation or enhancement of habitat and biota.
Freshwater Replenishment (FRSH)	Uses of water for natural or artificial maintenance of surface water quantity or quality.
Groundwater Recharge (GWR)	Uses of water for natural or artificial recharge of groundwater for purposes of future extraction, maintenance of water quality, or halting saltwater intrusion into freshwater aquifers.
Industrial Service Supply (IND)	Uses of water for industrial purposes that do not depend on water quality, including cooling water supply, fire protection, mining, gravel washing, etc.
Fish Migration (MGR)	Uses of water that support habitat for aquatic organisms that are temporary inhabitants, including anadromous fish. Maintenance of zones of passage free from physical or chemical barriers is important to this use.
Municipal and Domestic Supply (MUN)	Uses of water for community, military, or individual water supply systems, including drinking water supply.
Navigation (NAV)	Uses of water for shipping, travel, or other transportation by private, military, or commercial vessels.
Industrial Process Supply (PROC)	Uses of water for industrial activities that depend primarily on water quality.
Preservation of Rare and Endangered Species (RARE)	Uses of waters that support habitat for rare or endangered plant and animal species.
Water Contact Recreation (REC1)	Uses involving body contact with water, where ingestion of water is reasonably possible, including swimming, wading, water skiing, windsurfing, and diving.
Non-contact Water Recreation (REC2)	Uses involving proximity to water, not normally including water contact, such as picnicking, sunbathing, hiking, beachcombing, camping, boating, sightseeing, and nature studies.
Fish Spawning (SPWN)	Uses of water that support high-quality aquatic habitats suitable for reproduction and early development of fish.
Warm Freshwater Habitat (WARM)	Uses of water that support warm water ecosystems, including the preservation or enhancement of aquatic habitats, vegetation, fish, or wildlife.
Wildlife Habitat (WILD)	Uses of waters that support wildlife habitats, including preservation of vegetation, prey species, and water quality.

Source: San Francisco Bay Water Quality Control Plan, June 1995.

AQUATIC RESOURCES

Aquatic habitat and wildlife are affected by Bay water quality. The aquatic habitats of the Bay include open waters, shallow mud flats, salt and brackish marshes, and tidal sloughs and channels, which are home to a variety of species including plankton, invertebrates, fish, and marine mammals. Plankton species include the phytoplankton *Skeletonema, Thalassiosira*, and *Cryptomonas*, and zooplankton *Neomysis* and *Acartia* (SFEP 1991). Invertebrates include clams, mussels, oysters, other bivalves, shrimp, and crabs. More than 100 fish species populate the Bay. Many are residents that spend their entire life in the Bay, including leopard shark, starry flounder, shiner perch, and yellowfin goby. Others are anadromous species, which are born in freshwater, migrate to saltwater as adults, and return to spawn in freshwater areas. These include Chinook salmon, striped bass, shad, sturgeon, and steelhead. Marine species of fish in the Bay include Pacific herring, northern anchovy, English sole, and speckled sanddabs. Urban activities such as construction surrounding the Bay have a substantial influence on the aquatic resources of San Francisco Bay and its tributaries.

Proposed Project Alignments

METROMEDIA BACKBONE

*East Bay North***.** The project route from Oakland to Fremont is highly urbanized and follows the Interstate 880 corridor along the East Bay Plains. Creeks along this alignment drain the Oakland Hills to the east, which comprise the western flank of the Diablo Range. All creeks in this area have been modified for flood control and stormwater drainage purposes. This area averages 15 to 20 inches of precipitation annually with a potential 24-hour, 100-year precipitation estimate of 4.0 to 5.0 inches (Western Regional Climate Center 2000).

East Bay South. This urbanized area represents the transition from the smaller East Bay Plains to the larger Santa Clara Valley alluvial plain. Broader meandering drainages such as Coyote Creek and Guadalupe River drain this area which has larger watershed areas and reduced slopes. This area averages 10 to 15 inches of precipitation annually with a potential 24-hour, 100-year precipitation estimate of 4.0 to 5.0 inches (Western Regional Climate Center 2000).

Peninsula South. This urbanized area represents the western Santa Clara Valley along the eastern flank of the Santa Cruz Mountains. Drainages are substantially smaller in size due to reduced watershed areas that extend to the western divide along the Santa Cruz Mountains. Rainfall amounts and intensities can be higher in this area as Pacific storms come ashore and release substantial rainfall across the Santa Cruz Mountains. This area averages 15 to 20 inches of precipitation annually with a potential 24-hour, 100-year precipitation estimate of 4.0 to 5.0 inches (Western Regional Climate Center 2000).

Peninsula North. This portion of the project route is within highly urbanized areas. Streams crossed by this route are all small south San Francisco Bay tributaries and many are channelized and intermittent. This area averages 20 to 25 inches of precipitation annually with a potential 24-hour, 100-year precipitation estimate of 4.0 to 5.0 inches (Western Regional Climate Center 2000).

PACIFIC BELL STRUCTURE

Only the portions of the following conduit alignments that would require construction of new conduits are evaluated for their location in regard to local water resources.

Marin County Segment. Within the Marin County Segment, no new build areas cross substantial streams or drainages but do cross unnamed drainages that are located near San Rafael Creek, San Rafael Bay, and Richardson Bay in Sausalito. New build areas are located in urbanized areas of Marin County and northern Alameda County.

Oakland Segment. There are no new build segments within this area that are near major streams or drainages, but construction in these areas could influence the urban runoff of localized areas in the City of Oakland.

Walnut Creek Segment. No new build segments within this segment would be near major streams or drainages, although the new build segments have the potential to affect local drainage ways. New build areas would be located in heavily urbanized areas of Contra Costa County.

Hayward Segment. New build portions of the Hayward Segment would not cross any substantial streams or drainages but will be near drainages that flow to the Hayward shoreline composed of salt evaporation ponds and tidal marsh. Additionally, an eastern new build segment would be located near Ward Creek, which flows through the City of Hayward and discharges to Alameda Creek.

Dumbarton Crossing Segment. New build segments of this alignment would be located along the salt evaporation ponds at the western terminus of the alignment, and Newark Slough within the San Francisco Bay National Wildlife Refuge at the eastern end of the alignment. Both of these areas have similar characteristics, with urbanized areas landward and slough or pond areas to the bayside.

Peninsula Segment. New build segments of the Pacific Bell Structure on the Peninsula would not cross any substantial streams or drainages. Construction would be near roadway and stormwater drainages that drain to San Francisco Bay.

5.8.2.2 Los Angeles Basin Network

Surface Water Resources

Surface water resources in the Los Angeles area include creeks, rivers, and lakes. Reservoirs serving flood control and water storage functions exist throughout the region. Since the climate of southern California is predominantly arid, many of the natural rivers and creeks are intermittent or ephemeral, drying up in the summer or flowing only in response to precipitation. Annual rainfall amounts vary depending on elevation and proximity to the coast. The City of Los Angeles averages less than 16 inches per year. However, due to urban landscape watering, some water ways such as Ballona Creek and the Los Angeles River maintain a perennial flow.

The Los Angeles Basin Network is located primarily in the watersheds of the Los Angeles, San Gabriel, and Santa Ana Rivers and Ballona Creek. The Los Angeles-San Gabriel Hydrologic Unit covers most of Los Angeles County and small areas of Ventura County. The rivers drain

much of the San Gabriel Mountains to the Pacific Ocean. Ballona Creek drains central portions of the City of Los Angeles within the Santa Monica Bay hydrologic Unit. The Dominguez Channel watershed drains a small area within Torrance to the San Pedro bay. The Santa Ana River Hydrologic Unit encompasses much of Orange County and the San Bernardino Mountains. Flood control measures such as concrete linings have reduced much of the rivers' natural riparian habitat. Numerous smaller creeks and flood control channels exist within these watersheds. However, the project area is highly urbanized with substantial storm sewer systems in place.

The County of Los Angeles has designated numerous Significant Ecological Areas (SEAs) within the County including Ballona Creek, Baldwin Hills, Rio Hondo Spreading Grounds, and Alamitos Bay. Other wetlands or estuaries within the Los Angeles Network area include Marina Del Rey wetlands, Los Cerritos wetlands, Anaheim Bay, Newport Bay, and the Bolsa Chica wetlands. Table 5.8.3 summarizes beneficial uses of the major surface water and groundwater resources in the Los Angeles Basin Network area.

Groundwater Resources

Groundwater basins in the Los Angeles area include the Santa Monica Basin, Hollywood Basin, West Coast Basin, Central Basin, and the Orange County Coastal Plain Basin. Each of these basins is comprised of multiple layers of water bearing formations. Some areas may have "perched water" or shallow groundwater less than 40 feet below ground surface. Much of the shallow groundwater that is designated as a potential drinking water source occurs in the alluvial plains within sandy deposits less than 200 feet below ground surface. Most municipalities in the region augment imported water received from the Metropolitan Water District with local groundwater supplies.

Water Quality

Water quality in the Los Angeles area is significantly affected by stormwater runoff, although point source discharges from wastewater treatment plants and industrial facilities contribute somewhat to reduced quality. Several large wastewater treatment plants operate on the coast including the City of Los Angeles Bureau of Sanitation, the Sanitation Districts of Los Angeles County, and the Orange County Sanitation District. The SWRCB has compiled a list of impaired water bodies pursuant to Section 303(d) of the Clean Water Act. The list includes the Santa Monica Bay as well as the Los Angeles, San Gabriel, and Santa Ana Rivers. The source for much of the pollutants identified in the Section 303(d) list is nonpoint source stormwater runoff. Pollutants range from trash and pathogens to petroleum hydrocarbons and pesticides. Eroded soil from construction sites can enter storm drains and increase sediment loads in local creeks and rivers. The SWRCB is in the process of establishing Total Maximum Daily Loads (TMDLs) for impaired water bodies in the state of California which will target point source and non-point source pollution. Local Regional Water Quality Control Boards (RWQCB) have the responsibility of reducing pollutants to meet the TMDLs.

Shallow groundwater is susceptible to surface contamination from urban and agricultural land uses as well as sea water intrusion caused by overdrafting. Several groundwater basins in the region are adjudicated and managed by Groundwater Management Districts. The Districts oversee extraction operations and recharge efforts to maintain a sustainable, safe yield.

Table 5.8-3. Beneficial Uses of Major Natural Waterbodies along the Los Angeles Basin Network

Waterbody	BENEFICIAL USES*																		
	Mun	*Ind*	*Proc*	*Agr*	*Gwr*	*Nav*	*Rec[1]*	*Rec[2]*	*Comm*	*Warm*	*Cold*	*Est*	*Mar*	*Wild*	*Biol*	*Rare*	*Migr*	*Spwn*	*Shell*	*Wet*
Los Angeles River	P	P			E		E	E		E				E						E
Ballona Creek	P						P	E		P				E						
Del Rey Lagoon						E	E	E	E			E		E		E	E	E		E
San Gabriel River	E	E	E	E	E		E	E		E	E			E		E				
Coyote Creek	P	P	P				P	I		P				P		E				
Rio Hondo	P				I		P	E		P				I		E				E
Santa Ana River				E	E		E	E		E				E		E				
Eaton Wash	P				I		I	I		I				E						
Eagle Rock Reservoir	E						P			P										
Echo Lake	P						P	E		P				E						
Encino Reservoir	E	E	E				P	E		P				E						
Silver Lake Reservoir	E	E	E				P	E		P				E						
Toluca Lake	P						P	E		P				E						
Anaheim Lake					E		E	E		E				E						
Coastal Wetlands																				
Marina Del Rey						E	E	E	E				E	E					E	
Los Angeles / Long Beach Harbor						E	E	E	E				E			E			P	
Alamitos Bay		E				E	E	E	E			E	E	E		E			E	E
Los Cerritos Wetlands						E	E	E	E			E		E		E	P	P	E	E
Anaheim Bay						E	E	E				E	E	E	E	E		E		
Bolsa Chica Ecological Reserve							E	E				E	E	E	E	E		E		
Newport Bay						E	E	E	E			E	E	E	E	E		E	E	

Table 5.8-3. Beneficial Uses of Major Natural Waterbodies along the Los Angeles Basin Network

Waterbody	BENEFICIAL USES*																			
	Mun	*Ind*	*Proc*	*Agr*	*Gwr*	*Nav*	*Rec*[1]	*Rec*[2]	*Comm*	*Warm*	*Cold*	*Est*	*Mar*	*Wild*	*Biol*	*Rare*	*Migr*	*Spwn*	*Shell*	*Wet*
Groundwater Basins																				
Los Angeles Coastal Plain	E	E	E	E																
San Gabriel Valley	E	E	E	E																
Santa Monica Mountains southern slopes	P	P		E																

E = existing beneficial use
P = potential beneficial use
I = intermittent beneficial use

*Beneficial uses:

Agr = agricultural supply
Comm = ocean, commercial, and sport fishing
Gwr = groundwater recharge
Nav = navigation
Rec[1] = water contact recreation
Wild = wildlife habitat
Mar = marine habitat
Cold = cold freshwater habitat
Ind = industrial service supply
Proc = industrial process supply
Rec[2] = non-contact water recreation
Biol = Preservation of Sensitive Biological Areas of Special Significance
Est = estuarine habitat
Migr = fish migration
Rare = preservation of rare, threatened, or endangered species
Spwn = fish spawning
Shell = shellfish harvesting.
Wet = Preservation of Sensitive Wetland Areas
Frsh = freshwater replenishment
Mun = municipal / domestic supply
Warm = warm freshwater habitat

Proposed Project Alignments

SAN FERNANDO VALLEY

The alignments within San Fernando Valley include the Santa Monica to Burbank Segment and the Burbank Local Segment. The Santa Monica to Burbank Segment would cross the Los Angeles River between Sepulveda Boulevard and North Van Nuys Boulevard. The Burbank Local Segment would also cross the Los Angeles River farther east at North Lankershim Boulevard. The Los Angeles River in these areas is lined with sparse riparian habitat. The river banks and bed are generally reinforced with concrete.

GLENDALE / PASADENA

The Glendale Local Segment would not cross any streams or creeks. The Pasadena Local Segment would cross Eaton Wash at East Sierra Madre Boulevard. Eaton Wash is an ephemeral stream fed by the Eaton Reservoir and flowing to the Rio Hondo.

CENTRAL LOS ANGELES

The Century City Local, Hollywood Local, and Downtown Los Angeles Segments traverse urbanized central Los Angeles. Storm drain sewers drain much of the area to either the Los Angeles River or Ballona Creek. None of these alignments would cross creeks or streams.

LOS ANGELES COAST

The coastal alignments within Los Angeles County include the Santa Monica Local Segment, the Marina Del Rey Local Segment, and the LAX Local Segment. These alignments are within highly urbanized areas within the Santa Monica Bay watershed drained by coastal washes and creeks. Ballona Creek drains central Los Angeles, terminating at the Marina Del Rey Harbor. The Marina Del Rey Local alignment would follow the Ballona Creek and estuary near the harbor, but would not cross the water body. The Carson / Costa Mesa Segment traverses the Dominguez Channel (at East Carson Street) and Los Angeles River (at West Willow Street) near Long Beach Harbor. Both of these drainages are lined in concrete in these areas, with little riparian habitat. The Carson / Costa Mesa Segment also crosses the San Gabriel River (at East Spring Street), Coyote Creek (at Cerritos Avenue).

ORANGE COUNTY COAST

The Carson / Costa Mesa Segment traverses Orange County to Irvine. The trunk line crosses the Santa Ana River at West 1st Ave. The Santa Ana River drains most of the San Bernardino Mountains. The river is lined in concrete within the highly urbanized portions of Orange County, supporting little riparian habitat. The Irvine Segment would be located close to the Upper Newport Bay, but would not cross the estuary or infringe upon the associated wetlands.