Los Angeles County
Metropolitan Transportation Authority

Eastside Transit Corridor Phase 2

Draft Environmental Impact Statement/Environmental Impact Report
State Clearinghouse No. 2010011062

August 2014

Metro

U.S. Department of Transportation
Federal Transit Administration

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DRAFT ENVIRONMENTAL IMPACT STATEMENT/ DRAFT ENVIRONMENTAL IMPACT REPORT

for the

EASTSIDE TRANSIT CORRIDOR PHASE 2 PROJECT

prepared by the

U.S. DEPARTMENT OF TRANSPORTATION FEDERAL TRANSIT ADMINISTRATION

and the

LOS ANGELES COUNTY METROPOLITAN TRANSPORTATION AUTHORITY

Pursuant to:

National Environmental Policy Act of 1969, § 102 (42 United States Code [USC] § 4332); Federal Transit Law (49 USC Chapter 53); 49 USC § 303 (formerly Department of Transportation Act of 1966 § 4[f]); National Historic Preservation Act of 1966, § 106 (16 USC § 470f); Clean Air Act (42 USC § 7401 et seq.); Clean Water Act, Section 404 (33 USC § 1344); Endangered Species Act (7 USC § 136; 16 USC § 1531 et seq.); 49 Code of Federal Regulations (CFR) § 622.101; 23 CFR Parts 771 and 774; 40 CFR Parts 1500-1508; Executive Order 11990 (Protection of Wetlands); Executive Order 11988 (Floodplain Management); Executive Order 12898 (Environmental Justice); California Environmental Quality Act (CEQA), Public Resources Code § 21000 et seq.; and the State of California's CEQA Guidelines, California Administrative Code, § 15000 et seq.

FTA may issue a single Final Environmental Impact Statement and Record of Decision document pursuant to Pub. L. 112-141, 126 Stat. 405, Section 1319(b) unless FTA determines statutory criteria or practicability considerations preclude issuance of the combined document pursuant to Section 1319.

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DRAFT ENVIRONMENTAL IMPACT STATEMENT/ENVIRONMENTAL IMPACT REPORT

LEAD AGENCIES: Federal Transit Administration, U.S. Department of Transportation and Los Angeles County Metropolitan Transportation Authority

STATE CLEARINGHOUSE NO. 2010011062

TITLE OF PROPOSED ACTION: Eastside Transit Corridor Phase 2 Project

ABSTRACT: The Los Angeles County Metropolitan Transportation Authority (Metro) proposes to implement a light rail transit (LRT) project that would extend the Metro Gold Line Eastside Extension from the existing Atlantic Station to the east by 6.9 to 9.5 miles. The proposed build alternatives would terminate near State Route 60 (SR 60)/Peck Road or Washington Boulevard and Lambert Road. The Eastside Transit Corridor Phase 2 project area encompasses over 50 square miles of communities to the east and southeast of downtown Los Angeles. It includes portions of the cities of Commerce, Los Angeles, Montebello, Monterey Park, Pico Rivera, Rosemead, Santa Fe Springs, South El Monte, Whittier, and portions of unincorporated Los Angeles County, which include East Los Angeles and west Whittier-Los Nietos. Alternatives studied include a No Build Alternative, a Transportation System Management (TSM) Alternative, and two LRT build alternatives as follows:

- No Build Alternative
- TSM Alternative
- State Route 60 (SR 60) LRT Alternative
- Washington Boulevard LRT Alternative

This report is a combined Draft Environmental Impact Statement/Environmental Impact Report (Draft EIS/EIR), satisfying the National Environmental Policy Act (NEPA) and the California Environmental Quality Act (CEQA). This Draft EIS/EIR defines the alternatives studied and describes each alternative's associated potential transportation and environmental impacts, capital costs, and potential funding sources. Potential areas of impact include transit, traffic, parking, land use/neighborhoods, land acquisition, displacement and relocation, equity and environmental justice considerations, visual quality, air quality, climate change, noise and vibration, geology, soils and seismicity, exposure to hazardous substances, water resources, biological resources, energy resources, safety and security, historic, archaeological and paleontological resources, community facilities and parklands, construction impacts, and other CEQA determinations. Mitigation measures for the impacts of the alternatives are also identified. The information contained in this document will be used by the Metro Board of Directors to make a decision on whether to implement the project and to select, from among the alternatives and alignment options under consideration, a locally preferred alternative in conjunction with the Federal Transit Administration for implementation.

Additional written comments and/or questions concerning this document should be directed to:

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PREFACE

The Federal Transit Administration (FTA) and the Los Angeles County Metropolitan Transportation Authority (Metro) have prepared this Draft Environmental Impact Statement/Environmental Impact Report (Draft EIS/EIR) to solicit agency and public comment on a proposed major transit investment in Los Angeles County, California. FTA is the lead agency under the National Environmental Policy Act (NEPA) and Metro is the lead agency under the California Environmental Quality Act (CEQA). Caltrans is a cooperating agency as delegated by FHWA under Section 1305 of the Moving Ahead for Progress in the 21st Century Act (MAP-21). The proposed action is a light rail transit (LRT) project that would extend the existing Metro Gold Line Eastside Extension 6.9 to 9.5 miles east to South El Monte or Whittier. The project would provide residents and businesses in the Eastside communities with an enhanced transit link to the Metro Gold Line Eastside Extension and the regional rail system. The proposed granting of federal funds for the project is the federal action that necessitates analysis under NEPA.

Studies of major rail transit infrastructure investments on the Eastside date back to the 1980s. In 2009, Metro completed an Alternatives Analysis Report and an addendum to that report that evaluated transit mode and alignment alternatives in the Eastside Transit Corridor. This resulted in the screening of over 47 alternatives down to two alternatives. The Eastside Transit Corridor Phase 2 project is included in Metro's *Long Range Transportation Plan* and is part of the *Regional Transportation Plan* adopted by the Southern California Association of Governments, the designated Metropolitan Planning Organization, in 2012.

This Draft EIS/EIR is designed to take the decision process one step further, by evaluating the LRT alternatives in greater detail. These include:

- **Project concept alternatives** – Two light rail alternatives are analyzed, representing different routes with at-grade/aerial configurations;
- **Alignment options** – The Draft EIS/EIR considers an optional route for a segment of one of the alternatives;
- **Configuration options** – Configuration options (aerial versus at-grade) are considered for segments of one of the alternatives; and
- **Other components** – Other decisions to be made based on the Draft EIS/EIR such as the location of a maintenance yard and other alignment features.

This Draft EIS/EIR also analyzes a No Build Alternative and Transportation System Management (TSM) Alternative.

This Draft EIS/EIR presents the results of a comprehensive analysis of the alternatives. In Chapter 1, the Draft EIS/EIR presents the purpose and need for a transit investment within the Eastside Transit Corridor Phase 2 project area. Chapter 2 summarizes the alternatives considered, including physical features and operating characteristics. Chapter 3 summarizes the transportation benefits and impacts of each alternative. Environmental factors, impacts, and mitigation are discussed in Chapter 4. Chapter 5 contains the Section 4(f) evaluation. Chapter 6 addresses each alternative's capital cost and funding sources, while Chapter 7 addresses public and agency outreach. More detailed technical documentation, identified in the Table of Contents, is available for those interested in the analysis methodology and results appendices.

During the Draft EIS/EIR circulation period, Metro will hold four public hearings to receive oral and written testimony on the document from the general public. Public hearing locations are in the project area. Metro will provide a notice of these public involvement meetings in compliance with NEPA and CEQA. A comprehensive effort to inform the public through email, mail, print, broadcast and digital media, flyers, social networking, and other means will be undertaken on a similar scale with previous rounds of meetings. Public hearing times and locations will be:

Saturday, September 27, 2014
9:30 a.m. to 11:30 a.m.
Pico Rivera Senior Center
9200 Mines Avenue
Pico Rivera, CA 90660

Monday, September 29, 2014
6:00 p.m. to 8:00 p.m.
Quiet Cannon Banquet Center
901 Via San Clemente
Montebello, CA 90640

Tuesday, September 30, 2014
6:00 p.m. to 8:00 p.m.
Uptown Whittier Senior Center
13225 Walnut Street
Whittier, CA 90602

Wednesday, October 1, 2014
6:00 p.m. to 8:00 p.m.
South El Monte Senior Center
1556 Central Avenue
South El Monte, CA 91733

The 60-day comment period will begin on August 22, 2014 and end on October 21, 2014. After the 60-day circulation period closes, the Metro Board will consider the adoption of a Locally Preferred Alternative (LPA) after considering the alternatives and evaluation results in this Draft EIS/EIR, written comments on the document, and testimony received at the public hearings. During preliminary engineering (PE), the project will be further refined as more detailed decisions are made within the adopted project scope. The PE phase will also include completing NEPA and CEQA processes with a Final EIS/EIR and a Record of Decision (ROD). A federal commitment to fund the project would not be made until after issuance of the ROD. FTA may issue a single Final Environmental Impact Statement and Record of Decision document pursuant to Pub. L. 112-141, 126 Stat. 405, Section 1319(b) unless FTA determines statutory criteria or practicability considerations preclude issuance of the combined document pursuant to Section 1319.

Issuance of the Final EIS/EIR to the public will be dependent upon Metro's ability to develop a constrained financial plan which demonstrates construction initiating within three years after issuance of the ROD, the time frame by which information within an EIS/EIR is still valid. If the publication of the Final EIS/EIR occurs sometime prior to 2026 (likely within the next five to 10 years), a Supplemental Draft EIS will be required prior to its publication.

The project is currently included within the constrained component of Metro's LRTP and the 2012-2035 RTP, which commit funding to the project starting in 2026. This commitment is based on the availability of funds from Measure R, which funds $1.25 billion of the project starting in FY 2026. Metro's LRTP envisions the project to begin construction between 2027 and 2035 and to be in operations in 2035.

In an effort to implement the project sooner and to advance the issuance of the Final EIS/EIR, thereby reducing costs and providing new services earlier than originally planned, the Metro Board is pursuing additional funding mechanisms for projects planned for the later years of Measure R. Metro's effort includes the second part of its America Fast Forward legislation, a new class of Qualified Tax Credit Bonds for Transportation.

Measure R was amended by the Metro Board of Directors in June 2013 to reflect changes to the availability date of Measure R funds for Eastside Transit Corridor Phase 2 and other projects. This amendment reflected the availability of funds for the Eastside Transit Corridor Phase 2 project prior to 2024, but only if certain conditions are met. The change in Measure R funding availability is conditioned on meeting several threshold tests, including passage of the America Fast Forward Tax Credit Bond program. If these conditions are met and the funds are available, then the Metro Board of Directors can amend or reflect this change in availability in the LRTP. As such, the financial plan contained in the Final EIS/EIR will reflect the Measure R amendment and will clearly identify the timeframe in which Measure R funds are available for this project.

In order to accelerate a project in the LRTP, the funds must be available and the Metro Board must approve an amendment to the 2009 LRTP or an update to the overall LRTP, approving the project, its new schedule, and its new funding. Should this occur, and the new dates of construction are known, a supplemental environmental analysis will be conducted, if warranted.

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FF Cumulative Impacts Technical Memorandum
GG Sunnyvale Analysis/Existing Plus Project Conditions
HH Conceptual Engineering Drawings
II Travel Demand Modeling Technical Memorandum

Glossary

100-year Floodplain
The land area that is susceptible to inundation by floodwaters, which has a one percent chance of occurring in any given year.

Above-Grade
Located above existing ground level; elevated.

Active Fault
A fault that has moved within late-Quaternary time (the last 750,000 years).

Active Recreation Area
A mix of uses in a neighborhood park that includes the following facilities or facility types: athletic fields, building or structures for recreational activities, concession, community garden, courses or courts, children's play area, dog play area, or a bike path.

Activity Centers
Local and major attractions (e.g., commercial, medical, civic, and educational facilities) with a high volume of traffic and large population and commercial densities that have a great demand for transit.

Adjusted Environmental baseline
Defined as the existing conditions in 2010, adjusted for regional growth that would occur by 2035, and equivalent to the No Build Alternative (2035). For the purpose of the analysis of the Draft EIS/EIR, it is used to evaluate significance of the alternatives under NEPA and CEQA.

Adverse Effect
A term used in NEPA to describe unfavorable, harmful, or detrimental changes in environmental conditions.

Aesthetics
Visual quality, visual characteristics, and the overall appearance of the project in the community context. Issues of light and glare, community view-sheds, architectural compatibility with existing development or a specific site or setting are all part of the issue of “aesthetics” as addressed within the framework of NEPA and CEQA.

Air Dispersion Modeling
An air analysis, and for the Eastside Transit Corridor Phase 2 project, a thermal plume study, that determines risk to train passengers from exposure to the high temperature plume emitted from the Operating Industries, Inc. (OII) remediation system stacks on the north side of SR 60. High temperature gases are emitted from the OII landfill thermal oxidizer stacks, which are located approximately 360 feet north of the proposed LRT tracks along the original SR 60 southern alignment. Air dispersion modeling estimated the temperature of the exhaust gas plume at the point where the plume would cross the proposed LRT tracks for both the southern alignment and the North Side Design Variation.

Alluvial
A fine-grained fertile soil deposited by water flowing over flood plains or in river beds; clay or silt or gravel carried by rushing streams and deposited where the stream slows down.

Alquist-Priolo Earthquake Fault Zone
Active fault zones, identified pursuant to the Alquist-Priolo Earthquake Fault Zone Act. This Act is intended to prevent the construction of new buildings for human occupancy over active faults. It requires identification of active fault zones and regulation of development within these zones. General Plan Safety

Elements typically identify Alquist-Priolo Earthquake Fault Zones and incorporate the Act's requirements. The Act does not apply to publicly owned facilities, critical facilities and lifelines, or industrial facilities.

Alternatives Analysis (AA)
A study to evaluate the costs, benefits, and impacts of a range of transportation alternatives designed to address mobility problems and other locally-identified objectives in a defined transportation corridor. The AA process includes initial technical analyses and community ad public agency feedback gathered at meetings and public workshops.

Ambient Noise
The all-encompassing noise level associated with a given environment, which may generally include local traffic, community activities, and existing commercial and industrial operation in the vicinity.

Amtrak
A National Railroad Passenger Corporation that provides rail passenger service.

Ancillary Facilities
Ancillary facilities include items in the Metro design criteria included at stations, such as station markers, station entry portal configuration (canopies/pavilions), security cameras, bus shelters, benches, emergency telephones, public telephones, stairs, escalators, elevators, map cases, fare collection, pedestrian and street lighting, hand railings, landscaping, trash receptacles, bike racks and lockers, emergency generator, power boxes, fire hydrants, and artwork.

Anticline
An upward fold in layers of rock. For instance, the Elysian Park Anticline is a fold in the earth that stretches from about El Monte and arcs northwest through East Los Angeles, Lincoln Heights, Elysian Park and Silver Lake.

Aquifer
An underground layer of permeable rock from which groundwater can be extracted.

Application Screening Index (ASI)
The summation of the pollutant screening indexes for all pollutants; if the ASI is less than 1, then the emissions source is compliant with the South Coast Air Quality Management District's (SCAQMD) risk thresholds.

Area of Potential Effect (APE)
"...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 area of potential effects is influenced by the scale and nature of an undertaking and may be different for different kinds of effects caused by the undertaking." 36 CFR Part 800.16(d) Establishing the area of potential effect is only applicable in the scope of the cultural resources impact analysis.

Area of Potential Impact (API)
The area within which potential direct impacts from the proposed action could occur for environmental issue areas other than cultural resources. An area that is analyzed from a spatial perspective and from a temporal perspective. The area of potential impact is different for each issue area; therefore, the analyses include a unique approach for each issue area based on the zone in which environmental impacts could occur.

Archaeological Resource
Any material remains of past human life or activities which are of archaeological interest, as determined under the uniform regulations promulgated pursuant to the Archaeological Resources Protection Act of

1979. Such regulations containing such determination shall include, but not be limited to: pottery, basketry, bottles, weapons, weapon projectiles, tools, structures or portions of structures, pit houses, rock paintings, rock carvings, intaglios, graves, human skeletal materials, or any portion or piece of any of the foregoing items. No fossilized and fossilized paleontological specimens, or any portion or piece thereof, shall not be considered archaeological resources, under the regulations under this paragraph, unless found in an archaeological context. No item shall be treated as an archaeological resource under regulations under this paragraph unless such item is at least 100 years of age.

At-Grade
A guideway (track) or road with horizontal alignment at an elevation generally the same as the surrounding areas and at ground level (i.e., not elevated or depressed); a surface-level guideway.

Arterial Street
A major thoroughfare, used primarily for through traffic rather than for access to adjacent land, that is characterized by high vehicular capacity and continuity of movement.

Assessor's Parcel Number (APN)
A number assigned to a parcel of real property by the Office of Assessor of Los Angeles County for the purposes of identification and record-keeping.

Attainment Area
A geographic area that meets or does better than the national ambient air quality standard for a criteria pollutant.

Avoidance Alternative
In reference to Section 4(f), a feasible and prudent avoidance alternative, as defined in 23 CFR 774.17, avoids using the Section 4(f) property and does not cause other severe problems of a magnitude that substantially outweigh the importance of protecting the Section 4(f) property.

Ballast
Trackbed forming upon which railroad ties are laid.

Ballast Mats
Reduces the level of noise and vibrations and increasing the elasticity of rails.

Bents
Cross-sectional frame structure used to support the viaduct and aerial trackway.

Best Available Control Technologies (BACT)
An emissions limitation which is based on the maximum degree of control that can be achieved. It is a case-by-case decision that considers energy, environmental, and economic impacts. BACT can consist of add-on control equipment or modification of the production processes or methods. This includes fuel cleaning or treatment and innovative fuel combustion techniques. BACT may be a design, equipment, work practice, or operational standard if imposition of an emissions standard is infeasible.

Best Management Practices (BMPs)
Applicable to management of water quality; methods or measures designed and selected to reduce or eliminate the discharge of pollutants from not readily identifiable sites (e.g., stormwater runoff from properties over a wide area). In water quality, BMPs include treatment requirements and operating procedures and practices to control the water that runs off of a site, spills or leaks, sludge or waste disposal, or drainage from raw material storage.

Bioretention Facilities
Also known as a rain garden; a vegetated closed depression that retains and filters stormwater runoff from an area of impervious surface such as pavement.

British Thermal Unit (BTU)
The quantity of heat required to raise the temperature of one pound of water one degree Fahrenheit at sea level.

Bus Rapid Transit (BRT)
An enhanced bus system that operates on dedicated bus lanes or other transit-ways in order to combine the flexibility of buses with the efficiency of rail.

CAL3QHC
A traffic model that calculates delays and queues that occur at signalized intersections.CAL3QHC also predicts air pollutant concentrations near highways and arterial streets due to emissions from motor vehicles operating under free flow conditions, and the estimation of the contribution of emissions from idling vehicles. CAL3QHC required inputs include: meteorological inputs, roadway geometries and receptor locations, traffic inputs and vehicular emission factors. The CAL3QHC model was used to estimate localized impacts from CO from the five intersections with the most potential for adverse impacts under each alternative.

CalEEMod
A statewide land use emissions computer model designed to provide a uniform platform for government agencies, land use planners, and environmental professionals to quantify potential criteria pollutant and greenhouse gas emissions associated with both construction and operational from a variety of land use projects.

California Act
The provisions of the California Relocation Act (or California Act) apply in the absence of federal funds and/or involvement if a public entity undertakes a project and consequently must provide relocation assistance and benefits. The California Act seeks to (1) ensure consistent and fair treatment of owners of real property, (2) encourage and expedite acquisition by agreement to avoid litigation and relieve congestion in the courts, and (3) promote confidence in the public land acquisitions process. Owners of private property have state constitutional guarantees regarding property acquisition, damages, and just compensation.

California Environmental Quality Act (CEQA)
A statute that requires state and local agencies to identify the significant environmental impacts of their actions and to avoid or mitigate those impacts, if feasible.

California Natural Diversity Database (CNDDB)
A program that inventories the status and locations of rare plants and animals in California.

California Register of Historical Resources (CRHR)
An authoritative listing of California's historical resources, including buildings, sites, structures, objects and districts significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California. These historic properties are to be protected from substantial adverse change.

Candidate Species
Plants and animals that have been studied and the U.S. Fish and Wildlife Service (Service) has concluded that they should be proposed for addition to the Federal endangered and threatened species list. These

species have formerly been referred to as category 1 candidate species. From the February 28, 1996 Federal Register, page 7597: "those species for which the Service has on file sufficient information on biological vulnerability and threat(s) to support issuance of a proposed rule to list but issuance of the proposed rule is precluded."

Capital Funding Sources
A selection of local, state and federal revenue sources that would be used to fund the Eastside Transit Corridor Phase 2 project.

Cast-in-drilled-hole (CIDH)
Pre-drilling utilizing a pre-augering method. CIDH eliminates the hammering of piles into the ground by using large augers to drill a hole into which a steel frame is placed. The drilled hole and steel frame insert are then filled with concrete to create “cast-in-drilled hole” columns or piles.

Catalyst
Initiating economic development and revitalization to the extent of the alternatives by attracting investment and other businesses to the community.

Catch Basin
A collection structure below ground designed to collect and convey water into the storm drain system.

Catch Basin Inserts
Devices installed under a storm-drain grate that provide water quality treatment through filtration, settling, or adsorption.

Catch Basin Screens
Mesh wire or perforated plates that cover the openings of catch basins in order to prevent trash from entering the storm drain system.

Census Designated Places (CDPs)
Area within the United States identified by the U.S. Census Bureau for statistical purposes, but which may not map directly to a city/town or other ordinary location type.

Census Block
The smallest unit of geography defined by the U.S. Bureau of the Census. A Census Block is a geographic sub-division of a Census Tract and is typically the size of a city block in urban areas and slightly larger in rural areas.

Census Tract
A standard area in certain large American cities used by the U.S. Bureau of the Census for purposes of population enumeration. Census tracts usually have a population between 2,500 and 8,000 persons.

Center Platform Station
Rail station with tracks and patron access to trains on both sides of the platform; rail tracks are located on each side of the platform.

Climate Change Scoping Plan
California’s roadmap that identifies regional transportation-related greenhouse gas (GHG) emission reduction targets for passenger vehicles, consistent with the requirements of Senate Bill 375.

CO Hot Spots Analysis
An analysis to ensure that the project would not significantly increase carbon monoxide (CO) concentrations in the general project area.

Compensatory Flood Storage
The replacement for any loss of existing flood storage caused by development within the floodplain.

Compensatory Mitigation
The restoration (re-establishment or rehabilitation), establishment (creation), enhancement, and/or in certain circumstances preservation of aquatic resources for the purposes of offsetting unavoidable adverse impacts which remain after all appropriate and practicable avoidance and minimization has been achieved.

Complete Streets Act
Assembly Bill 1358 requires cities and counties to include complete streets policies as part of their general plans so that roadways are designed to safely accommodate all users, including bicyclists, pedestrians, transit riders, children, older people, and disabled people, as well as motorists. As of January 2011, any substantive revision of the circulation element in the general plan of a California local government will include complete streets provisions.

Conceptual Level Engineering
Conceptual level engineering provides a higher level of definition of system design and operational parameters for the four Final Alternatives, identified for further analysis in the Alternatives Analysis Study. This level of engineering allows for further refinement of project-related technical information, including operating speeds and travel times, ridership forecasts, travel benefits and capital and operating costs.

Constitutional Guarantees
The U.S. Constitution guarantees right to free speech, equality protection, equality and grants citizenship to all personas born in the United States, regardless of color, creed, or origin.

Constrained Plan
Projects that are listed in Metro's 2009 LRTP and identified for construction and implementation through the year 2035.

Construction Staging Areas
Construction staging areas would be needed for equipment storage; construction materials delivery; equipment assembly; materials production; dewatering activities; access roads; construction worker parking; temporary trailer offices; demolition staging; spoils removal; and other related activities during the construction period. Construction staging areas are temporary and would be located within the right-of-way necessary for each alignment or on land to be acquired for guideway construction, stations, the maintenance yard, parking, or TPSS construction.

Constructive Use
Defined as proximity impacts, such as noise or visual effects that substantially impair the activities, features, or attributes that qualify a resource for Section 4(f) protection. These impacts would have to substantially reduce the value of the resource in terms of its Section 4(f) significance in order to be considered a constructive use (23 CFR 774.15).

Consumer Price Index (CPI)
A measure of the average change over time in the prices paid by consumers for a market basket of consumer goods and services.

Continuously-Welded Rail (CWR)
Rails welded into a continuous string, which improves joint bars and hardening rail ends.

Cost-effectiveness
An index defined by the Federal Transit Administration (FTA) for purposes of evaluating major transit investments. It relates the planning and operating costs of a project to the project's ridership numbers and travel time savings.

Criteria Pollutants
Air pollutants of concern with national air quality standards that define allowable concentrations of these substances in ambient air. The criteria pollutants include ground-level ozone, carbon monoxide (CO), nitrogen oxides (NOx), sulfur oxides (SOx), particulate matter (PM_{10}), and lead.

Crossover Track
A connection between two adjacent parallel tracks that allow trains to move between, or cross over from one set of tracks to the other.

Cumulative Impact
Combined impacts from a collection of projects when evaluated all together.

Cumulatively Considerable
The incremental effects of an individual project are significant when viewed in combination with the effects of past projects, the effects of other current projects, and the effects of probable future projects (Section 15064).

A-Weighted Decibel Sound Level (dBA)
An expression of the relative loudness of sounds in air as perceived by the human ear.

Decibel Sound Level (dB)
A unit of measurement of the intensity of sound or the changes in air pressure created by sound. Zero db is the weakest sound that can be detected by a young and alert person without hearing impairment.

De Minimis Impact
For publicly owned parks, recreation areas, and wildlife and waterfowl refuges under Section 4(f), a *de minimis* impact is one that will not adversely affect the activities, features, or attributes of the property (23 CFR 774.17). For historic sites, a *de minimis* impact means that the Federal Transit Administration (FTA) has determined (in accordance with 36 CFR Part 800) that either no historic property is affected by the project or that the project will have "no adverse effect" on the historic property.

Detention Basin
An area where excess stormwater is stored or held temporarily and then slowly drains when water levels in the receiving channel recede. In essence, the water in a detention basin is temporarily detained until additional room becomes available in the receiving channel.

Detention Ponds
A man-made depression that collects and cleans storm water runoff. Detention ponds help to slow the rate of storm water runoff from the neighborhood and improve the quality of the storm water leaving the detention pond. They are important in protecting public and private property, public health and safety, and water quality. The pond collects and traps sediment from storm water that would otherwise clog our rivers and streams, and degrade the environment for fish, birds and other wildlife.

Dewatering
Removal or draining of groundwater or surface water from a site by pumping or evaporation.

Discharge
Direct or indirect introduction of diffuse sources or substances, caused by general construction activities (e.g., dredged or fill materials), into surface water or a municipal separate storm sewer system.

Disproportionate Effect
High and adverse human health or environmental impacts that could affect low-income and minority populations more than others. Whether an adverse effect is "disproportionately high" on minority and low-income populations depends on whether that effect is (1) predominantly borne by an EJ population, or (2) will be suffered by the EJ population and is appreciably more sever or greater in magnitude than the adverse effect that will be suffered by the non-EJ population. It is important to note that determinations of disproportionately high and adverse effects take into consideration the mitigation and enhancement measures that are planned for the proposed action.

Downdrains
Culverts or lined ditches that are placed on steep slopes, which carry runoff from the top of a slope to the bottom.

Dredge
Fill materials from construction activities.

Dual Track
A double-track railway that involves running one track in each direction, compared to a single-track railway in which trains in both directions share the same track.

Easement
The use of one party's property by another party. Easements are agreed upon by both parties and compensation is often involved.

Effect (as Related to Historic/Cultural)
Refers to alterations in the character or use of historic properties by the alternatives. Used instead of "impacts" (referred to elsewhere in the Draft EIS) because of the unique requirements and terminology for assessing historic resource impacts.

Electromagnetic Fields
A field of force that consists of both electric and magnetic components, resulting from the motion of an electric charge and containing a definite amount of electromagnetic energy.

EMFAC
The Emissions Factors model develops emission factors for different vehicle classes. EMFAC is also used to describe the on-road fleet mix (relative ratio of passenger cars, buses, delivery trucks, heavy duty diesel trucks, motorcycles, recreational vehicles, etc.) for the South Coast Air Basin (SoCAB) in each year of the analysis.

Employment Centers
Areas with high concentration of employment, which tend to have high number of transit trips, congestion, and constrained parking.

Encroachment
A situation in which a property owner violates the property rights of his neighbor by building something on the neighbor's land, using a portion of the land, or by allowing something to hang over onto the neighbor's private property.

Endangered Species
Any species of plant, animal (and its critical habitat), or other organism that is in danger of extinction throughout all or a significant portion of its range. Such plant and animal species are protected under the Federal Endangered Species Act (FESA) (as amended, 16 United States Code [USC] 1531 et seq.) and the California Endangered Species Act (CESA) (Fish and Game Code, Sections 2050 et seq.).

Environmental Impact Report (EIR)
A detailed report required under the California Environmental Quality Act (CEQA) describing and analyzing the significant environmental effects of a proposed project, identifying alternatives and discussing ways to reduce or avoid the possible significant environmental impacts.

Environmental Impact Statement (EIS)
A full disclosure document required under the National Environmental Policy Act (NEPA) that details the process through which a project was developed, includes consideration of a range of reasonable alternatives, analyzes the potential environmental effects resulting from the alternatives, and demonstrates compliance with other applicable environmental laws and executive orders.

Environmental Justice
The term stems from the 1994 Presidential Executive Order 12898 to promote equity for disadvantaged communities and promote the inclusion of racial and ethnic populations and low-income communities in decision-making. Local and regional transportation agencies must ensure that services and benefits, as well as burdens, are fairly distributed to avoid discrimination.

Environmentally Superior Alternative
As required per Section 15126.6(e)(2) of the *CEQA Guidelines*, the environmentally superior alternative is based on the results of the technical analysis of all the alternatives as reported in the EIR and on input from the public during public scoping and the public comment period for the EIR. The identification of an environmentally superior alternative is separate from the selection of a locally preferred alternative (LPA). For the Eastside Transit Corridor Phase 2 project, following the Draft EIS/EIR public comment period, the Metro Board of Directors may choose to select a LPA after examining the Draft EIS/EIR, comments received during the public comment period, and other relevant information. This selection may or may not be the environmental superior alternative.

Ephemeral Waterway
Smaller rivers and creeks that have a defined channel and carry flow for relatively brief periods of time during and shortly after rain. Ephemeral waterways have distinctive vegetation, indicative of short periods of saturation and/or inundation.

Evaporative Emissions
Hydrocarbon pollutants that escape into the air through fuel evaporation. With today's efficient exhaust emission controls and today's gasoline formulations, evaporative losses can account for a majority of the total hydrocarbon pollution from current model vehicles on hot days when ozone levels are highest.

Extreme Nonattainment
Exceedance of the one-hour national ambient air quality standard for ozone.

Façade
Typically the front of a building, however it can refer to any face of a building given special architectural treatment.

Fair Market Value
A just compensation amount of the real estate property interests and rights acquired.

Falsework
Temporary support structures used to during the construction of aerial structures and bridges.

Fare Collection
A system designed to enable Metro to collect fares from transit patrons.

Fault Zone
Regulatory earthquake zones around active faults. The zones are defined by turning points connected by straight lines. Most of the turning points are identified by roads, drainages, and other features on the ground.

Federal Register
The official publication for rules, proposed rules, and notices of Federal agencies and organizations, as well as executive orders and other Presidential documents.

Field Reconnaissance
Observations to identify environmental features and collect necessary field data to establish the present and existing condition of resources within the project area.

Fill
Engineered earth material with various mixtures of clay, silt, sand or fine-grained gravel sizes.

Final Design
The last phase of project development during which the project sponsor prepares for construction. This preparation is intended to provide a smooth transition between project development and project implementation. For transit projects, FTA approval to enter final design authorizes the project sponsor to undertake construction preparation activities such as utility relocation, right-of-way acquisition, development of detailed specifications, preparation of final construction plans, development of construction cost estimates, and development and/or solicitation of bid documents. Remaining uncertainties or risks associated with minor design scope and the procurement process are also addressed in final design.

Fixed Guideway
Any transit service that uses exclusive or controlled rights-of-way or rails; system of vehicles that can operate only in its own guideway constructed for that purpose (e.g. commuter rail, light rail).

Flood Control Basin
Storage and infiltration facility that primarily controls floodwater runoff into a river.

Flood Zone X
Area of minimal flood hazard, usually depicted on flood insurance rate maps (FIRMs) as above the 500-year flood level.

Flood Zone AE
Areas subject to a one percent or greater annual chance of flooding in any given year.

Floodplain
Low, flat, periodically flooded lands adjacent to rivers, lakes and oceans and subject to geomorphic (land-shaping) and hydrologic (water flow) processes.

Flowage Easement
The right of the government to use another's land for flooding and flood control purposes. Namely the right to flood the property in connection with the operation of a reservoir; the right to prohibit construction or maintenance of any structure for human habitation; the right to approve all other structures constructed on flowage easement land, except fencing.

Fossil Fuels
Hydrocarbon-containing natural resources used for construction vehicles and equipment and in the manufacturing process for project components (i.e., electricity and fuel for buses, worker vehicles, and maintenance operations).

Freight
A term used to denote goods or produce transported by ship, plane, train or truck from the location of their manufacture or harvest to their final retail destination.

Federal Transit Administration (FTA) Category 1 Land Use
Buildings or parks where quiet is an essential element of their purpose.

FTA Category 2 Land Use
Residences and buildings where people normally sleep. This includes residences, hospitals, and hotels where nighttime sensitivity is assumed to be of utmost importance.

FTA Category 3 Land Use
Institutional land uses with primarily daytime and evening use. This category includes schools, libraries, and churches and office buildings.

Fugitive Dust
Soil particles suspended in the air by wind action and human activities. Fugitive dust particles are composed mainly of soil minerals (e.g. oxides of silicon, aluminum, calcium, and iron), but can also contain sea salt, pollen, spores, tire particles, etc.

Full take
A full parcel acquisition.

Gapless Spring Frog
Point-less switches that eliminate the gap in the rail, and as a result, reduces noise impacts.

General Plan
A local government's set of policies and programs that form a long-term blueprint for physical development throughout the jurisdiction. All county and municipal jurisdictions in the state of California are required to maintain and update a General Plan, which includes elements key to communities and neighborhoods, such as land use and housing. At their discretion, municipalities may opt to include additional elements, which may also be relevant to communities and neighborhoods.

Global Warming Potential (GWP)
Value that represents how much a given mass of a chemical contributes to global warming over a given time period compared to the same mass of carbon dioxide.

Goods Movement
The movement or transport of freight.

Grade Crossing
An intersection of railroad tracks, roads, walkways, or a combination of these at the same level.

Grade Separation
An intersection crossing that uses an underpass or overpass.

Ground-borne Noise
A low-frequency rumble felt in the ground related to operational vibration.

Groundwater Basin
An underground reserve of water capable of furnishing a significant supply of groundwater to wells or storing a significant amount of water.

Groundwater Plume
A volume of groundwater that is contaminated and it extends downward and outward from a specific source. The shape and movement of the contaminated water is affected by the particles that are found in the plume.

Groundwater Recharge
A surface land area where water that eventually enters an aquifer (an underground reservoir) is first absorbed or soaked into the ground, and moves through pores and fractures in soil and rock to the water table or groundwater basin below.

Habitat Conservation Plan (HCP)
A plan which outlines ways of maintaining, enhancing, and protecting a given habitat type needed to protect species. The plan usually includes measures to minimize impacts, and might include provisions for permanently protecting land, restoring habitat, and relocating plants or animals to another area. An HCP is required before an incidental take permit may be issued.

Haul Routes
The path of streets and direction for trucks hauling construction equipment and material to and from a construction staging area or construction site.

Health Risk Assessment
The process to estimate the nature and probability of adverse health effects to humans who may be exposed to chemicals in contaminated environmental media, now or in the future.

Heavy Rail
Mode of urban passenger transit service that operates on an electric railway with the capacity for a heavy volume of traffic. It is characterized by high speed and rapid acceleration rail cars operating singly or in multi-car trains on fully grade-separated rights-of-way.

Herbaceous Cultivars
Common flowering garden plants.

Herbicides
Chemicals used to manipulate or control undesirable vegetation. In suburban and urban areas, herbicides are applied to lawns, parks, golf courses and other areas. Herbicides are also applied to water bodies to control aquatic weeds that impede irrigation withdrawals or interfere with recreational and industrial uses of water.

Historic Property
Any prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion in the National Register of Historic Properties (NRHP) maintained by the Secretary of the Interior. This term includes artifacts, records, and remains that are related to and located within such properties. The term also includes properties of traditional religious and cultural importance to an Indian tribe or Native Hawaiian organization that meet the NRHP criteria (36 CFR §800.16(l)).

Historic Resource
Under Section 15064.5(a)(2) of the *CEQA Guidelines*, a resource included in a local register of historical resources shall be presumed to be historically or culturally significant

Holocene
Geologic time period approximately within the last 11,000 years.

Horizontal Alignment
Horizontal alignment for linear transportation facilities such railways consists of tangents joined to circular curves by transition spirals.

Impact
An impact is a change in the condition or function of an environmental resource that occurs as a result of the proposed alternative. An impact can be adverse (negative) or beneficial (positive).

Permanent Impact
Permanent impacts are related to the operation (long-term) of the proposed alternative.

Construction Impact:
Construction impacts are related to the construction phase of the proposed alternative.

Adverse Impact:
An adverse impact is a negative impact of the proposed alternative (opposite of a benefit).

Impervious
A ground surface, such as asphalt, concrete, roof tops, clay, and compacted soils, that prevents passage of water or infiltration into the underlying soils.

Inactive Fault
A fault that has not demonstrated surface displacement of Quaternary age deposits (within the last 1.6 million years).

Infiltration
The absorption of water into the ground.

Infiltration Pit
A trench or pit that can reduce the amount of runoff from a property by storing water underground and allowing it to soak into the soil. The size and holding capacity are determined by the area draining to the pit and the permeability of the underlying soil.

Inorganic Compounds
Any compound not containing carbon atoms. Inorganics include salts, metals, substances made from single elements and any other compounds that do not contain carbon bonded to hydrogen.

Intermittent Waterway
Considered as being, but not limited to, any channel or flood prone area where periodic water flow or storage is diverted.

Inundation Hazard Zone
Areas that would flood should earthquake-induced failure of up-gradient dams, flood control facilities, or other water retaining structures occur.

Joint Development
An effort by a public agency and a private developer to undertake a construction project. Joint developments are usually a voluntary joining of governmental entities with private for-profit organizations to undertake mutually beneficial development in connection with public infrastructure.

Kilowatt Hours (kWh)
A unit of energy equivalent to one kilowatt of power expended for one hour of time.

Landfill Gas
By volume, landfill gas is approximately 50 percent methane and 50 percent carbon dioxide and water vapor, and is generated during the natural process of bacterial decomposition of organic material contained in municipal solid waste landfills.

Landfill Gas Extraction System
A landfill gas extraction system consists of vertical extraction wells (perforated pipes that penetrate the waste mass), connection pipes, and the gas plant. The system ensures the effective management of landfill gas and limits the potential negative or adverse effects of landfill gas.

Landfill Gas Migration
The production of landfill gas creates a positive pressure within the landfill that forces the gas to migrate. Landfill gas migrates from place to place by diffusion and pressure gradient and will follow the path of least resistance. Subsurface gas typically migrates above the groundwater table and is restricted laterally by streams. Porous soils lying above the bedrock can serve as pathways to transmit large volumes of gas. Underground off-site migration is common and can be facilitated by the presence of pipelines, buried utility corridors or trenches located within or adjacent to the landfill boundaries. Movement depends on soil type and moisture, and migration distances of 1,500 feet have been observed.

Laydown Areas
Staging areas where vehicles, supplies, and construction equipment are positioned for access to and use at a construction site, typically within a construction staging area.

Lateral Spreading
The finite, lateral displacement of gently sloping ground as a result of pore pressure build-up or liquefaction in a shallow underlying deposit during an earthquake.

Ldn
Average of the cumulative day-night noise level (24-hours).

Lead Agency
The public agency responsible for completing California Environmental Quality Act/National Environmental Policy Act compliance and documentation.

Lead Tracks
Tracks connecting the maintenance yard with the main line.

Leq
Equivalent, continuous noise level; measure of total noise energy of all sound during a time period.

Leq(h)
Hourly equivalent sound level; Leq for a 1-hour period; Leq(8) for an 8-hour period.

Level of Service (LOS)
A qualitative measure of operating road conditions that reflects the flow of traffic with a grading a scale of A to F; free-flow conditions are rated LOS A and congested conditions as LOS F.

Light Rail Transit (LRT)
A form of rail service operated on city streets, semi-exclusive rights-of-way, or exclusive rights-of way. This type of rail generally travels at slower speeds, has more frequent station stops, and has a lower passenger capacity than heavy rail.

Linked Trip
A complete trip from origin to destination on the transit system, regardless of the number of transfers at stops and stations.

Liquefaction
The term used to describe when loosely packed sandy or silty ground materials are saturated with water and shaken hard enough by an earthquake to lose strength and stiffness.

Local Street
A road that primarily provides access to land with little or no through movement.

Locally Preferred Alternative (LPA)
The selection of an alternative (including mode, alignment, stations) for the comprehensive assessment of environmental impacts and development of a major transit investment.

Long Range Transportation Plan (LRTP)
Metro's 2009 LRTP takes a three-decade look ahead to identify what transportation options best serve Los Angeles County's needs and expectations. The LRTP also identifies the Metro Board-adopted public transportation and highway projects, funding forecasts over a 30-year timeframe, multi-modal funding availability for the Call for Projects, sub-regional needs, and project performance measures. The plan also updates the 2001 LRTP by charting the latest regional population growth patterns and projections, identifying the latest developments in technical expertise and outlining the impact of Measure R, passed in Los Angeles County in 2008. The LRTP also identifies other infrastructural projects that could be funded if new revenue sources become available.

Low-Income
Individual or household with income at or below the U.S. Census poverty thresholds.

Maintenance Yard
Specialized facility that houses and performs routine maintenance on rail vehicles.

Map Case
A station amenity that provides a map of the transit system, station area information, schedules, fares, and boarding information.

Marsh
Area of vegetation that is susceptible to flooding. Found on the edge of a stream, pond, or lake, a marsh is defined as having no woody plants.

Materially Impaired
Exists when a historical resource is not maintained in such that it causes a substantial adverse change in the significance of that historical resource.

Measure R
A half-cent sales tax approved by two-thirds majority of Los Angeles County voters in November 2008 to help fund critical transit and highway projects countywide, including traffic relief and transportation upgrades.

Mechanically Stabilized Earth (MSE)
A wall system that consists of the original ground, concrete leveling pad, wall facing panels, coping, soil reinforcement, select backfill and any loads and surcharges.

Media Filtration
Capacity to extract and hold large amounts of water-borne particulate while continuing to deliver a rated flow of clean water.

Megaregion
A metropolitan area of dense urban settlements, edge cities, suburbs, exurbs, agricultural or pastoral lands, and wild lands. Often linear in form, megaregions can span hundreds of miles, and are connected by Interstate highways or motorways, main rail lines, and short to medium distance air routes.

Memorandum of Understanding (MOU)
A document providing a general description of the responsibilities that are assumed by two or more parties in their pursuit of the same goal.

Metro Board of Directors
A 13-member body of elected and appointed persons from throughout Los Angeles County who jointly govern and oversee the activities of Metro.

Metrolink
A regional passenger heavy rail system that is governed by the Southern California Regional Rail Authority (SCRRA), a joint power authority comprised of five county agencies. Metrolink has seven service lines, 55 stations and 44,000 daily boardings over a 512 route-mile network.

Metropolitan Planning Organization (MPO)
A transportation policy-making organization made up of representatives from local government and transportation authorities. MPOs are responsible for the planning, programming, and coordination federal transportation funds, including the preparation of short and long range transportation plans and programs.

Metropolitan Statistical Area (MSA)
A geographic entity of a group of counties and cities, for the purposes of a population Census and the compilation of related statistical data. A MSA consists of at least one urbanized area with a population of 50,000 or more, along with adjacent territory with a high degree of social and economic integration with the core.

Migratory Birds
Birds that fly to regions with the best ecological conditions and habitats for feeding, breeding and raising their young. Birds may migrate in terms of altitude, moving higher up a mountain in summer, and residing on lowlands during the winter months or migrating to the north and south during the various seasons throughout the year.

Mitigation
The effort or action of reducing or lessening the impact or affect to the population or the environment from a proposed action.

Mitigation Measure
Action that avoids, minimizes, or compensates for the significant impacts or effects of a project or action.

Mitigation Monitoring and Reporting Program
Lists all the committed mitigation measures and identifies the entity that is responsible for each monitoring and reporting task, be it the lead agency, other agency (responsible or trustee agency), or a private entity.

Mixed-flow Traffic Lanes
Lane for transit; public transit service would travel in the mixed traffic lanes with other vehicles.

Mobility
The ability to facilitate movement of individuals or groups from place to place.

Monocover
Landfill clay cover consisting of a layer of soil approximately four feet thick placed over a foundation layer, with a woven-like fabric between to hold it all in place. The functions of the monocover are to cover the contaminants, keep rainfall from entering the contaminated land, support vegetation and control gas emissions.

Navigable Waters
Tributaries of such waters as: interstate waters; intrastate lakes, rivers, and streams which are utilized by interstate travelers for recreational or other purposes; and intrastate lakes, rivers, and streams from which fish or shellfish are taken and sold in interstate commerce.

Nesting Season
Core season in which migratory bird is known to nest. In the project area nesting season occurs from mid-March through September.

New Cure, Inc.
Operators of the existing remediation system at the Operating Industries, Inc. (OII) former landfill Superfund site.

National Environmental Policy Act (NEPA)
Signed into law on January 1, 1970, establishes national environmental policy and goals for the protection, maintenance, and enhancement of the environment and provides a process for implementing these goals within the federal agencies. It established the Council on Environmental Quality (CEQ) and required federal agencies to integrate environmental values into their decision making processes by considering the environmental impacts of their proposed actions and reasonable alternatives to those actions.

National Register of Historic Places (NRHP)
Federal list of buildings, structures, objects, sites, and districts worthy of preservation because of their significance in American history, architecture, archeology, engineering, and culture. The National Register recognizes resources of local, state and national significance which have been documented and evaluated according to uniform standards and criteria. Authorized under the National Historic Preservation Act of 1966, the National Register is part of a national program to coordinate and support public and private efforts to identify, evaluate, and protect historic and archeological resources. The National Register is administered by the National Park Service, which is part of the U. S. Department of the Interior.

National Wetlands Inventory (NWI)
A series of topical maps that show wetlands and deepwater habitats. The goal of the NWI is to provide current geospatially referenced information on the status, extent, characteristics, and functions of wetland, riparian, deepwater, and related aquatic habitats in priority areas, in order to promote the understanding and conservation of these resources.

Native trees
Noninvasive trees naturalized to a given region.

Native Wildlife Nursery Sites
Sites that ensure efficient production of good-quality plants and native wildlife.

Natural Petroleum Hydrocarbons
The organic compounds present in petroleum (e.g., oil, gasoline, diesel, and a variety of solvents and penetrating oils), consisting predominately of carbon and hydrogen. Natural petroleum hydrocarbons may be encountered in oil-bearing sediments in active oil fields.

New Starts Program
Administered by the Federal Transit Administration (FTA), a primary financial resource for supporting locally-planned, implemented, and operated transit "guideway" capital investments. From heavy to light rail, from commuter rail to bus rapid transit systems, the FTA's discretionary New Starts program has helped to fund new or extended transit fixed guideway systems across the country.

No Build Alternative
The No Build Alternative demonstrates how the regional transportation system would function if none of the proposed project alternatives were implemented, and serves as a benchmark for measuring the potential impacts of the Transportation Systems Management (TSM) and light rail technology (LRT) build

alternatives. Planning projections of what the future will be like without any new transportation investments added beyond what is currently under construction.

Noise-Sensitive land uses
Land uses that have been deemed sensitive to noise. These uses 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.

Nonattainment Area
A geographic area that does not meet the national ambient air quality standard for a criteria air pollutant.

Nonrenewable Energy Sources
Energy resources that cannot be replaced after use or are replaced very slowly through a natural process. Currently, the world is dependent on non-renewable energy sources that are called fossil fuels which include coal, oil, natural gas, petroleum, propane.

Notice of Intent (NOI)
As defined in Council on Environmental Quality (CEQ) NEPA regulations (40 CFR 1508.22), the NOI is a formal announcement of intent to prepare an EIS or an environmental assessment. The NOI provides information on the nature of the proposed project and possible alternatives, invites public participation in the EIS process (including providing comments on the scope of the Draft EIS), announces that public scoping meetings will be conducted, and invites participating and cooperating agencies.

Notice of Preparation (NOP)
In accordance with the California Environmental Quality Act (CEQA), the NOP informs responsible agencies, interested agencies, organization, and individuals of the preparation of an EIR, describes the alternatives under consideration, invites public participation in the EIR process, and announces the public scoping meetings.

Oil/Water Separators
A device that treats vehicle and floor wash water by allowing substances lighter than water to float and substances heavier than water to sink.

On-road Fleet Mix
Combination of passenger cars, buses, delivery trucks, heavy duty diesel trucks, motorcycles, and recreational vehicles operating within a roadway.

Operable Unit (OU)
Term for each of a number of separate activities undertaken as part of a Superfund site cleanup. A typical operable unit would be removal of drums and tanks from the surface of a site or the remediation of contaminated groundwater.

Operating Industries, Inc. (OII)
The operator of the landfill on 190 acres in the City of Monterey Park; current owner of the record of the south parcel of the former landfill.

Operating and Maintenance (O&M)
Costs associated with the regular running and up-keep of a transportation facility.

Organochlorine Pesticides
Chlorinated hydrocarbons used extensively from the 1940s through the 1960s in agriculture and mosquito control. Insecticides were composed primarily of carbon, hydrogen, and chlorine. These compounds break down slowly and can remain in the environment long after application and in organisms long after exposure.

Overhead Catenary Wiring
The electrical lines that send power to the motors onboard a rail vehicle for propulsion.

Ozone
Ozone (O_3) is a highly reactive gas composed of three oxygen atoms. Ozone is both a natural and a man-made product that occurs in the Earth's upper atmosphere (the stratosphere) and lower atmosphere (the troposphere).

Paleontological Resources
Paleontological resources, or fossils, are the remains of extinct organisms, and provide the only direct evidence of ancient life. They are considered to be non-renewable resources because they cannot be replaced once they are destroyed. The Federal Land Policy and Management Act of 1976 mandates the treatment of paleontological resources as a scientific value.

Parapet
A low protective wall, recommended in lieu of a safety railing to provide additional shielding for nearby residences.

Park and Ride
Structures and lots that provide parking spaces to commuters who take public transit or meet up with carpool, vanpool, or buspool partners.

Partial Take
A portion of a parcel's area and rights that are acquired as fee-simple or exclusive easement.

Particulate Matter (PM)
A complex mixture of extremely small particles and liquid droplets. Particle pollution is made up of a number of components, including acids (such as nitrates and sulfates), organic chemicals, metals, and soil or dust particles.

Peak Particle Velocity
The measure used to quantify rock and structural damage.

Perennial Waterway
A natural waterway that has continuous flow in parts of its waterway bed year round during years of normal rainfall.

Permanent Incorporation
A Section 4(f) resource that would include purchasing part or all of it for use as right-of-way (ROW) or for transportation facilities, or purchasing a permanent easement for construction or operations. Even small partial acquisitions of Section 4(f) lands are considered permanent incorporation. Permanent incorporation does not include the maintenance or rehabilitation of historic transportation facilities for projects that will not affect the historic qualities of these facilities.

Permanent Underground Easement
Permanent underground easements are used when tunneling for a subway and for underground utilities.

Pervious
Concrete paved material or other surface material which permits rain and storm water runoff to percolate through it rather than flood surrounding area or storm drains.

Pollutant Screening Index (PSI)
Calculated by dividing the maximum annual and hourly emissions of each pollutant by the pollutant screening level for the given pollutant.

Pollutant Screening Level (PSL)
Published by the South Coast Air Quality Management District (SCAQMD) and are emission thresholds that are not expected to result in exceedances of the various risk levels.

Porous Pavement
A special type of pavement that allows rain to pass through and infiltrate into the underlying soil, thereby reducing runoff from the site and surrounding areas.

Potable Groundwater
Groundwater suitable and utilized for drinking purposes.

Poverty Threshold
A minimum income level below which a person is officially considered to lack adequate subsistence and to be living in poverty. According to the U.S. Census Bureau, "The official poverty thresholds do not vary geographically, but they are updated for inflation using Consumer Price Index. The official poverty definition uses money income before taxes and does not include capital gains for noncash benefits (such as public housing, Medicaid, and food stamps)."The annual income thresholds for poverty status are as follows: one person household is $8,794; two person household is $11,239; three person household is $13,738; four person household is $17,603; five person household is $20,819; six person household is $23,528; seven person household is $26, 754; and, eight person household is $29,701.

Pre-cast
When a cast or molded material is fabricated at a plant or manufacturing facility and is transported to the project site and set in place.

Preliminary Engineering (PE)
Once the alternatives analysis is complete and a locally preferred alternative (LPA) is selected, project sponsors request FTA approval to begin preliminary engineering (PE). During PE, the project sponsor refines the definition of the LPA's scope, schedule, and budget sufficient to complete the Federal environmental review process; that is, to determine the environmental, transportation, cultural, and social impacts of the proposed project and to develop (and commit to the implementation of) strategies for mitigating identified impacts and adverse effects. In addition, the products of preliminary engineering should include a final scope, including provisions for compliance with the Americans with Disability Act; a highly accurate cost estimate; a thorough project management plan suitable for the phase of project development; and a solid financial plan, with a majority of the proposed local funding committed to the project.

Project Area
Over 50 square miles of communities to the east and southeast of downtown Los Angeles. The project area is a smaller more refined area in which the alternatives studied in this Draft EIS/EIR are located. The project area includes portions of the cities of Commerce, Los Angeles, Montebello, Monterey Park, Pico Rivera, Rosemead, Santa Fe Springs, South El Monte, Whittier, and portions of unincorporated Los Angeles County, which include East Los Angeles and west Whittier-Los Nietos.

Project Study Area
Eighty-two square miles of land in eastern Los Angeles County and the area used during the Alternatives Analysis (AA) process to determine which alternatives to study in this Draft EIS/EIR; the project study area is generally bounded by I-10 to the north, Peck Road and Painter Avenue to the east, Olympic and Washington Boulevards to the south, and the Gold Line Eastside Extension to the west. The project study area consists of portions of eight jurisdictions, including the cities of Commerce, Montebello, Monterey Park, Pico Rivera,

Rosemead, Santa Fe Springs, South El Monte, Whittier, and portions of unincorporated Los Angeles County, which include East Los Angeles and west Whittier-Los Nietos.

Proposition A
A half-cent sales tax designated for transportation projects throughout Los Angeles County. Proposition A was approved in 1980 by County voters and was instrumental in the advancement of several projects including the Metro Blue Line to Long Beach and Metro Red Line to North Hollywood.

Proposition C
Proposition C was approved by County voters in 1990 as a half-cent sales tax for transportation improvements throughout the County. Revenues of the sales tax are distributed to five different categories including 5 percent to rail and bus security; 10 percent to commuter rail, transit centers, and park and ride lots; 25 percent to transit-related improvements to streets and highways; 20 percent as local return; and 40 percent discretionary for capital and operations improvement projects.

Property Acquisition
The process of obtaining or acquiring sufficient right-of-way to accommodate stations, access, and related facilities, including park and ride facilities or maintenance yards.

Protected Tree
Most of the cities in which the project area is located have local regulations pertaining to the protection of native or locally important trees and/or street trees in public areas. Depending on the cities' general plan policies and municipal codes, a protected tree is a Southern California native tree species, which measures four inches or more in cumulative diameter, four and one-half feet above the ground level at the base of the tree. Cities require the protection of native trees of a certain size, designated heritage trees, and/or street trees, and have a permit or review process to evaluate proposed impacts to these protected trees.

Queuing Calculations
Estimated waiting times.

Record of Decision
A public document required by NEPA, which sets forth the Federal agency's decision, and includes a comparative discussion of the project alternatives, a discussion of the factors considered in making the decision, a description of those mitigation measures which were adopted and an explanation of why mitigation measures were not adopted, as well as a monitoring and enforcement program for adopted mitigation measures (40 CFR 1505.2).

Regional Mobility
Movement between and among regional activity centers and the regional core.

Regional Transportation Plan (RTP)
A long-term blueprint of a region's transportation system; usually RTPs are prepared every five years and include plans and projects for 30 years into the future. The RTP identifies and analyzes transportation needs of the metropolitan region and creates a framework for project priorities.

Relocation Assistance
Financial aid or compensation provided to displaced residents and businesses to relocate nearby if displaced by a project.

Renewable Energy Sources
Energy sources that are continually replenished. These include energy from water, wind, the sun, geothermal sources, and biomass sources such as energy crops.

Retaining Wall
A wall built to hold back or confine a mass of earth or body of water.

Ridership Forecast Modeling
Ridership model and methodologies used to evaluate different alternatives and estimate the ridership for each of the various build alternatives.

Riparian Habitat
Land and vegetation that is situated along bodies of freshwater including streams, lakes and rivers; sensitive natural area that surround water bodies in the watershed and are composed of moist to saturated soils, water-loving plant species and their associated ecosystems.

Runoff
The excess portion of precipitation that does not infiltrate into the ground, but "runs off" and reaches a stream, water body or storm drain.

Scoping
The process of affording an early opportunity for the public and agencies to identify potential environmental issues to be addressed and evaluated in the Draft EIS/EIR. Scoping includes the provision of materials describing the project, alternatives, impacts, and any other relevant information known about the proposed undertaking.

Section 106 of the National Historic Preservation Act (NHPA) of 1966
Regulates activities that could impact historic properties by "diminishing the visual integrity of the property's significant historic features" (Title 36, CFR Part 800.5(a)(2)).

Section 4(f)
Section 4(f) protects important historical resources as well as publicly-owned recreation areas, parks, and wildlife refuges. This law prohibits the Department of Transportation from approving or funding a project that uses Section 4(f) resources, unless there is no feasible and prudent alternative or the project includes all possible measures to minimize the impacts of using the resources.

Sediment
Solid fragments of inorganic or organic material (e.g., silt, sand, gravel, chemical precipitates, and fossil fragments) that come from the weathering of rock and are carried and deposited by the movement of wind, water, or ice.

Sediment Ponds
Also known as settling basins, the ponds are designed to collect stormwater before it reaches natural water bodies, allowing sediment to settle.

Sedimentation
The process by which sand and mud carried by water from elsewhere/upstream settles down and accumulates on the bottom of a natural (river, stream, lake) or manmade (reservoirs, basins, tanks) body of water.

Seiche
A seiche is the sloshing of a closed body of water from earthquake shaking. Swimming pools often have seiches during earthquakes.

Seismic
The waves of energy caused by the sudden breaking of rock within the earth or an explosion. It is the energy that travels through the earth and is recorded on seismographs.

Seismically-induced Settlement
Seismically-induced settlement consists of compression of the dry soils above groundwater and liquefaction-induced settlement of the liquefiable soils below groundwater. These settlements occur primarily within the loose to moderately dense sandy soils due to volume reduction during or shortly after an earthquake event.

Sensitive Species
Species not yet officially listed but undergoing status review for listing on the U.S. Fish and Wildlife Service's official threatened and endangered list; species whose populations are small and widely dispersed or restricted to a few localities; and species whose numbers are declining so rapidly that official listing may be necessary.

Service Ratios
Response times or other performance objective measure for: fire protection, police protection, schools, parks, or other public facilities.

Shorebirds
Group of birds that have long bills, legs and toes in order to wade to forage on mudflats and in wetlands. Shorebirds generally inhabit open areas of beaches, grasslands, wetlands, and tundra.

Side Platform Station
Rail station with tracks and patron access to trains on one travel side of the platform; rail tracks are in the middle of two separate and distinct side platforms.

Significant Impact
Reasonably predictable beneficial or negative changes in the environment resulting from a proposed project.

Social Justice
The view that all persons, irrespective of ethnic origin, gender, possessions, race, religion, etc., deserve equal economic, political and social rights and opportunities, including employment and education.

Soft Costs
Professional engineering and related services.

South Coast Air Basin (SoCAB)
All of California is divided into air basins, which are served by either County air pollution control districts or multi–County air quality management districts. The SoCAB is home to more than 43 percent of California's population and represents 28 percent of California's air pollution.

South Coast Air Quality Management District
The air pollution control agency for the urban portions of Los Angeles, Orange County, Riverside and San Bernardino counties. The SCQAMD develops significance thresholds for mass daily emission rates of criteria pollutants for both construction and operational sources.

Southern California Association of Governments (SCAG)
The designated Metropolitan Planning Organization (MPO), representing six counties, 191 cities and more than 18 million riders. SCAG is mandated by the federal government to research and draw up planning and policy initiatives to address the region's transportation needs.

Special-status Species
Special status species include any species which is listed, or proposed for listing, as threatened or endangered by the U.S. Fish and Wildlife Service or National Marine Fisheries Service under the provisions of the Endangered Species Act; any species designated by the U.S. Fish and Wildlife Service as a "listed," "candidate," "sensitive" or "species of concern," and any species which is listed by the State in a category implying potential danger of extinction.

Specific Plan
A comprehensive planning and zoning document designed to implement the goals and policies of the General Plan for a defined geographic region of the community.

Spillover Parking
A higher number of parkers than parking spaces provided at the park and ride facilities.

Spreading Grounds
Designed by the Los Angeles County Department of Public Works to accept flood waters from the adjacent rivers and to allow water to quickly infiltrate into the ground.

Stakeholder
A person with an interest or concern in the proposed project. Stakeholders may include: community groups; industry or business associations; environmental groups; local councils; government departments; public and private schools/school systems; college, universities, and trade schools; youth groups; senior citizens' groups; politicians; and residents.

Standard Cost Categories (SCC)
Format required by FTA for submission of capital costs; these cost figures are gross capital expenditures relative to the No Building Alternative. Total capital coats are divided into five major categories: General Construction; Vehicles; Right-of-Way; Soft Costs; and, Unallocated Contingency.

Station Marker
Display that informs arrival times for Metro Rail lines.

Storm Drain Inserts
Devices that are used in storm drain conveyance systems to reduce pollutant loadings in stormwater runoff. Most storm drain inserts reduce oil and grease, debris, and suspended solids through gravity, centrifugal force, or other methods. Best management practices such as these can be useful in areas susceptible to spills of petroleum products, such as gas stations.

Storm Water Pollution Prevention Plan (SWPPP)
A Storm Water Pollution Prevention Plan is a site-specific, written document that: Identifies potential sources of stormwater pollution at a construction site; Describes practices to reduce pollutants in stormwater discharges from a construction site; Reduces pollutants by controlling the volume of stormwater runoff (e.g., taking steps to allow stormwater to infiltrate into the soil); and, Identifies procedures the operator will implement to comply with the terms and conditions of a construction general permit.

Streambed Alteration Agreement
Section 1601 of the California Fish and Game Code from the California Department of Fish and Wildlife (CDFW), which requires an entity to notify CDFW of any proposed activity that may substantially modify a river, stream, or lake. The notification requirement applies to any work undertaken in or near a river, stream, or lake that flows at least intermittently through a bed or channel. If CDFW determines that the activity may substantially adversely affect fish and wildlife resources, a Streambed Alternation Agreement would be prepared. This ensures that project construction and operation would protect water quality.

Subsidence
The sinking or settling of the ground surface, which occurs when large amounts of groundwater have been withdrawn or extracted from certain types of geologic conditions, such as fine-grained sediments.

Subsurface Gases
A complex solution of hydrocarbons, such as methane and hydrogen sulfide, stored or trapped beneath the Earth's surface.

Superfund
The name given to the federal government's environmental program established to address abandoned and/or uncontrolled hazardous waste sites. It is also the name of the fund established by the Comprehensive Environmental Response, Compensation and Liability Act of 1980. This law allows the U.S. Environmental Protection Agency (EPA) to clean up toxic waste sites and to compel responsible parties to perform cleanups or reimburse the government for EPA-lead cleanups. A superfund site associated with contamination of large groundwater and/or soil gas plumes that may pose significant concern to the environment.

Surface Fault Rupture
A crack in the Earth's surface, resulting from the fault displacement at the ground surface that often occurs as a result of moderate- to large-magnitude earthquakes (about magnitude 6.5 and greater).

Sustainable
An ability or capacity of a resource to be maintained or to sustain itself, without jeopardizing the potential for people to meet their needs in the future.

Swale
A shallow, depressed strip of land or a trench in which the filtering action of grass and soil infiltration are utilized to remove pollutants from urban stormwater.

Temporary Construction Easement
Temporary and partial use of a property, limited to the construction period, and may be used for construction staging or equipment use or storage.

Temporary Occupancy
Not considered use of a Section 4(f) resource as long as the duration is temporary; the magnitude and nature of changes to the resources are minimal; there are no anticipated permanent adverse physical impacts to the Section 4(f) resources or related activities; the land is fully restored; and there is agreement among appropriate federal, state, and local officials with jurisdiction over the resource.

Thermal Plume
A stream of heat energy.

Threatened Species
Any species that is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range.

Threshold of Significance
The "threshold of significance" for a given environmental effect is simply that level at which the Lead Agency finds the effects of the project to be significant. "Threshold of significance" can be defined as: a quantitative or qualitative standard, or set of criteria, pursuant to which the significance of a given environmental effect may be determined.

Tie Pads
A device or assembly between the rail base and the concrete rail seat that prevents undue wear and deterioration of the railroad ties.

Total Maximum Daily Loads (TMDLs)
Estimates of the amount of specific pollutants that a body of water can safely take without threatening beneficial uses.

Toxic Air Contaminants (TAC)
Air contaminants of significant health concern. TACs can cause cancer or non-cancer health effects like asthma, nervous system disorders, birth defects, and developmental problems in children. Most TACs are categorized as organic (primarily volatile) or inorganic (primarily particulate) emissions. Therefore, emissions of TACs are typically calculated by applying chemical specific mass fractions (also called speciation profiles) to the total organic gases or PM_{10} emission rates calculated for criteria pollutant emission inventories.

Transformers
Transformers are used to "transform" or convert voltage from one level to another, usually from a higher voltage to a lower voltage; a passive device which transforms alternating current (AC) electric energy from one circuit into another through electromagnetic induction.

Transit Oriented Development (TOD)
A type of medium- to high-density mixed-use development that links land use and transit facilities to support the transit system and help reduce sprawl, traffic congestion and air pollution. TOD calls for locating housing, along with complementary public uses (jobs, retail and services) at strategic points along a transit line.

Transit Dependent
Population who needs convenient and reliable transit options to get where they want and need to go; typically defined as an individual with no vehicle, worker over the age of 16 taking public transportation to work, and persons with a disability.

Transit-supportive Land Uses
Land uses that encourage transit use and transportation network efficiency. Examples of such land uses include: mixed-use development near transit nodes; medium to high density development with pedestrian facilities; retail, office, restaurants, and service; and hotels and apartments.

Traction Power Substation (TPSS)
The traction power supply and distribution system consists of traction power substations located along the system route and the overhead and underground wiring needed to move power from the substations to the operating vehicles. All components connect to the distribution circuits of the local power utility company in order to power mass transit and railway networks.

Transit Service Equity
Equitable distribution of transit service; provide transit service in the most equitable and least discriminatory manner possible.

Unallocated Contingency
Additional cost included in the estimate that may be used to cover unforeseen costs, inflation, and/or implementation of mitigation measures.

Uniform Act
The Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, or Uniform Act, must be implemented if there are any displacements as a direct cause of a project. The Uniform Act mandates that certain relocation services and payments be made available to eligible residents, businesses, and non-profit organizations displaced as a direct result of projects undertaken by a federal agency or with federal financial assistance. The Uniform Act provides for uniform and equitable treatment of persons displaced from their homes and businesses and establishes uniform and equitable land acquisition policies. Owners of and holders of real estate interests in private property have federal constitutional guarantees that their

property will not be acquired, taken, or damaged for public use unless they first receive an offer of just compensation.

Vapor Intrusion
The process in which chemical vapors from contaminated soil or groundwater affect the indoor air quality in a building. Whenever chemicals are spilled on the ground or leak from an underground storage tank, they can soak into the soil or dissolve into the groundwater and begin to spread. The contaminated soil or groundwater can emit vapors that spread to areas occupied by buildings. Vapors can enter the buildings through cracks in basements, foundations, sewer lines, and any other type of opening.

Vegetated Filter Strips
Vegetated filter strips (grassed filter strips, filter strips, and grassed filters) are vegetated surfaces that are designed to treat sheet flow from adjacent surfaces. Filter strips function by slowing runoff velocities and filtering out sediment and other pollutants, and by providing some infiltration into underlying soils.

Vehicle Hours of Travel (VHT)
Ratio of traffic volume and travel time (average speed for each hour).

Vertical Circulation Elements (VCE)
Comprised of stairs and/or escalator combinations near transit stations that provide passengers with direct access to station platforms at an aerial (elevated) structure, ground level or underground facility.

Vibration Decibels (VdB)
A unit describing vibration intensity using vibration velocity levels.

Viaducts
Bridge-like structures carrying a road or railroad across a valley or other low ground.

Volatile Organic Compounds (VOCs)
A large group of carbon-based chemicals that easily evaporate at room temperature. These organic chemicals emit as gases from certain solids or liquids, which may have short- and long-term adverse health effects. Concentrations of many VOCs are consistently higher indoors (up to ten times higher) than outdoors.

Volume to Capacity (V/C) Ratio
The ratio used to assess traffic status in cities, in which V is the total number of vehicles passing a point in one hour and C for the maximum number of vehicles that can pass a certain point at the reasonable traffic condition.

Waterbirds
A group of birds such as loons, grebes, herons, ducks, and geese, gulls, and pelicans. They tend to gather in large assemblages, called colonies, during the nesting season, and they obtain all or most of their food (fish and aquatic invertebrates) from the water.

Watershed
An area of land where all of the water under the land mass or drains off the land mass converges into one place.

Water Table
A level or elevation beneath the land surface, below which all pore spaces are filled with water and above which the pore spaces are filled with air.

Wayfinding
Signage to direct users to relocated routes and spaces.

Wetlands
Areas in which water covers the soil, or is present either at or near the surface of the soil all year or for varying periods of time during the year, including during the growing season. Wetlands provide aquatic habitat for many species.

Wildlife Corridor
An animal passageway that follows the natural migratory, breeding and hunting patterns of wildlife on the ground and in the air. These corridors connect large open spaces so that the wildlife can continue to thrive.

Year of Expenditure (YOE) dollars
YOE dollars reflect the financial impact of funds that would need to be expended in the actual year of expenditure and the relative effects of inflation on costs and revenues. Annual and compounded inflation rates and the project implementation schedule are used to project from base year dollars to YOE dollars. For example, in YOE dollars, $1.00 in 2011 is equivalent to $1.03 in 2012, using an inflation rate of 3.0 percent.

Zero Emission Bus
A bus that does not produce emissions because it does not use a combustion engine. Examples include electric and hydrogen fuel-cell buses. Instead of a diesel engine, a zero-emission bus uses a fuel cell, an electrochemical device, to combine hydrogen fuel and oxygen to produce electricity, heat and water. The electricity produced powers the bus.

Zoning
Human activity divided into familiar categories of residential, commercial, and industrial, and each placed in a separate part of a city or county.

Executive Summary

Introduction

The Eastside Transit Corridor Phase 2 Project is a vital public transit infrastructure investment that would provide a transit connection to the existing Metro Gold Line Eastside Extension and link communities on the eastern side of the County of Los Angeles. With the implementation of the Regional Connector Transit Corridor project, the Metro Gold Line Eastside Extension will directly connect to the Metro Expo Line and will be operating light rail trains between Santa Monica, Culver City, University of Southern California (USC), downtown Los Angeles, and the Eastside by 2020, improving mobility within the project area and offering more sustainable transit alternatives. Figure ES-1 shows the regional Metro Rail lines expected to be operational by the year 2035, and illustrates how the Eastside Transit Corridor Phase 2 Project would extend the existing Metro Gold Line Eastside Extension.

The Eastside Transit Corridor Phase 2 Project would provide area residents, businesses, and transit -dependent populations with a transit alternative connecting them to the Metro Gold Line Eastside Extension and the regional rail system. The proposed Eastside Transit Corridor Phase 2 Project would extend the Metro Gold Line Eastside Extension from the existing Atlantic Station to the east by 6.9 to 9.5 miles. The proposed light rail transit (LRT) build alternatives would terminate near State Route 60 (SR 60)/ Peck Road or Washington Boulevard and Lambert Road. Figure ES-1 illustrates how the Eastside Transit Corridor Phase 2 Project would extend the existing Metro Gold Line Eastside Extension and provide access to the Metro Blue Line, Green Line, and Red and Purple Line subways.

In addition to mobility benefits, the Eastside Transit Corridor Phase 2 Project would provide the project area with transportation, economic, land use, and environmental benefits. The analysis presented in this document shows that improved mobility to and from the project area has the potential to boost economic development in the project area and improve social justice by providing better access to employment, educational opportunities, and activity centers. Improved transit connectivity would increase transit ridership, which would also generate environmental benefits through reduced vehicle trips, less roadway congestion, and improved air quality.

The Eastside Transit Corridor Phase 2 Project is included in the Southern California Association of Governments (SCAG) *2012-2035 Regional Transportation Plan/Sustainable Communities Strategy* (RTP/ SCS), adopted in April 2012. The RTP also outlines several projects in and around the project area aimed at maximizing the effectiveness, safety, and reliability of Southern California's transportation system.

Project milestones for the Eastside Transit Corridor Phase 2 Project include:

- Publication of the Draft Environmental Impact Statement/Environmental Impact Report (EIS/EIR)
- Public review and comment on the Draft EIS/EIR (60 days following publication)
- Publication of the Final EIS/EIR – Release of the Final EIS/EIR document is based on the condition that funding is available to allow for construction of the project within three years after issuance of the Record of Decision (ROD)

- Metro Board of Directors decides to approve a project alternative and adopt a Mitigation Monitoring and Reporting Program (MMRP) and CEQA Findings
- California Environmental Quality Act (CEQA) Notice of Determination (NOD)
- Federal ROD

Following the Federal ROD, the project can proceed to final design, construction, and operation. The schedule of these milestones will be refined as the project nears the end of the environmental review.

Figure ES-1: Existing and Proposed Regional Metro Rail Lines (2035)

Purpose and Need

Purpose

The purpose of the Eastside Transit Corridor Phase 2 Project is to provide area residents, businesses, and transit-dependent populations with a transit alternative connecting them to the Metro Gold Line Eastside Extension and the regional rail system.

In doing so, the project would improve mobility within the project area and offer a more sustainable transit alternative to address increased travel demand and projected growth, and would meet the following objectives:

- Serve the large number of transit-dependent and low-income populations in the project area;
- Increase access to major employment centers, activity centers, and destinations in the project area and Los Angeles County;
- Provide regional transit connectivity with the Metro Gold Line Eastside Extension and Measure R projects; and
- Provide transit alternatives to alleviate roadway congestion, improve mobility options for enhanced quality of life, and provide a convenient and reliable alternative to the automobile.

The project would improve mobility within the project area and offer a more sustainable transit alternative to address increased traffic demand and projected growth.

Need

The following mobility challenges within the project study area will continue to grow, due in large part to population growth, if no action is taken:

- **Increasing travel demand –** The number of work trips taken to and from the project study area in 2006 is forecast to increase 32 percent by 2035.
- **Increasing travel times –** By 2035, the average peak-period travel time within the project study area is expected to increase by 25 percent and 34 percent in the morning and afternoon peak periods, respectively.
- **Transit-dependent population –** The project study area has a significant level of transit-dependent population who need convenient and reliable transit options to get them where they want and need to go; 38 percent of the project study area population is under age 18 or over age 65, 16 percent of households are categorized as low-income, and 12 percent of all households have zero vehicles.
- **Increasing freeway congestion –** With no major freeway improvements planned or funded, a growing population, and forecasted increases in travel demand, freeway congestion will continue to increase.
- **Increasing arterial congestion –** Major arterials in the project study area, including but not limited to Washington Boulevard and Garfield Avenue, experience heavy morning and evening peak period congestion, which negatively affects access for both automobiles and buses.
- **Heavy truck traffic –** The SR 60, I-5, and I-10 Freeways, along with project study area arterial streets, such as Washington Boulevard, are subject to heavy truck traffic. Larger vehicles and slower movements of heavy

truck traffic on freeway and arterial streets lead to a more congested environment in which both automobiles and buses operate.

- **Increasing population and employment growth** – Population densities, employment densities, and the concentration of activity centers in the project study area are expected to increase by five percent for population and one percent for employment by 2035.
- **Limiting travel options** – With limited regional rail system connections, residents of and visitors to the project study area can rely only on available bus systems operating on the same congested roadway network. Commuter rail options are limited to two Metrolink stations within the 82-square-mile project study area.

Project Corridor

See Figure ES-2 on page ES-5

The Eastside Transit Corridor Phase 2 project area encompasses over 50 square miles of communities to the east and southeast of downtown Los Angeles. As illustrated in Figure ES-2, the project area includes portions of the cities of Commerce, Los Angeles, Montebello, Monterey Park, Pico Rivera, Rosemead, Santa Fe Springs, South El Monte, and Whittier, and portions of unincorporated Los Angeles County, which include East Los Angeles and west Whittier-Los Nietos.

Description of Alternatives

The Alternatives Analysis (AA) process identified and screened 47 potential transportation alternatives in light of the project's purpose and need, goals, and objectives. The AA process included initial technical analyses and community and public agency feedback gathered at meetings and public workshops. Alternatives considered during the AA process represent the full spectrum of reasonable means of achieving the goals and objectives outlined above. The AA evaluated the potential alternatives based on their environmental impacts, efficiency, financial feasibility, effectiveness, and equity. From the AA effort, alternatives emerged which were analyzed further in the addendum to the AA Report, and two build alternatives were confirmed and refined based on the public scoping process and community input received for this Draft EIS/EIR.

Existing Atlantic Station

Both proposed LRT build alternatives would begin at the existing Metro Gold Line Eastside Extension Atlantic Station at-grade and extend in an east direction terminating either in the vicinity of the SR 60/Peck Road interchange in South El Monte or in the vicinity of the Washington Boulevard and Lambert Road intersection in Whittier.

In addition to the LRT alternatives, a No Build Alternative and a Transportation System Management (TSM) Alternative are also being studied. The No Build Alternative demonstrates how the regional transportation system would function if the proposed project was not implemented, and serves as a benchmark for measuring the potential impacts of the TSM and build alternatives.

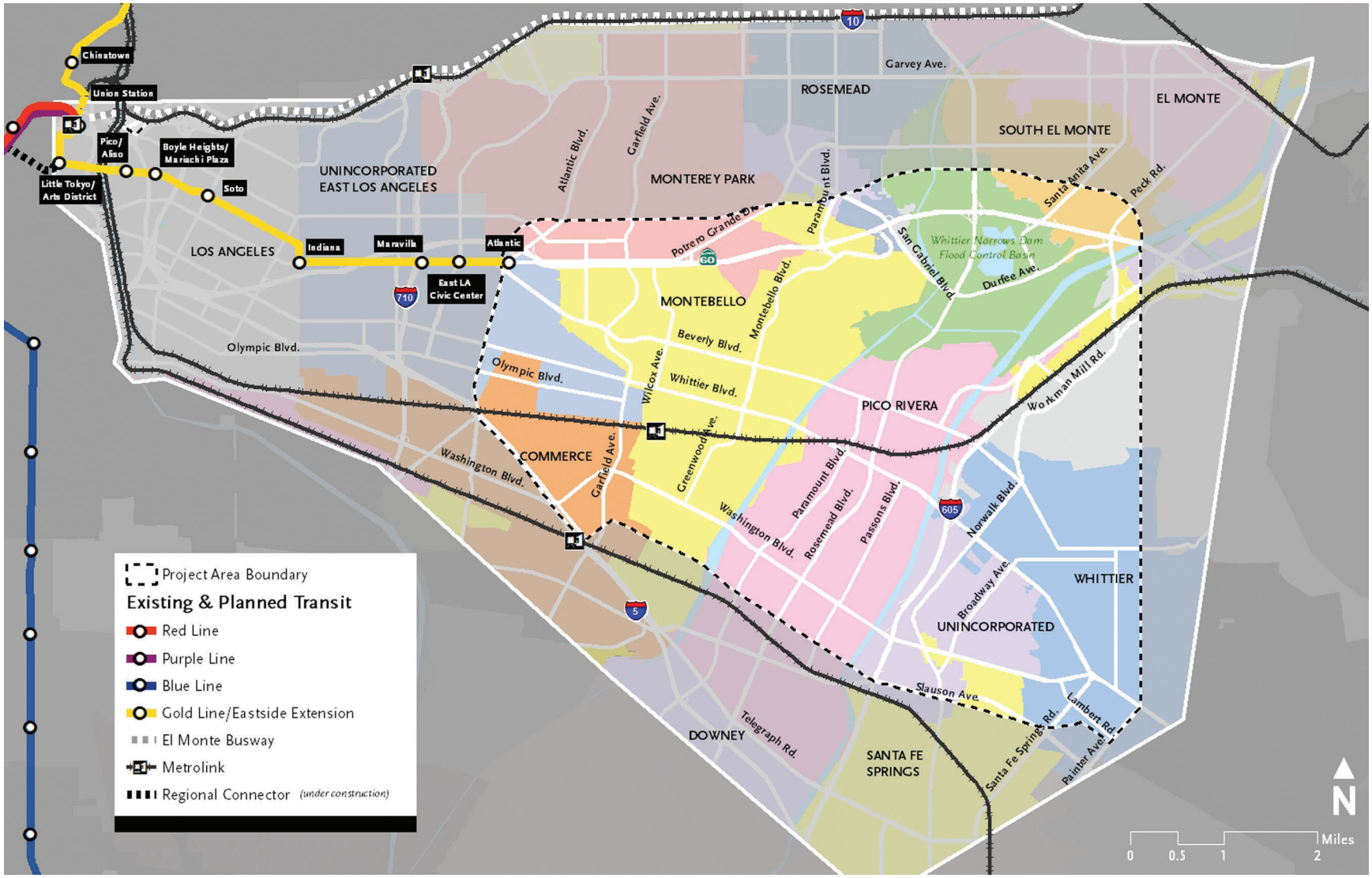


Figure ES-2: Project Area

No Build Alternative

See Figure ES-3 on page ES-7

The No Build Alternative is the future scenario without either of the proposed build alternatives. The No Build Alternative does not include any major service improvements or new transportation infrastructure beyond what is listed in Metro's 2009 Long Range Transportation Plan (LRTP) through the year 2035 and all of the projects that are identified for construction and implementation in the financially constrained project list of the SCAG 2012-2035 RTP/SCS. Figure ES-3 illustrates the transit lines that currently serve the project area.

By the projection year of 2035, the Metro Crenshaw/Los Angeles International Airport (LAX) Line, Metro Expo Line to Santa Monica, Metro Purple Line to Westwood, Airport Metro Connector, and the South Bay Metro Green Line Extension, Metro Gold Line to Montclair, the LAX People Mover, and the Regional Connector that will connect existing lines through downtown Los Angeles will have opened. A number of bus routes will have been reorganized and expanded to provide connections with these new rail lines. The transit network within the project area would otherwise be largely the same as it is now.

Transportation System Management (TSM) Alternative

See Figure ES-4 on page ES-8

The TSM Alternative includes all of the transit and roadway provisions of the No Build Alternative, plus proposed enhancements to existing bus service. Under the TSM Alternative, the basic approach is to enhance the east-west bus service in the same corridor as the build alternatives to develop the TSM network. In order to leverage the investment in an east-west transit spine, the TSM Alternative also includes enhancements to north-south bus services that would feed and integrate with the improved east-west spine. The TSM Alternative is presented in Figure ES-4.

Build Alternatives

An LRT system consists of electric trains powered by overhead wires, typically operating in an urban transit setting. LRT uses conventional steel tracks, which have the flexibility to be placed in exclusive surface right-of-way (ROW), in tunnels, on elevated viaducts, in street medians, or in mixed flow traffic lanes. This allows light rail trains to operate in a variety of environments. From the AA effort, two build alternatives emerged which were analyzed further in this Draft EIS/EIR. These alternatives are:

- SR 60 LRT Alternative
- Washington Boulevard LRT Alternative

Figure ES-5 shows all of the possible LRT routes and stations studied in this Draft EIS/EIR. The features and impacts of each of the build alternatives are compared in the following section.

Figure ES-3: No Build Alternative

Figure ES-4: Transportation System Management Alternative

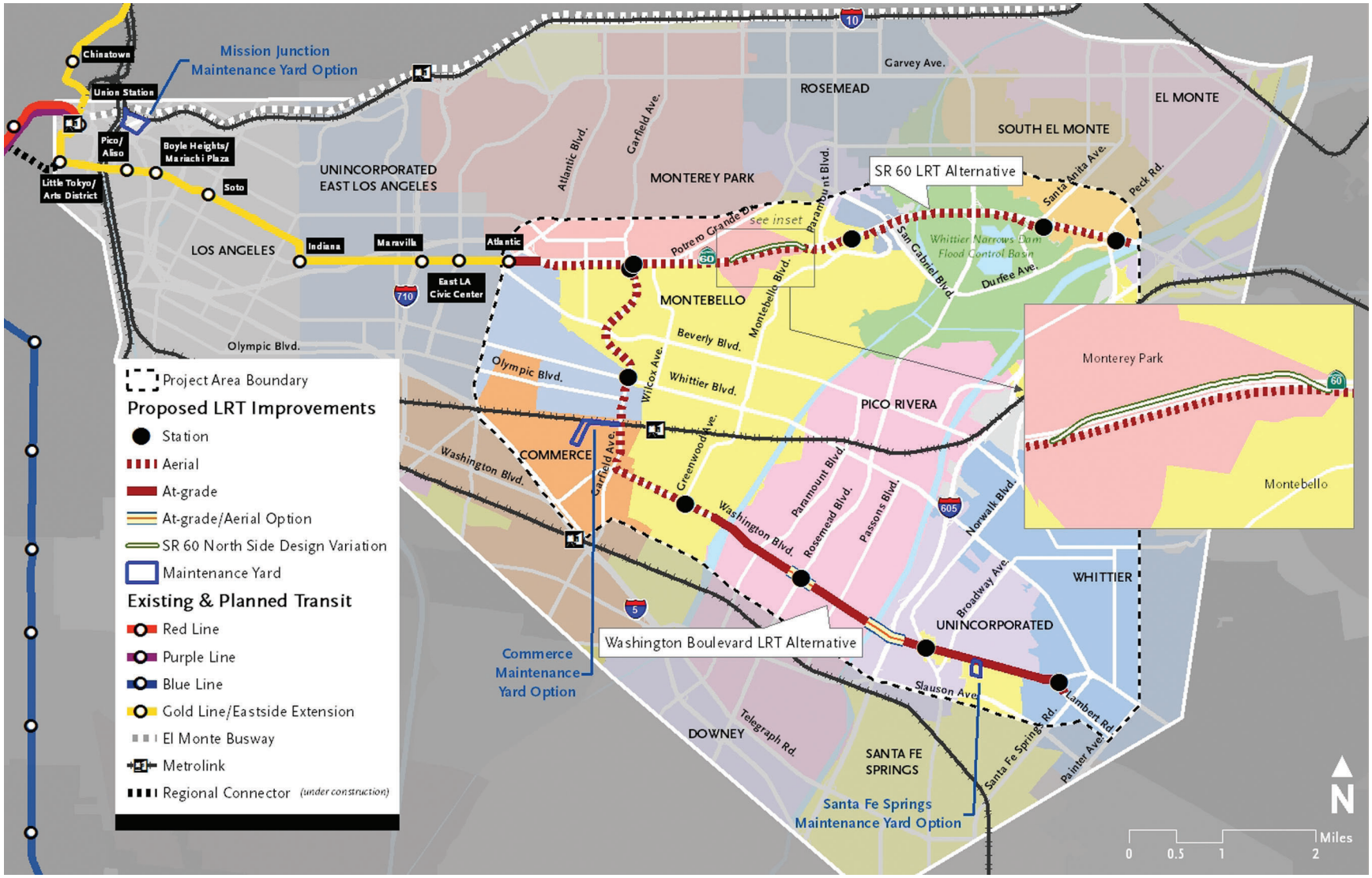
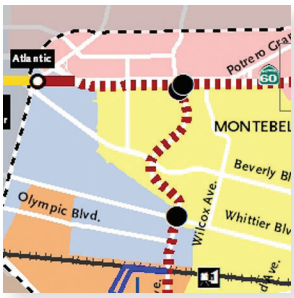


Figure ES-5: Build LRT Alternatives Studied in the EIS/EIR



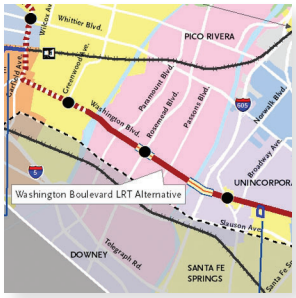
See Figure ES-5 on page ES-9

State Route 60 (SR 60) LRT Alternative

The SR 60 LRT Alternative would extend the existing Metro Gold Line Eastside Extension, a dedicated, dual track LRT system with overhead catenary wiring, from the existing Atlantic Station approximately 6.9 miles east to Peck Road. More than 94 percent of this alternative would operate in an aerial configuration, primarily within the southern portion of the SR 60 Freeway ROW. This alternative includes four stations with supporting park and ride facilities at each station. The SR 60 LRT Alternative also includes all No Build Alternative transit and roadway improvements and TSM Alternative bus services, with the exception of the Pomona Freeway Flyer (operator to be determined). One potential site has been preliminarily identified for the location of a new maintenance site, adjacent to the existing Mission Junction maintenance facility. A maintenance yard in the city of Monrovia, which is currently under construction, is also an option for the maintenance yard that would service this line.

In coordination with the California Department of Transportation (Caltrans), U.S. Environmental Protection Agency (USEPA), and U.S. Army Corps of Engineers (USACE), the SR 60 North Side Design Variation was analyzed as a way to minimize potential impacts to the former Operating Industries, Inc. (OII) landfill Superfund site, located through the SR 60 corridor in the City of Monterey Park. Appendix I includes formal correspondence from the three cooperating agencies. With this variation, instead of running along the edge of the landfill site on the south side of SR 60, the LRT alignment would transition from the south side to the north side of SR 60 just west of Greenwood Avenue and return to the south side of SR 60 approximately one-quarter mile west of Paramount Boulevard as shown in Figure ES-5. This design variation would include approximately 3,500 feet of at-grade and aerial alignment on the north side of SR 60, and two new bridges to carry the LRT guideway over the SR 60 Freeway.

Washington Boulevard LRT Alternative



See Figure ES-5 on page ES-9

The Washington Boulevard LRT Alternative would extend the existing Metro Gold Line Eastside Extension approximately 9.5 miles east to the city of Whittier at Lambert Road. This alternative is proposed to operate in an aerial and at-grade configuration. The proposed alignment would run east at-grade from the Metro Gold Line Eastside Extension Atlantic Station along Pomona Boulevard and transition to an aerial configuration running in the south side of the SR 60 Freeway ROW to Garfield Avenue. The alternative would then turn south in an aerial configuration above Garfield Avenue. The aerial structure would continue south on Garfield Avenue and turn southeast along Washington Boulevard. At Montebello Boulevard along Washington Boulevard, the alignment would transition to a street running configuration within the center of Washington Boulevard to a terminus station located south of Washington Boulevard just west of Lambert Road in the city of Whittier. This alternative includes six stations, with park and ride facilities at all station locations, with the exception of the Whittier Boulevard station. The Washington Boulevard LRT Alternative also includes all No Build Alternative transit and roadway improvements and TSM Alternative bus services, with the following exceptions:

- The Pomona Freeway Flyer (operator to be determined) would operate between the Garfield Avenue station and Crossroads Parkway near SR 60.
- Metro Rapid Route 720 would be extended to the Garfield Avenue station to provide connectivity.
- Montebello Bus Lines Route 50 Rapid service would operate between downtown Los Angeles and the Greenwood Avenue station only, as it would duplicate LRT service on Washington Boulevard east of Greenwood Avenue.

Three potential sites, as shown in Figure ES-5, have been preliminarily identified for the location of a new maintenance yard. A maintenance yard in the city of Monrovia, which is currently under construction, is also an option for the maintenance yard that would service this line. Two design variations are being considered for the Washington Boulevard LRT Alternative. The first design variation, the Rosemead Boulevard aerial crossing, would include a grade separation at Rosemead Boulevard. Compared to the original street running configuration of the Washington Boulevard LRT Alternative crossing the San Gabriel River/I-605, the second design variation would include an aerial crossing over the San Gabriel River/I-605 and a grade separation at Pioneer Boulevard.

Summary of Environmental Impacts

Based on guidance contained in the National Environmental Policy Act (NEPA) and the California Environmental Quality Act (CEQA), this Draft EIS/EIR studied the potential environmental consequences associated with construction and operation of the project alternatives, the TSM, and the No Build Alternative.

Due to the highly urbanized nature of the project area, potential environmental impacts pertain primarily to the built environment. Over 20 categories of environmental impacts were evaluated. Table ES-1 summarizes the characteristics of the alternatives and their effects. Environmental impact categories where at least one alternative would have an adverse effect or significant impact remaining after mitigation are discussed below under unavoidable adverse effects/significant impacts remaining after mitigation. Table ES-2 summarizes the impacts, mitigation measures, and impacts remaining after mitigation associated with each alternative.

Unavoidable Adverse Effects/Significant Impacts

The SR 60 LRT Alternative would have no unavoidable adverse effects/significant impacts after implementation of mitigation measures.

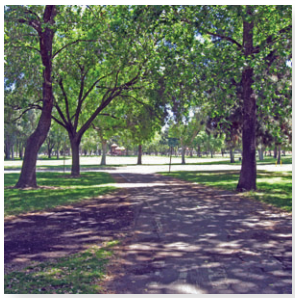
The Washington Boulevard LRT Alternative would have unavoidable adverse effects/significant impacts on the following environmental resources:

Transportation: Seventeen intersections would be significantly impacted by operation of the Washington Boulevard LRT Alternative. Adverse effects/significant impacts at one of the 17 intersections would be reduced to not adverse/less than significant. For the remaining 16 intersections, mitigation measures such as lane configuration changes that would increase capacity of the roadways or restrictions in allowable turning movements, were considered infeasible due to ROW constraints or secondary effects to upstream and downstream locations. Since no feasible mitigation measures exist that would reduce these impacts below the level of significance, impacts would be significant and unavoidable for the remaining 16 intersections.

Community and Neighborhood: The Washington Boulevard LRT Alternative would adversely alter the social and physical character of the existing community along Garfield Avenue in Montebello between Via Campo and Whittier Boulevard. It would adversely affect the area between Via Campo and Beverly Boulevard due to the removal of community resources (i.e., the Chinese Garden Restaurant and mature trees on the west side of Garfield Avenue) and adverse visual changes to the neighborhood. The physical changes to the existing character of this area would be adverse, even after implementation of mitigation measures. After mitigation, the Washington Boulevard LRT Alternative would still result in adverse effects under NEPA. Significant impacts would not occur under CEQA. This finding applies for both the at-grade and aerial options at Rosemead Boulevard and I-605/San Gabriel River, and all of the maintenance yard options.

Visual and Aesthetics: The Washington Boulevard LRT Alternative would substantially change the visual character of Garfield Avenue between Via Campo

and Whittier Boulevard and result in adverse effects/significant impacts. The aerial guideway and support beams and columns would straddle Garfield Avenue, permanently changing the visual scale and character of the area along Garfield Avenue between Via Campo and Whittier Boulevard. The visual alteration of the community along Garfield Avenue, including shading and shadows, would be prominent and would result in an adverse and unavoidable effect under NEPA and a significant and unavoidable impact under CEQA, even after mitigation.



Cumulative Impacts: Even with incorporation of mitigation, operation of the Washington Boulevard LRT Alternative would still result in a considerable contribution to cumulative visual impacts along Garfield Avenue between Via Campo and Whittier Boulevard and cumulative impacts on 16 intersections.

More information regarding environmental impacts is provided in the appropriate sections of Chapter 3, Transportation Impacts and Mitigation, and Chapter 4, Environmental Analysis, Consequences, and Mitigation. All impacts and mitigation measures associated with each alternative are listed below in Table ES-2.

Table ES-1: Summary Comparison of Alternatives

Criteria	No Build Alternative	TSM Alternative	SR 60 LRT Alternative	Washington Blvd LRT Alternative
Project Objectives				
Enhance service to transit dependent/low-income population	No	Yes	Yes	Yes
Increase access to activity and employment centers	No	Yes	Yes	Yes
Leverage transit investments to provide connections farther east	Low	Low	High	High
Alleviate roadway congestion	No	No	Yes	Yes
Improve mobility options	No	No	Yes	Yes
Provide a convenient/reliable alternative to the automobile	No	No	Yes	Yes
Alternative Features				
New Daily System-wide Linked Trips in 2035	N/A	22,798	28,683	29,575
Average Weekday Daily Boardings	N/A	N/A	16,700	19,900
Travel Time (minutes)	50-60	30-42	13	17.5 to 22
Capital Costs (millions, 2010$)	None	100.1	1,271 to 1,296	1,425 to 1,661
Alternative Length (miles)	N/A	N/A	6.9	9.5
New Stations	0	0	4	6
Environmental Impacts Remaining After Mitigation	**Adverse/Significant**			
Transportation: Intersection impacts during operation	No	No	No	Yes
Community and Neighborhood Impacts: Changes to the physical character of the existing community; community/resource events	No	No	No	Yes (adverse but not significant)
Visual and Aesthetic Impacts: Visual alteration of the existing community	No	No	No	Yes
Cumulative Impacts: Visual and aesthetic impacts	No	No	No	Yes
Cumulative Impacts: Intersection impacts	No	No	No	Yes

Source: CDM Smith 2012.

Notes:
"Adverse" refers to the level of effect under NEPA and 'significant' refers to the level of impact of significance per CEQA.
Adverse but not significant – impacts are perceived as negative are considered 'adverse' under NEPA but do not reach a level of significance under CEQA.

Avoidance, Minimization, and Mitigation Measures

Metro is committed to satisfying applicable federal, state, and local environmental regulations and to applying reasonable mitigation measures to reduce adverse effects and significant impacts. Measures to mitigate potential effects and impacts from the project alternatives are identified in this Draft EIS/EIR. If the Metro Board of Directors authorizes the completion of a Final EIS/EIR and a constrained financial plan, when the Metro Board of Directors decides to approve a project alternative the Board will also adopt an MMRP, which lists all of the committed mitigation measures, and CEQA Findings. Potential mitigation measures for potentially adverse effects/significant impacts are discussed under each category in Chapter 3, Transportation Impacts and Mitigation, and Chapter 4, Environmental Analysis, Consequences, and Mitigation and are summarized in Table ES-2.

Areas of Controversy/ Issues to be Resolved

The comments received demonstrated substantial support for each of the two LRT alternatives

Based on comments received and scoping meetings held as part of the Notice of Preparation (NOP) public review period, comments received after the NOP public review period, and coordination with cooperating agencies, the following areas of controversy and issues to be resolved are identified and addressed in this Draft EIS/EIR.

The comments received demonstrated substantial support for the two LRT alternatives: the SR 60 LRT Alternative and the Washington Boulevard LRT Alternative. Common themes regarding concerns of the community and public agencies included the importance of transit connectivity, service to colleges and universities, providing service to underserved areas, concerns regarding environmental and engineering challenges along the two alignments, and potential economic opportunities for the cities along the corridors. Environmental concerns included but were not limited to traffic impacts associated with construction and operation, construction impacts to residents and businesses, potential visual impacts to residential and business communities, and the potential for future projects to impact the proposed project's ridership. Appendix H, Final Scoping Report, of this Draft EIS/EIR includes a scoping comment log with comments received during the scoping period. Appendix I, Agency Coordination and Public Involvement, of this Draft EIS/EIR includes public comments received after the close of the scoping period.

Cooperating agencies and the public expressed environmental concerns regarding the proximity of the SR 60 LRT Alternative to the OII landfill Superfund site. Cooperating agencies and the public also expressed concern over the proposed location of the Santa Anita Avenue station and park and ride facilities within a flowage easement maintained by USACE. In coordination

with Caltrans, USEPA, and USACE, the SR 60 North Side Design Variation was analyzed as a way to minimize potential impacts to the former OII landfill Superfund site, located through the SR 60 corridor in the City of Monterey Park. Appendix I includes formal correspondence from the three cooperating agencies. With this variation, instead of running along the edge of the OII landfill Superfund site on the south side of SR 60, the LRT alignment would transition from the south side to the north side of SR 60 just west of Greenwood Avenue and return to the south side of SR 60 approximately one-quarter mile west of Paramount Boulevard.

Issuance of the Final EIS/EIR to the public will be dependent upon Metro's ability to develop a constrained financial plan which demonstrates construction initiating within three years after issuance of the ROD, the time frame by which information within an EIS/EIR is still valid. If the publication of the Final EIS/EIR occurs sometime prior to 2026 (likely within the next five to 10 years), a Supplemental Draft EIS will be required prior to its publication.

The Project is currently included within the constrained component of Metro's LRTP and the 2012-2035 RTP, which commit funding to the project starting in 2026. This commitment is based on the availability of funds from Measure R, which funds $1.25 billion of the project starting in FY 2026. Metro's LRTP envisions the project to begin construction between 2027 and 2035 and to be in operations in 2035.

In an effort to implement the project sooner and to advance the issuance of the Final EIS/EIR, thereby reducing costs and providing new services earlier than originally planned, the Metro Board is pursuing additional funding mechanisms for projects planned for the later years of Measure R. Metro's effort includes the second part of its America Fast Forward legislation, a new class of Qualified Tax Credit Bonds for Transportation.

Measure R was amended by the Metro Board of Directors in June 2013 to reflect changes to the availability date of Measure R funds for Eastside Transit Corridor Phase 2 and other projects. This amendment reflected the availability of funds for the Eastside Transit Corridor Phase 2 project prior to 2024, but only if certain conditions are met. The change in Measure R funding availability is conditioned on meeting several threshold tests, including passage of the America Fast Forward Tax Credit Bond program. If these conditions are met and the funds are available, then the Metro Board of Directors can amend or reflect this change in availability in the LRTP. As such, the financial plan contained in the Final EIS/EIR will reflect the Measure R amendment and will clearly identify the timeframe in which Measure R funds are available for this project.

In order to accelerate a project in the LRTP, the funds must be available and the Metro Board must approve an amendment to the 2009 LRTP or an update to the overall LRTP, approving the project, its new schedule, and its new funding. Should this occur, and the new dates of construction are known, a supplemental environmental analysis will be conducted, if warranted.

Next Steps

- Draft EIS/EIR Comment Period – A 60-day comment period will begin with publication of the Notice of Availability of the Draft EIS/EIR.
- Metro Board identifies Locally Preferred Alternative – The Metro Board of Directors may choose to select a Locally Preferred Alternative in Fall 2014.
- Upon conclusion of the selection of the LPA, the Metro Board may select to initiate a Final EIR. Initiation of a Final EIS or the FTA's participation is contingent upon having funding in place. The Metro Board must obtain funds to allow the initiation of a Final EIS per funding issue identified in ES-15.

Table ES-2. Summary of Impacts and Mitigation Measures for each of the Project Alternatives

Adverse Effect (NEPA)/ Significant Impact (CEQA) Before Mitigation	Mitigation Measure(s)	Adverse Effect (NEPA)/ Significant Impact (CEQA) After Mitigation
No Build Alternative		
Transportation Impacts		
There are no adverse/significant transportation effects/impacts associated with the No Build Alternative.	No mitigation measures are required.	Not Adverse/Less than Significant
Displacement and Relocation Impacts		
There are no adverse/significant displacement and relocation effects/impacts associated with the No Build Alternative.	No mitigation measures are required.	Not Adverse/Less than Significant
Land Use and Development Impacts		
There are no adverse/significant land use and development effects/impacts associated with the No Build Alternative.	No mitigation measures are required.	Not Adverse/Less than Significant
Community and Neighborhood Impacts		
There are no adverse/significant Community and Neighborhood effects/impacts associated with the No Build Alternative.	No mitigation measures are required.	Not Adverse/No Impact
Visual and Aesthetic Impacts		
There are no adverse/significant visual and aesthetic effects/impacts associated with the No Build Alternative.	No mitigation measures are required.	Not Adverse/Less than Significant
Air Quality		
There are no adverse/significant air quality effects/impacts associated with the No Build Alternative.	No mitigation measures are required.	Not Adverse/Less than Significant

Table ES-2. Summary of Impacts and Mitigation Measures for each of the Project Alternatives (Continued)

Adverse Effect (NEPA)/ Significant Impact (CEQA) Before Mitigation	Mitigation Measure(s)	Adverse Effect (NEPA)/ Significant Impact (CEQA) After Mitigation
No Build Alternative		
Climate Change		
There are no adverse/significant climate change effects/impacts associated with the No Build Alternative.	No mitigation measures are required.	Not Adverse/Less than Significant
Noise and Vibration		
There are no adverse/significant noise and vibration effects/impacts associated with the No Build Alternative.	No mitigation measures are required.	Not Adverse/Less than Significant
Ecosystems/Biological Resources		
There are no adverse/significant ecosystems/biological resources effects/impacts associated with the No Build Alternative.	No mitigation measures are required.	Not Adverse/Less than Significant
Geotechnical/Subsurface/Seismic/Hazardous Materials		
There are no adverse/significant geotechnical effects/impacts associated with the No Build Alternative.	No mitigation measures are required.	Not Adverse/Less than Significant
There are no adverse/significant hazardous materials effects/impacts associated with the No Build Alternative.	No mitigation measures are required.	Not Adverse/Less than Significant
Water Resources		
There are no adverse/significant water resources effects/impacts associated with the No Build Alternative.	No mitigation measures are required.	Not Adverse/Less than Significant

Table ES-2. Summary of Impacts and Mitigation Measures for each of the Project Alternatives (Continued)

Adverse Effect (NEPA)/ Significant Impact (CEQA) Before Mitigation	Mitigation Measure(s)	Adverse Effect (NEPA)/ Significant Impact (CEQA) After Mitigation
No Build Alternative		
Energy		
There are no adverse/significant energy effects/impacts associated with the No Build Alternative.	No mitigation measures are required.	Not Adverse/Less than Significant
Cultural Resources		
There are no adverse/significant cultural resources effects/impacts associated with the No Build Alternative.	No mitigation measures are required.	Not Adverse/Less than Significant
Parkland and Other Community Facilities		
There are no adverse/significant parklands and other community facilities effects/impacts associated with the No Build Alternative.	No mitigation measures are required.	Not Adverse/Less than Significant
Economic and Fiscal Impacts		
There are no adverse/significant economic and fiscal effects/impacts associated with the No Build Alternative.	No mitigation measures are required.	Not Adverse/Less than Significant
Safety and Security		
There are no adverse/significant safety and security effects/impacts associated with the No Build Alternative.	No mitigation measures are required.	Not Adverse/Less than Significant

Table ES-2. Summary of Impacts and Mitigation Measures for each of the Project Alternatives (Continued)

Adverse Effect (NEPA)/ Significant Impact (CEQA) Before Mitigation	Mitigation Measure(s)	Adverse Effect (NEPA)/ Significant Impact (CEQA) After Mitigation
No Build Alternative		
Environmental Justice		
The No Build Alternative would not result in disproportionate adverse effects to low-income and minority populations. However, the benefits that would be provided by the build alternatives would not be realized for those populations that rely on transit. The No Build Alternative would not provide the positive benefits of mobility and travel time and cost savings of the other alternatives.	No mitigation measures are required.	Not Adverse/Less than Significant
TSM Alternative		
Transportation Impacts		
Construction Transit operation would be disrupted during construction. On-street parking would be reduced during construction. Pedestrian circulation would be disrupted during construction. Bicycle circulation would be disrupted during construction.	**Construction Mitigation Measures** 3.0-i. Metro would prepare a Traffic Management Plan to facilitate the flow of traffic in and around the construction zone. These mitigation measures would also apply to transit service and pedestrian and bicycle circulation. Although more measures may be added, typical measures included in a Traffic Management Plan are: ▪ Schedule a majority of construction-related travel (i.e., deliveries, hauling, and worker trips) during the off-peak hours; ▪ Construction activities would be minimized during weekday AM and PM peak hours (typically 7:00 to 9:00 AM and 4:00 to 6:00 PM); ▪ Develop detour routes to facilitate traffic movement through construction zones without significantly increasing cut-through traffic in adjacent residential areas; ▪ Where feasible, temporarily restripe roadways to maximize the vehicular capacity at those locations affected by construction closures;	Not Adverse/Less than Significant

Table ES-2. Summary of Impacts and Mitigation Measures for each of the Project Alternatives (Continued)

Adverse Effect (NEPA)/ Significant Impact (CEQA) Before Mitigation	Mitigation Measure(s)	Adverse Effect (NEPA)/ Significant Impact (CEQA) After Mitigation
TSM Alternative		
Transportation Impacts		
	▪ Where feasible, place station traffic control officers at major intersections during peak hours to minimize delays related to construction activities; ▪ Develop and implement an outreach program to inform the general public about the construction process and planned roadway closures; and ▪ Develop and implement a program with business owners to minimize effects to businesses during construction activity, including but not limited to signage programs. Due to the limited nature of TSM Alternative construction, the Traffic Management Plan measures would be less in magnitude than those required for the build alternatives. Metro would also implement a Construction Mitigation Information Campaign to inform the community of potential impacts and mitigation measures as a result of the construction period. The campaign would coordinate preparation of traffic control plans with local jurisdiction reviews and approvals. **Transit** The Traffic Management Plan discussed under Mitigation Measure 3.0-i would mitigate temporary disruptions to transit service. In addition, Metro would coordinate with local transit agencies in advance to communicate closures, communicate information on any changes to bus service that would result from the TSM Alternative, and develop detour routes. **Pedestrian Circulation** In addition to the Traffic Management Plan discussed under Mitigation Measure 3.0-i, wayfinding signage, lighting, and access to specific pedestrian safety amenities (for example handrails, fences, and alternative walkways) would be implemented during the construction period in areas where existing pedestrian or bicycle facilities would be affected. During final design, Metro would also coordinate with local transit agencies to address pedestrian movements. This may help to ensure that only one side of the street would be closed at a time. If a crosswalk is temporarily closed, pedestrians would be directed to use one that is in close proximity to the closed crosswalk, and adjacent crosswalks would remain open so pedestrians could cross streets. In addition, access to businesses and residences would be maintained throughout construction.	

Table ES-2. Summary of Impacts and Mitigation Measures for each of the Project Alternatives (Continued)

Adverse Effect (NEPA)/ Significant Impact (CEQA) Before Mitigation	Mitigation Measure(s)	Adverse Effect (NEPA)/ Significant Impact (CEQA) After Mitigation
TSM Alternative		
Transportation Impacts		
Operation There are no adverse/significant transportation effects/impacts associated with operation of the TSM Alternative.	**Bicycle Circulation** In addition to the Traffic Management Plan discussed under Mitigation Measure 3.0-i, on-street bicycle detour routes and signage would be used to address temporary effects to bicycle circulation in areas where existing bicycle facilities would be affected. In addition, Metro would coordinate with local transit agencies to address bicycle movements. Furthermore, access to businesses and residences via bicycle routes would be maintained at all times throughout construction. In addition, temporary alternative bike routes on complementary streets would be identified as needed. **Operation Mitigation Measures** No mitigation measures are required.	
Displacement and Relocation Impacts		
There are no adverse/significant displacement and relocation effects/impacts associated with either construction or operation of the TSM Alternative.	No mitigation measures are required.	Not Adverse/Less than Significant
Land Use and Development Impacts		
There are no adverse/significant land use and development effects/impacts associated with either construction or operation of the TSM Alternative.	No mitigation measures are required.	Not Adverse/Less than Significant
Community and Neighborhood Impacts		
There are no adverse/significant community and neighborhood effects/impacts associated with either construction or operation of the TSM Alternative.	No mitigation measures are required.	Not Adverse/Less than Significant

Table ES-2. Summary of Impacts and Mitigation Measures for each of the Project Alternatives (Continued)

Adverse Effect (NEPA)/ Significant Impact (CEQA) Before Mitigation	Mitigation Measure(s)	Adverse Effect (NEPA)/ Significant Impact (CEQA) After Mitigation
TSM Alternative		
Visual and Aesthetic Impacts		
There are no adverse/significant visual and aesthetic effects/impacts associated with either construction or operation of the TSM Alternative.	No mitigation measures are required.	Not Adverse/Less than Significant
Air Quality		
There are no adverse/significant air quality effects/impacts associated with construction or operation of the TSM Alternative.	No mitigation measures are required.	Not Adverse/Less than Significant
Climate Change		
There are no adverse/significant climate change effects/impacts associated with either construction or operation of the TSM Alternative.	No mitigation measures are required.	Not Adverse/Less than Significant
Noise and Vibration		
The TSM Alternative would not result in any noise or vibration effects/impacts during construction or operation.	No mitigation measures are required.	Not Adverse/Less than Significant
Ecosystems/Biological Resources		
There are no adverse/significant ecosystems/biological resources effects/impacts associated with either construction or operation of the TSM Alternative.	No mitigation measures are required.	Not Adverse/Less than Significant

Table ES-2. Summary of Impacts and Mitigation Measures for each of the Project Alternatives (Continued)

Adverse Effect (NEPA)/ Significant Impact (CEQA) Before Mitigation	Mitigation Measure(s)	Adverse Effect (NEPA)/ Significant Impact (CEQA) After Mitigation
TSM Alternative		
Geotechnical/Subsurface/Seismic/Hazardous Materials		
There are no adverse/significant geotechnical/subsurface/seismic effects/impacts associated with either construction or operation of the TSM Alternative. There are no adverse/significant hazardous materials effects/impacts associated with either construction or operation of the TSM Alternative.	No mitigation measures are required.	Not Adverse/Less than Significant
Water Resources		
There are no adverse/significant water resource effects/impacts associated with either construction or operation of the TSM Alternative.	No mitigation measures are required.	Not Adverse/Less than Significant
Energy		
There are no adverse/significant energy effects/impacts associated with either construction or operation of the TSM Alternative.	No mitigation measures are required.	Not Adverse/Less than Significant
Cultural Resources		
There are no adverse/significant cultural resource effects/impacts associated with either construction or operation of the TSM Alternative.	No mitigation measures are required.	Not Adverse/Less than Significant

Table ES-2. Summary of Impacts and Mitigation Measures for each of the Project Alternatives (Continued)

Adverse Effect (NEPA)/ Significant Impact (CEQA) Before Mitigation	Mitigation Measure(s)	Adverse Effect (NEPA)/ Significant Impact (CEQA) After Mitigation
TSM Alternative		
Parklands and Other Community Facilities		
There are no adverse/significant parklands and other community facilities effects/impacts associated with either construction or operation of the TSM Alternative.	No mitigation measures are required.	Not Adverse/Less than Significant
Economic and Fiscal Impacts		
Construction Construction would have temporary impacts on commercial and industrial businesses, particularly those near or adjacent to construction sites. **Operation** There are no adverse/significant economic and fiscal effects/impacts associated with operation of the TSM Alternative.	**Construction Mitigation Measures** 4.4-i. Notify property owners, businesses, and residences of major construction activities (e.g., utility relocation or disruption and milestones; re-routing of delivery trucks). 4.4.-ii. Whenever possible Metro, working with the construction contractor, would develop detours for any roads or sidewalks to be closed during construction; post signs (in appropriate languages) alerting pedestrians, bicyclists, and motorists of road and sidewalk closures and detours; ensure that pedestrian detours are accessible to seniors and disabled persons; and develop Worksite Traffic Control Plans in conjunction with the county and municipal departments of transportation to accommodate automobile, bicycle, and pedestrian traffic. 4.4-iii. Metro would maintain access to community facilities affected by construction activities. 4.4-iv. Metro would provide early notification to emergency service providers of any road closures or detours. 4.4-v. Metro would provide crossing guards as needed in the vicinity of construction sites, haul routes, and other relevant sites as proposed in the California Department of Transportation (Caltrans) Traffic Manual, Chapter 10-07.3, Warrants for Adult Crossing Guards. 4.4-vi. The construction contractor would erect barriers or fencing as needed during construction to minimize trespassing and vandalism. 4.4-vii. Metro would forewarn the public of any anticipated road closures or detours due to construction activity. **Operation Mitigation Measures** No mitigation measures are required.	Not Adverse/Less than Significant

Table ES-2. Summary of Impacts and Mitigation Measures for each of the Project Alternatives (Continued)

Adverse Effect (NEPA)/ Significant Impact (CEQA) Before Mitigation	Mitigation Measure(s)	Adverse Effect (NEPA)/ Significant Impact (CEQA) After Mitigation
TSM Alternatives		
Safety and Security		
There are no adverse/significant safety and security effects/impacts associated with either construction or operation of the TSM Alternative.	No mitigation measures are required.	Not Adverse/Less than Significant
Environmental Justice		
Construction and operation of the TSM Alternative would not result in disproportionate adverse effects to low-income and minority populations.	No mitigation measures are required.	Not Adverse/Less than Significant
SR 60 LRT Alternative		
Transportation Impacts		
Construction Transit operation would be disrupted during construction. Traffic mobility would be disrupted and/or impeded by construction vehicles and equipment in the areas of construction.	**Construction Mitigation Measures** Construction-related mitigation measures for transit, intersections, freeway off-ramps, parking, pedestrian circulation, and bicycle circulation impacts are provided below. 3.0-ii. Metro would prepare a Traffic Management Plan to facilitate the flow of traffic in and around the construction zone, to facilitate the flow of traffic in and around the construction zone. This mitigation measure would also apply to transit service. Although more measures may be added, typical measures included in a Traffic Management Plan are: ▪ Schedule a majority of construction-related travel (i.e., deliveries, hauling, and worker trips) during the off-peak hours; ▪ Construction activities would be minimized during weekday AM and PM peak hours (typically 7:00 to 9:00 AM and 4:00 to 6:00 PM); ▪ Develop detour routes to facilitate traffic movement through construction zones without significantly increasing cut-through traffic in adjacent residential areas; ▪ Where feasible, temporarily restripe roadway such as restriping turning lanes, through lanes, and parking lanes at the affected intersections to maximize the vehicular capacity at those locations affected by construction closures;	Not Adverse/Less than Significant

Table ES-2. Summary of Impacts and Mitigation Measures for each of the Project Alternatives (Continued)

Adverse Effect (NEPA)/ Significant Impact (CEQA) Before Mitigation	Mitigation Measure(s)	Adverse Effect (NEPA)/ Significant Impact (CEQA) After Mitigation
SR 60 LRT Alternative		
Transportation Impacts		
Freeway ramps may be temporarily closed during construction. Construction of the SR 60 North Side Design Variation would result in temporary freeway closures. Off-street parking would be reduced during construction. On-street parking would be reduced during construction of the Mission Junction Maintenance Yard Option. Pedestrian circulation would be disrupted during construction. Bicycle circulation would be disrupted during construction.	▪ Where feasible, temporarily remove on-street parking to maximize the vehicular capacity at those locations affected by construction closures; ▪ Where feasible, place station traffic control officers at major intersections during peak hours to minimize delays related to construction activities; ▪ Develop and implement an outreach program to inform the general public about the construction process and planned roadway closures; and ▪ Develop and implement a program with business owners to minimize effects to businesses during construction activity, including but not limited to signage programs. **Transit** The Traffic Management Plan discussed under mitigation measure 3.0-ii would mitigate temporary disruptions to transit service. 3.0-iii. Metro would coordinate with local transit agencies in advance to communicate closures, communicate information on changes to bus service, and develop detour routes. Access to businesses and residences via transit would be maintained at all times throughout construction. **Intersections** 3.0-iv. Metro would coordinate with the local jurisdictions and California Department of Transportation (Caltrans) to designate and identify haul routes for trucks and to establish hours of operation. The selected routes should minimize noise, vibration, and other effects. To the extent practical, traffic lanes would be maintained in both directions, particularly during the morning and afternoon peak hours and access to adjacent businesses via existing or temporary driveways would be maintained throughout the construction period. 3.0-v. Metro would coordinate with local school districts to disclose potential road closures and suggest detour routes for carpooling and accessing schools. **Freeway Off-Ramps** 3.0-vi. All ramp closures or usage of ramp shoulders would need to be approved by Caltrans before implementation. If ramps are temporarily closed, vehicles would be directed to use upstream or downstream locations that are in close proximity to closed ramps, and adjacent rams would be kept open to minimize disruptions. 3.0-vii. To accommodate any increase in activity at these ramps, modifications to signal timing (including the provision of additional green time or optimization of signal splits) would be required, and implemented by Caltrans for the affected jurisdictions. Access to businesses and residences along the project alternatives would be maintained throughout construction.	

Table ES-2. Summary of Impacts and Mitigation Measures for each of the Project Alternatives (Continued)

Adverse Effect (NEPA)/ Significant Impact (CEQA) Before Mitigation	Mitigation Measure(s)	Adverse Effect (NEPA)/ Significant Impact (CEQA) After Mitigation
SR 60 LRT Alternative		
Transportation Impacts		
	3.0-viii. Public notice of all freeway closures would be provided and detour routes would be indicated. With this mitigation measure, since the freeway closures would be temporary in nature, the public would be notified in advance and detour routes would be provided; the closures would not cause an adverse effect to operations. Freeway closures would occur overnight or on weekends when traffic volume is minimal. **Parking** 3.0-ix. In addition to the Traffic Management Plan discussed mitigation measure 3.0-ii, Metro would work with the local jurisdictions, agencies, and businesses to implement potential parking mitigation options to help offset temporary losses during the construction period in areas of high commerce and automobile traffic. This would include the identification of potential replacement parking spaces, and the development of a signage and wayfinding program to direct users to the relocated spaces. In addition, as part of the construction phasing plans, efforts would be made to minimize the loss of parking on both sides of the street or on consecutive blocks. Project contractors would provide alternative off-street parking for their employees during the construction period, in order to minimize the loss of parking to adjacent commercial districts. Project contractors would prohibit parking for their employees in adjacent residential neighborhoods in order to minimize the adverse effects to nearby residents. **Pedestrian Circulation** 3.0-x. Wayfinding signage, lighting, and access to specific pedestrian safety amenities (for example handrails, fences, and alternative walkways) would be implemented temporarily during the construction period in areas where existing pedestrian and/or bicycle facilities would be affected. 3.0-xi. During final design, Metro would coordinate with local agencies to address pedestrian movements. This may help to ensure that only one side of the street would be closed at a time. If crosswalks are temporarily closed, pedestrians would be directed to use one that is in close proximity to closed crosswalks, with adjacent crosswalks remaining open so that pedestrians could cross streets. In addition, access to businesses and residences along the SR 60 LRT Alternative alignment would be maintained throughout construction. **Bicycle Circulation** 3.0-xii On-street bicycle detour routes and signage would be used in areas where existing bicycle facilities would be affected to address temporary effects to bicycle circulation. On-street bicycle detour routes would be developed and appropriate signage would be provided.	

Table ES-2. Summary of Impacts and Mitigation Measures for each of the Project Alternatives (Continued)

Adverse Effect (NEPA)/ Significant Impact (CEQA) Before Mitigation	Mitigation Measure(s)	Adverse Effect (NEPA)/ Significant Impact (CEQA) After Mitigation
SR 60 LRT Alternative		
Transportation Impacts		
Operation The SR 60 LRT Alternative would have a substantial adverse effect/significant impact on the following four intersections: Wilcox Avenue/Pomona Boulevard, Santa Anita Avenue/SR 60 EB Ramps, Durfee Avenue/Slack Road, and Peck Road/Durfee Avenue. The SR 60 LRT Alternative would require the elimination of existing off-street parking facilities at three of the four proposed stations (Garfield Avenue station, Shops at Montebello station, and Peck Road station), which would result in spillover parking to the surrounding streets and potential for use of other nearby off-street facilities.	3.0-xiii During final design, Metro would coordinate with local agencies to address bicycle movements. Furthermore, in areas where existing bicycle facilities would be affected, access to businesses and residences via bicycle routes would be maintained at all times throughout construction. In addition, temporary alternative bike routes on complementary streets would be identified as needed. **Operation Mitigation Measures** **Intersections** 3.0-xiv. The operation of Santa Anita Avenue/SR 60 EB Ramps would be improved through optimization of signal splits and providing additional green time to approaches with long vehicle queues and high delay. 3.0-xv. The intersection of Peck Road/Durfee Avenue would provide station access on the east leg of the intersection. The lane configuration of this intersection approach would change from an eastbound all-way middle lane movement to a shared through-left lane and a right-turn lane. In addition, the phasing of this intersection would be updated to accommodate additional traffic volumes and the cycle length of this intersection would be increased to 120 seconds. **Parking** 3.0-xvi. For parcels that are adversely affected under NEPA due to the partial acquisition of parking at the Shops at Montebello Station, replacement parking would be provided at the parcel or at a nearby assemblage of parcels. Shared-use parking arrangements would be considered within new Metro facilities. Metro would work with local jurisdictions, businesses and merchants, and commerce associations to implement potential parking mitigation options to help offset losses during operation. At the Shops at Montebello Station, Metro would also work with the Shops at Montebello to identify additional off-street parking facilities that could be used to accommodate the estimated 40 space shortfall.	
Displacement and Relocation Impacts		
Construction Construction of the SR 60 LRT Alternative would require acquisition of 23 parcels, including partial acquisition as easements of 8 parcels, partial acquisition in fee of 4 parcels, and full acquisition of 11 parcels.	**Construction Mitigation Measures** 4.3-i. Metro would work with the local jurisdictions, agencies, and businesses to implement parking mitigation options (e.g., including but not limited to creating temporary one-way streets to provide diagonal parking; convert police and fire preferential parking to permit parking; lease an existing garage; or provided temporary metered parking; provide motorist wayfinding signs to find parking facilities;) to help offset temporary losses during the construction period in areas of high commerce and automobile traffic (see Mitigation Measure 3.0-viii in Chapter 3).	Not Adverse/Less than Significant

Table ES-2. Summary of Impacts and Mitigation Measures for each of the Project Alternatives (Continued)

Adverse Effect (NEPA)/ Significant Impact (CEQA) Before Mitigation	Mitigation Measure(s)	Adverse Effect (NEPA)/ Significant Impact (CEQA) After Mitigation
SR 60 LRT Alternative		
Displacement and Relocation Impacts		
Acquisitions required for the SR 60 LRT Alternative would result in an adverse effect on 725 off-street parking spaces, which would require replacement parking The 12-acre Commerce Maintenance Yard Option would require the partial acquisition of six privately-owned properties. **Operation** There are no adverse/significant displacement and relocation effects/impacts associated with operation of the SR 60 LRT Alternative.	4.3-ii. Metro would provide replacement parking for parcels that would be adversely affected due to the partial acquisition of parking at the parcel or at a nearby assemblage of parcels. Metro would provide replacement parking at the parcel level or at a nearby parcel. Metro would consider shared use parking arrangements at Metro facilities in conjunction with reconfiguration of parking lots to maximize capacity (also see Mitigation Measure 3.0-x in Chapter 3). In addition, access to the property remainder would be maintained at all times during construction. 4.3-iii. Metro would coordinate with the city and property owners to provide replacement parking at nearby parcels to ensure that public parking continues to be available (also see Mitigation Measure 3.0-x in Chapter 3). **Operation Mitigation Measures** No mitigation measures are required.	
Land Use and Development Impacts		
Construction Surrounding land uses could be disrupted while construction activities are performed. Construction of the SR 60 LRT Alternative could generate temporary pedestrian and vehicle detours that would inhibit, but not prevent, access to existing land uses along the alignment. The SR 60 North Side Design Variation would require freeway closures to construct the bridge over the freeway, which would conflict with freeway operations.	**Construction Mitigation Measures** In addition to the mitigation measure identified below, the following mitigation measures from Chapter 3, Transportation Impacts, Section 4.7, Air Quality, Section 4.9, Noise and Vibration, and Section 4.12, Water Resources would be implemented: 3.0-ii, 3.0-iv through 3.0-vi, 3.0-viii, 3.0-x, 3.0-xi, 4.7-i, and 4.9-i through 4.9-viii. (Refer to the specific section for the detailed mitigation measure.) 4.2-i. Intersections: The design variation would cross a gated, private segment of Greenwood Avenue that is used to access the OII landfill site at-grade; intermittent closure of the roadway would be needed temporarily for construction. As a result, some landfill maintenance vehicles would need to be re-routed in order to access the area, but alternative routes are available. Metro would coordinate with New Cure Inc. prior to and during intermittent closures of Greenwood Avenue.	Not Adverse/Less than Significant

Table ES-2. Summary of Impacts and Mitigation Measures for each of the Project Alternatives (Continued)

Adverse Effect (NEPA)/ Significant Impact (CEQA) Before Mitigation	Mitigation Measure(s)	Adverse Effect (NEPA)/ Significant Impact (CEQA) After Mitigation
SR 60 LRT Alternative		
Land Use and Development Impacts		
Operation Development of this alternative has the potential to reduce flood storage space within the flowage easement, which would conflict with the Whittier Narrows Dam Basin Master Plan.	**Operation Mitigation Measures** The following mitigation measures from Section 4.12, Water Resources would be implemented: 4.12-i and 4.12-ii. (Refer to the specific section for the detailed mitigation measure.)	Not Adverse/Less than Significant
Community and Neighborhood Impacts		
Construction Community disruption would occur while construction activities are performed, which would result in substantially adverse impacts to project area social and physical character.	**Construction Mitigation Measures** In addition to mitigation measures identified below, mitigation measure 4.15-vii from Section 4.15, Parklands and Other Community Facilities, and mitigation measures 3.0-ii through 3.0-xiii from Chapter 3, Transportation Impacts would be implemented. (Please refer to the specific section for the detailed mitigation measure.) 4.5-i. Whenever possible, Metro would develop detours for any road or sidewalks to be closed during construction; post signs (in appropriate languages) alerting pedestrians, bicycles, and vehicles of road and sidewalk closures and detours; ensure that pedestrian detours are accessible to senior citizen and disabled persons; and develop Worksite Traffic Control Plans in conjunction with the county and municipal departments of transportation to accommodate automobile, pedestrian, and bicycle traffic. 4.5-ii. Metro would maintain access to community facilities affected by construction activities. 4.5-iii. Metro would provide early notification to emergency service providers of any road closures or detours. 4.5-iv. Metro would develop a community outreach plan to notify local municipalities of construction schedules, road and sidewalk closures, and detours; coordinate with local municipalities during preparation of traffic management plans to minimize potential construction impacts to community resources and special events; and consider limiting construction activities during special events. 4.5-v. Metro would develop a construction mitigation plan with municipalities' input to address construction impacts and determine truck hauling routes and schedules that would minimize impacts on sensitive uses in all parts of the project area. Hauls routes should avoid residential areas and use major thoroughfares to the maximum extent feasible.	Not Adverse/Less than Significant

Table ES-2. Summary of Impacts and Mitigation Measures for each of the Project Alternatives (Continued)

Adverse Effect (NEPA)/ Significant Impact (CEQA) Before Mitigation	Mitigation Measure(s)	Adverse Effect (NEPA)/ Significant Impact (CEQA) After Mitigation
SR 60 LRT Alternative		
Community and Neighborhood Impacts		
Construction sites can sometimes become attractive venues for loitering and illegal activity, which could result in adverse effects. Construction of the SR 60 LRT Alternative would occur adjacent to three community resources, which could result in adverse effects. Construction would likely result in a temporary decrease in accessibility to some businesses, and reductions in on-street and off-street parking. This potential impact would be adverse during the construction phase. Vehicle and pedestrian mobility would be reduced during construction due to intermittent road and sidewalk closures and detours. This potential impact would be adverse during the construction phase. Street and sidewalk closures during construction could temporarily exacerbate the dividing effect that SR 60 currently has within the project area.	4.5-vi. Metro would provide crossing guards as needed in the vicinity of construction sites, haul routes, and other relevant sites, as proposed in the California DOT Traffic Manual, Chapter 10-07.3, Warrants for Adult Crossing Guards. 4.5-vii. The construction contractor would erect barriers/fencing and provide security personnel during construction to minimize trespassing and vandalism. Barriers would be enhanced with artwork and attractive design features where possible. 4.5-viii. Metro would forewarn the public of any anticipated road closures or detours due to construction activity. 4.5-ix. Metro would work with businesses along the alignment to maintain their visibility during construction. 4.5-x. Where possible, Metro would phase construction so that activities at any one location do not last for the entire construction period. 4.5-xi. Metro would provide adequate security of construction areas. 4.5-xii. Metro would incorporate input from emergency officials when designing construction plans.	

Table ES-2. Summary of Impacts and Mitigation Measures for each of the Project Alternatives (Continued)

Adverse Effect (NEPA)/ Significant Impact (CEQA) Before Mitigation	Mitigation Measure(s)	Adverse Effect (NEPA)/ Significant Impact (CEQA) After Mitigation
SR 60 LRT Alternative		
Community and Neighborhood Impacts		
Operation LRT grade crossings can potentially delay emergency vehicles if they arrive at the same time as a passing train. Metro would coordinate with emergency response officials when designing grade crossings to ensure that emergency response times do not deteriorate as a result of the project. LRT stations and facilities can be perceived as potential safety hazards and attractive locations for illegal activities, which could result in adverse effects.	**Operation Mitigation Measures** Metro would implement the following mitigation measures as they relate to the operation of the SR 60 LRT Alternative as well as mitigation measure 3.0-xvi as described in Chapter 3, Transportation Impacts. Please refer to the specific section for the detailed mitigation measure. 4.5-xiii. Metro would provide adequate security at LRT facilities. 4.5-xiv. Metro would incorporate input from emergency officials when designing grade crossings.	
Visual and Aesthetic Impacts		
Construction Construction activities would result in visual disruptions to the immediate vicinity. However, construction would be temporary and the extent of the visual nuisance from construction equipment and vehicles would be limited to the areas adjacent to SR 60, a visible transportation land use.	**Construction Mitigation Measures** 4.6-i. Construction methods and practices and other management approaches would be consistent with applicable Metro design criteria and local and state regulations, as well as general laws for building and safety. 4.6-ii. Construction staging areas, access roads, and structure locations would be maintained in an orderly manner and kept free of trash and debris daily by the construction contractor. 4.6-iii. Areas disturbed by construction activities would be restored by Metro and the construction contractor to their pre-project condition upon completion of construction activities, where feasible. 4.6-iv. Visually obtrusive erosion control devices, such as silt fences, plastic ground cover, and straw bales would be removed by the construction contractor as soon as the area is stabilized. 4.6-v. Street trees and other vegetation removed to accommodate construction would, where feasible, be stored by Metro during construction and replanted upon completion of construction, those trees considered historic would be replanted in close proximity to their original locations. Where storage and replanting is not possible, the mature vegetation would be replaced with appropriate sized trees and vegetation within one month of construction completion.	Not Adverse/Less than Significant

Table ES-2. Summary of Impacts and Mitigation Measures for each of the Project Alternatives (Continued)

Adverse Effect (NEPA)/ Significant Impact (CEQA) Before Mitigation	Mitigation Measure(s)	Adverse Effect (NEPA)/ Significant Impact (CEQA) After Mitigation
SR 60 LRT Alternative		
Visual and Aesthetic Impacts		
The SR 60 LRT Alternative would not result in a construction-related adverse effect under NEPA or a significant impact under CEQA with regard to scenic resources, visual character, nighttime illumination, and shade and shadows. **Operation** No officially designated scenic vistas exist within the project area. The SR 60 LRT Alternative would minimally change distant views. The LRT improvements would be consistent with the existing visual character of the transportation corridor and the adjacent land uses. The SR 60 LRT Alternative would not result in an operational-related adverse effect under NEPA or a significant impact under CEQA with regard to scenic resources, visual character, nighttime illumination, and shade and shadows. However, mitigation is included to further reduce effects/impacts below the level of adverse/significant.	4.6-vi. Stockpile areas would be located in less visually sensitive areas (i.e., away from public recreational facilities, natural open spaces, residences, and other visually sensitive resources) and would be shielded by the construction contractor from residents and businesses. 4.6-vii. Lighting would be hooded and directed towards the interior of construction staging areas by the construction contractor to minimize spillover effects into adjacent residential areas and other sensitive land uses. 4.6-viii. Screening and construction fences would be used by construction contractor to shield construction lighting from adjacent residential land uses wherever possible. 4.6-ix. Non-permanent landscaping and aesthetically pleasing fencing, with possible community artwork, where feasible, would be used by Metro and the construction contractor to shield construction activities and staging areas from residential and visually sensitive areas. Metro and the construction contractor would coordinate with local jurisdictions and school districts to develop art work for fencing. **Operation Mitigation Measures** 4.6-x. Use of form liners, textured surfaces, and non-reflective building materials would be included in the design of the retaining walls and sound walls, where feasible.	

Table ES-2. Summary of Impacts and Mitigation Measures for each of the Project Alternatives (Continued)

Adverse Effect (NEPA)/ Significant Impact (CEQA) Before Mitigation	Mitigation Measure(s)	Adverse Effect (NEPA)/ Significant Impact (CEQA) After Mitigation
SR 60 LRT Alternative		
Air Quality		
Construction Regional construction emissions for the SR 60 LRT Alternative would exceed the PM10 localized significance thresholds (LST) for the Mission Junction Maintenance Yard Option. **Operation** Operational emissions associated with the SR 60 LRT Alternative include emissions from highway traffic, transit buses, a light rail maintenance yard, and parking lots. Daily incremental operational emissions would decrease for all pollutants.	**Construction Mitigation Measures** 4.7-i. Chemical soil stabilization measures would be implemented by the construction contractor. 4.7-ii. Ground cover in disturbed areas quickly would be replaced quickly by the construction contractor. 4.7-iii. A minimum soil moisture of 12 percent would be maintained by the construction contractor during any equipment loading and unloading activities to control fugitive dust. **Operation Mitigation Measures** No mitigation measures are required.	Not Adverse/Less than Significant
Climate Change		
There are no adverse/significant climate change effects/impacts associated with either construction or operation of the SR 60 LRT Alternative.	No mitigation measures are required.	Not Adverse/Less than Significant
Noise and Vibration		
Construction Construction activities are predicted to exceed the FTA daytime noise limits at only the closest residences and commercial properties to station and guideway construction.	**Construction Mitigation Measures** 4.9-i. Use construction methods that avoid pile-driving at locations with noise- and vibration-sensitive receptors, such as residences, schools, and hospitals. Metro's contractor would consider using cast-in-drilled-hole (CIDH) or other suitable piling methods (such as steel torque-down piles) rather than impact pile drivers to reduce excessive noise and vibration. This should be considered near sensitive receptors.	Not Adverse/Less than Significant

Table ES-2. Summary of Impacts and Mitigation Measures for each of the Project Alternatives (Continued)

Adverse Effect (NEPA)/ Significant Impact (CEQA) Before Mitigation	Mitigation Measure(s)	Adverse Effect (NEPA)/ Significant Impact (CEQA) After Mitigation
SR 60 LRT Alternative		
Noise and Vibration		
The distances at which an exceedance of the FTA vibration damage criterion of 0.2 inches per second (ips) would occur (for typical timber and masonry residential structures) ranges from 15 feet for trucks to 20 feet for bulldozers to 35 feet for vibratory rollers. Construction activities are predicted to exceed the FTA vibration infrequent annoyance criterion at only the closest residences and commercial properties. **Operation** Along the SR 60 LRT Alternative alignment, severe operational noise impacts are predicted at one residence. Adverse vibration effects from operations of the SR 60 LRT Alternative are predicted at three residences. Vibration effects would be the same with the SR North Side Design Variation.	4.9-ii. In areas where vibration-producing equipment would be used, Metro's contractor would conduct a survey of the closest receptors (particularly fragile historic properties) to determine the baseline structural integrity and condition of walls and joints. These surveys would include the installation of strain gauges or photographic documentation of the interior walls and exterior façade to provide a basis for comparison after construction is completed. Depending on the baseline conditions of the nearby buildings, an appropriate construction and monitoring plan would be developed to minimize potential damage to susceptible structures. Where possible, temporary noise barriers would be erected between noisy activities and noise-sensitive receptors. If driven piles are required for deep foundation support or in areas within the monocover (to contain contaminated materials), steel torque-down piles can also be used to mitigate noise and vibration impacts. 4.9-iii. Construction equipment and material staging areas would be located away from sensitive receptors. 4.9-iv. Construction traffic and haul routes would be routed along roads in non-noise-sensitive areas where possible. 4.9-v. Contractors would be required to use best available control technologies, whenever possible, to limit excessive noise and vibration when working near residences. 4.9-vi. Metro will minimize the construction duration using construction methods that would shorten the construction schedule. 4.9-vii. Whenever possible, construction activities would be conducted during the daytime and during weekdays in accordance with most local noise-control ordinances. 4.9-viii. The public would be adequately notified of construction operations and schedules. Methods such as construction-alert publications or a Project Hotline would be used to handle complaints quickly. In addition, per Mitigation Measures 3.0-ii through 3.0-viii in Chapter 3, a Traffic Management Plan would also reduce noise and vibration effects/impacts from traffic and freeway operations during construction of the SR 60 LRT Alternative to not adverse under NEPA and less than significant under CEQA. **Operation Mitigation Measures** **Noise Mitigation Measures** The SR 60 LRT Alternative would have adverse effects under NEPA and a significant impact under CEQA from noise effects/impacts due to gaps at switches. These effects/impacts may be eliminated in a number of ways, such as relocating the switches (which are a crossover component), installing ballast mats under conventional switches to decouple the train vibration from the track supporting structure, or using a gapless spring frog.	

Table ES-2. Summary of Impacts and Mitigation Measures for each of the Project Alternatives (Continued)

Adverse Effect (NEPA)/ Significant Impact (CEQA) Before Mitigation	Mitigation Measure(s)	Adverse Effect (NEPA)/ Significant Impact (CEQA) After Mitigation
SR 60 LRT Alternative		
Noise and Vibration		
	4.9-ix. Relocating switches away from noise-sensitive receptors is one cost-effective measure for mitigating this impact. However, if operational concerns interfere with the relocation of switches, then several other viable mitigation options are available such as point-less switches (gapless spring frogs that eliminate the gap in the rail) or low-vibration isolators (ballast mats or tie pads) such as have been used on the San Diego Trolley system. The proposed crossover east of the Santa Anita Avenue station would be relocated away from sensitive land use receptors to eliminate noise impacts due to switches per FTA noise criteria. 4.9-x. For noise impacts due to LRV passbys along tangent aerial track sections, parapets are recommended in lieu of safety railings as part of the alignment to provide additional shielding for nearby residences. Parapets would be used at the following locations to eliminate noise impacts from LRV passbys: ▪ Eastbound track side starting just west of Gerhart Avenue to just east of Findlay Avenue – three-foot by 2,500-foot barrier ▪ Eastbound track side starting just east of Vail Avenue to the Montebello/Monterey Park city boundary – three-foot by 800-foot barrier (not applicable for the SR 60 North Side Design Variation) ▪ Eastbound track side starting just east of San Gabriel Boulevard to Muscatel Avenue – three-foot by 800-foot barrier Except for the noise barrier starting just east of Vail Avenue, the proposed mitigation for the SR 60 North Side Design Variation would be the same as for the SR 60 LRT Alternative. No noise impacts are predicted under the SR 60 North Side Design Variation between Vail Avenue and the Montebello/Monterey Park city boundary. **Vibration Mitigation Measures** As with the mitigation proposed for noise, vibration impacts due to gaps at switches may be eliminated by available options such as relocating the switches, installing ballast mats under conventional switches to decouple the train vibration from the track supporting structure, or using a gapless spring frog (see Mitigation Measure 4.9-ix). The proposed crossover east of the Santa Anita Avenue station would be relocated away from sensitive land use receptors to eliminate predicted vibration impacts due to switches at the three residences along the SR 60 LRT Alternative. No other vibration impacts are predicted along the SR 60 LRT Alternative alignment due to track switches because the switches would be strategically located as part of the advanced conceptual design to avoid impacts from rail discontinuities. Mitigation measure 4.9-ix would address the adverse vibration effects under NEPA and significant vibration impacts under CEQA.	

Table ES-2. Summary of Impacts and Mitigation Measures for each of the Project Alternatives (Continued)

Adverse Effect (NEPA)/ Significant Impact (CEQA) Before Mitigation	Mitigation Measure(s)	Adverse Effect (NEPA)/ Significant Impact (CEQA) After Mitigation
SR 60 LRT Alternative		
Ecosystems/Biological Resources		
Construction Construction of the SR 60 LRT Alternative would have adverse effects under NEPA and impacts under CEQA to migratory birds if an active migratory bird nest is located in any tree or vegetation removed or disturbed during construction. The SR 60 LRT Alternative crosses the Rio Hondo at Whittier Narrows, where riparian vegetation occurs in a narrow band lining the river corridor. Impacts to this riparian vegetation would occur during construction of the new bridge supporting the aerial LRT tracks over the Rio Hondo. However, these impacts would be localized and short-term in duration, and riparian vegetation is expected to quickly become re-established following construction. Some trees, which could include protected trees, in the project area would be removed or disturbed during construction. Existing wetlands within the Rio Hondo River could be affected if the new bridge were to require placement of columns and footings that would directly fill wetlands.	**Construction Mitigation Measures** The construction contractor and Metro shall be responsible for assuring the implementation of the following mitigation measures. 4.10-i. Construction activities that involve tree removal or trimming would be timed as much as possible by Metro to occur outside the migratory bird nesting season, which occurs generally from March 1 through August 31, and as early as February 1 for raptors. In addition, construction activities within 150 feet of the SR 60 bridge over the Rio Hondo or the bridge over the San Gabriel River would be timed to occur outside the migratory bird nesting season. 4.10-ii. If construction must occur during the nesting season, two biological surveys would be conducted by Metro, one 15 days and the second 72 hours prior to construction, that would remove or disturb suitable nesting habitat. The surveys would indicate the presence or absence of any protected native bird in the habitat to be removed and any other habitat within 300 feet of the construction work area. If a protected native bird is found, surveys would be continued in order to locate any nests. If an active nest is found, construction within 300 feet of the nest (500 feet for raptor nests) would be postponed until the nest is vacated and juveniles have fledged (minimum of six weeks after egg-laying), and there is no evidence of a second attempt at nesting. If construction at the SR 60 bridge over the Rio Hondo or the bridge over the San Gabriel River cannot be conducted outside the migratory bird nesting season, old mud nests located under the bridge would be removed by Metro prior to the start of nesting season and exclusion devices would be installed to prevent swallows or other birds from building new nests prior to February 15th of the year construction would occur. 4.10-iii. Prior to construction activities, Metro would ensure that qualified bat biologists would conduct bat surveys at the SR 60 bridges over the Rio Hondo and San Gabriel River to determine bat use patterns. Surveys would be conducted during the time of year most likely to detect bat usage (March through October). 4.10-iv. If surveys indicate the SR 60 bridges are utilized as bat roosting areas, then one of two mitigation options below would be employed by Metro to minimize disturbance and mortality to roosting bats: a) Construction at the SR 60 bridges would be conducted outside the bat roosting and breeding period (i.e., construction would occur from November 1 to March 1); or b)Bat exclusion methods to seal-up entry sites (e.g., blocking and netting or installing sonic bat deterrence equipment) would be deployed prior to March 1 of the year construction would occur. 4.10-v. During the preliminary engineering phase of the project, Metro would ensure that columns would be located to avoid wetlands and removal of trees and vegetation where feasible.	Not Adverse/Less than Significant

Table ES-2. Summary of Impacts and Mitigation Measures for each of the Project Alternatives (Continued)

Adverse Effect (NEPA)/ Significant Impact (CEQA) Before Mitigation	Mitigation Measure(s)	Adverse Effect (NEPA)/ Significant Impact (CEQA) After Mitigation
SR 60 LRT Alternative		
Ecosystems/Biological Resources		
Current plan and profile drawings of the alignment show the LRT completely spanning the Rio Hondo River, thereby avoiding wetland impacts. **Operation** If operation of the SR 60 LRT Alternative requires the pruning of protected trees, an adverse effect could occur.	4.10-vi. If construction of the project requires removal or pruning of a protected tree, consideration by Metro of applicable municipal codes and ordinances of the city in which the affected tree is located would ensure that impacts would be less than significant. This may include replanting of protected trees within the project area or at another location to mitigate the removal of these trees. Replanting would be done at a ratio of one new tree for every one removed. **Operational Mitigation Measures** 4.10-vii. If operation of this alternative would entail pruning of any protected tree, the pruning would be performed by Metro in a manner that does not cause permanent damage or adversely affect the health of the tree.	
Geotechnical/Subsurface/Seismic/Hazardous Materials		
Construction **Geotechnical, Subsurface, Seismic Hazards** During construction, foundation installation near the toe of the existing OII landfill slope would have an adverse effect on slope stability if the landfill integrity is compromised by construction vibration. **Hazardous Materials** Construction of the SR 60 LRT Alternative alignment would pass through the OII landfill, where residual landfill material is likely present. As a result, contaminated soil, groundwater, or landfill gases could be encountered.	**Construction Mitigation Measure** **Geotechnical, Subsurface, Seismic Hazards** 4.11-i. If the SR 60 LRT Alternative is selected as the LPA, the following would be undertaken to confirm slope stability of man-placed materials on the OII Landfill site: ▪ Global stability of the refuse slope would be confirmed. ▪ Stability of the slope as influenced by foundation construction (cuts, shoring, equipment surcharge, etc.). ▪ Stability of existing features on the slope (buttress wall, utilities, etc.) as influenced by foundation construction. **Hazardous Materials** Where noted, mitigation measures unique to the North Side Design Variation would apply; otherwise the mitigation measures listed below apply to the SR 60 LRT Alternative with or without the North Side Design Variation: 4.11-ii. As part of solid waste management during construction adjacent to the South Parcel of OII Landfill, the following measures would be implemented for construction options A, B, or C by the construction contractor:	Not Adverse/Less than Significant

Table ES-2. Summary of Impacts and Mitigation Measures for each of the Project Alternatives (Continued)

Adverse Effect (NEPA)/ Significant Impact (CEQA) Before Mitigation	Mitigation Measure(s)	Adverse Effect (NEPA)/ Significant Impact (CEQA) After Mitigation
SR 60 LRT Alternative		
Geotechnical/Subsurface/Seismic/Hazardous Materials		
The SR 60 LRT Alternative alignment traverses the southern side of SR 60 over the Whittier Narrows (Omega Chemical) OU, a Superfund site. As a result, contaminated groundwater could be encountered. Construction of the SR 60LRT Alternative would occur within or near other contaminated sites, which could expose workers, the public or sensitive receptors to hazardous materials in the soil and groundwater, or during building demolition. There is potential for adverse effects to occur from the accidental release of hazardous materials during the transport of soil or other media contaminated with hazardous materials to a disposal facility.	▪ Prior to construction anticipated solid (and liquid) wastes would be characterized, classified, and profiled for future handling, transportation and disposal/treatment purposes. The waste classification would be based on the results of sampling to identify the waste characteristics. The sampling and profiling would be conducted during pre-construction waste characterization, during which exploratory boreholes would be advanced at the CIDH column locations and waste, soil, and groundwater samples would be collected. In addition to collecting samples for waste characterization, the thickness and volume of the materials, the depth to groundwater, and the gas content in the subsurface would be identified. ▪ None of the solid waste removed from the construction may be placed in the OII Landfill, therefore the solid waste would require loading, transportation, and ultimately reuse or disposal. Waste segregation would likely be conducted based on the pre-construction classification. ▪ Removal of water-saturated soil would require runoff controls such as plastic sheeting drained to the toe of the landfill slope with liquid collection. Wet soil could require stabilization prior to transport. Stabilization could include mixing with a sorbent material during loading. ▪ If, through sampling, removed soil is found to contain hazardous materials, soil handling would be in compliance with applicable federal, state, and local laws and regulations regarding the handling of hazardous materials. ▪ Given that this is a Resource Conservation and Recovery Act (RCRA) and California hazardous waste project, full hazardous materials training, contractor licensing, and health and safety plans and programs would be required. Exposure to the public, workers and the environment from harmful materials would be prevented by developing the future design details appropriately, and by careful executing the future construction activities. ▪ Depending on the characterization of each waste stream, a number of disposal options exist. RCRA, non-RCRA, and California hazardous waste solids waste may be transported to a Class 1 hazardous waste treatment and disposal facility for treatment and/or permanent waste isolation. ▪ A disposal facility may be required to provide the following services for all or some of the OII Landfill waste stream: – Hazardous waste disposal. – Stabilization of inorganic wastes (e.g., metals). – Chemical oxidation treatment of organic waste.	

Table ES-2. Summary of Impacts and Mitigation Measures for each of the Project Alternatives (Continued)

Adverse Effect (NEPA)/ Significant Impact (CEQA) Before Mitigation	Mitigation Measure(s)	Adverse Effect (NEPA)/ Significant Impact (CEQA) After Mitigation
SR 60 LRT Alternative		
Geotechnical/Subsurface/Seismic/Hazardous Materials		
	4.11-ii. North Side Design Variation (NSDV): Small amounts of residual landfill waste material may have been missed during the North Parcel remedy actions and could be encountered. As a contingency for this, a soil management plan would be developed prior to construction that would identify activities for residual waste monitoring, identification, segregation, and disposal. 4.11-iii. A Contaminated Soil/Groundwater Management Plan would be implemented during construction to establish procedures to follow if contamination is encountered. The plan would include the following procedures to be implemented by the construction contractor: ▪ Notification procedures and contact information for appropriate regulatory agencies; ▪ Procedures for sampling and analysis of soil and/or groundwater known or suspected to be impacted by hazardous materials; ▪ Procedures for the proper handling, storage, transport, and disposal of contaminated soil and/or groundwater, in consultation with regulatory agencies; ▪ Procedures for the proper containment of refuse or other contaminated soil and/or groundwater during construction to ensure that contamination is not transported vertically or laterally; – Dust control measures (e.g., soil wetting, wind screens) for contaminated soil; and – Groundwater collection, treatment, and discharge procedures and applicable standards. 4.11-iv. In addition to mitigation measure 4.11-iii, as part of liquid waste and groundwater management during construction adjacent to the South Parcel of OII Landfill, the following measures would be implemented for construction option A by the construction contractor (assuming displacement piles are used, dewatering would not be necessary for construction options B or C): ▪ Pre-construction characterization, which would include solid waste, geotechnical, and aquifer testing, would be required. ▪ The method of dewatering would be determined as part of the construction planning; however, the objective would be to generate as little water as possible and to capture all water for offsite transport and treatment or recycling. The dewatering effort could include temporary tankage, followed by tank truck transportation to a permitted treatment and/or recycling facility. ▪ No water would be discharged to the landfill, and no untreated water would be discharged to local storm or sewer drains.	

Table ES-2. Summary of Impacts and Mitigation Measures for each of the Project Alternatives (Continued)

Adverse Effect (NEPA)/ Significant Impact (CEQA) Before Mitigation	Mitigation Measure(s)	Adverse Effect (NEPA)/ Significant Impact (CEQA) After Mitigation
SR 60 LRT Alternative		
Geotechnical/Subsurface/Seismic/Hazardous Materials		
	4.11-v. Prior to construction, a gas monitoring program would be developed to establish levels of response based on monitoring criteria developed by Metro in conjunction with USEPA and New Cure Inc. (NCI). The construction monitoring program would specify monitoring frequency, constituents and methods. It would also include a communications plan identifying the process for informing and obtaining consent from USEPA and NCI for any changes proposed to the existing gas collection activities based on observed monitoring results. The expected levels of construction gas mitigation would be: Level 1 - Gas Monitoring: ▪ Baseline and routine gas monitoring would be conducted at all existing LFG probes and GP locations. The frequency would be established in the construction monitoring program document. Monitoring data would be tracked and compared to established action levels. Example target limits for a construction gas monitoring program are provided below: – Gas temperature in excess of 140° F. – Gas temperature rise in excess of three percent per week. – Oxygen content in excess of ten percent. – Carbon monoxide in excess of 100 ppm. Level 2 - Gas Flow Reduction or Shutdown ▪ Should any of the agreed-to action levels be exceeded, the expected Level 2 response would be to reduce or eliminate LFG extraction at the affected well in addition to those on either side of the well. Gas flow rates could be controlled by the existing LFG extraction well valves. ▪ Monitoring of the nearest GP would then be increased in order to measure methane, CO2 and pressure to ensure that methane and other LFGs that would otherwise be collected from the LFG extraction wells are not increasing. Note that even with the flow reduction or shutdown of the perimeter LFG extraction wells, gas migration in the vicinity of the LRT construction project would still likely be toward active interior LFG extraction probes, where it would be eventually captured. ▪ In addition, increased methane and carbon monoxide (CO) health and safety monitoring would be conducted at the construction site, as the reduction or shutdown of the extraction wells could reduce gas protection for the workers.	

Table ES-2. Summary of Impacts and Mitigation Measures for each of the Project Alternatives (Continued)

Adverse Effect (NEPA)/ Significant Impact (CEQA) Before Mitigation	Mitigation Measure(s)	Adverse Effect (NEPA)/ Significant Impact (CEQA) After Mitigation
SR 60 LRT Alternative		
Geotechnical/Subsurface/Seismic/Hazardous Materials		
Operation **Geotechnical, Subsurface, Seismic Hazards** A segment of the SR 60 LRT Alternative east of San Gabriel Boulevard is located within the Alquist-Priolo Earthquake Fault zone. There is a potential for fault rupture along this portion of the alignment. A portion of the SR 60 LRT Alternative alignment between Muscatel Avenue and the eastern terminus of the alignment including the Santa Anita Avenue and Peck Road stations are mapped in areas potentially susceptible to liquefaction and may be susceptible to seismically-induced settlement. The Mission Junction Maintenance Yard Option is located in an area potentially susceptible to liquefaction and may be susceptible to seismically-induced settlement.	Level 3 - Construction Site Engineering Controls ▪ Should temperatures continue to increase, or remain elevated prior to the completion of construction and the installation of the permanent seal/cover restoration, temporary engineering controls would be initiated at the exposed construction sites in order to prevent air leakage. Controls would be further developed during the LRT detailed design process, and may include: – Temporary flexible membrane seals that are installed around the pilings or casing during installation.Temporary flexible membrane seals that are installed over the construction pad, should the pad be cut into the landfill. Spray on foam, visqueen, gunnite, bentonite or other similar material could also be utilized to temporarily seal the construction area from gas intrusion. 4.11-v.-NSDV Landfill gas is not anticipated to be a significant issue for construction associated with the North Side Design Variation as the LRT would be constructed entirely outside of the boundaries of the OII landfill and would not penetrate the monocover. Prior to construction, a gas management plan would nonetheless be developed by the construction contractor as part of the health and safety program and gas monitoring would be conducted during any excavation or grading activities. 4.11-vi. A Worker Health and Safety Plan would be developed prior to the start of construction activities. All workers would be required to review the plan, receive training if necessary, and sign the plan prior to starting work. The plan would, at a minimum, identify the following: ▪ Properties of concern and the nature and extent of contaminants that could be encountered during excavation activities; ▪ All appropriate worker, public health, and environmental protection equipment and procedures; ▪ Emergency response procedures, including the most direct route to a hospital; and ▪ Site Safety Officer.	

Table ES-2. Summary of Impacts and Mitigation Measures for each of the Project Alternatives (Continued)

Adverse Effect (NEPA)/ Significant Impact (CEQA) Before Mitigation	Mitigation Measure(s)	Adverse Effect (NEPA)/ Significant Impact (CEQA) After Mitigation
SR 60 LRT Alternative		
Geotechnical/Subsurface/Seismic/Hazardous Materials		
Hazardous Materials The SR 60 LRT Alternative would traverse the OII landfill, potentially exposing people to landfill gasses. Variation segment would be mostly at-grade; therefore, there could be adverse operational effects from vapor intrusion.	**Operation Mitigation Measures** **Geotechnical, Subsurface, Seismic Hazards** 4.11-vii. To address hazards associated with liquefiable soils and seismically-induced settlement, further evaluation would be conducted to determine the need for mitigation based on standard design specifications. Mitigation, such as replacement of liquefiable soils with engineered fill or ground improvement methods such as grouting, would be implemented to meet design specifications. Allowable differential seismically-induced settlement up to 1 inch and 2 inches is considered appropriate for structures and embankment, respectively. 4.11-viii. For the portion of the alignment within an Alquist-Priolo Fault Zone, during the final design phase of the project, Metro would perform a fault investigation to further delineate the location of the fault zone and provide appropriate setback for the foundation support. In general, a minimum setback of 50 feet is commonly used for structures intended for human occupancy, according to the Alquist-Priolo Earthquake Fault Zoning Act. **Hazardous Materials** 4.11-ix. To address hazards associated with landfill gases at the South Parcel of the OII Landfill site, permanent seals would be incorporated and the monocover restored as necessary to prevent long-term gas leakage from the OII landfill. Additionally, as part of the long term operation of the LRT, Metro would develop operations and maintenance procedures to inspect, test, and repair the integrity of the LRT foundation seals during existing quarterly cap inspection and maintenance program conducted by NCI. 4.11-ix-NSDV. No cover inspection is applicable to the North Parcel. Should future subsurface explorations and the detailed design alter this assumption, measures similar to those mentioned under South Parcel could be considered in limited areas of the North Parcel Alignment, as appropriate.	
Water Resources		
Construction Adverse effects/significant impacts to flood control facilities during construction of the SR 60 LRT Alternative. Adverse effects/significant impacts to water quality during construction of the SR 60 LRT Alternative.	**Flooding** 4.12-i. Construction of the SR 60 LRT Alternative in the SR 60 ROW through Whittier Narrows Dam Flood Control Basin and placement of LRT columns in the flood control basin as well as construction of the proposed Santa Anita Avenue station would be modifications of the flood damage reduction structure. Approval of modifications to flood control structures would require additional coordination with USACE. Metro would submit a Section 408 permit application to USACE and would include a technical analysis of the potential impacts to the flood control basin.	Not Adverse/Less than Significant

Table ES-2. Summary of Impacts and Mitigation Measures for each of the Project Alternatives (Continued)

Adverse Effect (NEPA)/ Significant Impact (CEQA) Before Mitigation	Mitigation Measure(s)	Adverse Effect (NEPA)/ Significant Impact (CEQA) After Mitigation
SR 60 LRT Alternative		
Water Resources		
Adverse effects/significant impacts associated with groundwater contamination during construction of the SR 60 LRT Alternative.	This would include completion of the eight-step decision-making process under Executive Order 11988 for construction within the 100-year floodplain, as well as completion of an evaluation required under Regulation 1000-2-1 for construction within flood control basins. In addition, an evaluation would be completed as required in compliance with USACE Policy Guidance Letter No. 32 for construction on flowage easement land (at the proposed Santa Anita Avenue station). Based on these evaluations, the SR 60 LRT Alternative construction designs would incorporate all required measures related to being located within a flood control basin which could include, but are not limited to, the following: ▪ Buildings that contain utilities, records, and/or equipment shall either be flood-proofed; or ▪ Development of contingency plans for evacuation of moveable items before floods. 4.12-ii. To compensate for potential loss of flood storage capacity or alteration of flood flow direction and velocity due to placement of LRT columns in USACE and LACDPW flood control facilities, Metro would provide 83 cubic yards of compensatory mitigation to replace lost storage capacity. Compensatory mitigation for flood storage impacts would, at a minimum, replace any lost flood capacity. In addition, the Santa Anita Avenue station would be designed so that there would be no parking or storage located on the ground level and so that floodwaters could freely flow under and through the structure. In general, mitigation can occur at or below the elevation of impact. The area chosen for compensatory mitigation must be free draining (e.g., pooled water must be able to flow out of the storage area as floodwaters recede) and would comply with USACE drainage requirements. 4.12-iii. Metro would ensure that construction of the portion of the SR 60 LRT Alternative within the Whittier Narrows Flood Control Basin would be in compliance with all applicable USACE Reservoir Regulations, which could include but not be limited to preparation of an emergency evacuation plan, balanced cut and fill to retain basin storage, and limitations based upon rainy season requirements. **Water Quality** 4.12-iv. In compliance with the SWRCB's General Construction Permit (Order #2009-0009-DWQ), Metro would prepare a SWPPP that would specify properly designed, centralized storage areas that would keep these materials out of the rain. Spill cleanup materials (e.g., rags, absorbent materials, and secondary containment) would be kept at the work site when handling materials. Metro would ensure that site supervisors and workers have knowledge of the SWPPP. Therefore, site supervisors would conduct regular meetings to discuss pollution prevention. The frequency of such meetings and the personnel required to attend would be specified in the SWPPP.	

Table ES-2. Summary of Impacts and Mitigation Measures for each of the Project Alternatives (Continued)

Adverse Effect (NEPA)/ Significant Impact (CEQA) Before Mitigation	Mitigation Measure(s)	Adverse Effect (NEPA)/ Significant Impact (CEQA) After Mitigation
SR 60 LRT Alternative		
Water Resources		
	4.12-v. The SWPPP would also specify a monitoring program to be implemented by the construction site supervisor and Metro and would include both dry and wet weather inspections. City personnel from each applicable jurisdiction would also conduct regular inspections to ensure compliance with the SWPPP. 4.12-vi. Metro would oversee implementation of BMPs designed to reduce erosion of exposed soil. These may include, but are not limited to: soil stabilization controls; water for dust control; perimeter silt fences; placement of straw wattles; and sediment basins. The potential for erosion is generally greater when grading is performed during the rainy season, as disturbed soil can be exposed to rainfall and storm runoff. If grading activities must take place during the rainy season, the BMPs selected would focus on erosion control and keeping sediment in place. End-of-pipe sediment control measures (e.g., basins and traps) would be used as secondary measures. Entry and egress from construction sites would be carefully controlled to minimize off-site tracking of sediment. Additional sources of information regarding BMPs include the California Storm Water Municipal and Construction Activity BMP Handbooks, as well as the California Department of Transportation's (Caltrans) Storm Water Quality Handbooks, Project Planning and Design Guide (2003). 4.12-vii. As required under the NPDES MS4 permit, specific categories of projects in jurisdictions covered by the permit must comply with the SUSMP. Metro would prepare a SUSMP that describes necessary BMPs which must be incorporated into design plans for specific categories of development and redevelopment. The proposed alternatives require compliance with the SUSMP under project category seven: parking lot 5,000 square feet or more of surface area or with 25 or more parking spaces. 4.12-viii. The Los Angeles County Building and Safety Division determines compliance of the proposed alternatives with the SUSMP through the incorporation of BMPs in drainage and grading plans. Prior to issuance of any grading or building permits, the County Building and Safety Division must approve the BMPs. The contractor would be responsible for preparing the drainage and grading plans and obtaining approval of the plans prior to the start of construction. Applicable BMPs that may be included in the drainage plan include: ▪ Oil/water separators; ▪ Catch basin inserts; ▪ Storm drain inserts;	

Table ES-2. Summary of Impacts and Mitigation Measures for each of the Project Alternatives (Continued)

Adverse Effect (NEPA)/ Significant Impact (CEQA) Before Mitigation	Mitigation Measure(s)	Adverse Effect (NEPA)/ Significant Impact (CEQA) After Mitigation
SR 60 LRT Alternative		
Water Resources		
	▪ Media filtration; and/or ▪ Catch basin screens. 4.12-ix. LARWQCB's municipal stormwater NPDES permit (Order No. 01-182 and NPDES No. CAS004001) specifies that permittees must implement a program to control runoff from construction activity. As part of this, an erosion and sediment control plan would be prepared and established by Metro prior to the initiation of construction activities. Ultimately approved by the LARWQCB, the plan would include BMPs such as the following measures as appropriate: ▪ Use of natural drainage, detention ponds, sediment ponds, or infiltration pits to allow runoff to collect and to reduce or prevent erosion; ▪ Use of barriers to direct and slow the rate of runoff and to filter out large sediments; ▪ Use of downdrains or chutes to carry runoff from the top of a slope to the bottom; and ▪ Control of the use of water for irrigation so as to avoid off-site runoff. 4.12-x. If contaminated groundwater is encountered during construction, the contractor would stop work in the vicinity, cordon off the area, contact the appropriate hazardous waste coordinator and maintenance hazardous spill coordinator at Metro, and immediately notify the Certified Unified Program Agencies (County of Los Angeles Fire Department and LARWQCB) responsible for hazardous materials and wastes. Through coordination with LARWQCB, an investigation and remediation plan would be developed in order to protect public health and the environment. The contractor would properly treat or dispose of any hazardous or toxic materials according to local, state, and federal regulations.	
Operation Adverse effects/significant impacts to flood control facilities during operation of the SR 60 LRT Alternative. Adverse effects/significant impacts to water quality during operation of the SR 60 LRT Alternative. Adverse effects/significant impacts associated with groundwater contamination during operation of the SR 60 LRT Alternative.	**Operation Mitigation Measures** 4.12-xi. To compensate for potential effects to users of the transit system in the event of a flood, Metro's Procedures Plan would be executed to close the Santa Anita station and assist commuters in the event of a flood that reaches the station. 4.12-xii. A drainage control plan would be developed by Metro during project design to properly convey drainage from the project area and avoid ponding on adjacent properties. The flood capacity of existing drainage or water conveyance features would not be reduced in a way that would cause ponding or flooding during storms. Implementation of this plan would protect against localized flooding impacts during operation of the SR 60 LRT Alternative (with or without the North Side Design Variation).	

Table ES-2. Summary of Impacts and Mitigation Measures for each of the Project Alternatives (Continued)

Adverse Effect (NEPA)/ Significant Impact (CEQA) Before Mitigation	Mitigation Measure(s)	Adverse Effect (NEPA)/ Significant Impact (CEQA) After Mitigation
SR 60 LRT Alternative		
Water Resources		
	4.12-xiii. The following permanent treatment/post-construction BMPs would be incorporated by Metro into the proposed project where needed or necessary (each of the measures below is explained in detail in Section 6.0 of Appendix W, Water Resources Technical Memorandum): ▪ Extended/dry detention basins or underground detention tanks; ▪ Infiltration basins/trenches; ▪ Bioretention facilities; ▪ Media filtration; ▪ Porous pavement; and ▪ Vegetated filter strips.	
Energy		
There are no adverse/significant energy effects/impacts associated with either construction or operation of the SR 60 LRT Alternative.	No mitigation measures are required.	Not Adverse/Less than Significant
Cultural Resources		
Built Environment No adverse effects/ significant impacts to cultural resources would occur with construction or operation of the SR 60 LRT Alternative.	No mitigation measures are required.	Not Adverse/Less than Significant
Archaeological Resources Construction Construction of the SR 60 LRT Alternative, with or without the SR 60 North Side Design Variation, could have the potential to disturb or destroy a significant archaeological resource.	**Construction Mitigation Measures** 4.14.2-i. Prior to any ground disturbing activities, a project-wide CRMMP would be developed and implemented by Metro. This document would address areas where potentially significant prehistoric and historic archaeological deposits are likely to be located within the proposed project area. The CRMMP would also include a detailed prehistoric and historic context that clearly demonstrates the themes under which any identified subsurface deposits would be determined significant.	Not Adverse/Less than Significant

Table ES-2. Summary of Impacts and Mitigation Measures for each of the Project Alternatives (Continued)

Adverse Effect (NEPA)/ Significant Impact (CEQA) Before Mitigation	Mitigation Measure(s)	Adverse Effect (NEPA)/ Significant Impact (CEQA) After Mitigation
SR 60 LRT Alternative		
Cultural Resources		
Operation No adverse effects/significant impacts to archaeological resources would occur with operation of the SR 60 LRT Alternative	4.14.2-ii. Should significant deposits be identified during earth-moving activities, the CRMMP overseen by Metro would address methods for data recovery, anticipated artifact types, artifact analysis, report writing, repatriation of human remains and associated grave goods, and curation. 4.14.2-iii. The CRMMP overseen by Metro would also require that an archaeologist qualified in prehistoric and historical archaeology be retained prior to ground-disturbing activities. 4.14.2-iv. The CRMMP overseen by Metro would be a guide for monitoring activities. If buried cultural resources, such as flaked or ground stone, historic debris, building foundations, or non-human bone, are discovered during ground-disturbing activities, work will stop in that area and within 50 feet of the find until a qualified archaeologist can assess the significance of the find and, if necessary, develop appropriate treatment measures. 4.14.2-v. Metro would retain a Native American monitor if treatment involved work at a prehistoric site. Treatment measures typically include: development of avoidance strategies, capping with fill material, or mitigation of impacts through data recovery programs such as excavation or detailed documentation. 4.14.2-vi. If during cultural resources monitoring the qualified archaeologist determines that the sediments being excavated are previously disturbed or unlikely to contain significant cultural materials, the qualified archaeologist can specify that monitoring be reduced or eliminated. **Operation Mitigation Measures** No mitigation measures are required.	
Paleontological Resources **Construction** There could be significant impacts to unknown paleontological resources during construction activities. **Operation** No significant impacts to paleontological resources would occur with operation of the SR 60 LRT Alternative.	**Construction Mitigation Measures** 4.14.3-i. Metro shall retain a qualified paleontological monitor to monitor excavation in areas identified as likely to contain paleontological resources. These areas are defined as all areas within the proposed project site where planned excavation will exceed depths of six feet into native undisturbed sediments. 4.14.3-ii. The qualified paleontological monitor shall retain the option to reduce monitoring if, in his or her professional opinion, sediments being monitored are previously disturbed. Monitoring may also be reduced if the potentially fossiliferous units, previously described, are not found to be present or, if present, are determined by qualified paleontological personnel to have low potential to contain fossil resources.	Not Adverse/Less than Significant

Table ES-2. Summary of Impacts and Mitigation Measures for each of the Project Alternatives (Continued)

Adverse Effect (NEPA)/ Significant Impact (CEQA) Before Mitigation	Mitigation Measure(s)	Adverse Effect (NEPA)/ Significant Impact (CEQA) After Mitigation
SR 60 LRT Alternative		
Cultural Resources		
	4.14.3-iii. Metro would make sure that the monitor is equipped to salvage fossils and samples of sediments as they are unearthed to avoid construction delays, and empowered to temporarily halt or divert equipment to allow removal of abundant or large specimens. Since older Quaternary deposits yield small fossil specimens likely to go unnoticed during typical large-scale paleontological monitoring, matrix samples shall be collected and processed to determine the potential for small fossils to be recovered prior to substantial excavations in those sediments. If this sampling indicates that these units do possess small fossils, a matrix sample of up to 6,000 pounds shall be collected at various locations, to be specified by the paleontologist, within the construction area. These matrix samples shall also be processed for small fossils. 4.14.3-iv. The paleontological monitor would make certain that recovered specimens be prepared to a point of identification and permanent preservation, including washing of sediments, to recover small invertebrates and vertebrates. 4.14.3-v. Metro would make certain that specimens shall be curated into a professional, accredited museum repository with permanent retrievable storage. A report of findings, with an appended itemized inventory of specimens, shall be prepared. The report and inventory, when submitted to Metro, will signify completion of the program to mitigate impacts to paleontological resources. **Operation Mitigation Measures** No mitigation measures are required.	
Parklands and Other Community Facilities		
Construction Access to the SR 60 ROW may occur through a driveway on South El Monte High School property during project construction, potentially disrupting vehicle, bike and pedestrian access.	**Construction Mitigation Measures** 4.15-i. Schedule construction access to the SR 60 ROW through the South El Monte High School property at times when it would not disrupt school activities. 4.15-ii. Coordinate with school district officials to ensure that viable, safe pedestrian, bicycle, and automobile routes to schools are maintained. 4.15-iii. Coordinate with local emergency response personnel in advance of any necessary street closures to ensure that service ratios and response times are not affected. 4.15-iv. Provide a temporary re-routing of the Rio Hondo (and San Gabriel River) bike path(s) if any construction-related closures are needed, in order to keep the bike path open at all times. 4.15-v. Access to the SR 60 ROW through the Whittier Narrows Recreation Area would only occur during times when the park is normally closed.	Not Adverse/Less than Significant

Table ES-2. Summary of Impacts and Mitigation Measures for each of the Project Alternatives (Continued)

Adverse Effect (NEPA)/ Significant Impact (CEQA) Before Mitigation	Mitigation Measure(s)	Adverse Effect (NEPA)/ Significant Impact (CEQA) After Mitigation
SR 60 LRT Alternative		
Parklands and Other Community Facilities		
Lane closures and overnight street closures along Pomona Boulevard may require detours for emergency vehicles traveling to and from the Los Angeles County Sheriff's Station located on 3rd Street. Viaduct construction may require temporary closure of the Rio Hondo Bike Path along the Whittier Narrows Recreation Area. Disruptions to park facilities may occur as a parking lot associated with Legg Lake is used to access ROW areas. Temporary tree removal may also be needed in this area as a part of project construction. **Operation** There are no adverse/significant parklands and other community facilities effects/impacts associated with operation of the SR 60 LRT Alternative.	4.15-vi. Construction within the Whittier Narrows Recreation Area, including any partial closures for construction access and staging areas, would be done in coordination with Los Angeles County Department of Parks and Recreation. 4.15-vii. Minimize temporary tree removal in the Whittier Narrows Recreation Area along the edge of the SR 60 ROW, and replace trees as quickly as possible. Tree removal would be done in coordination with Los Angeles County Department of Parks and Recreation. In accordance with the Whittier Narrows Dam Basin Master Plan, if temporarily removed trees are non-native, they would be replaced with native species. **Operation Mitigation Measures** No mitigation measures are required.	
Economic and Fiscal Impacts		
Construction Construction would have temporary impacts on commercial and industrial businesses, particularly those near or adjacent to construction sites.	**Construction Mitigation Measures** In addition to the mitigation measures identified below, mitigation measures4.5-i through 4.5-iv and 4.5-vi through 4.5-ix from Section 4.5, Community and Neighborhood Impacts and mitigation measures 3.0-ii through 3.0-xiii from Chapter 3, Transportation Impacts would be implemented. (Refer to the specific sections for the detailed mitigation measure.)	Not Adverse/Less than Significant

Table ES-2. Summary of Impacts and Mitigation Measures for each of the Project Alternatives (Continued)

Adverse Effect (NEPA)/ Significant Impact (CEQA) Before Mitigation	Mitigation Measure(s)	Adverse Effect (NEPA)/ Significant Impact (CEQA) After Mitigation
SR 60 LRT Alternative		
Economic and Fiscal Impacts		
There are no long-term adverse effects associated with the economic impacts generated by construction-related capital expenditures, which includes construction and continued spending on vehicles and facilities when service is operating. Construction-related spending and job creation would last for the duration of the project's construction cycle. **Operation** There are no adverse/significant economic and fiscal effects/impacts associated with operation of the SR 60 LRT Alternative.	4.4-viii. Metro Construction Relations staff and construction personnel would contact and interview individual businesses to identify business usage, delivery, and shipping patterns, as well as critical times of the day or year for business activities, to aid in developing Worksite Traffic Control Plans and to ensure that critical business activities are not disrupted. 4.4-ix. During construction Metro would develop, fund, and maintain a telephone hotline, and one or more Metro field offices would be developed and maintained to address community issues and concerns as they arise. The office should be open on weekdays and on any weekends when work occurs. The office would provide a physical location where information pertaining to construction can be exchanged. Metro would ensure that all potentially affected persons know the name and telephone number(s) of public affairs staff whom they can contact if needed. The contractor staffing plan would be subject to Metro review. 4.4-x. Metro would participate in local events to promote awareness of the project. 4.4-xi. Metro would notify property owners, businesses, and residences of major construction activities (e.g., utility relocation or disruption and milestones and re-routing of delivery trucks). 4.4-xii. Metro would provide literature to the public and news media, schedule promotional displays, participate on community committees, and make presentations, as needed, about the project. 4.4-xiii. Metro would coordinate business outreach programs and implement promotions for businesses most affected by the construction. 4.4-xiv. Upon completion of construction, property needed for construction but not required to maintain the physical infrastructure or necessary for access would be included in a Metro Joint Development Program for possible development, and also in a report to FTA on Excess Property Management. Any joint development project would be environmentally cleared separately from this project and would undergo its own community input process. Until a development is approved, the remaining underutilized property may be used for operations-related purposes, and maintained to a standard that reflects the community's identity and character. **Operation Mitigation Measures** No mitigation measures are required.	

Table ES-2. Summary of Impacts and Mitigation Measures for each of the Project Alternatives (Continued)

Adverse Effect (NEPA)/ Significant Impact (CEQA) Before Mitigation	Mitigation Measure(s)	Adverse Effect (NEPA)/ Significant Impact (CEQA) After Mitigation
SR 60 LRT Alternative		
Safety and Security		
Construction Construction of the SR 60 LRT Alternative has the potential to impact: automobile, pedestrian and bicycle safety; and emergency access routes and emergency responders. The potential for crime and terrorism during construction is related primarily to construction equipment and staging areas. Construction equipment stored at construction sites and staging areas may be attractive to theft if not adequately secured. The visibility of construction aspects of the alternative from SR 60 may encourage heightened visitation from criminals into the project area.	**Construction Mitigation Measures** 4.16-i. Metro would provide alternative walkways for pedestrians around construction staging areas where sidewalks currently exist, in accordance with Americans with Disabilities Act (ADA) requirements. 4.16-ii. Metro would sign and properly mark all pedestrian and bicycle detour locations around staging sites, in accordance with the Manual on Uniform Traffic Control Devices "work zone" guidance and other applicable local and state requirements. 4.16-iii. Metro would coordinate work plans and traffic control measures with emergency responders to prevent effects on emergency response times. 4.16-iv. Metro would develop a Construction Mitigation Program during final design and implement the program during construction. The program would guide Metro in obtaining input from residents and businesses affected during construction, and in communicating with the community regarding traffic control measures, the schedule of activities, and the duration of operations. 4.16-v. Metro would coordinate with and notify the Los Angeles Unified School District (LAUSD), Montebello USD, El Rancho USD, Whittier Union High/Los Nietos Elementary, Whittier Union High/Whittier City Elementary, and El Monte Union High/Valle Indo Elementary as well as individual school administrators to ensure that safe and convenient pedestrian and bicycle routes to schools are maintained. This would include the publication and distribution of school pedestrian and bicycle route maps. 4.16-vi. Metro would provide sufficient notices to forewarn students and parents when school pedestrian and bicycle routes are affected by construction. 4.16-vii. Metro would notify LAUSD and other local unified school districts of impending impacts on existing school bus routes. 4.16-viii. Metro would inform the public, including LAUSD and other local unified school districts, of bus stops that will be abandoned or changed during or after construction of the LRT line. 4.16-ix. Metro would provide security at the construction sites and staging areas in the form of barriers at excavation sites, installation of temporary fencing, security patrols, and appropriate signage and lighting. 4.16-x. Metro would assess and coordinate with police and fire service providers prior to and during construction to share daily construction schedules and how emergency services would serve the area during periods of construction.	Not Adverse/Less than Significant

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Table ES-2. Summary of Impacts and Mitigation Measures for each of the Project Alternatives (Continued)

Adverse Effect (NEPA)/ Significant Impact (CEQA) Before Mitigation	Mitigation Measure(s)	Adverse Effect (NEPA)/ Significant Impact (CEQA) After Mitigation
SR 60 LRT Alternative		
Safety and Security		
Operation The project has the potential to attract crime. Pedestrian safety could be compromised at stations, designated grade crossings, and near at-grade segments of the trackway. There is the potential for motor vehicle/light rail collisions associated with the SR 60 LRT Alternative. Aerial portions of the alternative require support columns, which would create shadows and would create hiding places along SR 60 that may add to crime problems in the area.	4.16-xi. Temporary evacuation plans would be developed by Metro and put in place for areas that are temporarily affected by construction activities, such as the overnight closure of a roadway or other temporary detours that may affect evacuation plans. In addition, public events would be taken into consideration when planning construction activities to ensure safety of workers, participants, Metro patrons, and other members of the public. **Operation Mitigation Measures** All proposed mitigation measures regarding safety and security would be developed in conformance with Metro's Rail Transit Design Criteria and Standards, Fire/Life Safety Criteria, Volume IX. These criteria specifically address fire protection requirements for the design and construction of LRT systems. The criteria identify and discuss fire safety as it corresponds to the following specific design elements: station and guideway facilities, passenger vehicles, vehicle and maintenance yards, system fire/life safety procedures, communications, rail operations control, and inspection, maintenance and training. The criteria establish minimum requirements that would provide for the protection of life and property from the effects of fire. Proposed safety and security mitigation recommendations would be based on the results of, and become a part of, the Threat and Vulnerability Assessment that will be conducted for the locally preferred alternative when one is selected. These security measures may include: ▪ A CCTV system ▪ Emergency push-button call system for patrons ▪ Intrusion detection system ▪ Dedicated security patrol protocols and procedures ▪ Employing "Crime Prevention through Environmental Design" principles during the design phase The following mitigation measures apply to at-grade or aerial portions of the alignment. 4.16-xii. To reduce the risk of collisions between LRVs and automobiles on the street portion of the proposed alignments, Metro would coordinate with the CPUC, the Los Angeles County Department of Public Works and its traffic and lighting division, and the city and county fire departments, and would also comply with the Federal Highway Administration's Manual on Uniform Traffic Control Devices for signing and pavement marking treatments. 4.16-xiii. Metro would ensure that all stations are lighted to avoid or minimize shadows, and all pedestrian pathways leading to and from sidewalks and parking facilities would be well illuminated. Lighting would also provide excellent visibility for train operators and enable them to react to possible conflicts, especially with pedestrians crossing the track.	

Table ES-2. Summary of Impacts and Mitigation Measures for each of the Project Alternatives (Continued)

Adverse Effect (NEPA)/ Significant Impact (CEQA) Before Mitigation	Mitigation Measure(s)	Adverse Effect (NEPA)/ Significant Impact (CEQA) After Mitigation
SR 60 LRT Alternative		
Safety and Security		
	4.16-xiv. Metro's proposed station designs would not include design elements that obstruct visibility or observation or provide discrete locations favorable to crime. Pedestrian access to at-grade stations would be at ground level with clear sight lines. 4.16-xv. Sidewalk widths and placements would be designed appropriately by Metro to accommodate a wide variety of users. In areas directly adjacent to the rail stations, 1) sidewalks would be designed using the widest dimensions feasible (with widths exceeding ten feet) in conformance with Metro's adopted Land Use/Transportation Policy; 2) minimum widths would not be less than those allowed by the State of California Title 24 access requirements of 48 inches, or the ADA design recommendations of 60 inches; 3) accommodating pedestrian movements and flows would take priority over other transportation improvements, including automobile access; and 4) physical improvements would ensure that all stations are fully accessible, as defined in the ADA. 4.16-xvi. Adequate pedestrian queuing and refuge areas and wide crosswalks would be provided by Metro in areas immediately adjacent to proposed stations and park and ride facilities to promote pedestrian safety and mobility. 4.16-xvii. The Metro Fire/Life Safety Committee has developed standard safety-related design criteria to ensure adequate LRT operation in and around LRT stations. These include: 1) fire alarm protection within the station area, 2) a minimum of two fire emergency routes from each proposed station, 3) emergency ventilation and lighting, 4) communication systems between adjoining fire agencies, and 5) a methane detection system for each proposed station. 4.16-xviii. Metro would ensure that building construction for stations would not be less than Type I Construction as defined in the Uniform Building Code (UBC). For portions of the alignment where pedestrians or motor vehicles must cross the tracks, Metro would design crossings in accordance with CPUC and local public agency requirements. 4.16-xix. All proposed LRT stations and related park and ride facilities would be equipped with monitoring equipment, be monitored by Metro security personnel on a regular basis, or both. 4.16-xx. Metro would implement a security plan for LRT operations. The plan would include both in-car and station surveillance by Metro security or other local jurisdiction security personnel. 4.16-xxi. Prior to project opening, Metro would coordinate and consult with the LACSD and local municipal police departments to develop safety and security plans for the proposed alignment, park and ride facilities, and station areas. 4.16-xxii. Metro would continue to provide security services to cover the Eastside Transit Corridor Phase 2 Project.	

Table ES-2. Summary of Impacts and Mitigation Measures for each of the Project Alternatives (Continued)

Adverse Effect (NEPA)/ Significant Impact (CEQA) Before Mitigation	Mitigation Measure(s)	Adverse Effect (NEPA)/ Significant Impact (CEQA) After Mitigation
SR 60 LRT Alternative		
Safety and Security		
	4.16-xxiii. Fire separations would be provided and maintained by Metro in public occupancy areas. Station public occupancy would be separated from station ancillary occupancy by a minimum 2-hour fire-rated wall. The only exception is that a maximum of two station agents, supervisors, or information booths may be located within station public occupancy areas when constructed of approved non-combustible materials and limited in floor area to 100 square feet. 4.16-xxiv. The diverse needs of different types of travelers, including students, senior citizens, disabled citizens, and low-income citizens, would be addressed through a formal educational and outreach campaign conducted by Metro prior to and during project operation. The campaign would target these diverse community members to educate them on proper system use and on the benefits of riding LRT. 4.16-xxv. Metro would control all site access to maintenance yard(s) with an on-site guard and security team. Metro would place fencing around the perimeter of the maintenance yard(s) to prevent access by unauthorized individuals. The yard(s) would also include adequate lighting throughout.	
Environmental Justice		
Construction The SR 60 LRT Alternative would not result in any disproportionate adverse effects to low-income and minority populations during construction. **Operation** The SR 60 LRT Alternative would not result in any disproportionate adverse effects to low-income and minority populations during operation.	**Construction Mitigation Measures** Although no disproportionate adverse effects to low-income and minority populations would occur, construction mitigation measures identified for the environmental resources would apply to affected low-income and minority populations. **Operation Mitigation Measures** Although no disproportionate adverse effects to low-income and minority populations would occur, operation mitigation measures identified for the environmental resources would apply to affected low-income and minority populations.	Not Adverse/Less than Significant

Table ES-2. Summary of Impacts and Mitigation Measures for each of the Project Alternatives (Continued)

Adverse Effect (NEPA)/ Significant Impact (CEQA) Before Mitigation	Mitigation Measure(s)	Adverse Effect (NEPA)/ Significant Impact (CEQA) After Mitigation
Washington Boulevard LRT Alternative		
Transportation Impacts		
Construction Transit operation would be disrupted during construction. Traffic mobility would be disrupted and/or impeded by construction vehicles and equipment in the areas of construction. Vehicular travel time and intersection operation would be impacted. Freeway ramps (each eastbound on- and off-ramp from Atlantic Blvd. to Garfield Ave.) would be temporarily closed during construction. Construction of the San Gabriel River/I-605 aerial crossing would involve temporary reduction in lane and shoulder widths and several overnight closures of the I-605 Freeway mainline, with one direction closed at a time. During construction, off-street parking would be utilized for construction activities. On-street parking spaces and loading areas may need to be temporarily removed during construction. Pedestrian circulation would be disrupted during construction. Bicycle circulation would be disrupted during construction.	**Construction Mitigation Measures** The same mitigation measures described above for the SR 60 LRT Alternative (mitigation measure 3.0-ii through 3.0-iv) would also apply to the Washington Boulevard LRT Alternative relative to transit, intersections, freeway off-ramps, parking, pedestrian circulation, and bicycle circulation. **Freeway off-ramps** 3.0-xvii. The San Gabriel River/I-605 aerial crossing would have additional temporary adverse effects under NEPA and significant impacts under CEQA to the I-605 Freeway mainline. To mitigate this potential impact, public notice of all freeway closures would be provided and detour routes would be indicated. With this mitigation measure, since the freeway closures would be temporary in nature, the public would be notified in advance and detour routes would be provided; the closures would not cause an adverse effect under NEPA or a significant impact under CEQA to operations. Freeway closures would occur overnight or on weekends when traffic volume is minimal. The other construction mitigation measures discussed under mitigation measures 3-0-ii through 3.0-iv would apply equally to the San Gabriel River/I-605 aerial crossing. **Parking** The mitigation measures described above for the SR 60 LRT Alternative (mitigation measure 3.0-ii and 3.0-ix) would also apply to the Washington Boulevard LRT Alternative. **Pedestrian Circulation** The mitigation measures described above for the SR 60 LRT Alternative (mitigation measure 3.0-x and 3.0-xi) would also apply to the Washington Boulevard LRT Alternative. **Bicycle Circulation** The same mitigation measures described above for the SR 60 LRT Alternative (mitigation measure 3.0-ii, 3.0-xii, and 3.0-xiii) would also apply to the Washington Boulevard LRT Alternative. **Operation Mitigation Measures** **Intersections** Potential improvements were applied to the adversely affected intersections in the following order: ▪ Optimized signal splits and manually altered green times, if necessary; ▪ Increase the cycle length; ▪ Update signal phasing; and ▪ Lane configuration changes, such as restriping turning, through, and parking lanes at the affected intersections where feasible.	Unavoidable adverse/significant operation-related effect/impact at 16 intersections All other impacts would not be adverse/less than significant

Table ES-2. Summary of Impacts and Mitigation Measures for each of the Project Alternatives (Continued)

Adverse Effect (NEPA)/ Significant Impact (CEQA) Before Mitigation	Mitigation Measure(s)	Adverse Effect (NEPA)/ Significant Impact (CEQA) After Mitigation
Washington Boulevard LRT Alternative		
Transportation Impacts		
Operation Seventeen intersections would be would be substantially adversely effected by operation of the Washington Boulevard LRT Alternative. This alternative would require the elimination of existing off-street parking facilities near each of the proposed stations, which would result in spillover parking to the surrounding streets and potential for use of other nearby off-street facilities. The transition of the LRT service between the median alignment along Washington Boulevard and the Santa Fe Springs Maintenance Yard Option would impact intersection operation and create a conflict between the LRT and pedestrians when the LRT is accessing the maintenance yard. The reduction in travel lanes east of Montebello Boulevard could create conflicts between bicycle and automobile traffic along the at-grade segment of the alignment.	3.0-xviii. With the implementation of the following mitigation measures, the adverse effect under NEPA and significant impacts under CEQA at the following intersection would be mitigated. Montebello Boulevard/Washington Boulevard: AM peak hour (#31): Optimizing signal splits and providing additional green time to approaches with long vehicle queues and high delay would be provided at this intersection. For the 16 remaining intersections, additional mitigation measures were investigated to improve conditions. Further mitigation measures, such as lane configuration changes that would increase capacity of the roadways or restrictions in allowable turning movements, were considered infeasible due to ROW constraints or secondary effects to upstream and downstream locations. **Parking** 3.0-xix. For parcels that would be affected by the acquisition of parking, replacement parking would be provided at the parcel or at a nearby assemblage of parcels. Shared-use parking arrangements would be considered within new Metro facilities. Metro would work with local jurisdictions, businesses and merchants, and commerce associations to implement potential parking mitigation options to help offset losses during operation. **Pedestrian Circulation** 3.0-xx. Additional enhancement to the existing crosswalks at each proposed station location would be implemented to further improve pedestrian circulation. 3.0-xxi. Where park and ride structures are introduced at stations, new signalized and clearly marked walkways would be necessary for pedestrian circulation to and from the parking facilities and station entrances. For example, new at-grade crosswalks with marked pavement and flashing crossing lights would help to address potential conflicts with pedestrians. 3.0-xxii. Metro would prepare a Community Linkages Study that would document preferred pedestrian access to each station, general pedestrian circulation in the immediate vicinity of the station, and potential sites for connections to nearby bus services. The purpose of this study would include ensuring sufficient circulation, access, and information important to users of the transit system. The results of the study would be implemented through coordination between Metro and local jurisdictions. In addition, other techniques to increase pedestrian safety may be implemented, such as educational programs for local businesses, marketing and advertising campaigns, and consistent signage. Programs would be instituted via a combination of outreach strategies and information available on the Metro website.	

Table ES-2. Summary of Impacts and Mitigation Measures for each of the Project Alternatives (Continued)

Adverse Effect (NEPA)/ Significant Impact (CEQA) Before Mitigation	Mitigation Measure(s)	Adverse Effect (NEPA)/ Significant Impact (CEQA) After Mitigation
Washington Boulevard LRT Alternative		
Transportation Impacts		
	Bicycle Circulation 3.0-xxiii. Enhanced striping and pavement markings would help to clearly mark the flow of bicycle circulation on Washington Boulevard. As part of the Community Linkages Study discussed under mitigation measure 3.0-xxii, Metro would document bicycle network improvements. Identification and enhancement of alternative bike routes on parallel streets would be documented as part of the study. Metro would also document bicycle parking at each of the proposed stations.	
Displacement and Relocation Impacts		
Construction The construction of the Washington Boulevard LRT Alternative (both the at-grade and aerial crossings of Rosemead Boulevard and San Gabriel River/I-605) would require acquisition of 65 parcels, including partial acquisition as easements of 5 parcels, partial acquisition in fee of 6 parcels, and full acquisition of 54 parcels. The Washington Boulevard LRT Alternative would result in an adverse effect on 935 off-street parking spaces, which would require replacement parking. A total of 58 businesses and 633 employees would be displaced as a result of the Washington Boulevard LRT Alternative. The Washington Boulevard LRT Alternative would displace a total of 9 residential units and 30 people.	**Construction Mitigation Measures** In addition to the mitigation measures below, the mitigation measures described above for the SR 60 LRT Alternative would also apply to the Washington Boulevard LRT Alternative (See mitigation measures 4.3-i through 4.3-iii). 4.3-iv. Metro would work with local jurisdictions, merchants, other businesses and commerce associations to implement parking mitigation (e.g., including, but not limited to, creating temporary one-way streets to provide diagonal parking; convert police and fire preferential parking to permit parking; lease an existing garage; provided temporary metered parking; or provide motorist wayfinding signs to find parking facilities) to help offset losses during construction and operation. Metro would provide relocation assistance and compensation to businesses and residents as required by both the Uniform Act and the California Act. Where acquisitions and relocations are unavoidable, FTA and Metro would follow the provisions of both acts and their amendments. All real property acquired by Metro would be appraised to determine its fair market value (FMV). Just compensation, which would not be less than the approved appraisal, would be made to each property owner and holder of a property interest. 4.3-v. All businesses, persons, and occupants displaced as a result of the project would be given advance written notice by Metro and informed of their eligibility for relocation assistance and payments. It is anticipated that where business relocation is required, the displaced jobs would be retained with the relocation or reestablished at other sites in the project area. Commercial vacancy rates and available comparable sites within the cities in which the identified parcel acquisitions would occur would be reviewed to confirm that relocation could be accommodated within the existing building inventory. In the project area and region, there are expected to be sufficient available sites and commercial space suitable for affected businesses to be relocated. Recognizing that the horizon year for the project is 2035, the ease of relocation would be affected by the fluctuations of the marketplace and space availability at the actual time of relocation.	Not Adverse/Less than Significant

Table ES-2. Summary of Impacts and Mitigation Measures for each of the Project Alternatives (Continued)

Adverse Effect (NEPA)/ Significant Impact (CEQA) Before Mitigation	Mitigation Measure(s)	Adverse Effect (NEPA)/ Significant Impact (CEQA) After Mitigation
Washington Boulevard LRT Alternative		
Displacement and Relocation Impacts		
The 12-acre Commerce Maintenance Yard Option would require the partial acquisition of six privately-owned properties. The 12-acre Commerce Maintenance Yard Option would require the partial acquisition of eight UPRR-owned properties. There are no businesses or residences located in the UPRR-owned parcels. The Santa Fe Springs Maintenance Yard Option would require the full acquisition of 17 private property parcels. A total of 17 businesses and 144 employees would be displaced as a result of the Santa Fe Springs Maintenance Yard Option. **Operation** There are no adverse/significant displacement and relocation effects/impacts associated with operation of the Washington Boulevard LRT Alternative.	4.3-vi. Metro would provide housing relocation and assistance per the Uniform Act and the California Act. **Operation Mitigation Measures** No mitigation measures are required.	
Land Use and Development Impacts		
Construction Surrounding land uses could be disrupted while construction activities are performed.	**Construction Mitigation Measures** The following mitigation measures from Chapter 3, Transportation Impacts, Section 4.7, Air Quality, and Section 4.9, Noise and Vibration would be implemented: 3.0-ii, 3.0-iv through 3.0-vi, 3.0-viii, 3.0-x, 3.0-xi, 3.0-xvii, 4.7-i, and 4.9-i through 4.9-viii. (Refer to the specific section for the detailed mitigation measure.)	Not Adverse/Less than Significant

Table ES-2. Summary of Impacts and Mitigation Measures for each of the Project Alternatives (Continued)

Adverse Effect (NEPA)/ Significant Impact (CEQA) Before Mitigation	Mitigation Measure(s)	Adverse Effect (NEPA)/ Significant Impact (CEQA) After Mitigation
Washington Boulevard LRT Alternative		
Land Use and Development Impacts		
Construction of the Washington Boulevard LRT Alternative could generate temporary pedestrian and vehicle detours that would inhibit, but not prevent, access to existing land uses along the alignment. **Operation** There are no adverse/significant land use and development effects/impacts associated with operation of the Washington Boulevard LRT Alternative.	**Operation Mitigation Measures** No mitigation measures are required.	
Community and Neighborhood Impacts		
Construction Community disruption could occur while construction activities are performed. Residential areas adjacent to Garfield Avenue and Washington Boulevard would experience intermittent construction noise. Tree removal would be necessary along the southern edge of SR 60 between Sadler Avenue and Garfield Avenue, which would subject adjacent residential communities to greater freeway exposure.	**Construction Mitigation Measures** Mitigation measure 4.10-vi from Section 4.10, Ecosystems and Biological Resources would be implemented. (Please refer to the specific section for the detailed mitigation measure.) The construction mitigation measures described for the SR 60 LRT Alternative would also apply to the Washington Boulevard LRT Alternative. (Please refer to mitigation measures 4.5-i through 4.5-xiv and 3.0-ii through 3.0-xiii from Chapter 3, Transportation Impacts and Mitigation.) **Operation Mitigation Measures** The operation mitigation measures described for the SR 60 LRT Alternative would also apply to the Washington Boulevard LRT Alternative (See mitigation measures 4.5-i through 4.5-xiv) and mitigation measures 3.0-xix through 3.0-xxiii from Chapter 3, Transportation Impacts and Mitigation. 4.5-xv. Metro would replace or relocate the trees from the median of Washington Boulevard in the Rio Hondo Coastal Basin Spreading Grounds to the sides of the roadway. Some new trees would need to be introduced in order to provide an adequate density of trees on both sides of the street.	Unavoidable adverse operation-related effects to social/physical character and community resources/events /Less than Significant

Table ES-2. Summary of Impacts and Mitigation Measures for each of the Project Alternatives (Continued)

Adverse Effect (NEPA)/ Significant Impact (CEQA) Before Mitigation	Mitigation Measure(s)	Adverse Effect (NEPA)/ Significant Impact (CEQA) After Mitigation
Washington Boulevard LRT Alternative		
Community and Neighborhood Impacts		
Construction would require intermittent road and sidewalk closures, and would add construction equipment and vehicles to local roadways, which would disrupt traffic patterns and make access to community resources and events more difficult. Construction sites can sometimes become attractive venues for loitering and illegal activity. Construction would likely result in a temporary decrease in accessibility to some businesses and reductions in on-street and off-street parking, which could result in adverse effects. Vehicle and pedestrian mobility would be reduced during construction due to intermittent road and sidewalk closures and detours. This potential impact would be adverse during the construction phase. Street and sidewalk closures during construction could temporarily exacerbate the dividing effect that SR 60 currently has between	4.5-xvi. Metro would replace or relocate the palm trees from the median of Washington Boulevard between Allport and Appledale Avenues to the sides of the roadway. In order to re-create the visual effect of the evenly spaced row of trees that currently exists in the median along both sides of the street, some new trees would be needed.	

Table ES-2. Summary of Impacts and Mitigation Measures for each of the Project Alternatives (Continued)

Adverse Effect (NEPA)/ Significant Impact (CEQA) Before Mitigation	Mitigation Measure(s)	Adverse Effect (NEPA)/ Significant Impact (CEQA) After Mitigation
Washington Boulevard LRT Alternative		
Community and Neighborhood Impacts		
Montebello and Monterey Park. Other temporary divisions would occur along the alignment. **Operation** The proposed infrastructure changes the appearance of the neighborhood and its primary arterial thoroughfare. This alternative would alter the social and physical character of the existing community along Garfield Avenue in Montebello between Via Campo and Whittier Boulevard and between Via Campo and Beverly Boulevard. The removal of the street-fronting restaurants on the east side of Garfield Avenue just south of Via Campo (including the Chinese Garden restaurant) would further contribute to changing the physical and social character of the area. Where Washington Boulevard passes through the Rio Hondo Coastal Basin Spreading Grounds, the removal of the trees in the median would be required.		

Table ES-2. Summary of Impacts and Mitigation Measures for each of the Project Alternatives (Continued)

Adverse Effect (NEPA)/ Significant Impact (CEQA) Before Mitigation	Mitigation Measure(s)	Adverse Effect (NEPA)/ Significant Impact (CEQA) After Mitigation
Washington Boulevard LRT Alternative		
Community and Neighborhood Impacts		
LRT grade crossings can potentially delay emergency vehicles if they arrive at the same time as a passing train. Metro would coordinate with emergency response officials when designing grade crossings to ensure that emergency response times do not deteriorate as a result of the project. LRT stations and facilities can be perceived as potential safety hazards and attractive locations for illegal activities, which could result in adverse effects. At the northern edge of Santa Fe Springs, the palm trees in the median of Washington Boulevard between Allport and Appledale Avenues would be removed to accommodate the new at-grade LRT tracks.		
Visual and Aesthetic Impacts		
Construction No officially designated scenic vistas exist within the project area. Background views of downtown Los Angeles from Washington Boulevard would be blocked by construction activities.	**Construction Mitigation Measures** The construction mitigation measures (mitigation measures 4.6-i through 4.6-ix) described for the SR 60 LRT Alternative would also apply to the Washington Boulevard LRT Alternative.	Unavoidable adverse/significant visual and shade and shadow effects/impacts

Table ES-2. Summary of Impacts and Mitigation Measures for each of the Project Alternatives (Continued)

Adverse Effect (NEPA)/ Significant Impact (CEQA) Before Mitigation	Mitigation Measure(s)	Adverse Effect (NEPA)/ Significant Impact (CEQA) After Mitigation
Washington Boulevard LRT Alternative		
Visual and Aesthetic Impacts		
However, the downtown Los Angeles skyline is only visible form Washington Boulevard on clear days. Vistas of the San Gabriel Mountains and Puente Hills to the north and east, respectively, would not be substantially obstructed during construction. Construction activities may temporarily alter the visual character along the corridor of the corridor for a limited duration. **Operational** Through one segment along Garfield Avenue and at two select locations on Washington Boulevard, existing mature trees would be removed. The introduction of an aerial guideway and columns along Garfield Avenue between Via Campo and Whittier Boulevard would alter the visual character within the existing residential neighborhood such that significant impacts would occur. The removal of mature trees along the median of Washington Boulevard through the Rio Hondo Coastal Basin Spreading Grounds would have the potential to result in a significant visual impact.	**Operation Mitigation Measures** While there is no mitigation that would enable the light rail components of the build alternatives to become inconspicuous, implementation of the following mitigation measures, including mitigation measure 4.6-x would reduce the changes to the visual attributes of the surrounding neighborhoods and potentially reduce the severity of adverse visual impacts identified for sensitive land uses along Garfield Avenue between Via Campo and Whittier Boulevard. Thus, mitigation measure 4.6-x, described under the SR 60 LRT Alternative, would also apply to the Washington Boulevard LRT Alternative. 4.6-xi. Existing mature trees that are removed to accommodate LRT components would be preserved and relocated close to their original location by Metro, where feasible. Where practical and appropriate, additional landscape treatments comparable in design to those along the Metro Gold Line Eastside Extension, and consistent with city policies, would be installed by Metro. 4.6-xii. To ensure privacy, screen fencing on the aerial guideway would be provided by the construction contractor to block direct views of homes visible from aerial stations. Aesthetic treatments on screen fencing would be used in order to deter graffiti and vandalism and provide visual attractiveness for the residences. 4.6-xiii. Proposed stations and associated park and ride facilities along street frontages would be visually screened by Metro with landscape buffers which may include a combination of plantings, decorative fencing, planters, and public art. 4.6-xiv. Light source shielding (e.g., canopies, landscaping, and walls) would be installed by Metro on light fixtures in order to cut off the view angle and limit spillover light and glare to residential areas. A lighting plan would be developed with community input during final design. 4.6-xv. Coordination with utility providers would be conducted by Metro to consolidate existing overhead utility wires with an overhead catenary system (OCS) or place existing wires underground, where appropriate, in order to reduce visual clutter in residential areas. 4.6-xvi. Canopies, fencing, and wayfinding signage would be pedestrian-scaled. Signs would also be coated with anti-graffiti coating (easily washable) to deter and discourage graffiti artists. Graffiti removal efforts would be based upon a graffiti control program created and operated by Metro. 4.6-xvii. In locations where project components (i.e., columns, bents, aerial crossings, and retaining walls) are too large to apply minimizing techniques, sensitive “showcasing” of the components would be used by Metro, where practical and appropriate. Showcasing may include, but would not be limited to, decorative lighting, installing texture on project components, relief designs, and contextual art features.	

Table ES-2. Summary of Impacts and Mitigation Measures for each of the Project Alternatives (Continued)

Adverse Effect (NEPA)/ Significant Impact (CEQA) Before Mitigation	Mitigation Measure(s)	Adverse Effect (NEPA)/ Significant Impact (CEQA) After Mitigation
Washington Boulevard LRT Alternative		
Visual and Aesthetic Impacts		
New nighttime lighting associated with the six stations and with the LRVs would be introduced into the project area. During Summer Solstice, multi-family residences along Garfield Avenue would be impacted by shadows created by the aerial guideway constructed along Garfield Avenue. During the Winter Solstice, the Our Lady of Miraculous Medal Church and adjacent multi-family residences along Garfield Avenue, the former Rod's Grill Coffee Shop and adjacent multi-family residences along Garfield Avenue, and the multi-family residences across the street from Cantwell-Sacred Heart of Mary High School would be impacted by shadows created by the aerial guideway.	4.6-xviii. Before final design, Metro would coordinate with the cities and communities during the station area planning process to develop guidelines for incorporating design features in and around station areas. Design guidelines include, but are not limited to, conservation of historical character and structures; promotion of a sense of place, safety, and walkability by providing public design features, uniform signage, and lighting schemes consistent with the surrounding neighborhood character; reduction of the massing and profile of the rail structure, where possible; and incorporation of design features in all walls, structures, and fences to improve appearance and reduce visual intrusion. 4.6-xix. Conformance with the following city design guidelines, to the maximum extent practicable, would be incorporated in the project by Metro. ▪ Pico Rivera – provide well-designed parking facilities that are safe, convenient, and attractive; lighting fixtures would be integrated into the visual environment with an appropriate architectural theme. ▪ Montebello – add visual interest to the street scene by creating a safe and inviting environment for pedestrian and bicycle mobility with tree-lined streets and drought-tolerant landscaping. ▪ Monterey Park – avoid sign clutter within commercial districts and achieve an overall sense of community through coordinated design standards. ▪ Los Angeles County – implement a streetscape beautification program to influence the number of people willing to ride as an alternative to driving. People are likely to walk or ride farther and more often when the streetscape offers more attractions and when they feel comfortable and secure.	
Air Quality		
Construction If the Mission Junction maintenance yard option is selected, regional construction emissions for the Washington Boulevard LRT Alternative would exceed the PM_{10} localized significance thresholds (LST) for this yard.	**Construction Mitigation Measures** The construction mitigation measures (see Mitigation Measures 4.7-ii through 4.7-iii) described for the SR 60 LRT Alternative would also apply to the Washington Boulevard LRT Alternative.	Not Adverse/Less than Significant

Table ES-2. Summary of Impacts and Mitigation Measures for each of the Project Alternatives (Continued)

Adverse Effect (NEPA)/ Significant Impact (CEQA) Before Mitigation	Mitigation Measure(s)	Adverse Effect (NEPA)/ Significant Impact (CEQA) After Mitigation
Washington Boulevard LRT Alternative		
Air Quality		
Operation Operational emissions associated with the Washington Boulevard LRT Alternative include emissions from highway traffic, transit buses, a light rail maintenance yard, and parking lots. All operational emission impacts would be less than significant.	**Operation Mitigation Measures** No mitigation measures are required.	
Climate Change		
There are no adverse/significant climate change effects/impacts associated with either construction or operation of the Washington Boulevard LRT Alternative.	No mitigation measures are required.	Not Adverse/Less than Significant
Noise and Vibration		
Construction Construction activities are predicted to exceed the FTA daytime noise limits at only the closest residences and commercial properties to station and guideway construction.	**Construction Mitigation Measures** The mitigation measures (see Mitigation Measures 4.9-i through 4.9-viii, including Mitigation Measures 3.0-ii through 3.0-vii in Chapter 3) described for the SR 60 LRT Alternative would also apply to the Washington Boulevard LRT Alternative. In addition, per Mitigation Measures 3.0-ii through 3.0-viii and 3.0-xvii in Chapter 3, a Traffic Management Plan would also address noise and vibration effects/impacts from traffic and freeway operations during construction of the Washington Boulevard LRT Alternative. **Operation Mitigation Measures** **Noise Mitigation Measures** The Washington Boulevard LRT Alternative would have adverse effects under NEPA and a significant impact under CEQA from noise effects/impacts due to gaps at switches. These effects/impacts may be eliminated in any number of ways such as relocating the switches (which are a crossover component), installing ballast mats under conventional switches to decouple the train vibration from the track supporting structure, or using a gapless spring frog.	Not Adverse/Less than Significant

Table ES-2. Summary of Impacts and Mitigation Measures for each of the Project Alternatives (Continued)

Adverse Effect (NEPA)/ Significant Impact (CEQA) Before Mitigation	Mitigation Measure(s)	Adverse Effect (NEPA)/ Significant Impact (CEQA) After Mitigation
Washington Boulevard LRT Alternative		
Noise and Vibration		
The distances at which an exceedance of the FTA vibration damage criterion of 0.2 inches per second (ips) would occur (for typical timber and masonry residential structures) ranges from 15 feet for trucks to 20 feet for bulldozers to 35 feet for vibratory rollers. Construction activities are predicted to exceed the FTA vibration infrequent annoyance criterion at only the closest residences and commercial properties. **Operation** Along the Washington Boulevard LRT Alternative alignment, severe operational noise impacts are predicted at one residence. Adverse vibration effects from operations of the Washington Boulevard LRT Alternative are predicted at 31 residences and one education facility Two fewer vibration impacts are predicted for the Rosemead Boulevard and the San Gabriel River/I-605 aerial crossing options near Site M15 at Milna Avenue.	4.9-xi. Relocating switches away from noise-sensitive receptors is one cost-effective measure for mitigating this impact. However, if operational concerns interfere with the relocation of switches, then several other viable mitigation options are available such as point-less switches (gapless spring frogs that eliminate the gap in the rail) or low-vibration isolators (ballast mats or tie pads) such as have been used on the San Diego Trolley system. The following crossovers would be relocated away from sensitive land use receptors to eliminate noise impacts due to switches. ▪ Relocate crossover proposed along Garfield Avenue south of Via San Del Aro. ▪ Relocate crossover proposed along Garfield Avenue north of Madison Avenue. ▪ Relocate crossover proposed along Washington Boulevard west of Crossway Drive. ▪ Relocate crossover proposed along Washington Boulevard east of Pioneer Boulevard. ▪ Relocate crossover proposed along Washington Boulevard west of Lambert Road. 4.9-xii. For noise impacts due to LRV passbys along tangent aerial track sections, parapets are recommended in lieu of safety railings as part of the alignment to provide additional shielding for nearby residences. Parapets would be used at the following locations to eliminate noise impacts from LRV passbys: ▪ Eastbound track side starting east of Sadler Avenue to just east of Findlay Avenue – three-foot by 2,500-foot barrier ▪ Westbound track side starting at Via Alta Mira to just west of Via Acosta – three-foot by 1,500-foot barrier ▪ Eastbound track side starting just west of Via San Del Aro to Via Acosta – three-foot by 1,300-foot barrier ▪ Westbound track side starting at Hay Street to Madison Avenue – three-foot by 900-foot barrier ▪ Eastbound and westbound track side starting west of Alston Street to the Union Pacific Railroad – three-foot by 2,500-foot barrier ▪ Westbound track side adjacent to the Greenwood Avenue station – three-foot by 200-foot barrier	

Table ES-2. Summary of Impacts and Mitigation Measures for each of the Project Alternatives (Continued)

Adverse Effect (NEPA)/ Significant Impact (CEQA) Before Mitigation	Mitigation Measure(s)	Adverse Effect (NEPA)/ Significant Impact (CEQA) After Mitigation
Washington Boulevard LRT Alternative		
Noise and Vibration		
	▪ Moderate noise impacts predicted along at-grade sections of the Washington Boulevard LRT Alternative would require consideration and adoption of mitigation measures when it is considered reasonable according to FTA guidelines. The use of noise barriers would not be as effective along the aerial sections due to the required openings at street crossings. Other mitigation measures (such as residential sound insulation) may not be cost-effective since many of the impacts are predicted to equal or only slightly exceed the moderate thresholds. Furthermore, all of the predicted noise levels along the Washington Boulevard LRT Alternative alignment are well below the measured existing ambient noise levels. 4.9-xiii. For impacts due to at-grade crossings, specifically LRT warning bells, stationary control measures are proposed to eliminate the required sounding of the LRT warning bells. Based on the current operating procedures along the Gold Line, in-street running transit service includes synchronized traffic lights. As a result, regular use of warning bells (both stationary and on board trains) is not required. Therefore, the current operating procedures would eliminate the need to sound warning horns. These control measures are an effective tool for mitigating noise impacts from LRT warning bells, particularly during the nighttime when residents are most sensitive to noise intrusion. **Vibration Mitigation Measures** As with the mitigation proposed for noise, vibration impacts due to gaps at switches may be eliminated by available options such as relocating the switches, installing ballast mats under conventional switches to decouple the train vibration from the track supporting structure, or using a gapless spring frog. The crossovers described in Mitigation Measure 4.9-xi would be relocated away from sensitive land use receptors to eliminate the predicted vibration impacts due to switches along the Washington Boulevard LRT Alternative alignment. Mitigation Measure 4.9-xi would address the adverse vibration effects under NEPA and significant vibration impacts under CEQA.	
Ecosystems/Biological Resources		
Construction Construction of the Washington Boulevard LRT Alternative would have adverse effects under NEPA and impacts under CEQA to migratory birds if an active migratory bird nest is located in any tree or vegetation removed	**Construction Mitigation Measures** The construction contractor and Metro shall be responsible for the mitigation measures described under Ecosystems/Biological Resources for the SR 60 LRT Alternative as it relates to the construction of the Washington Boulevard LRT Alternative, with the exception of mitigation measures 4.10-iii and 4.10-iv. These mitigation measures are specific to bats under the SR 60 bridge over the Rio Hondo, which the Washington Boulevard LRT alignment does not cross.	Not Adverse/Less than Significant

Table ES-2. Summary of Impacts and Mitigation Measures for each of the Project Alternatives (Continued)

Adverse Effect (NEPA)/ Significant Impact (CEQA) Before Mitigation	Mitigation Measure(s)	Adverse Effect (NEPA)/ Significant Impact (CEQA) After Mitigation
Washington Boulevard LRT Alternative		
Ecosystems/Biological Resources		
or disturbed during construction. Some trees, which could include protected trees, in the project area would be removed or disturbed during construction. **Operation** If operation of the Washington Boulevard LRT Alternative requires the pruning of protected trees, an adverse effect could occur.	**Operational Mitigation Measures** The construction contractor and Metro shall be responsible for the mitigation measure (mitigation measure 4.10-vii.) described for the SR 60 LRT Alternative as it related to the construction of the Washington Boulevard LRT Alternative.	
Geotechnical/Subsurface/Seismic/Hazardous Materials		
Geotechnical, Subsurface, Seismic Hazards **Construction** There are no adverse/significant geotechnical/subsurface/seismic effects/impacts associated with construction of the Washington Boulevard LRT Alternative. **Operation** There is the potential for liquefaction in the portion of the proposed alignment along Washington Boulevard underlain by young alluvial fan deposits from South Bluff Road to the eastern terminus of the alignment.	**Construction Mitigation Measures** No mitigation measures are required. **Operation Mitigation Measures** Mitigation measure 4.11-vii identified for the SR 60 LRT Alternative would also apply to the Washington Boulevard LRT Alternative during operation related to geotechnical, subsurface and/or seismic hazards.	Not Adverse/Less than Significant

Table ES-2. Summary of Impacts and Mitigation Measures for each of the Project Alternatives (Continued)

Adverse Effect (NEPA)/ Significant Impact (CEQA) Before Mitigation	Mitigation Measure(s)	Adverse Effect (NEPA)/ Significant Impact (CEQA) After Mitigation
Washington Boulevard LRT Alternative		
Geotechnical/Subsurface/Seismic/Hazardous Materials		
The proposed Santa Fe Springs Maintenance Yard Option at the intersection of Washington Boulevard and Allport Avenue, proposed stations at Rosemead Boulevard, Norwalk Boulevard, and Lambert Road, and the associated park and ride are within a mapped liquefaction zone. The at-grade segment of the Washington Boulevard LRT Alternative alignment is underlain by young alluvial fan deposits that are potentially loose and compressible when subjected to additional loading. **Hazardous Materials Construction** The eastern end of the Washington Boulevard LRT Alternative overlies a portion of the Omega OU2 groundwater plume, therefore, there is potential for intrusion of vapors from the groundwater plume into at-grade structures.	**Construction Mitigation Measures** Mitigation measures 4.11-iii and 4.11-vi identified above for the SR 60 LRT Alternative would also apply to the Washington Boulevard LRT Alternative during construction related to hazardous materials. **Operation Mitigation Measures** Mitigation measure 4.11-vii identified above for the SR 60 LRT Alternative would also apply to the Washington Boulevard LRT Alternative during operation related to geotechnical, subsurface and/or seismic hazards. 4.11-x. To address hazards associated with vapor intrusion from contaminated soil and/or groundwater at locations near the Omega OU1 and OU2 sites, further investigation would be conducted during final design to determine the need for mitigation based on human health risk-based criteria established by the California Department of Toxic Substances Control. If required, any new buildings would be constructed with vapor barriers or other design elements.	Not Adverse/Less than Significant

Table ES-2. Summary of Impacts and Mitigation Measures for each of the Project Alternatives (Continued)

Adverse Effect (NEPA)/ Significant Impact (CEQA) Before Mitigation	Mitigation Measure(s)	Adverse Effect (NEPA)/ Significant Impact (CEQA) After Mitigation
Washington Boulevard LRT Alternative		
Geotechnical/Subsurface/Seismic/Hazardous Materials		
Construction of the Washington Boulevard LRT Alternative would occur within or near other contaminated sites, which could expose sensitive receptors to hazardous materials in the soil and groundwater, subsurface gasses, or during building demolition. There is potential for adverse effects to occur from the accidental release of hazardous materials during the transport of soil or other media contaminated with hazardous materials to a disposal facility. **Operation** There is potential for vapor intrusion into any newly constructed buildings on contaminated soil and/or groundwater at locations near the Omega Chemical OU1 and OU2 site.		
Water Resources		
Construction Adverse effects/significant impacts to flood control facilities during construction of the Washington Boulevard LRT Alternative.	**Construction Mitigation Measures** The mitigation measures described above under Water Resources for the SR 60 LRT Alternative (except for mitigation measures 4.12-i through 4.12-iii and 4.12-xi) would also apply to the Washington Boulevard LRT Alternative, in addition to the following.	Not Adverse/Less than Significant

Table ES-2. Summary of Impacts and Mitigation Measures for each of the Project Alternatives (Continued)

Adverse Effect (NEPA)/ Significant Impact (CEQA) Before Mitigation	Mitigation Measure(s)	Adverse Effect (NEPA)/ Significant Impact (CEQA) After Mitigation
Washington Boulevard LRT Alternative		
Water Resources		
Adverse effects/significant impacts to watersheds and surface water resources during construction of the Washington Boulevard LRT Alternative. Adverse effects/significant impacts to water quality during construction of the Washington Boulevard LRT Alternative. **Operation** Adverse effects/significant impacts to flood control facilities during operation of the Washington Boulevard LRT Alternative. Adverse effects/significant impacts to water quality during operation of the Washington Boulevard LRT Alternative. Adverse effects/significant impacts associated with groundwater contamination during operation of the Washington Boulevard LRT Alternative.	4.12-xiv. Should reinforcement of the existing support columns located inside the Rio Hondo and San Gabriel River channels become necessary during the final design phase of this alternative, Metro would conduct a quantitative hydraulic analysis to evaluate the flood risk. The increased flood risk, if determined to be significant, could be mitigated with, but not limited to the following options: 1) raising the height of the existing channel banks; 2) constructing a flow bypass; or 3)providing an inline or offline flood storage facility. 4.12-xv. To compensate for potential loss of flood storage capacity or alteration of flood flow direction and velocity due to placement of LRT structures in Rio Hondo and San Gabriel spreading basins, and potential loss due to the possible reinforcement of existing columns within the Rio Hondo and San Gabriel Rivers, Metro would provide compensatory mitigation to replace lost storage capacity. Compensatory mitigation for flood storage impacts would, at a minimum, replace any lost flood capacity. In addition, the Washington Boulevard LRT Alternative would be designed so that floodwaters could freely flow under and through the structure in the affected areas. **Operation Mitigation Measures** The same mitigation measures (see Mitigation Measures 4.12-xii and 4.12-xiii) described above for the SR 60 LRT Alternative would also apply to the Washington Boulevard LRT Alternative.	
Energy		
There are no adverse/significant energy effects/impacts associated with either construction or operation of the Washington Boulevard LRT Alternative.	No mitigation measures are required.	Not Adverse/Less than Significant

Table ES-2. Summary of Impacts and Mitigation Measures for each of the Project Alternatives (Continued)

Adverse Effect (NEPA)/ Significant Impact (CEQA) Before Mitigation	Mitigation Measure(s)	Adverse Effect (NEPA)/ Significant Impact (CEQA) After Mitigation
Washington Boulevard LRT Alternative		
Cultural Resources		
Built Environment **Construction** The Chinese Garden Restaurant, which would be removed as part of this alternative, and the Site of the Battle of Rio San Gabriel would be affected by construction activities.	**Construction Mitigation Measures** The Chinese Garden Restaurant is the only historic building of whose entire structure the Washington Boulevard LRT Alternative would require physical demolition. Relocation is one type of mitigation to avoid demolition of a historic building. The CRHR Special Considerations (14 CCR 4852.d.1.) indicate that a building may still be eligible for the CRHR after it has been relocated, as follows: The State Historical Resources Commission encourages the retention of historical resources on site and discourages the non-historic grouping of historic buildings into parks or districts. However, it is recognized that moving a historic building, structure, or object is sometimes necessary to prevent its destruction. Therefore, a moved building, structure, or object that is otherwise eligible may be listed in the California Register if it was moved to prevent its demolition at its former location and if the new location is compatible with the original character and use of the historical resource. A historical resource should retain its historic features and compatibility in orientation, setting, and general environment. The mitigation measures below would be used as needed to minimize adverse construction-related effects on historic properties and CEQA historical resources within the APE and address the requirements of the Special Considerations by requiring the new location to be compatible with the original character and use of the historical resource. Two options for relocation would be considered, and each requires the resource to retain its historic features and compatibility with respect to orientation, setting, and the general environment. 4.14.1-i. Relocation of the Chinese Garden Restaurant, Option A: Relocation would require safely moving the building to the rear parking lot of its current location. Relocation of the building would be the responsibility of Metro and would meet the following requirements: ▪ This site shall provide adequate on-street and off-street parking to maintain current levels of patronage; ▪ Existing landscaping shall be preserved after the relocation; ▪ The freestanding “Chinese Garden Restaurant” sign shall remain in front of the restaurant after the relocation; ▪ The building shall be protected before, during, and after the move; and ▪ There shall be adequate public notification of the move. 4.14.1-ii. Relocation of the Chinese Garden Restaurant, Option B: Relocation would require safely moving the building to a similar lot along Garfield Avenue. Relocation of the building would be the responsibility of Metro and meet the following requirements:	Not Adverse/Less than Significant

Table ES-2. Summary of Impacts and Mitigation Measures for each of the Project Alternatives (Continued)

Adverse Effect (NEPA)/ Significant Impact (CEQA) Before Mitigation	Mitigation Measure(s)	Adverse Effect (NEPA)/ Significant Impact (CEQA) After Mitigation
Washington Boulevard LRT Alternative		
Cultural Resources		
	▪ This site shall provide adequate on-street and off-street parking to maintain current levels of patronage; ▪ The building shall have similar street frontage to maintain access and visibility to patrons, with a best effort to maintain its current streetscape orientation; ▪ Existing landscaping shall be preserved after the relocation; ▪ The freestanding "Chinese Garden Restaurant" sign shall remain in front of the restaurant after the relocation; ▪ The building shall be protected before, during, and after the move; and ▪ There shall be adequate public notification of the move. For either option, relocation of the restaurant to a new location would maintain contributing aspects of its historic orientation, immediate setting, and the general environment. Any relocation efforts implemented for the Chinese Garden Restaurant would be conducted in accordance with the guidelines recommended by the National Park Service, which are outlined in the booklet Moving Historic Buildings by John Obed Curtis (1979). In addition, any maintenance, repair, rehabilitation, stabilization, or preservation work performed in conjunction with relocation of the Chinese Garden Restaurant would be undertaken in a manner consistent with the Secretary of the Interior's standards. If the recommended mitigation for relocation is successfully implemented, such that the project "would not cause a substantial adverse change in its significance," it would lessen the significant impact on the Chinese Garden Restaurant to a level that is less than significant, per the effect/impact criteria outlined in Section 15064.5 of the CEQA Guidelines. A third mitigation measure for the Chinese Garden Restaurant is recommended for implementation alongside Relocation Option A or Option B to reduce the potential impacts of the alternative and relocation of the restaurant to a less than significant level. If neither of the Relocation Options is implemented, the third mitigation measure below herein by itself would not lessen the impact of demolition of the historical resource to less than significant, and the impact would still be significant after mitigation.	

Table ES-2. Summary of Impacts and Mitigation Measures for each of the Project Alternatives (Continued)

Adverse Effect (NEPA)/ Significant Impact (CEQA) Before Mitigation	Mitigation Measure(s)	Adverse Effect (NEPA)/ Significant Impact (CEQA) After Mitigation
Washington Boulevard LRT Alternative		
Cultural Resources		
Operation No adverse effects/significant impacts to cultural resources would occur with operation of the Washington Boulevard LRT Alternative.	4.14.1-iii. Archival Documentation of the Chinese Garden Restaurant: Prior to demolition or removal of the Chinese Garden Restaurant, Metro would arrange a photographic documentation report to be prepared by a qualified architectural historian, historic architect, or historic preservation professional who satisfies the Secretary of the Interior's Professional Qualification Standards for History, Architectural History, or Architecture pursuant to 36 CFR 61. This report would document the significance of the Chinese Garden Restaurant, its physical conditions, and setting along Garfield Avenue, both historic and current, through photographs and text. Photographs noting all elevations and details of the building's architectural features should be taken using 35 mm black-and-white film. The photographer should be familiar with the recordation of historical resources. Photographs should be prepared in a format consistent with the Historic American Buildings Survey (HABS) standard for field photography. Copies of the report would be submitted to the city of Montebello Planning and Development Department and the Montebello Public Library. The Site of the Battle of Rio San Gabriel 4.14.1-iv. Metro would arrange to have archaeological monitoring during construction at the site of the Battle of Rio San Gabriel, in accordance with the Cultural Resources Monitoring and Mitigation Plan (CRMMP). **Operation Mitigation Measures** No mitigation measures are required.	
Archaeological Resources **Construction** Construction of the Washington Boulevard LRT Alternative, including aerial or at-grade crossings of Rosemead Boulevard and the I-605/San Gabriel River, could have the potential to disturb or destroy a significant archaeological resource.	**Construction Mitigation Measures** The same mitigation measures (see Mitigation Measures 4.14.2-i through 4.14.2-vi) described above for the SR 60 LRT Alternative would also apply to the Washington Boulevard LRT Alternative.	Not Adverse/Less than Significant

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Table ES-2. Summary of Impacts and Mitigation Measures for each of the Project Alternatives (Continued)

Adverse Effect (NEPA)/ Significant Impact (CEQA) Before Mitigation	Mitigation Measure(s)	Adverse Effect (NEPA)/ Significant Impact (CEQA) After Mitigation
Washington Boulevard LRT Alternative		
Cultural Resources		
Operation No adverse effects/significant impacts to archaeological resources would occur with operation of the Washington Boulevard LRT Alternative.	**Operation Mitigation Measures** No mitigation measures are required	
Paleontological Resources **Construction** There could be significant impacts to unknown paleontological resources during construction activities. **Operation** No significant impacts to paleontological resources would occur with operation of the Washington Boulevard LRT Alternative.	**Construction Mitigation Measures** The same mitigation measures (see Mitigation Measures 4.14.3-i through 4.14.3-v) described above for the SR 60 LRT Alternative would also apply to the Washington Boulevard LRT Alternative. **Operation Mitigation Measures** No mitigation measures are required.	Not Adverse/Less than Significant
Parklands and Other Community Facilities		
Construction Temporary tree removal and re-routing of bicycle paths would occur within some of the remaining parks and recreational facilities. However, all trees would be replaced. In addition, the temporary re-routing of bike paths would allow them to remain open during construction. As a result, no significant impacts to parklands and other community facilities would occur during construction activities.	No mitigation measures are required.	Not Adverse/Less than Significant

Table ES-2. Summary of Impacts and Mitigation Measures for each of the Project Alternatives (Continued)

Adverse Effect (NEPA)/ Significant Impact (CEQA) Before Mitigation	Mitigation Measure(s)	Adverse Effect (NEPA)/ Significant Impact (CEQA) After Mitigation
Washington Boulevard LRT Alternative		
Parklands and Other Community Facilities		
Operation There are no adverse/significant parklands and other community facilities effects/impacts associated with operation of the Washington Boulevard LRT Alternative.		
Economic and Fiscal Impacts		
Construction Construction would have temporary impacts on commercial and industrial businesses, particularly those near or adjacent to construction sites. **Operation** There are no adverse/significant economic and fiscal effects/impacts associated with operation of the Washington Boulevard LRT.	**Construction Mitigation Measures** The same mitigation measures (see Mitigation Measures 4.4-viii through 4.4-xiv) described above for the SR 60 LRT Alternative would also apply to the Washington Boulevard LRT Alternative. In addition, mitigation measures 4.5-i through 4.5-iv and 4.5-vi through 4.5-ix from Section 4.5, Community and Neighborhood Impacts and mitigation measures 3.0-ii through 3.0-xiii from Chapter 3, Transportation Impacts would be implemented. (Refer to the specific section for the detailed mitigation measure.) **Operation Mitigation Measures** No mitigation measures are required.	Not Adverse/Less than Significant
Safety and Security		
Construction Construction of the Washington Boulevard LRT has the potential to impact automobile, pedestrian and bicycle access safety; and emergency access routes and emergency responders. The visibility of construction aspects of the alternative may encourage theft and heightened visitation from criminals into the project area.	**Construction Mitigation Measures** The same mitigation measures described above under Safety and Security for the SR 60 LRT Alternative would also apply to the Washington Boulevard LRT Alternative.	Not Adverse/Less than Significant

Table ES-2. Summary of Impacts and Mitigation Measures for each of the Project Alternatives (Continued)

Adverse Effect (NEPA)/ Significant Impact (CEQA) Before Mitigation	Mitigation Measure(s)	Adverse Effect (NEPA)/ Significant Impact (CEQA) After Mitigation
Washington Boulevard LRT Alternative		
Safety and Security		
Operation The project has the potential to attract crime. Pedestrian safety could be compromised at stations, designated grade crossings, and near at-grade segments of the trackway. There is the potential for motor vehicle/light rail associated with the Washington Boulevard LRT Alternative. Aerial portions of the alternative require support columns, which are conducive to graffiti and would create shadows and would create hiding places along SR 60 that may add to crime problems in the area. Pedestrian safety, particularly near schools, is a concern where many students walk to and from the facility. At-grade segments along Washington Boulevard have the potential to disrupt emergency services response times, especially with the cluster of medical services and the Presbyterian Intercommunity Hospital near the termini of the alignment at Lambert Road.	**Operation Mitigation Measures** The same mitigation measures described above under Safety and Security for the SR 60 LRT Alternative would also apply to the Washington Boulevard LRT Alternative.	

Table ES-2. Summary of Impacts and Mitigation Measures for each of the Project Alternatives (Continued)

Adverse Effect (NEPA)/ Significant Impact (CEQA) Before Mitigation	Mitigation Measure(s)	Adverse Effect (NEPA)/ Significant Impact (CEQA) After Mitigation
Washington Boulevard LRT Alternative		
Safety and Security		
Perceived high gang activity in the industrial and residential/commercial areas of Washington Boulevard would merit design considerations (i.e., emergency telephones, PA systems, and closed circuit monitoring systems) and law enforcement personnel to ensure a safe, secure, and comfortable transit system.		
Environmental Justice		
Construction During construction, there would be a moderate effect to on-street parking on along Garfield Avenue from Via Paseo to Via Acosta. These effects would affect residents of the surrounding neighborhoods. **Operation** In view of the considerable project benefits and local support for implementing the Washington Boulevard LRT Alternative, the adverse effects during operation of this alternative would not be disproportionate compared with the mobility, regional connectivity, equity, and economic gains this alternative could offer.	**Construction Mitigation Measures** Construction mitigation measures identified for the Washington Boulevard LRT Alternative under the environmental resources above would apply to affected low-income and minority populations. **Operation Mitigation Measures** Operation mitigation measures identified for the Washington Boulevard LRT Alternative under the environmental resources above would apply to affected low-income and minority populations.	Not Adverse/Less than Significant

Chapter 1

Purpose and Need

The purpose of the Eastside Transit Corridor Phase 2 Project is to provide area residents, businesses, and transit-dependent populations with a convenient and reliable, high-capacity transit alternative and to connect them to the Metro Gold Line Eastside Extension and the regional rail system with the implementation of the Regional Connector Project. The project area is faced with increasing mobility challenges due in large part to an increase in travel demand, travel times, freeway and arterial congestion, and population and employment growth. The project study area, which was the area used during the Alternatives Analysis (AA) process to determine which alternatives to study in this Draft Environmental Impact Statement/Environmental Impact Report (EIS/EIR), is located in eastern Los Angeles County and is generally bounded by Interstate 10 (I-10) to the north, just east of I-605, I-5 to the south, and the Metro Gold Line Eastside Extension to the west (see **Figure 1-1**). This chapter summarizes the purpose and need for the project. Additional detail and supportive data are provided in the Purpose and Need Report, Appendix E, of this Draft EIS/EIR.

The jurisdictions in the project study area, as well as the more focused project area, are in the process of developing transit-supportive land use policies. In addition, a number of planned redevelopment projects and existing activity centers are located in areas that could leverage a rail transit investment and increase economic opportunities. These projects and the area's economic future would benefit from economic opportunities resulting from connections to the regional rail transit network.

Without significant improvements to increase capacity to meet existing and future demand, the project area's transportation network will be substantially overburdened and mobility further constrained. Furthermore, limited connectivity to the Metro rail transit system impairs travel to and from the project area. There is a pressing need to improve transportation mobility and reliability in the project area.

Depending on which alternative is selected, the Eastside Transit Corridor Phase 2 Project would involve construction and operation of a light rail transit (LRT) project that would extend the Metro Gold Line Eastside Extension to the east 6.9 to 9.5 miles, beginning at the existing Metro Gold Line Eastside Extension Atlantic Station.

1.1 Project Purpose and Objectives

The purpose of the Eastside Transit Corridor Phase 2 Project is to provide area residents, businesses, and transit-dependent populations with a transit alternative connecting them to Metro Gold Line Eastside Extension and the regional rail system. In analyzing mobility issues, a number of themes have emerged that articulate the purpose for transit improvement in the Eastside Transit Corridor Phase 2 project area:

- Alleviate **peak-hour congestion on the roadway network** by providing transit alternatives to meet increased demand;
- Provide additional travel options, given the project area's **high travel demand and connectivity constraints;**
- Effectively get people to the **concentration of activity centers** that exists within and adjacent to the project area as shown in Figure 1-1;

- Address the demand for transit service and meet the needs of **transit-dependent populations.** Twelve percent of households in the project study area have no vehicles, and the project study area generates approximately 114,000 transit trips per day;
- Accommodate areas of increased **population and employment growth**;
- Encourage **transit-supportive land use** and economic development opportunities; and
- Increase **environmental benefits** to meet air quality mandates.

The project would improve mobility within the project area, offer a more sustainable transit alternative to address increased travel demand and projected growth, and meet the following objectives:

- Serve the large number of transit-dependent and low-income populations in the project area;
- Increase access to major employment centers, activity centers, and destinations in the project area and Los Angeles County;
- Provide regional transit connectivity with the Metro Gold Line Eastside Extension and Measure R projects; and
- Provide transit alternatives to alleviate roadway congestion, improve mobility options for enhanced quality of life, and provide a convenient and reliable alternative to the automobile.

1.2 Regional Transportation Objectives and Planning Context

Los Angeles has the distinction of being the second most congested urban area in the country, after Washington, D.C., according to the most recent annual survey of traffic congestion levels conducted by the Texas Transportation Institute (*Urban Mobility Report December 2012*, National Congestion Tables).[1] The Eastside Transit Corridor Phase 2 project study area contains some of the most congested traffic conditions in Los Angeles, with limited east-west connectivity through East Los Angeles. Congestion is often characterized by slower speeds, longer trip times, and increased vehicular queuing. The Southern California Association of Governments (SCAG), along with Metro, local, state, and federal jurisdictions, have taken the initiative to improve mobility, access, sustainability, and air quality across the Los Angeles region. The Eastside Transit Corridor Phase 2 Project would support these objectives by providing a sustainable; environmentally-friendly alternative to driving that improves regional access and mobility.

1.2.1 Regional Plans - Mobility

1.2.1.1 Metro Long Range Transportation Plan and Measure R

The Eastside Transit Corridor Phase 2 Project is identified in Metro's *2009 Long Range Transportation Plan* and has been selected as one of many transit and highway projects to receive local Measure R funding. Measure R is a 30-year, half-cent sales tax measure approved by over two-thirds of Los Angeles County voters in November 2008. It includes funding to support a variety of transportation projects throughout Los Angeles County, including the Eastside Transit Corridor Phase 2 Project.

1.2.1.2 SCAG 2012-2035 Regional Transportation Plan

The Eastside Transit Corridor Phase 2 Project was included in the SCAG *2012-2035 Regional Transportation Plan/Sustainable Communities Strategy* (RTP/SCS) adopted in April 2012. The RTP also describes projects and corridor concepts in and

[1] This survey compares traffic congestion levels in the 75 largest urban regions in the U.S. Los Angeles ranks second in Yearly Delay per Auto Commuter, first in the Travel Time Index, third in Excess Fuel per Auto Commuter, and second in Congestion Cost per Auto Commuter.

around the project study area aimed at maximizing the effectiveness, safety, and reliability of Southern California's transportation system. Near the project study area, there is funding to conduct planning and environmental studies for widening I-5 and adding one high-occupancy vehicle (HOV) lane in each direction from I-605 to I-710. However, as there are no plans to widen I-5 to the west approaching downtown Los Angeles, these improvements would not improve access to principal destinations for travel generated within the Eastside Transit Corridor Phase 2 project study area.

Future corridor concepts include the East-West Freight Corridor that would run parallel to the Union Pacific Railroad Los Angeles Subdivision before following a route adjacent to State Route 60 (SR 60) east of SR-57. Regional improvements to accommodate goods movement would not materially improve conditions for commuter and other home-based trips generated to or from destinations within the project study area.

The RTP/SCS's Strategic Plan describes unfunded operational and capital improvements (financially unconstrained plans and projects). Near the project study area, the Strategic Plan lists HOV lanes on SR 60 from US 101 to I-605 and interchange improvements at SR 60/I-605. Improvements along SR 60 may improve safety and access to principal destinations for travel generated within the Eastside Transit Corridor Phase 2 project study area in the future. However, since it is not listed under Metro's Long Range Transportation Plan (LRTP), the Strategic Plan describes these projects as unfunded with no anticipated date of implementation and no engineering efforts are underway. **Table 1-1** shows SCAG's regional transportation performance indicators and the projected year 2035 results.

Table 1-1. Regional Transportation Performance Indicators

Performance Indicator	Performance Measurement		2008 Base Year	2035 Baseline	2035 Plan Objectives
Mobility	Average daily speed (miles per hour)		32.5 mph	29.6 mph	34.7 mph
	Average daily delay per capita		17.3 minutes	23.8 minutes	13.1 minutes
Accessibility	Percent PM peak period work trips within 45 minutes of residence[1]	Autos: Transit:	79% 24%	79% 22%	85% 23%
Reliability	Percent variation in travel time[2]	Weekday after 5:00 PM	38%	N/A	N/A
Safety	Accident rate per million VMT for highways[1]		1.5 (2009)	N/A	N/A

Source: SCAG, 2012-2035 Regional Transportation Plan/Sustainable Communities Strategy, Highway and Arterials Appendix, Performance Measures Appendix.
Note:
[1] Estimated from graph.
[2] Percent variation in travel time means day-to-day change in travel time experienced by travelers. Variability results from accidents, weather, road closures, system problems, and other non-recurrent conditions. Reliability can only be monitored and not forecasted. This is because travel demand models cannot evaluate variations in travel times, but can only estimate average travel times and delay.

1.2.2 Local Plans – Access and Sustainability

The local jurisdictions in the project area all support enhanced transit access, pedestrian enhancements, and sustainable development practices. Many seek to balance the transportation needs of both commuters and local circulation, as expressed in the most recent general plans and applicable specific plans. Additionally, cities in the project area have expressed interest in coordinating with Metro on land use visioning as part of the urban design process that was initiated during the alternatives analysis for the Eastside Transit Corridor Phase 2 Project. For those jurisdictions currently involved in updating their general plans and specific plans, this process has led to consideration of including transit-supportive land use and redevelopment policies in support of Metro's proposed transit investments.

1.2.3 Air Quality

The Eastside Transit Corridor Phase 2 Project would contribute to improved air quality by providing an alternative to auto travel and thereby helping to reduce auto-related pollutants. The need for a transit solution that would improve air quality and be environmentally sustainable is important to the project area and the region as a whole.

The United States Environmental Protection Agency (USEPA) governs air quality across the United States and administers the Federal Clean Air Act (CAA). The CAA sets National Ambient Air Quality Standards (NAAQS) for pollutants considered harmful to public health and the environment. The USEPA has classified the South Coast Air Basin (SoCAB) as a maintenance area for carbon monoxide (CO) and a non-attainment area for ozone (O_3) and fine particulate matter ($PM_{2.5}$ and PM_{10}).

In addition to being subject to CAA requirements, air quality in California is governed by the California Clean Air Act, which is enforced by the California Air Resources Board (CARB). CARB requires all air quality management districts in the state to achieve and maintain the California Ambient Air Quality Standards (CAAQS). CAAQS define the maximum amount of a pollutant that can be present in outdoor air without harm to the public's health. CARB also develops regional greenhouse gas (GHG) emission reduction targets as required by Assembly Bill 32 (AB 32), the Global Warming Solutions Act of 2006, and Senate Bill 375 (SB 375). AB 32 provides the statutory basis for statewide 2020 GHG emissions reduction goals, and SB 375 enhances California's ability to reach its AB 32 goals by establishing regional GHG reduction goals, including goals for the region managed by SCAG, and by promoting good planning with the goal of creating more sustainable communities.

1.3 Project Need

The Eastside Transit Corridor Phase 2 project study area is faced with increasing mobility challenges due in large part to population growth.

Currently, many residents within the Eastside Transit Corridor encounter long travel delays from the project study area to regional centers in downtown Los Angeles and beyond. If unaddressed, these mobility challenges pose a risk to future population and economic growth, commuter safety, existing infrastructure, goods movement, air quality, and environmental considerations. If no action is taken, transportation challenges within the project study area will continue to grow.

- ***Increased travel demand*** – The number of work trips taken to and from the project study area in 2006 is forecast to increase 32 percent by 2035.
- ***Increasing travel times*** – By 2035, the average peak-period travel time within the project study area is expected to increase by 25 percent and 34 percent for the morning and afternoon peak periods, respectively.
- ***Continuing transit-dependent population*** – The project study area has a significant transit-dependent population that needs convenient and reliable transit options to get them where they want and need to go; 38 percent of the project study area population is under age 18 or

over age 65, 16 percent of households are categorized as low-income, and 12 percent of all households have zero vehicles.

- ***Increasing freeway congestion*** – With no major freeway improvements planned, a growing population, and forecasted increases in travel demand, freeway congestion will continue to increase.

- ***Increasing arterial congestion*** – Major arterials in the project study area, including but not limited to Washington Boulevard and Garfield Avenue, experience heavy morning and evening peak period congestion, which negatively affects access for both automobiles and buses.

- ***Heavy truck traffic*** – The SR 60, I-5, and I-10 Freeways, along with project study area arterial streets such as Washington Boulevard, are subject to heavy truck traffic. Larger vehicles and slower movements of heavy truck traffic on freeway and arterial streets lead to a more congested environment in which both automobiles and buses must operate.

- ***Increased population and employment growth*** – Population densities, employment densities, and the concentration of activity centers in the project study area are expected to increase by 12 percent by 2035.

- ***Limited travel options*** – With limited regional rail system connections, residents of and visitors to the project study area can rely only on available bus systems operating on the same congested roadway network. Commuter rail options are limited to two Metrolink stations within the 82-square-mile project study area.

1.4 Project History

Studies of major rail transit infrastructure investments on the Eastside date back to the 1980s, and loose plans for a major east-west route through Los Angeles County exist from prior decades.

1.4.1 Eastside Transit Corridor Studies: Re-Evaluation Major Investment Study

Metro initially selected an extension of the Metro Red Line heavy-rail subway as the locally preferred alternative for the Eastside Corridor, but this project was suspended in 1998 due to funding shortfalls and a voter-approved ban on the use of Proposition A sales tax revenue for subway construction. Metro later adopted an extension of the Pasadena Blue Line light rail project (later named the Metro Gold Line) as the new locally preferred alternative for the Eastside following the 2000 *Eastside Transit Corridor Studies: Re-Evaluation Major Investment Study.*

1.4.2 Eastside Corridor Environmental Impact Statement/Environmental Impact Report

In 2001, Metro completed the *Draft Supplemental Environmental Impact Statement/Draft Subsequent Environmental Impact Report (Draft Supplemental EIS/Subsequent EIR)*, and subsequently a *Final Supplemental EIS/Subsequent EIR* in 2002, for the first phase of what is now known as the Metro Gold Line Eastside Extension. The Metro Gold Line Eastside Extension's first phase was completed in November 2009. Atlantic station is the terminus of the Metro Gold Line Eastside Extension, located on Pomona Boulevard between Beverly Boulevard and Atlantic Boulevard.

1.4.3 Eastside Transit Corridor Phase 2 Alternatives Analysis

In 2007, Metro initiated plans for a high-capacity transit connection to the Eastside Extension Phase 1 Project by conducting an Eastside Transit Corridor Phase 2 Alternatives Analysis Report (2009). During the alternatives analysis study process, 47 initial alternatives were evaluated and screened down to four feasible build alternatives.

In order to further refine the build alternatives for environmental analysis, Metro conducted the *Eastside Transit Corridor Phase 2 Alternatives Analysis Addendum* (2009), which applied additional evaluation criteria and conceptual level engineering. In October 2009, the Metro Board of Directors approved the advancement of two LRT build alternatives along with the No Build and transportation system management (TSM) alternatives to the EIS/EIR process for the Eastside Transit Corridor Phase 2 Project.

1.5 Project Study Area Overview

The Eastside Transit Corridor Phase 2 project study area is generally bounded by I-10 to the north, Peck Road and Painter Avenue to the east, Olympic and Washington boulevards to the south, and the Gold Line Eastside Extension to the west. The project study area consists of portions of eight jurisdictions, including the cities of Commerce, Montebello, Monterey Park, Pico Rivera, Rosemead, Santa Fe Springs, South El Monte, Whittier, and portions of unincorporated Los Angeles County, which include East Los Angeles and west Whittier-Los Nietos. The project study area is illustrated in **Figure 1-1**.

According to projections from SCAG, the project study area had reached a population of 720,850 in 2010, comprising approximately seven percent of the Los Angeles County population. The current project study area population surpasses that of several notable cities with mature transit networks, such as Boston (645,169)[2] and Washington D.C. (599,657), as reported by the U.S. Census Bureau's 2009 Top Cities Index. By the year 2035, the project study area population is expected to increase by an additional five percent to approximately 759,992.

The project study area demographic and transit dependency factors are summarized below:

- Low-income households comprise 16 percent of the total households, which is higher than the county average of 13 percent.
- 38 percent of the population is age 18 and younger or age 65 and older.
- Approximately 12 percent of households in the project study area had zero vehicles in 2010; this is higher than the county average, with some of the highest concentrations in the western and central portions of the project study area.

1.5.1 Activity Centers and Destinations

The Eastside Transit Corridor Phase 2 project study area has a high concentration of activity centers and major attractions, which generate a greater demand for transit than adjacent areas. There are multiple regional activity centers, such as The Shops at Montebello, Montebello Golf Course, Pico Rivera Towne Center, Presbyterian Intercommunity Hospital, and Whittier Narrows Recreation area, and others

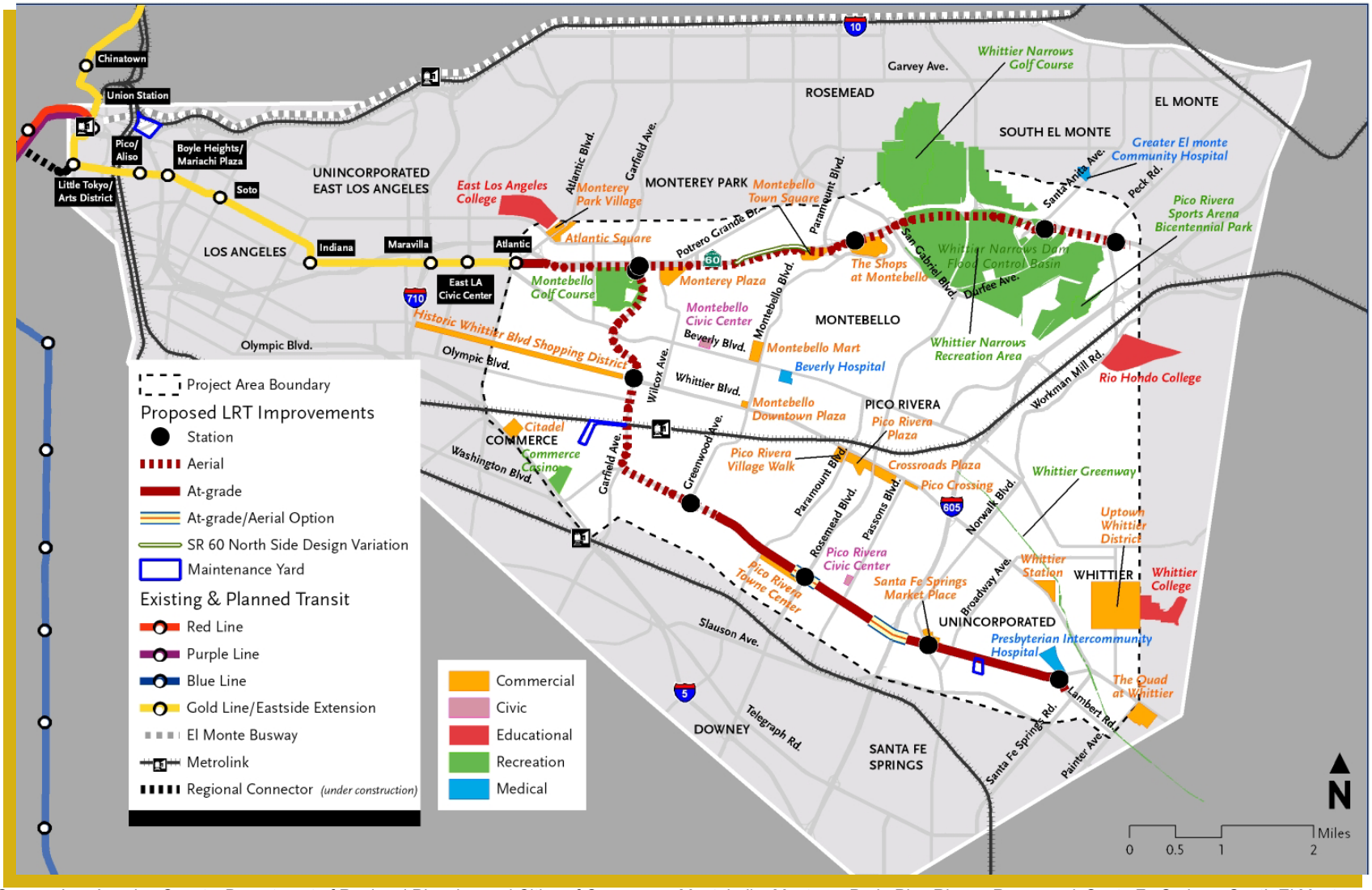
Figure 1-1 identifies the major activity centers in the project study area which can serve as potential travel markets.

1.5.2 Population and Employment Growth

The population of the project study area in 2010 was approximately 721,000, or seven percent of the population of Los Angeles County. SCAG projections estimate that by 2035, the population will grow by five percent to roughly 759,992.

Figure 1-2 illustrates the projected population growth in the project study area between 2010 and 2035.

[2] The Eastside Transit Corridor Phase 2 project area has a population larger than the cities of Boston and Washington D.C. The comparison for these two cities is based on total population. It is not intended to be a comparison of population densities (population per square mile). The Eastside Transit Corridor Phase 2 project area is also larger than both cities in terms of square miles. The Eastside Transit Corridor Phase 2 project area is 82 square miles compared to the size of Boston (48 square miles) and Washington D.C. (61 square miles). Information is based on the most recent data available, the 2009 Census Top Cities Index, which provides annual estimates of the resident population for incorporated places over 100,000. The land area is based on the U.S. Census Bureau State and County QuickFacts, 2000.

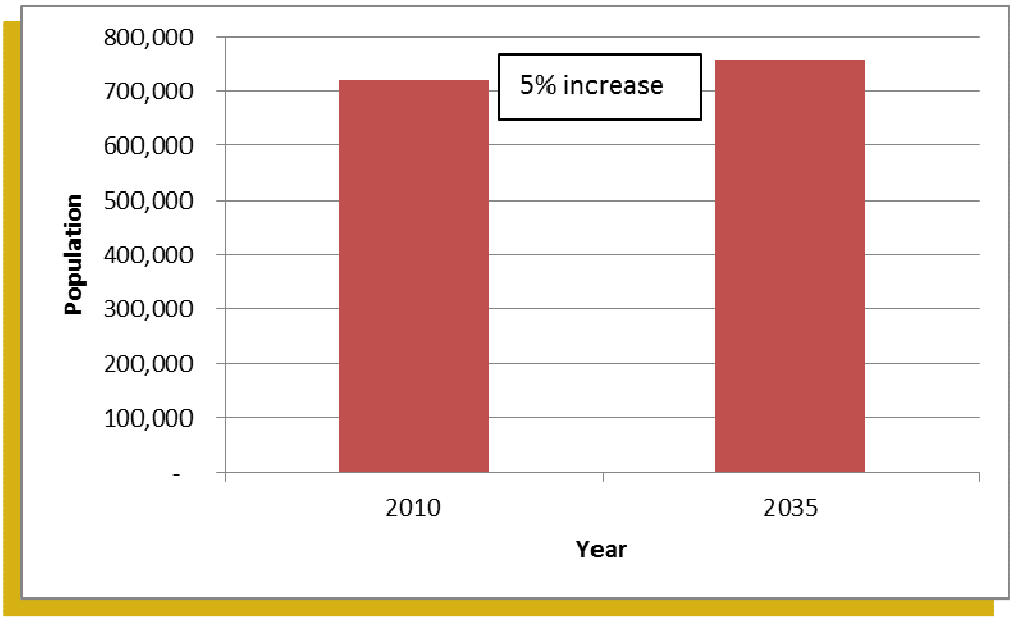


Source: Los Angeles County, Department of Regional Planning and Cities of Commerce, Montebello, Monterey Park, Pico Rivera, Rosemead, Santa Fe Springs, South El Monte, and Whittier, 2010; prepared by AECOM, CDM Smith 2010.

Figure 1-1. Major Activity Centers in Project Study Area

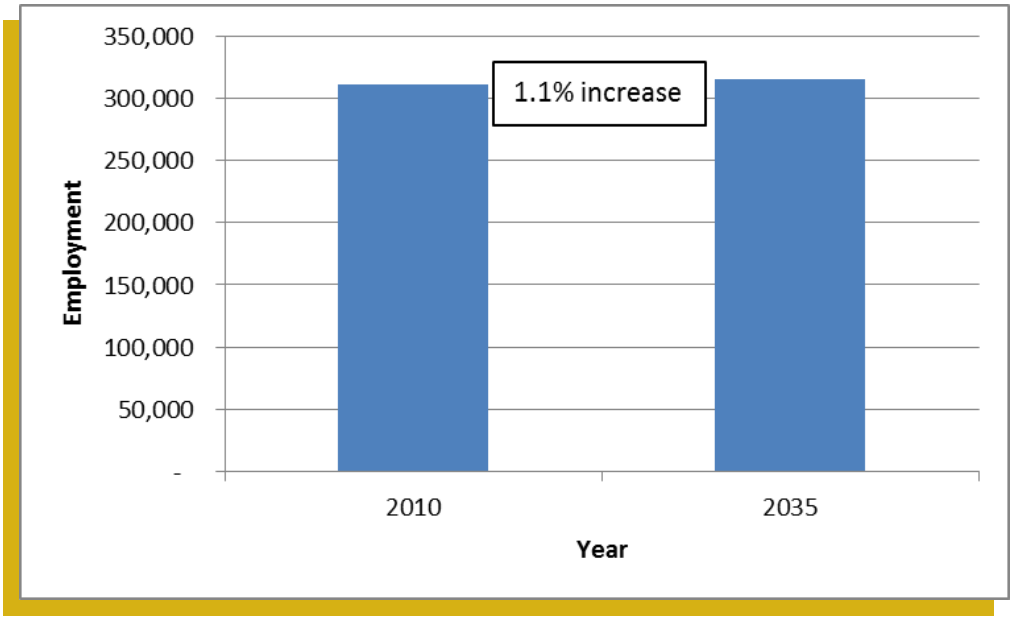
Recent figures indicate that there are approximately 311,000 jobs in the project study area. This number is projected to increase 1.1 percent to roughly 315,019 by 2035, as shown in **Figure 1-3**.

Figures 1-4 and **1-5** show the projected year 2035 population and employment densities in the project study area, respectively.



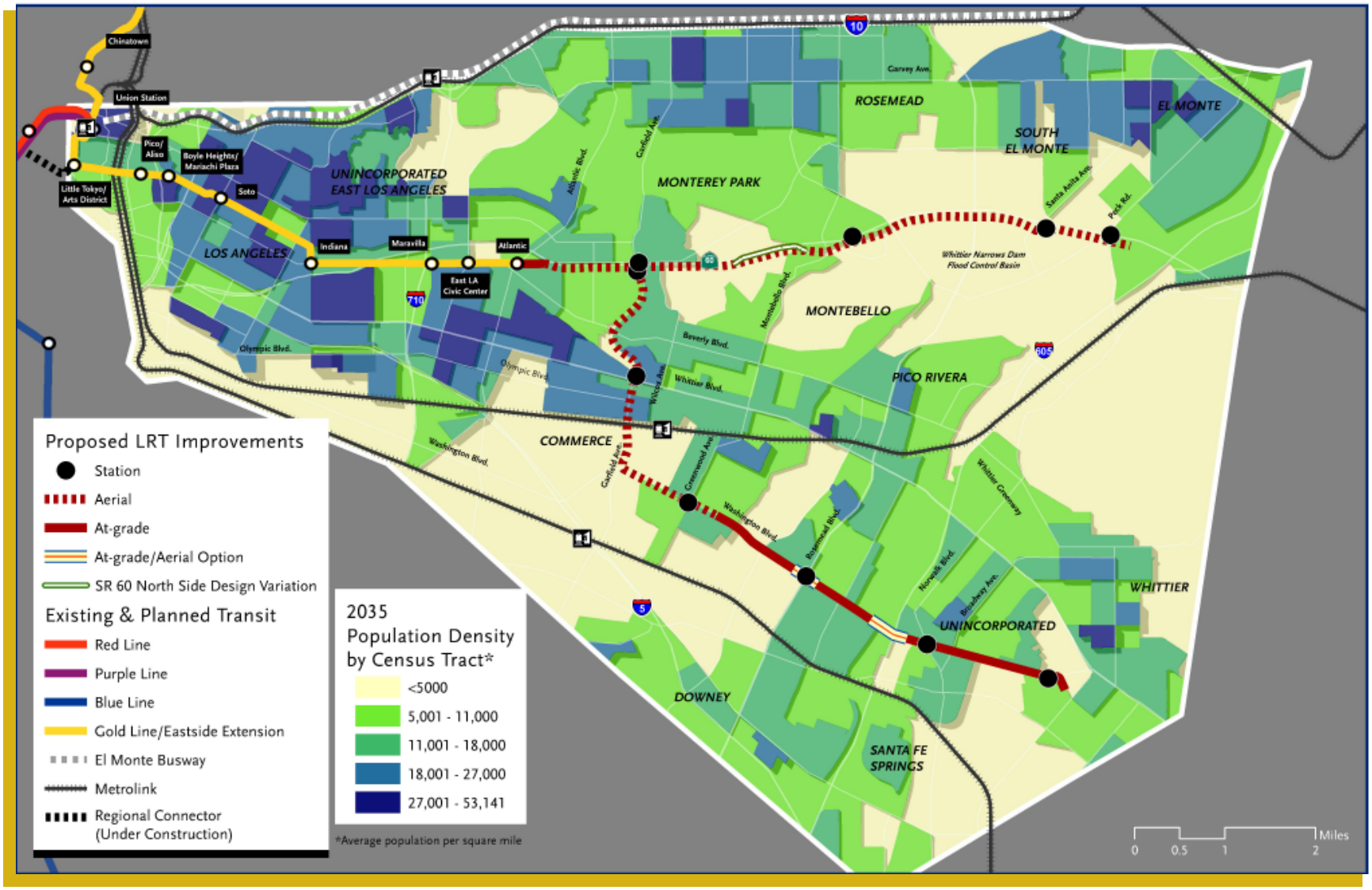
Source: SCAG 2012 RTP projections based on 2010 Census Data. Graphic prepared by AECOM, CDM Smith 2013.

Figure 1-2. Population Growth for Project Study Area 2010-2035



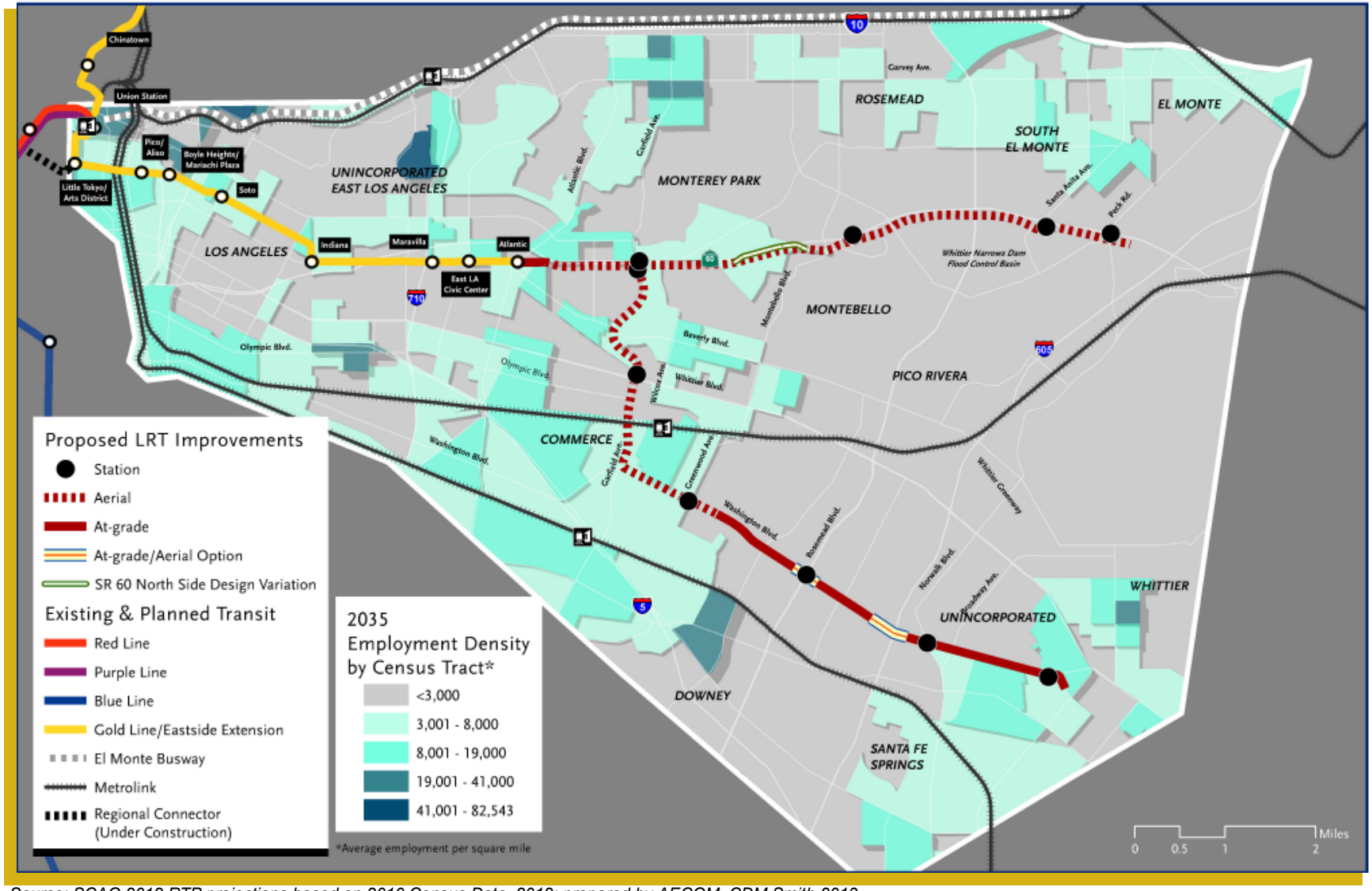
Source: SCAG 2012 RTP projections based on 2010 Census Data. Graphic prepared by AECOM, CDM Smith 2013.

Figure 1-3. Employment Growth for Project Study Area 2010-2035



Source: SCAG 2012 RTP projections based on 2010 Census Data, 2010; prepared by AECOM, CDM Smith 2013.

Figure 1-4. 2035 Population Density



Source: SCAG 2012 RTP projections based on 2010 Census Data, 2012; prepared by AECOM, CDM Smith 2013.

Figure 1-5. 2035 Employment Density

1.5.3 Traffic Congestion

Traffic congestion and commute times are forecast to increase in the county and in the project study area. Over the ten-year period from 1990 to 2000, residents of Los Angeles County experienced an 11 percent increase in travel time to and from work. Based on SCAG projections, travel times to and from work will increase 15 percent from 2003 to 2035 for Los Angeles County. The average travel speed will decrease from 27.4 miles per hour (mph) to 25.0 mph, representing the lowest average travel speed in the SCAG region. The following describes the conditions on freeways and arterial streets within the project study area.

Major arterials in the project study area operate at level of service (LOS) E or F conditions during morning and evening peak periods, which negatively impacts access to local destinations. As reported in the *2010 Los Angeles County Congestion Management Program*, nearly 25 percent of the arterial intersections in the project study area operate at unacceptable conditions (i.e., LOS E or F) during the morning peak period, and approximately 50 percent in the afternoon peak period. Peak period congestion also impacts local streets, as drivers detour to avoid travel delays, negatively impacting the project study area's neighborhoods. **Table 1-2** shows the projected increase in traffic on freeways in the project study area.

1.5.4 Transit Use and Potential Markets

Bus service is the primary public transportation option available to the communities within the project study area. Major travel corridors in the project study area include east-west corridors such as Whittier Boulevard, Beverly Boulevard, Olympic Boulevard, and Washington Boulevard, and north-south corridors such as Atlantic Boulevard, Garfield Avenue, Rosemead Boulevard, and Montebello Boulevard. Fixed route service in the project study area runs at high frequencies during typical working hours, with decreased service during the evenings and weekends. These bus routes provide transportation to most major shopping areas, recreation facilities, and public schools within the project study area. Rail feeder bus routes provide direct connections to Metrolink and Amtrak rail stations.

Table 1-2. Existing and Projected Average Daily Traffic Volumes for Freeways in the Project Study Area

Freeway Name	Limits	2010 Average Daily Traffic	Projected 2035 Average Daily Traffic	Percent Change from 2010
SR 60	I-605 to I-5	215,000	231,000	7.4%
I-10	I-605 to I-5	225,000	292,000	30%
I-5	I-605 to I-10	259,000	291,000	12.3%
I-710	I-10 to I-5	185,000	193,000	4.3%
I-605	I-10 to I-5	243,000	299,000	23%

Source: Metro Model. Traffic volumes represent the average flows on several freeway links between the limits stated. The links used are only those between intersections; links within intersections (such as between freeway ramps) were not included.

Metro operates fixed guideway rail service throughout the Los Angeles metropolitan area. It provides over 79 miles of urban rail served by the Metro Red and Purple Line heavy rail subways, and the Blue, Green, and Gold Line light rail lines. The majority of Metro rail stations provide connections to additional public transportation options, including Metrolink commuter rail, Amtrak intercity rail, bus rapid transit, and bus service provided by Metro and various cities.

Commuter and intercity rail service within the project study area are provided by Metrolink and Amtrak, with a connection to Metro rail service (Red, Purple and Gold lines) at Union Station.

Within the project study area there are two Metrolink stations. The Commerce Station, at the intersection of Garfield Avenue and Telegraph Road, provides service south of Union Station via the Orange County Line. The Riverside Line stops at the Montebello/Commerce Station, situated near the intersection of Garfield Avenue and Flotilla Street. Stops adjacent to the project study area include the Cal State Los Angeles Station on the San Bernardino Line, adjacent to I-10, and the El Monte Station north of the project study area boundary.

In 2006, approximately 26 percent of transit trips that originated in the project study area remained in the area. This proportion is projected to increase to 30 percent by 2035. This reinforces the need for transit improvements within the project study area to capture both local and regional travel markets.

In 2006, the most popular destination for the remaining 74 percent of transit trips destined outside the project study area was Central Los Angeles (which includes the central business district); such trips accounted for more than 30 percent of transit trips outside the project study area, producing a major east-west travel pattern that the Eastside Transit Corridor Phase 2 Project would serve.

Portions of the project study area contain largely transit-dependent populations – including the young, elderly, low-income households, and households that do not own a vehicle – in proportions higher than those in Los Angeles County.

Of the households within one-half mile of the SR 60 LRT Alternative, approximately nine percent had no vehicles available in 2011, about five percent of workers over the age of 16 took public transportation to work, and 22 percent of the population had a disability. Of the 25 Census tracts within one-half mile of the SR 60 LRT Alternative, three had a zero-car household concentration of 20 percent or greater and six block groups exceeded the threshold (30 percent) for a high concentration of persons with a disability. Two Census tracts exceeded 17 percent of workers taking public transportation to work.

Of the households within one-half mile of the Washington Boulevard LRT Alternative, approximately ten percent had no vehicles available in 2011 and about six percent of workers over the age of 16 took public transportation to work. Of the 39 Census tracts within one-half mile of the Washington Boulevard LRT Alternative, 15 had a zero-car household concentration of 20 percent or greater; three exceeded the 17 percent threshold for workers taking public transportation to work; and seven of the 95 block groups exceeded the 30 percent threshold of persons with a disability.

The size of these groups could increase with projected population growth. There is a need to provide reliable, high-capacity transit to meet the needs of both existing and future transit-dependent populations. Currently these populations are served by bus as the primary transit alternative in the project study area. Transit solutions should explore ways to meet demand by providing an alternative that does not add to the increasing congestion experienced on the roadway network in the project study area.

Current travel demand is expected to increase 32 percent by 2035 for the Eastside Transit Corridor Phase 2 project study area. Several travel markets would benefit from a transit investment:

- ***Trips produced/attracted to the project study area -*** The project study area attracted and produced approximately 3.7 million all-purpose trips in 2006. This is expected to grow significantly to 4.4 million daily trips by 2035. In 2006, a large share of these trips remained within the project study area (44 percent), a condition that is projected to continue. Population and employment growth are contributing factors.

- ***Transit trips produced/attracted to the project study area*** **-** In 2006, the project study area produced or attracted a total of 114,000 daily, all-purpose transit trips, and 26 percent remained within the project study area. This is forecast to increase to 30 percent by 2035. This trend can be attributed to the activity centers within the project study area.
- ***Trips from project study area to outside districts*** **-** According to 2035 projections, approximately 50,000 daily trips will be generated from the project study area to Central Los Angeles.

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Chapter 2
Alternatives Considered

This chapter discusses how the alternatives studied in this Draft EIS/EIR were developed and describes the features of each alternative. All of the proposed build alternatives meet the purpose and need outlined in Chapter 1. **Figure 2-1** shows all of the possible light rail transit (LRT) routes and stations studied in this Draft EIS/EIR.

2.1 Alternatives Evaluation, Screening, and Selection Process

As indicated in Chapter 1, Purpose and Need, studies of major rail transit infrastructure investments on the Eastside date back to the 1980s, and loose plans for a major east-west route through Los Angeles County exist from prior decades.

Metro initially selected an extension of the Metro Red Line heavy-rail subway as the locally preferred alternative (LPA) for the Eastside Transit Corridor. This project was later re-scoped and, following the *2000 Eastside Transit Corridor Studies: Re-Evaluation Major Investment Study*, an extension of the Pasadena Blue Line light rail project (later named the Metro Gold Line) was identified as the new LPA for the Eastside Transit Corridor.

In 2002, Metro completed the environmental process for the first phase of what is now known as the Metro Gold Line Eastside Extension. As a result of this effort, the Metro Gold Line Eastside Extension's first phase was completed in November 2009. Atlantic Station, located on Pomona Boulevard between Beverly Boulevard and Atlantic Boulevard, is the terminus.

In 2007, Metro initiated plans for a high-capacity transit connection from the Eastside Extension Phase 1 Project to eastern Los Angeles County by preparing an *Eastside Transit Corridor Phase 2 Alternatives Analysis (AA) Report* and an addendum to that report (2009).

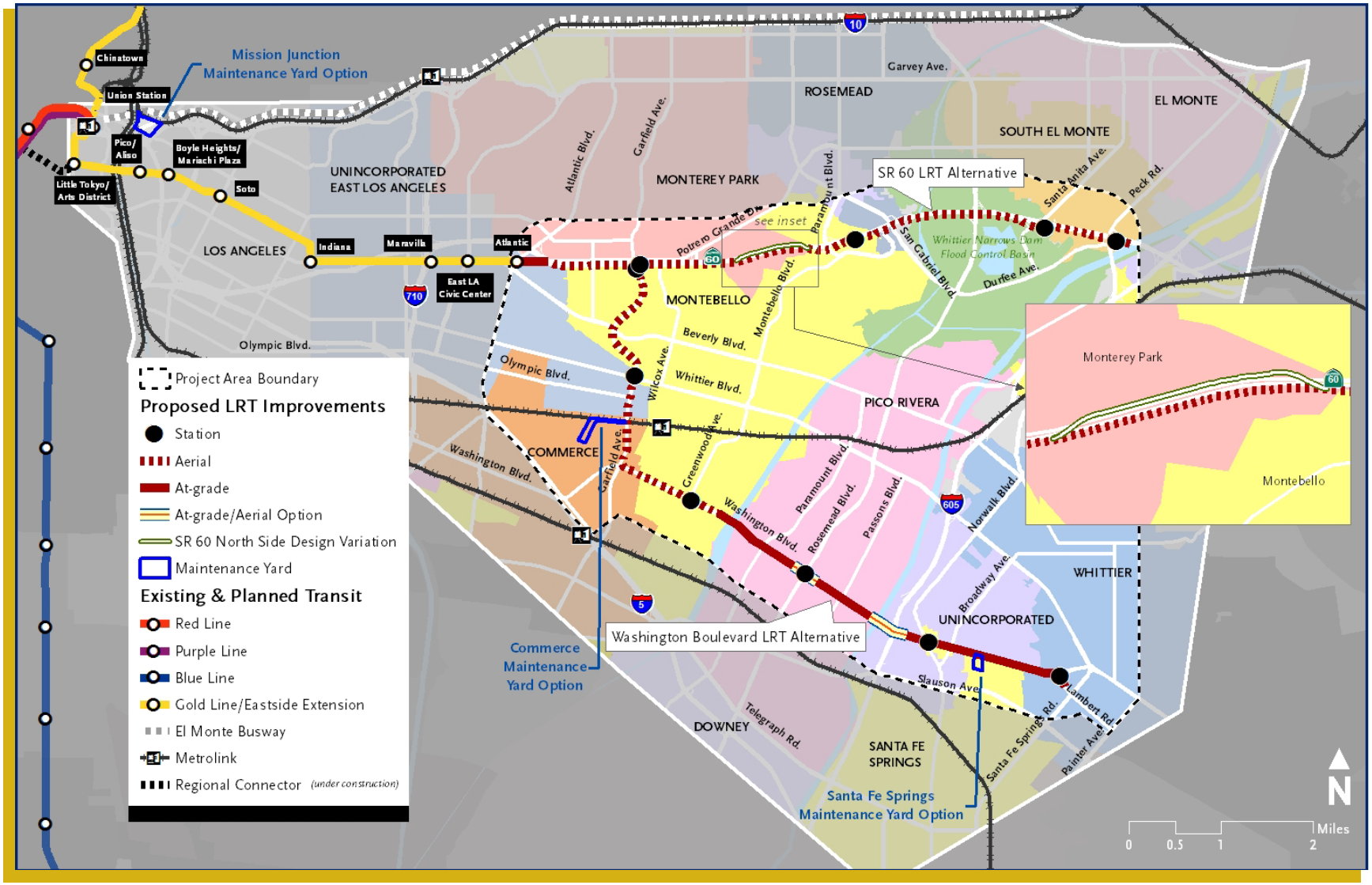
The Metro Board of Directors authorized Metro staff to study two build alternatives, in addition to the No Build and transportation systems management (TSM) alternatives, during the Draft EIS/EIR phase in October 2009. Regional plans and funding measures that identify the Eastside Transit Corridor Phase 2 Project include the Southern California Association of Governments (SCAG) *Regional Transportation Plan* (RTP), the Metro *2009 Long Range Transportation Plan* (LRTP), and Measure R.

2.1.1 Evaluation Criteria

The Eastside Transit Corridor Phase 2 Project alternatives presented in this Draft EIS/EIR build on the findings of previous studies beginning in 2007. The development of light rail alternatives for this study included the following processes:

- Identification of alternatives
- Screening of alternatives
- Project scoping and refinement of alternatives
- Detailed analysis of the refined alternatives

A detailed set of evaluation criteria, with related performance measures, was developed to provide the public and decision-makers with information on the benefits and impacts of the alternatives, as well as the differences between the options. Different levels of evaluation criteria were used during each screening step as the technical information and comments on the alternatives became more specific.



Source: Metro, CDM Smith 2011.

Figure 2-1. Build LRT Alternatives Studied in the Draft EIS/EIR

The following evaluation categories were used to screen alternatives against the purpose and need goals:

- Transportation System and Mobility Improvements
- Transit Supportive Land Use and Economic Benefits
- Financial Feasibility
- Public and Agency Input

2.1.2 Screening and Selection Process

The first step in identifying alternatives was accomplished during the AA process. The AA Report evaluated a wide range of reasonable alternatives, including different routes, modes, configurations, and station locations. The Addendum to the AA Report evaluated a refined set of alternatives to determine which alternatives to study in this Draft EIS/EIR. One of the primary purposes of the AA process was to screen the alternatives and identify those that would be most feasible with regards to cost and constructability, and would best meet the goals of the project, which are described in Chapter 1, Purpose and Need. NEPA and CEQA allow alternatives to be eliminated from further consideration before the Draft EIS/EIR process begins. Alternatives may also be added, removed, or refined following the NEPA/CEQA scoping process and early coordination with agencies and stakeholders. Following the release of the Draft EIS/EIR, Metro Board of Directors may select an LPA.

The AA process included initial technical analysis and community and public agency feedback gathered at meetings and public workshops. The reports evaluated potential alternatives based on their environmental impacts, efficiency, financial feasibility, effectiveness, and equity. The screening process, which is documented in the Final AA Report and the AA Report Addendum (Appendix G) and is incorporated into this Draft EIS/EIR, proceeded as follows:

Initial Set of Conceptual Alternatives: During the preliminary screening step, a wide range of 47 conceptual alternatives was identified from previous corridor studies and through this project's early scoping process. Early scoping provided open communication with the general public and stakeholders in order to compile information for a preliminary list of alternatives. Early scoping consisted of public outreach, facilitation of meetings and workshops, development of collateral materials, and documentation of public input.

Initial Screening of Alternatives: Based on stakeholder input and technical analysis, primarily evaluating constructability and operational feasibility, the initial set of conceptual alternatives was narrowed to 17 initial alternatives. The initial alternatives included 14 LRT alternatives and three bus rapid transit (BRT) options for further study.

The 17 initial alternatives, along with the required No Build and TSM options, were subjected to an initial level of technical and environmental analysis to identify the highest-performing alternatives. Based on a comparative analysis and public feedback, the 17 initial alternatives were refined to arrive at a smaller set of five refined alternatives that best met the project goals, were technically viable, and had stakeholder support.

The five refined alternatives were evaluated through the screening process and criteria were documented in the AA Report (Appendix G of this Draft EIS/EIR). This screening process involved more specific evaluation information including engineering and operational analysis, initial capital and operating cost estimates, ridership forecast modeling, and community and environmental impacts analysis.

Based on technical analysis and public input, it was determined that LRT technology was the most appropriate transit mode for Phase 2 of the Eastside Transit Corridor given the higher ridership projections and resulting capacity needs. A BRT alternative was identified and evaluated during this final screening level. Technical analysis showed that the BRT option produced the lowest ridership

of the alternatives and did not provide any cost savings when compared to the LRT alternatives. In addition, LRT travel times were shorter because the need for transfers was eliminated.

The AA process was completed in January 2009 and documented in the Eastside Transit Corridor Phase 2 AA Report. At that time, the Metro Board of Directors approved four final build alternatives for further refinement and analysis through a conceptual engineering-based evaluation.

Conceptual Engineering Screening: As part of the Addendum to the AA Report, conceptual engineering drawings were created to allow for a more detailed analysis of the four alternatives including operating speeds and travel times, ridership forecasts, travel benefits and costs, as well as environmental impacts. Two of the four build alternatives were not recommended for further consideration: the Beverly Boulevard LRT Alternative and the Beverly/Whittier LRT Alternative. The Beverly Boulevard LRT Alternative was not recommended for further consideration because of lack of community support; environmental impacts related to visual, traffic, safety, noise, and vibration; lack of compelling transit rider benefits, since ridership, user benefits, and travel times were not promising enough when balanced against the possible community impacts; and engineering challenges, such as Southern California Edison (SCE) and Union Pacific Railroad (UPRR) not allowing at-grade or aerial LRT operations through their property, future plans within UPRR tracks, and Section 4(f) issues associated with acquisitions within the Whittier Greenway. The Beverly/Whittier LRT Alternative was not recommended for further consideration because of lack of community support; community impacts; and lack of compelling transit rider benefits.

The AA effort resulted in the advancement of two build alternatives (the State Route 60 (SR 60) LRT Alternative and the Washington Boulevard LRT Alternative), along with the No Build and TSM Alternatives, for further analysis in this Draft EIS/EIR.

2.2 Alternatives Evaluated in this Draft EIS/EIR

The alternatives evaluated in this Draft EIS/EIR include:

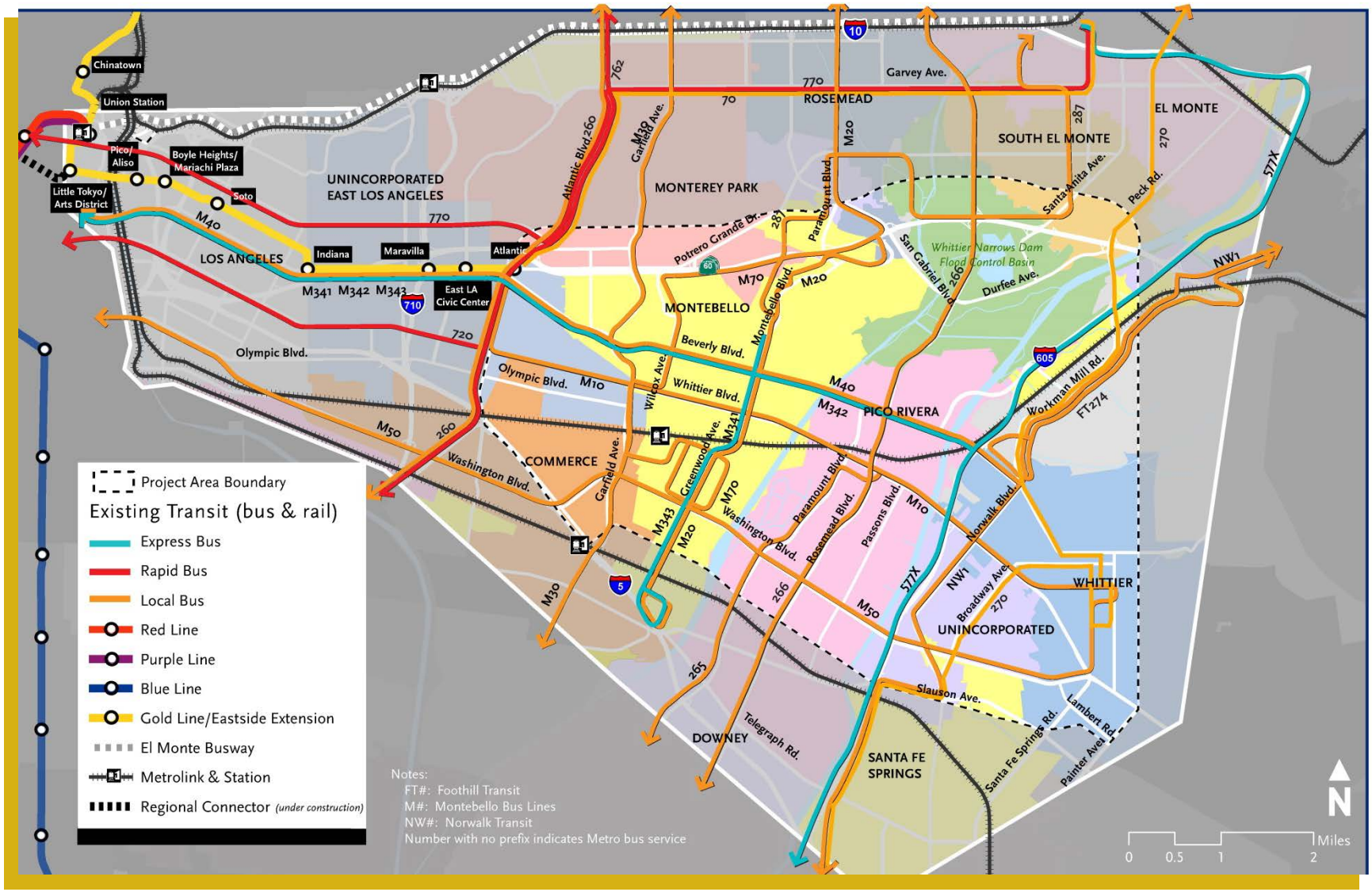
- No Build Alternative (**Figure 2-2**)
- TSM Alternative (**Figure 2-3**)
- SR 60 LRT Alternative (**F**igure 2-4) – with SR 60 North Side Design Variation (Figure 2-4)
- Washington Boulevard LRT Alternative (Figure 2-8)

For detailed overview maps of the proposed stations, staging areas, and maintenance yard options under the build alternatives, refer to Appendix HH, Conceptual Engineering Drawings. **Table 2-1** provides an overview of the operating characteristics of the alternatives.

2.2.1 No Build Alternative

The No Build Alternative is used for comparison purposes to assess the relative benefits and impacts of constructing a new transit project in the project area versus implementing only currently planned and funded projects. The No Build Alternative is also a required alternative for comparison as part of the NEPA/CEQA environmental analysis.

The No Build Alternative includes all of the projects that are identified for construction and implementation in the “Constrained Plan” of Metro’s 2009 LRTP (through the year 2035). This plan includes the Metro Gold Line Eastside Extension currently in operation, but does not include any project resulting from this Phase 2 study effort.



Source: Metro, CDM Smith 2011.

Figure 2-2. No Build Alternative

Source: Metro, CDM Smith 2011.

Figure 2-3. TSM Alternative

Table 2-1. Operating Characteristics of the Alternatives

Alternative	Transit Service	Operations	Peak-Hour Trip Time	Signal Priority or Re-Coordination
No Build Alternative	No improvements beyond existing transit service, except those listed in Metro's 2009 LRTP. Some service adjustments may occur to accommodate these service improvements.	All bus and rail lines would operate using a fleet of vehicles similar to those currently in service or identified for purchase in the LRTP.	>60 minutes from the existing Eastside Extension Atlantic Station to the terminus of the SR 60 LRT Alternative. >50 minutes from the Atlantic Station to the terminus of the Washington Boulevard LRT Alternative.	No new signal priority or coordination beyond what is included in LRTP projects.
TSM Alternative	All provisions of the No Build Alternative plus enhancement of the east-west bus service in the same corridor as the build alternatives. The TSM Alternative also includes enhancements to north-south bus services that would feed and integrate with the improved east-west transit spine.	The standard 40-foot buses, depending on rider demand.	30 minutes from the existing Eastside Extension Atlantic Station to the terminus of the SR 60 LRT Alternative. 42 minutes from the Atlantic Station to the terminus of the Washington Boulevard LRT Alternative.	Signal priority would be granted to oncoming buses where possible.
SR 60 LRT Alternative	All provisions of the No Build Alternative and the TSM Alternative bus service (except the Pomona Freeway Flyer – operator to be determined). Light rail trains would operate on an east-west route (I-605 to Santa Monica) using the Regional Connector Transit Corridor tracks. Trains would run every five minutes on each route during peak hours, yielding trains every 2 ½ minutes in each direction on the new Eastside Transit Corridor Phase 2 tracks.	Light rail trains would be used that are similar to Metro's current fleet.	13 minutes from the existing Eastside Extension Atlantic Station to the Peck Road station.	No signal preemption or priority treatments were assumed for LRT operation, as Eastside Transit Corridor Phase 2 would operate similarly to Phase 1, with partial priority treatments where minor modifications to traffic signals would enable trains to proceed through the intersection.[1]

Table 2-1. Operating Characteristics of the Alternatives (continued)

Alternative	Transit Service	Operations	Trip Time	Signal Priority or Re-Coordination
Washington Boulevard LRT Alternative	All provisions of the No Build Alternative and the TSM Alternative bus service, with some minor variations. Light rail trains would operate on an east-west route (Whittier to Santa Monica) using the Regional Connector Transit Corridor tracks. Trains would run every five minutes on each route during peak hours, yielding trains every 2 ½ minutes in each direction on the new Eastside Transit Corridor Phase 2 tracks.	Light rail trains would be used that are similar to Metro's current fleet.	17.5 minutes from the existing Eastside Extension Atlantic Station to the Lambert Road station.	No signal preemption or priority treatments were assumed for LRT operation, as Eastside Transit Corridor Phase 2 would operate similarly to Phase 1, with partial priority treatments where minor modifications to traffic signals would enable trains to proceed through the intersection.

Source: CDM Smith, AECOM, and Metro 2012.

[1] *Since a majority of this alternative is grade-separated, partial signal priority treatments would only be made at two intersections (Atlantic Boulevard/Pomona Boulevard and Pomona Boulevard/Hill Street) along the at-grade segment of the alignment.*

It also includes the construction of the Metro Crenshaw/Los Angeles International Airport (LAX) Line, the LAX People Mover, the extension of the Metro Purple Line to Westwood, the Metro Expo Line to Santa Monica, the Airport Metro Connector, and the South Bay Metro Green Line Extension. The plan also includes construction of the Regional Connector that will connect existing lines through downtown Los Angeles. After construction of the Regional Connector, operations of the Metro Gold Line Eastside Extension will be modified. Operations on the Metro Expo and Metro Gold Line Eastside Extension lines will be combined, allowing east-west trains to operate between Santa Monica and East Los Angeles without requiring riders to transfer. It will also allow operations of Metro Blue Line and Metro Gold Line from Union Station to Montclair to be combined, enabling north-south trains to operate between Montclair and Long Beach, also without the need for riders to transfer. Bus services will be reorganized and expanded to provide connections with these new rail lines. Figure 2-2 displays the No Build Alternative.

In addition to bus services, the No Build Alternative includes two Metrolink commuter rail routes, each of which has one station located within the project area:

- Riverside Line – Providing service between Riverside and Union Station – The station is located in an industrial area near the Commerce/Montebello border east of Garfield Avenue.
- Orange County/91 Lines – Providing service between Orange County/Riverside and Union Station – The station is located west of Garfield Avenue along the southwest edge of the project area.

Both of these Metrolink stations are served by existing bus routes.

The No Build Alternative also includes all of the projects that are identified for construction and implementation in the financially constrained project list of the *2012-2035 RTP*, developed by SCAG to present the transportation vision for the region through year 2035. The RTP outlines future highway projects, including providing one high-occupancy vehicle lane in each direction on Interstate 5 (I-5) from I-605 to I-710. No other major roadway improvements in the project area are included in the financially constrained RTP.

2.2.2 TSM Alternative

The TSM Alternative is intended to address the same mobility needs as the two LRT build alternatives, but does not include the construction of a fixed guideway facility.

The TSM Alternative includes all of the transit and roadway provisions of the No Build Alternative, plus proposed enhancements to existing bus service. Under the TSM Alternative, the basic approach is to enhance the east-west bus service in the same corridor as the build alternatives to develop the TSM network. In order to leverage the investment in an east-west transit spine, the TSM Alternative also includes enhancements to north-south bus services that would feed and integrate with the improved east-west spine. The TSM Alternative is presented in Figure 2-3.

The key elements of the TSM Alternative are the creation of an east-west "transit spine" along with new north-south feeder service. The transit spine would include new "Pomona Freeway Flyer" (operator to be determined) express service from the existing Metro Gold Line Eastside Extension terminus at Atlantic Station to Crossroads Parkway near SR 60, supported by enhanced bus service provided by Montebello Bus Lines. **Table 2-2** and **Table 2-3** provide more information regarding the east-west "transit spine" and north-south feeder service, respectively.

Table 2-2. New East-West Transit Spine

Line[1]	Service Type	Operating Characteristics	
		Peak Period	Off-Peak Period
New Pomona Freeway Flyer	Express service	5 min. headways/50 min.travel time	10 min. headways /30 min. travel time
Route 40 on Beverly Blvd.	New Rapid bus service	5 min. headways/ 50 min. run time	10 min. headways /35 min. run time
Route 10 on Whittier Blvd.	Additional service	5 min. headways/ 50 min. run time	10 min. headways /35 min. run time
Route 50 on Washington Blvd.	Additional service	5 min. headways/ 90 min. run time	10 min. headways /75 min. run time

Notes: min. = minutes
[1] Operator for new bus service to be determined.

Table 2-3. New North-South Feeder Service

Line[1]	Service Type	Operating Characteristics	
		Peak Period	Off-Peak Period
Montebello Bus			
Route 30 on Garfield Ave.	New Rapid bus service	45 min. headways/ 75 min. run time	60 min. headways/50 min. run time
Route 20 on Montebello Blvd.	New limited stop service	15 min. headways/ 95 min. run time	30 min. headways/75 min. run time
Metro Bus			
Route 265 on Paramount Blvd.	Additional service	30 min. headways/ 80 min. run time	45 min. headways/65 min. run time
Route 266 on Rosemead Blvd.	Additional service	25 min. headways/ 150 min. run time	40 min. headways/100 min. run time
Route 370	New limited stop service	60 min. headways/ 70 min. run time	60 min. headways/65 min. run time
Foothill Transit			
Route 274 on Workman Mill Rd.	New express service	60 min. headways/ 95 min. run time	60 min. headways/55 min. run time

Notes: min. = minutes
[1] Operator for new bus service to be determined.

The north-south feeder service would include new Rapid bus service on Montebello Bus Lines Route 30 on Garfield Avenue, new limited stop service on Montebello Bus Lines Route 20 on Montebello Boulevard, and additional service on Metro Route 265 on Paramount Boulevard, Metro Route 266 on Rosemead Boulevard, and Foothill Transit Route 274 on Workman Mill Road. It would also include new Route 370 Limited Stop service in addition to existing Metro Route 270 service on Peck Road and Workman Mill Road.

2.2.3 SR 60 LRT Alternative

The SR 60 LRT Alternative would extend the Metro Gold Line Eastside Extension, a dedicated, dual track LRT system with overhead catenary wiring, approximately 6.9 miles east to Peck Road. More than 94 percent of this alternative would operate in an aerial configuration, primarily within the southern portion of the SR 60 Freeway right-of-way (ROW). Primary considerations for an aerial configuration, which are unique to this alternative, include the ability to accommodate potential future freeway enhancements, avoidance of on- and off-ramps, and ability to negotiate areas where ROW was limited. Where possible, at-grade

configuration is proposed including just east of Atlantic Boulevard and for a segment on the north side of the freeway. Although in certain areas transitions between aerial and at-grade or cut sections of California Department of Transportation (Caltrans) ROW were possible, operations, maintenance, and construction costs were a concern due to the various steep grade transitions that would need to occur. Underground segments for this alternative were not pursued due to the high cost compared to the potential ridership, as well as the extreme difficulty in traversing underground within certain areas such as the Operating Industries, Inc. (OII) landfill site and the Rio Hondo River. **Figure 2-4** illustrates the SR 60 LRT Alternative.

The proposed alignment runs at-grade east from the Metro Gold Line Eastside Extension Atlantic Station in the median of Pomona Boulevard, where the alignment transitions to an independent aerial structure within the south side of the SR 60 Freeway ROW to Garfield Avenue. Specifically, the LRT alignment would transition from Pomona Boulevard to the Caltrans ROW near the intersection of Pomona Boulevard and Sadler Avenue. The SR 60 LRT Alternative continues east beyond Garfield Avenue in the freeway ROW, terminating in the vicinity of the SR 60/Peck Road interchange in the city of South El Monte, with tail tracks for storage extending farther east.

The typical ROW requirement for this alternative is generally 32 feet for the elevated structure and 49 feet at station locations. This alternative includes four stations with supporting park and ride facilities. **Table 2-4** summarizes the extent of ROW requirements for the portions of the SR 60 LRT Alternative and the SR 60 North Side Design Variation within the Caltrans ROW.

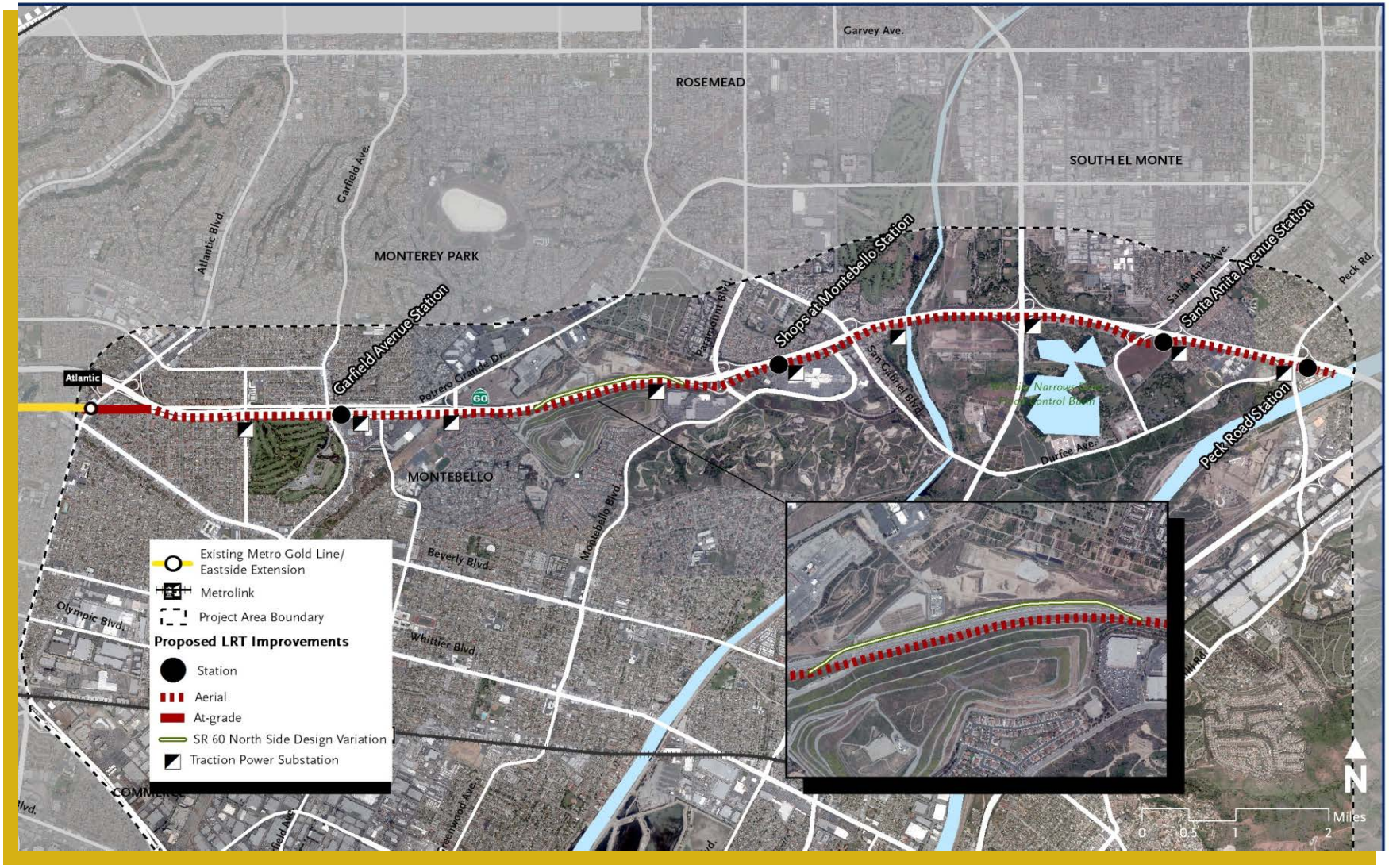
The elevated structure throughout the alignment is supported by a total of 176 octagonal columns that are seven feet in diameter. These single columns are approximately 150 feet apart from one another. Over the Rio Hondo, four larger columns that are approximately nine feet wide support the guideway to account for the longer spacing. Near and at station locations, the platforms are supported by pairs of octagonal columns that are 5.5 feet in diameter, typically spaced 150 feet apart. In total, there are 49 column pairs that support the station platforms throughout the alignment.

Fifteen crossover structures, mostly over on- and off-ramps, would be located within the Caltrans ROW. Their widths vary depending on the size of the road below them. One structure is proposed over the eastbound off-ramp at Findlay Avenue adjacent to Via Campo; five structures are proposed over the eastbound Garfield exit ramps; one structure over the Via Campo/Vail Avenue on-ramp; three structures over the Paramount Boulevard off-ramp; one structure over the San Gabriel Boulevard off-ramp just north of the Shops at Montebello; two structures over the Rosemead Boulevard off-ramp; one structure over the Rosemead Boulevard on-ramp; and one structure over the Peck Road on-ramp. No emergency generators are identified for this alternative.

The alignment would cross over the following streets that utilize bridges to cross over the SR 60: Greenwood Avenue, Paramount Boulevard, San Gabriel Avenue, Rosemead Boulevard, and Santa Anita Avenue.

The SR 60 LRT Alternative would travel beneath transmission lines at two locations, where the SR 60 Freeway crosses over Vail Avenue and near the intersection of Paramount Boulevard and Town Center Drive. A minimum 12 feet of clearance would be provided between the LRT structure, including the overhead catenary service (OCS) wires, and the lowest point of the transmission lines. Clearances beneath transmission lines would be provided in accordance with the applicable regulations of each provider.

Partial signal priority would be provided to the LRT at signalized intersections along the at-grade portion of the alignment. Traction power substations (TPSS), track crossovers, emergency generators, and other ancillary facilities that provide power and help to operate the LRT would also be constructed along the route; more information about these ancillary facilities is



Source: Metro, CDM 2011. Note: Please see Figure 2-3 for TSM enhancements that are also included as part of the SR 60 LRT Alternative (with the exception of the Pomona Freeway Flyer – operator to be determined). The proposed Mission Junction Maintenance Yard is located outside of the view shown in this figure. Please refer to Figure 2-1 for the location of the proposed maintenance facility under the SR 60 LRT Alternative.

Figure 2-4. SR 60 LRT Alternative

provided below. Conceptual engineering drawings showing the alignment plans and profiles, which include station site and park and ride footprints, are incorporated into this Draft EIS/EIR as Appendix HH, Conceptual Engineering Drawings. Station design may be subject to refinement during final design, therefore ultimate impacts may be lesser in magnitude than the impacts discussed in this Draft EIS/EIR.

The SR 60 LRT Alternative also includes all No Build Alternative transit and roadway improvements and TSM Alternative bus services, with the exception of the Pomona Freeway Flyer (operator to be determined).

An "SR 60 North Side Design Variation" is analyzed to address concerns raised by the U.S. Environmental Protection Agency (USEPA) about potential impacts to the former OII landfill site south of SR 60 in the city of Monterey Park.

Table 2-4. Summary of Caltrans Right-of-Way Requirements

LRT Characteristic	No Build Alternative	TSM Alternative	SR 60 LRT Alternative		Washington LRT Alternative	
			Total Alternative	Within Caltrans ROW	Total Alternative	Within Caltrans ROW
Miles of Alignment	0	0	6.9 miles	6.59 miles	9.5 miles	1.09 miles
Stations	0	0	4	4	6	0
Park and Ride Facilities	0	0	4	4	5	0
Columns	0	0	307 (306)	307 (306)	226	43
Crossover Structures	0	0	4	4	8	0
TPSS Facilities			8	2	10	1

Source: AECOM, CDM Smith 2013.
Note:
(#) = Number of features within the Caltrans ROW for the SR 60 North Side Design Variation. All other numbers are the same under the SR 60 LRT Alternative and the SR 60 North Side Design Variation.

With this variation, instead of running along the edge of the landfill site on the south side of SR 60, the LRT alignment would transition from the south side to the north side of SR 60 just west of Greenwood Avenue, continue east along the north side of the SR 60 within Caltrans ROW, and return to the south side of SR 60 approximately one-quarter mile west of Paramount Boulevard (see Figure 2-4). This design variation would include approximately 3,500 feet of at-grade and aerial alignment on the north side of SR 60, and two new bridges to carry the LRT guideway over SR 60. The two new bridges to carry the LRT alignment over SR 60 Freeway would be 32 feet wide. One five-foot by 12-foot elliptical column would be located in the median of the freeway to support the structure crossing to the north side. A seven-foot-wide single column would be located just west of Greenwood Avenue to support the descending structure. The LRT alignment would cross Greenwood Avenue at-grade, just north of the portion of Greenwood Avenue that transitions to a bridge over the SR 60 Freeway. A four-sided crossing gate would be provided at this location to prevent private vehicles from crossing the tracks when trains are present. Mechanically stabilized earth (MSE) walls and retaining walls 32 feet in width would support the alignment throughout the length of the north side alignment, approximately 0.6 miles, before it transitions back to the south side.

Returning to the south side of the freeway, one five-foot by 12-foot elliptical column in the median of the freeway would support the structure crossing and then return to a seven-foot-wide single column approximately 200 to 300 feet west of Paramount Boulevard. Table 2-3 summarizes the extent of ROW requirements for portions of the alternatives within the Caltrans ROW.

The landfill gas treatment system (LFGTS), which includes two thermal oxidizer stacks, is located on the north side of SR 60 and is used to treat gas collected from the OII landfill site. As shown in **Figure 2-5**, the proposed SR 60 North Side Design Variation LRT track would be at-grade and located more than 120 feet south of the southern LFGTS thermal oxidizer and at a much lower elevation compared to the top of the stacks.

As indicated above, Conceptual engineering drawings showing the SR 60 North Side Design Variation alignment plans and profiles, which include station site and park and ride footprints, are incorporated into this Draft EIS/EIR as Appendix HH, Conceptual Engineering Drawings.

2.2.3.1 Operating Hours and Frequency

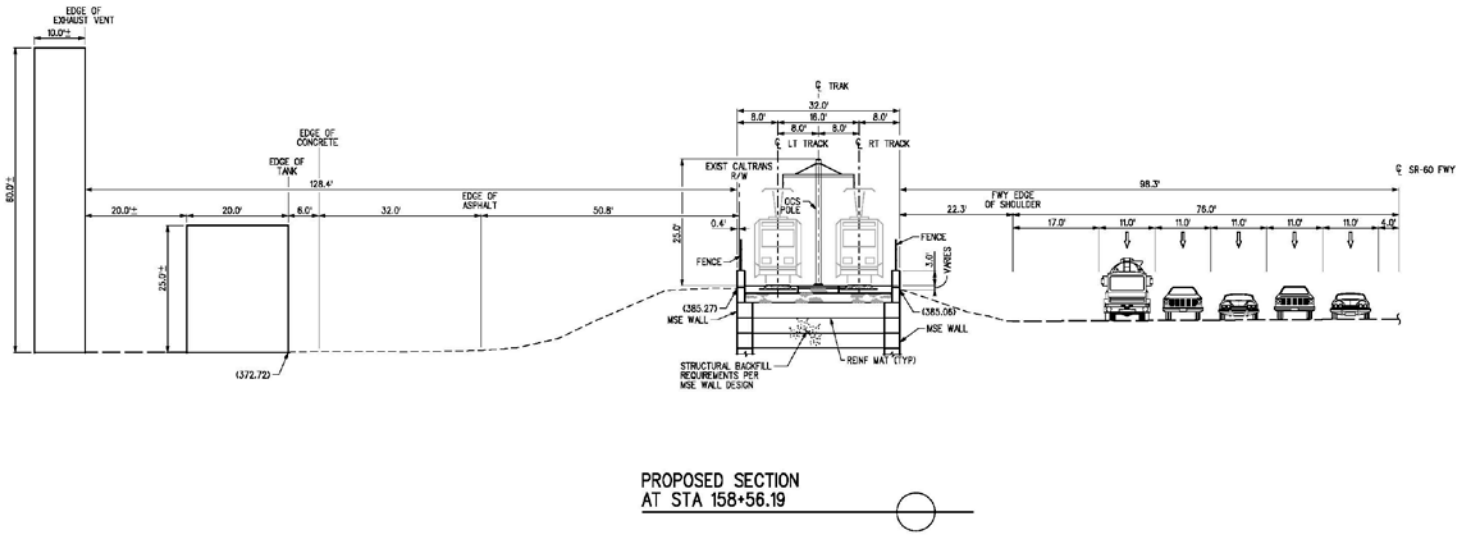
The operating hours and schedules for the SR 60 LRT Alternative would be comparable to the weekday, Saturday and Sunday, and holiday schedules for the existing Metro Gold Line. Trains would operate every day from 4:00 AM to 1:30 AM. On weekdays, trains would operate every five minutes during peak hours, every 10 minutes mid-day and until 8:00 PM, and every 15 minutes in the early morning and after 8:00 PM. On weekends, trains would operate every 10 minutes from 9:00 AM to 6:30 PM, every 15 minutes from 6:30 to 7:30 PM and from 7:00 to 9:00 AM, and every 20 minutes in the early morning and after 7:30 PM.

2.2.3.2 Proposed Stations

The SR 60 LRT Alternative has four aerial, center platform stations designed with bus and parking facilities to intercept vehicular and bus travel operating within the east-west freeway corridor and circulating in a north-south direction crossing the freeway. All of the station areas would require property acquisition to accommodate the stations and related facilities, including park and ride lots. The proposed stations would be designed to be pedestrian- and bicycle-friendly, and could include such elements as enhanced intersections and crosswalks, plazas, pedestrian bridges, bicycle storage/racks, connections to existing bicycle routes, wayfinding, landscaping, and security cameras. The proposed station locations and estimated parking spaces provided at each station are described below. (Refer to Appendix HH, Conceptual Engineering Drawings for station locations.)

Garfield Avenue - This station would be an aerial, center platform station located within the freeway ROW east of Garfield Avenue along Via Campo in the city of Montebello. Station facilities would include on-street bus interface, kiss and ride space, and a park and ride lot of surface and structured parking with approximately 425 parking spaces. The site has roadway access from the SR 60 Freeway ramps to the east, Garfield Avenue to the west, and Wilcox Avenue to the east. Pedestrian access would be provided via existing crosswalks at street level at the intersection of Garfield Avenue and Via Campo, as well as by a pedestrian bridge across Via Campo to create a convenient connection between the station, parking, and commercial uses. Fixed route buses serving the station include Montebello Bus Lines Route 30 on Garfield Avenue and Montebello Bus Lines Route 70 on Via Campo and Wilcox Avenue.

Shops at Montebello – This station would be an aerial, center platform station located on currently private property adjacent to the Shops at Montebello. Facilities would include an off-street bus plaza, kiss and ride space, and a park and ride lot of surface and structured parking with approximately 510 parking spaces. The station would sit between two freeway interchanges that connect with Montebello Boulevard, Paramount Boulevard, and San Gabriel Boulevard for roadway access.



Source: AECOM, CDM Smith 2013.

Figure 2-5. Typical Cross Section of SR 60 North Side Design Variation near Thermal Oxidizer Stack

Pedestrian access would include a pedestrian bridge connection to a vertical circulation element across Town Center Drive, which could be integrated into a parking structure. This station would provide an interface to numerous Metro and Montebello Bus Lines routes that currently serve the existing stop on Town Center Drive, including Montebello Bus Lines Routes 20, 70, 341, and 343 and Foothill Transit Routes 68, 269, and 287.

Santa Anita Avenue – This station would be an aerial, center platform station located on the south side of the freeway to the east of Santa Anita Avenue, within the Whittier Narrows Flood Control Basin, in the city of South El Monte. Station facilities would include on-street bus interface, kiss and ride space, and a park and ride lot of structured parking with approximately 955 parking spaces. The parking structure would be constructed on the same property as the proposed station. Parking within the structure would begin on the second floor. Santa Anita Avenue connects via Durfee Avenue to Pico Rivera to the south, and provides direct access to the heart of South El Monte located to the north and to Whittier Narrows Recreation Area located immediately west of the station site. An existing pedestrian bridge located at Lexham Avenue east of the site provides alternative pedestrian access to portions of South El Monte located north of the freeway. The site is served by Foothill Transit Route 269, which provides access to El Monte Station at the El Monte Busway terminus.

Peck Road – This station would be an aerial, center platform terminus station located within the freeway ROW to the east of Peck Road in the city of South El Monte, outside the boundaries of the Whittier Narrows Flood Control Basin. Station facilities would include an off-street bus plaza, kiss and ride space, and two park and ride lots of surface and structured parking with a total of approximately 1,276 parking spaces.

This station is situated to interface with bus routes that operate north into South El Monte along Durfee Avenue as well as south into Whittier via Workman Mill Road. About one-half mile to the south, Peck Road connects to an interchange on I-605; therefore, a station at this location could also intercept traffic from communities south via I-605. The site is served by the Metro Route 270 bus, which provides access north to Monrovia and south to Whittier, Santa Fe Springs, and Norwalk. Peck Road also provides a direct route for a shuttle bus connection to Rio Hondo College, which is located just beyond the I-605 Freeway.

2.2.3.3 Special Track Work and Traction Power Substations

Special track work, such as crossovers, is proposed at several locations along the alignment to provide operational flexibility. The following crossover locations would be confirmed during final design once an LPA is designated.

- Crossover would be located just east of Wilcox Avenue
- Crossover would be located just west of Rosemead Boulevard
- Crossover would be located east of the Santa Anita Avenue station
- Crossover would be located just west of the Peck Road station

All four crossovers would be located within the Caltrans ROW. The same crossovers would be used for the SR 60 LRT Alternative with the North Side Design Variation.

As part of the SR 60 LRT Alternative, approximately nine TPSS facilities would be installed at several locations along the alignment to provide adequate electrical power for LRT service. The TPSS includes all the equipment necessary to transform and rectify the voltage required to power the light rail vehicles. The locations of possible TPSS facilities are shown in Figure 2-4 above.

Three TPSS facilities would be located within Caltrans ROW: one at the northeastern corner of Findlay Avenue, the second just north of the OII Superfund Site and west of the Paramount Boulevard exit, and the third in the area between Rosemead Boulevard and the adjacent eastbound on-ramp. As part of the SR 60 North Side Design

Variation one fewer TPSS facility would be located within Caltrans ROW. A TPSS facility would be located north of the SR 60 Freeway outside of the Caltrans ROW on the northern property of the OII Superfund site (as shown in the insert of Figure 2-4), instead of on the south side of the freeway. Refer to **Figures 2-6** and **2-7** for examples of typical crossovers and TPSS facilities, respectively. The track crossovers allow two tracks to cross each other at right angles and electrically isolate one direction from the other.

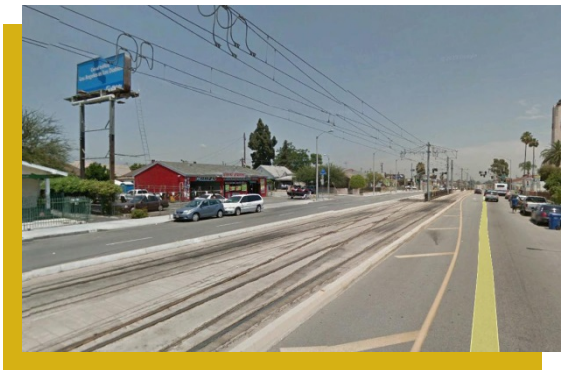


Figure 2-6. Typical Crossover

Figure 2-7. Typical TPSS Facility

2.2.3.4 Vehicle and Pedestrian Circulation

Compared to the Washington Boulevard LRT Alternative, the SR 60 LRT Alternative would require relatively small changes to the traffic and pedestrian circulation patterns. For the short at-grade segment of the alignment along Pomona Boulevard from Atlantic Boulevard to Sadler Avenue, vehicular and pedestrian crossings would be limited to traffic signal-controlled intersections. For safety reasons, uncontrolled mid-block vehicular crossings of tracks and mid-block left turns would not be permitted. This would affect access to existing parking lots and commercial uses fronting Pomona Boulevard and would modify existing approach and departure traffic patterns in the area.

Permanent lane reconfigurations would also be needed along Pomona Boulevard between Atlantic Boulevard and Sadler Avenue. Pomona Boulevard would be reduced from two through lanes in the east and westbound direction to one through lane in each direction.

East of Sadler Avenue the alignment would transition to grade-separated and continue within the Caltrans ROW directly south of the SR 60 Freeway. No other lane reconfigurations would be needed except at the intersection of Peck Road and Durfee Avenue. Lane reconfiguration of this intersection approach would be necessary and would change from an eastbound left-turn, all-way middle, and right-turn lane to a shared through-left lane and a right-turn lane.

Design of the SR 60 LRT Alternative would ensure that adequate sidewalk widths are maintained. Where park and ride facilities are introduced at stations, new signalized and clearly-marked walkways would be created for pedestrian circulation to and from the parking facilities and station entrances to avoid potential conflicts with automobiles.

Refer to Section 4.4.1 Pedestrian Facilities of Appendix M, Transportation Impacts Technical Memorandum, for further discussion on the pedestrian environment. Also refer to Appendix K, Urban Design, which includes graphics associated with planned pedestrian and bicycle facilities for each of the proposed build alternatives.

2.2.3.5 Maintenance Yard

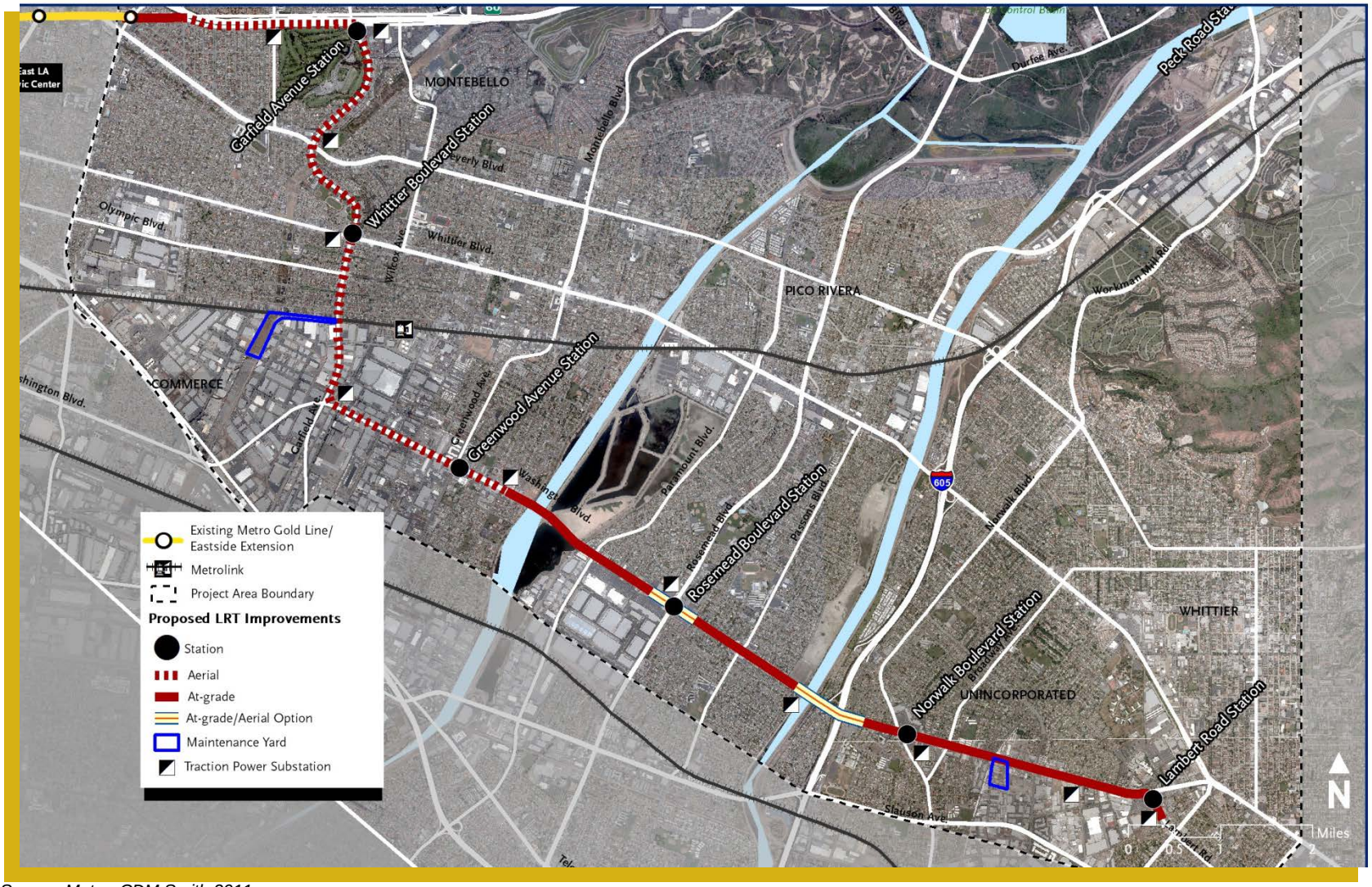
Under the SR 60 LRT Alternative, one potential site (referred to as the Mission Junction Maintenance Yard Option to distinguish it from the additional options identified for the Washington Boulevard LRT Alternative) has been preliminarily identified

for the location of a new maintenance yard. The site is approximately 11 acres in size and is adjacent to the existing Mission Junction rail facility, generally bounded by I-5 to the east, I-10 to the south, the Los Angeles River to the west, and the Union Pacific rail line to the north as shown in Figure 2-1. This industrial area is zoned for railroads and maintenance yard facilities. The proposed maintenance yard, located on the north side of Mission Road, would be operated in conjunction with the existing Division 10 bus maintenance yard located on the south side of Mission Road, adjacent to the proposed maintenance yard site. The proposed maintenance yard would accommodate daily maintenance, inspection and repairs, and storage of the light rail vehicles (LRVs). The proposed maintenance yard would be designed to accommodate approximately 30 LRVs. In addition to the proposed maintenance yard, Metro may also consider modifying existing facilities to accommodate the additional capacity required to maintain the project's vehicles, or using a proposed maintenance yard in Monrovia that is currently being studied as part of the extension of the Metro Gold Line to Montclair.

2.2.4 Washington Boulevard LRT Alternative

The Washington Boulevard LRT Alternative would extend the Metro Gold Line Eastside Extension, a dedicated, dual track LRT system with overhead catenary wiring, approximately 9.5 miles east to the city of Whittier at Lambert Road. This alternative is proposed to operate in an aerial configuration with columns located in the roadway median or sidewalks, as well as in an at-grade configuration where the street widths are sufficient to accommodate the alignment and potential stations. The selection of the configuration for this alignment during the AA process was a balance of evaluating cost, travel time, ridership, and environmental considerations including safety, traffic, and visual. Specific to this alternative, where truck traffic lessened and ROW was sufficient, an at-grade street running configuration similar to the existing Metro Gold Line Eastside Extension was used. Aerial configurations identified for the segments below are proposed in order to avoid safety issues related to potential conflicts between freight trucks and the project. These aerial configurations would also minimize traffic impacts to one of only a few north-south corridors to the SR 60 Freeway. Although an underground configuration was considered for portions of this alignment, the cost and ridership projections would not support the intense level of service an underground alignment provides.

Figure 2-8 displays the Washington Boulevard LRT Alternative. The proposed alignment runs at-grade east from the Metro Gold Line Eastside Extension Atlantic Station in the median of Pomona Boulevard, where it then transitions to aerial operations running in the south side of the SR 60 Freeway ROW until it reaches Garfield Avenue. This segment is the same as that described for the SR 60 LRT Alternative, and therefore includes the same Caltrans ROW requirements and structures as that described for the SR 60 LRT Alternative above. Table 2-3 above summarizes the extent of Caltrans ROW requirements for this portion of the Washington Boulevard LRT Alternative. At Garfield Avenue, the Washington Boulevard LRT Alternative turns south in an aerial configuration to operate above Garfield Avenue. The elevated structure would be supported at various locations either by columns straddling both sides of the street to avoid extensive major utilities within the center of the street, or by single columns within the center of the street, where extensive major utilities either do not exist or can be relocated. A typical aerial structure consists of a 7-foot wide octagonal column supporting a 32-foot wide trackway, 30 feet above the ground approximately 150 feet apart with columns located on the sidewalks or parking lanes on either side of the street. At Montebello Boulevard along Washington Boulevard, the alignment transitions to a street running configuration in the center of Washington Boulevard to a terminus station located south of Washington Boulevard just west of Lambert Road, with tail tracks for storage extending south and adjacent to Lambert Road.



Source: Metro; CDM Smith 2011

Note: Please see Figure 2-3 for TSM enhancements that are also included as part of the Washington Boulevard LRT Alternative (see text for exceptions).

Figure 2-8. Washington Boulevard LRT Alternative

The street running segment is a dedicated trackway located in the center of Washington Boulevard with only signalized intersections allowing for cross traffic.

Partial signal priority would be provided to the LRT at signalized intersections. This alternative includes six stations with park and ride facilities at most station locations. In addition, TPSS, track crossovers, emergency generators, and other ancillary facilities would be located along the alignment. Conceptual engineering drawings showing the alignment plans and profiles, which include station site and park and ride footprints, are incorporated into this Draft EIS/EIR as Appendix HH, Conceptual Engineering Drawings. These drawings are provided for illustrative and analysis purposes only and may or may not represent the stations' ultimate shape and design details. This Draft EIS/EIR analyzes maximum potential impacts for each station. Therefore, actual impacts may be smaller in magnitude than the impacts discussed in this analysis.

The Washington Boulevard LRT Alternative also includes all No Build Alternative transit and roadway improvements and TSM Alternative bus services, with the following exceptions:

- The Pomona Freeway Flyer (operator to be determined) would operate between the Garfield Avenue station (instead of the Atlantic Station) and Crossroads Parkway near SR 60.
- Metro Rapid Route 720 would be extended to the Garfield Avenue station to provide connectivity.
- Montebello Bus Lines Route 50 Rapid service would operate between downtown Los Angeles and the Greenwood Avenue station only, as it would duplicate LRT service on Washington Boulevard east of Greenwood Avenue.

Two design variations are being considered for the Washington Boulevard LRT Alternative. The first design variation, the Rosemead Boulevard aerial crossing, would include a grade separation at Rosemead Boulevard. In this variation, the LRT would operate in an aerial configuration in the vicinity of Rosemead Boulevard. The design variation to the street running configuration of the Washington Boulevard LRT Alternative crossing the San Gabriel River/I-605 would include an aerial crossing over the San Gabriel River/I-605 and a grade separation at Pioneer Boulevard (the San Gabriel River/I-605 aerial crossing). In this variation, the LRT would operate on an aerial structure just south of Washington Boulevard across the San Gabriel River and then return to the median of Washington Boulevard, still in an aerial configuration, over I-605 and Pioneer Boulevard.

2.2.4.1 Operating Hours and Frequency

The operating hours and service frequency for the Washington Boulevard LRT Alternative would be the same as described for the SR 60 LRT Alternative.

2.2.4.2 Proposed Stations

The Washington Boulevard LRT Alternative has six stations located to serve the communities through which this alternative runs. Property acquisition at all stations would be necessary to accommodate the stations, access, and related facilities including park and ride facilities. All of the proposed stations, with the exception of the Whittier Boulevard station, include a park and ride facility. The proposed stations would be designed to be pedestrian- and bicycle-friendly, and could include such elements as enhanced intersections and crosswalks, plazas, pedestrian bridges, bicycle storage/racks, connections to existing bicycle routes, wayfinding, landscaping, and security cameras. The proposed station locations and estimated parking spaces provided at each are described below. (Refer to Appendix HH, Conceptual Engineering Drawings for station locations.)

Garfield Avenue – This station would be an aerial, center platform station located on the southeast corner of Garfield Avenue and Via Campo in the city of Montebello. Property acquisition would be required for station access and facilities, including drop-off space and a park and ride lot of surface and structured parking with approximately 680 parking spaces. This location has access via

Garfield Avenue to points north of SR 60 in Monterey Park and to points south in East Los Angeles and Montebello, as well as accessibility to the freeway ramps located to the east along Via Campo. Land uses within walking distance include the commercial sites east of Garfield Avenue, high-density residential located south along Garfield Avenue, and residential neighborhoods immediately north of the freeway. The station site is served by the Montebello Bus Lines Route 30 bus on Garfield Avenue which provides access to areas north and south. The site could also be developed as an end-of-line stop for buses operating to and from communities to the east via freeway flyer services along SR 60. Finally, both at-grade crosswalks and a pedestrian bridge could be provided to the commercial uses along the east side of Garfield Avenue, which provides an opportunity for possible shared parking.

Whittier Boulevard – This station would be an aerial, side platform station located in the median of Garfield Avenue just north of Whittier Boulevard in unincorporated East Los Angeles. Property acquisition would be required for station access and facilities. No park and ride facility is proposed at the Whittier Boulevard station, as it is designed primarily for walking, drop-off, and bus access due to the lack of an appropriately-sized property and constrained station area circulation patterns. The arterial roadways of Whittier Boulevard and Garfield Avenue would provide auto access to the station for drop-off purposes. The Montebello Bus Lines Route 10 bus could stop adjacent to the site, and Montebello Bus Lines Route 30 and Metro Routes 18 and 66 buses stop at the site along Garfield Avenue.

Greenwood Avenue – This station would be an aerial, side platform station located in the median of Washington Boulevard east of Greenwood Avenue in the city of Montebello. Property acquisition would be required for station access and facilities, including a park and ride lot of surface and structured parking with approximately 340 parking spaces. Roadway access is provided by Washington Boulevard and Greenwood Avenue; the latter roadway swings east approaching the Union Pacific Railroad (UPRR) and connects via Montebello Way to Montebello Boulevard, which provides access to the central area of Montebello. This site is served by Montebello Bus Lines Route 50 on Washington Boulevard, as well as Montebello Bus Lines Routes 20 and 70 operating north-south along Greenwood Avenue and Montebello Boulevard, respectively.

Rosemead Boulevard – This station would be an at-grade, center platform station located in the center of Washington Boulevard west of Rosemead Boulevard in the city of Pico Rivera.

Property acquisition would be required for station access and facilities, including a park and ride lot of surface and structured parking with approximately 425 parking spaces. This station would be within walking distance of residential neighborhoods located northwest, east, and south of the station. Both Washington Boulevard and Rosemead Boulevard would provide high-capacity vehicular access to the site, and the station would be just over one mile west of the I-605 Freeway interchange along Washington Boulevard. The station would be directly accessible to bus stops located at the Washington/Rosemead intersection, including Montebello Bus Lines Route 50 on Washington Boulevard and Metro Route 266 on Rosemead Boulevard.

If the Rosemead Boulevard aerial crossing design option is chosen, the Rosemead Boulevard station would be an aerial, center platform station located in the median of Washington Boulevard, just west of Rosemead Boulevard in the city of Pico Rivera. The station would remain within the roadway right-of-way. However, access to the station would be from stairwells, escalators, and elevators from the sidewalks and property acquired as part of this alternative. The station would be side-loading (with separate platforms for each direction) with fencing separating the tracks. The platform length and location (i.e. west of Rosemead Boulevard) would remain the same as with the at-grade option.

Norwalk Boulevard – This station would be an at-grade, center platform station located in the median of Washington Boulevard east of Norwalk

Boulevard in Santa Fe Springs. Property acquisition would be required for station access and facilities, including a park and ride lot of surface and structured parking with approximately 680 parking spaces. This station would serve walkable residential neighborhoods located both north and south of the station off Norwalk Boulevard in addition to the commercial properties located along Washington Boulevard itself. Norwalk Boulevard and Washington Boulevard would serve as access routes. In addition, the station is within one-half mile of the Washington Boulevard/I-605 interchange, which would potentially attract traffic from the freeway. This station would connect to Montebello Bus Lines Route 50 on Washington Boulevard and Norwalk Transit System Routes 1 and 9 serving locations north along Workman Mill Road as well as locations south in Santa Fe Springs and Norwalk.

Lambert Road – This station would be an at-grade, center platform station located south of Washington Boulevard west of Lambert Road. Property acquisition would be required at this terminus for station access and facilities, including off-street shuttle access, tail tracks, drop-off space, and park and ride lots of surface and structured parking with a total of approximately 1,020 parking spaces. A station at this location would be located directly opposite the Presbyterian Intercommunity Hospital and would also provide walking access to the commercial corridor along Washington Boulevard. This station is also within walking distance of some residential areas in Santa Fe Springs to the southeast and central Whittier to the northeast and northwest. Washington Boulevard connects to Whittier Boulevard immediately east of the station location, providing access to central Whittier, and Lambert Road provides access to east Whittier as well as Santa Fe Springs via Santa Fe Springs Road. In addition to Montebello Bus Lines Route 50 on Washington Boulevard, this station would connect to Metro Route 270 which provides access to points between Norwalk to the south and a large market area to the south, and the "Sunshine Shuttle" bus serving local destinations.

2.2.4.3 Special Track Work and Traction Power Substations

Special track work, such as crossovers, is proposed at several locations along the alignment to provide operational flexibility. The following crossover locations would be confirmed during final design once an LPA is designated.

- Crossover would be located along Garfield Avenue north of Via San Del Aro
- Crossover would be located along Garfield Avenue north of Madison Avenue
- Crossover would be located along Washington Boulevard right after the alignment transitions from Garfield Avenue to Washington Boulevard
- Crossover would be located along Washington Boulevard just west of the Greenwood Avenue station
- Crossover would be located along Washington Boulevard just west of Crossway Drive
- Crossover would be located along Washington Boulevard east of Pioneer Boulevard
- Crossover would be located along Washington Boulevard just west of Lambert Road
- Crossover would be located along Lambert Road just south of the Lambert Road station

As part of the Washington Boulevard LRT Alternative, TPSS facilities would be installed at several locations along the alignment to provide adequate electrical power for LRT service. The locations of possible TPSS facilities are shown in Figure 2-8, above. The TPSS includes all the equipment necessary to transform and rectify the voltage required to power the light rail vehicles. The track crossovers allow two tracks to cross each other at right angles and electrically isolate one direction from the other. (Refer to Figures 2-6 and 2-7 above for examples of typical crossovers and TPSS sites.)

2.2.4.4 Vehicle and Pedestrian Circulation

The Washington Boulevard LRT Alternative would require more changes to the traffic and pedestrian

circulation patterns compared to the SR 60 LRT Alternative.

The Washington Boulevard LRT Alternative would consist of two section types: aerial and at-grade. For the at-grade portions of the alignment, vehicular and pedestrian crossings would be limited to traffic signal-controlled intersections. For safety reasons, uncontrolled mid-block vehicular crossings of tracks and mid-block left-turns would not be permitted. Left turn parking access and egress is presently allowed at many sites along the alignment. The elimination of mid-block left-turns along the at-grade portions of the alignment would affect access to existing parking lots, loading docks, and commercial frontage, and would modify existing approach and departure traffic patterns in the at-grade segment areas.

Columns would be used to support aerial segments of the alignment and would be located in the roadway median or sidewalks. Adequate sidewalk width exists in areas where the alignment would be aerial to accommodate both columns and pedestrians.

The following permanent lane reconfigurations would be needed under the Washington Boulevard LRT Alternative:

- Pomona Boulevard, between Atlantic Boulevard and Sadler Avenue, would be reduced from two through lanes to one through lane in each direction.
- Garfield Avenue would be reduced to one through lane in each direction at intermittent locations between Madison Avenue and Washington Boulevard.
- Washington Boulevard would be reduced from three through lanes to two through lanes in each direction from Garfield Avenue to Lambert Road.

Lane and sidewalk configurations would be the same with an at-grade or grade-separated LRT facility under the Rosemead Boulevard and San Gabriel River/I-605 crossing options.

Refer to Section 4.4.1 Pedestrian Facilities of Appendix M, Transportation Impacts Technical Memorandum, for further discussion on the pedestrian environment. Also refer to Appendix K, Urban Design, which includes graphics associated with planned pedestrian and bicycle facilities for each of the proposed build alternatives.

2.2.4.5 Maintenance Yard

Under the Washington Boulevard LRT Alternative, three potential sites, as shown in Figure 2-1, have been preliminarily identified for the location of a new maintenance yard:

- Mission Junction Maintenance Yard Option - The first site is adjacent to the existing Mission Junction rail facility, as described above under the SR 60 LRT Alternative.
- Commerce Maintenance Yard Option - The second potential site, approximately 12 acres in size, is proposed to be within the city of Commerce and located west of Garfield Avenue in Southern California Edison's transmission line corridor. The parcel is designated for electrical power facility use and is situated within the San Antonio Rancho known as the Walter L. Vail's 2,000 Acre Tract. Since the LRT tracks would be in an aerial configuration above Garfield Avenue, the lead tracks to the maintenance yard would transition from aerial to at-grade within the southern portion of the UPRR ROW, approximately 1,600 feet away from the mainline on Garfield Avenue. The main entrance to the facility would be off Corvette Street at the southern portion of the site, just west of Saybrook Avenue.
- Santa Fe Springs Maintenance Yard Option - The third potential site, approximately nine acres in size, is located within the city of Santa Fe Springs immediately south of Washington Boulevard and east of Allport Avenue. It is currently occupied by automobile repair and light industrial uses. The lead tracks to the yard would cross the eastbound lanes of Washington Boulevard at-grade.

The proposed maintenance yard would accommodate daily maintenance, inspection and repairs, and storage of the LRVs. In addition to the maintenance yard options, Metro may also consider modifying existing facilities to accommodate the additional capacity required to maintain the project's vehicles, or using a proposed maintenance yard in Monrovia that is currently being studied as part of the extension of the Metro Gold Line to Montclair.

2.2.5 Ancillary Facilities

Ancillary facilities would be included at each station. Ancillary facilities would include items in the Metro design criteria such as station markers, station entry portal configuration (canopies/pavilions), security cameras, bus shelters, benches, emergency telephones, public telephones, stairs, escalators, elevators, map cases, fare collection, pedestrian and street lighting, hand railing, landscaping, trash receptacles, bike racks and lockers, emergency generators, power boxes, fire hydrants, and artwork.

2.3 Overview of Construction Activities

This section provides a brief summary of the construction methods and types of construction that would be required to implement each proposed build alternative. A more detailed description of construction activities associated with the project is included in Appendix EE, Construction Impacts Technical Memorandum, of this Draft EIS/EIR. The tentative year of opening for the proposed project is 2033. Construction would occur approximately between 2027 and 2032 for either build alternative.

2.3.1 Construction Methods

The development of the LRT alternatives would employ conventional construction methods, techniques, and equipment. All work for development of the transit system would conform to accepted industry specifications and standards, including Best Management Practices (BMPs). As applicable, temporary construction easements would be required when there is a need to use part of a property for construction staging or equipment use. Project engineering and construction would, at a minimum, be completed in conformance with the following regulations, guidelines, and criteria:

- Metro Design Criteria
- Metro Green Construction Policy
- Metro Construction and Demolition Debris Recycling & Reuse Policy
- Metro Water Action Plan
- Metro Energy Conservation and Management Plan
- Metro Sustainable Rail Plan
- California Building Code
- Standard for Fixed Guideway Transit and Passenger Rail Systems
- National Electrical Code (NFPA 70)
- American Railway Engineering and Maintenance of Way Association Standards (AREMA)
- Metro Operating Rules
- California Public Utility Commission (CPUC) General Orders (Including but not limited to 88, 95, 143-B, and 164-D)
- Metro Sustainability Guidelines
- South Coast Air Quality Management District (SCAQMD) Rule 403
- SCAQMD Clean Air Act Rule 1403—asbestos regulation
- National Pollutant Discharge Elimination System (NPDES)
- Standard Urban Stormwater Mitigation Plan (SUSMP)
- Stormwater Pollution Prevention Plan (SWPPP)

As part of Metro's construction, sustainability, and conservation guidelines and plans, Metro is committed to using greener, less polluting construction equipment and vehicles;

implementing best practices to reduce harmful emissions in all construction projects performed on Metro properties and rights-of-way; giving preference to recyclable/recycled materials used in construction when feasible; curtailing the use of potable water only to essential services during periods when statewide water conservation measures are in effect; using LED lighting fixtures; and reducing the amount of emissions, especially carbon dioxide (CO_2), caused by required consumption.

Major elements of the two LRT build alternatives include the construction of aerial and at-grade guideways and track work, station platforms, and roadway improvements. These are described below.

2.3.2 Construction Scenarios

2.3.2.1 TSM Alternative

Construction activities for the TSM Alternative would be minimal. Construction would include the installation of new bus stops and associated structures. Activities would occur in the existing street and sidewalk ROW and would require minimal use of construction equipment. The surrounding transportation infrastructure would be maintained. Construction activities would last for approximately one year.

2.3.2.2 SR 60 LRT Alternative

Major construction activities would include guideway construction (at-grade, aerial, and retained-fill); station construction (at-grade and aerial); operating systems installation, including TPSS and OCS; construction of other facilities, including parking structures and a maintenance yard; and associated street widening and reconstruction, demolition, and utility relocation and installation work. The construction period would last approximately four years. Surface streets would be impacted through intermittent closures and lane reductions for a total of 28 to 45 months.

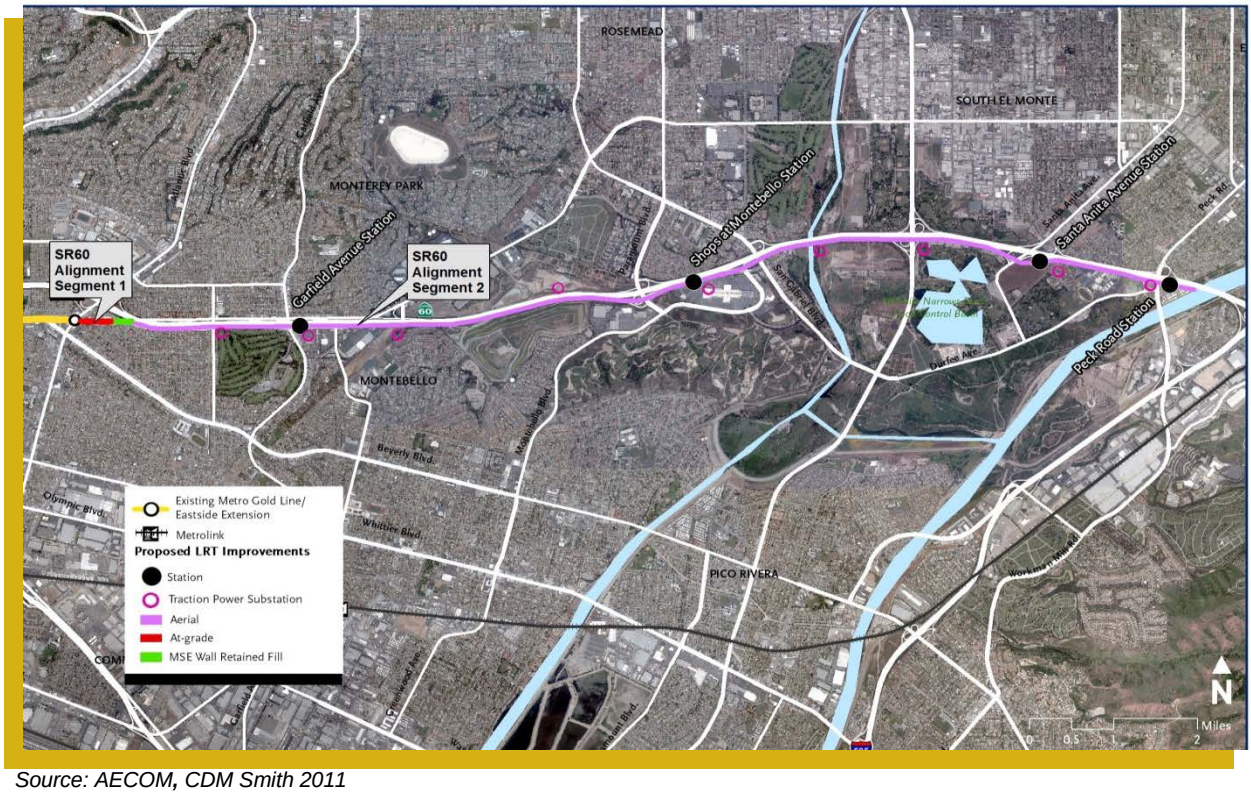
The SR 60 North Side Design Variation alignment would include two new bridges that would traverse over the SR 60 Freeway. It is anticipated that the beginning of construction of each bridge would lag behind the previous bridge by approximately four months and that bridges may be under construction simultaneously.

In addition, several overnight closures of SR 60 would likely be required to erect falsework or place pre-cast structural elements over the freeway. **Figure 2-9** and **Figure 2-10** show the construction methods for both the SR 60 LRT Alternative and the SR 60 North Side Design Variation.

2.3.2.3 Washington Boulevard LRT Alternative

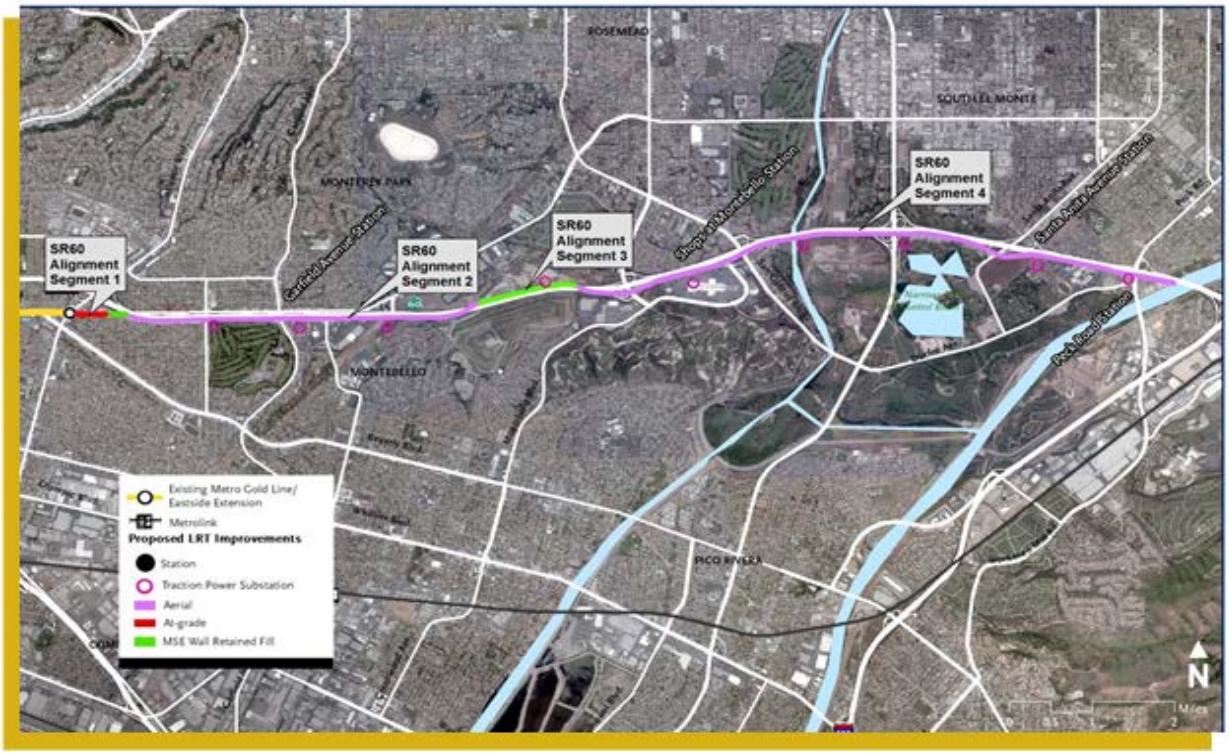
Construction for this alternative would be similar to that for the SR 60 LRT Alternative; however, the Washington Boulevard LRT Alternative would require a longer time to construct than the SR 60 LRT Alternative because of its additional length and necessary on-street construction activities. The Washington Boulevard LRT Alternative alignment would include three to four bridges, depending on the Rosemead Boulevard and San Gabriel River/I-605 crossing options chosen. It is anticipated that the beginning of construction of each bridge would lag behind the previous bridge by approximately four months and that bridges may be under construction simultaneously. **Figure 2-11** and **Figure 2-12** show the construction methods for both the Washington Boulevard LRT Alternative and the Washington Boulevard LRT Alternative Aerial Crossing Option.

Table 2-5 provides a summary of construction activities for the two LRT build alternatives. The typical duration (in total months) is shown for each construction activity. Construction impacts from each activity could occur for any area within the proposed alignments for the time periods listed in the table. The construction duration for either the SR 60 LRT Alternative or Washington Boulevard LRT Alternative is estimated to be approximately four to six years, with the SR 60 LRT Alternative most likely taking four years to construct and the Washington Boulevard Alternative most likely taking six years to construct.



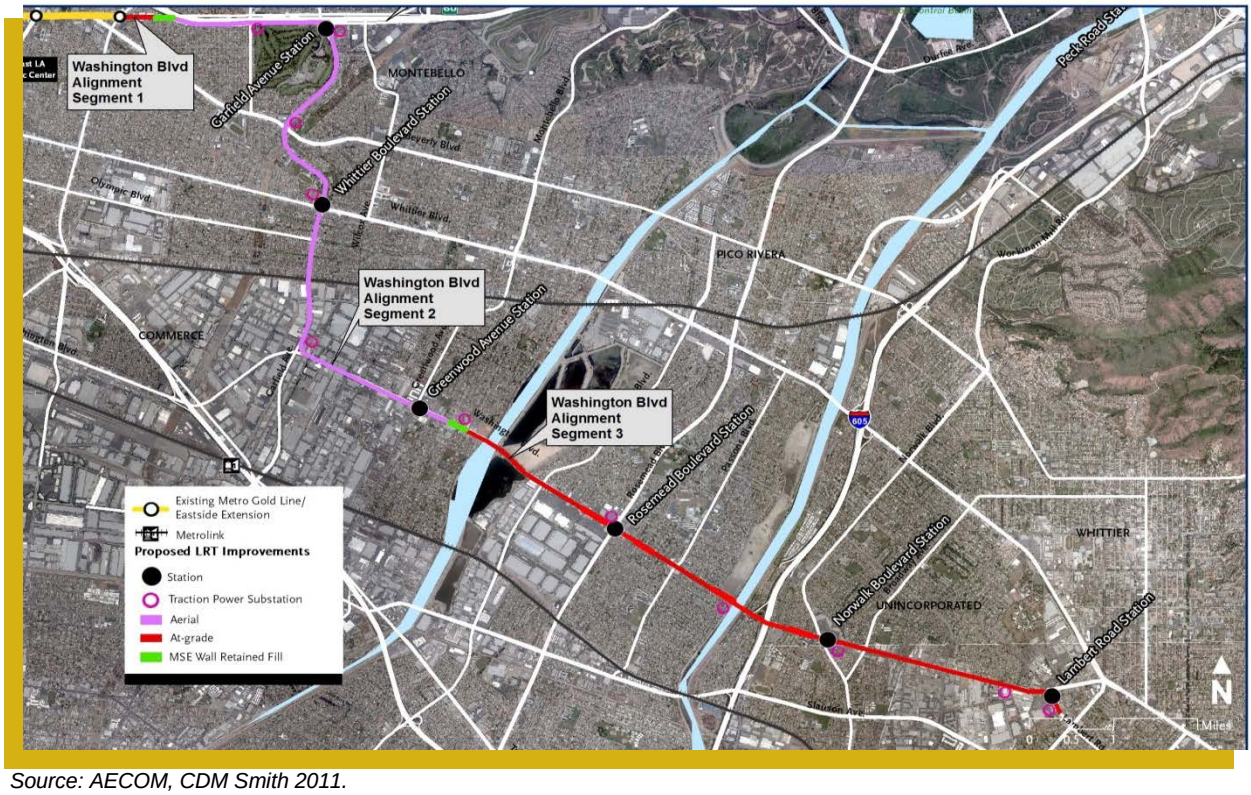
Source: AECOM, CDM Smith 2011

Figure 2-9. Construction Methods for SR 60 LRT Alternative



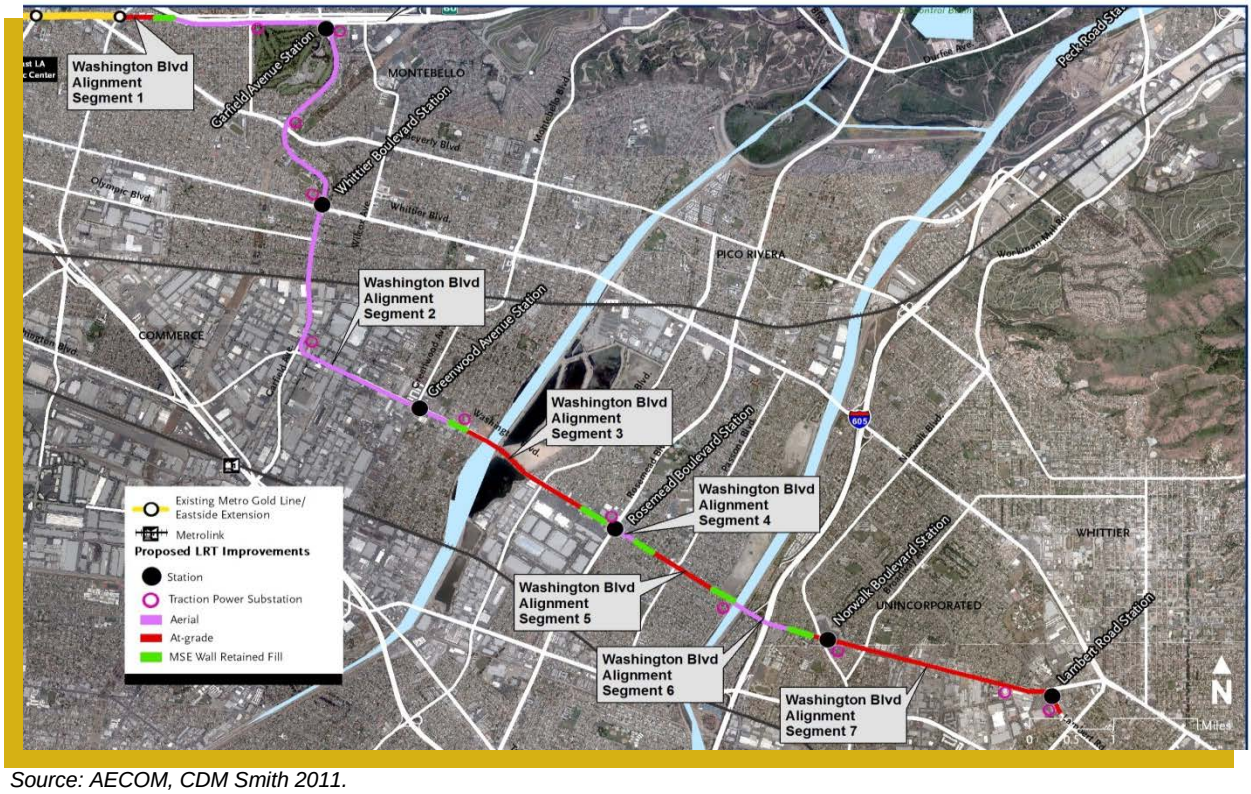
Source: AECOM, CDM Smith 2011.

Figure 2-10. Construction Methods for SR 60 LRT Alternative - North Side Design Variation



Source: AECOM, CDM Smith 2011.

Figure 2-11. Construction Methods for Washington Boulevard LRT Alternative



Source: AECOM, CDM Smith 2011.

Figure 2-12. Construction Methods for Washington Boulevard LRT Aerial Crossing Option

Table 2-5. Summary of Construction Activities for Both LRT Build Alternatives

Activity	Duration (Months)	Description	Typical Equipment Required	Rough Order of Magnitude
At-Grade Construction Only				
Utility Relocation	12-18	Trenching in order to relocate utilities away from the path of the project	Jackhammers, trenchers	Light Construction
Street Widening	5-12	Requires new curbs, sidewalks, and lane configuration in areas where existing ROW is inadequate	Pavers, pavement breakers, cement trucks	Light Construction
Surface Track Work	28	Demolition, construction of slab, and laying rail	Trucks, storage for rail, and truck mounted welders	Heavy Construction
Retaining Wall, Fill Construction	2-15	Construction of transition from at-grade to elevation and vice versa	Bulldozers, tractor trailer rigs, loaders, earthmovers	Heavy Construction
Station Construction	12	Developed simultaneously with segments using standard building materials	Forklifts, generator sets, loaders, welders	Heavy Construction
Operating Systems Installation	8	Catenary overhead wire system and substations for power	High-rail vehicles	Light Construction
Parking Facilities (lots/garages)	1-24	Paving surface lot; constructing parking facilities, structures, and landscaping	Pavement breakers, diamond saws, compressors, paving machines, loaders, haul trucks, cranes, compressors, concrete, loaders, rigs	Light Construction; Heavy Construction
Aerial Construction Only				
Station Construction	18	Construction of elevated station segments	Forklifts, generator sets, loaders, welders	Heavy Construction
Elevated Guideway	36	Construction of foundation columns and elevated sections	Cranes, compressors, concrete and haul trucks, loaders, rigs	Heavy Construction

Additional construction activities, each with its own methods, are associated with the following components of project construction. These are also further described in, and updated where appropriate from, the Construction Impacts Technical Memorandum, found in Appendix EE of this Draft EIS/EIR:

- Stations (at-grade and aerial)
- Systems (TPSS and OCS)
- Other facilities and activities (parking facilities at stations)
- Maintenance yard
- Street widening and construction
- Utility relocation and installation
- Temporary street and lane closures
- Staging areas
- Haul routes

A construction plan would be prepared during the final design phase of the project to detail the construction phases, durations, schedule, and sequencing of construction. To minimize impacts, where possible the plan would coordinate construction activities for the Eastside Transit Corridor Phase 2 Project with other improvements occurring nearby.

Construction staging areas would be needed for equipment storage, construction materials delivery, equipment assembly, materials production, dewatering activities, access roads, construction worker parking, temporary trailer offices, demolition staging, spoils removal, and other related activities during the construction period. Staging for the construction of both aerial and at-grade guideway would require street medians to be closed off with k-rail. Construction staging areas are temporary and would be located within the ROW necessary for each alignment or on land to be acquired for guideway construction, stations, the maintenance yard, parking, or TPSS construction.

For both the SR 60 and Washington Boulevard LRT Alternatives, the majority of staging would occur on each of the station sites for the duration of construction. The staging sites would also accommodate construction worker parking. Additional staging may occur adjacent to the sites where the alignment would be constructed. For detailed drawings of the proposed station staging areas, refer to Appendix HH, Conceptual Engineering Drawings.

Construction haul routes would be on existing freight routes, and would be located to minimize noise, vibration, and other possible impacts to adjacent businesses and residential neighborhoods. Routes will be confirmed during the preliminary engineering phase and final design phase of the project, but will likely include nearby local streets and major arterials for truck access to and from SR 60 and I-605. Haul trips would take place during off-peak hours when there is excess capacity on the roadway network.

2.4 Environmental Process

Metro will comply with all applicable federal, state, and local environmental regulations and will responsibly and reasonably mitigate significant adverse environmental impacts resulting from the Eastside Transit Corridor Phase 2 Project in accordance with Metro policies and applicable laws. This Draft EIS/EIR identifies impacts that would potentially be significant and proposes mitigation measures to address those impacts. These mitigation measures will undergo further refinement as part of the Final EIS/EIR process, and a final set of commitments to mitigate impacts would be adopted by the Federal Transit Administration (FTA) upon issuance of the Record of Decision (ROD). Additionally, Metro would continue to avoid and minimize project impacts wherever possible.

Three agencies were asked and have accepted to be Cooperating Agencies: USEPA, the U.S. Army Corps of Engineers, and Caltrans. A total of 24 agencies accepted the invitation to become a Participating Agency. Metro has and will continue to coordinate with these and other agencies throughout the environmental process. (Refer to Appendix I, Agency Coordination and Public Involvement, of this Draft

EIS/EIR for a complete list of Participating and Cooperating Agencies.)

2.4.1 Draft EIS/EIR Review and Comment Period

Metro and FTA will widely distribute this Draft EIS/EIR to affected local, state, and federal agencies; tribes; community groups; interested individuals; and other interested parties. The document will also be made available at Metro's offices, at public libraries, and in electronic format on Metro's website. A formal public comment period will be initiated following the release of this Draft EIS/EIR. Metro will hold public hearings during the comment period to provide information about this Draft EIS/EIR, facilitate the submission of comments, and receive oral comments.

2.4.2 Preliminary Staff Recommendation of a Locally Preferred Alternative

Based on the results of technical analyses of alternatives and feedback from the public during the Draft EIS/EIR public comment period, Metro staff may recommend an LPA to the Metro Board of Directors. Following the Draft EIS/EIR public comment period, the Metro Board of Directors may choose to select an LPA after examining the Draft EIS/EIR, comments received during the public comment period, and other relevant information.

2.4.3 Final EIS/EIR and Selection of a Project Alternative

Upon conclusion of the selection of the LPA, the Metro Board may select to initiate a Final EIR. Initiation of a Final EIS or the FTA's participation is contingent upon having funding in place. The Metro Board must obtain funds to allow the initiation of a Final EIS.

Metro will continue to develop a constrained financial plan that funds construction and operation of the Project. Metro will also conduct value engineering and potentially refine the LPA during the Final EIS/EIR process in order to reduce cost. This may include the development of a Minimal Operable Segment (MOS).The Final EIS/EIR will include and address all of the comments received during the Draft EIS/EIR public comment period as well as a listing of mitigation measures. It will also include any refinements to the LPA, if any, along with the potential approval of an MOS. The Final EIS/EIR will include all of the information necessary for the Metro Board of Directors to certify the Final EIS/EIR, adopt or approve the Project and for the FTA to issue a ROD.

Issuance of the Final EIS/EIR to the public will be dependent upon Metro's ability to develop a constrained financial plan which demonstrates construction initiating within three years after issuance of the ROD, the time frame by which information within an EIS/EIR is still valid. If the publication of the Final EIS/EIR occurs sometime prior to 2026 (likely within the next five to 10 years), a Supplemental Draft EIS will be required prior to its publication.

The Project is currently included within the constrained component of Metro's LRTP and the 2012-2035 RTP, which commit funding to the project starting in 2026. This commitment is based on the availability of funds from Measure R, which funds $1.25 billion of the project starting in FY 2026. Metro's LRTP envisions the project to begin construction between 2027 and 2035 and to be in operations in 2035.

In an effort to implement the project sooner and to advance the issuance of the Final EIS/EIR, thereby reducing costs and providing new services earlier than originally planned, the Metro Board is pursuing additional funding mechanisms for projects planned for the later years of Measure R. Metro's effort includes the second part of its America Fast Forward legislation, a new class of Qualified Tax Credit Bonds for Transportation.

Measure R was amended by the Metro Board of Directors in June 2013 to reflect changes to the availability date of Measure R funds for Eastside Transit Corridor Phase 2 and other projects. This amendment reflected the availability of funds for the Eastside Transit Corridor Phase 2 project prior to 2024, but only if certain conditions are met. The change in Measure R funding availability is conditioned on meeting several threshold tests,

including passage of the America Fast Forward Tax Credit Bond program. If these conditions are met and the funds are available, then the Metro Board of Directors can amend or reflect this change in availability in the LRTP. As such, the financial plan contained in the Final EIS/EIR will reflect the Measure R amendment and will clearly identify the timeframe in which Measure R funds are available for this project.

In order to accelerate a project in the LRTP, the funds must be available and the Metro Board must approve an amendment to the 2009 LRTP or an update to the overall LRTP, approving the project, its new schedule, and its new funding. Should this occur, and the new dates of construction are known, a supplemental environmental analysis will be conducted, if warranted.

2.4.4 Record of Decision and Notice of Determination

After Metro selects a project alternative, FTA will issue a ROD, which indicates FTA's final decision on the project. The ROD will include Metro's commitments to mitigate impacts of the Eastside Transit Corridor Phase 2 project. FTA's issuance of the ROD is needed for federal funding and approvals to proceed.

As the lead agency under CEQA, Metro will issue a Notice of Determination for the Eastside Transit Corridor Phase 2 project.

2.4.5 Project Schedule

As mentioned in Section 2.1 above, the Eastside Transit Corridor Phase 2 Project is included in Metro's 2009 LRTP and identified for funding under Measure R, a sales tax measure approved by Los Angeles County voters in November 2008. The tentative schedule for completing the environmental process, design, and construction of the Eastside Transit Corridor Phase 2 Project is shown in **Table 2-6**.

As indicated above, based on reasonable assessment of the timing of availability of funds for implementation of the project, the Metro Board of Directors may direct the staff to move into the Final EIS/EIR phase either upon adoption of the LPA or at a later date. A Final EIS/EIR will only be published if a financially constrained plan is identified that will allow for construction three years after the ROD. The construction impact analysis contained in this document represents the current funding availability scenario and anticipated operations in 2035 as identified in Metro's LRTP and the 2012 RTP. The availability and source of funding may change and allow construction to initiate sooner.

Table 2-6. Project Timeline

Activity	Timeframe
Draft EIS/EIR Published	Summer 2014
Draft EIS/EIR Comment Period	60 Days
Metro Board Identifies Locally Preferred Alternative	Fall 2014
Initiation of the Final EIS/EIR[1]	Winter 2014
Final Design[2]	Years 2026-2027
Construction-Related Activities[3]	Years 2027-2035
Operations	Year 2035

[1] Upon conclusion of the selection of the LPA, the Metro Board may select to initiate a Final EIR. Initiation of a Final EIS or the FTA's participation is contingent upon having funding in place. Release of the Final EIS/EIR document is based on the condition that funding is available to allow for construction of the project within three years after issuance of the ROD. If the publication of the Final EIS/EIR would occur sometime prior to 2026, a Supplemental Draft EIS will be required prior to its publication.

[2] Final design is initiated upon availability of funding. The final design and construction schedule are based on the current availability of funds from Measure R, which funds $1.25 billion of the project starting in FY 2026. The availability and source of funding may change and allow construction to initiate sooner.

[3] Years of construction include construction activities and preconstruction activities such as ROW acquisition and utility relocation. Years 2033-2034 are system testing and year 2035 is the first year of operation.

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Chapter 3

Transportation Impacts and Mitigation

This chapter evaluates the potential transportation impacts of the proposed alternatives, using existing transportation conditions for year 2010 as well as the future horizon year of 2035. The existing conditions scenario is based on year 2010, as the Notice of Preparation (NOP) was issued by Metro at that time. In addition, no substantial changes in the project area have occurred since 2010 so the existing conditions are unchanged.

The existing conditions analysis is a study of the current transportation infrastructure conditions. The existing conditions scenario assumes that the proposed alternatives would be implemented under year 2010 conditions. This is in response to the Sunnyvale California Environmental Quality Act (CEQA) decision (Sunnyvale West Neighborhood Assoc. v. City of Sunnyvale, 190 Cal. App. 4th 1351 [2010]), and is discussed in this chapter under the "Comparison of Alternative Against Existing Conditions" headings. The future horizon year of 2035 takes into account population growth and overall transit system improvements as well as the build out of the alternatives. The 2035 impact analysis examines the impact of the alternatives if they are implemented in 2035, assuming the growth and improvements that would be in place. Information in this section is based on, and updated where appropriate from, the Transportation Impacts Technical Memorandum, included as Appendix M of this Draft EIS/EIR.

3.1 Regulatory Framework/Methodology

The federal, state, and local guidelines for the analysis of transportation impacts are provided below, along with the thresholds of significance and methodology used for the analysis in this chapter.

3.1.1 Federal

The National Environmental Policy Act (NEPA) does not include specific guidance or direction with respect to the evaluation of alternatives and their relative effects on traffic and transportation. However, NEPA does require analysis of impacts to public facilities, which is addressed in this chapter using the California Environmental Quality Act (CEQA) guidance in Section 3.1.2.

3.1.2 State

The following guidance was considered in the development of thresholds of significance used in the CEQA evaluation in this chapter. (Please refer to Section 3.4.4 in Appendix M, Transportation Impacts Technical Memorandum, of this Draft EIS/EIR for further discussion of thresholds of significance used in this analysis.)

Section XVI in Appendix G of the *CEQA Guidelines* provides guidance that can be used to assess potential traffic and transportation impacts by including language used to identify projects that would:

- Conflict with an applicable plan, ordinance, or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit;
- Conflict with an applicable congestion management program including but not limited to level of service (LOS) standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways;

- Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment);
- Result in inadequate emergency access; or
- Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities.

Assembly Bill 1358, the Complete Streets Act, requires cities and counties to include complete streets policies as part of their general plans so that roadways are designed to safely accommodate all users, including bicyclists, pedestrians, transit riders, children, older people, and disabled people, as well as motorists. As of January 2011, any substantive revision of the circulation element in the general plan of a California local government will include complete streets provisions.

There are no airports or airport facilities located in the study area; as such, an evaluation of these facilities was not included in the Draft EIS/EIR.

3.1.3 Local

Regional transportation plans prepared by the Southern California Association of Governments (SCAG) and Metro were reviewed for consistency with the proposed alternatives. General and specific plans for each of the affected jurisdictions in the project area were also reviewed. The general plans, circulation elements and corresponding specific plans for the County of Los Angeles and the cities of Commerce, Los Angeles, South El Monte, Montebello, Monterey Park, Pico Rivera, Rosemead, Santa Fe Springs, and Whittier provided the local regulatory framework and policies related to transportation and traffic issues.

3.1.4 Thresholds of Significance

Since the project alternatives potentially affect portions of ten jurisdictions, a consolidated analytical methodology and criteria were developed that could be consistently applied throughout the project area. To determine the overall approach, current methodologies and standards were obtained from each jurisdiction and standard significance thresholds generally consistent with those from each jurisdiction were developed. The thresholds of significance for intersections, freeway ramps, parking, transit, and pedestrian and bicycle circulation are described in depth in Section 3.4.4 in Appendix M, Transportation Impacts Technical Memorandum, and shown in **Table 3-1** below. The Transportation Impacts Technical Memorandum also describes how the maintenance yards and construction activities were accounted for in the impact analysis.

3.1.5 Methodology

The transportation area of potential impact focuses on traffic operation, parking, transit, and pedestrian and bicycle circulation in the vicinity of the proposed stations on both the SR 60 and Washington Boulevard LRT Alternatives, and within one-quarter mile of each potential maintenance yard. It also includes all signalized intersections that either alignment would cross at-grade. Key project area intersections and roadway segments were defined based on the following preliminary criteria:

- Intersections directly affected by or within the proposed alignments;
- Intersections in close proximity or adjacent to proposed stations and parking facilities; and
- Freeway ramps within routes that lead directly to and from proposed stations and parking facilities.

A total of 63 intersections were included in the analysis to represent the affected environment from a traffic operation perspective, shown in Table 4-5 of the Transportation Impacts Technical Memorandum, Appendix M of this Draft EIS/EIR.

Table 3-1. Thresholds of Significance

Topic	Threshold
Transit	Significant changes in: ▪ Daily Metro Rail Trips ▪ Daily Linked Bus Trips ▪ Daily Linked Transit Trips (Bus and Rail) ▪ Daily Linked Trips (All Modes) ▪ Total Transit Mode Share
Regional Transportation	Significant peak hour variations in: ▪ Vehicle Miles Traveled ▪ Vehicle Hours Traveled ▪ Average Vehicle Speed ▪ Vehicle Trips
Intersections	▪ The average delay per vehicle to increase by 10 or more seconds at an intersection that operates at LOS C with the project; ▪ The average delay per vehicle to increase by 7.5 or more seconds at an intersection that operates at LOS D with the project; or ▪ The average delay per vehicle to increase by 5 or more seconds at an intersection that operates at LOS E or LOS F with the project.* ▪ The LOS to change from A through D under the No Build Alternative (under existing conditions, for the comparison of the project to existing conditions) ▪ The LOS to change from LOS E under the No Build Alternative to LOS F under project scenarios
Freeway Off-Ramps	Additional vehicles at the off-ramp causing the 95th percentile queue to exceed the available queuing space (backups past the beginning of the ramp occur 5% of the time or more).
Parking[1]	A significant amount of utilized on-street and off-street parking displaced along the alignment in the context of the local parking conditions.
Pedestrian	Sidewalk overcrowding, potentially hazardous pedestrian conditions created by project design, or diminishment of pedestrian access.
Bicycle	Interference with existing bicycle access or potentially hazardous conditions created by project design.

Source: Highway Capacity Manual 2000.
Notes:
** LOS is described further in Section 3.1.5*
[1] CEQA does not have specific thresholds for impacts on parking because parking changes would not have a physical impact on the environment.

Traffic operations (e.g., signal changes and freeway off-ramps) were analyzed using the Highway Capacity Manual (HCM) operation analysis methodology. With the HCM methodology, LOS thresholds are based on the amount of change in the average delay incurred by vehicles through the intersection. In addition, the HCM methodology was used for the calculation of both 50th and 95th percentile vehicle queue lengths (average and theoretical maximum) for the freeway off-ramp locations. The LOS analysis is used to evaluate congestion and delay on streets and highways. The relative level of congestion is evaluated on a scale from A through F. LOS A indicates free-flow conditions with no delay. LOS F (> 80 seconds per vehicle) indicates breakdown of the system with very long delays. LOS D (35 to 55 seconds per vehicle) is typically considered the worst acceptable level in an urbanized environment.

Future transit ridership was based on output from the Metro Travel Demand Model, summarizing trips

by mode, daily boardings, and travel speeds/times for each alternative. The parking demand at each station was also determined from the Metro Travel Demand Model ridership projections and compared to the proposed supply.

Three evaluations were conducted with respect to operational impacts to parking for each alternative: 1) whether the proposed parking supply at each station could accommodate the projected parking demand (i.e., shortfall of parking and potential spillover parking); 2) whether implementation of the alternative would displace existing off-street parking spaces (either public or private); and 3) whether implementation of the alternative would eliminate on-street parking.

The evaluation of on-street and off-street parking reflects observations on the existing utilization of on-street parking along the corridor, the availability of potential shared parking opportunities, and the availability of supplemental off-street parking and on-street parking in the immediate vicinity of the corridor.

Data was collected for the following transportation analysis topics:

- Intersections and freeway ramps using counts conducted during weekday AM and PM peak periods and forecast modeling
- Freeway mainline and roadway segments using Annual Average Daily Traffic (AADT) volumes obtained from California Department of Transportation (Caltrans)
- On-street and off-street parking using field surveys performed during weekday business hours
- Transit using data obtained from the agencies that operate transit service in the project area
- Goods movements using freight operation and service information obtained from Los Angeles County and Caltrans
- Pedestrians and bicyclists using information obtained from project area jurisdictions and field surveys performed during weekday business hours

3.1.6 Coordination with Caltrans

Caltrans is a Cooperating Agency for the purposes of NEPA and a Responsible Agency for the purposes of CEQA for the Eastside Transit Corridor Phase 2 Project. Metro and Caltrans have coordinated efforts throughout the analysis of potential transportation impacts. Caltrans provided data for existing conditions that served as the basis for environmental analysis.

3.2 Affected Environment/Existing Conditions

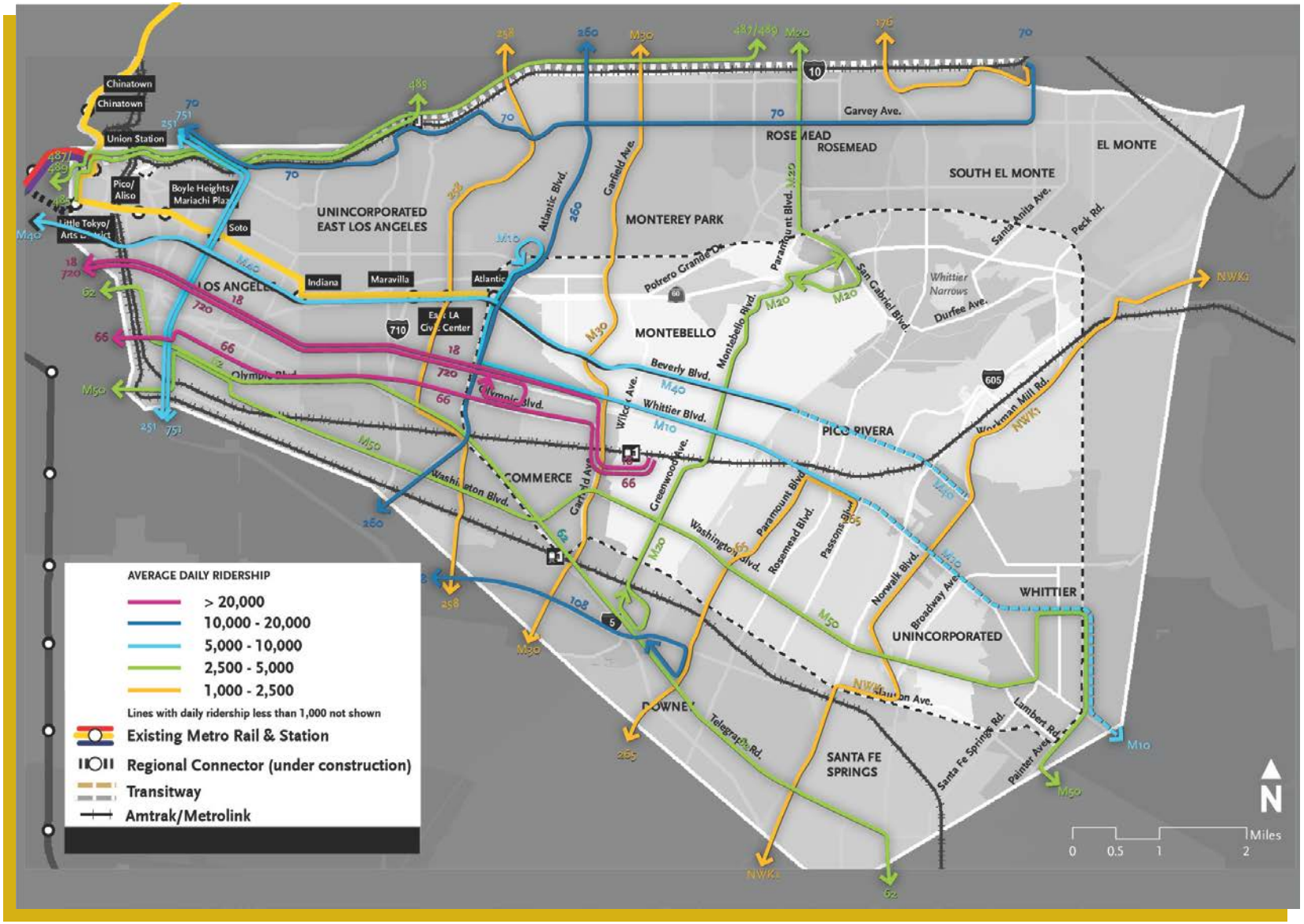
3.2.1 Transit

As shown in **Figure 3-1**, the Eastside Transit Corridor Phase 2 project area is served by local transit agencies, with both bus and limited rail service including Metro Bus and Rail, Metrolink, Montebello Bus Lines, Monterey Park Spirit Bus Lines, Commerce Municipal Bus Lines, Norwalk Transit, Whittier Transit, and Foothill Transit. Service types provided include rapid, express, limited, commuter rail, and local lines. Figure 3-1 illustrates the existing ridership on select bus routes in the project area. A full listing of these services and ridership statistics is provided in the Transportation Impacts Technical Memorandum, Tables 4-1 and 4-2, in Appendix M, of this Draft EIS/EIR.

3.2.2 Regional Transportation

The affected environment for the regional transportation analysis consists of the following freeways:

- Interstate 605 (I-605)
- Interstate 5 (I-5)
- Interstate 710 (I-710)
- Interstate 10 (I-10)State Route 60 (SR 60) and the following major arterial streets:
- Peck Road – South El Monte
- Santa Anita Avenue – South El Monte



Source: AECOM 2010. Metro and bus providers in the project area, 2010.

Figure 3-1. Existing Bus Ridership, Selected Lines in Project Area

- Sorensen Avenue – Santa Fe Springs, Unincorporated Los Angeles County, and Whittier
- Norwalk Boulevard – Santa Fe Springs and Unincorporated Los Angeles County
- Pioneer Boulevard – Santa Fe Springs and Unincorporated Los Angeles County
- Rosemead Boulevard – Pico Rivera
- Garfield Avenue – Unincorporated Los Angeles County, Montebello, and Commerce
- Atlantic Boulevard – Unincorporated Los Angeles County and Monterey Park
- Potrero Grande Boulevard – Monterey Park
- Beverly Boulevard – Unincorporated Los Angeles County and Montebello
- Whittier Boulevard – Montebello
- Olympic Boulevard – Unincorporated Los Angeles County and Montebello
- Washington Boulevard – Commerce, Montebello, Pico Rivera, Santa Fe Springs, and Unincorporated Los Angeles County.
- Paramount Boulevard – Pico Rivera and Montebello
- San Gabriel Boulevard - Montebello

3.2.3 Intersections

Of the 63 existing study intersections, 51 are currently operating at an acceptable LOS D or better, and 12 are currently operating at LOS E or F during the weekday morning or evening peak hour or both. **Figure 3-2** illustrates the location of the 12 intersections which are currently operating under unsatisfactory conditions. The intersections in Figure 3-2 are marked with identifier numbers, and the corresponding street names are given in **Table 3-2**.

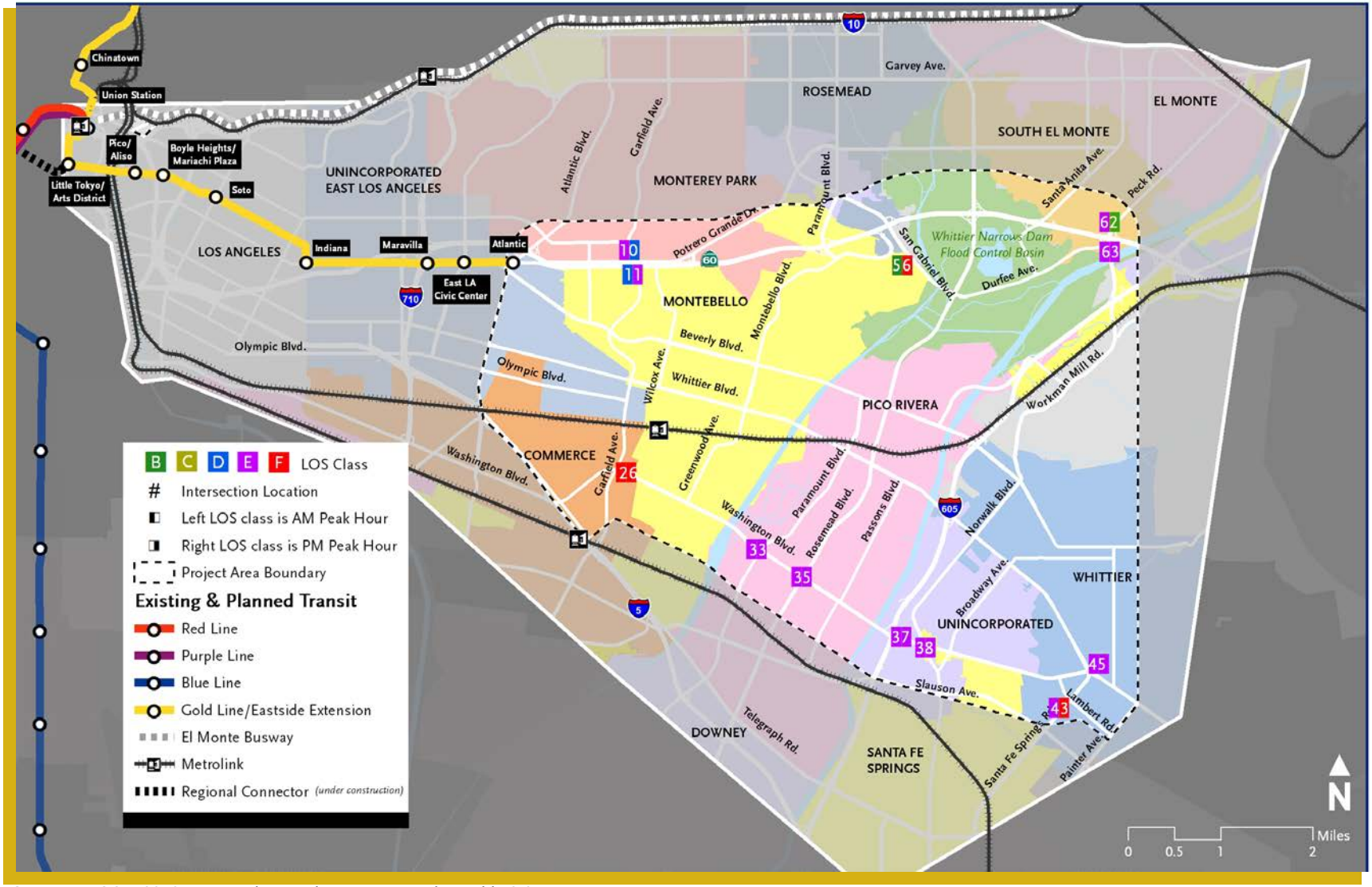
3.2.4 Freeway Off-Ramps

At present all freeway off-ramps within the area of potential impact have observed maximum queues that do not exceed the available queuing space during either the weekday AM or PM peak hours. Queuing calculations for existing conditions are provided in **Table 3-3**.

3.2.5 Parking

Existing off-street parking facilities are available near the proposed stations; however, the majority of these facilities are reserved for businesses and their customers. Therefore, no inventory surveys were conducted as part of this study relative to off-street parking facilities (either public or private). The proposed project would not affect the quantity of existing off-street parking facilities. However, the demand for off-street parking could increase in areas where the on-street parking is removed at or near the proposed stations. On-street parking availability varies considerably along the proposed alignments. Since the proposed station areas may experience spillover parking demand (a higher number of parkers than parking spaces provided at the park and ride facilities), on-street parking conditions for major arterials were observed within a five-minute walking distance, or one-quarter mile, of the proposed stations.

Along the SR 60 LRT Alternative, on-street parking is generally unavailable along Pomona Boulevard and Via Campo as parking is restricted at all times. The remainder of the alignment is proposed to be an aerial configuration along the right-of-way (ROW) south of the SR 60 Freeway; near the station areas, some on-street parking is available in the residential neighborhoods, but these are not located close to the proposed stations. Along the Washington Boulevard LRT Alternative, commercial vehicle parking is generally restricted to a 30-minute time limit throughout the project area. On-street parking is predominately available on Garfield Avenue within the Montebello city limits, while on-street parking along Washington Boulevard is mostly restricted to no parking anytime or no parking during the peak hours of 7:00 AM to 9:00 AM or 4:00 PM to 6:00 PM.



Source: AECOM 2010. Intersection numbers correspond to Table 3-2.

Figure 3-2. LOS E/F Intersections – Existing (2010) Conditions

Table 3-2. LOS E/F Intersections – Existing (2010)

#	Intersection	Existing AM Peak LOS	Existing PM Peak LOS
10	Garfield Avenue/Pomona Blvd.	E	D
11	Garfield Avenue/Via Campo	D	E
26	Garfield Avenue/Washington Blvd.	F	F
33	Paramount Boulevard/Washington Blvd.	E	E
35	Rosemead Boulevard/Washington Blvd.	E	E
37	Pioneer Blvd./Washington Blvd.	E	E
38	Norwalk Blvd./Washington Blvd.	E	E
43	Lambert Road/Santa Fe Springs Road	E	F
45	Whittier Blvd./Washington Blvd./Santa Fe Springs Road	E	E
56	San Gabriel Blvd./Plaza Drive	B	F
62	Durfee Avenue/SR 60 WB Ramps	E	B
63	Peck Road/Durfee Avenue	E	E

Source: AECOM 2010.

Table 3-3. Existing Conditions Freeway Off-Ramp Analysis

	Off-Ramp Location	Controlling Intersection Approach	Available Storage Length (feet)	Percentile[1]	AM Queue Length (feet)	PM Queue Length (feet)
3	SR 60 EB Off-Ramp to Atlantic Boulevard	Eastbound	2,000	50th	126	137
				95th	303	317
4	SR 60 WB Off-Ramp to Atlantic Boulevard/1st Street	Westbound	2,000	50th	163	186
				95th	282	298
46	SR 60 WB Off-Ramp to EB Potrero Grande Drive	Northeast	1,500	50th	89	47
				95th	209	110
47	SR 60 EB Off-Ramp to Paramount Boulevard	Eastbound	1,500	50th	129	355
				95th	279	631
48	SR 60 WB Off-Ramp to Paramount Boulevard	Westbound	2,340	50th	64	246
				95th	154	491

Table 3-3. Existing Conditions Freeway Off-Ramp Analysis (continued)

	Off-Ramp Location	Controlling Intersection Approach	Available Storage Length (feet)	Percentile[1]	AM Queue Length (feet)	PM Queue Length (feet)
51	SR 60 EB Off-Ramp to San Gabriel Boulevard	Southbound	1,600	50th	66	78
				95th	146	208
54	SR 60 WB Off-Ramp to San Gabriel Boulevard	Westbound	1,430	50th	68	155
				95th	249	425
57	SR 60 EB Off-Ramp to Santa Anita Avenue	Eastbound	1,450	50th	68	80
				95th	125	138
58	SR 60 WB Off-Ramp to Santa Anita Avenue	Westbound	1,250	50th	106	142
				95th	153	200
59	SR 60 EB Off-Ramp to Durfee Avenue	Southbound	1,400	50th	140	98
				95th	241	162
62	SR 60 WB Off-Ramp to Durfee Avenue	Westbound	1,600	50th	15	116
				95th	62	257

Source: AECOM 2010.
Notes:
[1] 50th percentile means that half of the observed queues are shorter than the length shown. 95th percentile means that 95 percent of the observed queues are shorter than the length shown.
The SR 60 eastbound off-ramps at Findlay and Garfield Avenues and the westbound Potrero Grande Drive off-ramps are located near stations, but are uncontrolled and are not included in this analysis.
Key:
EB = Eastbound
WB = Westbound

3.2.6 Pedestrian Circulation

The existing pedestrian circulation system varies throughout the project area depending on the density, mix of land uses, and vehicular circulation patterns. The entire arterial street system network is considered open to pedestrian traffic, either on sidewalks or road shoulders. In some areas, pedestrian flow is impeded due to missing, inadequate, or unattractive sidewalks and crossings. Existing pedestrian conditions were qualitatively assessed throughout the project area at each of the proposed station locations for the SR 60 LRT Alternative and Washington Boulevard LRT Alternative.

Both LRT Alternatives

- **Near Proposed Garfield Avenue Station**: A residential community north of the SR 60 Freeway would have limited connectivity opportunities for pedestrians between the areas north and south of the SR 60 Freeway. Pedestrian crossings are currently prohibited across the north leg of the Via Campo and Garfield Avenue intersection. The south side of Via Campo east of the Garfield Avenue/Via Campo intersection provides a sidewalk for pedestrians; no other sidewalks are provided along Via Campo.

SR 60 LRT Alternative

- **Near Proposed Shops at Montebello Station:** Vehicle speeds within the shopping center parking lot are relatively low. There is a lack of pedestrian connectivity opportunities for the areas north and south of the SR 60 Freeway. The area surrounding the proposed station location lacks crosswalks and sidewalks for pedestrians.
- **Near Proposed Santa Anita Avenue Station:** Located near the SR 60 Freeway and the eastbound on-ramp, the nearest intersection, Santa Anita Avenue/SR 60 Ramps, has sidewalks and crosswalks on all approaches. Pedestrian connectivity to the residential development north of the SR 60 Freeway is provided by a pedestrian bridge east of the proposed station. The SR 60 Freeway overcrossing lacks sidewalks for pedestrians on the west side of the street. There is limited connectivity to the areas north and south of the SR 60 Freeway, with a pedestrian bridge only a few blocks away from the proposed station. Also, portions of Santa Anita Avenue, south of the SR 60 Freeway, have discontinuous paved and unpaved sidewalks. Segments along both the east and west sides of Santa Anita Avenue have unpaved shoulders, and the area around Lexington-Gallatin Avenue also lacks continuous sidewalks on both sides of the street. In addition, no sidewalks are provided along the north side of Lexington-Gallatin Avenue.
- **Near Proposed Peck Road Station:** The immediate environment does have sidewalks and crosswalks for pedestrian connectivity. At Durfee Avenue/Peck Road, no crosswalk is provided on the north leg of the intersection. The lack of sidewalks, crosswalks, and pedestrian connections, especially connections to the areas north and south of the SR 60 Freeway, contribute to an unattractive pedestrian environment.

Washington Boulevard LRT Alternatives

- **Near Proposed Whittier Boulevard Station:** At the intersection of Garfield Avenue/Whittier Boulevard, sidewalks and crosswalks are provided on all approaches and directions. The wide roadways and lack of median areas contribute to long pedestrian walk distances, where pedestrians may need more time to cross the intersection.
- **Near Proposed Greenwood Avenue Station:** At the intersection of Greenwood Avenue/Washington Boulevard, continuous sidewalks are provided along both streets. All legs of the intersection allow for adequate pedestrian crossing.
- **Near Proposed Rosemead Boulevard Station:** At the intersection of Rosemead Avenue/Washington Boulevard, continuous sidewalks are provided along both streets. All legs of the intersection allow for adequate pedestrian crossing.
- **Near Proposed Norwalk Boulevard Station:** At the intersection of Norwalk Boulevard/ Washington Boulevard, continuous sidewalks and crosswalks are provided on all approaches and directions. The northbound and southbound approaches have channelized right turns with pedestrian push buttons and standing area (refuge) in the island. Channelized right-turns create potential vehicular conflicts for pedestrians.
- **Near Proposed Lambert Road Station:** At the intersection of Lambert Road/Washington Boulevard, continuous sidewalks are provided on all approaches, but pedestrian crossing is not allowed on the west leg of the intersection. The southbound approach of the intersection has channelized right-turns, which create the potential for vehicular/pedestrian conflicts.

3.2.7 Bicycle Circulation

Per California Vehicle Code 21200 to 21212, bicycles are allowed on any street or roadway in the project area, except freeways. The bicycle impact analysis is focused on bicycle facilities (such as designated bicycle lanes and routes), especially near the proposed stations, as this is where the majority of bicycle activity is concentrated for accessing transit and bicycle parking.

Per Highway Design Manual Section 1001.4, a Class I bikeway provides a completely separated right of way for the exclusive use of bicycles and pedestrians with minimized crossflow by motorists. A Class II bikeway provides a striped lane for one-way bike travel on a street or highway. A Class III bikeway provides for shared use with pedestrian or motor vehicle traffic.

Existing bicycle parking is scattered throughout the project area, primarily at commercial establishments.

Existing bicycle conditions were qualitatively assessed throughout the project area at each of the proposed stations of the SR 60 LRT Alternative and the Washington Boulevard LRT Alternative.

No bicycle facilities are provided or currently planned along the proposed SR 60 LRT Alternative.

The Washington Boulevard LRT has Class I and III bicycle routes that intersect Washington Boulevard, such as the Rio Hondo Bike Path (between Bluff Road and Paramount Boulevard) and San Gabriel River Mid Trail (west of the I-605 Freeway).

The following bicycle lanes near the proposed stations are included in the Los Angeles County bicycle map.

SR 60 LRT Alternative

- **Near Proposed Shops at Montebello Station**: Class II facilities exist on Montebello Boulevard for a short distance extending in the east-west direction south of the shopping center. Class I facilities are located on San Gabriel Boulevard and follow the Rio Hondo in a north-south direction.
- **Near Proposed Santa Anita Avenue Station:** Class I facilities are located in the Whittier Narrows Regional Park and Class II facilities exist along Santa Anita Avenue extending north into South El Monte's Class II bicycle route network. These facilities lead the bicyclist to cross the freeway in the north or southbound direction via the Santa Anita Avenue/SR 60 Freeway overcrossing, or at the pedestrian bridge slightly farther east of the overcrossing.
- **Near Proposed Peck Road Station:** Class II facilities are located along Peck Road in the north-south direction and connect with South El Monte's Class II bicycle network. This Class II facility traverses the SR 60 Freeway utilizing the freeway undercrossing at Peck Road.

Washington Boulevard LRT Alternative

- **Near Proposed Whittier Boulevard Station:** Class II facilities exist in the city of Montebello, a short distance away from the proposed Whittier Boulevard station located on Garfield Avenue and Whittier Boulevard.
- **Near Proposed Greenwood Avenue Station**: Class I facilities are located along the Rio Hondo, a short distance from the Greenwood Avenue station. The Rio Hondo Class I bicycle facilities cross under Washington Boulevard below-grade.
- **Near Proposed Rosemead Boulevard Station:** Class II facilities exist north of the Washington Boulevard/Rosemead Boulevard intersection along Mines Avenue.
- **Near Proposed Norwalk Boulevard Station:** Class III facilities exist along Norwalk Boulevard, Broadway Avenue, and Sorensen Avenue in the north-south direction. These Class III facilities cross Washington Boulevard at-grade.
- **Near Proposed Lambert Road Station:** Class I, II, and III facilities are located in the city of Whittier, accessible from the five-point intersection of Washington Boulevard/Whittier Boulevard/Santa Fe Springs Road.

In addition, one bicycle facility is currently planned along the Washington Boulevard LRT Alternative. Class III facilities are proposed along Washington Boulevard in the east-west direction that would connect with the city of Montebello's bicycle network to the north, according to Pico Rivera's General Plan Circulation Element. In addition, a future Class III bicycle route has been identified along Greenwood Avenue that would connect to a future Class II bicycle lane along Montebello Boulevard, as documented in the City of Montebello's Bicycle Lane Feasibility Report.

Existing facilities at or near each of the proposed stations are described in greater detail in Section 4.4 of the Transportation Impacts Technical Memorandum, Appendix M, of this Draft EIS/EIR.

3.3 Environmental Impacts/Environmental Consequences

This section describes the potential impacts of the proposed alternatives on transit, regional transportation, intersections, freeway off-ramps, parking, pedestrian circulation, and bicycle circulation during both construction and operation, using the methodology identified in Section 3.1.5. **Table 3-4** summarizes the potential impacts of each alternative and **Table 3-5** summarizes the potential impacts after mitigation for each alternative. Transportation benefits are summarized in **Table 3-6**, which presents each alternative's reduction in vehicle miles traveled (VMT), vehicle hours traveled (VHT), average vehicle speed, and number of vehicle trips, compared with the No Build Alternative.

Compared to the No Build Alternative, the other three alternatives would not result in major changes in any of the region-wide or project area performance measures evaluated; however, the data indicates that each of the build alternatives would have a beneficial effect on the project area by reducing VMT, VHT, and peak hour vehicle trips. On a regional scale, beneficial effects on the transportation network would be reflected in the reductions to peak hour vehicle trips.

However, the three alternatives would result in adverse effects under NEPA or significant impacts under CEQA during either construction or operations, as described in the following sections. Further details of impacts are presented in the Transportation Impacts Technical Memorandum, Appendix M.

Table 2-5 in Chapter 2, Alternatives Considered, summarizes the anticipated construction activities, their approximate durations, and a rough order of magnitude for each alternative.

The construction duration for either the SR 60 LRT Alternative or Washington Boulevard LRT Alternative is estimated to be approximately four to six years, with the SR 60 LRT Alternative most likely taking four years to construct and the Washington Boulevard LRT Alternative most likely taking six years to construct.

3.3.1 No Build Alternative

3.3.1.1 Impact Analysis

Construction Impacts

The No Build Alternative would not have any construction impacts because there would be no physical change to the existing environment.

By definition, the No Build Alternative would not result in any adverse effects relative to transit, regional transportation, intersections, freeway off-ramps, parking, pedestrian circulation, or bicycle circulation, as no construction activity is planned to occur.

Operational Impacts

The No Build Alternative would not have any operational impacts. However, it would lack the potential transportation benefits that the build alternatives would provide, such as improved transit access and reliability, enhanced connectivity with the regional transportation network, and better transit interface with pedestrian and bicycle travel. Over time traffic congestion is expected to increase, causing buses and auto traffic to operate more slowly and less efficiently. The No Build Alternative would not provide a reliable transit alternative to these modes of travel in the project area.

Transit

By definition, the No Build Alternative would not result in any adverse transit effects. However, as traffic congestion increases over time, the quality of bus service in the project area would decline due to the increases in time required to travel between destinations. Although the project area contains several employment destinations, active retail centers, and stable residential neighborhoods, there are many more activity and employment centers located adjacent to or outside the project area.

Table 3-4. Summary of Potential Transportation Impacts Before Mitigation

Alternative Under Consideration		No Build	TSM	SR 60 LRT	Washington Boulevard LRT
Transit					
Construction	NEPA	--	Temporary adverse effect	Temporary adverse effect (SR 60 North Side Design Variation would have an additional adverse effect)	Temporary adverse effect
	CEQA	--	Less than significant	Less than significant (SR 60 North Side Design Variation would have no significant impact)	Less than significant
Operation	NEPA	--	Beneficial effect	Beneficial effect	Beneficial effect
	CEQA	--	Less than significant	No significant impact	Less than significant
Regional					
Construction	NEPA	--	Not adverse	Not adverse	Not adverse
	CEQA	--	Less than significant	Less than significant	Less than significant
Operation	NEPA	--	Beneficial effect	Beneficial effect	Beneficial effect
	CEQA	--	Less than significant	Less than significant	Less than significant
Intersection					
Construction	NEPA	--	Not adverse	Temporary adverse effect	Temporary adverse effect
	CEQA	--	Less than significant	Less than significant	Less than significant
Operation	NEPA	--	Not adverse	Adverse effect	Adverse effect
	CEQA	--	Less than significant	Significant impact	Significant impact

Table 3-4. Summary of Potential Transportation Impacts Before Mitigation (continued)

Alternative Under Consideration		No Build	TSM	SR 60 LRT	Washington Boulevard LRT
Freeway Off-Ramps					
Construction	NEPA	--	Not adverse	Temporary adverse effect (SR 60 North Side Design Variation would have an additional adverse effect)	Temporary adverse effect (San Gabriel Boulevard/I-605 aerial crossing would have an additional adverse effect)
	CEQA	--	Less than significant	Significant impact (SR 60 North Side Design Variation would have an additional significant impact	Significant impact (San Gabriel Boulevard/I-605 aerial crossing would have an additional significant impact)
Operation	NEPA	--	Not adverse	Not adverse	Not adverse
	CEQA	--	Less than significant	Less than significant	Less than significant
Parking[1]					
Construction	NEPA Off-	--	Not adverse	Temporary adverse effect	Temporary adverse effect
	NEPA On-	--	Not adverse	Not adverse	Not adverse
Operation	NEPA Off-	--	Not adverse	Adverse effect	Adverse effect
	NEPA On-	--	Not adverse	Not adverse	Not adverse
	NEPA Spillover	--	Not adverse	Not adverse	Not adverse
Pedestrian Circulation					
Construction	NEPA	--	Temporary adverse effect	Temporary adverse effect	Temporary adverse effect
	CEQA	--	Less than significant	Less than significant	Less than significant

Table 3-4. Summary of Potential Transportation Impacts Before Mitigation (continued)

Alternative Under Consideration		No Build	TSM	SR 60 LRT	Washington Boulevard LRT
Operation	NEPA	--	Not adverse	Beneficial effect	Beneficial effect/Adverse effect at Santa Fe Springs Maintenance Yard Option
	CEQA	--	Less than significant	Less than significant	Less than significant
Bicycle Circulation					
Construction	NEPA	--	Temporary adverse effect	Temporary adverse effect	Temporary adverse effect
	CEQA	--	Less than significant	Less than significant	Less than significant
Operation	NEPA	--	Not adverse	Beneficial effect	Adverse effect
	CEQA	--	Less than significant	Less than significant	Less than significant

Source: AECOM 2013.
Notes:
Assumes no operational differences for the SR 60 North Side Design Variation. Assumes no operational differences for the Washington Boulevard LRT Aerial Crossing Options.
Table 3-4 includes results for the North Side Design Variation or the Washington Boulevard LRT Aerial Crossing Options. Impacts associated with these options are only noted if there are differences in beneficial, adverse, or significant effects.
[1] CEQA does not have specific thresholds for impacts on parking because parking changes would not have a physical impact on the environment.

Table 3-5. Summary of Potential Transportation Impacts After Mitigation

Alternative Under Consideration		No Build	TSM	SR 60 LRT	Washington Boulevard LRT
Transit					
Construction	NEPA	--	Not adverse after mitigation	Not adverse after mitigation (SR 60 North Side Design Variation would have no adverse effects after mitigation)	Not adverse after mitigation
	CEQA	--	--	--	--
Operation	NEPA	--	--	--	--
	CEQA	--	--	--	--
Regional					
Construction	NEPA	--	--	--	--
	CEQA	--	--	--	--
Operation	NEPA	--	--	--	--
	CEQA	--	--	--	--
Intersection					
Construction	NEPA	--	--	Not adverse after mitigation	Not adverse after mitigation
	CEQA	--	--	--	--
Operation	NEPA	--	--	Not adverse after mitigation	Adverse effects after mitigation
	CEQA	--	--	Less than significant after mitigation	Significant and unavoidable after mitigation

Table 3-5. Summary of Potential Transportation Impacts After Mitigation (continued)

Alternative Under Consideration		No Build	TSM	SR 60 LRT	Washington Boulevard LRT
Freeway Off-Ramps					
Construction	NEPA	--	--	Not adverse after mitigation (SR 60 North Side Design Variation would have no adverse effects after mitigation)	Not adverse after mitigation (San Gabriel Boulevard/I-605 aerial crossing would have no adverse effects after mitigation)
	CEQA	--	--	Less than significant after mitigation (SR 60 North Side Design Variation would have no significant impact after mitigation)	Less than significant after mitigation (San Gabriel Boulevard/I-605 aerial crossing would have no significant impacts after mitigation)
Operation	NEPA	--	--	--	--
	CEQA	--	--	--	--
Parking[1]					
Construction	Off-street	--	--	Not adverse after mitigation	Not adverse after mitigation
	On-street	--	--	--	--
Operation	Off-street	--	--	Not adverse after mitigation	Not adverse after mitigation
	On-street	--	--	--	--
	Spillover	--	--	--	--
Pedestrian Circulation					
Construction	NEPA	--	Not adverse after mitigation	Not adverse after mitigation	Not adverse after mitigation
	CEQA	--	--	--	--

Table 3-5. Summary of Potential Transportation Impacts After Mitigation(continued)

Alternative Under Consideration		No Build	TSM	SR 60 LRT	Washington Boulevard LRT
Operation	NEPA	--	--	--	--
	CEQA	--	--	--	--
Bicycle Circulation					
Construction	NEPA	--	Not adverse after mitigation	Not adverse after mitigation	Not adverse after mitigation
	CEQA	--	--	--	--
Operation	NEPA	--	--	--	Not adverse after mitigation
	CEQA	--	--	--	--

Source: AECOM 2010.
Notes:
Assumes no operational differences for the SR 60 North Side Design Variation. Assumes no operational differences for the Washington Boulevard LRT Aerial Crossing Options.
Table 3-5 includes results for the North Side Design Variation or the Washington Boulevard LRT Aerial Crossing Options. Impacts associated with these options are only noted if there are differences in beneficial, adverse, or significant effects.
[1] CEQA does not have specific thresholds for impacts on parking because parking changes would not have a physical impact on the environment.

Table 3-6. Performance Measures for Project Alternatives (2035)

	No Build	TSM	SR 60	Washington Blvd.
Regional				
Vehicle Miles Traveled (VMT)	524,869,000	524,386,000	524,370,000	524,369,000
Vehicle Hours Traveled (VHT)	27,378,000	27,297,000	27,294,000	27,294,000
Average Vehicle Speed (mph)	19.2	19.2	19.2	19.2
AM Peak Vehicle Trips	9,214,000	9,209,000	9,208,000	9,207,000
PM Peak Vehicle Trips	15,630,000	15,624,000	15,624,000	15,623,000
Project Area				
VMT	11,201,000	11,172,000	11,156,000	11,155,000
VHT	514,000	510,000	507,000	507,000

Table 3-6. Performance Measures for Project Alternatives (2035) (continued)

	No Build	TSM	SR 60	Washington
Average Vehicle Speed (mph)	21.8	21.9	22.0	22.0
AM Peak VMT	2,470,000	2,463,000	2,457,000	2,456,000
AM Peak VHT	152,000	150,000	149,000	149,000
AM Peak Average Speed (mph)	16.3	16.4	16.5	16.5
AM Peak Vehicle Trips	281,000	280,000	279,000	278,000
PM Peak VMT	3,595,000	3,583,000	3,579,000	3,579,000
PM Peak VHT	231,000	228,000	227,000	227,000
PM Peak Average Speed (mph)	15.6	15.7	15.8	15.8
PM Peak Vehicle Trips	470,000	468,000	468,000	467,000

Source: AECOM, 2010; Metro Travel Demand Model 2010.
Notes:
VMTs and VHTs include model centroid connectors.
VMT and VHT statistics are daily unless AM or PM peak hours are specified.
Assumes no operational differences for the SR 60 North Side Design Variation.
Assumes no operational differences for the Washington Boulevard LRT Aerial Crossing Options.

Project area travelers, as well as travelers from outside the project area, have limited options and accessibility to existing transit due to the lack of direct connections to the regional rail system and continuing freeway and street system congestion, which causes slow and overburdened bus operation. Future corridor transportation improvements will need to reflect a multi-modal strategy that provides travelers with a more complete set of transportation alternatives.

Regional Transportation

By definition, the No Build Alternative would not result in any adverse regional transportation effects, either region-wide or in the project area, as the No Build Alternative is the established baseline used against the other alternatives for determining impact. It should be noted, however, that the VMT, VHT, and peak hour vehicle trips associated with the No Build Alternative would be slightly higher than those of the TSM, SR 60 LRT, and Washington Boulevard LRT Alternatives due to region-wide area growth.

Intersections

Figure 3-3 and **Table 3-7** show the intersections that are projected to operate at LOS E or F in the year 2035. Of the 24 intersections operating at LOS E/F in year 2035 under the No Build Alternative, 12 intersections currently operate at an acceptable LOS D or better under existing conditions. LOS would worsen and these intersections would represent new unacceptable locations under the No Build Alternative.

Freeway Off-Ramps

As with existing conditions, queues that would develop under the No Build Alternative could be accommodated within the available storage distance. Therefore, the No Build Alternative would not have an adverse effect on operations at the study off-ramps.

Parking

By definition, the No Build Alternative would not result in any adverse parking effects, as no new operations are planned to occur.

Pedestrian Circulation

By definition, the No Build alternative would not result in any adverse pedestrian effects, as no new operations are planned to occur.

Bicycle Circulation

By definition, the No Build alternative would not result in any adverse effects to bicycle circulation, as no new operations are planned to occur.

Comparison of Alternative Against Existing Conditions

No additional impacts would occur from the No Build Alternative under this scenario, since the No Build Alternative does not involve substantial changes to existing conditions.

3.3.1.2 Mitigation Measures

Construction Mitigation Measures

No construction mitigation measures are required for the No Build Alternative because no impacts would occur.

Operational Mitigation Measures

No operational mitigation measures are required for the No Build Alternative because no impacts would occur.

Comparison of Alternative Against Existing Conditions

No significant impacts would occur under this scenario; therefore no mitigation measures are required.

3.3.1.3 Impacts Remaining After Mitigation

NEPA Finding

The No Build Alternative would have no adverse transportation effects during construction or operation.

CEQA Determination

The No Build Alternative would not result in a significant transportation impact during construction or operation.

Comparison of Alternative Against Existing Conditions

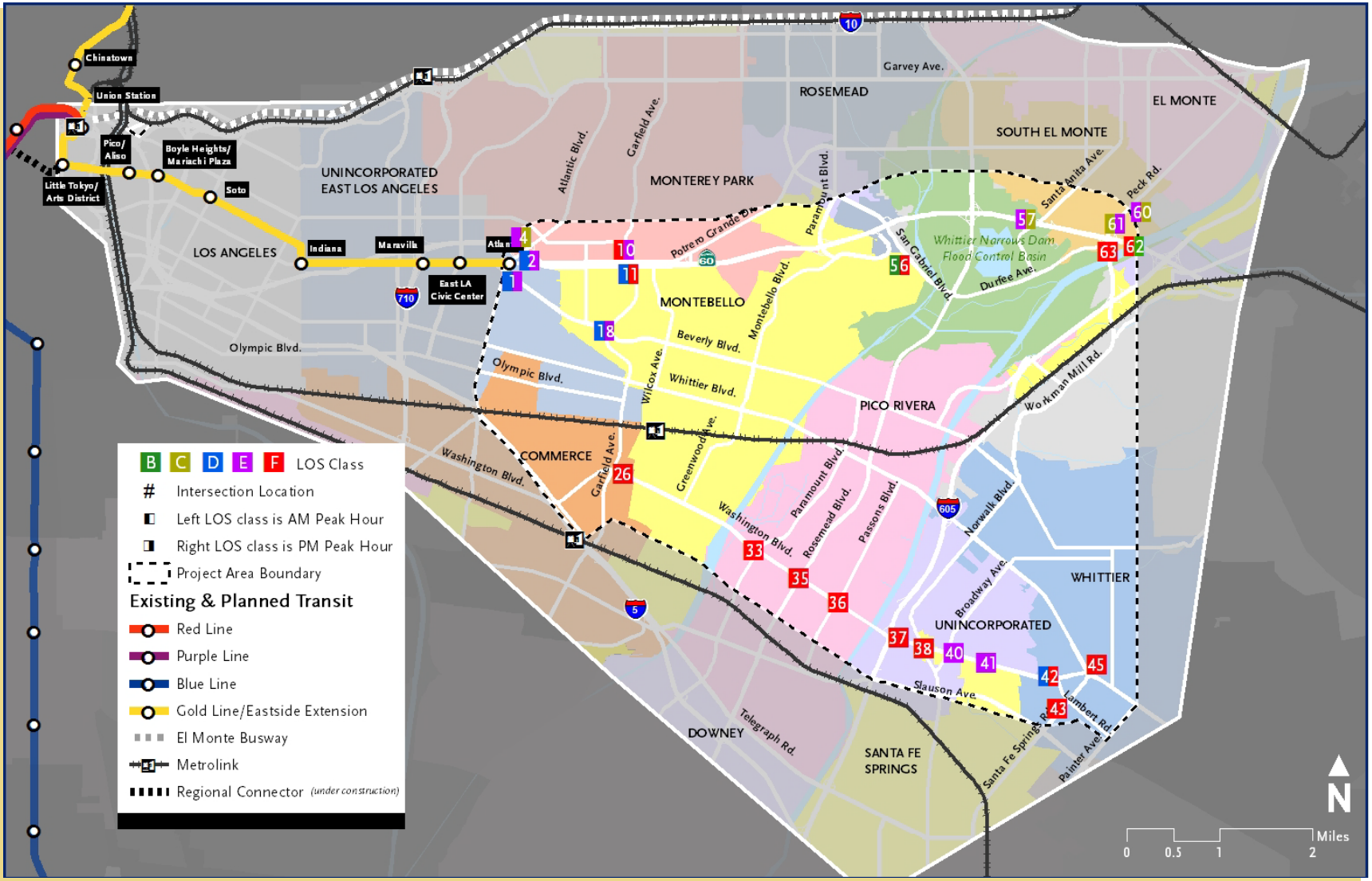
No additional impacts would occur under this scenario

3.3.2 TSM Alternative

3.3.2.1 Impact Analysis

Construction Impacts

The TSM Alternative would not have any significant construction impacts under CEQA related to regional transportation, intersections, freeway off-ramps, parking, pedestrians, bicycles, or transit. Under NEPA, the TSM Alternative would have temporary adverse effects during construction to local transit, pedestrian, and bicycle conditions; however, these effects would be mitigated through traffic management plans and use of alternative routes. Construction of the TSM Alternative would include new and reconfigured bus stops, and construction activities would be small in magnitude and short in duration. As the TSM Alternative would only involve the addition of new bus service in the project area, it would not negatively affect traffic flows or parking.



Source: AECOM 2010. Intersection numbers correspond to Table 3-2.

Figure 3-3. LOS E/F Intersections – Future No Build (2035) Conditions

Table 3-7. LOS E/F Intersections – Existing (2010) and Future No Build (2035) Conditions

#	Intersection	Existing AM Peak LOS	Existing PM Peak LOS	Future No Build AM Peak LOS	Future No Build PM Peak LOS
1	Atlantic Blvd./Beverly Blvd.	D	D	D	E
2	Atlantic Blvd./Pomona Blvd.	D	D	D	E
4	Atlantic Blvd./1st Street/ SR 60 WB Ramps	B	B	E	C
10	Garfield Avenue/Pomona Blvd.	E	D	F	E
11	Garfield Avenue/Via Campo	D	E	D	F
18	Garfield Avenue/Beverly Blvd.	D	D	D	E
26	Garfield Avenue/Washington Blvd.	F	F	F	F
33	Paramount Blvd./ Washington Blvd.	E	E	F	F
35	Rosemead Blvd./ Washington Blvd.	E	E	F	F
36	Passons Blvd./Washington Blvd.	D	D	F	F
37	Pioneer Blvd./Washington Blvd.	E	E	F	F
38	Norwalk Blvd./Washington Blvd.	E	E	F	F
40	Broadway/Washington Blvd.	C	D	E	E
41	Sorensen Avenue/ Washington Blvd.	D	D	E	E
42	Lambert Road/Washington Blvd.	D	D	D	F
43	Lambert Road/ Santa Fe Springs Road	E	F	F	F
44	Putnam Street/Washington Blvd.	D	C	F	C
45	Whittier Blvd./Washington Blvd./Santa Fe Springs Road	E	E	F	F
56	San Gabriel Blvd./Plaza Drive	B	F	B	F
57	Santa Anita Avenue/ SR 60 EB Ramps	C	C	E	C
60	Durfee Avenue/Slack Road	C	B	E	C

Table 3-7. LOS E/F Intersections – Existing (2010) and Future No Build (2035) Conditions (continued)

#	Intersection	Existing AM Peak LOS	Existing PM Peak LOS	Future No Build AM Peak LOS	Future No Build PM Peak LOS
61	Durfee Avenue/Farndon Street	B	D	C	E
62	Durfee Avenue/SR 60 WB Ramps	E	B	F	B
63	Peck Road/Durfee Avenue	E	E	F	F

Source: AECOM 2010

Analysis of the TSM Alternative's effects on these resources is provided in Section 5.2 of the Transportation Impacts Technical Memorandum, Appendix M, of this Draft EIS/EIR.

Transit

It is anticipated that the TSM Alternative would include only minimal construction, such as the installation of new bus stops and associated structures with minimal use of construction equipment. The surrounding transit system and infrastructure would be maintained; however, there might be minor and temporary disruptions to service during periods of construction. This would result in a temporary adverse effect to transit under NEPA and a less than significant impact under CEQA, based upon the magnitude and duration of construction of each individual TSM element.

Regional Transportation

As the TSM Alternative would involve minimal construction, these effects would not be adverse on a region wide basis. As such, construction of the TSM Alternative would not result in an adverse effect to regional transportation and would have a less than significant impact under CEQA.

Intersections

Construction activities for the TSM Alternative would be temporary and minimal. Construction would include the installation of new bus stops and associated structures and restriping of travel lanes. Activities would occur in the existing street and sidewalk ROW and would require minimal use of construction equipment. The surrounding transportation infrastructure would be maintained and overall construction activities would last for approximately one year. As such, construction of the TSM Alternative would not result in an adverse effect to intersection operating conditions and would have a less than significant impact under CEQA.

Freeway Off-Ramps

Under the TSM Alternative, the transit infrastructure investment (new bus routes, service enhancements, and physical structures such as new bus shelters) would utilize the existing street and sidewalk networks and would not require the alteration of any freeway ramp facilities. As such, there would be no adverse effects to off-ramp conditions and the impact under CEQA would be less than significant.

Parking

Construction activities for the TSM Alternative would be minimal, and typically would include the installation of new bus stops and associated structures and changes to roadway striping. Activities would occur in the existing street and sidewalk ROW and would require minimal use of construction equipment. As a result, there may be temporary displacement of on-street parking spaces during construction. No off-street parking would be affected by construction of the TSM Alternative elements. Any on-street parking displacement would be temporary in nature and there would generally be adjacent on-street parking available; as such, there

would not be an adverse effect under NEPA. In addition, there would be no changes to off-street parking with construction of the TSM Alternative.

Pedestrian Circulation

In general, any new facilities needed for the TSM Alternative bus routes would require minimal construction (such as temporary sidewalk closures or detours for new bus shelters). This would result in a temporary adverse effect under NEPA and a less than significant impact under CEQA to pedestrians, based on the magnitude and duration of construction of each individual TSM element.

Bicycle Circulation

In general, any new facilities that would be needed for the TSM Alternative bus routes would require minimal construction (such as temporary lane closures for new bus shelters or lane restriping). This would result in a temporary adverse effect under NEPA to bicycle circulation and a less than significant impact under CEQA, based on the magnitude and duration of construction of each individual TSM element.

Operational Impacts

The TSM Alternative would not have any significant operational impacts or adverse operational effects under NEPA or CEQA. This is because the TSM Alternative would only involve the addition of new bus service in the project area, and this would not negatively affect transit service, parking, pedestrian circulation, or bicycle circulation. The new bus service would have a beneficial effect on transit by instituting additional bus service in the project area, thereby improving access and mobility. The TSM Alternative would have the same effect on bicycle access as the No Build Alternative, given the existing service would simply be enhanced and would not involve additional upgrades that would affect bicycle networks. However, this effect may not be long-lasting, given the anticipated worsening of traffic congestion in the coming years.

Transit

Effects of the TSM Alternative would be beneficial, as increased levels of transit service would be provided by numerous upgrades, such as new limited-stop, express, and Rapid bus lines, when compared to the No Build Alternative. However, the TSM Alternative would not provide as high a level of beneficial effects as the two build alternatives in terms of travel time and increased ridership. Under CEQA, operation of the TSM would result in less than significant impacts.

Regional Transportation

Although minimal, the TSM Alternative would have beneficial effects on both a region-wide and project area level. Region-wide, slight reductions in overall VMT, VHT, and peak hour vehicle trips would be seen when compared to the No Build Alternative. In the project area, additional improvements would be seen in performance measures such as peak hour VMT, VHT, and vehicle trips compared to the No Build Alternative. Under CEQA, operation of the TSM would result in less than significant impacts.

Intersections

The addition of buses on the roadways would not affect traffic operations relative to the high number of single occupancy vehicles. Of the 24 intersections operating at LOS E/F under the No Build Alternative, one is projected to improve to LOS D or better during the PM peak hour, and none of the intersections operating above LOS D would worsen. The remaining intersections would continue to operate at LOS E or F conditions during at least one peak period, but the average delay per vehicle would generally decrease with the TSM Alternative. As a result, there would be no adverse effect under NEPA and a less than significant impact under CEQA to intersection operating conditions with the TSM Alternative. Table 5-10 in Appendix M, Transportation Impacts Technical Memorandum, provides detailed LOS calculations.

Freeway Off-Ramps

The transit improvements included in the TSM Alternative would result in minor variations in off-ramp traffic volumes, with slightly lower volumes than under the No Build Alternative. Since the TSM Alternative would result in equal or lower volumes than the No Build Alternative, these two alternatives

would result in similar queue lengths. The operation of the transit infrastructure investment associated with the TSM Alternative would not result in an adverse effect or significant impact to the queue lengths of the studied freeway off-ramps, as the ramp queues would not spill over onto the SR 60 Freeway mainline under the TSM Alternative.

Parking

Additional bus service would be added mostly to roadways with existing routes and existing corresponding bus stops, and in those locations buses would likely use existing bus stops so that on-street parking would not be affected. Where new bus routes are proposed, bus stops would generally be located immediately near intersections where on-street parking is not provided. There may be the potential for a few on-street parking spaces to be impacted. Any reduction in on-street parking would be minimal and would not be considered an adverse effect. No off-street parking facilities would be affected by operations of the TSM Alternative. Overall, there would be no adverse effect under NEPA for on-street or off-street parking conditions.

Pedestrian Circulation

The proposed TSM Alternative would result in a small increase in weekday walking trips throughout the corridor for pedestrian traveling to and from new bus stops. However, based on the general availability of pedestrian space, the new trips would not result in pedestrian congestion on sidewalks or in additional conflict locations. As such, there would be no adverse effects or significant impacts to pedestrian circulation.

Bicycle Circulation

The TSM Alternative would have the same effect on bicycle access as the No Build Alternative, given the existing service would simply be enhanced without additional upgrades that would affect bicycle networks. Any reduction in automobile usage with the TSM Alternative would reduce the potential for conflicts along bicycle facilities throughout the study area. Therefore, the TSM Alternative would not result in adverse effects or significant impacts to bicycle circulation.

More information is provided in Section 5.2 in the Transportation Impacts Technical Memorandum, Appendix M. Overall, the TSM Alternative would have fewer transportation benefits than the proposed build alternatives.

Comparison of Alternative Against Existing Conditions

No additional impacts beyond the year 2035 scenario for the TSM Alternative would occur under the existing conditions scenario, since traffic conditions would be equal to or better than the year 2035 scenario. Therefore, no mitigation measures are required.

3.3.2.2 Mitigation Measures

Construction Mitigation Measures

The TSM Alternative would not have any significant construction impacts under CEQA. As such, no mitigation measures for these topics are required under CEQA. Under NEPA, there would be temporary effects related to transit, pedestrian, and bicycle circulation during construction and these would be adverse before mitigation. As such, mitigation measures are provided below. No adverse effects would occur after implementation of these mitigation measures. Additional detail is provided in the Transportation Impacts Technical Memorandum, Appendix M.

3.0-i Metro would prepare a traffic management plan to facilitate the flow of traffic in and around the construction zone. These mitigation measures would also apply to transit service and pedestrian and bicycle circulation. Although more measures may be added, typical measures included in a Traffic Management Plan are:

- Schedule a majority of construction-related travel (i.e., deliveries, hauling, and worker trips) during the off-peak hours;
- Construction activities would be minimized during weekday AM and PM peak hours (typically 7:00 to 9:00 AM and 4:00 to 6:00 PM);

- Develop detour routes to facilitate traffic movement through construction zones without significantly increasing cut-through traffic in adjacent residential areas;
- Where feasible, temporarily restripe roadways to maximize the vehicular capacity at those locations affected by construction closures;
- Where feasible, temporarily remove on-street parking to maximize the vehicular capacity at those locations affected by construction closures;
- Where feasible, place station traffic control officers at major intersections during peak hours to minimize delays related to construction activities;
- Develop and implement an outreach program to inform the general public about the construction process and planned roadway closures; and
- Develop and implement a program with business owners to minimize effects to businesses during construction activity, including but not limited to signage programs.

Due to the limited nature of TSM Alternative construction, the traffic management plan measures would be less in magnitude than those required for the build alternatives. Metro would also implement a construction mitigation information campaign to inform the community of potential impacts and mitigation measures as a result of the construction period. The campaign would coordinate preparation of traffic control plans with local jurisdiction reviews and approvals.

Transit

The traffic management plan discussed above (mitigation measure 3.0-i) would mitigate temporary disruptions to transit service. In addition, Metro would coordinate with local transit agencies in advance to communicate closures, communicate information on any changes to bus service that would result from the TSM Alternative, and develop detour routes. Combined, these measures would address the temporary adverse effects.

Regional Transportation

No mitigation measures would be required, as no adverse effects or significant impacts are expected. Overall, the TSM Alternative would have a beneficial effect on transit conditions in the area as compared to the No Build Alternative.

Intersections

No mitigation measures would be required, as no adverse effects or significant impacts are expected.

Freeway Off-Ramps

No mitigation measures would be required, as no adverse effects or significant impacts are expected.

Parking

No mitigation measures would be required, as no adverse effects are expected.

Pedestrian Circulation

In addition to the traffic management plan discussed above, wayfinding signage, lighting, and access to specific pedestrian safety amenities (for example handrails, fences, and alternative walkways) would be implemented during the construction period in areas where existing pedestrian and/or bicycle facilities would be affected.

During final design, Metro would also coordinate with local transit agencies to address pedestrian movements. This may help to ensure that only one side of the street would be closed at a time. If a crosswalk is temporarily closed, pedestrians would be directed to use one that is in close proximity to the closed crosswalk, and adjacent crosswalks would remain open so pedestrians could cross streets. In addition, access to businesses and residences would be maintained throughout construction. Combined, these elements would help address the issues associated with pedestrian circulation and would therefore mitigate the impact. Combined, these measures would address the adverse effects.

Bicycle Circulation

In addition to the traffic management plan discussed above, on-street bicycle detour routes and signage would be used to address temporary effects to bicycle circulation in areas where existing bicycle facilities would be affected. In addition, Metro would coordinate with local transit agencies to address bicycle movements. Furthermore, access to businesses and residences via bicycle routes would be maintained at all times throughout construction. In addition, temporary alternative bike routes on complementary streets would be identified as needed. Combined, these measures would address the adverse effects.

Operational Mitigation Measures

No operational mitigation measures are required for the TSM Alternative because no significant operational impacts or adverse operational effects would occur.

Comparison of Alternative Against Existing Conditions

No additional significant impacts would occur under this scenario, since traffic conditions would be equal to or better than the year 2035 scenario. Therefore no mitigation measures are required.

3.3.2.3 Impacts Remaining After Mitigation

NEPA Finding

The TSM Alternative would have temporary adverse transportation effects during construction that would be addressed through mitigation measures.

CEQA Determination

The TSM Alternative would not result in significant impacts during construction.

Comparison of Alternative Against Existing Conditions

No additional impacts would occur under this scenario.

3.3.3 SR 60 LRT Alternative

3.3.3.1 Impact Analysis

Construction Impacts

The SR 60 LRT Alternative would not have any significant construction impacts under CEQA or adverse effects under NEPA related to regional transportation. Under NEPA, the SR 60 LRT Alternative would have temporary adverse effects during construction to local transit, intersections, freeway off-ramps, parking, and pedestrian and bicycle conditions; however, these effects would be mitigated through traffic management plans and other measures. Analysis of the SR 60 LRT Alternative's effects on these resources is provided in the Transportation Impacts Technical Memorandum, Appendix M, of this Draft EIS/EIR.

Transit

Since the majority of the SR 60 LRT Alternative would be in an aerial configuration, there would be no direct effects to on-street transit operation. However, temporary full intersection, lane, or sidewalk closures may be necessary during construction, which may result in detours for bus service. Construction of the at-grade portion of the SR 60 LRT Alternative may require temporary lane closures (e.g., left-turn lane restrictions) at the intersection of Pomona Boulevard/Hillview Avenue. Construction of the aerial structure at the intersection of Pomona Boulevard/Sadler Avenue may require temporary full intersection closure. As transit service is not provided on this segment of Pomona Boulevard, construction of the SR 60 LRT Alternative would not result in any direct effects to transit services.

Throughout the SR 60 LRT alignment, temporary intersection or lane closures due to construction would cause a reduction in the capacity of the affected road. This reduction in capacity would likely cause vehicular traffic to divert to parallel roadways, thus increasing congestion, which may cause adverse effects by decreasing bus operating speeds along those parallel streets. As a result, construction of the SR 60 LRT Alternative would result in a temporary adverse effect to transit operation under NEPA and a less than significant impact under CEQA, based on the magnitude and duration of construction as described in Table 2-5.

With the SR 60 North Side Design Variation, temporary closures may be required that would cause a reduction in capacity of the affected roads, particularly for the SR 60 Freeway and the restricted

access roadway, Greenwood Avenue. The new overhead structures on the SR 60 Freeway would require temporary closures of the freeway, particularly overnight. These temporary closures would force vehicles to divert to parallel roadways, and the resulting increased congestion may cause effects by decreasing bus operating speeds along those parallel streets. In addition, one bus route that operates on the SR 60 Freeway, Metro Line 68, would need to be re-routed during any freeway closures. However, freeway closures are likely to occur at night when the bus service no longer runs or has very limited service. As a result, construction of the SR 60 North Side Design Variation would result in a temporary adverse effect to transit operations under NEPA and a less than significant impact under CEQA, based on the magnitude and duration of construction as described in Table 2-5 and the potential SR 60 closures. However, no transit construction effects would result from the temporary closure of the restricted access roadway, Greenwood Avenue, as the bus system does not operate on this facility.

During construction of the maintenance yard for the SR 60 LRT Alternative, temporary closures of roadways and lanes would be required, resulting in potential disruptions to bus service. Service on Metro Lines 70 and 71, which operate on Mission Avenue, may require temporary re-routing and relocation of bus stops. Reduction in lane capacity due to temporary lane closures would decrease bus operating speeds. This site is in an industrial area with a low frequency of transit service. Although temporary, the potential disruptions to transit service may result in an adverse effect under NEPA and a less than significant impact under CEQA to transit conditions, based on the magnitude and duration of construction as described in Table 2-5.

Regional Transportation

Construction activities for the SR 60 Alternative would result in temporary closures of some regional facilities, such as overnight closures of the SR 60 mainline and on- and off-ramps. However, since these closures would be temporary and parallel facilities would be available (for instance, vehicles on SR 60 could reroute to SR 10 to the north or SR 91 to the south), they would not result in an adverse effort under NEPA, and would be a less than significant impact under CEQA.

Intersections

For the SR 60 LRT Alternative, the majority of the construction would occur in the ROW south of the SR 60 Freeway. For the short at-grade portion of the alignment along Pomona Boulevard from Atlantic Boulevard to Sadler Avenue, the center median would be sectioned off from the rest of the street and construction staging would occur primarily in the median. The project area intersections directly affected by at-grade construction would be Atlantic Boulevard/Pomona Boulevard and Hillview Avenue/Pomona Boulevard.

Some of the streets along the alignment would need to be either completely reconstructed or widened to accommodate the guideway, including portions of Pomona Boulevard and streets adjacent to the proposed stations. Additional street work would be required at all at-grade crossing locations to allow for placement of the track slab and rails and modification of existing curbs, gutters, and sidewalks to accommodate the rail crossings. The construction duration is estimated to be four months to complete track work for a one-mile segment. The estimated construction duration for widening a one-mile street segment is five months to one year, depending on the extent of widening and the utility relocation required.

Construction activities associated with the SR 60 LRT Alternative could temporarily impede traffic mobility at the intersections where at-grade and grade-separated crossings would occur.

For the grade-separated portions of the alignment from Sadler Avenue to Peck Road, construction would occur in the ROW south of the SR 60 Freeway. Construction of the grade-separated portions would require more substantial equipment due to the large cranes needed to secure precast girders in place. Due to the size of the cranes, special staging areas close to the site would be needed and erection of the girders would typically be done at night to minimize traffic disruptions. Project area intersections directly affected by grade-

separated construction would be Gerhart Avenue/Pomona Boulevard, Findlay Avenue/Pomona Boulevard, Garfield Avenue/Via Campo, Wilcox Avenue/Via Campo, Paramount Boulevard/SR 60 WB Ramps/Town Center Drive, Montebello Boulevard/SR 60 EB Ramps, Santa Anita Avenue/SR 60 EB Ramps, and Peck Road/SR 60 EB Ramps.

Construction vehicles may temporarily impede traffic mobility in the areas of construction. During construction, temporary closure of traffic lanes would be necessary. Relocation of utilities and construction of the trackway and stations would require temporary closure of lanes, which would increase intersection delay and potentially modify existing traffic patterns. As a result, vehicular travel time and intersection operations would be affected. As currently planned, the alignment would be constructed in one-mile segments; therefore, not all intersections would be closed or modified simultaneously. As such, not all locations would be affected at the same time. These effects would be temporary and adverse under NEPA and less than significant under CEQA.

Construction haul routes would be on existing truck routes and would be located to minimize noise, vibration, and other possible impacts to adjacent businesses and residential neighborhoods. Routes would be confirmed during the preliminary engineering phase and final design phase of the project, but will likely include nearby local streets and major arterials for truck access to and from SR 60 and I-605.

Haul trips would take place during off-peak hours when there is excess capacity on the roadway network. However, haul and delivery truck routes may affect residents and commuters along the alignment. Hauling and general construction traffic may impact traffic flow patterns as well, because there could be minor reductions in roadway capacity and adjustments to existing traffic patterns as drivers bypass congested areas. If this occurs, vehicular travel times and intersection operations could be affected along these roadways.

During construction of the maintenance yard for the SR 60 LRT Alternative, the Mission Junction Maintenance Yard Option, temporary closures of roadways would be required.

Construction of the Mission Junction Maintenance Yard for the SR 60 LRT Alternative would occur in a largely industrial area set far from residences or businesses. Impacts to traffic operations during construction would typically occur during nighttime and off-peak hours in order to minimize adverse effects. The construction of the Mission Junction Maintenance Yard would include standard methods associated with construction of trackwork and buildings, including demolition of existing facilities, leveling of land, and construction of new sheds and maintenance buildings, as well as track work for storage of light rail vehicles. Where construction encroaches on roadways and intersections, the temporary operation and flow of vehicular traffic would be affected. As such, construction of the maintenance yard would result in a temporary adverse effect under NEPA and a less than significant impact under CEQA to intersection operations.

In general, where construction encroaches on roadways and intersections, the temporary operation and flow of vehicular traffic would be addressed in the traffic management plan as documented in Section 3.4.4.2. Potential traffic control measures would be determined in part by construction staging activity for the project. The maintenance of traffic lanes during construction would follow local agency requirements and standards with respect to minimum lane widths, the number of available travel lanes, and the duration of temporary lane closures. Specific street closure locations would be identified in close coordination with local agencies during the final design stage. Section 3.3.3.2 discusses the traffic management plan in additional detail.

Freeway Off-Ramps

Under the SR 60 LRT Alternative, the light rail tracks would be constructed in the median of Pomona Boulevard from Atlantic Boulevard to Sadler Avenue, where the alignment would transition to an elevated structure and continue within the Caltrans ROW directly south of the SR 60 Freeway. Construction of the SR 60 LRT Alternative

may require the temporary closure of all eastbound freeway on- and off-ramps between Atlantic Boulevard and Peck Road when the aerial structures that span the ramps are being installed, or during the temporary use of ramp shoulders for construction equipment. An aerial guideway structure requires falsework for vertical support. The falsework system is designed to allow traffic flow during construction. Falsework would be constructed over Findlay Avenue and at the Garfield/Wilcox Avenue off-ramps, Gerhart Avenue undercrossing, Findlay Avenue undercrossing, and Garfield Avenue undercrossing/intersection. Falsework would be designed in accordance with the Caltrans Falsework Manual. The critical phase during construction is the erection, lowering, and removal of falsework. Lowering and removal of falsework would be done during nighttime hours in order to minimize the effects to traffic. If additional time is needed, the aerial guideway would be constructed via a combination of weekend off-ramp closures and staged construction across the affected streets.

As currently planned, the alignment would be constructed in one-mile segments; therefore, not all of the ramps would be closed simultaneously. Although any ramp closures or shoulder closures would be temporary, they would cause a temporary adverse effect under NEPA and a significant impact under CEQA to ramp operation and would result in re-routing of vehicles along the SR 60 Freeway mainline to upstream and downstream ramp locations.

Construction of the North Side Design Variation would likely require a temporary reduction in lane and shoulder widths in order to create additional room in the median to construct support columns in the median for the two proposed bridges. The number of lanes in each direction would not be affected, and the capacity of the freeway would be maintained. In addition, several overnight closures of SR 60 would likely be required to erect falsework or place pre-cast structural elements over the freeway. During freeway closures, only one travel direction of the freeway would be closed at a time.

The extent and duration of the closures would depend on a number of factors, including the construction contract limits and individual contractors' choices; closures would be coordinated with each affected jurisdiction. Restrictions on the extent and duration of the closures can be incorporated in the project construction specifications. In some cases, short-term full closures might be substituted for extended partial closures to reduce overall impacts. A rough order of magnitude and duration for particular construction activities is summarized in Table 2-5. The freeway closures would cause an additional temporary adverse effect under NEPA and a significant impact under CEQA to traffic operations.

Parking

During construction of the SR 60 LRT Alternative, current off-street parking facilities would be utilized for construction activities for the duration of construction, such as staging for the storage of construction materials and equipment, temporary offices for field personnel, parking for field personnel, and fabrication of construction materials. In addition, space would be needed for the physical construction of the stations and parking facilities which would last for approximately two years.

In particular, off-street construction staging and activities would be located at and adjacent to the proposed stations. At the proposed Garfield Avenue station, the parcel on the southeast corner of the intersection of Via Campo and Garfield Avenue would be utilized for construction staging and construction of the TPSS, resulting in the removal of approximately 325 parking spaces. However, the businesses on the western portion of the parcel would remain.

At the proposed Shops at Montebello station, the parcel southwest of the intersection of Town Center Drive and Montebello Town Center Drive would be utilized for construction staging and construction of a TPSS, resulting in the removal of about 400 parking spaces. These spaces are occasionally needed by the Shops at Montebello shopping

center during peak activity periods. In addition, approximately 10 surface parking spaces would be acquired for construction of the TPSS at this location.

The proposed Santa Anita Avenue station would be placed in the underutilized parcel southeast of SR 60 at the Santa Anita Avenue on- and off-ramps, and this would not result in the removal of any existing parking spaces for construction staging or TPSS construction.

At the proposed site of the Peck Road station, 140 parking spaces would be removed in addition to a vacant office building, motel, two auto service stations, and a vacant restaurant. These properties would be fully acquired and utilized for the Peck Road station, its associated park and ride facility, and construction staging.

Although temporary, given that parking would be provided at each station once construction is complete, the potential effects to the off-street parking supply would result in a temporary adverse effect to off-street parking under NEPA, based on the magnitude and duration of construction as shown in Table 2-5. It should be noted that these off-street parking spaces would be utilized for other project purposes as well.

Construction of the SR 60 LRT Alternative would also require temporary closure of travel lanes. Consequently, existing on-street parking spaces and loading stalls may need to be temporarily removed. Under the SR 60 LRT Alternative, approximately 50 on-street parking spaces would be displaced along Pomona Boulevard; these were generally about 60 percent occupied, as shown in **Table 3-8**. Given available parking on adjacent streets, there are replacement on-street parking options. As such, the on-street parking displaced would not result in an adverse effect under NEPA.

During construction of the Mission Junction Maintenance Yard Option, temporary closures of roadways would be required. Where construction encroaches on roadways and intersections, the temporary removal of on-street parking may be required. Exact locations of temporary on-street parking impacts are not known and would depend on many factors including the construction contract limits and individual contractors' choices. Generally, any on-street parking on side streets adjacent to the current land use are anticipated to be temporarily removed.

Metro would work with local jurisdictions, businesses, and the community to find replacement parking during construction, as discussed in Section 3.3.3.2. Since the parking displacement would be temporary and replacement parking would likely be available, there would not be an adverse effect under NEPA to on-street parking with the Mission Junction Maintenance Yard Option.

Pedestrian Circulation

For the SR 60 LRT Alternative and the Mission Junction Maintenance Yard Option, temporary closures of roadways and sidewalks would be required during construction. The placement of aerial guideway columns and stations may affect sidewalks along the SR 60 LRT alignment. Where construction encroaches on sidewalks, walkways, or crosswalks, pedestrian safety measures would be considered, such as the development of detour routes and temporary pedestrian shelters. Pedestrian access to adjacent properties would be affected and would need to be maintained during construction. Although temporary, the potential disruptions to pedestrian circulation would result in a temporary adverse effect under NEPA and a less than significant impact under CEQA to pedestrian conditions, based on the magnitude and duration of construction as described in Table 2-5.

Bicycle Circulation

For the SR 60 LRT Alternative and the Mission Junction Maintenance Yard Option, temporary closures of roadways would be required during construction. Temporary lane closures may affect existing and proposed bike routes adjacent to, but not directly intersecting, the proposed station locations on Garfield Avenue north of the proposed Garfield Avenue station, on Santa Anita Avenue north of the proposed Santa Anita Avenue station, and on Peck Road north of the proposed Peck Road station. The potential disruptions to bicycle circulation would result in a temporary adverse effect under NEPA and a less than significant

Table 3-8. SR 60 LRT Alternative – Affected On-Street Parking Utilization and Replacement Parking Options

Affected Sections along Pomona Boulevard	Total Removed Parking Spaces Occupied	Total Parking Spaces Removed	% of Removed Spaces Currently Utilized	Potential Replacement Parking Options
North side of Pomona Blvd., between Atlantic Blvd. and Hillview Avenue	3	10	30%	Via Campo, Fernfield Drive, and Hillview Avenue
South side of Pomona Blvd., between Atlantic Blvd. and Hillview Avenue	11	11	100%	Via Campo and Hillview Avenue
North side of Pomona Blvd., between Hillview Avenue and Sadler Avenue	11	19	58%	Via Campo, Fernfield Drive, and Hillview Avenue
South side of Pomona Blvd., between Hillview Avenue and Sadler Avenue	8	11	73%	Via Campo, Hillview Avenue, and Sadler Avenue
Total	33	51	65%	

Source: AECOM 2010.

impact under CEQA to bicycle conditions, based on the magnitude and duration of construction as described in Table 2-5. Bicycle detours and appropriate signage would help mitigate the temporary effects on the bicycle facilities and their users.

Operational Impacts

The SR 60 LRT Alternative would not have any significant operational impacts under CEQA or adverse effects under NEPA related to transit, regional transportation, freeway off-ramps, pedestrians, or bicyclists. Analysis of the SR 60 LRT Alternative's effects on these resources is provided in the Transportation Impacts Technical Memorandum, Appendix M, of this Draft EIS/EIR. The SR 60 LRT Alternative would have a beneficial impact on transit service and access, although pedestrian ease of access would be lower than under the Washington Boulevard LRT Alternative due to the freeway station locations.

Transit

The SR 60 LRT Alternative would be beneficial, as increased levels of transit service and ridership would be provided by the new LRT service. For instance, benefits would accrue to transit travel time.

Overall, the SR 60 LRT Alternative would not appreciably reduce vehicular travel time (including bus travel time) when compared to the TSM Alternative. The SR 60 LRT Alternative would have a vehicular travel time only three percent faster than that associated with the No Build Alternative. The SR 60 Alternative would have a beneficial effect on transit in the project area. Under CEQA, operation of the SR 60 LRT Alternative would result in less than significant impacts.

Regional Transportation

Although minimal, the SR 60 LRT Alternative would have beneficial effects on both region-wide and project area levels. Region-wide, slight reductions in overall VMT, VHT, and peak hour vehicle trips can be seen when compared to the No Build Alternative. In the project area, additional improvements are seen in the performance measures such as peak hour VMT, VHT, and vehicle trips compared to the No Build Alternative. The SR 60 LRT Alternative would not add additional

time to the LRT operations and would not noticeably affect regional transportation in a negative manner. Under CEQA, operation of the SR 60 LRT Alternative would result in less than significant impacts.

Intersections

Operations at two intersections are projected to improve with the SR 60 LRT Alternative when compared to the No Build Alternative:

- Atlantic Boulevard/SR 60 EB Ramps: AM and PM peak hours (#3 in **Figure 3-4**)
- Durfee Avenue/Farndon Street: PM peak hour (#61 in Figure 3-4)

Based on a comparison to the No Build Alternative conditions, two study intersections would be adversely affected by the SR 60 LRT Alternative, as they would exceed the threshold of significance described in Table 3-1 and cause adverse effects under NEPA and significant impacts under CEQA:

- Santa Anita Avenue/SR 60 EB Ramps: AM and PM peak hours (#57 in Figure 3-4)
- Peck Road/Durfee Avenue: AM and PM peak hours (#63 in Figure 3-4)

It should be noted that although the intersection at Peck Road/Durfee Avenue would operate at LOS F in both the No Build Alternative and the SR 60 LRT Alternative, the SR 60 LRT Alternative would result in a substantial increase in average vehicular delay over the No Build Alternative as traffic patterns would change due to the introduction of the LRT and park and ride facilities. This would result in an adverse effect under NEPA and a significant impact under CEQA.

Figure 3-4 illustrates the project area intersections which are projected to operate at LOS E or F under year 2035 project conditions with the SR 60 LRT Alternative. Impacted intersection names and their LOS are identified in **Table 3-9**. Other intersections identified in Figure 3-2 and Table 3-2 as already operating at LOS E or F under existing conditions would experience no substantial changes in performance.

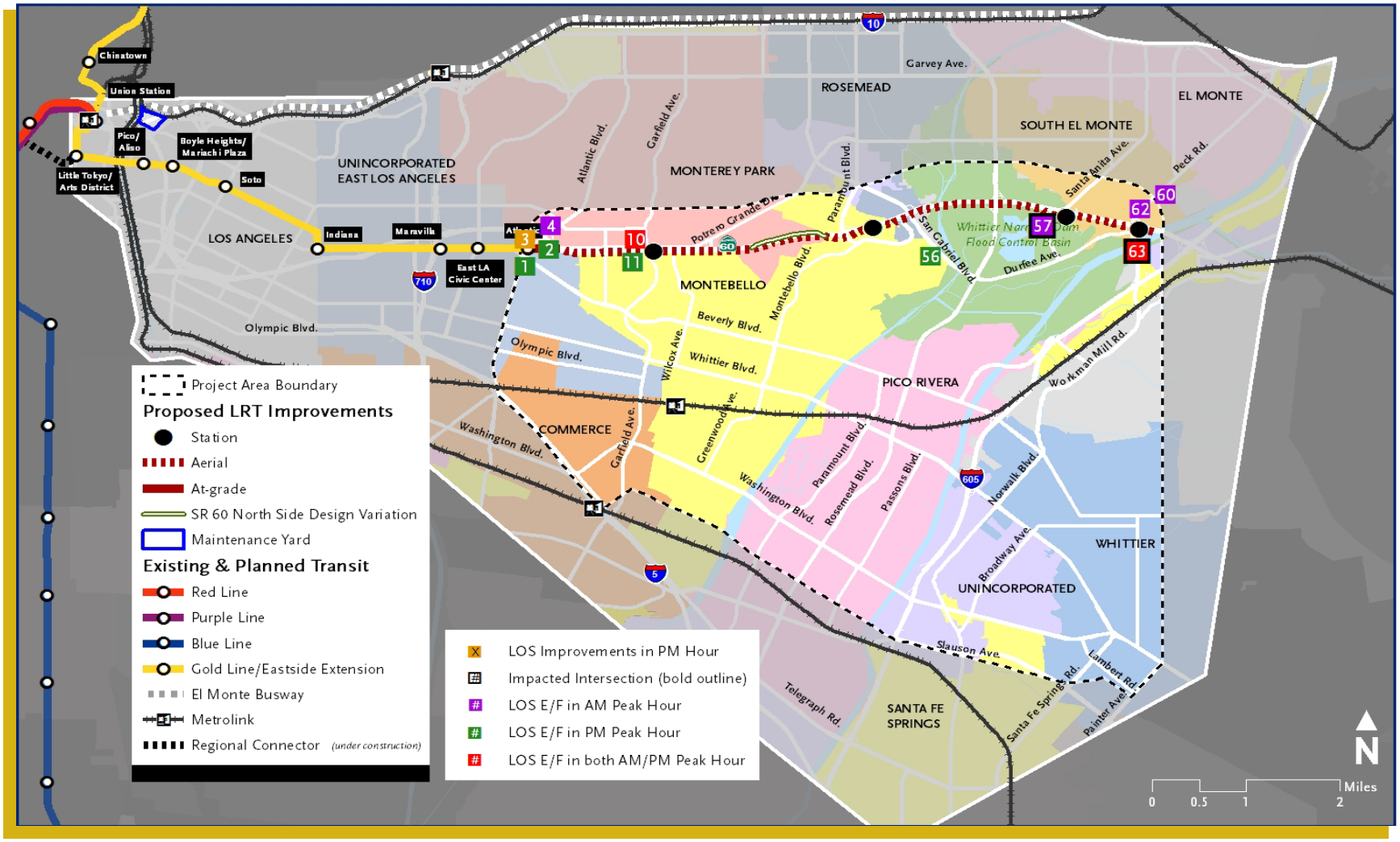
The addition of traffic to the street system as a result of staffing at the Mission Junction Maintenance Yard Option facility is not projected to cause an increase in intersection delay. This conclusion was reached because the typical arrival and departure times for employees are outside typical weekday peak travel periods, since trains are in operation during those times. Therefore, employees would arrive at the yards before the trains begin operating during the AM peak hour and after the PM peak hour when trains are operating at lower frequencies.

As part of the SR 60 LRT North Side Design Variation, the LRT alignment would cross Greenwood Avenue, which is a restricted access roadway for the OII landfill site. Crossing quad gates, a four-sided crossing gate, would be provided at this location as part of the project design to prevent private vehicles from driving around the gates and crossing the tracks when trains are present.

At peak times of operation, trains are projected to run at five minute headways in each direction, which would result in a maximum of 24 trains crossing Greenwood Avenue in an hour (during non-peak hours, the headways would be greater and the number of trains per hour would be lower). Conservatively, it is estimated that vehicles would have to wait approximately 35 to 40 seconds for trains to cross Greenwood Avenue when the gates are activated. Conservatively estimating three seconds for each private vehicle to clear the crossing gate area, this would allow approximately 900 vehicles an hour in each direction (during peak hours)to safely travel on Greenwood Avenue with operation of the LRT.

Freeway Off-Ramps

Estimates of the SR 60 LRT Alternative traffic volumes at the off-ramps and intersection junctions were based on output from the Metro Travel Demand Model, as discussed previously. As determined from the model output, the LRT service along SR 60 Freeway would result in a decrease in background traffic volumes, as it would increase transit mode share in the area.



Source: AECOM 2013. Intersection numbers correspond to Table 3-7.

Figure 3-4. LOS E/F and Impacted Intersections – 2035 SR 60 LRT Alternative

Table 3-9. LOS E/F and Impacted Intersections – 2035 SR 60 LRT Alternative Before Mitigation

#	Intersection	2035 AM Peak LOS without Project	2035 PM Peak LOS without Project	2035 AM Peak LOS with SR 60 LRT Alternative	2035 PM Peak LOS with SR 60 LRT Alternative
1	Atlantic Blvd./Beverly Blvd.	D	E	D	E
2	Atlantic Blvd./Pomona Blvd.	D	E	D	E
4	Atlantic Blvd./SR 60 Eastbound Ramps	E	C	E	C
10	Garfield Avenue/Pomona Blvd.	F	E	F	E
11	Garfield Avenue/Via Campo	D	F	D	F
56	San Gabriel Blvd./Plaza Drive	B	F	B	F
57	Santa Anita Ave./SR 60 Eastbound Ramps	E	C	F	D
60	Durfee Avenue/Slack Road	E	C	E	C
61	Durfee Avenue/Farndon Street	C	E	C	D
62	Durfee Avenue/SR 60 Westbound Ramps	F	B	F	B
63	Peck Road/Durfee Avenue	F	F	F	F

Source: AECOM 2010

However, the SR 60 LRT Alternative would cause minor increases in traffic volumes along the SR 60 Freeway mainline and at the off-ramps near the proposed stations, as vehicles would be traveling to and from the proposed park and ride facilities.

The operation of LRT and the proposed park and ride facilities associated with it would not adversely affect the queue lengths on the freeway ramps in the project area for either the 50th or the 95th percentile queues. As under the No Build scenario, the ramp queues would not spill over to the freeway mainline for the SR 60 LRT Alternative. Therefore, the SR 60 LRT Alternative would not result in an adverse effect or significant impact to operations at the study area off-ramps under NEPA or CEQA.

Parking

The SR 60 LRT Alternative proposes to provide a total of approximately 3,165 off-street parking spaces at the four proposed stations. Parking supply at park and ride facilities was determined largely by the geometric constraints of the property and is conceptual in nature (the estimated maximum supply of parking is presented at each station). In the final design phase, reconfiguration of the parking lots and spaces may be conducted to create more stalls, or additional parking levels may be added to garages.

Three evaluations were conducted with respect to operational impacts to parking: 1) whether the proposed parking supply at each station could accommodate the projected parking demand; 2) whether implementation of the SR 60 LRT Alternative would displace existing off-street parking

spaces (either public or private); and 3) whether implementation of the SR 60 LRT Alternative would eliminate on-street parking.

Based on estimated peak daily demand at park and ride facilities, there would be a surplus at three of the four proposed stations, as shown in **Table 3-10**. The Shops at Montebello station would have a shortfall of approximately 40 spaces. However, Metro would work with the Shops at Montebello to secure additional off-street parking for use by riders of the SR 60 LRT Alternative. As such, there would be no adverse effect to parking based on spillover parking conditions at the proposed stations.

The SR 60 LRT Alternative would result in the removal of existing on- and off-street parking facilities. Approximately 30 off-street parking spaces would be removed due to the physical track structure and TPSS, as well as off-street parking at three of the four proposed stations: Garfield Avenue station, Shops at Montebello station, and Peck Road station. For the Garfield Avenue station and park and ride facilities, approximately 325 off-street spaces would be removed from the southeast corner of the Garfield Avenue/Via Campo intersection. The Shops at Montebello station would remove approximately 400 off-street spaces from the Shops at Montebello shopping center; and the Peck Road station would remove approximately 140 off-street parking spaces and associated businesses. Given the large number of off-street parking spaces that would be displaced at these locations, which would affect the surrounding neighborhoods and result in additional traffic on surrounding streets, this would be considered an adverse effect under NEPA.

Table 3-10. SR 60 LRT Alternative - Proposed Parking Spaces at Stations

Station	Peak Daily Park and Ride Parking Demand	Proposed Station Parking	Estimated Parking Surplus/(Shortfall)
Garfield Avenue	358	425	67
Shops at Montebello	550	510	(40)
Santa Anita Avenue	858	955	93
Peck Road	1,160	1,275	116

Source: AECOM 2014.
Notes:
Consistent with traffic analysis, Peak Daily Park and Ride Parking Demand is based on ridership information. Proposed Station Parking spaces was estimated based on parcel and acquisition information.

Approximately 51 on-street parking spaces would be displaced along Pomona Boulevard. Based on field observations, 33 on-street spaces were occupied as shown in Table 3-8. The number of spaces removed is small enough compared to the overall parking supply that the remaining on- and off-street parking supply would provide sufficient options to offset most impacts of the removal. As such, the displacement of on-street parking would not result in an adverse effect under NEPA.

Impacts to parking are not significant under CEQA because impacts to parking would not cause a physical impact on the environment.

Pedestrian Circulation

During operation of the LRT, pedestrians would use the crosswalks and sidewalks that surround each station. This pedestrian activity would not create severe overcrowding during the peak period that would interfere with pedestrian accessibility, as current pedestrian volumes are relatively low. As such, the surrounding pedestrian facilities would

have sufficient capacity to accommodate the increase in pedestrian volumes and would not result in an adverse effect under NEPA or a significant impact under CEQA.

Design of the SR 60 LRT Alternative would ensure that adequate sidewalk widths are maintained. Additional amenities at proposed station locations, such as shade trees, landscaping, and pedestrian-scale lighting, could serve to further enhance pedestrian circulation. Where park and ride structures are introduced at stations, new signalized and clearly-marked walkways would be necessary for pedestrian circulation to and from the parking facilities and station entrances to avoid potential conflicts with automobiles. Specifically, enhanced pedestrian crossings would be necessary at Garfield Avenue, Shops at Montebello, Santa Anita Avenue, and Peck Road, where pedestrian crosswalks and pathways do not currently exist. With the build out of the station designs, the project would have a beneficial effect to pedestrian conditions.

Bicycle Circulation

The SR 60 LRT Alternative would not directly intersect or adjoin any planned or existing bicycle routes. There are no identified bike routes near the at-grade portions of the SR 60 LRT Alternative along Pomona Boulevard/Via Campo. Beyond this point, the SR 60 LRT Alternative and stations transition to an aerial configuration and continue within the SR 60 Freeway ROW. Therefore, no adverse effects or significant impacts to bicycle circulation would occur under NEPA or CEQA.

However, there would be the potential to connect existing and proposed bike routes at proposed stations to the north-south routes along the Rio Hondo and San Gabriel River, providing a beneficial effect by further integrating the bicycle network with regional transit.

Bicycle parking facilities are proposed for each of the four station locations along the SR 60 LRT Alternative alignment, with or without the North Side Design Variation. A limited number of stations would include bicycle lockers in accordance with Metro design criteria. The addition of bicycle parking would have a beneficial effect on the bicycle network by providing additional facilities and improving bicycle-to-transit connections.

Comparison of Alternative Against Existing Conditions

Construction impacts are anticipated to be the same under both the existing conditions scenario and the year 2035 scenario. The bus transit network, pedestrian ways, and bicycle infrastructure in 2035 are not anticipated to differ greatly from existing conditions. As such, operational impacts for transit, bicycles, and pedestrians would be similar to those described in the year 2035 scenario. No additional impacts would be expected under existing conditions with the addition of the SR 60 LRT Alternative. This finding applies regardless of whether the SR 60 North Side Design Variation is implemented.

Intersections

Six intersections are projected to operate at LOS E or F during one or both of the peak hours under existing conditions with the addition of the SR 60 LRT Alternative. Based on a comparison to 2010 existing conditions, two intersections would be adversely affected by the SR 60 LRT Alternative, as they would exceed the impact criteria:

- Intersection #2 – Atlantic Boulevard/Pomona Boulevard: AM and PM peak hours
- Intersection #63 – Peck Road/Durfee Avenue: AM and PM peak hours

The locations of these intersections are shown in Figure 3-4. Both of these intersections were also impacted in the 2035 scenario. Therefore, no additional intersection impacts would occur under the existing conditions scenario.

Freeway Off-Ramps

The operation of the LRT and the proposed park and ride facilities associated with addition of the SR 60 LRT Alternative under existing conditions would not adversely affect the queue lengths of the freeway ramps in the project area for the 50th or the 95th percentile queues. The ramp queues would not spill over onto the freeway mainline with the addition of the SR 60 LRT Alternative. Therefore, the SR 60 LRT

Alternative would not result in an adverse effect to operations at the study area off-ramps in the existing condition scenario, and no addition impacts would occur compared with the year 2035 scenario.

Parking

The SR 60 LRT Alternative would require the removal of some on-street parking, but replacement parking options with available capacity were found on adjacent streets; therefore, as in the year 2035 scenario, the SR 60 LRT Alternative would not result in an adverse effect to on-street or off-street parking under existing conditions.

Ridership in the existing conditions scenario is projected to be lower than year 2035 ridership; thus, park and ride parking demand would be less and no additional impacts related to spillover parking would occur.

3.3.3.2 Mitigation Measures

Construction Mitigation Measures

The SR 60 LRT Alternative would not have any adverse construction effects under NEPA or significant construction impacts under CEQA related to regional transportation. No mitigation measures for regional transportation are required. Construction-related mitigation measures for transit, intersections, freeway off-ramps, parking, pedestrian circulation, and bicycle circulation impacts are provided below.

3.0-ii Metro would prepare a traffic management plan to facilitate the flow of traffic in and around the construction zone. This mitigation measure would also apply to transit service. Although more measures may be added, typical measures included in a traffic management plan are:

- Schedule a majority of construction-related travel (i.e., deliveries, hauling, and worker trips) during the off-peak hours;
- Construction activities would be minimized during weekday AM and PM peak hours (typically 7:00 to 9:00 AM and 4:00 to 6:00 PM);
- Develop detour routes to facilitate traffic movement through construction zones without significantly increasing cut-through traffic in adjacent residential areas;
- Where feasible, temporarily restripe roadway such as restriping turning lanes, through lanes, and parking lanes at the affected intersections to maximize the vehicular capacity at those locations affected by construction closures;
- Where feasible, temporarily remove on-street parking to maximize the vehicular capacity at those locations affected by construction closures;
- Where feasible, place station traffic control officers at major intersections during peak hours to minimize delays related to construction activities;
- Develop and implement an outreach program to inform the general public about the construction process and planned roadway closures; and
- Develop and implement a program with business owners to minimize effects to businesses during construction activity, including but not limited to signage programs.

Transit

Construction of the SR 60 LRT Alternative (including the SR 60 North Side Design Variation) would result in temporary adverse effects under NEPA and less than significant impacts under CEQA to transit operation, based on the duration and magnitude of construction as shown in Table 2-5.

The traffic management plan discussed above (mitigation measure 3.0-ii) would mitigate temporary disruptions to transit service.

3.0-iii Metro would coordinate with local transit agencies in advance to communicate closures, communicate information on changes to bus service that would result from the SR 60 LRT Alternative, and develop detour routes. Access to businesses and

residences via transit would be maintained at all times throughout construction. Combined, these measures would address the adverse effects.

Regional Transportation

No mitigation measures would be required, as no adverse effects/significant impacts are expected during construction.

Intersections

During the final design phase of the project, the site- and street-specific traffic management plan (mitigation measure 3.0-ii) discussed above would mitigate some of the temporary construction-related adverse effects under NEPA and less than significant impacts under CEQA on intersection operations.

3.0-iv Metro would also coordinate with the local jurisdictions and Caltrans to designate and identify haul routes for trucks and to establish hours of operation. The selected routes should minimize noise, vibration, and other effects.

To the extent practical, traffic lanes will be maintained in both directions, particularly during the morning and afternoon peak hours, and access to adjacent businesses via existing or temporary driveways would be maintained throughout the construction period.

3.0-v Metro would coordinate with local school districts to disclose potential road closures and suggest detour routes for carpooling and accessing schools.

Combined, these measures would address the adverse effects under NEPA and significant impacts under CEQA.

Freeway Off-Ramps

Construction of the SR 60 LRT Alternative may result in temporary adverse effects to freeway ramps, based on the duration and magnitude of construction as shown in Table 2-5, as each eastbound off-ramp from Atlantic Boulevard to Peck Road may need to be temporarily closed when construction reaches the area. The traffic management plan (mitigation measure 3.0-ii) discussed above would mitigate many of the adverse effects under NEPA and significant impacts under CEQA to the freeway off-ramps.

3.0-vi All ramp closures or usage of ramp shoulders would need to be approved by Caltrans before implementation. If ramps are temporarily closed, vehicles would be directed to use upstream or downstream locations that are in close proximity to closed ramps, and adjacent ramps would be kept open to minimize disruptions.

3.0-vii To accommodate any increase in activity at these ramps, modifications to signal timing (including the provision of additional green time or optimization of signal splits) would be required, and implemented by Caltrans for the affected jurisdiction.

Access to businesses and residences along the SR 60 LRT Alternative would be maintained throughout construction.

Combined, these measures would address the adverse effects under NEPA and significant impacts under CEQA.

The SR 60 North Side Design Variation would have additional temporary adverse effects under NEPA and significant impacts under CEQA to the SR 60 Freeway mainline.

3.0-viii To mitigate this potential impact, public notice of all freeway closures would be provided and detour routes would be indicated. With this mitigation measure, since the freeway closures would be temporary in nature, the public would be notified in advance and detour routes would be provided; the closures would not cause an adverse effect to operations. Freeway closures would occur overnight or on weekends when traffic volume is minimal. The other construction mitigation measures discussed above (mitigation measures 3.0-ii through 3.0-vii) would apply equally to the SR 60 North Side Design Variation and also

mitigate its effects under NEPA and impacts under CEQA.

Parking

3.0-ix In addition to the traffic management plan (mitigation measure 3.0-ii) discussed above, Metro would work with the local jurisdictions, agencies, and businesses to implement potential parking mitigation options to help offset temporary losses during the construction period in areas of high commerce and automobile traffic. This would include the identification of potential replacement parking spaces, and the development of a signage and wayfinding program to direct users to the relocated spaces. In addition, as part of the construction phasing plans, efforts would be made to minimize the loss of parking on both sides of the street or on consecutive blocks. Project contractors would provide alternative off-street parking for their employees during the construction period, in order to minimize the loss of parking to adjacent commercial districts. Project contractors would prohibit parking for their employees in adjacent residential neighborhoods in order to minimize the adverse effects to nearby residents.

Combined, these measures would address the adverse effects under NEPA.

Pedestrian Circulation

Construction of the SR 60 LRT Alternative may result in temporary adverse effects under NEPA and less than significant impacts under CEQA to pedestrians, based on the duration and magnitude of construction as shown in Table 2-5.

3.0-x In addition to the traffic management plan discussed above, wayfinding signage, lighting, and access to specific pedestrian safety amenities (for example handrails, fences, and alternative walkways) would be implemented temporarily during the construction period in areas where existing pedestrian and/or bicycle facilities would be affected.

3.0-xi During final design, Metro would coordinate with local agencies to address pedestrian movements. This may help to ensure that only one side of the street would be closed at a time. If crosswalks are temporarily closed, pedestrians would be directed to use one that is in close proximity to closed crosswalks, with adjacent crosswalks remaining open so that pedestrians could cross streets. In addition, access to businesses and residences along the SR 60 LRT Alternative alignment would be maintained throughout construction.

Combined, these measures would address the adverse effects under NEPA and impacts under CEQA.

Bicycle Circulation

Construction of the SR 60 LRT Alternative would result in adverse effects under NEPA and less than significant impacts under CEQA to bicycle circulation, based on the duration and magnitude of construction as described in Table 2-5.

3.0-xii In addition to the traffic management plan discussed above (measure 3.0-ii), on-street bicycle detour routes and signage would be used in areas where existing bicycle facilities would be affected to address temporary effects to bicycle circulation. On-street bicycle detour routes would be developed and appropriate signage would be provided.

3.0-xiii In addition, during final design, Metro would coordinate with local agencies to address bicycle movements. Furthermore, in areas where existing bicycle facilities would be affected, access to businesses and residences via bicycle routes would be maintained at all times throughout construction. In addition, temporary alternative bike routes on complementary streets would be identified as needed.

Combined, these measures would address adverse effects under NEPA and impacts under CEQA.

Operational Mitigation Measures

The SR 60 LRT Alternative would not have any adverse effects under NEPA or significant operational impacts under CEQA related to transit, regional transportation, freeway off-ramps, pedestrians, and bicycles. No permanent long-term adverse effects under NEPA or significant impacts under CEQA to these transportation modes and facilities would occur. No mitigation measures for these topics are required. Operational-related mitigation measures for intersections and parking impacts are provided below.

Transit

No mitigation measures would be required, as no adverse effects or significant impacts are expected. Overall, the SR 60 LRT Alternative would have a beneficial effect on transit conditions in the area.

Regional Transportation

No mitigation measures would be required, as no adverse effects or significant impacts are expected. Overall, the SR 60 LRT Alternative would have a beneficial effect on regional transportation conditions in the area as compared to the No Build Alternative.

Intersections

3.0-xiv Mitigation measures have been proposed to improve the operation of the Santa Anita Avenue/SR 60 EB Ramps. Optimizing signal splits and providing additional green time to approaches with long vehicle queues and high delay would be a mitigation measure. With the incorporation of this measure, the adverse effects under NEPA and significant impacts under CEQA at the intersections of Santa Anita Avenue/SR 60 EB Ramps would be mitigated.

3.0-xv The intersection of Peck Road/Durfee Avenue would provide station access on the east leg of the intersection. The lane configuration of this intersection approach would change from an eastbound all-way middle lane movement to a shared through-left lane and a right-turn lane. In addition, the phasing of this intersection would be updated to accommodate additional traffic volumes and the cycle length of this intersection would be increased to 120 seconds.

With the incorporation of this measure, the adverse effects under NEPA and significant impacts under CEQA at the intersection of Peck Road/Durfee Avenue would be mitigated, as shown in **Table 3-11**.

Freeway Off-Ramps

No mitigation measures would be required, as no adverse effects or significant impacts are expected.

Parking

3.0-xvi For parcels that are adversely affected under NEPA due to the partial acquisition of parking at the Shops at Montebello Station, replacement parking would be provided at the parcel or at a nearby assemblage of parcels. Shared-use parking arrangements would be considered within new Metro facilities. Metro would work with local jurisdictions, businesses and merchants, and commerce associations to implement potential parking mitigation options to help offset losses during operation. At the Shops at Montebello Station, Metro would also work with the Shops at Montebello to identify additional off-street parking facilities that could be used to accommodate the estimated 40-space shortfall. With these additional parking spaces provided, there would be no additional mitigation required as they would address the adverse effects.

Pedestrian Circulation

No mitigation measures would be required, as no adverse effects or significant impacts are expected.

Table 3-11. SR 60 LRT Alternative - LOS Results with Mitigation Measures[1]

#	Intersection	Peak Hour	Year 2035 without Project		SR 60 LRT Alternative		Delay Change	Impact?	SR 60 LRT Alternative With Mitigation Measures		Delay Change	Remaining Impact?
			Delay	LOS	Delay	LOS			Delay	LOS		
57	Santa Anita Avenue/ SR 60 EB Ramps	AM	79.2	E	91.7	F	**12.5**	**Yes**	76.4	E	-2.8	No
		PM	25.1	C	43.5	D	**18.4**	**Yes**	30.0	C	4.9	No
63	Peck Road/ Durfee Avenue	AM	120.7	F	212.5	F	**91.8**	**Yes**	110.7	F	-10.0	No
		PM	119.8	F	193.0	F	**73.2**	**Yes**	118.2	F	-1.6	No

Source: AECOM, 2010.
Notes:
Shading indicates LOS E or LOS F, which typically denotes unacceptable levels of congestion.
Delay is presented in seconds per vehicle.
[1]Mitigation considers measures involving traffic signal adjustments and does not include restriction of turning movements or changes in traffic configurations, since they are not feasible at any of these locations.
LOS = Level of Service EB = Eastbound WB = Westbound

Bicycle Circulation

No mitigation measures would be required, as no adverse effects or significant impacts are expected.

Comparison of Alternative Against Existing Conditions

No additional significant impacts would occur when compared with existing conditions, since traffic conditions would be equal to or better than the year 2035 scenario. Therefore, no mitigation measures are required. The existing condition scenario assumes that the project would be implemented under year 2010 conditions.

3.3.3.3 Impacts Remaining After Mitigation

NEPA Finding

The SR 60 LRT Alternative would have adverse transportation effects during construction and operation that would be addressed through mitigation measures.

CEQA Determination

The SR 60 LRT Alternative would result in significant impacts during construction and operation. Mitigation measures would reduce these impacts below the level of significance.

Comparison of Alternative Against Existing Conditions

No additional impacts would occur under the existing conditions scenario.

3.3.4 Washington Boulevard LRT Alternative

3.3.4.1 Impact Analysis

Construction Impacts

The Washington Boulevard LRT Alternative would not have any significant construction impacts under CEQA or adverse construction effects under NEPA related to regional transportation. Under NEPA, the Washington Boulevard LRT Alternative would have temporary adverse effects during construction on local transit, intersections, freeway off-ramps, parking, and pedestrian and bicycle conditions; however, these effects would be mitigated through traffic management plans and other measures (as documented in Section 3.3.4.2). Analysis of the Washington Boulevard LRT Alternative's effects on these resources is provided in the Transportation Impacts Technical Memorandum, Appendix M, of this Draft EIS/EIR

Transit

At locations with aerial segments, temporary closures of some intersections, lanes, or sidewalks may be necessary during construction, which may result in detours for bus service. Construction of the at-grade portion of the Washington Boulevard LRT Alternative may also require temporary lane closures and turn restrictions at all affected intersections along Washington Boulevard. Since the project would be constructed in segments, these temporary lane closures and turn restrictions would not affect all intersections simultaneously. In addition, Montebello Bus Lines 30 and 70 operate on Garfield Avenue and Montebello Line 50 operates on Washington Boulevard. During construction, temporary re-routing and relocation of bus stops may be needed for these lines.

Throughout the alignment, temporary intersection or lane closures due to construction would cause a reduction in the capacity of the affected road. This reduction in capacity would likely cause vehicular traffic to divert to parallel roadways, thus increasing congestion; this may cause adverse effects by decreasing bus operating speeds along those parallel streets. As a result, construction of the Washington Boulevard LRT Alternative would result in a temporary adverse effect under NEPA and a less than significant impact under CEQA on transit operation, based on the magnitude and duration of construction as described in Table 2-5.

During construction of any of the proposed maintenance yard options for the Washington Boulevard LRT Alternative, temporary closures of roadways and lanes would be required, resulting in potential disruptions to bus service.

For the potential Mission Junction Maintenance Yard Option, service on Metro Lines 70 and 71, which operate on Mission Avenue, may require temporary re-routing and relocation of bus stops, although the site is located in a primarily industrial area. Reduction in lane capacity due to temporary lane closures would decrease bus operating speeds.

For the potential Commerce Maintenance Yard Option located west of Garfield Avenue near the Garfield Avenue/Flotilla Road intersection, two bus lines would be affected by construction. Service on Montebello Lines 30 and 70, which operate on Garfield Avenue, may require temporary re-routing and relocation of bus stops. Reduction in lane capacity due to temporary lane closures would decrease bus operating speeds. Although re-routing would be likely, transit service would need to be maintained during construction.

The Santa Fe Springs Maintenance Yard Option located at Washington Boulevard/Allport Avenue is adjacent to both commercial and industrial development, with minimal transit activity and few bus stops. Only the Montebello Line 50 provides service in the vicinity of the potential maintenance yard. Service on this line may require temporary re-routing and relocation of bus stops. Reduction in lane capacity due to temporary lane closures would decrease bus operating speeds.

Although temporary, the potential disruptions to transit service due to construction of the maintenance yard options may result in adverse effects under NEPA and less than significant impacts under CEQA on transit conditions, based upon the magnitude and duration of construction summarized in Table 2-5.

Regional Transportation

Construction activities for the Washington Boulevard LRT Alternative would result in temporary closures of some regional facilities, such as overnight closures of the SR 60 or I-605 on- and off-ramps. However, since these closures would be temporary and parallel facilities would be available, they would not result in an adverse effect under NEPA, and would have a less than significant impact under CEQA.

Intersections

For the at-grade portions of the alignment, the median would be sectioned off from the rest of the street and construction staging would primarily occur in the median. For the Washington Boulevard LRT Alternative, the majority of the construction would occur in the median of the roadways.

Construction activities associated with the Washington Boulevard LRT Alternative could

temporarily impede traffic mobility at the intersections where at-grade and grade-separated crossings would occur.

At-grade portions of the alignment would be along Pomona Boulevard from Atlantic Boulevard to Sadler Avenue and along Washington Boulevard from Montebello Boulevard to Lambert Road. The project area intersections directly affected by the at-grade sections are Atlantic Boulevard/Pomona Boulevard, Hillview Avenue/Pomona Boulevard, and intersections along Washington Boulevard from Montebello Boulevard to Lambert Road.

Grade-separated portions of the alignment would be from Pomona Boulevard at Sadler Avenue to Washington Boulevard at Montebello Boulevard, and possibly two crossing design options at Rosemead Boulevard and Washington Boulevard and at Pioneer Boulevard and Washington Boulevard, referred to as the Rosemead Boulevard and San Gabriel River/I-605 aerial crossings. Construction of these grade-separated portions would require more substantial equipment, due to the large cranes required to secure precast girders in place. Special staging areas close to the site would be needed to accommodate these large cranes. Erection of the girders would typically be done at night to minimize traffic disruption.

The construction duration for either the SR 60 LRT Alternative or the Washington Boulevard LRT Alternative is estimated to be approximately four to six years, with construction of the SR 60 LRT Alternative most likely taking four years and construction of the Washington Boulevard Alternative most likely taking six years. The Washington Boulevard LRT Alternative would likely require more time to construct than the SR 60 LRT Alternative because of its additional length, as well as the on-street construction activities. Surface streets would be affected through intermittent closures and lane reductions.

Some of the streets along the alignments would need to be either completely reconstructed or widened to accommodate the guideway. Additional street work would be required at all at-grade crossing locations to allow for placement of the track slab and rails and modification of existing curbs, gutters, and sidewalks to accommodate the rail crossing. The construction duration to complete track work for a one-mile segment is estimated to be four months. The estimated construction duration for street widening is five months to one year, depending on the extent of widening and the utility relocation required for a one-mile segment.

Construction vehicles may temporarily impede traffic mobility in the areas of construction. During construction, temporary closure of traffic lanes would be necessary. Relocation of utilities and construction of the trackway and stations would require temporary closure of lanes, which would increase intersection delay and potentially modify existing traffic patterns. As a result, vehicular travel time and intersection operations would be affected.

As currently planned, the alignment would be constructed in approximately one-mile segments in coordination with local municipalities; therefore, not all of the intersections would be closed or modified simultaneously. As such, not all locations would be affected at the same time. These effects would be temporary and adverse under NEPA and less than significant under CEQA.

Construction haul routes would be on existing truck routes and would be located to minimize noise, vibration, and other possible impacts to adjacent businesses and residential neighborhoods. Routes would be confirmed during the preliminary engineering phase and final design phase of the project, but will likely include nearby local streets and major arterials for truck access to and from SR 60 and I-605.

Haul trips would take place during off-peak hours when there is excess capacity on the roadway network. However, haul and delivery truck routes may affect residents and commuters along the alignment. Hauling and general construction traffic may impact traffic flow patterns as well, since there could be minor reductions in roadway capacity and adjustments to existing traffic patterns as drivers bypass congested areas. If this occurs, vehicular travel times and intersection operations could be affected along these roadways.

Potential traffic control measures would be determined in part by construction staging activity for the project. The maintenance of traffic lanes during construction would follow local agency requirements and standards with respect to minimum lane widths, the number of available travel lanes, and the duration of temporary lane closures. Specific street closure locations would be identified in close coordination with local agencies during the final design stage.

During construction of each of the proposed maintenance yard options for the Washington Boulevard LRT Alternative, temporary closures of roadways would be required. Construction of each of the proposed maintenance yard options would include standard methods associated with construction of trackwork and buildings, including demolition of existing facilities, leveling of land, and construction of new sheds and maintenance buildings, as well as track work for storage of light rail vehicles. The Mission Junction Maintenance Yard Option and Commerce Maintenance Yard Option are located in industrially zoned areas far from residences or businesses. Construction activities that would impact traffic operations would typically occur during nighttime and off-peak hours in order to minimize adverse effects. Where construction encroaches on roadways and intersections, the temporary operation and flow of vehicular traffic would be affected. As such, construction of the maintenance yard would result in a temporary adverse effect under NEPA and a less than significant impact under CEQA to intersection operations.

The Santa Fe Springs Maintenance Yard Option is adjacent to both commercial and industrial development. Construction at this site and trackwork on Washington Boulevard would require temporary roadway closures in the eastbound direction along Washington Boulevard. Trackwork would transition from the center median and turn southbound to access the maintenance yard. As such, construction of the Santa Fe Springs maintenance yard would result in a temporary adverse effect to intersection operations under NEPA and a less than significant impact under CEQA.

In general, where construction encroaches on roadways and intersections, the temporary operation and flow of vehicular traffic would be addressed in the traffic management plan as documented in Section 3.4.4.2.

Freeway Off-Ramps

Construction of the Washington Boulevard LRT Alternative may require the temporary closure of all eastbound SR 60 Freeway on- and off-ramps between Atlantic Boulevard and Garfield Avenue when the aerial structures that span the ramps are being installed, or the temporary use of ramp shoulders for construction equipment may also be required. The alignment would be constructed in one-mile segments; therefore, not all of the ramps would be closed simultaneously. Although any ramp closures or shoulder closures would be temporary, they would cause a temporary adverse effect on ramp operations under NEPA and a significant impact under CEQA, and would result in re-routing of vehicles along the SR 60 Freeway mainline to upstream and downstream ramp locations.

An aerial guideway structure requires falsework for vertical support. The falsework system is designed to allow traffic flow during construction. Falsework would be constructed over Findlay Avenue and at the Garfield/Wilcox Avenue off-ramps, Gerhart Avenue undercrossing, Findlay Avenue undercrossing, and Garfield Avenue undercrossing/intersection. Falsework would be designed in accordance with the Caltrans Falsework Manual. The critical phase during construction is the erection, lowering, and removal of falsework. Lowering and removal of falsework would be done during nighttime hours in order to minimize the effects on traffic. If additional time is needed, the aerial guideway would be constructed during a combination of weekend off-ramp closures and staged construction across the affected streets.

Construction of the San Gabriel River/I-605 aerial crossing would likely require a temporary reduction in lane and shoulder widths in order to create additional room in the median to construct support

columns in the median for the proposed bridge. The number of lanes in each direction would not be affected, and the capacity of the freeway would be maintained. In addition, several overnight closures of I-605 would likely be required to erect falsework or place pre-cast structural elements over the freeway. During freeway closures, only one travel direction of the freeway would be closed at a time.

The extent and duration of the closures would depend on a number of factors, including the construction contract limits and individual contractors' choices; closures would be coordinated with each affected jurisdiction. Restrictions on the extent and duration of the closures can be incorporated in the project construction specifications. In some cases, short-term full closures might be substituted for extended partial closures to reduce overall impacts. A rough order of magnitude and duration for particular construction activities is summarized in Table 2-5. The freeway closures would cause an additional temporary adverse effect under NEPA and a significant impact under CEQA to traffic operations.

Parking

During construction of the Washington Boulevard LRT Alternative, current off-street parking facilities would be utilized for the duration of construction for construction activities such as staging for the storage of construction materials and equipment, temporary offices for field personnel, parking for field personnel, and fabrication of construction materials. In addition, space would be needed for the physical construction of the stations and parking facilities which would last for approximately two years.

In particular, off-street construction staging and activities would be located at and adjacent to the proposed stations. At the proposed Garfield Avenue station, the parcel on the southeast corner of the intersection of Via Campo and Garfield Avenue would be utilized for construction staging and construction of the TPSS, resulting in the removal of approximately 410 parking spaces. However, the businesses on the western portion of the parcel would remain.

At the proposed Whittier Boulevard station, approximately 75 off-street parking spaces would be removed in addition to the businesses that utilize the spaces.

The proposed Greenwood Avenue station and park and ride facility would require the full acquisition of businesses and their associated off-street parking spaces (approximately 125 spaces).

At the proposed Rosemead Boulevard station and park and ride facility, approximately 300 off-street parking spaces would be removed. One property is currently a 250-space parking lot that serves a shopping center; however, there is sufficient parking in the remainder of the shopping center to accommodate demand. The displacement of the other properties would also remove the land use and its parking lots.

For the proposed Norwalk Boulevard Station and park and ride facility, approximately 205 off-street parking spaces would be removed, in conjunction with the associated business uses.

At the proposed Lambert Road station and park and ride facility, approximately 510 spaces would be removed at the southwest corner of the Lambert Road/Washington Boulevard intersection. These spaces serve multiple businesses, and adequate replacement parking would not be provided.

Multiple TPSS facilities would be provided along the Washington Boulevard LRT alignment that would require the removal of 149 off-street parking spaces as well as the acquisition of properties (both partial and full). For the partial acquisitions (60 spaces for TPSS-09), replacement parking would be provided elsewhere on the property. In addition, 20 off-street parking spaces would be removed for the Washington Boulevard LRT tail track along Lambert Road.

Although temporary, the potential effects to the off-street parking supply at these locations would result in a temporary adverse effect under NEPA to off-street parking, based on the magnitude and duration of construction as shown in Table 2-5. It should be noted that these off-street parking spaces would also be utilized for other project purposes.

Construction of the Washington Boulevard LRT Alternative would require temporary closure of travel lanes. Consequently, existing on-street parking spaces and loading stalls may need to be temporarily removed. In particular, on-street parking would need to be removed along the north and south sides of Pomona Boulevard between Atlantic Boulevard and Sadler Avenue (approximately 50 spaces), on the east side of Garfield Avenue between Via Campo and Washington Boulevard (approximately 400 spaces), and along most of Washington Boulevard from Broadway to Rivera Road (approximately 250 spaces). These are preliminary estimates; the amount of on-street parking to be removed during construction will be determined during the final design phase of the project and could vary based on various factors, including the construction contract limits and individual contractors' choices. In general, replacement parking options on nearby side streets that could replace the on-street parking removed from these roadways.

On-street parking is predominately available on Garfield Avenue within the Montebello city limits, while on-street parking along Washington Boulevard is mostly restricted to no parking anytime or no parking during the rush hours of 7:00 AM to 9:00 AM and/or 4:00 PM to 6:00 PM. Most businesses along the alignment have off-street parking lots, and side street parking is also available to absorb some of the displaced spaces.

Since construction of the Washington Boulevard LRT Alternative would happen in sections, the parking displacement would be temporary, and replacement parking would be available, there would not be an adverse effect to on-street parking in these segments.

However, one portion of Garfield Avenue from Via Paseo to Via Acosta has high on-street parking occupancy with limited side street parking replacement options. Since the parking displacement would be temporary, parking would be available to the north and south of the segment during construction, and Metro would implement measures to minimize the impact of the displacements, this would not be considered an adverse effect. (See Section 3.3.4.2.)

Rosemead Boulevard Crossing Option

On-street parking is not currently permitted near the Rosemead Boulevard aerial crossing structure. Therefore, the on-street parking losses described for the Washington Boulevard LRT Alternative would remain unchanged with the Rosemead Boulevard aerial crossing.

San Gabriel River/I-605 Crossing Option

On-street parking is not currently permitted near the San Gabriel River/I-605 aerial crossing structure; therefore, the on-street parking losses described for the Washington Boulevard LRT Alternative would remain unchanged with the San Gabriel River/I-605 aerial crossing. The Mission Junction Maintenance Yard Option proposed for the Washington Boulevard LRT Alternative is the same site proposed for the SR 60 LRT Alternative. The impacts and findings are therefore also the same. Construction of the Santa Fe Springs Maintenance Yard Option and trackwork along Washington Boulevard would require temporary roadway closures in the eastbound direction along Washington Boulevard. Removal of on-street parking on Washington Boulevard may be required during construction, but there are replacement parking options on nearby side streets that would accommodate the displaced parking. Since parking displacement would be temporary and replacement parking would be available, there would not be an adverse effect under NEPA to on-street parking in these segments.

Pedestrian Circulation

Temporary closures of sidewalks would be required during construction. The placement of aerial guideway columns and stations may affect sidewalks along the Washington Boulevard LRT Alternative by locating permanent columns within the ROW. For at-grade segments of the Washington Boulevard LRT Alternative, trackway construction and permanent street configuration changes to Washington Boulevard east of Montebello Boulevard would require lane closures for extended periods, and may also require temporary sidewalk

closures. Where construction encroaches on sidewalks, walkways, and crosswalks, pedestrian safety measures such as detour routes and temporary pedestrian shelters would be considered. Pedestrian access to adjacent properties would be affected and would need to be maintained during construction. Although temporary, the potential disruptions to pedestrian circulation would result in a temporary adverse effect under NEPA and a less than significant impact under CEQA to pedestrian conditions, based upon the magnitude and duration of construction summarized in Table 2-5.

During construction of any of the proposed maintenance yard options for the Washington Boulevard LRT Alternative, temporary closures of roadways and sidewalks would be required. Where construction encroaches on sidewalks, walkways, and crosswalks, pedestrian safety measures such as the development of detour routes, temporary pedestrian shelters, sufficient lighting, and clear signage would be considered. The Mission Junction Maintenance Yard Option and Commerce Maintenance Yard Option sites are located in industrially zoned areas where minimal pedestrian activity and sidewalk facilities exist. The Santa Fe Springs Maintenance Yard Option is adjacent to both commercial and industrial development, with minimal pedestrian activity and existing sidewalk facilities. Construction of this maintenance yard and trackwork on Washington Boulevard would require temporary rerouting of pedestrians around closed sidewalks, and the maintenance of access to neighboring businesses. Although temporary, the potential disruptions to pedestrian circulation would result in an adverse effect under NEPA and a less than significant impact under CEQA to pedestrian conditions, based on the magnitude and duration of construction as described in Table 2-5.

Bicycle Circulation

For the Washington Boulevard LRT Alternative, temporary closures of roadways would be required during construction. Temporary lane closures may affect existing and proposed bike routes along Garfield Avenue and along Washington Boulevard between Greenwood Avenue and Paramount Boulevard. In addition, temporary lane closures would interfere with intersecting north-south bike routes at proposed station locations, including Garfield Avenue and Norwalk Boulevard. Bicycle traffic movements would be maintained during construction, but lane reductions and street closures would inhibit the flow of bicycle traffic. In addition, Class I facilities exist along the Rio Hondo and San Gabriel River and intersect with Washington Boulevard; these facilities are grade-separated from Washington Boulevard and pass under the roadway. Construction of LRT on the bridge over these bicycle facilities may temporarily affect these Class I bicycle paths.

The at-grade portions of the Washington Boulevard LRT Alternative along Washington Boulevard include track construction and permanent street configuration changes. Both would require lane closures for extended periods, and may also require temporary sidewalk closures. Construction along Washington Boulevard could shift some of the through traffic movements to Mines Avenue, where portions between Paramount Boulevard and Sorenson Avenue are designated as Class II bicycle lanes and Class III bicycle routes. Consequently, the flow of bicycle traffic could be hampered due to increased traffic volumes on Mines Avenue.

Although temporary, the potential disruptions to bicycle circulation would result in an adverse effect under NEPA and a less than significant impact under CEQA to bicycle conditions, based on the magnitude and duration of construction as described in Table 2-5. Bicycle detours and appropriate signage would help mitigate the temporary effects on the bicycle facilities and their users.

During construction of any of the proposed maintenance yard options for the Washington Boulevard LRT Alternative, temporary closures of roadways would be required. No adverse effects are expected for the proposed Mission Junction Yard. The potential Santa Fe Springs Yard Option is adjacent to commercial and industrial development. Construction of this yard may result in temporary adverse effects to bicyclists based on the duration

and magnitude of construction. A rough order of magnitude and duration for construction activities is summarized in Table 2-5.

In addition to the traffic management plan, on-street bicycle detour routes and signage would be used to address temporary effects to bicycle circulation. On-street bicycle detour routes would be developed in areas where existing bicycle facilities would be affected to address impacts to bicycle movements. Access to businesses and residences via existing bicycle routes would be maintained during construction. In addition, temporary alternative bicycle routes on complementary streets would be identified as needed. Combined, these measures would mitigate adverse effects.

Operational Impacts

The Washington Boulevard LRT Alternative would not have any adverse effects under NEPA or significant operational impacts under CEQA related to transit, regional transportation, or freeway off-ramps. Analysis of the Washington Boulevard LRT Alternative's effects on these resources is provided in the Transportation Impacts Technical Memorandum, Appendix M, of this Draft EIS/EIR. The Washington Boulevard LRT Alternative would have a beneficial impact on transit service and access, although pedestrian ease of access would generally be higher than under the SR 60 LRT Alternative due to the roadway median station locations. However, as discussed in the following sections, the Washington Boulevard LRT Alternative would result in an adverse effort and significant impact related to intersection operations, parking, and bicycles, and on pedestrians for the Santa Fe Springs Maintenance Yard option only.

Transit

Bus operating speeds may decrease because of the proposed traffic lane reductions along the Washington Boulevard LRT Alternative alignment and the resulting increases in traffic congestion. Regionally (at a multi-county level), benefits would be nominal due to the very large project area. However, from an overall countywide perspective, the Washington Boulevard LRT Alternative would have a benefit when compared to both the No Build and TSM Alternatives by increasing levels of transit service and ridership countywide. As such, the Washington Boulevard LRT Alternative would have a beneficial effect under NEPA and less than significant under CEQA.

Regional Transportation

Although minimal, the Washington Boulevard LRT Alternative would have beneficial effects on both a region-wide (multi-county) and project area level. As such, the Washington Boulevard LRT Alternative would have a beneficial effect under NEPA and a less than significant impact under CEQA.

Intersections

Operations at one intersection is projected to improve from LOS C to LOS B during the AM and PM peak hours with the Washington Boulevard LRT Alternative when compared to the No Build Alternative:

- Atlantic Boulevard/SR 60 EB Ramps: AM and PM peak hours (#3 in Figure 3-4)

Based on a comparison with the No Build Alternative conditions, 17 intersections would be adversely effected under NEPA and significantly impacted under CEQA by the Washington Boulevard LRT Alternative, (identification numbers in parentheses correspond to Figure 3-4), as they would exceed the threshold of significance described in Table 3-1:

- Garfield Avenue/Whittier Boulevard: AM and PM peak hours (#21)
- Garfield Avenue/Olympic Boulevard: AM and PM peak hours (#23)
- Garfield Avenue/Ferguson Drive: AM and PM peak hours (#24)
- Garfield Avenue/Flotilla Avenue: PM peak hour (#25)
- Vail Avenue/Washington Boulevard: AM peak hour (#28)
- Maple Avenue/Washington Boulevard: AM and PM peak hours (#29)
- Greenwood Avenue/Washington Boulevard: AM and PM peak hours (#30)

- Montebello Boulevard/Washington Boulevard: AM peak hour (#31)
- Bluff Road/Washington Boulevard: AM and PM peak hours (#32)
- Paramount Boulevard/Washington Boulevard: AM and PM peak hours (#33)
- Crossway Drive/Washington Boulevard: AM and PM peak hours (#34)
- Rosemead Boulevard/Washington Boulevard: AM and PM peak hours (#35)
- Passons Boulevard/Washington Boulevard: AM and PM peak hours (#36)
- Pioneer Boulevard/Washington Boulevard: AM and PM peak hours (#37)
- Norwalk Boulevard/Washington Boulevard: AM and PM peak hours (#38)
- Broadway/Washington Boulevard: AM and PM peak hours (#40)
- Sorensen Avenue/Washington Boulevard: AM and PM peak hours (#41)

An adverse effect under NEPA and a significant impact under CEQA would be caused not only by a degradation of LOS from acceptable (levels A through D) to unacceptable (level E or F), but also by a change in delay beyond the significance criteria. This would occur for the Bluff Road/Washington Boulevard intersection in the PM peak hour, and for the Crossway Drive/Washington Boulevard intersection in the AM peak hour. Other

intersections identified in Figure 3-1 and Table 3-2 as already operating at LOS E or F under existing conditions would experience no substantial changes in performance.

Figure 3-5 illustrates the project area intersections which are projected to operate at LOS E or F under year 2035 project conditions with the Washington Boulevard LRT Alternative. Corresponding intersection names and their LOS are identified in **Table 3-12**.

The Washington Boulevard LRT Alternative would have more grade crossings than the SR 60 LRT Alternative. All grade crossings would be designed in collaboration with the affected cities and the California Public Utilities Commission.

The addition of traffic to the street system as a result of staffing at each of the three potential maintenance yard facilities is not projected to cause an increase in intersection delay.

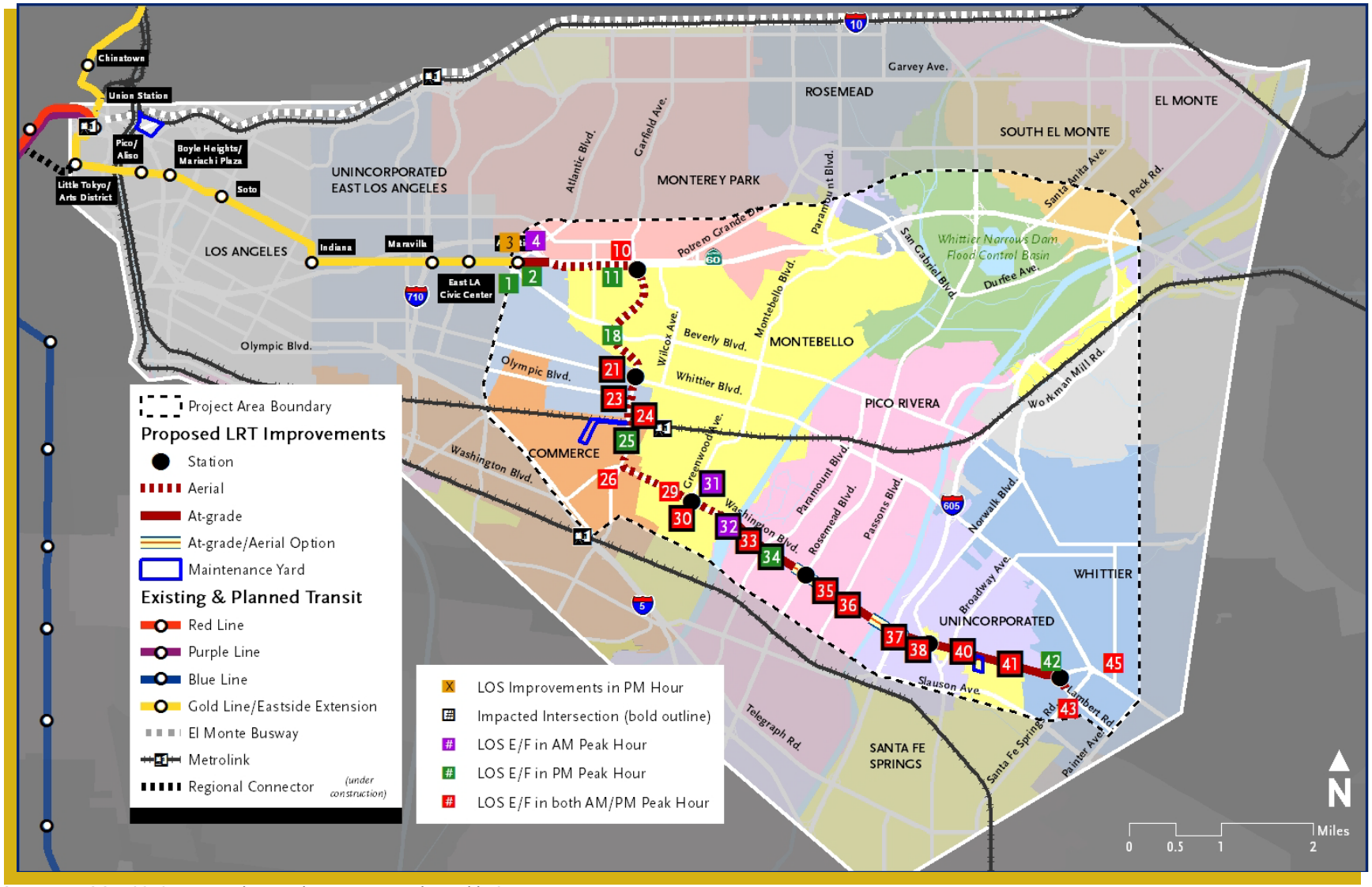
This conclusion was reached because the typical arrival and departure times for employees are outside typical weekday peak travel periods since trains are in operation during those times. Therefore, employees would arrive at the yards before the trains begin operation during the AM peak hour and after the PM peak hour when trains operate at lower frequencies.

The Santa Fe Springs Maintenance Yard Option would operate at-grade along Washington Boulevard. The addition of traffic to the street system as a result of staffing at this facility is not projected to cause any increase in intersection delay. This conclusion was reached because the principal arrival and departure times for employees are outside typical weekday peak travel periods.

Therefore, there would not be adverse effects under NEPA or significant impacts under CEQA to traffic as a result of increased traffic volumes generated to and from the maintenance yard options. However, the geometric configuration of the Santa Fe Springs Maintenance Yard Option would affect traffic operation along Washington Boulevard.

Light rail vehicles being serviced by this maintenance yard would cross eastbound vehicular travel on Washington Boulevard from the center median to the maintenance yard located directly south along Washington Boulevard.

The transition of the LRT vehicles from the median alignment along Washington Boulevard crossing into and out of the maintenance yard would result in an increase in adjacent intersection delay. Adequate grade crossing devices (e.g., crossing gates, flashing signals, and pedestrian safety signage) and improvements to the local streets would be needed for traffic management and to prevent conflicts between pedestrians, LRT vehicles, and other



Source: AECOM 2010. Intersection numbers correspond to Table 3-7

Figure 3-5. LOS E/F and Impacted Intersections – 2035 Washington Boulevard LRT Alternative

Table 3-12. LOS E/F and Impacted Intersections – 2035 Washington Boulevard LRT Alternative Before Mitigation

#	Intersection	2035 AM Peak LOS without Project	2035 PM Peak LOS without Project	2035 AM Peak LOS with Washington Boulevard LRT Alternative	2035 PM Peak LOS with Washington Boulevard LRT Alternative
1	Atlantic Boulevard/ Beverly Boulevard	D	E	D	E
2	Atlantic Boulevard/ Pomona Boulevard	D	E	D	E
4	Atlantic Avenue/1st Street/SR 60 Westbound Ramps	E	C	E	C
10	Garfield Avenue/ Pomona Boulevard	F	E	F	E
11	Garfield Avenue/Via Campo	D	F	D	F
18	Garfield Avenue/ Beverly Boulevard	D	E	D	E
21	Garfield Avenue/Whittier Boulevard	C	D	E	F
23	Garfield Avenue/Olympic Boulevard	C	C	F	F
24	Garfield Avenue/Ferguson Drive	C	B	F	F
25	Garfield Avenue/Flotilla Street	C	C	C	F
26	Garfield Avenue/ Washington Boulevard	F	F	F	F
28	Vail Avenue/Washington Boulevard	C	B	D	C
29	Maple Avenue/Washington Boulevard	C	C	E	E
30	Greenwood Avenue/ Washington Boulevard	D	D	F	F
31	Montebello Boulevard/Washington Boulevard	C	B	E	C
32	Bluff Road/Washington Boulevard	C	C	F	C

Table 3-12. LOS E/F and Impacted Intersections – 2035 Washington Boulevard LRT Alternative Before Mitigation (continued)

#	Intersection	2035 AM Peak LOS without Project	2035 PM Peak LOS without Project	2035 AM Peak LOS with Washington Boulevard LRT Alternative	2035 PM Peak LOS with Washington Boulevard LRT Alternative
33	Paramount Boulevard/ Washington Boulevard	F	F	F	F
34	Crossway Drive/ Washington Boulevard	C	C	D	F
35	Rosemead Boulevard/ Washington Boulevard	F	F	F	F
36	Passons Boulevard/ Washington Boulevard	F	F	F	F
37	Pioneer Boulevard/ Washington Boulevard	F	F	F	F
38	Norwalk Boulevard/Washington Boulevard	F	F	F	F
40	Broadway/Washington Boulevard	E	E	E	F
41	Sorenson Avenue/ Washington Boulevard	E	E	F	F
42	Lambert Road/ Washington Boulevard	D	F	D	F
43	Lambert Road/ Santa Fe Springs Road	F	F	F	F
45	Whittier Boulevard/ Washington Boulevard/ Santa Fe Springs Road	F	F	F	F

Source: AECOM 2010

vehicles specific to this location. The additional at-grade crossing location would result in an adverse effect under NEPA and a significant impact under CEQA on intersection operation.

Freeway Off-Ramps

LRT service along Washington Boulevard would result in a minor decrease in background traffic volumes, as it would increase transit mode share in the area. However, the Washington Boulevard LRT Alternative alignment would cause minor increases in traffic volumes along the SR 60 Freeway mainline and at the off-ramps near the proposed stations, as vehicles would be traveling to and from the proposed park and ride facilities.

The operation of the Washington Boulevard LRT Alternative and its associated park and ride facilities would not cause an adverse effect on the queue lengths of the freeway ramps in the project area for

either the 50th or the 95th percentile queue. As in the No Build scenario, the ramp queues would not spill over to the SR 60 Freeway mainline. Therefore, the Washington Boulevard LRT Alternative would not have an adverse effect or significant impact on operation at the study area off-ramp locations.

Parking

The Washington Boulevard LRT Alternative would provide a total of 3,145 off-street parking spaces at the six proposed stations, as shown in **Table 3-13**. Parking supply at the park and ride facilities was determined largely by the geometric constraints of the property and is conceptual in nature (the estimated maximum supply of parking is presented at each station). During the final design phase, reconfiguration of the parking lots and spaces may be conducted to create more stalls, or additional parking levels may be added to garages.

Three evaluations were conducted with respect to operational impacts to parking: 1) whether the proposed parking supply at each station could accommodate the projected parking demand; 2) whether implementation of Washington Boulevard LRT Alternative would displace existing off-street parking spaces (either public or private); and 3) whether implementation of the Washington Boulevard LRT Alternative would eliminate on-street parking.

Based on estimated peak daily demand at park and ride facilities, there would be a surplus at all of the proposed stations that provide parking, as shown in Table 3-13.

The Whittier Boulevard station would not include park and ride facilities due to space constraints. Property would be acquired to support the construction of a station; however very little property would remain after construction and this would not be sufficient for a park and ride lot. In addition, the station area is built out with commercial and dense housing nearby. As such, additional property acquisitions would result in additional cost and environmental impacts. This would be unlike most of the other stations along the proposed alternatives, where the park and ride lots have been located primarily on underutilized, surface parking lots. Although the lack of parking supply may result in slightly reduced ridership, it may also encourage transit patrons to use other modes to access the stations such as walking, bicycling, transit, and kiss and ride. For example, in the vicinity of the station site there is convenient access to existing Metro bus lines (Lines 18 and 66) with five- to 15-minute headways. The station design would also include features that encourage and invite pedestrians to access the station. Some of these features may include landscaping, lighting, crosswalks, pedestrian paths, pedestrian signals with countdowns, corner bulbs, and bicycle storage, as well as connections to bike lanes. In addition, faced with constrained parking conditions, some drivers may change their travel patterns to use the nearby park and ride facilities at the Greenwood Avenue station or the Garfield Avenue station. Any unmet parking demand would need to find available on-street parking in the surrounding neighborhoods, which currently has some availability.

Overall, the Washington Boulevard LRT Alternative would not result in an adverse effect to parking based on spillover parking conditions at the proposed stations.

The Washington Boulevard LRT Alternative would require the elimination of existing off-street parking facilities near each of the proposed stations, which would result in displaced parking to the surrounding streets and the potential for use of other nearby off-street facilities. Approximately 1,685 parking spaces would be removed, including about 410 spaces at the Garfield Avenue Station, about 75 spaces at the Whittier Boulevard Station, about 125 spaces at the Greenwood Avenue Station, about 300 spaces at the Rosemead Boulevard Station, about 205 spaces at the Norwalk Boulevard Station, about 510 spaces at the Lambert Road Station, and about 60 spaces for the TPSS located on Washington Boulevard between Calobar Avenue and Appledale Avenue.

Table 3-13. Washington Boulevard LRT Alternative - Proposed Parking Spaces

Station	Peak Daily Park and Ride Parking Demand	Proposed Station Parking	Estimated Parking Surplus/(Shortfall)
Garfield Ave.	582	680	98
Whittier Blvd.	0	0	0
Greenwood Ave.	132	340	208
Rosemead Blvd.	258	425	167
Norwalk Blvd.	515	680	165
Lambert Rd.	898	1,020	122

Source: AECOM 2014.
Notes:
Consistent with traffic analysis, Peak Daily Park and Ride Parking Demand is based on ridership information. Proposed Station Parking spaces were estimated based on parcel and acquisition information.

These displaced off-street parking spaces would result in additional parking demand on surrounding streets and the potential for use of other nearby off-street parking facilities. As displaced off-street parking would be an inconvenience to the surrounding neighborhood, this would be considered an adverse effect under NEPA.

The parking acquisitions and displacement totals assume the LRT at-grade crossing options at Rosemead Boulevard and the San Gabriel River/I-605 as further described below.

The Washington Boulevard LRT Alternative includes options for crossing the San Gabriel River and I-605 either at-grade or with an aerial alignment. The aerial (elevated) option is expected to require the same parking acquisitions as the at-grade option.

For the Washington Boulevard LRT Alternative, on-street parking would need to be removed permanently along Pomona Boulevard between Atlantic Boulevard and Sadler Avenue, on Garfield Avenue between Via Campo and Via San Clemente, and along most of Washington Boulevard from Montebello to Whittier. Parking is already prohibited on portions of Garfield Avenue in Montebello and on Washington Boulevard in Pico Rivera. During field visits on both weekdays and weekends, on-street parking along all affected roadway segments was about 27 percent occupied. Most businesses have off-street parking lots, and side street parking is also available to absorb some of the displaced spaces. **Table 3-14** shows the location of potentially displaced on-street parking spaces and potential replacement parking options.

Given the overall on-street parking utilization and available replacement parking supplies, the Washington Boulevard LRT Alternative would result in sufficient options to offset the number of on-street spaces to be removed. Therefore, the Washington Boulevard LRT Alternative would not result in an adverse effect to on-street parking conditions.

Table 3-14. Washington Boulevard LRT Alternative - Affected On-Street Parking Utilization and Replacement Parking Options

Affected Sections along Washington Blvd.	Total Removed Parking Spaces Occupied[1]	Total Parking Spaces Removed	% of Removed Spaces Currently Utilized	Potential Replacement Parking Options
North side of Pomona Blvd. between Atlantic Blvd. and Hillview Avenue	3	10	30%	Via Campo, Fernfield Drive, and Hillview Avenue
South side of Pomona Blvd. between Atlantic Blvd. and Hillview Avenue	11	11	100%	Via Campo and Hillview Avenue
North side of Pomona Blvd. between Hillview and Sadler avenues	11	19	58%	Via Campo, Fernfield Drive, and Hillview Avenue
South side of Pomona Blvd. between Hillview and Sadler avenues	8	11	73%	Via Campo; Hillview and Sadler avenues
East side of Garfield Avenue between Via Campo and Via Paseo	7	17	41%	None required
North side of Washington Blvd. between Montebello Blvd. and Bluff Road	0	19	0%	None required
South side of Washington Blvd. between Montebello Blvd. and Bluff Road	0	30	0%	None required
North side of Washington Blvd. between Sorensen and Appledale avenues	5	29	17%	Appledale Avenue
North side of Washington Blvd. between Gretna and Sorensen avenues	2	23	9%	Gretna and Allport avenues
South side of Washington Blvd. between Gretna and Sorensen avenues	1	29	5%	Gretna and Allport avenues
South side of Washington Blvd. between Sorensen Avenue and Rivera Road	14	22	64%	Sorensen Avenue and Rivera Road
South side of Washington Blvd., between Duchess Drive and Broadway	0	11	0%	None required
Total	62	231	27%	

Source: AECOM, 2010.
[1]Based on field surveys conducted in September 2010.

Pedestrian Circulation

During operation, pedestrians would use the crosswalks and sidewalks that surround each station. The pedestrian activity would not create severe overcrowding during peak periods that would interfere with pedestrian accessibility, as current pedestrian volumes are relatively low.

As such, the surrounding pedestrian facilities would have sufficient capacity to accommodate the increase in pedestrian volumes and this increase would not result in an adverse effect under NEPA or significant impact under CEQA.

Design of the Washington Boulevard LRT Alternative would ensure that adequate sidewalk widths are maintained. Additional amenities at proposed station locations, such as shade trees, landscaping, and pedestrian-scale lighting, could serve to further enhance pedestrian circulation. Where park and ride structures are introduced at stations, new signalized and clearly-marked walkways would be necessary to facilitate pedestrian circulation to and from the parking facilities and station entrances to avoid potential conflicts with automobiles. With the build out of the station designs, the project would have a beneficial effect to pedestrian conditions.

The Santa Fe Springs Maintenance Yard Option is located directly south of Washington Boulevard at Allport Avenue. The alignment would operate in an at-grade configuration along this portion of Washington Boulevard.

The transition of the LRT service between the median alignment along Washington Boulevard and the maintenance yard would create a conflict between the LRT and pedestrians when light rail vehicles are accessing the maintenance yard. Currently, pedestrians can freely navigate this portion of Washington Boulevard without interruption from other modes of travel. This new conflict location would result in an adverse effect under NEPA and a significant impact under CEQA to pedestrian conditions unless adequate safety controls are provided.

Bicycle Circulation

The Washington Boulevard LRT Alternative transitions from an at-grade alignment east of Pomona and Atlantic boulevards to an aerial configuration before the first proposed station location at Via Campo Boulevard and Garfield Avenue. No current or planned bicycle facilities were identified along Pomona Boulevard or Garfield Boulevard within the project area. Although the project would result in localized increases in traffic volumes and bicycle activity, these increases would not result in the potential for hazardous conditions or affect bicycle accessibility. Therefore, the Washington Boulevard LRT Alternative would not have an adverse effect on bicycle conditions in these portions of the corridor; however, effects to the at-grade portion are discussed below.

There is a proposed Class III bicycle route along Washington Boulevard. While Class III facilities permit vehicle cross-flow and shared motor vehicle use, the reduction in travel lanes east of Montebello Boulevard could create conflicts between bicycle and automobile traffic along the at-grade segment of the alignment, resulting in adverse effects under NEPA and less than significant impacts under CEQA to bicycle circulation. Enhanced striping and pavement markings would help to clearly mark the flow of bicycle circulation on Washington Boulevard, and other east-west arterials would be programmed as alternative bike routes.

For both the at-grade and aerial configuration options, bicycle parking facilities are proposed for each station along the alignment. A limited number of stations would include bicycle lockers in accordance with Metro design criteria. The addition of bicycle parking would have a beneficial effect on the bicycle network by providing additional facilities and improving bicycle-to-transit connections.

Comparison of Alternative Against Existing Conditions

Construction impacts are anticipated to be the same under both the existing conditions scenario and the year 2035 scenario.

The bus transit network and pedestrian and bicycle infrastructure in 2035 are not anticipated to differ greatly from existing conditions. As such, operational impacts for transit, bicycles, and pedestrians would be similar to those described in the year 2035 scenario. No additional impacts would be expected under existing conditions with the addition of the Washington Boulevard LRT Alternative. This finding applies regardless of whether the Rosemead Boulevard Crossing Option and/or the I-605/San Gabriel River Crossing Option are implemented.

Intersections

Twelve intersections would be adversely affected by the addition of the Washington Boulevard LRT Alternative to the existing conditions scenario, as they would exceed the impact criteria:

- Intersection #21 – Garfield Avenue/Whittier Boulevard: PM peak hour
- Intersection #23 – Garfield Avenue/Olympic Boulevard: AM and PM peak hours
- Intersection #24 – Garfield Avenue/Ferguson Drive: AM and PM peak hours
- Intersection #25 – Garfield Avenue/Flotilla Avenue: PM peak hour
- Intersection #30 – Greenwood Avenue/Washington Boulevard: AM peak hour
- Intersection #33 – Paramount Boulevard/Washington Boulevard: AM and PM peak hours
- Intersection #34 – Crossway Drive/Washington Boulevard: PM peak hour
- Intersection #35 – Rosemead Boulevard/Washington Boulevard: AM and PM peak hours
- Intersection #36 – Passons Boulevard/Washington Boulevard: AM and PM peak hours
- Intersection #37 – Pioneer Boulevard/Washington Boulevard: AM and PM peak hours
- Intersection #38 – Norwalk Boulevard/Washington Boulevard: AM and PM peak hours
- Intersection #41 – Sorensen Avenue/Washington Boulevard: AM and PM peak hours

The locations of these intersections are shown in Figure 3-5. All of these intersections were also impacted in the 2035 scenario. Therefore, no additional intersection impacts would occur under the existing conditions scenario.

Freeway Off-Ramps

The operation of the LRT and the proposed park and ride facilities associated with addition of the Washington Boulevard LRT Alternative under existing conditions would not adversely affect the queue lengths of the freeway ramps in the project area for the 50th or the 95th percentile queues. The ramp queues would not spill over onto the freeway mainline with the addition of the Washington Boulevard LRT Alternative. Therefore, the Washington Boulevard LRT Alternative would not result in an adverse effect to operations at the study area off-ramps in the existing condition scenario, and no additional impacts would occur compared with the year 2035 scenario.

Parking

The Washington Boulevard LRT Alternative would require the removal of some on-street parking, but replacement parking options with available capacity were found on adjacent streets; therefore, as in the 2035 scenario, the Washington Boulevard LRT Alternative would not result in an adverse effect to on-street or off-street parking under existing conditions.

Ridership in the existing conditions scenario is projected to be lower than year 2035 ridership; thus, demand at park and ride facilities would be less and no impacts related to spillover parking would occur.

3.3.4.2 Mitigation Measures

Construction Mitigation Measures

The Washington Boulevard LRT Alternative would not have any adverse construction effects under NEPA or significant construction impacts under CEQA related to regional transportation. No mitigation measures for regional transportation are required. Construction-related mitigation measures for transit, intersections, freeway off-ramps, parking, pedestrian circulation, and bicycle circulation impacts are provided below.

Metro would prepare a traffic management plan to facilitate the flow of traffic in and around the construction zone. This mitigation measure would also apply to transit service. The same mitigation measure described for the SR 60 LRT Alternative (mitigation measure 3.0-ii), which is identified above in Section 3.3.3.2 and summarized in Table ES-2, would also apply to the Washington Boulevard LRT Alternative.

Transit

Construction of the Washington Boulevard LRT Alternative would result in temporary adverse effects under NEPA and less than significant impacts under CEQA to transit operations, based on the duration and magnitude of construction as shown in Table 2-5.

The traffic management plan discussed above (mitigation measure 3.0-ii) would mitigate temporary disruptions to transit service.

Metro would coordinate with local transit agencies in advance to communicate closures, communicate information on any changes to bus service that would result from the Washington Boulevard LRT Alternative, and develop detours. The same mitigation measure described for the SR 60 LRT Alternative (Mitigation Measure 3.0-iii), which is identified above in Section 3.3.3.2 and summarized in Table ES-2, would also apply to the Washington Boulevard LRT Alternative.

Construction of the San Gabriel River/I-605 aerial crossing option may result in temporary additional adverse effects to transit operations, based on the duration and magnitude of construction as shown in Table 2-5, specifically on the I-605 Freeway. The traffic management plan discussed above (mitigation measure 3.0-ii) would mitigate temporary disruptions to transit service. In addition, Metro would coordinate with local transit agencies in advance to communicate closures, communicate information on any changes to bus service, and develop detour routes. Combined, these measures would address the adverse effects under NEPA and impacts under CEQA.

Regional Transportation

No mitigation measures would be required, as no adverse effects or significant impacts are expected.

Intersections

During the final design phase of the project, the site- and street-specific traffic management plan (mitigation measure 3.0-ii) discussed above would mitigate temporary adverse effects under NEPA and less than significant impacts under CEQA of construction on intersection operations.

Metro would also coordinate with the local jurisdictions and Caltrans to designate and identify haul routes for trucks and establish hours of operation. The same mitigation measure described for the SR 60 LRT Alternative (mitigation measure 3.0-iv), which is identified above in Section 3.3.3.2 and summarized in Table ES-2, would also apply to the Washington Boulevard LRT Alternative.

Combined, these measures would address adverse effects under NEPA and impacts under CEQA.

Freeway Off-Ramps

Construction of the Washington Boulevard LRT Alternative may result in temporary adverse effects under NEPA and significant impacts under CEQA to freeway ramps, based on the duration and magnitude of construction, as each eastbound on- and off-ramp from Atlantic Boulevard to Garfield Avenue may need to be temporarily closed when construction reaches the area. The traffic management plan (mitigation measure 3.0-ii) discussed above would mitigate many of the adverse effects to the freeway off-ramps.

Access to businesses and residences along the Washington Boulevard LRT Alternative would be maintained throughout construction. Combined, these measures would address the temporary and adverse effects under NEPA and impacts under CEQA.

3.0-xvii The San Gabriel River/I-605 aerial crossing would have additional temporary adverse effects under NEPA and significant impacts under CEQA to the I-605 Freeway mainline. To mitigate this potential impact, public notice of all freeway closures would be provided and detour routes would be indicated. With this mitigation measure, since the freeway closures would be temporary in nature, the public would be notified in advance and detour routes would be provided; the closures would not cause an adverse effect under NEPA or a significant impact under CEQA to operations. Freeway closures would occur overnight or on weekends when traffic volume is minimal. The other construction mitigation measures discussed above (3-0-ii through 3.0-iv) would apply equally to the San Gabriel River/I-605 aerial crossing and would also mitigate its effects under NEPA and impacts under CEQA.

Parking

The same mitigation measures described for the SR 60 LRT Alternative (mitigation measure 3.0-ii and 3.0-ix), which are identified above in Section 3.3.3.2 and summarized in Table ES-2, would also apply to the Washington Boulevard LRT Alternative.

Combined, these measures would address adverse effects under NEPA.

Pedestrian Circulation

The same mitigation measures described for the SR 60 LRT Alternative (mitigation measure 3.0-x and 3.0-xi), which are identified above in Section 3.3.3.2 and summarized in Table ES-2, would also apply to the Washington Boulevard LRT Alternative.

Combined, these measures would address temporary and adverse effects under NEPA and impacts under CEQA.

Bicycle Circulation

The same mitigation measures described for the SR 60 LRT Alternative (mitigation measure 3.0-ii, 3.0-xii, and 3.0-xiii), which are identified above in Section 3.3.3.2 and summarized in Table ES-2, would also apply to the Washington Boulevard LRT Alternative.

Combined, these measures would address the adverse effects under NEPA and impacts under CEQA.

Operational Mitigation Measures

The Washington Boulevard LRT Alternative would not have any adverse operational effects under NEPA or significant operational impacts under CEQA related to transit, regional transportation, or freeway off-ramps. No permanent long-term adverse effects under NEPA or significant impacts under CEQA to these transportation modes and facilities would occur. No mitigation measures regarding these topics are required. Operational-related mitigation measures for intersections, parking, pedestrian circulation, and bicycle circulation impacts are provided below.

Transit

No mitigation measures would be required, as no adverse effects or significant impacts are expected. Overall, the Washington Boulevard LRT Alternative would have a beneficial effect on transit conditions in the area.

Regional Transportation

No mitigation measures would be required, as no adverse effects or significant impacts are expected. Overall, the Washington Boulevard LRT Alternative would have a beneficial effect on transit conditions in the area as compared to the No Build Alternative.

Intersections

Potential improvements were applied to the adversely affected intersections in the following order:

- Optimized signal splits and manually altered green times, if necessary;
- Increase the cycle length;
- Update signal phasing; and
- Lane configuration changes, such as restriping turning, through, and parking lanes at the affected intersections where feasible.

3.0-xviii With the implementation of the following mitigation measures, the adverse effect under NEPA and significant impacts under CEQA at the following intersection would be mitigated:

Montebello Boulevard/Washington Boulevard: AM peak hour (#31). Optimizing signal splits and providing additional green time to approaches with long vehicle queues and high delay would be a mitigation measure. With the incorporation of these measures, the substantial adverse effects at the intersection of Montebello Boulevard/Washington Boulevard could be mitigated.

For the 16 remaining intersections, additional mitigation measures were investigated to improve conditions. Further mitigation measures, such as lane configuration changes that would increase capacity of the roadways or restrictions in allowable turning movements, were considered infeasible due to ROW constraints or secondary effects to upstream and downstream locations.

Since the remaining adversely affected intersections could not be mitigated, impacts would be adverse and unavoidable under NEPA and significant and unavoidable under CEQA, as shown in **Table 3-15**.

The grade separation of the Rosemead Boulevard aerial crossing may slightly improve operation of the Rosemead Boulevard/Washington Boulevard intersection as compared with the at-grade option at this intersection. Similarly, the grade separation of the San Gabriel River/I 605 aerial crossing may slightly improve operation of the Passons Boulevard/Washington Boulevard intersection as compared with the at-grade option at this location. However, the intersections would continue to operate with unacceptable levels of service regardless of whether the grade separations are implemented. Mitigation measures would be applied, but would not be able to reduce the significance of these impacts under CEQA. Effects would continue to be adverse under NEPA.

Freeway Off-Ramps

No mitigation measures would be required, as no adverse effects or significant impacts are expected.

Parking

3.0-xix For parcels that would be affected by the acquisition of parking, replacement parking would be provided at the parcel or at a nearby assemblage of parcels. Shared-use parking arrangements would be considered within new Metro facilities. Metro would work with local jurisdictions, businesses and merchants, and commerce associations to implement potential parking mitigation options to help offset losses during operation.

Pedestrian Circulation

Mitigation measures are required to address adverse effects under NEPA and significant impacts under CEQA at the proposed station locations where inadequate pedestrian crosswalks and sidewalks are not included in the final designs, especially at the at-grade stations.

3.0-xx Additional enhancement to the existing crosswalks at each proposed station location would be implemented to further improve pedestrian circulation.

3.0-xxi Where park and ride structures are introduced at stations, new signalized and clearly marked walkways would be necessary for pedestrian circulation to and from the parking facilities and station entrances. For example, new at-grade crosswalks with marked pavement and flashing crossing lights would help to address potential conflicts with pedestrians.

Table 3-15. Washington Boulevard LRT Alternative - LOS Results with Mitigation Measures[1]

#	Intersection	Peak Hour	Year 2035 without Project		Washington Blvd. LRT Alternative		Delay Change	Impact?	Washington Blvd. LRT Alternative With Mitigation Measures		Delay Change	Remaining Impact?
			Delay	LOS	Delay	LOS			Delay	LOS		
21	Garfield Avenue/ Whittier Blvd.	AM	33.5	C	55.5	E	**22.0**	**Yes**	50.2	D	**16.7**	**Yes**
		PM	54.5	D	138.9	F	**84.4**	**Yes**	120.6	F	**66.1**	**Yes**
23	Garfield Avenue/ Olympic Blvd.	AM	27.1	C	90.8	F	**63.7**	**Yes**	90.8	F	**63.7**	**Yes**
		PM	34.8	C	130.8	F	**96.0**	**Yes**	130.8	F	**96.0**	**Yes**
24	Garfield Avenue/ Ferguson Drive	AM	22.7	C	102.7	F	**80.0**	**Yes**	88.9	F	**66.2**	**Yes**
		PM	16.4	B	103.0	F	**86.6**	**Yes**	75.3	E	**58.9**	**Yes**
25	Garfield Avenue/ Flotilla Street	AM	22.8	C	22.0	C	-0.8	No	--	--	--	No
		PM	28.6	C	101.3	F	**72.7**	**Yes**	78.3	E	**49.7**	**Yes**
28	Vail Avenue/ Washington Blvd.	AM	20.8	C	35.7	D	**14.9**	**Yes**	35.7	D	**14.9**	**Yes**
		PM	18.2	B	24.8	C	6.6	No	--	--	--	No
29	Maple Avenue/ Washington Blvd.	AM	30.4	C	78.0	E	**47.6**	**Yes**	42.2	D	**11.8**	**Yes**
		PM	25.5	C	64.6	E	**39.1**	**Yes**	38.7	D	**13.2**	**Yes**
30	Greenwood Avenue/ Washington Blvd.	AM	42.0	D	109.9	F	**67.9**	**Yes**	90.3	F	**48.3**	**Yes**
		PM	50.0	D	121.3	F	**71.3**	**Yes**	78.2	E	**28.2**	**Yes**
31	Montebello Blvd./ Washington Blvd.	AM	26.1	C	65.5	E	**39.4**	**Yes**	32.8	C	6.7	No
		PM	14.2	B	21.0	C	6.8	No	--	--	--	No
32	Bluff Road/ Washington Blvd.	AM	23.8	C	102.0	F	**78.2**	**Yes**	80.2	F	**56.4**	**Yes**
		PM	20.7	C	32.6	C	**11.9**	**Yes**	30.4	C	9.7	No
33	Paramount Blvd./ Washington Blvd.	AM	110.8	F	189.1	F	**78.3**	**Yes**	176.0	F	**65.2**	**Yes**
		PM	139.0	F	235.3	F	**96.3**	**Yes**	217.4	F	**78.4**	**Yes**
34	Crossway Drive/ Washington Blvd.	AM	22.7	C	38.5	D	**15.8**	**Yes**	36.2	D	**13.5**	**Yes**
		PM	33.4	C	130.7	F	**97.3**	**Yes**	115.0	F	**81.6**	**Yes**

Table 3-15. Washington Boulevard LRT Alternative - LOS Results with Mitigation Measures[1] (continued)

#	Intersection	Peak Hour	Year 2035 without Project		Washington Blvd. LRT Alternative		Delay Change	Impact?	Washington Blvd. LRT Alternative With Mitigation Measures		Delay Change	Remaining Impact?
			Delay	LOS	Delay	LOS			Delay	LOS		
35	Rosemead Blvd./ Washington Blvd.	AM	119.6	F	199.6	F	**80.0**	**Yes**	192.3	F	**72.7**	**Yes**
		PM	143.2	F	234.6	F	**91.4**	**Yes**	228.9	F	**85.7**	**Yes**
36	Passons Blvd./ Washington Blvd.	AM	89.7	F	203.7	F	**114.0**	**Yes**	191.5	F	**101.8**	**Yes**
		PM	88.6	F	229.3	F	**140.7**	**Yes**	214.8	F	**126.2**	**Yes**
37	Pioneer Blvd./ Washington Blvd.	AM	143.9	F	311.6	F	**167.7**	**Yes**	236.3	F	**92.4**	**Yes**
		PM	151.1	F	301.9	F	**150.8**	**Yes**	215.3	F	**64.2**	**Yes**
38	Norwalk Blvd./ Washington Blvd.	AM	112.6	F	151.5	F	**38.9**	**Yes**	117.9	F	**5.3**	**Yes**
		PM	135.7	F	235.5	F	**99.8**	**Yes**	190.3	F	**54.6**	**Yes**
40	Broadway/Washington Blvd.	AM	62.7	E	71.2	E	**8.5**	**Yes**	65.2	E	**2.5**	**Yes**
		PM	57.6	E	87.5	F	**29.9**	**Yes**	76.1	E	**18.5**	**Yes**
41	Sorensen Avenue/ Washington Blvd.	AM	65.1	E	123.0	F	**57.9**	**Yes**	123.9	F	**58.8**	**Yes**
		PM	68.9	E	115.5	F	**46.6**	**Yes**	112.0	F	**43.1**	**Yes**

Source: AECOM, 2010.
Notes:
Shading indicates LOS E or LOS F, which typically denote unacceptable levels of congestion.
Delay is presented in seconds per vehicle.
[1]Mitigation considers measures involving traffic signal adjustments and does not include restriction of turning movements or changes in traffic configurations since they are not feasible at any of these locations. LOS = Level of Service EB = Eastbound WB = Westbound

3.0-xxii Metro would prepare a community linkages study that would document preferred pedestrian access to each station, general pedestrian circulation in the immediate vicinity of the station, and potential sites for connections to nearby bus services. The purpose of this study would include ensuring sufficient circulation, access, and information important to users of the transit system. The results of the study would be implemented through coordination between Metro and local jurisdictions.

In addition, other techniques to increase pedestrian safety may be implemented, such as educational programs for local businesses, marketing and advertising campaigns, and consistent signage. Programs would be instituted via a combination of outreach strategies and information available on the Metro website.

Combined, these measures would address adverse effects under NEPA and impacts under CEQA.

Bicycle Circulation

Mitigation measures are required to address adverse effects under NEPA and less than significant impacts under CEQA to bicycle circulation for the Washington Boulevard LRT Alternative at-grade segment along Washington Boulevard.

3.0-xxiii Enhanced striping and pavement markings would help to clearly mark the flow of bicycle circulation on Washington Boulevard.

As part of the community linkages study discussed above (mitigation measure 3.0-xvi), Metro would document bicycle network improvements. Identification and enhancement of alternative bike routes on parallel streets would be documented as part of the study. Metro would also document bicycle parking at each of the proposed stations.

Combined, these measures would address adverse effects under NEPA and impacts under CEQA.

Comparison of Alternative Against Existing Conditions

No additional significant impacts would occur under the existing condition scenario, since traffic conditions would be equal to or better than in the year 2035 scenario. Therefore no mitigation measures are required.

3.3.4.3 Impacts Remaining After Mitigation

NEPA Finding

The Washington Boulevard LRT Alternative would have adverse transportation effects during construction that would be addressed through mitigation measures.

The Washington Boulevard LRT Alternative would have unavoidable adverse transportation effects during operation that cannot be addressed through mitigation measures.

CEQA Determination

The Washington Boulevard LRT Alternative would result in significant impacts during construction. Mitigation measures would reduce these impacts below the level of significance. The Washington Boulevard LRT Alternative would result in significant impacts during operation. No feasible mitigation measures exist that would reduce these impacts below the level of significance.

Comparison of Alternative Against Existing Conditions

No additional impacts would occur under the existing condition scenario.

Chapter 4

Environmental Analysis, Consequences, and Mitigation

Section 4.1 Introduction

This chapter discusses the existing conditions, environmental impacts, mitigation measures, and impacts after mitigation for each of the alternatives for the Eastside Transit Corridor Phase 2 Project. The analysis is based on federal and state requirements and guidelines. The National Environmental Policy Act (NEPA) and the California Environmental Quality Act (CEQA) require the evaluation of potential effects of proposed government actions on the environment. Each significant impact on the environment must be disclosed in the CEQA EIR process and must be mitigated, if feasible. NEPA refers to adverse effects and requires this same evaluation process. Since this is a joint NEPA EIS/CEQA EIR, each section in this chapter concludes with both a NEPA finding and a CEQA determination. When discussing NEPA findings, the terminology used in this analysis includes "no adverse effect" and "adverse effect." When discussing CEQA determinations, the terminology used in this analysis includes "no impact," "less than significant impact," and "significant impact."

NEPA requires federal agencies to prepare an EIS for any proposed action "significantly affecting the quality of the human environment." According to 40 CFR 1508.27, the term "significantly" is based on the criteria of context and intensity. Consideration of context means that the significance of an action must be analyzed in several contexts such as society as a whole (human and national), the affected region, the affected interests, and the locality. Intensity refers to the severity of an impact.

There are instances when an impact can be adverse under NEPA but not significant under CEQA if CEQA thresholds are not exceeded. The converse can also be true: impacts can be significant under CEQA but not considered adverse under NEPA.

For a majority of the environmental disciplines, project alternatives are compared with existing conditions in this chapter. However Section 4.7, Air Quality, Section 4.8, Climate Change, and Section 4.13, Energy Resources, use the year 2035 as a future baseline for determining environmental impacts. For these disciplines, the comparison of the project with the existing conditions (2010), as upheld by the Sunnyvale CEQA decision (Sunnyvale West Neighborhood Assoc. v. City of Sunnyvale, 190 Cal. App. 4th 1351 [2010]), is provided under the "Comparison of Alternatives against Existing Conditions" subsection. The determination of significant impacts based on a comparison with the existing conditions (2010) for these disciplines is discussed in more detail in Appendix GG, Existing Plus Project Conditions.

This chapter focuses on the short-term, temporary construction impacts and long-term, permanent operational impacts associated with the project alternatives. Cumulative impact discussions are provided in Section 4.19, Cumulative Impacts. Construction impacts are discussed in more detail in Appendix EE, Construction Impacts Technical Memorandum, and cumulative impacts are discussed in more detail in Appendix FF, Cumulative Impacts Technical Memorandum, of this Draft EIS/EIR.

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Section 4.2

Land Use and Development

This section summarizes the existing land uses and developments in the project area, and the potential impacts of the proposed alternatives on these resources. Information in this section is based on, and updated where appropriate from, the Land Use and Development Opportunities Technical Memorandum, which is incorporated into this Draft EIS/EIR as Appendix N.

4.2.1 Regulatory Framework/Methodology

As illustrated in **Figure 4.2-1**, the general plans and zoning ordinances have been reviewed for following jurisdictions: Los Angeles County and the cities of Commerce, Los Angeles, Montebello, Monterey Park, Pico Rivera, Rosemead, Santa Fe Springs, South El Monte, and Whittier. The following land use plans have also been reviewed: East Los Angeles Community Plan, Montebello Hills Specific Plan, Rancho de Bartolo Specific Plan Amendment, Whittier Boulevard Specific Plan, Whittier Commercial Corridor Redevelopment Plan, and the 2011 Whittier Narrows Dam Basin Master Plan. The Southern California Association of Governments' (SCAG) 2012-2035 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS), which covers a six-county region including the project area and this plan, has also been reviewed. **Table 4.2-1** briefly summarizes relevant land use goals and policies associated with each plan. More information about these plans is available in Appendix N, Land Use and Development Opportunities Technical Memorandum, of this Draft EIS/EIR.

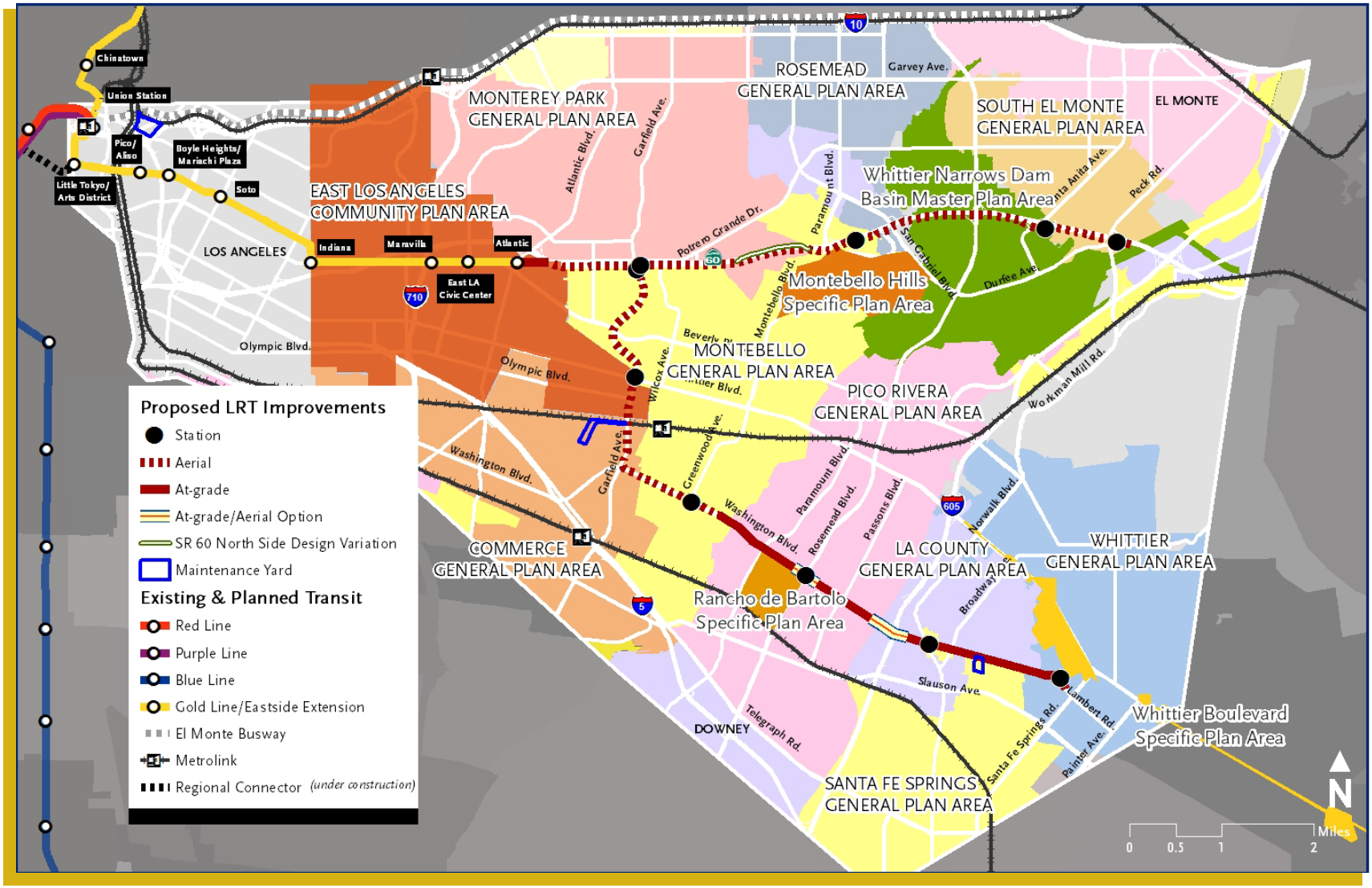
The Partnership for Sustainable Communities livability principles were also reviewed. The livability principles, developed by the U.S. Environmental Protection Agency (USEPA), U.S. Department of Housing and Urban Development (HUD), and U.S. Department of Transportation (USDOT), aim to help improve access to affordable housing, create more transportation options, and lower transportation costs while protecting the environment in communities nationwide.

The National Environmental Policy Act (NEPA) and the *California Environmental Quality Act (CEQA) Guidelines* provide criteria for evaluating potential effects on land use and development. These criteria define an adverse effect/significant impact as one that would:

- Conflict or be incompatible with adjacent and surrounding land uses caused by degradation or disturbances that substantially diminish the quality of a particular land use; or
- Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect.

Impact analysis methodology was based on an inventory of existing land uses adjacent to each alternative alignment. The catalogue of land uses relied on general plan land use designations, zoning ordinance designations, and observations made during site reconnaissance. Land use maps included in this section illustrate the land use designations for parcels adjacent to the alternative alignments.

The potential for the operation of each alternative to conflict with existing land uses or any applicable land use plan, policy, or regulation was evaluated in Appendix N, Land Use and Development Opportunities Technical Memorandum, and is summarized below in Section 4.2.3.



Source: CDM 2011.

Figure 4.2-1. Project Area General Plans and Specific Plans

Table 4.2-1. Relevant Land Use Plans and Policies

Planning Jurisdiction	Adopted Plans	Relevant Goals and Policies
SCAG	2012 RTP	The policies and goals of the RTP focus on the need to coordinate land use and transportation decisions to manage travel demand. Goals include: Align the plan investments and policies with improving regional economic development and competitiveness. Maximize mobility and accessibility for all people and goods in the region. Ensure travel safety and reliability for all people and goods in the region. Preserve and ensure a sustainable regional transportation system. Maximize the productivity of our transportation system. Protect the environment and health of our residents by improving air quality and encouraging active transportation (non-motorized transportation, such as bicycling and walking). Encourage land use and growth patterns that facilitate transit and non-motorized transportation.
Los Angeles County	Los Angeles County General Plan	Concentrate high-density housing in and adjacent to centers to provide convenient access to jobs and services without sacrificing livability or environmental quality. Emphasize channeling new intensive commercial development into multi-purpose centers. Promote compatible land use arrangements that reduce the reliance on private automobiles in order to minimize related social, economic, and environmental costs. Achievement of an efficient, well-balanced, integrated, multimodal transportation system that will satisfy short- and long-term travel needs for the movement of people and goods.
	East Los Angeles Community Plan	Increase economic growth and job creation with priority to jobs accessible by public transportation. Provide for new development which is compatible with and complements existing uses.
Commerce	Commerce General Plan	Promote the operation and enhancement of regional and inter-city transit systems and the reduction of vehicle miles traveled (VMT).
Los Angeles	Los Angeles General Plan	Enhance Los Angeles County's rail system, including extensions and feeder bus service.
Montebello	Montebello General Plan	Facilitate traffic movement. Provide ample commercial facilities to meet the needs of residents. Provide opportunities for a variety of living needs.

Table 4.2-1. Relevant Land Use Plans and Policies (continued)

Planning Jurisdiction	Adopted Plans	Relevant Goals and Policies
	Montebello Hills Specific Plan	Connect residential areas to existing public transit facilities and existing commercial and business land use areas.
Monterey Park	Monterey Park General Plan	Make public transportation convenient, safe, and responsive to changing transit demands. Create opportunities for new commercial business growth in areas of the city well-served by the circulation network. Operating Industries, Inc. (OII)/Edison Focus Area: Encourage development and reuse within the focus area; and Coordinate with Caltrans to enhance the appearance of the SR 60 Freeway frontage bordering the focus area.
Pico Rivera	Pico Rivera General Plan	Encourage and support accessible, safe, and efficient public transit opportunities as a viable alternative to automobiles. Support the use of alternative transportation through the development of facilities which support and accommodate these services. Integrate alternative transportation into new developments to reduce the need for parking.
	Rancho de Bartolo Specific Plan Amendment	Provide new employment opportunities for the city and the region. Promote new development that will benefit the city.
Rosemead	Rosemead General Plan	Promote the linking of local public transit routes with that of adjacent jurisdictions and other transit agencies. Expand opportunities for concentrated commercial and industrial uses that contribute jobs and tax revenues to the community. Encourage mixed-use development as a means of upgrading established uses and developing vacant parcels along arterials and providing new commercial, residential, and employment opportunities. Encourage pedestrian-friendly commercial and residential planned developments wherever possible.
Santa Fe Springs	Santa Fe Springs General Plan	Provide an environment to stimulate local employment, community spirit, property values, community stability, tax base, and the viability of local business. Support the development of regional facilities which ensure the safe and efficient movement of people and goods from within the city to areas outside its boundaries, and which accommodate regional travel demands of adjacent areas outside the city. Encourage major new development that is designed in a manner which facilitates provision or expansion of transit service.

Table 4.2-1. Relevant Land Use Plans and Policies (continued)

Planning Jurisdiction	Adopted Plans	Relevant Goals and Policies
South El Monte	South El Monte General Plan	Facilitate and encourage the development of local- and regional-serving commercial uses, specifically north and south of SR 60 along Santa Anita Avenue. Encourage the development of regional-serving commercial uses south of the SR 60 Freeway at Santa Anita Avenue. Facilitate the development of freeway-oriented commercial uses on commercial properties along Santa Anita Avenue between the SR 60 Freeway and Central Avenue. Create opportunities for multi-family housing development.
Whittier	Whittier General Plan	Encourage the development of mixed-use districts. Provide a comprehensive public transportation system and alternative modes of transit. Reduce emissions associated with VMT through encouragement of mixed-use developments and residential growth in and around commercial activity centers and transportation node corridors.
	Whittier Boulevard Specific Plan	Attract new types of office land uses. Establish the area as an appealing location for workplace uses. Encourage the development of housing within and adjacent to the district. Promote connections to the district from within the city and throughout the county by increasing transit service.
	Whittier Commercial Corridor Redevelopment Plan	Develop properties that are underutilized. Enhance commercial opportunities in the project area. Strengthen the economic and employment base. Improve public facilities. Increase the housing supply. Achieve an economically viable reuse coupled with appropriate means of historic preservation for the Fred C. Nelles California Youth Authority site.
Whittier Narrows Dam Basin	2011 Whittier Narrows Dam Basin Master Plan	Station site is designated as Inactive and/or Future Recreation and Easement Lands.

Source: CDM 2013.

4.2.2 Affected Environment/Existing Conditions

The project area consists of portions of nine jurisdictions, including the cities of Commerce, Los Angeles, Montebello, Monterey Park, Pico Rivera, Rosemead, Santa Fe Springs, South El Monte, and Whittier, and portions of unincorporated Los Angeles County which include East Los Angeles and west Whittier-Los Nietos.

Generalized land use designations for the project area are illustrated in **Figure 4.2-2** and are based on data provided by SCAG. The generalized zoning for the project area is illustrated in **Figure 4.2-3**, which is based on data provided by the California Spatial Information Library. Generalized land use designations and zoning were used so that land use would be presented consistently among jurisdictions to the extent possible. (Refer to Appendix N, Land Use and Development Opportunities Technical Memorandum, of this Draft EIS/EIR for specific land use and zoning maps associated with each jurisdiction in the project area.)

The project area includes a variety of land uses. The majority of multi-family residential land uses in the project area are generally located in the west. Single-family residential land uses are generally located in the northern and southeast portions of the project area. Industrial uses are generally located in the southern portion of the project area. Whittier Narrows, which is located in the northeast portion of the project area, is the largest area of parkland and open space in the project area. Commercial uses tend to be concentrated along major roadway and freeway corridors in the project area.

Several activity centers with high traffic volumes and large population and commercial densities are located within the project area, including the Historic Whittier Boulevard Shopping District, the Shops at Montebello, and Pico Rivera Towne Center. These are shown in Figure 1-1, Major Activity Centers in the Project Study Area, in Chapter 1, Purpose and Need.

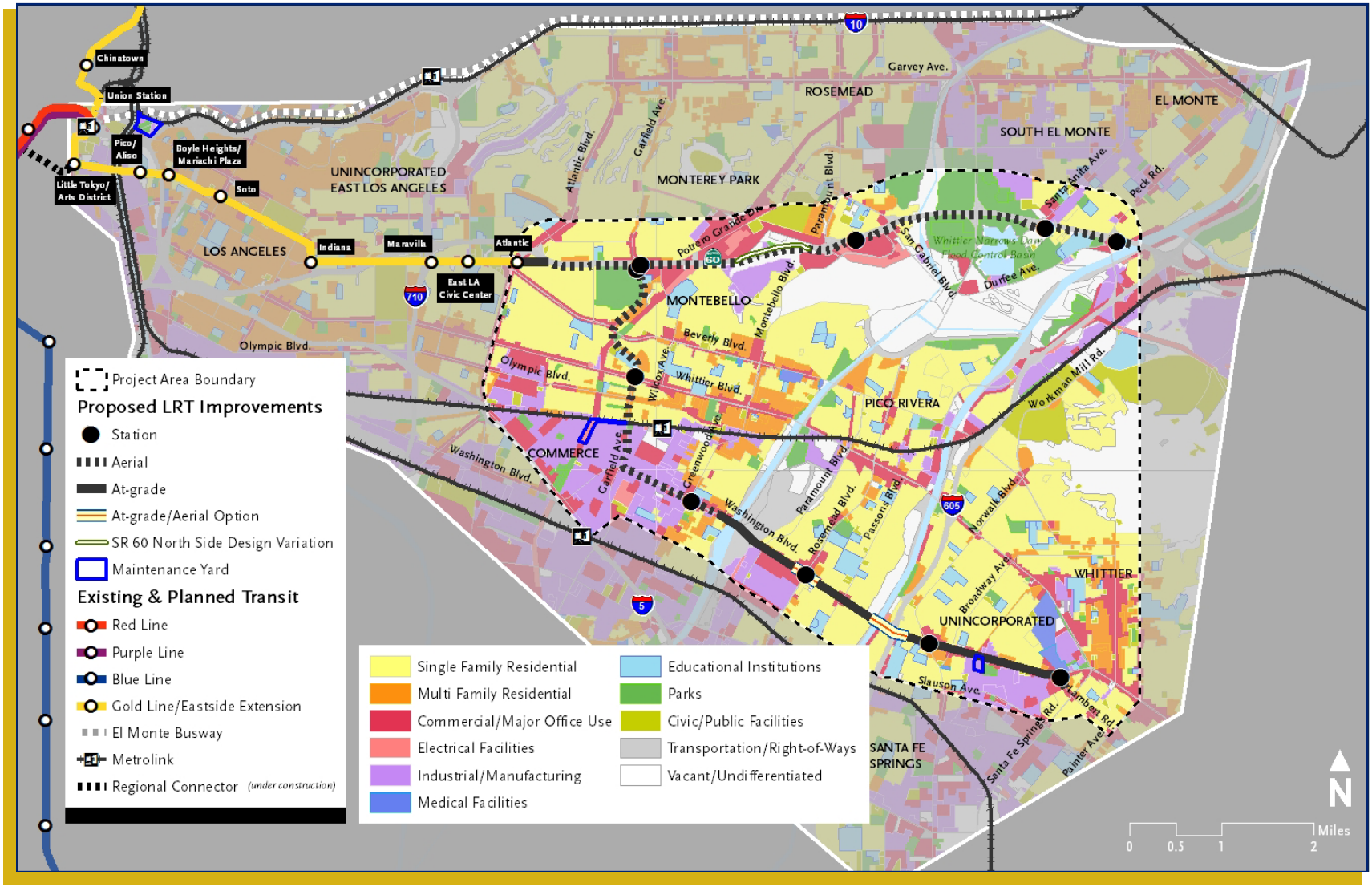
A number of institutions exist within or adjacent to the project area, including East Los Angeles College, Rio Hondo Community College, and Whittier College.

State recreation centers and local sports and activity centers are also located within the project area. The most notable are the Whittier Narrows Recreation Area and the Montebello Golf Course.

Several facilities provide health and medical services to project area residents and throughout the region, including Beverly Hospital, Presbyterian Intercommunity Hospital, and Greater El Monte Community Hospital. (See Section 4.15, Parklands and Other Community Facilities, for additional information about educational and medical institutions and recreation facilities.)

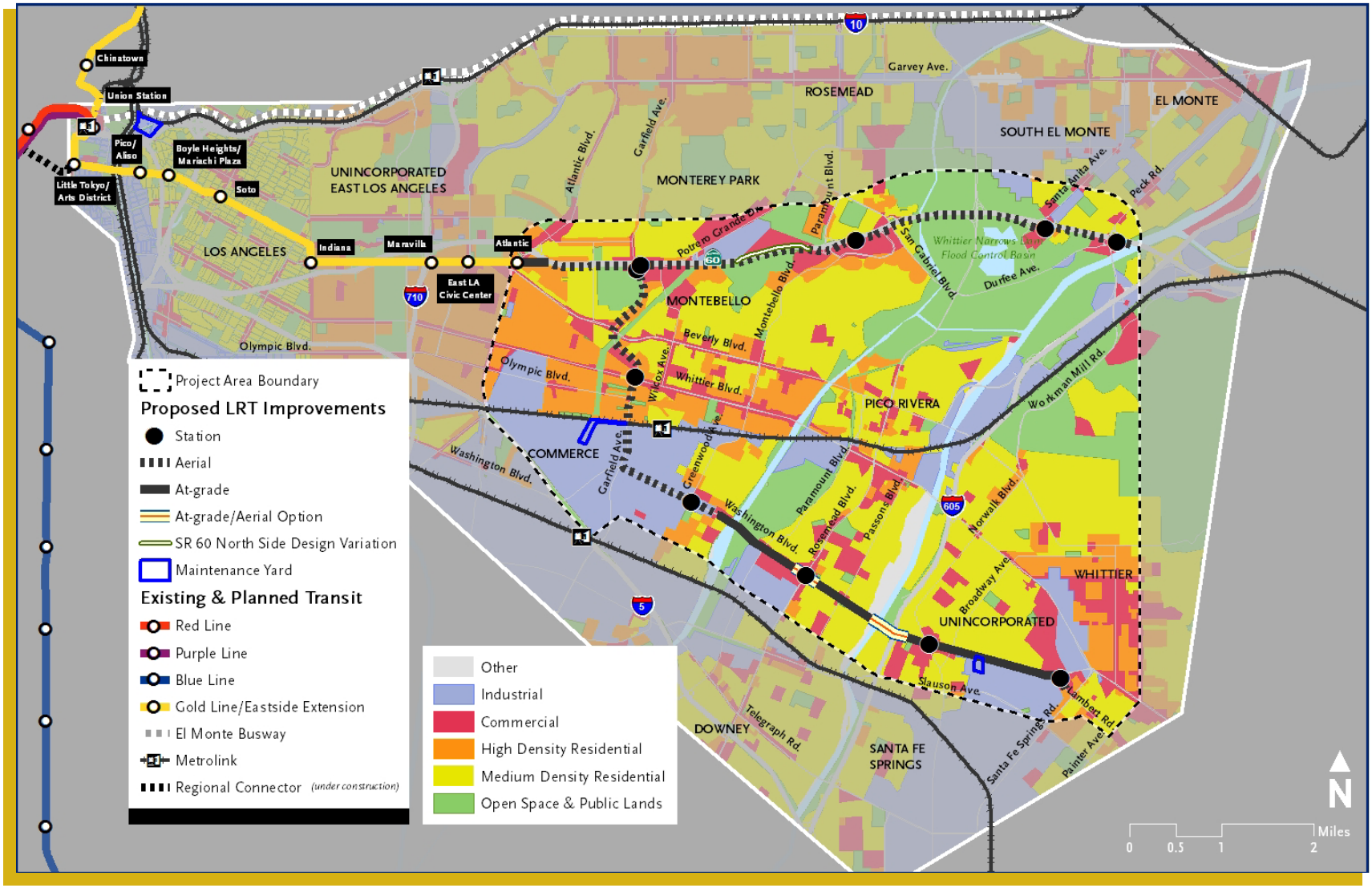
Business and industrial parks are concentrated in the cities of Commerce, South El Monte, and Industry. These areas provide a range of employment opportunities including industrial, major retail, and office. Several commercial centers also exist within and adjacent to the project area, ranging from neighborhood and main street retail to large regional malls and shopping centers. Main street retail districts, such as Whittier Boulevard and Uptown Whittier, have a high volume of pedestrian activity. The cities of Commerce, Montebello, and Pico Rivera each have large regional centers, such as the Pico Rivera Towne Center, which attract residents from within and outside of the project area.

Table 4.2-2 summarizes the results of the analysis. The areas of potential impact that were used in determining land use benefits associated with each alternative, which are summarized in Sections 4.2.3.3.1 and 4.2.3.4.1, included parcels within a one-half-mile radius of station locations.



Source: Land Use, Los Angeles County [computer file]. Los Angeles, CA: SCAG 2005.

Figure 4.2-2. Land Use Designations



Source: California Spatial Information Library 2007; prepared by AECOM, CDM 2010.

Figure 4.2-3. Zoning

Table 4.2-2. Summary of Potential Impacts to Land Use and Development

Alternative	Incompatibility with Surrounding or Adjacent Land Uses (CEQA/NEPA)	Conflict with Applicable Land Use Plans (CEQA/NEPA)
No Build	None	None
TSM	None	None
SR 60 LRT[1]	Not adverse/Less than significant	Not adverse after mitigation/Less than significant after mitigation
Washington Boulevard LRT	Not adverse/Less than significant	Not adverse/Less than significant

Notes:
[1] Results are for the SR 60 LRT Alternative as well as the SR 60 LRT North Side Design Variation.

4.2.3 Environmental Impacts/Environmental Consequences

The following sections summarize the potential land use impacts and land use benefits associated with each alternative. The area of potential impact (API) that was used to determine potential land use conflicts and policy consistency for this project includes current land use and zoning designations for parcels directly adjacent to the proposed alignments, stations, maintenance yards, and park and ride areas for each alternative.

4.2.3.1 No Build Alternative

4.2.3.1.1 Impact Analysis

The No Build Alternative does not include any major service improvements or new transportation infrastructure beyond what is identified in the 2009 Metro Long Range Transportation Plan (LRTP). Therefore, the No Build Alternative would not result in significant land use impacts. However, this alternative would not provide new opportunities for land use connections, higher-density development patterns, and compliance with federal guidance for transportation investments that have important economic development, environmental, and social benefits. The applicable Partnership for Sustainable Communities livability principles that would not be met under this alternative include providing more transportation choices, enhancing economic competitiveness, and supporting existing communities. Therefore, the No Build Alternative would have no adverse effect under NEPA and would have a less than significant impact under CEQA with regard to existing land use.
(Refer to Appendix N, Land Use and Development Opportunities Technical Memorandum, of this Draft EIS/EIR for more information.)

4.2.3.1.2 Mitigation Measures

Since the No Build Alternative would have no impact on land use, no mitigation measures are required.

4.2.3.1.3 Impacts Remaining After Mitigation

NEPA Finding

There would be no adverse land use effects from the No Build Alternative. However, this alternative would not provide land use benefits such as new opportunities for land use connections and higher-density development patterns.

CEQA Determination

The No Build Alternative would result in less than significant impacts related to land use. However, this alternative would not provide land use benefits, such as new opportunities for land use connections and higher-density development patterns.

4.2.3.2 TSM Alternative

4.2.3.2.1 Impact Analysis

Construction Impacts

Construction of enhanced bus stops on sidewalks adjacent to the bus lanes associated with the TSM Alternative would not conflict with existing land uses or land use plans. As a result, construction impacts associated with the TSM Alternative would not result in an adverse effect under NEPA or a significant impact under CEQA with regard to existing land uses. (Refer to Appendix N, Land Use and Development Opportunities Technical Memorandum, of this Draft EIS/EIR for more information.)

Operational Impacts

The new bus lines created under the TSM Alternative would operate within the existing roadway right-of-way (ROW) and would not affect existing land uses or conflict with applicable land use plans or policies. Therefore, the TSM Alternative would not result in adverse effects under NEPA or significant impacts under CEQA with regard to existing land uses. However, this alternative would not provide new opportunities for land use connections, higher-density development patterns, and compliance with federal guidance for transportation investments to the same extent as the light rail transit (LRT) alternatives. (Refer to Appendix N, Land Use and Development Opportunities Technical Memorandum, of this Draft EIS/EIR for more information.)

4.2.3.2.2 Mitigation Measures

Since the TSM Alternative would have no impact on land use, no mitigation measures are required.

4.2.3.2.3 Impacts Remaining After Mitigation

NEPA Finding

The TSM Alternative would only involve minor construction. Therefore, no adverse land use effects from construction are anticipated. The TSM Alternative would also not result in adverse effects during operations with respect to existing land uses or land use plans. This alternative may provide new opportunities for land use connections or higher-density development patterns, but not to the same extent as the LRT alternatives.

CEQA Determination

The TSM Alternative would only involve minor construction. Therefore, no significant land use impacts of construction are anticipated. The TSM Alternative would also not result in significant impacts during operations with respect to existing land uses or land use plans. This alternative may provide new opportunities for land use connections or higher-density development patterns, but not to the same extent as the LRT alternatives.

4.2.3.3 SR 60 LRT Alternative

4.2.3.3.1 Impact Analysis

Construction Impacts

Surrounding land uses would be disrupted while construction activities are performed. Most of the construction would occur within the SR 60 ROW and would not conflict with the transportation land use. Intermittent roadway, sidewalk, and intersection closures would be needed along Pomona Boulevard and along streets where the new LRT aerial structure would pass overhead.

Construction staging areas for the SR 60 LRT Alternative would all be adjacent to the SR 60 Freeway. Construction of the SR 60 LRT Alternative would generate temporary pedestrian and vehicle detours that would inhibit, but not prevent, access to existing land uses along the alignment. The SR 60 North Side Design Variation would require freeway closures to construct the bridge over the freeway, which would conflict with freeway operations. These impacts would be temporary and would be addressed through mitigation measures.

With implementation of the mitigation measures identified below and summarized in Table ES-2, construction activities associated with the SR 60 LRT Alternative, including the SR 60 North Side Design Variation, would not result in an adverse effect under NEPA or a significant impact under CEQA with regard to existing land uses.

Operational Impacts

Potential Land Use Conflicts

The alignment would travel primarily within the southern SR 60 Freeway ROW and would be consistent with the transportation land use. Land uses along the SR 60 LRT Alternative alignment include a mix of commercial, industrial, residential, medical, and open space. Property that would be acquired for the alignment, stations, maintenance yards, and park and ride areas includes commercial businesses, hillside areas associated with residential properties, commercial parking, U.S. Army Corps of Engineers (USACE) flowage easement property, and industrial uses.

The development of the Mission Junction Maintenance Yard Option would result in the removal of industrial and commercial uses. The maintenance yard would be compatible with the surrounding industrial, rail and truck loading, and transportation land uses.

As part of the SR 60 North Side Design Variation, partial acquisition of one parcel on the northern property of the OII Superfund site would be required for a portion of the LRT alignment and a traction power substation (TPSS) facility. The acquisitions needed for this alternative are discussed in detail in Section 4.3, Displacement and Relocation.

The residential properties and associated hillside areas described above are zoned and designated residential. Specifically, partial acquisitions of eight residential properties would be required for the alignment as it travels within the SR 60 ROW, just east of Vail Avenue. The rear of these properties (the hillside area) is adjacent to the SR 60 Freeway, an existing transportation use. Only the hillside areas of these residential properties would be acquired as part of the SR 60 LRT Alternative. The residential properties would remain in place, maintaining their land use designations. In accordance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act, the affected land owners would be fairly compensated. The conversion of the hillside areas to LRT use would not conflict with adjacent land uses, given that the existing SR 60 Freeway is located adjacent to these properties to the north.

In accordance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act, all affected land and business owners would be fairly compensated and would be offered relocation assistance. The conversion of these land uses to LRT facilities would not conflict with adjacent land uses given the urbanized nature of the area. Therefore, potential land use conflicts associated with operation of the SR 60 LRT Alternative would be less than significant.

Policy Consistency

The SR 60 LRT Alternative would travel through portions of unincorporated Los Angeles County, Montebello, Monterey Park, Rosemead, and South El Monte. Therefore, consistency was evaluated only for the land use plans, community plans, and redevelopment plans associated with these cities. Relevant land use goals and policies for these jurisdictions are summarized in Table 4.2-1, above.

Benefits of the SR 60 LRT Alternative related to applicable land use plans goals and policies include improved transit connectivity, which would provide an alternative to automobile travel, and increase access to major employment centers, activity centers, and destinations within the project area and the region. Improved accessibility and mobility associated with the alternative would also lead to an increase in employment opportunities for the regional population.

Given the above, this alternative would be consistent with the applicable land use plans, except for the Whittier Narrows Dam Basin Master Plan.

A portion of the SR 60 LRT Alternative alignment, including the proposed Santa Anita Avenue station, would occur within the Whittier Narrows Dam Basin Master Plan's designated Inactive and/or Future Recreation and Easement Lands areas. Inactive and/or Future Recreation areas are recreation areas planned for the future or those that have been temporarily closed. Easement Lands are lands for

which the USACE hold an easement interest, but not fee title.

As indicated in the 2011 Whittier Narrows Dam Basin Master Plan, before approving any new development on Inactive and/or Future Recreation designated areas, the suitability of such development on these lands must be carefully analyzed and weighed against alternative uses of the land. Based on the analysis included in Attachments 1 and 2 to Appendix W of this Draft EIR, there is no practicable alternative to locating the Santa Anita Avenue station within the designated Inactive and/or Future Recreation area. In addition to the benefits provided by enhanced transit connectivity to nearby communities and activity centers, various environmental and constructability elements constrain the station location, including the proximity to sensitive parcels (schools and residences) that would require acquisition and displacement if the proposed station were relocated.

The Master Plan indicates there are no resource objectives or recommendations for Easement Land designation. However, development of the SR 60 LRT Alternative would result in the loss of 83 cubic yards of flood storage capacity within the flood control basin, including the designated flowage easement area, which would conflict with the Whittier Narrows Dam Basin Master Plan and result in a significant land use impact. (Refer to Section 4.12, Water Resources for more information regarding the loss of flood storage capacity.)

The SR 60 North Side Design Variation would occur entirely within the SR 60 ROW except for a portion of the LRT alignment and a TPSS facility, which may be located at the eastern boundary of the OII/Edison Focus Area. The focus area is the site of the Monterey Park Market Place commercial project. The area needed for the North Side Design Variation would be nominal and would not prevent or inhibit future development within the focus area. Therefore, the SR 60 LRT Alternative, including the North Side Design Variation, would not conflict with land use policies encouraging development and reuse within the focus area. The SR 60 North Side Design Variation would be built at-grade and on a mechanically stabilized earth (MSE) wall, which would include aesthetic treatments such as landscaping or concrete designs along the eastern boundary of the focus area.

Therefore, the North Side Design Variation would not conflict with the focus area policy to improve the appearance of the SR 60 Freeway frontage bordering the focus area.

Land Use Benefits

Parcels within a one-half-mile radius of station locations were evaluated to determine if opportunities exist for future development. As it relates to relevant land use goals and policies identified in Table 4.2-1, opportunities for future development on underutilized parcels, vacant sites, and surface parking lots are present in the vicinity of station locations along the SR 60 LRT Alternative alignment. The sites, as identified in Appendix N, Land Use and Development Opportunities Technical Memorandum, of this Draft EIS/EIR only indicate where the opportunity for future development would occur; any possible redevelopment project would be a separate, future project which would undergo independent environmental review.

The SR 60 LRT Alternative would implement the following HUD-DOT-EPA Partnership for Sustainable Communities livability principles:

- Provide more transportation choices
- Enhance economic competitiveness
- Support existing communities

Given the above, operational impacts associated with the SR 60 LRT Alternative, including the SR 60 North Side Design Variation, would not result in an adverse effect under NEPA or a significant impact under CEQA with regard to existing land uses, with the exception of the Whittier Narrows Dam Master Plan area. The SR 60 LRT Alternative and the proposed station would conflict with the 2011 Whittier Narrows Dam Basin Master Plan and would result in an adverse effect under NEPA and a significant impact under CEQA with regards to land use.

4.2.3.3.2 Mitigation Measures

Construction Mitigation Measures

In addition to the mitigation measure identified below, the following mitigation measures from Chapter 3, Transportation Impacts, Section 4.7, Air Quality, and Section 4.9, Noise and Vibration would be implemented: 3.0-ii, 3.0-iv through 3.0-vi, 3.0-viii, 3.0-x, 3.0-xi, 4.7-i, and 4.9-i through 4.9-vii. (Refer to the specific section for the detailed mitigation measure.)

4.2-i Intersections: The design variation would cross a gated, private segment of Greenwood Avenue that is used to access the OII landfill site at-grade; intermittent closure of the roadway would be needed temporarily for construction. As a result, some landfill maintenance vehicles would need to be re-routed in order to access the area, but alternative routes are available. Metro would coordinate with New Cure Inc. prior to and during intermittent closures of Greenwood Avenue.

Operational Mitigation Measures

The following mitigation measures from Section 4.12, Water Resources would be implemented: 4.12-iand 4.12-ii. (Refer to the specific section for the detailed mitigation measure.)

4.2.3.3.3 Impacts Remaining After Mitigation

NEPA Finding

Construction impacts associated with the SR 60 LRT Alternative, including the North Side Design Variation, would be temporary (limited to the duration of construction) and would not result in adverse land use effects after mitigation.

As discussed above, operation of the SR 60 LRT Alternative, including the North Side Design Variation, would not conflict with surrounding land uses and effects would not be adverse. Development of the SR 60 LRT Alternative has the potential to reduce flood storage space within the flowage easement at the proposed Santa Anita Avenue station site. This would conflict with the 2011 Whittier Narrows Dam Basin Master Plan and would result in an adverse land use effect. However, with implementation of mitigation this land use effect associated with the SR 60 LRT Alternative would not be adverse. The alternative would be consistent with all other applicable land use plans and policies.

CEQA Determination

Construction impacts associated with the SR 60 LRT Alternative, including the North Side Design Variation, would be temporary (limited to the duration of construction) and would not result in significant land use impacts after mitigation.

Operation of the SR 60 LRT Alternative, including the North Side Design Variation, would not conflict with surrounding land uses and impacts would be less than significant. Development of the SR 60 LRT Alternative would conflict with the 2011 Whittier Narrows Dam Basin Master Plan and would result in a significant land use impact. With implementation of mitigation, however, this land use impact associated with the SR 60 LRT Alternative would be reduced to less than significant. The alternative would be consistent with all other applicable land use plans and policies.

4.2.3.4 Washington Boulevard LRT Alternative

4.2.3.4.1 Impact Analysis

Construction Impacts

Community disruption would occur while construction activities are performed. Most of the construction would occur in the ROW of Pomona Boulevard, SR 60, Garfield Avenue, and Washington Boulevard and within areas identified as station sites. Intermittent roadway, sidewalk, and intersection closures would be needed along these routes. Construction staging areas would be located adjacent to these roadways. Given that SR 60, Garfield Avenue, and Washington Boulevard are all designated as major truck routes, construction activity would not differ greatly from the industrial traffic that occurs along these routes on a daily basis. Construction of the Washington Boulevard LRT Alternative would generate temporary pedestrian and vehicle detours that would inhibit,

but not prevent, access to existing land uses along the alignment. The Transportation Impacts Technical Memorandum, which is incorporated into this Draft EIS/EIR as Appendix M, analyzes the potential effect on circulation and pedestrian access in the project area and concludes that it would be a less than significant impact on land use. Nonetheless, construction activities associated with the Washington Boulevard LRT Alternative could impact existing land uses during construction. These impacts would be temporary and would be addressed through mitigation measures identified below and summarized in Table ES-2.

With implementation of the mitigation measures identified below and summarized in Table ES-2, construction activities associated with the Washington Boulevard LRT Alternative would not result in an adverse effect under NEPA or a significant impact under CEQA with regard to existing land uses.

Operational Impacts

Potential Land Use Conflicts

The alignment would travel primarily along Garfield Avenue and Washington Boulevard. Land uses along the Washington Boulevard LRT Alternative alignment include a mix of commercial, industrial, residential, and medical uses along with some open space. Property that would be acquired for the alignment, stations, and park and ride areas includes commercial and restaurant businesses, residential, office, and industrial uses, commercial parking, and Los Angeles County Flood Control District property.

The Mission Junction Maintenance Yard Option would be located adjacent to the Los Angeles River channel, I-10 Freeway, and an existing rail and truck loading facility. This site would be compatible with the surrounding industrial, rail, and freeway land uses.

The Commerce Maintenance Yard Option would require partial acquisition of Union Pacific Railroad (UPRR)-owned properties. Industrial uses are located to the south, east, and west. There are no businesses or residences located in the UPRR-owned parcels that would be acquired. Use of this site for the maintenance yard would be compatible with the surrounding industrial and rail land uses.

The Santa Fe Springs Maintenance Yard Option is bounded by Washington Boulevard on the north, Allport Avenue on the west, and industrial uses to the south and east. Use of this site for the maintenance yard would be compatible with the surrounding industrial land uses.

In accordance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act, affected land and business owners would be fairly compensated and would be offered relocation assistance. This alternative would be considered a change in land use type, but would not conflict with adjacent land uses given the urbanized nature of the area. Therefore, potential land use conflicts associated with operation of the Washington Boulevard LRT Alternative would be less than significant.

Policy Consistency

The Washington Boulevard LRT Alternative would travel through portions of unincorporated Los Angeles County, Montebello, Commerce, Pico Rivera, Santa Fe Springs, and Whittier. Therefore, only the land use plans, community plans, and redevelopment plans associated with these areas were evaluated for consistency. Relevant land use goals and policies for these jurisdictions are summarized in Table 4.2-1, above.

Benefits of the Washington Boulevard LRT Alternative related to applicable land use plans, goals, and policies include improved transit connectivity, which would provide an alternative to automobile travel and increase access to major employment centers, activity centers, and destinations within the project area and the region. Improved accessibility and mobility associated with the alternative would also lead to an increase in employment opportunities for the regional population.

Given the above, this alternative would be consistent with the applicable land use plans and policies, and no significant impact would occur.

Land Use Benefits

Parcels within a one-half-mile radius of station locations were evaluated to determine if opportunities exist for future development. As with the SR 60 LRT Alternative, opportunities for future development of underutilized parcels, vacant sites, and surface parking lots are present in the vicinity of station locations along the Washington Boulevard LRT Alternative alignment. The sites, as identified in Appendix N, Land Use and Development Opportunities Technical Memorandum, of this Draft EIS/EIR, only indicate where the opportunity for future development would occur as it relates to relevant land use goals and policies identified in Table 4.2-1; any possible redevelopment project would be a separate, future project which would undergo independent environmental review.

The Washington Boulevard LRT Alternative would implement the following HUD-DOT-EPA Partnership for Sustainable Communities livability principles:

- Provide more transportation choices
- Enhance economic competitiveness
- Support existing communities

Given the above, operational impacts associated with the Washington Boulevard LRT Alternative would not result in an adverse effect under NEPA or a significant impact under CEQA with regard to existing land uses.

4.2.3.4.2 Mitigation Measures

Construction Mitigation Measures

The following mitigation measures from Chapter 3, Transportation Impacts, Section 4.7, Air Quality, and Section 4.9, Noise and Vibration would be implemented: 3.0-ii, 3.0-iv through 3.0-vi, 3.0-viii, 3.0-x, 3.0-xi, 3.0-xvii, 4.7-i, and 4.9-i through 4.9-vii. (Refer to the specific section for the detailed mitigation measure.)

Operational Mitigation Measures

No significant land use impacts would occur during operation of the Washington Boulevard LRT Alternative. Therefore, no mitigation measures are required.

4.2.3.4.3 Impacts Remaining After Mitigation

NEPA Finding

Construction impacts associated with the Washington Boulevard LRT Alternative would be temporary (limited to the duration of construction) and would not result in adverse land use effects after mitigation.

Operation of the Washington Boulevard LRT Alternative would not conflict with surrounding land uses and effects would not be adverse. This alternative would not introduce new land uses that are inconsistent with existing land uses. Development of the Washington Boulevard LRT Alternative would be consistent with all applicable land use plans and policies, and no adverse effect would occur.

CEQA Determination

Construction impacts associated with the Washington Boulevard LRT Alternative would be temporary (limited to the duration of construction) and would not result in significant land use impacts after mitigation.

Operation of the Washington Boulevard LRT Alternative would not conflict with surrounding land uses and impacts would be less than significant. This alternative would not introduce new land uses that are inconsistent with existing land uses. Development of the Washington Boulevard LRT Alternative would be consistent with all applicable land use plans and policies, and no impact would occur.

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Section 4.3

Displacement and Relocation

This section describes the potential displacements and relocations that could be needed to construct the proposed Eastside Transit Corridor Phase 2 Project alternatives. Information in this section is based on, and updated where appropriate from, the Displacement and Relocation Technical Memorandum, which is incorporated into this Draft EIS/EIR as Appendix O.

4.3.1 Regulatory Framework/Methodology

4.3.1.1 Federal

The Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 as amended (Uniform Act) must be implemented if there are any displacements as a direct result of the project. The Uniform Act mandates that certain relocation services and payments be made available to eligible residents, businesses, and non-profit organizations displaced as a direct result of projects undertaken by a federal agency or with federal financial assistance. The Uniform Act provides for uniform and equitable treatment of persons displaced from their homes and businesses and establishes uniform and equitable land acquisition policies. Owners of and holders of real estate interests in private property have federal constitutional guarantees that their property will not be acquired, taken, or damaged for public use unless they first receive an offer of just compensation. A just compensation amount is measured by the "fair market value" (FMV) of the real estate property interests and rights acquired.

4.3.1.2 State

The provisions of the California Relocation Act (California Act) apply in the absence of federal funds and/or involvement if a public entity undertakes a project and consequently must provide relocation assistance and benefits. The California Act, which is consistent with the intent and guidelines of the federal Uniform Act, seeks to (1) ensure consistent and fair treatment of owners of real property, (2) encourage and expedite acquisition by agreement to avoid litigation and relieve congestion in the courts, and (3) promote confidence in the public land acquisitions process. Similar to the federal Uniform Act regulations, owners of private property have state constitutional guarantees regarding property acquisition, damages, and just compensation.

Applying the *California Environmental Quality Act (CEQA) Guidelines*, the project would have a significant impact if it would:

- Displace substantial numbers of existing housing units, particularly affordable housing units, necessitating the construction of replacement housing elsewhere; and/or
- Displace substantial numbers of people, necessitating construction of replacement housing elsewhere.

CEQA does not have specific thresholds for displacement impacts on employment, parking, or billboards.

4.3.2 Affected Environment/Existing Conditions

4.3.2.1 Property Displacement and Relocation

For purposes of this evaluation of potential displacement and relocation impacts, the area of potential impact is limited to the areas within and directly adjacent to the proposed alternative alignments and associated facilities, such as park and ride areas and maintenance yards. Property acquisition resulting in displacement and relocation may be phased over time, depending on construction methods, project funding, and schedule.

Table 4.3-1 shows typical causes of property acquisition and displacement that could occur with a transit project.

Table 4.3-1. Causes of Property Acquisition and Displacement

Reason	Typical Type of Acquisition	Cause/Process
Horizontal alignment	Full/Partial	Insufficient existing right-of-way (ROW) for construction and operation of tracks, stations, and ancillary facilities, such as park and ride and storage, traction power substations (TPSS), or maintenance yards.
Vertical circulation	Partial	Additional area needed adjacent to underground station to bring passengers to the surface; or area needed to bring passengers from ground level to a station platform at an aerial (elevated) structure.
Street widening	Partial	At-grade or aerial track infrastructure and stations.
Property encroachment	Full	Unauthorized use of private property. Resolution through boundary survey, and potential relocation of use.
Access to a business (driveway or road)	Full	Damages resulting from reduced or restricted access.
Storage and maintenance yards	Full	Additional area required to perform maintenance for ancillary facilities, and for TPSS sites.
Widening of intersections	Partial	Additional area to maintain traffic volumes, turn lanes, or platforms.
Tunnel; or at-grade or aerial alignment; access to property or facilities	Easement	LRT travels off public ROW above private property, and project proponent obtains an aerial easement; or a condition for a non-exclusive access agreement or easement either permanent or temporary, for at-grade or aerial alignment.

Source: Metro 2011.

When an acquisition occurs, it typically results in either a full or partial acquisition of a parcel's inherent real estate property interests and rights, or an easement. A partial acquisition would occur if

only a portion of the entire parcel was required to accommodate the project infrastructure and facility needs. This would occur if, for example, a portion of a commercial parking lot fronting the alignment is required, but not the adjacent commercial building located away from the alignment on the remainder of the property. Partial property acquisitions may result from widening a street or intersection due to insufficient right-of-way (ROW) widths, limited cross-sections, and vertical circulation needs adjacent to transit stations. Widening intersections is often required to add left-turn lanes that have been displaced by station platforms installed within a street median, adjacent to transit tracks. Street widening may be necessary when the existing horizontal alignment contains insufficient ROW. Vertical circulation is necessary near transit stations to bring passengers to the surface, and additional land may be needed.

A full acquisition could occur when the majority of the property is required to provide sufficient ROW for elements such as the horizontal alignment of stations with park and ride facilities or for maintenance yards. A full acquisition could result from a severe loss of access (e.g., driveway access is eliminated) that reduces the useful operation of a property, despite all attempts to avoid or offset the impact through restored egress/ingress.

An easement can involve a general or specific portion of the property and can be either on, below, or above (aerial) the surface of the property. As applicable, easements can be temporary (during construction) or permanent. Temporary construction easements may be used when there is a need to use part of a property for construction staging or equipment use. A temporary construction easement is an easement required during construction that would revert back to the owner of record after completion of construction activities. Its use is not limited to construction staging or equipment use. It could also include actual construction of temporary facilities that would be removed prior to reversion of the property to the owner of record (e.g., temporary shoring, temporary retaining walls, temporary erosion control, temporary drainage system, temporary detour, etc.).

Permanent easements may be obtained for access to another property, called “access and egress.” An easement can involve a general or specific portion of the property and can be either at the surface level, beneath, or above (aerial) the property. Permanent underground easements are used when tunneling for a subway and for underground utilities. Permanent aerial easements are used for the operation of an elevated transit line.

4.3.2.2 Commercial Billboard Signage Relocation

Commercial billboard signage is located along Pomona Boulevard and the SR 60 Freeway within the SR 60 LRT Alternative alignment. Within the Washington Boulevard LRT Alternative alignment, commercial billboard signage is located along Garfield Avenue, Pomona Boulevard, and Washington Boulevard.

4.3.3 Environmental Impacts/Environmental Consequences

This section identifies displacements that could occur from the Eastside Transit Corridor Phase 2 Project. Appendix O, Real Estate Acquisition, Displacement and Relocation Technical Memorandum, of this Draft EIS/EIR provides additional information, including lists of parcels identified for acquisition according to the proposed alternative and a description of those parcels. This section also discusses potential relocation of billboard signage that could occur from the Eastside Transit Corridor Phase 2 Project.

Table 4.3-2 provides a summary of the potential parcels identified for displacement and relocation from each alternative and maintenance yard option. Table 4.3-2 also includes a tally of off-street parking space displacement. Removal of on-street parking spaces from public roadways is discussed in Chapter 3, Transportation Impacts and Mitigation, of this Draft EIS/EIR.

Table 4.3-3 provides a summary of potential displacement and relocation impacts from each alternative and maintenance yard option.

Table 4.3-2. Summary of Potential Displacement and Relocation Parcels

Alternative/ Maintenance Yard Option	Total Parcels Affected	Off-Street Parking Spaces Displaced	No. of Residential Units/ Persons Displaced	No. of Businesses/ Employees Displaced	Types of Displacement for Affected Parcels
Alternative					
No Build	0	0	0	0	Not applicable
TSM	0	0	0	0	Not applicable
SR 60 LRT	23	895	0/0	8/69	8 Partial acquisitions (easement) 4 Partial acquisitions (fee) 11 Full acquisitions
SR 60 LRT with North Side Design Variation	24	895	0/0	8/69	8 Partial acquisitions (easement) 5 Partial acquisitions (fee) 11 Full acquisitions
Washington Boulevard LRT	65	1,794	9/30	58/633	5 Partial acquisitions (easement) 6 Partial acquisitions (fee) 54 Full acquisitions
Maintenance Yard Option (Only one option will be selected per Build Alternative)					
Mission Junction	6	13	0/0	5/30	6 Full acquisitions
Commerce	8	0	0/0	0/0	8 Partial acquisitions
Santa Fe Springs	17	38	0/0	17/144	17 Full acquisitions

Source: AECOM, CDM Smith 2011.

Note: "Full acquisition" is a full parcel acquisition as fee-simple. "Partial acquisition" is the acquisition of a portion of a parcel and occurs when the remaining piece can fully serve its intended purpose and maintain its value.

Table 4.3-3. Summary of Potential Displacement and Relocation Impacts

Alternative/ Maintenance Yard Option	Displacement and Relocation (NEPA/CEQA)	Displacement and Relocation Adverse Effects/Impacts After Mitigation (NEPA/CEQA)
Alternative		
No Build	None	None
TSM	None	None
SR 60 LRT	**Construction:** Adverse effect/ Significant Impact **Operation:** Adverse effect/ Significant Impact	**Construction:** Not adverse after mitigation/ Less than significant after mitigation **Operation:** Not adverse after mitigation/ Less than significant after mitigation
SR 60 LRT with North Side Design Variation	**Construction:** Adverse effect/ Significant Impact **Operation:** Adverse effect/ Significant Impact	**Construction:** Not adverse after mitigation/ Less than significant after mitigation **Operation:** Not adverse after mitigation/ Less than significant after mitigation
Washington Boulevard LRT	**Construction:** Adverse effect/ Significant Impact **Operation:** Adverse effect/ Significant Impact	**Construction:** Not adverse after mitigation/ Less than significant after mitigation **Operation:** Not adverse after mitigation/ Less than significant after mitigation
Maintenance Yard Option (Only one option will be selected per Build Alternative)		
Mission Junction	**Construction:** No adverse effect/ Less than significant **Operation:** No adverse effect/ Less than significant	**Construction:** Not adverse/ Less than significant **Operation:** Not adverse/ Less than significant
Commerce	**Construction:** No adverse effect/ Less than significant **Operation:** No adverse effect/ Less than significant	**Construction:** Not adverse/ Less than significant **Operation:** Not adverse/ Less than significant
Santa Fe Springs	**Construction:** No adverse effect/ Less than significant **Operation:** No adverse effect/ Less than significant	**Construction:** Not adverse/ Less than significant **Operation:** Not adverse/ Less than significant

4.3.3.1 No Build Alternative

4.3.3.1.1 Impact Analysis

Under the No Build Alternative, there would be no construction in the project area associated with transit infrastructure investments. Displacement of properties or relocation of billboard signage for transit infrastructure would not occur. The No Build Alternative would not result in an adverse effect under NEPA or a significant impact under CEQA with regard to displacement and relocation.

4.3.3.1.2 Mitigation Measures

No impacts associated with displacement and relocation would occur under the No Build Alternative. Therefore, no mitigation measures are required.

4.3.3.1.3 Impacts Remaining After Mitigation

NEPA Finding

The No Build Alternative would have no adverse effects associated with displacement or relocation and no mitigation measures are required.

CEQA Determination

The No Build Alternative would not have a significant impact associated with displacement or relocation and no mitigation measures are required.

4.3.3.2 TSM Alternative

4.3.3.2.1 Impact Analysis

Construction Impacts

Under the TSM Alternative, the transit infrastructure construction (new bus routes, service enhancements and, to some extent, associated structures) would utilize the existing street and sidewalk networks and would not require the displacement or relocation of properties, residents, employees, or billboard signage. Transit projects tend to help offset the impacts of decreased parking by providing alternatives to driving. Therefore, there would be no potential adverse construction impacts under the TSM Alternative.

Operational Impacts

New infrastructure would utilize existing street and sidewalk networks and would not require the displacement or relocation of properties, residents, or employees. Therefore, there would be no potential adverse effects or operational impacts under the TSM Alternative.

Overall, the TSM Alternative would not result in an adverse effect under NEPA or a significant impact under CEQA with regard to displacement and relocation.

4.3.3.2.2 Mitigation Measures

No impacts associated with displacement and relocation of property would occur under the TSM Alternative. Therefore, no mitigation measures are required.

4.3.3.2.3 Impacts Remaining After Mitigation

NEPA Finding

The TSM Alternative would have no adverse effects associated with displacement or relocation and no mitigation measures are required.

CEQA Determination

The TSM Alternative would not have a significant impact associated with displacement or relocation and no mitigation measures are required.

4.3.3.3 SR 60 LRT Alternative

4.3.3.3.1 Impact Analysis

Construction Impacts

Construction of the SR 60 LRT Alternative would require acquisition of 23 parcels, including partial acquisition as easements of 8 parcels, partial acquisition in fee of 4 parcels, and full acquisition of 11 parcels. Construction staging, lay down, and other construction support functions could be located at sites that would be permanently acquired. A list of the Assessor's Parcel Numbers (APNs), addresses, and current and intended uses of the properties that could be impacted by displacement to construct and operate the SR 60 LRT Alternative is provided in **Table 4.3-4**.

Real estate identified for acquisition along the SR 60 LRT Alternative alignment, including at and near the station sites, is sufficient for construction of the stations, park and ride lots, and other appurtenant

facilities as well as for temporary easements necessary for storage of material and equipment, construction of temporary components of the project, and operation activities during construction.

Parking

Acquisitions required for the SR 60 LRT Alternative (without the North Side Design Variation and Mission Junction Maintenance Yard Option) would permanently displace 895 off-street parking spaces. Of the 895 parking spaces that would be permanently displaced, only 725 would result in an adverse effect and require replacement parking mitigation. Replacement parking mitigation would not be required for the remaining 170 permanently displaced off-street parking spaces because the parking would be moved with business uses and the parking does not serve other businesses or uses in the area. The permanent displacement of off-street parking spaces could be offset in some instances by the increased public transit access provided by the proposed project. The 170 spaces would be removed in association with full acquisition of the parcel. Since the need for these 170 spaces is exclusively for the existing business that would be acquired, these spaces would not require replacement in this location.

The SR 60 LRT Alternative would result in adverse effects associated with loss of off-street parking spaces on privately-operated lots that serve businesses and customers in the area. The parking spaces associated with the displaced/relocated businesses would also be relocated.

Under NEPA, implementation of the parking mitigation measures described below would reduce parking effects to not adverse. Impacts to parking are not significant under CEQA because impacts to parking and employment would not cause a physical impact on the environment.

Table 4.3-4. Parcels Potentially Affected by Displacement – SR 60 LRT Alternative

APN	Address	Type of Displacement	Current Use	Intended Use
5295-017-007	1524 Via Palermo, Montebello	Partial acquisition (easement)	Residential	Aerial tracks
5295-017-006	1528 Via Palermo, Montebello	Partial acquisition (easement)	Residential	Aerial tracks
5295-017-005	1520 Via Palermo, Montebello	Partial acquisition (easement)	Residential	Aerial tracks
5295-017-004	1516 Via Palermo, Montebello	Partial acquisition (easement)	Residential	Aerial tracks
5295-017-003	1512 Via Palermo, Montebello	Partial acquisition (easement)	Residential	Aerial tracks
5295-017-002	1508 Via Palermo, Montebello	Partial acquisition (easement)	Residential	Aerial tracks
5295-017-001	1504 Via Palermo, Montebello	Partial acquisition (easement)	Residential	Aerial tracks
5295-020-021	1500 Via Palermo, Montebello	Partial acquisition (easement)	Residential	Aerial tracks

Table 4.3-4. Parcels Potentially Affected by Displacement – SR 60 LRT Alternative (continued)

APN	Address	Type of Displacement	Current Use	Intended Use
5268-001-044	2809 Via Campo, Montebello	Partial acquisition (fee)	Shopping center parking lot	Garfield Avenue station/park and ride
5295-002-801	Via Campo and North Vale Avenue, Montebello	Partial acquisition (fee)	Other; Vacant land	TPSS-02
5271-020-063	Montebello Town Center Drive, Montebello	Partial acquisition (fee)	Parking lot (commercial use)	TPSS-04; Shops at Montebello station/park and ride
8119-005-908	No address available, South El Monte	Partial acquisition (fee)	Vacant land	Access road
5268-001-043	2825 Via Campo, Montebello	Full acquisition	Bank	TPSS-01, park and ride
5268-001-045	Via Campo and Garfield Avenue, Montebello	Full acquisition	Parking lot	Garfield Avenue station/park and ride
5271-003-013	Muscatel Avenue cul-de-sac northeast corner, Rosemead Blvd.	Full acquisition	Vacant land	TPSS-05
5275-003-016[1]	2300 Greenwood Avenue, Monterey Park	Partial acquisition	Vacant land	TPSS and LRT track alignment
8119-005-911	No address available, South El Monte	Full acquisition	Vacant land	Santa Anita Avenue station/park and ride,TPSS-06
8119-008-020	1221 Peck Road, South El Monte	Full acquisition	Office building (vacant, former Teamster Local 986)	Peck Road station, park and ride
8119-008-035[2]	1181 Durfee Avenue, South El Monte	Full acquisition	Golfland, recreation	Peck Road station/park and ride
8119-008-031	1228 Durfee Avenue, South El Monte	Full acquisition	Motel	Peck Road station/park and ride, TPSS-07
8119-008-032	1228 Durfee Avenue, South El Monte	Full acquisition	Motel	Peck Road station/park and ride
8119-008-033	1130 Peck Road, South El Monte	Full acquisition	Auto service station with food service	Peck Road station/park and ride

Table 4.3-4. Parcels Potentially Affected by Displacement – SR 60 LRT Alternative (continued)

APN	Address	Type of Displacement	Current Use	Intended Use
8119-008-034	1200 Peck Road, South El Monte	Full acquisition	Auto service station	Peck Road station/park and ride
8119-008-040	1225 Durfee Avenue, South El Monte	Full acquisition	Restaurant (unoccupied; vacant)	Peck Road station/park and ride

Source: AECOM, CDM Smith 2011.

Notes: Refer to Appendix HH, Conceptual Engineering Drawings, for locations of potentially affected parcels.

[1] This parcel applies to SR 60 North Side Variation.

[2] Due to recent developments on this property, this parcel would not be acquired if the SR 60 LRT Alternative is selected as the Locally Preferred Alternative (LPA). Park and ride spaces identified for this station would be accommodated on the remaining properties identified for acquisition for this station and associated park and ride facilities.

Businesses

A total of eight businesses and approximately 69 employees would be displaced as a result of the SR 60 LRT Alternative. It is anticipated that displaced jobs could be retained with relocation or reestablishment of businesses at other sites in the project area. Each business to be displaced as a result of the project would be given advance written notice and would be informed of its eligibility for relocation assistance and payments under the Uniform Act and the California Act. Under NEPA there would be no adverse effects to businesses. Impacts to employment are not significant under CEQA because impacts to parking and employment would not cause a physical impact to the environment.

Residences

No residential units or persons would be displaced by the SR 60 LRT Alternative.

Billboard Signage

NEPA and CEQA do not have specific requirements related to impacts due to relocation of billboard signage. Based on conceptual engineering drawings approximately 11 billboards would need to be relocated as part of the SR 60 LRT Alternative. It should be noted that these billboard relocations are preliminary at this time; final, actual billboard relocations will be identified during the final design phase once a locally preferred alternative has been identified.

Operational Impacts

Operation of the SR 60 LRT Alternative would not result in additional adverse effects regarding displacement and relocation.

SR 60 North Side Design Variation

Construction Impacts

The alignment for the SR 60 North Side Design Variation is largely within the existing California Department of Transportation (Caltrans) ROW on the north side of the SR 60 Freeway. In addition to the acquisitions described above, the partial acquisition of one parcel on the north side of the freeway would be required. There would be no impact to residential units or persons, businesses or employees, or off-street parking on the site.

Billboard Signage

NEPA and CEQA do not have specific requirements related to impacts due to relocation of billboard signage. Construction of the SR 60 North Side Design Variation may result in additional billboards needing to be relocated. It should be noted that billboard relocation estimates are preliminary at this time; final, actual billboard relocations will be

identified during the final design phase once a locally preferred alternative has been identified.

Operational Impacts

Operation of the SR 60 North Side Design Variation would not result in additional adverse effects or significant impacts regarding displacement and relocation.

Maintenance Yard

Construction Impacts

In addition to the acquisition requirements described above, the Mission Junction Maintenance Yard Option would require the full acquisition of six private property parcels, listed in **Table 4.3-5**.

Acquisitions required for the Mission Junction Maintenance Yard Option would displace 13 off-street parking spaces. These would not require replacement parking mitigation because the parking would be lost with the business use and does not serve other businesses or uses in the area.

A total of five businesses and approximately 30 employees would be displaced as a result of the Mission Junction Maintenance Yard Option. It is anticipated that the displaced jobs could be retained with relocation or reestablishment at other sites in the project area. Therefore, there would be no net loss of jobs and this would result in no adverse effects or significant impacts.

No residential units or persons would be displaced by this option.

Operational Impacts

Operation of the SR 60 Maintenance Yard would not result in additional adverse effects regarding displacement and relocation under NEPA or a significant impact under CEQA.

Overall, the SR 60 LRT Alternative, with or without the SR 60 LRT North Side Design Variation and Maintenance Yard, would not result in an adverse effect under NEPA with implementation of mitigation measures described below; and there would be no significant impacts under CEQA.

Table 4.3-5. Maintenance Yard Displacements – Mission Junction Maintenance Yard Option

APN	Address	Current Use	Intended Use
5410-002-003	No Address Available, Los Angeles	Concrete aggregate production	Mission Junction Yard Option (11 acres)
5410-002-814	No Address Available, Los Angeles	Concrete aggregate production	Mission Junction Yard Option
5410-005-001	525 N. Mission Road, Los Angeles	Concrete aggregate production; auto salvage; auto glass repair	Mission Junction Yard Option
5410-005-003	No Address Available, Los Angeles	Concrete aggregate production	Mission Junction Yard Option
5410-005-004	559 N. Mission Road, Los Angeles	Auto glass repair	Mission Junction Yard Option
5410-005-005	No Address Available, Los Angeles	Vacant	Mission Junction Yard Option

Source: AECOM, CDM Smith 2011.

Notes: Refer to Appendix HH, Conceptual Engineering Drawings, for locations of potentially affected parcels.

4.3.3.3.2 Mitigation Measures

The following mitigation measures would address adverse effects and reduce potential impacts to below the thresholds of significance for the SR 60 LRT Alternative, including the SR 60 North Side Design Variation and the Mission Junction Maintenance Yard Option.

4.3-i Metro would work with the local jurisdictions, agencies, and businesses to implement parking mitigation (e.g., including, but not limited to, creating temporary one-way streets to provide diagonal parking; converting police and fire preferential parking to permit parking; leasing an existing garage; providing temporary metered parking; or providing wayfinding signs to help motorists find parking facilities) to help offset temporary losses during the construction period in areas of high commerce and automobile traffic (also see Mitigation Measure 3.0-viii in Chapter 3).

4.3-ii Metro would provide replacement parking for parcels that would be adversely affected due to the partial acquisition of parking at the parcel or at a nearby assemblage of parcels. Metro would consider shared use parking arrangements at Metro facilities in conjunction with reconfiguration of parking lots to maximize capacity (also see Mitigation Measure 3.0-x in Chapter 3). In addition, access to the property remaining would be maintained at all times during construction.

4.3-iii Metro would coordinate with the city and property owners to provide replacement parking at nearby parcels to ensure that public parking continues to be available (also see Mitigation Measure 3.0-x in Chapter 3).

4.3.3.3.3 Impacts Remaining After Mitigation

NEPA Finding

With implementation of mitigation measures, no adverse effects associated with displacement and relocation would result from the SR 60 LRT Alternative.

CEQA Determination

Impacts to parking and employment are not significant under CEQA because impacts to parking and employment would not cause a physical impact to the environment.

4.3.3.4 Washington Boulevard LRT Alternative

4.3.3.4.1 Impact Analysis

Construction Impacts

The construction of the Washington Boulevard LRT Alternative (both the at-grade and aerial crossings of Rosemead Boulevard and San Gabriel River/I-605) would require acquisition of 65 parcels, including partial acquisition as easements of five parcels, partial acquisition in fee of six parcels, and full acquisition of 54 parcels. Construction staging, lay down, and other construction support functions could be located at sites that would be permanently acquired. **Table 4.3-6** lists the APNs, addresses, and current and intended uses of the properties that could be impacted by displacement to construct the Washington Boulevard LRT Alternative.

Real estate identified for acquisition along the Washington Boulevard LRT Alternative alignment, including at and near the station sites, is sufficient for construction of the stations, park and ride lots, and other appurtenant facilities as well as for temporary easements necessary for storage of material and equipment, construction of temporary components of the project, and operation activities during construction.

Table 4.3-6. Parcels Potentially Affected by Displacement – Washington Boulevard LRT Alternative

APN	Address	Type of Displacement	Current Use	Intended Use
6383-039-004	No address available, Los Angeles County	Partial acquisition (easement)	Recreational trail	At-grade and aerial San Gabriel River crossing option
6383-039-800	No address available, Los Angeles County	Partial acquisition (easement)	San Gabriel River	At-grade and aerial San Gabriel River crossing option
6383-039-807	No address available, Los Angeles County	Partial acquisition (easement)	Recreational trail	At-grade and aerial San Gabriel River crossing option
8177-001-803	No address available, Los Angeles County	Partial acquisition (easement)	Union Pacific Railroad (UPRR)	At-grade and aerial San Gabriel River crossing option
8177-001-802	No address available, Los Angeles County	Partial acquisition (easement)	Utility corridor, nursery	At-grade and aerial San Gabriel River crossing option
5268-001-044	2809 Via Campo, Montebello	Partial acquisition (fee)	Multi-tenant retail store/offices	Garfield Avenue station/park and ride
6352-007-046	855 Washington Blvd., Montebello	Partial acquisition (fee)	Warehousing, distribution, and storage	Greenwood Avenue station/park and ride
6370-027-021	8913 Washington Blvd., Pico Rivera	Partial acquisition (fee)	Parking lot (commercial use)	Rosemead Blvd. station/park and ride, TPSS-06
6369-006-049	8730 Washington Blvd., Pico Rivera	Partial acquisition (fee)	Surface parking lot	Rosemead Blvd. station/park and ride
8169-001-010	12102 Washington Blvd., Whittier	Partial acquisition (fee)	Health clinic and services	TPSS-09
8168-018-047	12322 Washington Blvd., Whittier	Partial acquisition (fee)	Department store – surface parking lot	Lambert Road station and park and ride
5268-001-002	852-854 N. Garfield Avenue, Montebello	Full acquisition	Restaurant	Garfield Avenue station/park and ride, tracks
5268-001-005	860-862 N. Garfield Avenue, Montebello	Full acquisition	Commercial offices	Garfield Avenue station/park and ride, tracks
5268-001-006	864 N. Garfield Avenue, Montebello	Full acquisition	Beauty salon	Garfield Avenue station/park and ride, tracks
5268-001-007	868 N. Garfield Avenue, Montebello	Full acquisition	Professional building	Garfield Avenue station/park and ride, tracks

Table 4.3-6. Parcels Potentially Affected by Displacement – Washington Boulevard LRT Alternative (continued)

APN	Address	Type of Displacement	Current Use	Intended Use
5268-001-008	872 N. Garfield Avenue, Montebello	Full acquisition	Restaurant	Garfield Avenue station/park and ride, tracks
5268-001-009	874 N. Garfield Avenue, Montebello	Full acquisition	Salon and retail store	Garfield Avenue station/park and ride, tracks
5268-001-010	880 N. Garfield Avenue, Montebello	Full acquisition	Store	Garfield Avenue station/park and ride, tracks
5268-001-011	884 N. Garfield Avenue, Montebello	Full acquisition	Restaurant	Garfield Avenue station/park and ride, tracks
5268-001-012	888 N. Garfield Avenue, Montebello	Full acquisition	Laundry	Garfield Avenue station/park and ride, tracks
5268-001-033	856 N. Garfield Avenue, Montebello	Full acquisition	Restaurant	Garfield Avenue station/park and ride, tracks
5268-001-043	2825 Via Campo, Montebello	Full acquisition	Bank	Garfield Avenue station/park and ride
5268-001-045	No address available, Montebello	Full acquisition	Parking	Garfield Avenue station/park and ride
5268-001-046	892 N. Garfield Avenue, Montebello	Full acquisition	Fast food restaurant	TPSS, tracks
5268-028-001	500 N. Garfield Avenue, Montebello	Full acquisition	Auto service station	TPSS-02
6343-014-020	2510 W. Whittier Blvd., Montebello	Full acquisition	Cleaners	Whittier Blvd. station
6343-014-021	2466 W. Whittier Blvd., Montebello	Full acquisition	Multi-tenant store	Whittier Blvd. station
6343-014-022	2460 W Whittier Blvd., Montebello	Full acquisition	Office building	Whittier Blvd. station
6343-014-023	2456 W. Whittier Blvd., Montebello	Full acquisition	Restaurant	Whittier Blvd. station
6343-014-029	121 N. Garfield Avenue, Montebello	Full acquisition	Restaurant	Whittier Blvd. station
6343-014-030	113 N. Garfield Avenue, Montebello	Full acquisition	Parking lot	Whittier Blvd. station

Table 4.3-6. Parcels Potentially Affected by Displacement – Washington Boulevard LRT Alternative (continued)

APN	Address	Type of Displacement	Current Use	Intended Use
6343-014-031	113 N. Garfield Avenue, Montebello	Full acquisition	Car washing and cleaning	TPSS-03, park and ride
6343-014-032	114 N. Garfield Avenue, Montebello	Full acquisition	Office building	Whittier Blvd. station
6343-014-033	108 N. Garfield Avenue, Montebello	Full acquisition	Restaurant	Whittier Blvd. station
6343-014-034	2501 Repetto Avenue, Montebello	Full acquisition	Apartments	Whittier Blvd. station
6336-003-046	6711 E. Washington Blvd., Commerce	Full acquisition	Warehousing, distribution/ storage	TPSS-04, tracks
6352-007-043	1014 S. Greenwood Avenue, Montebello	Full acquisition	Vehicle sales and service	Greenwood Avenue station/park and ride
6352-007-059	869 Washington Blvd., Montebello	Full acquisition	Restaurant	Greenwood Avenue station/park and ride
6352-007-060	851 Washington Blvd., Montebello	Full acquisition	Surface parking lot, portion as restaurant	Greenwood Avenue station/park and ride
6352-027-004	No address available, Montebello	Full acquisition	Vacant Lot, partially unpaved	Greenwood Avenue station/park and ride
6352-027-005	944 S. Greenwood Avenue, Montebello	Full acquisition	Office	Greenwood Avenue station/park and ride
6352-027-006	936 S. Greenwood Avenue, Montebello	Full acquisition	Rental and leasing business	Greenwood Avenue station/park and ride
6352-027-016	870 Washington Blvd., Montebello	Full acquisition	Restaurant	Greenwood Avenue station/park and ride
6352-029-024	520-524 Washington Blvd., Montebello	Full acquisition	Restaurant	TPSS-05
6370-027-013	6749 Rosemead Blvd., Pico Rivera	Full acquisition	Restaurant	Rosemead Blvd. station/park and ride
6369-006-045	8890 Washington Blvd., Pico Rivera	Full acquisition	Restaurant	Rosemead Blvd. station/park and ride

Table 4.3-6. Parcels Potentially Affected by Displacement – Washington Boulevard LRT Alternative (continued)

APN	Address	Type of Displacement	Current Use	Intended Use
6383-003-022	7004 Pico Vista Road, Pico Rivera	Full acquisition	Single-family Residential	TPSS-07
6383-003-900	No address available, Pico Rivera	Full acquisition	Vacant; grassy lot	TPSS-07
8178-001-015	11208 Washington Blvd., Santa Fe Springs	Full acquisition	Bank	TPSS-08, Norwalk Blvd. station/park and ride
8178-001-026	11130 Washington Blvd., Santa Fe Springs	Full acquisition	Multi-tenant retail store	Norwalk Blvd. station/park and ride
8178-001-027	No address available, Santa Fe Springs	Full acquisition	Parking lot (commercial use)	Norwalk Blvd. station/park and ride
8168-018-043	12468 Lambert Road, Whittier	Full acquisition	Warehousing, distribution/ storage	Lambert Road station/park and ride, tracks
8168-018-044	12456 Lambert Road, Whittier	Full acquisition	Warehousing, distribution/ storage	Lambert Road station/park and ride, tracks
8168-018-045	12440 Lambert Road, Whittier	Full acquisition	Warehousing, distribution/ storage	Lambert Road station/park and ride, tracks
8168-018-046	12426 Lambert Road, Whittier	Full acquisition	Warehousing, distribution/ storage	Lambert Road station/park and ride, tracks
8168-018-048	No address available, Whittier	Full acquisition	Store's side yard	Lambert Road station/park and ride, tracks
8168-018-049	12320 Washington Blvd., Whittier	Full acquisition	Restaurant	Lambert Road station/park and ride
8168-018-050	12358 Washington Blvd., Whittier	Full acquisition	Restaurant	Lambert Road station/park and ride
8168-018-051	No address available, Whittier	Full acquisition	Parking lot	Lambert Road station/park and ride
8168-018-052	12376 Washington Blvd., Whittier	Full acquisition	Restaurants and stores	Lambert Road station/park and ride, tracks

Table 4.3-6. Parcels Potentially Affected by Displacement – Washington Boulevard LRT Alternative (continued)

APN	Address	Type of Displacement	Current Use	Intended Use
8168-019-025	12508 Lambert Road, Whittier	Full acquisition	Ambulance center	Storage tail track
8168-619-033	12522 Lambert Road, Whittier	Full acquisition	Medical offices/clinic	Storage tail track
8168-019-032	12532 Lambert Road, Whittier	Full acquisition	Storage, distribution, offices	Storage tail track
8168-019-006	12546 Lambert Road, Whittier	Full acquisition	Vacant land	Storage tail track

Source: AECOM, CDM 2011.

Notes: Refer to Appendix HH, Conceptual Engineering Drawings, for locations of potentially affected parcels

Parking

The Washington Boulevard LRT Alternative would displace a total of 1,794 off-street parking spaces. Of the 1,794 parking spaces that would be displaced, only 935 would require replacement parking mitigation. Replacement parking mitigation would not be required for the remaining 859 off-street parking spaces because these parking spaces would be moved with the business uses and the parking does not serve other businesses or uses in the area. The displacement of off-street parking spaces could be offset in some instances by the increased public transit access provided by the proposed project, and the mitigation measures described below.

Under NEPA, the parking mitigation measures described below would reduce parking effects to not adverse. Impacts to parking are not significant under CEQA because impacts to parking and employment would not cause a physical impact to the environment.

Businesses

A total of 58 businesses and approximately 633 employees would be displaced as a result of the Washington Boulevard LRT Alternative.

It is anticipated that the displaced jobs could be retained with the relocation or reestablishment of businesses at other sites in the project area. Each business to be displaced as a result of the project would be given advance written notice and would be informed of its eligibility for relocation assistance and payments under the Uniform Act and the California Act.

Under NEPA, there would be no adverse effects to businesses with implementation of the mitigation measures described below. Impacts to employment are not significant under CEQA because impacts to parking and employment would not cause a physical impact on the environment.

Residences

The Washington Boulevard LRT Alternative would displace a total of nine residential units and approximately30 people. It is anticipated that the persons displaced could be relocated to comparable housing in the project area, and that a potential transit oriented development (TOD) project with a residential component could offset the loss in housing.

Recreational

One parcel, where a partial acquisition through easement is required, is owned by Los Angeles County and is used for a recreational hiking and riding trail. This recreational hiking and riding trail is

a protected Section 4(f) resource and would require a Section 4(f) determination. The potential use of the land for the project would be in coordination with public agencies and constitutes a Section 4(f) impact. Neither the at-grade option nor the aerial option would materially impact the function of the recreational use at this location. (Refer to Section 4.15, Parklands and Other Community Facilities, as well as Section 5.0 of Appendix F, Section 4(f) Evaluation, of this Draft EIS/EIR for the environmental impact analysis related to impacts on this Los Angeles County parcel.)

Billboard Signage

NEPA and CEQA do not have specific requirements related to impacts due to relocation of billboard signage. Based on conceptual engineering drawings approximately seven to 10 billboards would need to be relocated as part of the Washington Boulevard LRT Alternative. It should be noted that these billboard relocations are preliminary at this time; final, actual billboard relocations will be identified during the final design phase once a locally preferred alternative has been identified.

Operational Impacts

Operation of the Washington Boulevard LRT Alternative would not result in additional adverse effects regarding displacement and relocation.

Maintenance Yards Options

Construction Impacts

Maintenance yard options under the Washington Boulevard LRT Alternative include the Mission Junction Maintenance Yard Option, the Commerce Maintenance Yard Option, and the Santa Fe Springs Maintenance Yard Option. The Mission Junction Maintenance Yard Option would require the same acquisitions described above for the SR 60 LRT Alternative. The 12-acre Commerce Maintenance Yard Option would require the partial acquisition of eight UPRR-owned properties, listed in **Table 4.3-7**. There are no businesses or residences located in the UPRR-owned parcels that would be potentially displaced. The Santa Fe Springs Maintenance Yard Option, an approximately nine-acre site located off Washington Boulevard in Santa Fe Springs and Whittier, would require the full acquisition of 17 private property parcels, as listed in Table 4.3-7.

Acquisitions required for the Santa Fe Springs Maintenance Yard Option would displace 38 off-street parking spaces and would not require replacement parking mitigation because the parking would be moved with the business uses and does not serve other businesses or uses in the area.

A total of 17 businesses and approximately 144 employees would be displaced as a result of the Santa Fe Springs Maintenance Yard Option. It is anticipated that the displaced jobs could be retained with the relocation or reestablished at other sites in the project area. No residential units or persons would be displaced as a result of this option.

Billboard Signage

NEPA and CEQA do not have specific requirements related to impacts due to relocation of billboard signage. Billboards may need to be relocated for any of the three maintenance yard options. Final, actual billboard relocations will be identified during the final design phase once a locally preferred alternative has been identified.

Operational Impacts

Operation of the Washington Boulevard Maintenance Yard Options would not result in additional adverse effects regarding displacement and relocation.

Overall, the Washington Boulevard LRT Alternative, with or without the Maintenance Yard Options, would not result in an adverse effect under NEPA or a significant impact under CEQA with implementation of mitigation measures described below.

4.3.3.4.2 Mitigation Measures

The same mitigation measures (mitigation measures 4.3-i through 4.3-iii) identified above in Section 4.3.3.3.2 for the SR 60 LRT Alternative and summarized in Table ES-2 would also apply to the Washington Boulevard LRT Alternative.

Table 4.3-7 Maintenance Yards – Washington Boulevard LRT Alternative

APN	Address	Current Use	Intended Use
6336-001-814	UPRR	Rail ROW	Commerce Yard Option
6336-014-009	UPRR	Rail ROW	Commerce Yard Option
6336-014-800	UPRR	Rail ROW	Commerce Yard Option
6336-015-012	UPRR	Rail ROW	Commerce Yard Option
6336-015-810	UPRR	Transmission corridor	Commerce Yard Option
6336-015-811	UPRR	Transmission corridor	Commerce Yard Option
6336-016-814	UPRR	Rail ROW	Commerce Yard Option
6336-012-811	UPRR	Rail ROW	Commerce Yard Option
8169-005-001	11649-11642 E. Washington Blvd., Whittier	Auto body and ceramic/tile store	Santa Fe Springs Yard Option
8169-005-012	8140 Allport Avenue, Santa Fe Springs	Household and bathroom supplier	Santa Fe Springs Yard Option
8169-005-014	8035 Freestone Avenue, Santa Fe Springs	Metal fabrication	Santa Fe Springs Yard Option
8169-005-017	11648 E. Washington Blvd., Whittier	Tool and metal fabrication	Santa Fe Springs Yard Option
8169-005-018	No address available, Santa Fe Springs	Storage	Santa Fe Springs Yard Option
8169-005-019	11664 E. Washington Blvd., Whittier	Car stereo and installation store	Santa Fe Springs Yard Option
8169-005-020	8020 Freestone Avenue, Santa Fe Springs	Metal works	Santa Fe Springs Yard Option
8169-005-025	8122 1/2 Allport Avenue, Santa Fe Springs	Light industrial and distribution	Santa Fe Springs Yard Option
8169-005-028	8030 Freestone Avenue, Santa Fe Springs	Automotive	Santa Fe Springs Yard Option

Table 4.3-7 Maintenance Yards – Washington Boulevard LRT Alternative (continued)

APN	Address	Current Use	Intended Use
8169-005-029	8038 - 8101 Freestone Avenue, Santa Fe Springs	Machine and automotive repairs	Santa Fe Springs Yard Option
8169-005-030	8130 Allport Avenue,		8169-005-030
8169-005-031	8122 Allport Avenue,		8169-005-031
8169-005-032	8112 Freestone Avenue, Santa Fe Springs	Storage	Santa Fe Springs Yard Option
8169-005-033	8124 Allport Avenue, Santa Fe Springs	Metal processing	Santa Fe Springs Yard Option
8169-005-034	8024 Allport Avenue, Santa Fe Springs	Woodworking	Santa Fe Springs Yard Option
8169-005-035	8036 Allport Avenue, Santa Fe Springs	Warehouse and distribution	Santa Fe Springs Yard Option
8169-005-036	8118 Allport Avenue, Santa Fe Springs	Office	Santa Fe Springs Yard Option

Source: AECOM, CDM Smith 2011.

Notes: Refer to Appendix HH, Conceptual Engineering Drawings, for locations of potentially affected parcels

The following additional mitigation measures would address adverse effects and reduce potential impacts to below the thresholds of significance for the Washington Boulevard LRT Alternative.

4.3-iv Metro would work with local jurisdictions, merchants, other businesses, and commerce associations to implement parking mitigation (e.g., including, but not limited to, creating temporary one-way streets to provide diagonal parking; converting police and fire preferential parking to permit parking; leasing an existing garage; providing temporary metered parking; or providing wayfinding signs to help motorists find parking facilities) to help offset losses during construction and operation. Metro would provide relocation assistance and compensation to businesses and residents as required by both the Uniform Act and the California Act. Where acquisitions and relocations are unavoidable, FTA and Metro would follow the provisions of both acts and their amendments. All real property acquired by Metro would be appraised to determine its fair market value (FMV). Just compensation, which would not be less than the approved appraisal, would be made to each property owner and holder of a property interest.

4.3-v All businesses, persons, and occupants displaced as a result of the project would be given advance written notice by Metro and informed of their eligibility for relocation assistance and payments. It is anticipated that where business relocation is required, the displaced jobs would be retained with the relocation or reestablished at other sites in the project area. Commercial vacancy rates and available comparable sites within the cities in which the identified parcel acquisitions would occur would be reviewed to confirm that relocation could be accommodated within the existing building inventory. In the project area and region, there are expected to be sufficient available sites and commercial space suitable for affected businesses to be relocated. Recognizing that the horizon year for the project is 2035, the ease of relocation would be affected by the fluctuations of the marketplace and space availability at the actual time of relocation.

4.3-vi Metro would provide housing relocation and assistance per the Uniform Act and the California Act.

4.3.3.4.3 Impacts Remaining After Mitigation

NEPA Finding

With implementation of mitigation measures, no adverse effects associated with displacement and relocation would result from the Washington Boulevard LRT Alternative.

CEQA Determination

With implementation of mitigation measures, potentially significant impacts associated with displacement and relocation would be reduced to less than significant levels for the Washington Boulevard LRT Alternative. Impacts to parking and employment are not significant under CEQA because impacts to parking and employment would not cause a physical impact on the environment.

Section 4.4

Economic and Fiscal Impacts

This section evaluates potential impacts to local and regional economies during construction and operation of each project alternative. Property tax-related impacts focus on properties that would be acquired under each alternative. Information in this section is based on, and updated where appropriate from, the Economic and Fiscal Impacts Evaluation Technical Memorandum, which is incorporated into this Draft EIS/EIR as Appendix AA.

4.4.1 Regulatory Framework/Methodology

4.4.1.1 Regulatory Framework

Pursuant to Section 15131(a) of the *California Environmental Quality Act (CEQA) Guidelines*, economic or social effects of a project shall not be treated as significant impacts on the environment; they are, however, used to determine the significance of physical changes caused by the project. Significant economic impacts under CEQA would occur under the following circumstances:

Job and Earnings Effects: Specific numerical thresholds are not provided by CEQA, but an impact would be considered significant if the operation of the project contributes to jobs and earnings in the region in a way that would result in an adverse physical impact on the environment.

Reduction of Tax Revenue: Specific numerical thresholds are not provided by CEQA, but an impact would be considered significant if it causes a substantial loss of local tax revenue that would result in less social spending or a reduction in community services, thereby indirectly causing deterioration of the environment. Property tax losses in excess of one percent of the area tax base would be considered a significant impact under CEQA.

In addition, the U.S. Department of Transportation (USDOT) has joined with the U.S. Department of Housing and Urban Development (HUD) and the U.S. Environmental Protection Agency (USEPA) to create the Sustainable Communities Partnership. Of the six principles that guide the Partnership's programs, three were considered in the economic assessment of this project. These are:

- Provide more transportation choices
- Promote equitable and affordable housing
- Enhance economic competitiveness

As described more fully in Appendix AA, Economic and Fiscal Impacts Evaluation Technical Memorandum, of this Draft EIS/EIR, the value of travel time and costs saved is estimated. The value of time saved describes the change in economic competitiveness attributable to the project, as outlined above.

The value of travel costs saved addresses both the principle of providing more transportation choices and the principle of promoting equitable and affordable housing by reducing the combined cost of housing and transportation.

4.4.1.2 Methodology

Construction cost estimates continue to be updated as shown in Chapter 6 to reflect the long term projection for construction (2035); recent estimates represent a less than 1 percent change to the cost estimates used in the analysis included in this section and Appendix AA. The less than 1 percent change in the recent estimates does not result in any change in the impact analysis or conclusions in this EIS/EIR. Costs and analysis for this section will continue to be updated to reflect refinements when the project progresses into a Final EIS/EIS.

Methodology for Job and Earnings Growth: The number of jobs and amount of earnings (wages and salaries earned by workers) generated by operation of each alternative were determined by using regional multipliers from the Bureau of Economic Analysis (BEA) within the U.S. Department of Commerce. The multipliers were used to translate the operating and maintenance expenditures for each alternative into associated job and earnings effects.

Methodology for Additional Tax Base Impacts: The annual tax revenue associated with the loss of properties due to right-of-way (ROW) purchase, displacement, and relocation was determined by first identifying the actual properties required for each of the alternatives. The estimated assessed value of the required acquisition was then multiplied by the current 2010 real estate tax rates for cities and counties.

The total value of acquisitions removed from the tax base was compared to the total tax base to identify the percentage of properties permanently removed and no longer generating tax revenue for each alternative considered. This comparison was used to determine whether impacts would be significant in magnitude.

4.4.2 Affected Environment/Existing Conditions

The project area is located within the much larger Los Angeles-Long Beach-Santa Ana Metropolitan Statistical Area (MSA) (as defined by the U.S. Office of Management and Budget), which is referred to as the "Los Angeles metro area" hereafter. The proposed Eastside Transit Corridor Phase 2 Project is in Los Angeles County; the alternatives under consideration are located within portions of unincorporated Los Angeles County, the city of Los Angeles, and the cities of Commerce, Montebello, Monterey Park, Pico Rivera, Rosemead, Santa Fe Springs, South El Monte, and Whittier.

One of the nation's largest and most diverse urban economies, the Los Angeles metro area serves as an international gateway to the industrializing Asian and Latin American regions for both freight will grow by over 37 percent in population between 2000 and 2030. Without meaningful investment in transportation infrastructure to handle this increase in population (and population density), the region's existing comparative advantages will be eroded by rising travel times and congestion costs, increased disamenities such as air pollutant emissions, and reduced travel reliability.

4.4.3 Environmental Impacts/Environmental Consequences

Economic impacts are identified for Los Angeles County and the Los Angeles metro area, which includes Los Angeles and Orange counties. Fiscal impacts are identified for the city of Los Angeles, unincorporated Los Angeles County, and the cities of Commerce, Montebello, Monterey Park, Pico Rivera, Rosemead, Santa Fe Springs, South El Monte, and Whittier. Tax base impacts are determined by the parcels acquired for each alternative. **Table 4.4-1** summarizes the results of the analysis.

4.4.3.1 No Build Alternative

4.4.3.1.1 Impact Analysis

Job and Earnings Effects: Under the No Build Alternative, by 2035 it is expected that approximately 3,400 jobs in Los Angeles County and 3,700 jobs in the Los Angeles metro area would be created as a result of operation and maintenance expenditures associated with the No Build Alternative, with approximately $100 million and $112 million in earnings in Los Angeles County and the Los Angeles metro area, respectively. However, this growth in jobs and earnings is not considered a net new gain for the economy, but rather jobs and earnings that would occur if the project were not implemented (under the No Build Alternative).

Table 4.4-1 Summary of Potential Economic and Fiscal Impacts

Alternative	Disruption to Businesses	Job and Earnings Effects	Effect on Tax Base
No Build	None	None	None
TSM	Not adverse after mitigation/Less than significant after mitigation	Not adverse/ Less than significant	None
SR 60 LRT	Not adverse after mitigation/Less than significant after mitigation	Beneficial effect/ Beneficial impact	Not adverse/ Less than significant
SR 60 North Side Design Variation	Not adverse after mitigation/Less than significant after mitigation	Beneficial effect/ Beneficial impact	Not adverse/ Less than significant
Washington Boulevard LRT	Not adverse after mitigation/Less than significant after mitigation	Beneficial effect/Beneficial impact	Not adverse/ Less than significant

The projected jobs and earnings growth under the No Build Alternative reflects a portion of projected growth within Los Angeles County and the Los Angeles metro area. This gain in jobs and earnings is less than the growth in jobs and earnings that would occur under the TSM Alternative and the LRT build alternatives.

Tax Base Changes: No property taking is associated with the No Build Alternative; therefore, there would be no tax base changes.

The No Build Alternative would have no adverse effects on the economic and fiscal health of communities in the project area under NEPA. Similarly, this alternative would not result in a significant impact on the economic and fiscal health of communities in the project area under CEQA.

4.4.3.1.2 Mitigation Measures

Since the No Build Alternative would not result in an economic or fiscal impact, no mitigation measures are required.

4.4.3.1.3 Impacts Remaining After Mitigation

NEPA Finding

No construction expenditures are associated with the No Build Alternative; as a result, no construction-related effects (adverse or beneficial) would occur as a result of the No Build Alternative.

The No Build Alternative would not adversely affect the economic and fiscal health of communities in the project area. The No Build Alternative would not result in any direct or indirect adverse effects. It would also not have the economic and fiscal benefits of the build alternatives.

CEQA Determination

No construction expenditures are associated with the No Build Alternative; as a result, no construction-related impacts (significant or beneficial) would occur as a result of the No Build Alternative.

The No Build Alternative would not significantly impact the economic and fiscal health of communities in the project area and, therefore, would not result in physical impacts to the environment.

4.4.3.2 TSM Alternative

4.4.3.2.1 Impact Analysis

Construction Impacts

Construction would have temporary impacts on commercial and industrial businesses, particularly those near or adjacent to construction sites. Sidewalk space might be taken temporarily for construction of bus stops, thereby reducing access to businesses. Business impacts would include reduced visibility of commercial signs and businesses. These construction impacts would be more limited than those of the build alternatives and generally would be short in duration. However, they would in turn produce minor economic impacts to commercial establishments.

Job and earnings impacts associated with construction of the TSM Alternative would result in the creation of 655 jobs in Los Angeles County and 767 for the MSA. This is the equivalent of $28.9

million for Los Angeles County and $33.8 million for the MSA. These figures apply to one-time impacts that would last for the duration of the project's construction. This would represent a beneficial impact.

Construction impacts for the TSM Alternative represent a net increase over the No Build Alternative. They are, however, substantially lower than those estimated for each of the build alternatives.

Construction of the TSM Alternative would have temporary adverse impacts on commercial and industrial businesses, particularly those near or adjacent to construction sites. Mitigation has been included to address these temporary adverse impacts. Similarly, construction of the TSM Alternative would have less than significant impacts with the incorporation of mitigation measures under CEQA. Construction-related effects/impacts would be not adverse/less than significant after the implementation of mitigation measures.

Operational Impacts

Job and Earnings Effects: Job and earnings impacts associated with the TSM Alternative were estimated for Los Angeles County and the Los Angeles metro area. The net difference between the TSM Alternative and the No Build Alternative is 651 jobs and $19.1 million in earnings for Los Angeles County. The net difference between the TSM Alternative and the No Build Alternative is 710 jobs and $21.4 million in earnings for the Los Angeles metro area as a whole. These estimates include both direct and indirect impacts associated with the operations and maintenance spending. These are long-term annual impacts that would continue for the life of the TSM Alternative service. These expenditures would be funded with a mix of local sources, including fares and local subsidy. As a result, the jobs and earnings associated with these operations and maintenance activities would not be net new gains for the economy, but rather jobs and earnings supported by the project alternative selected. The assumption is that the local funds would be used for transportation, if not for this project then for another with similar results. Thus, the jobs are sustained by the transportation spending but are not a net increase to the economy. The jobs and earnings created due to operation and maintenance of the TSM Alternative would be substantially lower than those under the rail build alternatives.

The TSM Alternative would not have an adverse effect on jobs and earnings under NEPA and would have a less than significant impact on jobs and earnings under CEQA.

Tax Base Changes: No acquisitions or displacements would occur under the TSM Alternative. Therefore, no tax base changes would occur.

The TSM Alternative would not have an adverse effect on the tax base under NEPA and would have a less than significant impact on the tax base under CEQA.

4.4.3.2.2 Mitigation Measures

4.4-i. Notify property owners, businesses, and residences of major construction activities (e.g., utility relocation or disruption and milestones; re-routing of delivery trucks).

4.4-ii. Whenever possible Metro, working with the construction contractor, would develop detours for any roads or sidewalks to be closed during construction; post signs (in appropriate languages) alerting pedestrians, bicyclists, and motorists of road and sidewalk closures and detours; ensure that pedestrian detours are accessible to seniors and disabled persons; and develop Worksite Traffic Control Plans in conjunction with the county and municipal departments of transportation to accommodate automobile, bicycle, and pedestrian traffic.

4.4-iii. Metro would maintain access to community facilities affected by construction activities.

4.4-iv. Metro would provide early notification to emergency service providers of any road closures or detours.

4.4-v. Metro would provide crossing guards as needed in the vicinity of construction sites, haul routes, and other relevant sites as proposed in the California Department of Transportation (Caltrans) Traffic Manual, Chapter 10-07.3, Warrants for Adult Crossing Guards.

4.4-vi. The construction contractor would erect barriers or fencing as needed during construction to minimize trespassing and vandalism.

4.4-vii. Metro would forewarn the public of any anticipated road closures or detours due to construction activity.

4.4.3.2.3 Impacts Remaining After Mitigation

NEPA Finding

Construction of the TSM Alternative would not adversely affect the economic and fiscal health of communities in the project area. It would have minor and temporary effects (limited to the duration of construction) on businesses during construction, but would also result in temporary, limited increases in employment. As a result, no adverse construction-related effects would occur as a result of the TSM Alternative.

The TSM Alternative would not adversely affect the economic and fiscal health of communities in the project area. It would not result in any direct or indirect adverse effects.

CEQA Determination

Construction of the TSM Alternative would not significantly impact the economic and fiscal health of communities in the project area. It would have minor and temporary impacts (limited to the duration of construction) on businesses during construction, which would be mitigated; but it would also result in temporary, limited increases in employment. As a result, no significant construction-related impacts would occur as a result of the TSM Alternative.

The TSM Alternative would not significantly impact the economic and fiscal health of communities in the project area. In addition, these economic and fiscal impacts would not result in physical impacts on the environment.

4.4.3.3 SR 60 LRT Alternative

4.4.3.3.1 Impact Analysis

Construction Impacts

Construction would have temporary impacts on commercial and industrial businesses, particularly those near or adjacent to construction sites. Sidewalk space might be taken temporarily for station and alignment construction, thereby reducing access to businesses. Business impacts could include reduced visibility of commercial signs and businesses. These construction impacts could in turn produce economic impacts to commercial establishments. However, mitigation measures have been incorporated as part of the project to reduce these impacts to less than significant.

Job and earnings impacts associated with construction of the SR 60 LRT Alternative would result in the creation of 14,540 jobs in Los Angeles County (14,191 with the North Side Design Variation) and 16,928 for the MSA (16,522 with the North Side Design Variation). This is the equivalent of $667.3 million in earnings ($651.2 million with the North Side Variation) for Los Angeles County and $771.5 million for the MSA ($753.0 million with the North Side Design Variation). These figures apply to one-time impacts that would last for the duration of the project's construction. Nonetheless, this would represent a beneficial impact.

There are no long-term adverse effects associated with the economic impacts generated by construction-related capital expenditures, which includes construction and continued spending on vehicles and facilities when service is operating. Construction-related spending and job creation would last for the duration of the project's construction cycle.

Construction-related effects would not be adverse under NEPA and would be less than significant under CEQA after implementation of mitigation measures.

Operational Impacts

Job and Earnings Effects: Job and earnings impacts associated with the SR 60 LRT Alternative were estimated for Los Angeles County and the Los Angeles metro area. The net difference between the SR 60 LRT Alternative and the No Build Alternative is 1,082 jobs and $31.8 million in earnings for Los Angeles County, or 1,084 jobs and $31.8 million in earnings with the SR 60 North Side Design Variation. This would represent a beneficial impact. The net difference between the SR 60 LRT Alternative and the No Build Alternative is 1,180 jobs and $35.6 million in earnings for the Los Angeles metro area as a whole, or 1,183 jobs and $35.7 million in earnings with the North Side Design Variation.

These beneficial impacts are significantly greater than those for the TSM Alternative and somewhat less than those for the Washington Boulevard LRT Alternative. Jobs and earnings would be less for this Alternative than for the Washington Boulevard LRT Alternative due to the shorter route and fewer stops, which would generate slightly less economic activity.

These estimates include both direct and indirect impacts associated with the operation and maintenance spending. These are long-term impacts; they would begin on the first day of operation and continue for the life of the project. These expenditures would be funded with a mix of local sources, including fares and local subsidy. As a result, the jobs and earnings associated with these operation and maintenance activities would not be net new gains for the economy, but rather jobs and earnings supported by the project alternative selected.

The SR 60 LRT Alternative would not have an adverse effect on jobs and earnings under NEPA and would have a beneficial impact on jobs and earnings under CEQA.

Tax Base Changes: The SR 60 LRT Alternative would result in 23 full or partial acquisitions, while the SR 60 North Side Design Variation would result in one additional partial acquisition. Since many of the acquisitions would be partial acquisitions, the estimate of tax base and revenue loss takes into account the portion of each parcel acquired and whether it is land only, or land and buildings. Acquisitions for the SR 60 LRT Alternative, with or without the North Side Design Variation, would remove property from the tax base and would thereby reduce the tax revenue generated in the cities of Montebello and South El Monte where the acquisitions would occur. One partial acquisition for the SR 60 North Side Variation is located in Monterey Park; however, the assessed value of the property required is essentially zero. In addition, a big box retail project is proposed for this site; however, even with this development the impact would still not be significant, as the partial taking would be limited to the loss of approximately 12 parking spaces from an inventory of over 2,000.

The total assessed value of acquisitions would be $9.77 million (in 2010 dollars), resulting in a loss of revenue of $127,418 for the SR 60 LRT Alternative. Meanwhile, with the SR 60 North Side Design Variation, the total assessed value of acquisitions would be $9.81 million (in 2010 dollars), resulting in a loss of revenue of $128,079. Of the property acquisitions, $1.8 million would take place in Montebello and the remaining $7.9 million would be in South El Monte. With the SR 60 North Side Design Variation, $1.9 million in property acquisition would occur in Montebello and $7.9 million would occur in South El Monte.

While these would be adverse impacts, they would be less than significant in every jurisdiction. The total value of all assessed property required in the city of Montebello would be $4,611.06 million and in the city of South El Monte the total value would be $1,713.59 million, according to Los Angeles County Assessor's records. The total value of acquisitions in each jurisdiction is substantially less than one percent of its tax base, the threshold typically applied to determine whether an impact is significant.

For the SR 60 LRT Alternative, the potential maintenance yard option (Mission Junction Maintenance Yard Option) is located at the intersection of Mission Road and Cesar Chavez

Avenue, adjacent to the existing Mission Junction rail facility. This maintenance yard option would require the full acquisition of six private parcels located entirely within the city of Los Angeles. The total value of acquisitions for the maintenance yard option is approximately $3.7 million. The magnitude of acquisitions, even combined with those required for the SR 60 LRT Alternative described above, remains well below the one percent threshold for determining the significance of tax base changes. There is no significant tax impact associated with the Mission Junction Maintenance Yard Option.

As indicated in Section 4.3, Displacement and Relocation, an estimated 69 jobs would be displaced or relocated due to the property acquisitions needed for the SR 60 LRT Alternative, with or without the North Side Design Variation. An additional 30 jobs would be displaced or relocated due to the property acquisitions needed for the maintenance yard option. However, jobs could be retained with relocation and reestablished in other available locations in the jurisdiction or the project area (possibly as a transit oriented development or TOD). This would result in no net loss of jobs overall. Moreover, to the extent that rail transit investment has been shown to be an economic development catalyst in other communities, the net effect may be positive. (Refer to Section 4.3, Displacement and Relocation, for additional details.)

While the SR 60 LRT Alternative would result in minor losses to the tax base, these effects are not significant. Similarly, this alternative would have a less than significant impact on the tax base under CEQA.

4.4.3.3.2 Mitigation Measures

In addition to the mitigation measures identified below, mitigation measures 4.5-i through 4.5-iv and 4.5-vi through 4.5-ix from Section 4.5, Community and Neighborhood Impacts and mitigation measures 3.0-ii through 3.0-xiii from Chapter 3, Transportation Impacts would be implemented. (Refer to the specific section for the detailed mitigation measure.)

Construction Mitigation Measures

4.4-viii. Metro Construction Relations staff and construction personnel would contact and interview individual businesses to identify business usage, delivery, and shipping patterns, as well as critical times of the day or year for business activities, to aid in developing Worksite Traffic Control Plans and to ensure that critical business activities are not disrupted.

4.4-ix. During construction Metro would develop, fund, and maintain a telephone hotline, and one or more Metro field offices would be developed and maintained to address community issues and concerns as they arise. The office should be open on weekdays and on any weekends when work occurs. The office would provide a physical location where information pertaining to construction can be exchanged. Metro would ensure that all potentially affected persons know the name and telephone number(s) of public affairs staff whom they can contact if needed. The contractor staffing plan would be subject to Metro review.

4.4-x. Metro would participate in local events to promote awareness of the project.

4.4-xi. Metro would notify property owners, businesses, and residences of major construction activities (e.g., utility relocation or disruption and milestones and re-routing of delivery trucks).

4.4-xii. Metro would provide literature to the public and news media, schedule promotional displays, participate on community committees, and make presentations, as needed, about the project.

4.4-xiii. Metro would coordinate business outreach programs and implement promotions for businesses most affected by the construction.

4.4xiv. Upon completion of construction, property needed for construction but not required to maintain the physical infrastructure or necessary for access would be included in a Metro Joint Development Program for possible development, and also in a report to FTA on Excess Property Management. Any joint development project would be environmentally cleared separately from this project and would undergo its own community input process. Until a development is approved, the remaining underutilized property may be used for operations-related purposes, and maintained to a standard that reflects the community's identity and character.

Operational Mitigation Measures

The SR 60 LRT Alternative, with or without the SR 60 North Side Design Variation, would not result in a significant impact or adverse effect to the regional or local economy. Therefore, no mitigation measures are required.

4.4.3.3.3 Impacts Remaining After Mitigation

NEPA Finding

Construction of the SR 60 LRT Alternative would not adversely affect the economic and fiscal health of communities in the project area beyond the temporary disruption associated with construction. Temporary disruption associated with construction would not result in an adverse effect with implementation of mitigation measures.

Construction of the SR 60 LRT Alternative would generate slightly more jobs and earnings than the Washington Boulevard Alternative. However, all beneficial construction effects are temporary, and would last only as long as the construction cycle.

With implementation of mitigation measures, no adverse construction-related effects would occur as a result of the SR 60 LRT Alternative.

The SR 60 LRT Alternative, with or without the SR 60 North Side Design Variation, would not adversely affect the economic and fiscal health of communities in the project area.

While the SR 60 LRT Alternative alignment would result in minor losses to the tax base and associated revenue, these effects would not be adverse. In addition, the creation of jobs and earnings associated with operation of this alternative would have a beneficial effect on the economic and fiscal health of communities in the project area.

CEQA Determination

Construction of the SR 60 LRT Alternative would not significantly impact the economic and fiscal health of communities in the project area beyond the temporary disruption associated with construction, which with mitigation would be less than significant.

Construction of the SR 60 LRT Alternative would generate slightly more jobs and earnings than the Washington Boulevard Alternative. However, all beneficial construction impacts are temporary, and would last only as long as the construction cycle.

With implementation of mitigation measures, construction-related impacts would be less than significant as a result of the SR 60 LRT Alternative.

The SR 60 LRT Alternative, with or without the North Side Design Variation, would not significantly affect the economic and fiscal health of communities in the project area. Any economic and fiscal effects would not result in physical impacts to the environment. In addition, the creation of jobs and earnings associated with operation of this alternative would have a beneficial effect on the economic and fiscal health of communities in the project area.

4.4.3.4 Washington Boulevard LRT Alternative

4.4.3.4.1 Impact Analysis

Construction Impacts

Construction would have temporary impacts on commercial and industrial businesses, particularly those near or adjacent to construction sites. Sidewalk space might be taken temporarily for station and alignment construction, thereby reducing access to businesses. Business impacts

could include reduced visibility of commercial signs and businesses. These construction impacts could in turn produce economic impacts to commercial establishments. However, mitigation measures have been incorporated to reduce these impacts to less than significant.

Job and earnings impacts associated with construction of the Washington Boulevard LRT Alternative would result in the creation of 14,320 jobs in Los Angeles County (14,857 with the Aerial Crossings Option) and 16,673 for the MSA (17,299 with the Aerial Crossings Option). This is the equivalent of $656.8 million in earnings ($681.0million for the Aerial Crossings Option) for Los Angeles County and $759.5 for the MSA ($787.6 million for the Aerial Crossings Option). These figures apply to one-time impacts that would last for the duration of the project's construction. Nonetheless, this would represent a beneficial impact.

There are no long-term effects associated with the economic impacts generated by capital expenditures, which include construction and continued spending on vehicles and facilities when service is operating. Construction-related spending and job creation would last for the duration of the project's construction cycle.

Construction-related effects would not be adverse under NEPA and would be less than significant under CEQA after implementation of mitigation measures.

Operational Impacts

Job and Earnings Effects: Job and earnings impacts associated with the Washington Boulevard LRT Alternative were estimated for Los Angeles County and the Los Angeles metro area. The Washington Boulevard LRT Alternative would result in an additional 1,394 jobs and $40.9 million in earnings over the No Build Alternative for Los Angeles County. For the metro area as a whole, the Washington Boulevard LRT Alternative would result in an additional 1,521 jobs and $45.9 million in earnings over the No Build Alternative. This would represent a beneficial impact.

These beneficial impacts are significantly greater than those for the TSM Alternative and somewhat greater than those for the SR 60 LRT Alternative. Jobs and earnings would be higher for this Alternative compared to the SR 60 LRT Alternative due to the longer route and greater number of stops, which would generate more economic activity. The Rosemead Boulevard and I-605/San Gabriel River aerial crossing options would have no impact on operation and maintenance spending; therefore, the impacts would be the same for these two crossing options despite a slightly different construction cost.

These estimates include both direct and indirect impacts associated with the operations and maintenance spending. These are long-term impacts; they would begin on the first day of operation and continue for the life of the project. These expenditures would be funded with a mix of local sources—fares and local subsidy. As a result, the jobs and earnings associated with these operations and maintenance activities would not be net new gains for the economy, but rather jobs and earnings supported by the project alternative selected.

The Washington Boulevard LRT Alternative would not have an adverse effect on jobs and earnings under NEPA and would have a beneficial impact on jobs and earnings under CEQA.

Tax Base Changes: Construction of the Washington Boulevard LRT Alternative would result in 65 full or partial acquisitions, which would remove property from the tax base and thereby reduce the tax revenue generated in the cities of Montebello, Commerce, Pico Rivera, Santa Fe Springs, and Whittier, where the acquisitions would occur. Since many of the acquisitions would be partial, the estimate of tax base and revenue loss takes into account the portion of each parcel acquired and whether it is land only or land and buildings. The total assessed value of acquisitions would be $40.2 million (in 2010 dollars), resulting in a tax loss of $485,626 across all jurisdictions including $214,704 in Montebello, $21,060 in Commerce, $121,890 in

Pico Rivera, $25,703 in Santa Fe Springs, and $102,270 in Whittier.

While these would be adverse impacts, they would be less than significant in every jurisdiction. The total value of all assessed property being acquired is $16.0 million in Montebello, $1.8 million in Commerce, $10.8 million in Pico Rivera, $2.3 million in Santa Fe Springs, and $9.2 million in Whittier, according to Los Angeles County Assessor's records. The total value of acquisitions in each jurisdiction is less than one percent of the total tax base, the threshold typically applied to determine whether an impact is significant.

Three maintenance yard options are being analyzed for the Washington Boulevard LRT Alternative: the Mission Junction Maintenance Yard Option, Commerce Maintenance Yard Option, and Santa Fe Springs Maintenance Yard Option. The following lists the total value of acquisitions for each maintenance yard option:

- Mission Junction Maintenance Yard Option: Approximately $3.7 million, located entirely within the city of Los Angeles.
- Commerce Maintenance Yard Option: Approximately $283,000, located entirely within the city of Commerce.
- Santa Fe Springs Maintenance Yard Option: Approximately $7.7 million, divided among the cities of Santa Fe Springs and Whittier. The value of acquired property is $5.6 million in Santa Fe Springs and $2.1 million in Whittier.

The acquisitions for each maintenance yard option, even combined with those required for the Washington Boulevard LRT Alternative described above, remain well below the one percent threshold for determining the significance of tax base changes. There is no significant tax impact associated with any of the maintenance yard options.

As indicated in Section 4.3, Displacement and Relocation, an estimated 633 jobs would be displaced or relocated due to the property acquisitions needed for the Washington Boulevard LRT Alternative. Depending on the maintenance yard option chosen, between zero and 140 additional jobs would be displaced or relocated due to the property acquisitions needed for a maintenance yard. However, jobs could be retained with relocation and reestablished in other available locations in the jurisdiction or the project area. Therefore, there would be no net loss of jobs overall.

While the Washington Boulevard LRT Alternative would result in minor losses to the tax base, these effects would not be adverse. Similarly, this alternative would have a less than significant impact on the tax base under CEQA.

4.4.3.4.2 Mitigation Measures

Construction Mitigation Measures

The same mitigation measures (mitigation measures 4.4-viii. through 4.4-xiv.) identified above in Section 4.4.3.3.2 for the SR 60 LRT Alternative and summarized in Table ES-2 would apply to this alternative. In addition, mitigation measures 4.5-i through 4.5-iv and 4.5-vi through 4.5-ix from Section 4.5, Community and Neighborhood Impacts and mitigation measures 3.0-ii through 3.0-xiii from Chapter 3, Transportation Impacts would be implemented. (Refer to the specific section for the detailed mitigation measure.)

Operational Mitigation Measures

The Washington Boulevard LRT Alternative would not result in a significant impact to the regional or local economy. Therefore, no mitigation measures would be required.

4.4.3.4.3 Impacts Remaining After Mitigation

NEPA Finding

Construction of the Washington Boulevard LRT Alternative would not adversely affect the economic and fiscal health of communities in the project area beyond the temporary disruption associated with construction. Temporary disruption associated with construction would not result in an adverse effect with implementation of mitigation measures.

Construction of the Washington Boulevard LRT Alternative would generate slightly fewer jobs and lower earnings than construction of the SR 60 LRT

Alternative. However, all beneficial construction effects are temporary, and would last only as long as the construction cycle.

With implementation of mitigation measures, no adverse construction-related effects would occur as a result of the Washington Boulevard LRT Alternative.

The Washington Boulevard LRT Alternative would not adversely affect the economic and fiscal health of communities in the project area. In addition, the creation of jobs and earnings associated with operation of this alternative would have a beneficial effect on the economic and fiscal health of communities in the project area. While the Washington Boulevard LRT Alternative would result in minor losses to the tax base and associated revenue, these effects would not be adverse.

CEQA Determination

Construction of the Washington Boulevard LRT Alternative would not significantly impact the economic and fiscal health of communities in the project area beyond the temporary disruption associated with construction, which would be mitigated to less than significant. Construction of the Washington Boulevard LRT Alternative would generate slightly fewer jobs and lower earnings than the SR 60 LRT Alternative. However, all beneficial construction impacts are temporary, and would only last as long as the construction cycle.

With implementation of mitigation measures, construction-related impacts would be less than significant as a result of the Washington Boulevard LRT Alternative.

The Washington Boulevard LRT Alternative would not significantly affect the economic and fiscal health of communities in the project area. Any economic and fiscal effects would not result in physical impacts to the environment.

While the Washington Boulevard LRT Alternative would result in minor losses in the tax base and associated revenue, these impacts would not be significant.

The Washington Boulevard LRT Alternative would not result in any significant direct or indirect impacts. In addition, the creation of jobs and earnings associated with operation of this alternative would have a beneficial effect on the economic and fiscal health of communities in the project area.

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Section 4.5

Community and Neighborhood Impacts

This section summarizes the existing communities and neighborhoods within the project area and evaluates the potential for community and neighborhood impacts resulting from operation of the proposed Eastside Transit Corridor Phase 2 Project alternatives. Information in this section is based on and updated, where appropriate, from the Community and Neighborhood Impacts Technical Memorandum included in Appendix P of this Draft EIS/EIR.

4.5.1 Regulatory Framework/Methodology

4.5.1.1 Federal

FHWA guidance (FHWA 1996) for assessing transportation project impacts on communities makes recommendations for performing a community impact assessment. The guidance also identifies key impact topics, along with qualitative criteria, in the form of questions for analysts to consider when determining whether an adverse effect would occur. Topic areas related to low income and minority populations are analyzed in Section 4.18, Environmental Justice, of this Draft EIS/EIR. Noise and vibration are analyzed in Section 4.9, Noise and Vibration, of this Draft EIS/EIR. Crime and safety are analyzed in Section 4.16, Safety and Security, of this Draft EIS/EIR. Viability of businesses is analyzed in Section 4.4, Economic and Fiscal Impacts, of this Draft EIS/EIR. Mobility is discussed in Chapter 3, Transportation Impacts and Mitigation, of this EIS/EIR. The following topic areas are discussed and analyzed in this section:

- Community cohesion and interaction
- Isolation of the community or parts of the community
- Social values
- Changes in quality of life
- Introduction of a barrier effect
- Physical intrusions into communities
- Land use patterns as they relate to community character
- Pedestrian and bicycle access to community facilities and services
- Changes in public transportation service related to access to community facilities and services
- Changes in vehicular access to community facilities and services
- Use and accessibility of public facilities
- Displacement of public facilities

Social character of a community refers to the human interaction aspects of a community, such as sense of community, community values, and community identity. Community events such as parades, holiday celebrations, and community gatherings help people living in a community identify with the community and shape part of the social character of a community. Impacts on social character are analyzed by determining the effects of a project on the social aspects of a community.

These categories were developed for a wide range of transportation projects, including highways and transit. Some of the findings in these categories were made in conjunction with the analysis from other technical disciplines, such as Displacement

and Relocation, Transportation, Economic and Fiscal Impacts, Land Use Impacts, and Safety and Security.

4.5.1.2 State

The California Environmental Quality Act (CEQA) requires analysis of proposed projects' potential to physically divide established communities. No local CEQA thresholds are available in any of the jurisdictions comprising the Eastside Transit Corridor Phase 2 project area; therefore, state thresholds apply. CEQA guidance is provided in the *CEQA Guidelines*. Under CEQA, a significant adverse impact to communities and neighborhoods would occur if the project would physically divide an established community or neighborhood.

4.5.1.3 Local

All county and municipal jurisdictions in the state of California are required to maintain and update a general plan, which includes elements key to communities and neighborhoods such as land use and housing. At their discretion, municipalities may opt to include additional elements, which may also be relevant to communities and neighborhoods. The general plans of Los Angeles County and the eight cities through which the proposed build alternatives pass are supportive of transit, enhanced pedestrian activity, economic and commercial development, and community development.

Local plans and regulations, such as those included in the general plans of Los Angeles County and the eight cities through which the proposed build alternatives pass, pertain to communities and neighborhoods. Goals and policies addressing community and neighborhood resources that would be applicable to the project include the following:

Whittier

- Encourage the maintenance and development of cohesive, clean, safe, and stable residential neighborhoods.
- Provide a sufficient range of recreational opportunities to meet the needs of residents of all ages and interests in the community.
- Reduce crime and violence.
- Minimize noise levels and discourage noises that are detrimental to public health and welfare and contrary to the public interest.

Montebello

- Protect residential areas from through traffic movement.
- Cluster strip commercial developments on Whittier Boulevard, Beverly Boulevard, and Washington Boulevard into functional areas.

Monterey Park

- Revitalize downtown areas as a mixed-use district that provides many opportunities for new commercial and residential development in a pedestrian environment.
- Maintain the quality and diversity of the community's residential neighborhoods.
- Provide open space areas that meet the recreational needs of a diverse demographic.

Commerce

- Development of a wide range of commercial activities.
- Creation of a strong employment and commercial base to finance public improvements and services.
- Provision of safe, convenient pedestrian linkages across and along streets containing strip commercial business.

Los Angeles County (East Los Angeles and West Whittier/Los Nietos)

- Strengthening of existing industrial and commercial job-producing activities in East Los Angeles.

- Improvement of public transportation to spur economic activity and improve recreation access.

Pico Rivera

- Maintain safe community facilities, including improvement, rehabilitation, and maintenance of existing facilities.

Rosemead

- Encouragement of stable and attractive single-family residential neighborhoods.

Santa Fe Springs

- Maintain, expand and enhance historic, cultural, and artistic programs throughout the community.
- Provide the community with opportunities to appreciate the city's significant history through historic exhibits, the Clarke Estate, and the preservation of Heritage Park.
- Administer historical, cultural, and recreational programs within the community and provide opportunities for family-oriented events.

South El Monte

- Offer opportunities for residents to participate in diverse recreational programs.

4.5.2 Affected Environment/Existing Conditions

This section summarizes the demographic information for the project area, presents future growth projections, describes key community resources, and discusses utilities, and freeway signs that could be visually affected or need to be relocated along each alignment. Information provided in this section focuses on metrics for impacts in portions of the project area that stand out compared with regional averages. More detailed information, including community profiles, is available in the Community and Neighborhood Impacts Technical Memorandum, Appendix P, of this Draft EIS/EIR.

The cities and Census designated places (CDPs) adjacent to the proposed alternatives comprise the affected environment for the project. The Southern California Association of Governments (SCAG), the local metropolitan planning organization (MPO), prepares estimates for future regional demographics in the Los Angeles area. Year 2010 population, household, and employment counts in each of the Eastside Transit Corridor Phase 2 project area cities and CDPs are shown in **Table 4.5-1**. SCAG data is based on year 2010 Census and local growth projections. Both SCAG 2035 projections and available 2010 Census data were used for this analysis. East Los Angeles has the largest population and household counts, while Santa Fe Springs is the largest employment center in the project area.

Overall, the area of potential impact identified for community and neighborhood analysis contains nearly 560,000 residents. As shown in **Table 4.5-2**, all but two of the communities in the project area have a majority Hispanic population, ranging from 65.7 percent in Whittier to over 97 percent in East Los Angeles (Census Bureau 2010). Monterey Park and Rosemead have a sizeable Asian population (approximately 60 to 66 percent in both cities), among the largest proportions in the Los Angeles region. Whittier is the only city with a White population that exceeds 25 percent of the total.

According to the 2010 Census, Spanish is spoken in most of the homes in the project area, as shown in **Table 4.5-3**. In some areas, such as East Los Angeles, over 87 percent of all households speak Spanish. Commerce, Pico Rivera, West Whittier/Los Nietos, Montebello, Pico Rivera, and South El Monte are also among the most heavily Spanish-speaking project area cities. Consistent with the ethnicity data above, Rosemead and Monterey Park have large numbers of households where Asian languages are spoken (predominantly Mandarin Chinese and Cantonese dialects). In Rosemead and Monterey Park, over one-half of the households speak Asian languages, and over one-quarter speak Asian languages exclusively.

Table 4.5-1. 2010 Population, Households, and Employment within the Area of Potential Impact

City or CDP	2010 Population	2010 Households	2010 Employment
Commerce	13,524	3,360	48,772
East Los Angeles	128,485	29,471	18,032
Montebello	65,728	19,165	26,079
Monterey Park	68,636	20,411	30,943
Pico Rivera	68,427	17,005	16,336
Rosemead	58,240	14,537	16,658
Santa Fe Springs	18,778	5,253	50,416
South El Monte	22,785	4,759	16,335
West Whittier/Los Nietos	27,522	7,182	2,598
Whittier	87,689	28,603	31,731

Source: SCAG 2010.
Key:
CDP = Census Designated Place

Table 4.5-2. Ethnicity within the Area of Potential Impact

City or CDP	White (non-Hispanic)	African-American	American Indian/ Native Alaskan	Asian	Pacific Islander	Hispanic	Other	Multiracial
Commerce	3.1%	0.5%	0.4%	1.0%	0.1%	94.5%	0.2%	0.2%
East Los Angeles	1.5%	0.3%	0.1%	0.8%	0.0%	97.1%	0.1%	0.1%
Montebello	8.5%	0.6%	0.2%	10.6%	0.1%	79.3%	0.1%	0.6%
Monterey Park	5.0%	0.3%	0.1%	66.3%	0.0%	26.9%	0.1%	1.3%
Pico Rivera	5.2%	0.6%	0.2%	2.3%	0.0%	91.2%	0.1%	0.4%
Rosemead	4.7%	0.3%	0.1%	60.3%	0.0%	33.8%	0.0%	0.7%
Santa Fe Springs	11.9%	1.9%	0.4%	3.8%	0.1%	81%	0.2%	0.7%

Table 4.5-2. Ethnicity within the Area of Potential Impact (Continued)

City or CDP	White (non-Hispanic)	African-American	American Indian/ Native Alaskan	Asian	Pacific Islander	Hispanic	Other	Multiracial
South El Monte	3.4%	0.2%	0.1%	10.8%	0.0%	84.9%	0.2%	0.4%
West Whittier/Los Nietos	9.3%	0.7%	0.3%	1.4%	0.1%	87.6%	0.2%	0.4%
Whittier	28.3%	0.9%	0.3%	3.5%	0.1%	65.7%	0.2%	1.1%

Source: Census Bureau 2010.
Key: CDP = Census Designated Place

Table 4.5-3. Languages Spoken at Home within the Area of Potential Impact

City or CDP	English Only	Spanish Only	Spanish	Indo-European Languages Only	Indo-European Languages	Asian/Pacific Island Languages Only	Asian/Pacific Island Languages	Other Languages Only	Other Languages
Commerce	18.7%	11.4%	79.6%	1.1%	1.1%	0.0%	0.6%	0.0%	0.0%
East Los Angeles	11.6%	13.6%	87.6%	0.1%	0.3%	0.0%	0.5%	0.0%	0.0%
Montebello	24.9%	7.0%	62.0%	4.0%	4.8%	0.6%	7.9%	0.0%	0.5%
Monterey Park	24.4%	0.7%	18.3%	0.9%	1.3%	8.6%	55.9%	0.0%	0.1%
Pico Rivera	27.4%	6.8%	69.7%	0.4%	0.6%	0.2%	2.2%	0.0%	0.1%
Rosemead	19.6%	2.0%	23.7%	0.3%	0.5%	9.9%	56.2%	0.0%	0.1%
Santa Fe Springs	45.0%	1.9%	53.1%	0.1%	0.2%	0.1%	1.4%	0.0%	0.3%
South El Monte	13.7%	14.7%	75.0%	0.2%	0.2%	2.1%	11.1%	0.0%	0.0%
West Whittier/ Los Nietos	36.6%	7.0%	61.9%	0.5%	0.7%	0.0%	0.8%	0.0%	0.0%
Whittier	55.4%	2.9%	40.1%	1.5%	2.1%	0.2%	2.1%	0.0%	0.4%

Source: Census Bureau 2010.
Key: CDP = Census Designated Place

There are also a number of English-only households in the project area cities, particularly in Whittier and Santa Fe Springs. Several community events occur in the project area each year including music and cultural festivals, parades, arts and theater performances, and exhibitions. These events often attract hundreds of people, and some attract thousands of people. Some key annual events are listed in **Table 4.5-4**.

Table 4.5-4. Key Annual Events

Name of Annual Event	Location
Fourth of July Carnival	Harbor Street, Commerce
National Night Out	Bandini Park, Commerce
Taste of East Los Angeles	East Los Angeles Civic Center
Montebello Fall Festival	Whittier and Montebello Boulevards, Montebello
Taste of the Town	Holy Cross Armenian Cathedral Hall, Montebello
Harmony Festival	Barnes Park, Monterey Park
Health Fair	Barnes Park, Monterey Park
Independence Day Festival	Smith Park, Pico Rivera
Summer Movies in the Park Series	Smith Park, Pico Rivera
Summer Concerts in the Park Series	Smith Park, Pico Rivera
Halloween Spooktacular	Smith Park, Pico Rivera
Holiday Tree Lighting Ceremony	Pico Rivera City Hall and Rosemead City Hall
Independence Day Celebration	Rosemead Park, Rosemead
Rockin' Rosemead Summer Concert Series	Garvey Park and Rosemead Park, Rosemead
4th of July Celebration	New Temple Park, South El Monte
Concerts Under the Stars	Community Center, South El Monte
Concerts in the Park	Central Park and Parnell Park, Whittier
Wednesday Night Family Festival	Greenleaf Avenue, Whittier
Whittier Christmas Parade	Greenleaf Avenue, Whittier
Mexican Independence Day Festival	Whittier Narrows
Fall Fair	Whittier Narrows

Source: AECOM, CDM Smith 2013

During the scoping process, stakeholders identified a number of key locations in the project area that play an important role in shaping and defining the community. These include landmarks, parks, community centers, and other places that serve as neighborhood focal points and contribute to community character and identity. Field analysis was also performed to supplement the list of identified community resources to be evaluated in this section. Additional consideration was given to resources within one-quarter mile of the proposed LRT alignments because these resources are close enough to experience potential project-related impacts.

Key community resources near the proposed LRT alignments are described in **Table 4.5-5**, below.

Table 4.5-5. Community Resources

Community Resource	Location
East Los Angeles College	Monterey Park
Restaurants on Garfield Avenue, just south of Via Campo	Montebello
Trees on the west side of Garfield Avenue between Via Campo and Beverly Boulevard	Montebello
Whittier Narrows	Montebello, Rosemead, South El Monte, and Pico Rivera
The Shops at Montebello	Montebello
Rio Hondo College	Unincorporated Whittier
Whittier College	Whittier
Pico Rivera Towne Center	Pico Rivera
Whittier Greenway	Whittier
Trees in the median of Washington Boulevard	Santa Fe Springs
Presbyterian Intercommunity Hospital	Whittier
Uptown Whittier	Whittier
Pico Rivera Historical Museum	Pico Rivera
Fred C. Nelles Site	Whittier
Five Points Intersection	Whittier

Source: AECOM, CDM Smith 2013

- East Los Angeles College (approximately one-quarter mile from both build alternatives) – East Los Angeles College is a public two-year community college operated by the Los Angeles Community College District. It is located near Cesar Chavez Avenue and Atlantic Boulevard in Monterey Park.

- Restaurants on Garfield Avenue just south of Via Campo (adjacent to both build alternatives) – This strip of restaurants is located on the east side of Garfield Avenue south of Via Campo, forming the western edge of a strip mall development. Residents have expressed the importance of these restaurants to community identity. One of the restaurants, Chinese Garden, was one of the first Chinese restaurants to open in the area, which has now grown to include a large Chinese American population. As some of the only street-fronting retail establishments in the project area with no surface parking between the public sidewalks and the business entrances, these unique structures contribute to both the social and physical character of the neighborhood.

- Trees on the west side of Garfield Avenue between Via Campo and Beverly Boulevard (adjacent to both build alternatives) – This row of tall, mature trees lines Montebello Country Club and Bicknell Park, on the west side of Garfield Avenue. The trees tower over the one- and two-story residential and commercial structures on the opposite side of the street and help visually define the neighborhood.

- Whittier Narrows Dam Flood Control Basin (adjacent to the SR 60 LRT Alternative) – Los Angeles County leases 1,258 acres from the U.S. Army Corps of Engineers for a regional park and the city of Pico Rivera leases 120 acres from the U.S. Army Corps of Engineers for a city park. The Whittier Narrows Recreation Area is located within the Whittier Narrows Dam Flood Control Basin. SR 60 passes through the park, but lines of trees on both sides of the freeway shield park areas from passing traffic.

- The Shops at Montebello (adjacent to the SR 60 LRT Alternative) – The Shops at Montebello (formerly Montebello Town Center) is a two-level regional shopping center that houses four large anchor department stores and approximately 160 smaller stores. The city of Montebello has identified the mall as a business activity center, both in its General Plan and in scoping comments. The mall is located south of SR 60 between Paramount and San Gabriel Boulevards.

- Rio Hondo College (approximately one-half mile from the SR 60 LRT Alternative) – Rio Hondo College is a two-year public community college located near Workman Mill Road and Peck Road in an unincorporated area. It is approximately one-half mile south of the proposed SR 60 LRT Alternative's Peck Road Station.

- Whittier College (approximately one-half mile from the Washington Boulevard LRT Alternative) – Whittier College is a private four-year liberal arts college located just east of Painter Avenue near Philadelphia Street in Whittier. The campus occupies approximately 75 acres and has over 1,300 students.

- Pico Rivera Towne Center (adjacent to the Washington Boulevard LRT Alternative) – Pico Rivera Towne Center is a large strip mall development along the south side of Washington Boulevard between Paramount and Rosemead boulevards in Pico Rivera. The shopping center contains 29 stores, including large national discount retailers that serve residents from multiple surrounding cities. The city of Pico Rivera has identified the shopping center as an important activity center, both in its General Plan and in scoping comments.

- Whittier Greenway (approximately 0.125 mile from the Washington Boulevard LRT Alternative) – The Whittier Greenway is a former railroad ROW that has been converted to a landscaped area in the vicinity of Whittier Boulevard in the city of Whittier. The greenway contains pedestrian and bicycle paths and other park-like features, and parts of it are frequently used by residents as recreational space. The greenway contributes to the visual character of the community, and has been identified in multiple scoping comments.

- Trees in the median of Washington Boulevard (adjacent to the Washington Boulevard LRT Alternative) – The mature trees in two locations along the median of Washington Boulevard visually contribute to the physical character of the surrounding communities. These trees are located in the Rio Hondo Spreading Grounds and along the Santa Fe Springs city limits between Allport and Appledale avenues. The latter grouping consists of swaying palm trees that tower over the roadway and create the appearance of an iconic mid-20th century Southern California boulevard.

- Presbyterian Intercommunity Hospital (adjacent to the Washington Boulevard LRT Alternative) – Presbyterian Intercommunity Hospital is a full-service regional medical center located at the intersection of Whittier Boulevard and Lambert Road in Whittier.

- Uptown Whittier (approximately one-half mile from the Washington Boulevard LRT Alternative) – The Uptown Whittier neighborhood, centered around Greenleaf Avenue, is a historic pedestrian-oriented retail and commercial business district. The area contains numerous independent small businesses and the streets serve as venues for community events throughout the year.

- Pico Rivera Historical Museum (adjacent to the Washington Boulevard LRT Alternative) – The Pico Rivera Historical Museum is located on the south side of Washington Boulevard at Bonnie Vale Place. The museum is housed in a former train depot building constructed in the late 1880s. Exhibits include photographs, documents, and objects related to the history of Pico Rivera.

- Fred C. Nelles Site (approximately 0.125 mile from the Washington Boulevard LRT Alternative) – The Nelles site is located south of Whittier Boulevard between Sorensen Avenue and the Presbyterian Intercommunity Hospital. The buildings on site formerly housed the Fred C. Nelles Youth Correctional Facility, which was closed and abandoned by the California Youth Authority in 2004. The site has been designated as a historic landmark by the state of California, and possible plans for redevelopment of the site have been proposed.

- Five Points Intersection (approximately 0.125 mile from the Washington Boulevard LRT Alternative) – The Five Points Intersection is the junction of Whittier Boulevard, Washington Boulevard, Santa Fe Springs Road, Pickering Avenue, and La Cuarta Street in Whittier. The Whittier Greenway trail passes above the intersection on a former railroad trestle. It is a landmark intersection and has been identified by the community as a possible location for transit oriented development (TOD).

Several of these elements serve as an integral defining element of neighborhoods and the overall community character. Established communities, neighborhoods, and districts located in proximity to the proposed LRT alternatives are listed in **Table 4.5-6**.

It should be noted, that this list does not include all established community neighborhoods or districts located along each alignment, just those in the immediate vicinity of the alignments that would be affected by the build alternatives.

4.5.2.1 Utilities and Freeway Signage

There are various types of utilities throughout the length of the SR 60 LRT and Washington Boulevard LRT Alternative alignments including electrical overhead cables, flood control ditches, cellular phone towers, and four-legged steel electrical towers, among several others. Several utility companies maintain operation of water, power,

Table 4.5-6. Established Community Neighborhoods and Districts

Community/District/Association	Location	Alternative[1]
Armenian Group	Montebello	SR 60 LRT and Washington Boulevard LRT
Avocado Heights	El Monte	SR 60 LRT
East Los Angeles	Los Angeles	SR 60 LRT and Washington Boulevard LRT
South Whittier	Whittier	Washington Boulevard LRT
South San Gabriel	San Gabriel	SR 60 LRT
West Whittier – Los Nietos	Whittier	SR 60 LRT
Uptown Whittier	Whittier	Washington Boulevard LRT

Source: AECOM, CDM Smith 2013
Note:
[1] This columns identifies which proposed alignment the community neighborhood or district is closest to.

cable, and phone services in the area. There are many lattice towers and high power transmission lines located along the SR 60 and Washington Boulevard corridors. Southern California Edison and the Los Angeles Department of Water and Power have distance requirement for their respective transmission lines.

In addition, the California Public Utilities Commission (CPUC) has established rules relating to the relocation of power transmission lines and the requirements for relocation, which are outlined in the Public Utilities Commission of the State of California General Order No. 131-D.

NEPA and CEQA do not have specific requirements regarding impacts from relocation of freeway signage. Freeway signage provides way-finding for the use of the street and highway systems. Freeway signage is located along the SR 60 Freeway within the SR 60 LRT corridor and along the SR 60 and I-605 Freeways within the Washington Boulevard LRT corridor.

4.5.3 Environmental Impacts/Environmental Consequences

This section focuses on the potential adverse effects and significant impacts that would result from construction and operation of the proposed alternatives. Impacts identified as not adverse/no impact in the table below are described further in the Community and Neighborhood Impacts Technical Memorandum, Appendix P, of this Draft EIS/EIR. Cumulative impacts are discussed in the Cumulative Impacts section, Section 4.19, of this EIS/EIR. Potential impacts to communities and neighborhoods are summarized in **Table 4.5-7**.

4.5.3.1 No Build Alternative

4.5.3.1.1 Impact Analysis

The No Build Alternative would not involve any new transportation infrastructure, construction, or major service changes beyond what is identified in Metro's *2009 Long Range Transportation Plan* (LRTP). As such, significant adverse impacts are not anticipated within the project area. However, community mobility would deteriorate with the

Table 4.5-7. Summary of Potential Community and Neighborhood Impacts

	No Build	TSM	SR 60 LRT[1]	Washington Boulevard LRT
NEPA Effects				
Social/Physical Character	Not adverse	Not adverse	Not adverse after mitigation	Adverse
Crime/Health/ Safety/Services	Not adverse	Not adverse	Not adverse after mitigation	Not adverse after mitigation
Community Resources/Events	Not adverse	Not adverse	Not adverse after mitigation	Adverse
Viability of Local Businesses	Not adverse	Not adverse	Not adverse after mitigation	Not adverse after mitigation
Mobility	Not adverse	Not adverse	Not adverse after mitigation	Not adverse after mitigation
Population and Employment	Not adverse	Not adverse	Not adverse	Not adverse
CEQA Impacts				
Physical Division	No impact	No impact	Less than significant after mitigation	Less than significant after mitigation

Note: [1] The effects and impacts under the SR 60 LRT Alternative also apply to the SR 60 North Side Design Variation.

worsening regional traffic congestion that is expected to occur between now and 2035. Also, the communities in the project area would not benefit from the additional access, business, and job growth stimulation that the proposed build alternatives would provide.

The No Build Alternative would not result in an adverse effect under NEPA or a significant impact under CEQA with regard to communities and neighborhoods.

4.5.3.1.2 Mitigation Measures

The No Build Alternative would have no significant adverse community and neighborhood impacts; therefore, no mitigation measures are required.

4.5.3.1.3 Impacts Remaining after Mitigation

NEPA Finding

The No Build Alternative would not adversely alter the social or physical character of the community or neighborhood or adversely affect the area. The No Build Alternative would not result in any adverse effects.

CEQA Determination

The No Build Alternative would not physically divide any established communities or neighborhoods. The No Build Alternative would not result in any significant construction or operational impacts.

4.5.3.2 TSM Alternative

4.5.3.2.1 Impact Analysis

Construction Impacts

The TSM Alternative would provide infrastructure improvements identified in Metro's 2009 LRTP.

Enhanced bus stops would be installed in some locations to provide seating and shelter for waiting passengers. New bus shelter facilities would be installed at key stops, but construction of these small-scale structures would not substantially alter

the social or physical character of their surroundings.

Construction of bus shelters and traffic signal control systems in the project area would be brief, and would be scheduled not to conflict with any community events.

Construction of bus stops and traffic signal control systems would be minor in scale, would occur sporadically throughout the project area, and would not interfere with public services, cause an increase in crime, or affect the viability of local businesses. Existing bus service would not be interrupted by the construction. Brief lane closures and partial sidewalk closures would be needed to construct these improvements, but they would not be of sufficient magnitude to restrict mobility or divide existing neighborhoods.

Operational Impacts

The new bus shelters would not adversely affect surrounding neighborhoods, community events and resources, or the viability of local businesses, and would slightly enhance the experience of transit use for residents and employees. Mobility would be enhanced by the increased bus service that the TSM Alternative would provide.

The TSM Alternative would provide enhanced bus service along major streets and freeways throughout the project area.

Some bus routes would have traffic signal priority, as is granted to existing Metro Rapid buses, where the traffic signal control system gives longer green lights to approaching transit vehicles. It is unlikely that the TSM Alternative would have any impacts on public health and safety, since the additional buses would use existing roads, many of which already have bus service. The addition of new bus service might increase congestion slightly, which could lengthen emergency vehicle response times. However, the magnitude of transit service changes would be less than significant because bus drivers would be required to let emergency response vehicles pass through the area, and increased bus service may help to reduce congestion because individuals would have more options to take transit instead of driving their own car.

While there is a perception that transit stops may increase crime levels in general, typical operational enhancements, such as additional security services, would help prevent an increase in crime. The creation of new bus stops may slightly increase the potential for crimes such as vandalism, depending on the types of structures placed at each new stop.

Adding new transit service would be beneficial to mobility. Still, any benefits would be contingent upon the ability of buses operating in street and freeway traffic to attract patrons. Additional details about the potential congestion effects of expanding bus service in the project area, including level of service (LOS) data, are provided in Chapter 3, Transportation Impacts and Mitigation.

The TSM Alternative would not substantially affect future projections for project area population or employment. Transit service improvements, such as new bus routes, do not typically attract substantial population or employment growth. Any growth that does occur would happen within the zoning adopted by the governing city or county, and would not be a direct result of the transit project.

The operation of the enhanced TSM bus service would help bridge existing physical divisions in the project area, which would be a beneficial impact. The TSM Alternative would not introduce any new physical divisions in the project area.

The overall effect of adding new transit service would be beneficial. However, the TSM Alternative would have less beneficial community impact than the build alternatives would provide.

The TSM Alternative would not result in an adverse effect under NEPA or a significant impact under CEQA with regard to communities and neighborhoods.

4.5.3.2.2 Mitigation Measures

The TSM Alternative would have no significant adverse community and neighborhood impacts; therefore, no mitigation measures are required.

4.5.3.2.3 Impacts Remaining after Mitigation

NEPA Finding

The TSM Alternative would not adversely alter the social or physical character of the community or neighborhood, or adversely affect the area. The TSM Alternative would not result in any adverse effects.

CEQA Determination

The TSM Alternative would not physically divide any established communities or neighborhoods. The TSM Alternative would not result in any significant construction or operational impacts.

4.5.3.3 SR 60 LRT Alternative

4.5.3.3.1 Impact Analysis

Social and Physical Character

Construction Impacts

Community disruption would occur while construction activities are performed. Most of the construction would occur in the SR 60 ROW and would be consistent with the social and physical character of the freeway corridor, although tree removal may subject adjacent communities to greater freeway exposure than they currently experience. Intermittent roadway, sidewalk, and intersection closures would be needed along Pomona Boulevard and along streets where the new LRT aerial structure would pass overhead.

Construction staging areas for the SR 60 LRT Alternative would all be adjacent to the SR 60 Freeway, and the demolition and construction activities on these sites would not introduce new adverse impacts to community social and physical character, though construction staging and fencing would represent a temporary visual change.

Construction activities would also temporarily alter the appearance of the freeway corridor, but not in a way that would alter the physical or social function of surrounding communities. Construction noise and vehicle traffic would be largely confined to freeway-adjacent areas, and would be similar to existing large vehicle traffic along the freeway. Impacts would be temporary (limited to the duration of construction) and intermittent in nature, and project construction would be phased so that impacts at any one location would not last for the entire construction period. After implementation of the construction mitigation measures proposed in Section 4.5.3.3.2, no substantially adverse construction impacts on the project area's social and physical character would remain.

Operational Impacts

The surrounding physical environment and roadway scale are consistent with LRT use, and the SR 60 LRT Alternative alignment would not alter the character of the neighborhood. The overall physical and social character of the communities would remain unchanged. No substantially adverse operational impacts to the project area's social and physical character would occur under the SR 60 LRT Alternative.

The SR 60 LRT Alternative would not result in a substantial adverse effect under NEPA to social and physical character with implementation of mitigation measures described in Section 4.5.3.3.2.

Crime and Public Health/Safety/Services

Construction Impacts

Construction activities would not directly affect any buildings that provide community public services or perform health- or safety-related functions.

Construction-related street closures and detours would potentially affect emergency response routes for nearby law enforcement and fire stations. Metro would coordinate with emergency response staff in advance of temporary closures to ensure that suitable alternative routes that do not substantially increase response times are identified and remain open.

Although construction sites can sometimes become attractive venues for loitering and illegal activity, Metro or its construction contractors would secure all construction sites, with fencing and security patrols as needed, to prevent intrusion and illegal activities at all times. Once the mitigation measures identified in Section 4.5.3.3.2 are implemented, no adverse construction impacts would remain.

Operational Impacts

LRT grade crossings can potentially delay emergency vehicles if they arrive at the crossing at the same time as a passing train. Similar to the Metro Gold Line Eastside Extension, LRT service would be street running and would not have crossing gates at signalized intersections, thus emergency access would not be restricted. As required by each of the affected cities, all roadways would be reconfigured to meet the applicable jurisdiction's safety criteria for emergency vehicles. Emergency vehicles would be required to yield to light rail vehicles (LRVs), per current operations on similar Los Angeles County at-grade rail lines. However, such delays would be brief and would not likely affect the overall service response times, particularly because the SR 60 LRT Alternative only includes grade crossings along the westernmost portion of the alignment. Metro would coordinate with emergency response officials when designing grade crossings to ensure that emergency response times do not deteriorate as a result of the project.

LRT stations and facilities can be perceived as potential safety hazards and attractive locations for illegal activities. However, Metro would provide security services at all LRT facilities as needed to prevent an increase in criminal activity. The stations themselves would become centers of pedestrian activity during the 20 hours per day that trains would operate, and this may create a beneficial public presence in the surrounding community that would dissuade criminal activity.

All LRT facilities and crossings would be designed to ensure safety and minimize potential hazards.

The SR 60 LRT Alternative would not result in a substantial adverse effect under NEPA to crime and public health/safety/services with the implementation of mitigation measures described in Section 4.5.3.3.2.

Community Resources and Events

Construction Impacts

None of the community events identified in Section 4.5.2 occur within the proposed LRT ROW or within a parcel identified as a construction staging area; therefore, no direct impacts to community events are anticipated. Since construction would require intermittent road and sidewalk closures, and would add construction equipment and vehicles to local roadways, there is potential to disrupt traffic patterns along major thoroughfares and make access to community resources and events more difficult. However, Metro would adjust construction schedules as appropriate to avoid disruption of community events and would minimize construction-related detours that would affect traffic flow to and from major events.

Construction of the SR 60 LRT Alternative would occur adjacent to three of the community resources identified in Section 4.5.2, with the following impacts:

- The entire off-street parking lot behind the restaurants on the east side of Garfield Avenue just south of Via Campo would be used as a construction staging area. Adequate on-street parking or replacement off-street parking would need to be identified to accommodate customers and allow access to the restaurants.
- The trees screening the Shops at Montebello from the SR 60 Freeway would be removed during construction, temporarily altering the appearance of the area. Replacement of the trees on-site would be possible. This would not affect the function of the mall as a community resource, and would not constitute a substantially adverse impact. More information about this visual effect is provided in the Visual and Aesthetic Impacts Technical Memorandum, included as Appendix Q of this Draft EIS/EIR.
- Some construction access to the SR 60 ROW through the Whittier Narrows Recreation Area may be necessary, including temporary tree removal. Temporarily removed trees would be replaced with ones of similar age and type. In accordance with the Whittier Narrows Dam Basin Master Plan, if non-native trees are removed, they would be replaced with native species (See Mitigation Measure 4.15-vii in Section 4.15, Parklands and Other Community Facilities, of this Draft EIS/EIR.) Construction

access would be limited whenever possible to hours when the park is closed. Tree removal and use of the park during construction would be done in coordination with Los Angeles County Department of Parks and Recreation. More information regarding potential construction impacts in the Whittier Narrows Recreation Area is provided in Section 4.15, Parklands and Other Community Facilities of this Draft EIS/EIR.

The mitigation measures described in Section 4.5.3.3.2 would reduce potential construction impacts on community resources so that they are not substantially adverse.

Operational Impacts

Operation of the SR 60 LRT Alternative would not have adverse impacts on any of the community resources or events. Nearby public events would benefit from the increased access provided by the light rail line. Also, community resources within one-quarter mile of the proposed stations (typical walking distance) would have better transportation connections to surrounding communities. Key resources that would benefit include East Los Angeles College, the restaurants on Garfield Avenue, the Shops at Montebello, and the Whittier Narrows Recreation Area.

The SR 60 LRT Alternative would not result in a substantial adverse effect under NEPA to community resources and events with implementation of mitigation measures described in Section 4.5.3.3.2.

Viability of Local Businesses

Construction Impacts

Businesses around each of the new stations along the SR 60 LRT Alternative alignment would be affected by construction activities, construction-related traffic, and road and sidewalk closures. Construction would likely result in a temporary decrease in accessibility to some businesses, and reductions in on-street and off-street parking. Construction operations would negatively affect business as the number of customers and ease of deliveries may temporarily decline. This effect would be limited to businesses near the south side of the SR 60 ROW, and along Pomona Boulevard between Atlantic Boulevard and SR 60.

Businesses on the parcel immediately southeast of Garfield Avenue and Via Campo in Montebello would be affected by removal of the surface parking lot for construction of the proposed Garfield Avenue station. Replacement on-street or off-street parking would be identified for the duration of the construction period to support these businesses.

A portion of the parking lot at the Shops at Montebello would be used for construction staging, and this would reduce the number of parking spaces available to mall customers. Field visits on both weekdays and weekends revealed that this portion of the parking lot is typically underutilized.

Although Metro would provide adequate detours and minimize road closures, some indirect impacts to businesses may occur as people may avoid the area altogether. This potential impact would be adverse during the construction phase. Mitigation measures identified in Section 4.5.3.3.2 and Chapter 3, Transportation Impacts would reduce these effects such that they are not adverse. The presence of construction employees in the area as potential customers would also help offset business losses.

Operational Impacts

Many businesses near the proposed LRT stations would benefit from the improved transit access provided by the SR 60 LRT Alternative. Passengers entering and exiting the rail system would be new potential customers for surrounding businesses. Stations would serve as focal points for new business development. Businesses around the proposed stations would have new transit connections to other destinations served by the Metro system such as LA Live, Grand Avenue, University of Southern California, University of California Los Angeles, Culver City, and Los Angeles County museums. This advantage would make it attractive for businesses to relocate to the areas around the SR 60 LRT Alternative stations. This would be a beneficial impact.

The Monterey Park Market Place is a shopping center that would be developed north of SR 60 on

an area formerly used as a landfill (OII North Parcel). The signage for this commercial development project is anticipated to be taller than the mechanically stabilized earth (MSE) wall associated with SR 60 North Side Design Variation. The MSE wall would not obstruct views of the proposed development, given that the wall would be lower than the berm located between the freeway ROW and the OII North Parcel property line. The MSE wall would also include aesthetic treatments such as landscaping or concrete designs, which would not detract from visibility and would enhance the appearance of the freeway adjacent to the proposed Monterey Park Market Place development. Therefore, the SR 60 LRT Alternative with or without the North Side Design Variation would not result in an adverse effect to viability of this business.

Some commercial properties in Montebello and South El Monte would need to be permanently acquired. All properties would be acquired in accordance with the Uniform Relocation Act and owners would be compensated fairly, as described in Appendix O, Real Estate Acquisition – Displacement and Relocation Technical Memorandum, of this Draft EIS/EIR. This would offset direct impacts to the displaced businesses.

A portion of the parking lot at the Shops at Montebello mall (approximately 400 spaces) would be converted to a park and ride facility. Field visits on both weekdays and weekends revealed that this portion of the parking lot is typically underutilized, and the new light rail service would provide mall customers an alternative to driving. Nonetheless, given the large number of parking spaces that would be displaced at this location, this would result in an adverse effect. However, as part of mitigation (see Chapter 3 mitigation measure 3.0-xvi), Metro would work with local jurisdictions, businesses and merchants, and commerce associations to implement potential parking mitigation options to help offset losses during operation. Customers could also park at stations closer to their residences and ride the light rail line to the mall. This impact would be beneficial overall.

The SR 60 LRT Alternative would not result in a substantial adverse effect under NEPA to viability of local businesses with implementation of mitigation measures described in Section 4.5.3.3.2 and Chapter 3, Transportation Impacts and Mitigations.

Mobility

Construction Impacts

The SR 60 LRT Alternative would require both aerial and at-grade light rail construction. Vehicle and pedestrian mobility would be reduced during construction due to intermittent road and sidewalk closures and detours. Impacts at any one location would be temporary and would not last for the entire duration of the construction phase. Construction would impede movement between communities, particularly those that are already separated by the SR 60 Freeway, since closure of one of the limited freeway crossings would potentially require detours of up to one mile. This impact would potentially be adverse, but would be reduced to a level that is not substantially adverse by mitigation measures outlined in Section 4.5.3.3.2.

Operational Impacts

The SR 60 LRT Alternative would not block any existing crosswalks or signalized intersections, nor would it alter traffic movements within or between communities. Overall, the SR 60 LRT Alternative would increase mobility and access for bicyclists and pedestrians within the Eastside and across the region by introducing new light rail service to the project area. The location of the project adjacent to a freeway would promote its visibility to commuters as a viable alternative to solo driving. However, freeway-adjacent stations are not ideal for community access and connectivity due to the automobile-oriented nature of freeway facilities.

Stations along major commercial streets, such as most of the proposed stations for the Washington Boulevard LRT Alternative, would provide greater community mobility benefits.

The SR 60 LRT Alternative would not result in a substantial adverse effect to mobility under NEPA

with implementation of mitigation measures described in Section 4.5.3.3.2.

Population and Employment

Construction Impacts

Although permanent displacements discussed in Section 4.3, Displacement and Relocation, would occur, construction activities would result in a temporary increase in jobs in the project area. Construction workers would not necessarily reside in the project area, but their presence would temporarily increase the level of employment activity. The increase would not substantially change project area employment overall, but would provide beneficial new economic activity near the construction zones. No residential structures would be created or removed, and no change in population would occur.

Operational Impacts

No residential structures would be displaced by the SR 60 LRT Alternative, and the business displacements described in Section 4.3 would not be large enough to substantially change the number of jobs in the area.

As discussed in Section 4.3, Displacement and Relocation, businesses would be relocated to suitable nearby locations, resulting in a low net job loss. The new light rail service would likely make the station areas more desirable locations for jobs and residences and would encourage growth and economic development. This would be a beneficial impact. However, any such growth would be contingent upon local city zoning regulations and approval. As such, no substantially adverse population or employment changes are anticipated.

The SR 60 LRT Alternative would not result in an adverse effect under NEPA to population and employment.

Physical Division

Construction Impacts

Street and sidewalk closures during construction would temporarily exacerbate the dividing effect that the SR 60 Freeway currently has within the project area. This dividing effect is an existing condition, but construction work would temporarily exacerbate this effect if full closures of any freeway crossings are necessary. The SR 60 Freeway effectively separates the cities of Monterey Park, Rosemead, and South El Monte from the rest of the project area. The distance between freeway crossings ranges from one-half mile to over one mile. When freeway crossings are temporarily closed, vehicle detours would be lengthy (up to two miles), and pedestrian detours across the freeway may be impractical. Closures would be intermittent, and Metro would work with the surrounding communities to establish a schedule. After implementation of the mitigation measures listed in Section 4.5.3.3.2, this construction impact would not be significant.

Operational Impacts

The SR 60 LRT Alternative would retain existing freeway crossings and pedestrian crosswalks. Some freeway crosswalks and freeway crossing areas would be enhanced through station area urban design. The new light rail service would also provide a new way to traverse the Rio Hondo and Whittier Narrows Recreation Area, both of which act as barriers to movement between the surrounding communities. As such, the SR 60 LRT Alternative would reduce the dividing effects of the SR 60 Freeway, the Rio Hondo, and the Whittier Narrows Recreation Area. This would be a beneficial impact.

The SR 60 LRT Alternative would not result in a significant impact under CEQA to physical division with implementation of mitigation measures described in Section 4.5.3.3.2. Overall, the SR 60 LRT Alternative would not result in a substantial adverse effect under NEPA, or a significant impact under CEQA, to communities and neighborhoods with implementation of mitigation measures described in Section 4.5.3.3.2.

Utility Relocation

Some utilities would need to be relocated as part of the SR 60 LRT Alternative including, but not limited to, storm drains, cellular phone towers, one concrete drainage bridge, and electrical overhead (EOH) wires. One identified storm drain is located just south of the SR 60 Freeway within the Caltrans

ROW in the city of Monterey Park, near its boundary with the city of Montebello. This storm drain crosses the Paramount Boulevard off-ramp and continues parallel to the SR 60 Freeway into the city of Montebello. A second storm drain that would need to be relocated is just west of the Rosemead Boulevard off-ramp, perpendicular to the alignment and within the Caltrans ROW. A third storm drain identified for relocation runs parallel to the south side of the SR 60 Freeway. This storm drain is partially within the Caltrans ROW along the Rosemead Boulevard off-ramp, located just east of the previously identified storm drain. Another portion of the third storm drain, located just east of Rosemead Boulevard, would need to be relocated.

One self-supporting aluminum cellular telephone tower, located within the SR 60 LRT Alternative alignment ROW where it intersects with Muscatel Avenue, may need to be relocated. A second cellular telephone tower, located just west of where Lexington Gallatin Road dead ends, is partially located within the proposed ROW of the LRT and would need to be relocated. Finally, a concrete drainage ditch located north of the SR 60 Freeway, within the Caltrans ROW, in the city of Monterrey Park near its border with the city of Montebello, may need to be relocated.

Several EOH wires and poles may need to be relocated as part of the SR 60 LRT Alternative, including EOH cables on the southwest corner of Gerhardt Avenue and Via Campo; a pole on the northwest corner of Garfield Avenue and Via Campo; six EOH wires north of the SR 60 Freeway and Via Palermo, within the Caltrans ROW; as well as a six-wire set of EOH wires just south of the SR 60 Freeway and just east of the boundary between the cities of Montebello and Monterey Park; three EOH wires and two sets of six EOH wires just south of Town Center Drive and east of Paramount Boulevard; a set of 14 EOH wires on the west side of San Gabriel Boulevard south of the SR 60 Freeway and a pole with three EOH wires immediately across, on the east side of San Gabriel Boulevard; a set of 14 EOH wires on the northeast corner of Muscatel Avenue; a set of six EOH wires on the northwest corner of Lexington Gallatin Road and the SR 60 Freeway; and a set of three EOH wires west of Peck Road and just south of where the off-ramp begins. All planned utility relocations will comply with the CPUC and other power agencies' standards and regulations for relocation of utilities.

No additional utilities would need to be relocated for the SR 60 North Side Design Variation.

It should be noted, that these utility relocations are preliminary at this time and were identified for the purpose of analyzing potential impacts; final, actual utility relocations will be identified during the final design phase once a locally preferred alternative has been identified.

Freeway Signage Relocation

NEPA and CEQA do not have specific requirements for impacts due to relocation of freeway signage. Freeway signage may need to be relocated along the SR 60 Freeway as part of the SR 60 LRT Alternative. However, relocation of freeway signage would be done in coordination with Caltrans and local jurisdictions regarding the proper placement of signage, which would be included in final restoration plans for the project. Impacts would not be adverse under NEPA or significant under CEQA.

4.5.3.3.2 Mitigation Measures

In addition to mitigation measures identified below, mitigation measure 4.15-vii from Section 4.15, Parklands and Other Community Facilities, and mitigation measures 3.0-ii through 3.0-xiii from Chapter 3, Transportation Impacts would be implemented. (Please refer to the specific section for the detailed mitigation measure.)

Metro would implement the following mitigation measures as they relate to the construction of the SR 60 LRT Alternative:

4.5-i. Whenever possible, Metro would develop detours for any road or sidewalks to be closed during construction; post signs (in appropriate languages) alerting pedestrians, bicycles, and vehicles of road and sidewalk closures and detours; ensure

that pedestrian detours are accessible to senior citizen and disabled persons; and develop Worksite Traffic Control Plans in conjunction with the county and municipal departments of transportation to accommodate automobile, pedestrian, and bicycle traffic.

4.5-ii. Metro would maintain access to community facilities affected by construction activities.

4.5-iii. Metro would provide early notification to emergency service providers of any road closures or detours.

4.5-iv. Metro would develop a community outreach plan to notify local municipalities of construction schedules, road and sidewalk closures, and detours; coordinate with local municipalities during preparation of traffic management plans to minimize potential construction impacts to community resources and special events; and consider limiting construction activities during special events.

4.5-v. Metro would develop a construction mitigation plan with local municipalities' input to address construction impacts and determine truck hauling routes and schedules that would minimize impacts on sensitive uses in all parts of the project area. Haul routes should avoid residential areas and use major thoroughfares to the maximum extent feasible.

4.5-vi. Metro would provide crossing guards as needed in the vicinity of construction sites, haul routes, and other relevant sites, as proposed in the California DOT Traffic Manual, Chapter 10-07.3, Warrants for Adult Crossing Guards.

4.5-vii. The construction contractor would erect barriers/fencing and provide security personnel during construction to minimize trespassing and vandalism. Barriers would be enhanced with artwork and attractive design features where possible.

4.5-viii. Metro would forewarn the public of any anticipated road closures or detours due to construction activity.

4.5-ix. Metro would work with businesses along the alignment to maintain their visibility during construction.

4.5-x. Where possible, Metro would phase construction so that activities at any one location do not last for the entire construction period.

4.5-xi. Metro would provide adequate security of construction areas.

4.5-xii. Metro would incorporate input from emergency officials when designing construction plans.

Metro would implement the following mitigation measures as they relate to the operation of the SR 60 LRT Alternative as well as mitigation measure 3.0-xvi as described in Chapter 3, Transportation Impacts:

4.5-xiii. Metro would provide adequate security at LRT facilities.

4.5-xiv. Metro would incorporate input from emergency officials when designing grade crossings.

4.5.3.3.3 Impacts Remaining after Mitigation

NEPA Finding

After mitigation, the SR 60 LRT Alternative would not adversely alter the social and physical character, viability of local businesses, or mobility; or adversely affect crime/health/safety/services, community resources and events in existing communities and neighborhoods, or the area as a whole. After mitigation, the SR 60 LRT Alternative would not result in any adverse effects. This finding applies regardless of whether the SR 60 North Side Design Variation is implemented.

CEQA Determination

The SR 60 LRT Alternative would not result in any significant construction or operational impacts. This determination applies regardless of whether the SR 60 North Side Design Variation is implemented.

4.5.3.4 Washington Boulevard LRT Alternative

4.5.3.4.1 Impact Analysis

Social and Physical Character/Community Resources

Along Garfield Avenue in the city of Montebello, the new aerial structure would add substantial transportation infrastructure to a predominantly low-rise residential area. Although Garfield Avenue is a truck route, it retains the appearance of a residential boulevard. Sidewalks are lined with trees, and single-family houses have grassy yards fronting the street. The Washington Boulevard LRT Alternative would introduce new aerial tracks with bents straddling the roadway, placed approximately 100 to 200 feet apart along most of the way from Via Campo to Whittier Boulevard.

Construction Impacts

Community disruption would occur while construction activities are performed. Most of the construction would occur in the ROWs of Pomona Boulevard, SR 60, Garfield Avenue, and Washington Boulevard. Intermittent roadway, sidewalk, and intersection closures would be needed along these routes. Construction staging areas would be located adjacent to these roadways, and would not introduce any new temporary impacts to community social and physical character except potentially at the Garfield Avenue station, where an existing strip mall and parking lot would be removed and temporarily fenced. Given that SR 60, Garfield Avenue, and Washington Boulevard are all designated as major truck routes, construction activity would not differ greatly from the industrial traffic that occurs along these routes on a daily basis. Residential areas adjacent to Garfield Avenue and Washington Boulevard would experience intermittent construction noise, but Metro would work with the community to establish a schedule where activities are minimized during noise-sensitive hours. Construction activities at any one location along the Washington Boulevard LRT Alternative alignment would not last for the entire project construction phase.

Tree removal would be necessary along the southern edge of SR 60 between Sadler Avenue and Garfield Avenue, which would subject adjacent residential communities to greater freeway exposure than they currently experience. Construction-related impacts to social and physical character would not be substantially adverse after mitigation measures described in Section 4.5.3.4.2 are implemented.

None of the community events identified in Section 4.5.2 occur within the proposed LRT ROW or within a parcel identified as a construction staging area; therefore, no direct impacts to community events are anticipated. Since construction would require intermittent road and sidewalk closures, and would add construction equipment and vehicles to local roadways, there is potential to disrupt traffic patterns and make access to community resources and events more difficult. However, Metro would adjust construction schedules as appropriate to avoid disruption of community events and minimize construction-related detours that would affect traffic flow to and from major events.

No direct temporary construction impacts to the community resources identified in Section 4.5.2 would occur.

Operational Impacts

The proposed infrastructure would change the appearance of the neighborhood and its primary arterial thoroughfare. The noise from the passing trains would introduce new impacts in the center of the residential area, including the Montebello Park neighborhood.

In addition, the removal of the street-fronting restaurants on the east side of Garfield Avenue just south of Via Campo would further contribute to changing the physical and social character of the area. These restaurants were identified during

community meetings and scoping as valued community resources. One restaurant, Chinese Garden, was one of the first Chinese restaurants in an area that has since grown to include a large Chinese American population. This would constitute an unavoidable adverse impact. Potential new TOD opportunities around the station would be beneficial to the community, but would not offset the effects of removing the row of street-fronting restaurants. The removal of the restaurants and introduction of the aerial viaduct and bents would constitute an unavoidable adverse alteration of the physical and social character of the area along Garfield Avenue between Via Campo and Whittier Boulevard. Some of the trees on the west side of Garfield Avenue between Via Campo and Beverly Boulevard may be permanently removed and the landscaped area would be shielded from the residential structures on the opposite side of Garfield Avenue by the aerial structure. Visual separation of the landscaped areas on the west side of Garfield Avenue from the residential structures on the east side would contribute to this adverse separation. As in other neighborhoods along the Washington Boulevard LRT Alternative alignment, benefits to social and physical character would include the potential for enhancing livability and sustainability, transportation benefits, and the potential for economic development.

Where Washington Boulevard passes through the Rio Hondo Coastal Basin Spreading Grounds, it is lined with mature trees on both sides and in the median. The Washington Boulevard LRT Alternative would require removal of the trees in the median. Trees would be either relocated or replaced along the sides of the street in order to offset the visual change to the community's physical character. After mitigation, this impact would not be substantially adverse. At the northern edge of Santa Fe Springs, the palm trees in the median of Washington Boulevard between Allport Avenue and Appledale Avenue would be removed to accommodate the new at-grade LRT tracks. The trees are a visually defining feature of the community, but could be replaced along the sides of the roadway. This impact would not be substantially adverse after mitigation.

As described in Section 4.5.3.4.2, the Washington Boulevard LRT Alternative would result in a substantial adverse effect under NEPA to social and physical character and community resources and events, even with implementation of mitigation measures because the removal of the restaurants and introduction of the aerial viaduct and bents along Garfield Avenue between Via Campo and Whittier Boulevard and the visual separation of the landscaped areas on the west side of Garfield Avenue between Via Campo and Beverly Boulevard from the residential structures on the east side would be permanent alterations of the physical and social character of those areas.

Crime and Public Health/Safety/Services

Construction Impacts

The crime and public health/safety/services construction impacts for the Washington Boulevard LRT Alternative would be the same as those described for the SR 60 LRT Alternative in Section 4.5.3.3.1.

Operational Impacts

LRT grade crossings can potentially delay emergency vehicles if they arrive at the crossing at the same time as a passing train. Similar to the Metro Gold Line Eastside Extension, LRT service would be street running and would not have crossing gates at signalized intersections, thus emergency access would not be restricted. As required by each of the affected cities, all roadways would be reconfigured to meet the applicable jurisdiction's safety criteria for emergency vehicles. Emergency vehicles would be required to yield to LRVs, as with current operations on similar Los Angeles County at-grade rail lines. However, such delays would be brief and would not likely affect overall service response times. Metro would coordinate with emergency response officials when designing grade crossings to ensure that emergency response times do not deteriorate as a result of the project. The Washington Boulevard LRT Alternative includes more grade crossings than the SR 60 LRT Alternative, but the former alignment

would not cause additional impacts if this coordination occurs.

LRT stations and facilities can be perceived as potential safety hazards and attractive locations for illegal activities. However, Metro would provide security services at all Eastside Transit Corridor Phase 2 facilities as needed to prevent an increase in criminal activity. The stations themselves would become centers of pedestrian activity during the 20 hours per day that trains would operate, and this may create a beneficial public presence in the surrounding community that would dissuade criminal activity. All LRT facilities and crossings would be designed to ensure safety and minimize potential hazards.

The Washington Boulevard LRT Alternative would not result in a substantial adverse effect under NEPA to crime and public health/safety/services with implementation of mitigation measures described in Section 4.5.3.4.2.

Viability of Local Businesses

Construction Impacts

Businesses around the Washington Boulevard LRT Alternative alignment would be affected by construction activities, construction-related traffic, and road and sidewalk closures. Construction would likely result in a temporary decrease in accessibility to some businesses and reductions in on-street and off-street parking. In particular, off-street construction staging and activities would be located at and adjacent to the proposed stations. During construction, existing on-street parking spaces and loading stalls along the alignment may also need to be temporarily removed.

Construction operations would negatively affect the sales of existing businesses as the number of customers may temporarily decline. This effect would be limited to businesses directly bordering the Washington Boulevard LRT Alternative alignment. Although Metro would provide adequate detours and minimize road closures, some indirect effects to businesses may occur as people may avoid the area altogether. This potential effect would be adverse during the construction phase. Mitigation measures identified in Section 4.5.3.4.2 and Chapter 3, Transportation Impacts would reduce these adverse effects to a level that is not adverse. The presence of construction workers in the area as potential customers would also help offset business losses.

Operational Impacts

Many businesses near the proposed LRT stations would benefit from the improved transit access provided by the Washington Boulevard LRT Alternative, much like the benefits discussed under the SR 60 LRT Alternative in Section 4.5.3.3.1.

Some commercial properties would need to be permanently acquired for LRT ROW, park and ride lots, station facilities, and traction power substations (TPSS) in Montebello, Commerce, Pico Rivera, Santa Fe Springs, and Whittier. These properties consist of restaurants, mixed-use buildings, retail stores, offices, automobile services, a car wash, a laundry service, a bank, and adjacent surface parking lots. All properties would be acquired in accordance with the Uniform Relocation Act and owners would be compensated fairly, as described in the Real Estate Acquisition – Displacement and Relocation Technical Memorandum, included as Appendix O of this Draft EIS/EIR.

Potential commercial acquisitions are clustered around the station areas, where most of the existing land uses consist of commercial strip malls and stand-alone retail buildings surrounded by surface parking lots. None of the businesses to be acquired provides unique services. Displacement of these businesses would not detract from community identity or neighborhood activity. Business acquisitions would occur at intersections scattered throughout the project area, and would not be concentrated in any one area. There are no clusters of similar businesses in the acquisition areas that would generate economic benefits of agglomeration. Little indirect adverse effect on the viability of remaining businesses would occur, since the businesses currently operate in an automobile-oriented setting and are not part of a

cohesive commercial district. Substantial tax and property value losses are not anticipated.

The Washington Boulevard LRT Alternative would require the elimination of existing off-street parking facilities near each of the proposed stations, which would result in displaced parking on the surrounding streets and the potential for use of other nearby off-street facilities. On-street parking would need to be removed permanently along Pomona Boulevard between Atlantic Boulevard and Sadler Avenue, on Garfield Avenue between Via Campo and Via San Clemente, and along most of Washington Boulevard from Montebello to Whittier. Parking is already prohibited on portions of Garfield Avenue in Montebello and on Washington Boulevard in Pico Rivera. During field visits on both weekdays and weekends, on-street parking along Washington Boulevard appeared to be underutilized. Most businesses have off-street parking lots, and side street parking is also available to absorb some of the displaced spaces. More information about parking is available in Chapter 3, Transportation Impacts and Mitigation.

The Washington Boulevard LRT Alternative would not result in a substantial adverse effect under NEPA regarding viability of local businesses with implementation of mitigation measures described in Section 4.5.3.4.2 and Chapter 3, Transportation Impacts and Mitigation.

Mobility

Construction Impacts

The Washington Boulevard LRT Alternative would require both aerial and at-grade light rail construction. Vehicle and pedestrian mobility would be reduced during construction due to intermittent road and sidewalk closures and detours. Effects at any one location would be temporary and would not last for the entire construction phase. Given that some portions of SR 60 and Washington Boulevard have infrequent pedestrian crossing locations (over one-quarter mile apart), this would impede some movement within communities. However, pedestrian activity is generally low and does not appear to be a primary mode of community mobility. This effect would potentially be adverse, but would be reduced to a level that is not substantially adverse by mitigation measures proposed in Section 4.5.3.4.2.

Operational Impacts

The Washington Boulevard LRT Alternative would block some existing crosswalks and unsignalized intersections, but only in areas where other crosswalks are available within one or two blocks. It would not greatly alter pedestrian or vehicular traffic movements between communities.

Overall, the Washington Boulevard LRT Alternative would increase mobility within the Eastside and across the region by introducing new light rail service to the project area. Most of the stations proposed for the Washington Boulevard LRT Alternative are along major commercial thoroughfares, which would provide improved access to community activity centers.

The Washington Boulevard LRT Alternative would not result in a substantial adverse effect to mobility under NEPA with implementation of mitigation measures described in Section 4.5.3.4.2.

Population and Employment

Construction Impacts

Although permanent displacements (discussed in Section 4.3) would occur, construction activities would result in a temporary increase in jobs in the project area. Construction workers would not necessarily reside in the project area, but their presence would temporarily increase the level of employment activity. The increase would not substantially change project area employment overall, but would provide beneficial new economic activity near the construction zones. No temporary residential structures would be created or removed; therefore, population effects would be minimal. No substantially adverse construction-related population or employment impacts are anticipated.

Operational Impacts

Two residential structures (one single-family and one multi-family) would be displaced by the Washington Boulevard LRT Alternative, affecting approximately 30 residents. Given the overall population of the area as described in Section

4.5.2, this would not be a large enough change in population to cause a substantially adverse effect. Similarly, the displaced businesses would affect approximately 600 jobs scattered throughout the Washington Boulevard LRT Alternative alignment area. According to Section 4.3, Displacement and Relocation, assistance would be provided to relocate displaced residents and businesses nearby, resulting in a low net population and job loss.

The new light rail service would likely make the station areas more desirable locations for jobs and residences and would encourage growth and economic development in a way that is sustainable. This would be a beneficial impact, and would constitute a community enhancement. However, any such growth would be contingent upon local city zoning regulations and approval. As such, no substantial population or employment changes are anticipated as a result of the project.

The Washington Boulevard LRT Alternative would not result in an adverse effect under NEPA to population and employment.

Physical Division

Construction Impacts

Street and sidewalk closures during construction would temporarily exacerbate the dividing effect that SR 60 currently has between Montebello and Monterey Park. This dividing effect is an existing condition, but construction work would temporarily intensify this effect if full closures of any freeway crossings are necessary. The distance between the Wilcox Avenue, Garfield Avenue, Findlay Avenue, and Gerhart Avenue underpasses range from one-quarter to one-half mile. When one of these crossings is closed temporarily, vehicle and pedestrian detours of up to one mile would be necessary. For pedestrians, this would be impractical. A similar temporary division would occur between Montebello and Commerce if Garfield Avenue needs to be temporarily closed at the UPRR/Metrolink Riverside Line underpass. Closures would be intermittent, and Metro would work with the surrounding communities to establish a schedule. After implementation of the mitigation measures listed in Section 4.5.3.4.2, this construction impact would not be significant.

Operational Impacts

All existing SR 60 Freeway crossings would be retained. Some crosswalks along other parts of the Washington Boulevard LRT Alternative alignment would be removed, but others within one or two blocks would be maintained. Some intersection crosswalks along the alignment would be enhanced through station area urban design.

The new light rail service would also provide a new way to traverse the I-605 Freeway, Rio Hondo channel, San Gabriel River channel, Montebello Country Club, and UPRR/Metrolink Riverside Line, thereby reducing the dividing effect these sites currently have within the project area. This would be a beneficial impact.

The aerial structures along Washington Boulevard and Garfield Avenue would introduce a visual barrier to the surrounding communities. However, this change would not affect physical movement across the proposed ROW, and would not constitute a new physical division.

The Washington Boulevard LRT Alternative would not result in a significant impact under CEQA to physical division with the implementation of mitigation measures described in Section 4.5.3.4.2.

Overall, the Washington Boulevard Alternative would result in a substantial adverse effect under NEPA to communities and neighborhoods, even with implementation of mitigation measures described in Section 4.5.3.4.2. The Washington Boulevard LRT would not result in a significant impact under CEQA to communities and neighborhoods with implementation of mitigation measures described in Section 4.5.3.3.2.

Utility Relocation

Some utilities would need to be relocated as part of the Washington Boulevard LRT Alternative, including, but not limited to, EOH wires, flood control facilities, sanitary sewers, gas lines, water mains, and pipe lines.

An existing Los Angeles County Flood Control District (LACFCD) storm drain beneath Pomona Boulevard would be reconstructed, or reinforced and protected in place, for the 1,750 feet between Atlantic Boulevard and Sadler Avenue. Additionally, the LACFCD storm drain beneath Washington Boulevard would have to be reconstructed, or if feasible protected in place, for approximately 4,700 feet from just west of Rosemead Boulevard to just east of Hasty Avenue. Two LACFCD storm drains along Washington Boulevard would be need to be reconstructed, including approximately 800 feet of a storm drain from just east of Passons Avenue to just west of Morill Boulevard and a storm drain crossing Appledale Avenue for a length of approximately 300 feet.

The existing LACFCD storm drain running under the proposed tracks, along Washington Boulevard between approximately Broadway Avenue and Freestone Avenue, would have to be reconstructed, or if possible, reinforced and protected in place.

Three sanitary sewer lines would also need to be relocated. The existing Los Angeles County Sanitation District (LACSD) sanitary sewer line located on Garfield Avenue, just west of Hay Street and Madison Avenue, and 250 feet north of Repetto Boulevard (approximately 1,600 feet), would need to be relocated. A second sanitary sewer line located on Washington Boulevard at Carob Way would need to be relocated. Lastly, approximately 2,500 feet of an existing LACSD sanitary sewer line located on Washington Boulevard between Milna Avenue and Broadway Avenue would also need to be relocated under this alternative.

Approximately 1,000 feet of a Unocal pipeline, located between Norwalk Boulevard and Duchess Boulevard, would need to be relocated.

A San Gabriel Valley (SGV) water line along Washington Boulevard, from just east of Sorensen Avenue to just west of Calobar Avenue, would need to be relocated.

Several EOH wires and poles that have been preliminarily identified as needing to be relocated include the following:

- EOH cables on the southwest corner of Gerhardt Avenue and Via Campo;
- Three sets of ten EOH wires, three wires and one wire crossing Garfield Avenue near the intersection of Via Campo and Garfield Avenue;
- Five EOH wires south of the proposed Garfield station opposite to Via San Clemente;
- Two sets of four EOH wires crossing Garfield Avenue located near the intersection of Garfield Avenue and Via Corona;
- Two sets of 10 EOH wires and poles located near the intersection of Garfield Avenue and Whittier Boulevard;
- Poles with eight EOH wires crossing Garfield Avenue, near the intersection of Garfield Avenue and Easton Street;
- Poles with ten EOH wires crossing Garfield Avenue, near the intersection of Garfield Avenue and Fairfield Street;
- Four sets of ten, eight, 14, and four EOH wires on each side of UPRR crossing along Garfield Avenue;
- Two sets of eight EOH wires, and four EOH wires crossing Garfield Boulevard, south of Flotilla Street;
- Two sets of eight and six EOH wires crossing Garfield, north of Washington Boulevard;
- Three sets of nine EOH wires, two wires and one wire crossing Washington Boulevard at Vail Avenue;
- Two sets of three EOH wires and two sets of four wires and one set of five wires crossing Washington Boulevard on each side of Maple Avenue;
- Three EOH wires at the proposed Greenwood station;

- Three sets of two, three, and four EOH wires crossing Washington Boulevard near the intersection Washington Boulevard and Montebello Boulevard; and
- Two sets of four EOH wires and poles crossing Washington Boulevard east of Carob Way.

Freeway Signage Relocation

NEPA and CEQA do not have specific requirements related to impacts due to relocation of freeway signage. Freeway signage may need to be relocated along the SR 60 and I-605 Freeways as part of the Washington Boulevard LRT Alternative. However, relocation of freeway signage would be done in coordination with Caltrans and local jurisdictions regarding the proper placement of signage, which would be included in final restoration plans for the project. As such, no adverse effects under NEPA or significant impacts under CEQA would result.

4.5.3.4.2 Mitigation Measures

In addition to mitigation measures identified below, mitigation measure 4.10-vi from Section 4.10, Ecosystems and Biological Resources and mitigation measures 3.0-xix through 3.0-xxiii from Chapter 3, Transportation Impacts and Mitigation would be implemented. (Please refer to the specific section for the detailed mitigation measure.) The same construction and operational mitigation measures (mitigation measures 4.5-i through 4.5-xiv and 3.0-ii through 3.0-xiii from Chapter 3, Transportation Impacts and Mitigation) identified above in Section 4.5.3.3.2 for the SR 60 LRT Alternative, and summarized in Table ES-2, would also apply to this alternative. The following additional operational mitigation measures would be implemented as well.

4.5-xv. Metro would replace or relocate the trees from the median of Washington Boulevard in the Rio Hondo Coastal Basin Spreading Grounds to the sides of the roadway. Some new trees would need to be introduced in order to provide an adequate density of trees on both sides of the street.

4.5-xvi. Metro would replace or relocate the palm trees from the median of Washington Boulevard between Allport and Appledale Avenues to the sides of the roadway. In order to re-create the visual effect of the evenly spaced row of trees that currently exists in the median along both sides of the street, some new trees would be needed.

4.5.3.4.3 Impacts Remaining after Mitigation

NEPA Finding

The Washington Boulevard LRT Alternative would adversely alter the social and physical character of the existing community along Garfield Avenue in Montebello between Via Campo and Whittier Boulevard. It would adversely affect the area between Via Campo and Beverly Boulevard due to the removal of community resources and adverse visual changes to the neighborhood. Additional discussion of the visual changes is provided in Section 4.6, Visual and Aesthetic Impacts, of this Draft EIS/EIR. However, the Washington Boulevard LRT Alternative would provide benefits in most of the other categories that federal guidance (Section 4.5.1.1) considers in weighing the effect of a project on quality of life, by increasing mobility and access to the various populations, businesses, and community services listed in that guidance.

Regardless, the adverse changes to the physical character of the existing community in this area cannot be further mitigated. After mitigation, the Washington Boulevard LRT Alternative would result in adverse effects. This finding applies to both the at-grade and aerial options at Rosemead Boulevard and I-605/San Gabriel River, and to all three maintenance yard options.

CEQA Determination

The Washington Boulevard LRT Alternative would not result in any significant construction or operational impacts associated with physically dividing an established community; crossings either beneath or over the alignment would be maintained and allow communities on either side

of the alignment to remain connected. This determination applies to both the at-grade and aerial options at Rosemead Boulevard and I-605/San Gabriel River, and to all three maintenance yard options.

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Section 4.6

Visual and Aesthetic Impacts

This section summarizes the existing visual and aesthetic environment within the project area and evaluates the potential for visual and aesthetic impacts resulting from operation of the proposed Eastside Transit Corridor Phase 2 Project alternatives. Potential visual impacts to historical resources are summarized in Section 4.14.1, Cultural and Historical Resources - Built Environment. Information in this section is based on, and updated where appropriate from, the Visual and Aesthetic Impacts Technical Memorandum, which is incorporated into this Draft EIS/EIR as Appendix Q.

4.6.1 Regulatory Framework/Methodology

4.6.1.1 Regulatory Framework

The following regulatory policies are applicable specifically to the evaluation of visual effects for the proposed project.

- Section 106 of the National Historic Preservation Act (NHPA) of 1966 regulates activities that could impact historic properties by "diminishing the visual integrity of the property's significant historic features" (Title 36, CFR Part 800.5(a)(2)).
- Section 401 of the Intergovernmental Cooperation Act of 1968 puts regulatory responsibility on the federal government to use all practicable means to assure for all Americans safe, healthful, productive, and aesthetically and culturally pleasing surroundings (Title 42, USC, Section 4231(b)).

Local planning policies are included in city and county general plans to preserve and enhance the visual quality and aesthetic resources within the plans' jurisdictions. These policies focus on maintaining visual diversity, defining urban form and character, protecting and managing scenic, historic, and cultural resources, enhancing existing visual character and quality, and controlling development.

4.6.1.2 CEQA Impact Criteria

The analysis of aesthetic impacts under the California Environmental Quality Act (CEQA) is largely based on the criteria contained within Appendix G of the *CEQA Guidelines*. The project would have a significant aesthetic impact if it results in:

- Substantial adverse effects on a scenic vista;
- Substantial damage to scenic resources, including but not limited to trees, rock outcroppings, and historic buildings within (a view from) a state scenic highway;
- Substantial degradation of existing visual character or quality of a site and its surroundings; or
- Creation of a new source of substantial light or glare that would adversely affect daytime or nighttime views in the area.

In the absence of any quantitative or qualitative shade and shadow thresholds for jurisdictions within the project study area, the following *L.A. CEQA Thresholds Guide* was used for identifying and evaluating whether or not potentially significant shade and shadow impacts would occur to light-sensitive land uses adjacent to the project alignments:

- Would project-related structures result in the shading of shadow-sensitive uses for more than three hours between the hours of 9:00 AM and 3:00 PM Pacific Standard Time (between late October and early April), or for more than four hours between the hours of

9:00 AM and 5:00 PM Pacific Daylight Time (between early April and late October)?

4.6.1.3 Methodology

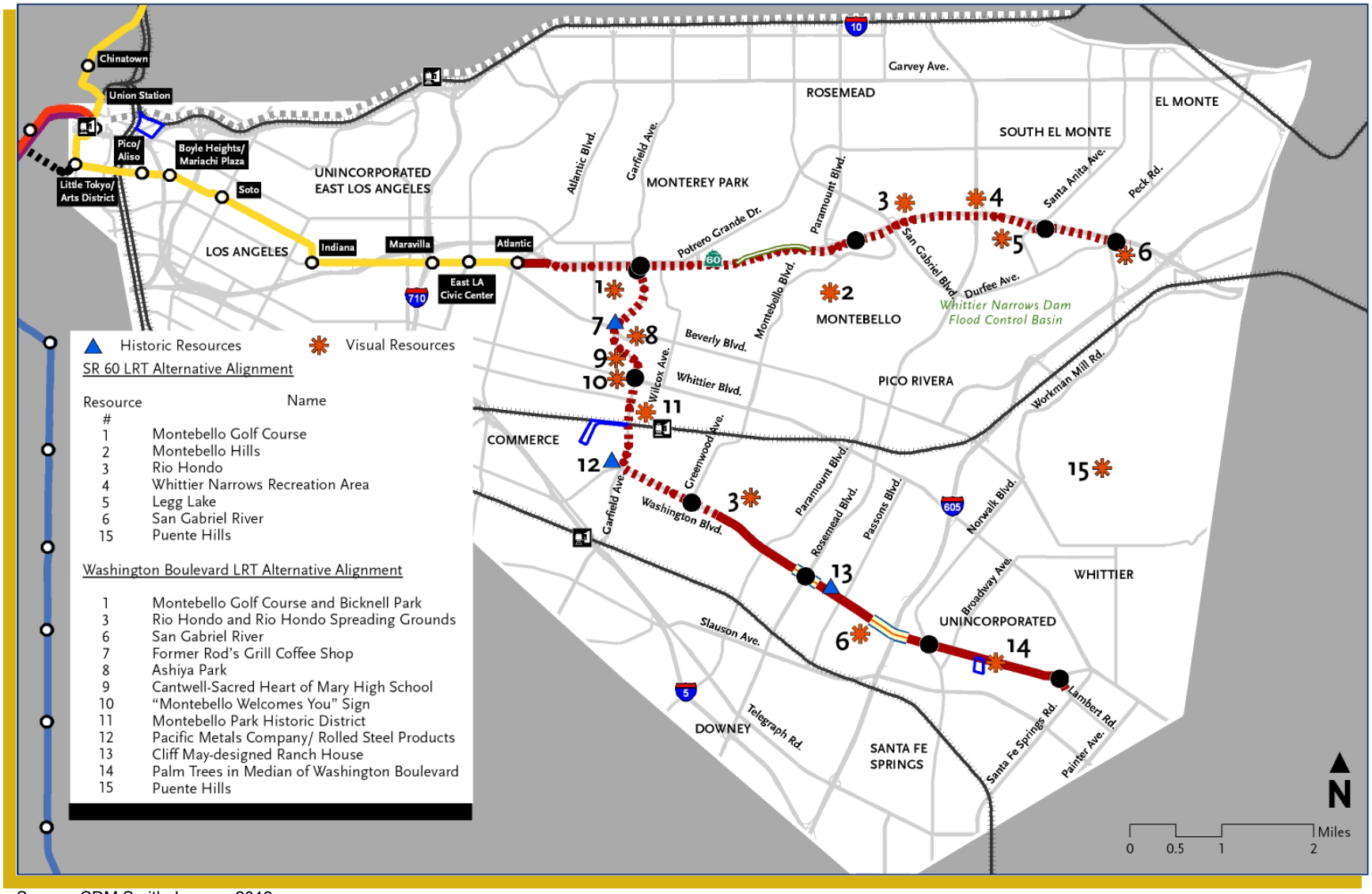
The visual and aesthetic impact analysis utilized a multi-step process to evaluate the potential aesthetic impacts associated with the proposed alternatives; the full analysis is included in Appendix Q, Visual and Aesthetic Impacts Technical Memorandum, of this Draft EIS/EIR. The progressive steps of this analysis included:

- First, an existing conditions survey was conducted to identify major scenic views and substantive visual elements along segments of the corridor, including open space resources and street trees.
- Second, in order to assess the changes in the visual environment, the existing visual quality was categorized using three components based on the Federal Highway Administration (FHWA) "Visual Impact Assessment for Highway Projects Guidelines:" vividness, intactness, and unity; the combined result indicated the degree of quality of the landscape.
- Third, key viewpoints along the corridors and from the public right-of-way (ROW) were identified and used to describe the viewer sensitivity and the value viewer groups place on them.
- Fourth, computer-generated simulations were included from key viewpoints where visual changes would be noticeable after project implementation. Visual simulations are provided at a select number of representative viewpoints. Further information on the key viewpoints is available in Appendix Q, Visual and Aesthetic Impacts Technical Memorandum, of this Draft EIS/EIR.
- Fifth, potential visual impacts of the build alternatives were analyzed.
- Sixth, shade and shadow modeling and analysis was done for elevated portions of the Washington Boulevard LRT Alternative to determine whether or not implementation of an aerial alignment would negatively affect shade- and shadow-sensitive uses along Garfield Avenue and Washington Boulevard. (See Appendix Q, Visual and Aesthetic Impacts Technical Memorandum, for a detailed discussion of this methodology and resulting shade and shadow diagrams.) Shade and shadow modeling was not done for elevated portions of the SR 60 LRT Alternative because there are no shade-sensitive receptors along this primarily transportation land use (a freeway corridor).
- Finally, mitigation measures were identified as appropriate. (See Section 4.6.3.3.2 and Section 4.6.3.4.2 for mitigation measures relative to the SR 60 LRT Alternative and Washington Boulevard LRT Alternative, respectively.)

4.6.2 Affected Environment/Existing Conditions

The visual landscape in the project area is characterized by a primarily built-out urban environment featuring a variety of commercial, industrial, and residential development, including waterway infrastructure and recreational open space areas. No designated scenic roadways, highways, or vistas are within the project area. Visual resources within the area of potential impact, defined as approximately 700 feet from the alignment, include but are not limited to structures of historic significance or visual prominence, open space and recreational areas, distant views of the horizon from public locations, and landscaped medians. The recognized visual and visually-sensitive historical resources located within the immediate proximity of the project alternative alignments are shown in **Figure 4.6-1**.

The Whittier Narrows Recreation Area, the Rio Hondo, and the San Gabriel River are aesthetic resources that play a major role in defining the landscape and character of the SR 60 corridor.



Source: CDM Smith January 2012.

Figure 4.6-1. SR 60 LRT Alternative and Washington Boulevard Alternative – Visual Resources

The overall visual quality of the SR 60 LRT Alternative corridor ranges from moderately low to moderate due to the predominantly ground-level views of a freeway environment. However, the greenery vistas of the Whittier Narrows Recreation Area adjacent to the SR 60 create a high visual quality value. The Whittier Narrows Recreation Area, the Rio Hondo, and the San Gabriel River are aesthetic resources that play a role in defining the landscape and character of the SR 60 corridor by providing natural scenery, landscaping, and open space in an urban environment. The visual resources along this alignment are shown in Figures 4.6-1 through 4.6-3, and include:

- Montebello Golf Course
- Distant views of the downtown Los Angeles skyline, the San Gabriel Mountains, and the Puente Hills (which are visible only on clear days)
- Mature landscaping along the SR 60 ROW
- Whittier Narrows Recreation Area and Legg Lake
- Rio Hondo and San Gabriel River
- Montebello Hills

The Washington Boulevard LRT Alternative alignment consists of Garfield Avenue, which is bordered by neighborhoods and schools, and Washington Boulevard, which is bordered by a combination of industrial, commercial, and residential areas. The overall visual quality along this alignment ranges from low to moderate, based on an average rating for each of the three FHWA components. The visual resources along the alignment are shown in Figure 4.6-1 as well as Figures 4.6-4 through 4.6-7, and include:

- Montebello Golf Course and Bicknell Park
- Former Rod's Grill Coffee Shop building
- "Montebello Welcomes You" sign
- Ashiya Park
- Cantwell-Sacred Heart of Mary High School
- Montebello Park Historic District
- Pacific Metals industrial warehouse building
- Rio Hondo bike path
- Trees within the median through Rio Hondo Coastal Basin Spreading Grounds
- Distant views of the downtown Los Angeles skyline, the San Gabriel Mountains, the Montebello Hills, and the Puente Hills (which are visible only on clear days)
- Cliff May-designed ranch house
- San Gabriel River and bike trail
- Mature palm trees in the median of Washington Boulevard in Santa Fe Springs

Few shade-sensitive uses are located in the immediate vicinity of the SR 60 LRT Alternative alignment (e.g., residences and the Whittier Narrows Recreation Area); however, there are several shade-sensitive uses (e.g., parks, schools and residences) in the immediate vicinity of the Washington Boulevard LRT Alternative alignment. These are discussed in detail in Appendix Q, Visual and Aesthetic Impacts Technical Memorandum, of this Draft EIS/EIR.

4.6.3 Environmental Impacts/Environmental Consequences

The following section summarizes the analysis and conclusions for each project alternative, as discussed in detail in Appendix Q, Visual and Aesthetic Impacts Technical Memorandum, of this Draft EIS/EIR. **Table 4.6-1** provides a summary of all impact conclusions discussed herein.

Table 4.6-1. Summary of Potential Visual and Aesthetic Impacts

Alternative	Scenic Vistas	Scenic Resources	Visual Character	Light and Glare	Shade and Shadows
No Build	None	None	None	None	None
TSM	None	None	None	None	None
SR 60 LRT[1]	Not adverse/ Less than significant	Not adverse/ Less than significant	Not adverse/ Less than significant	Not adverse/ Less than significant	Not adverse/ Less than significant
Washington Boulevard LRT[2]	Not adverse/ Less than significant	Not adverse/ Less than significant	Adverse effect after mitigation/ Significant impact after mitigation [3]	Not adverse/ Less than significant	Adverse effect/ Significant impact[3]

Notes:
[1] Includes the SR 60 North Side Design Variation.
[2] Includes the aerial crossing options.
[3] Refers to Segment 2 only.

4.6.3.1 No Build Alternative

4.6.3.1.1 Impact Analysis

No direct or indirect operational impacts to scenic vistas, scenic resources, nighttime lighting, and/or shading and shadowing would occur with the No Build Alternative because there would be no new transit operations.

4.6.3.1.2 Mitigation Measures

Since the No Build Alternative would have no impact to visual and aesthetic resources, no mitigation measures are required.

4.6.3.1.3 Impacts Remaining After Mitigation

NEPA Finding

There would be no effect to visual and aesthetic resources under the No Build Alternative.

CEQA Determination

There would be no impact to visual and aesthetic resources under the No Build Alternative.

4.6.3.2 TSM Alternative

4.6.3.2.1 Impact Analysis

Construction Impacts

The TSM Alternative may include some minor construction activities associated with new Rapid Bus shelters and intersection improvements. Improvements to existing bus services would not alter visual character. Therefore, the TSM Alternative would not result in a construction-related adverse effect under NEPA or a significant impact under CEQA with regard to visual and aesthetic resources.

Operational Impacts

No direct or indirect operational impacts to scenic vistas, scenic resources, nighttime lighting, and/or shading and shadowing would occur with the TSM Alternative from new bus stops located throughout the project area or from increased bus operations. Therefore, the TSM Alternative would not result in an operational-related adverse effect under NEPA or a significant impact under CEQA with regard to visual and aesthetic resources.

4.6.3.2.2 Mitigation Measures

Since the TSM Alternative would have no impact on visual and aesthetic resources, no mitigation measures are required.

4.6.3.2.3 Impacts Remaining After Mitigation

NEPA Finding

There would be no effect on visual and aesthetic resources under the TSM Alternative.

CEQA Determination

There would be no impact on visual and aesthetic resources under the TSM Alternative.

4.6.3.3 SR 60 LRT Alternative

4.6.3.3.1 Impact Analysis

Construction Impacts

Scenic Vistas

Background views of downtown Los Angeles to the west would remain unimpaired during construction. Construction activities would minimally block distant views of the San Gabriel Mountains to the north and Puente Hills to the west. However, SR 60 is not a state-designated scenic highway and construction effects would be temporary and considered negligible.

Visual Character

Construction activities would result in visual disruptions to the immediate vicinity. However, construction would be temporary and the extent of the visual nuisance from construction equipment and vehicles would be limited to the areas adjacent to SR 60, a visible transportation land use. Construction activities would not substantially affect the aesthetic appeal or extensively intrude into Whittier Narrows Recreation Area, North Lake, Center Lake, Legg Lake, Montebello Hills, Rio Hondo, or the San Gabriel River. In addition, construction of the maintenance yard would not impede the visual quality of the surrounding industrial area.

Light and Glare

Construction activities would primarily occur during daylight hours and, therefore, would not require lighting. However, when limited construction activities do occur during nighttime hours, lighting would be hooded or directed toward the construction areas in order to limit spillover lighting. Construction would not significantly increase the ambient light levels in the vicinity because the construction duration would be short and temporary, and would not constitute a substantial source of light or glare.

Shade and Shadow

Equipment required for construction of columns and aerial stations would include drilling rigs, small bulldozers, large cranes, and truck trailers to deliver pre-cast concrete girders. The erection of precast girders would be lifted over active roads by large cranes and secured to the columns. However, the potential for construction activities to result in shading and shadows along SR 60 would be minimal. Shadows would only be cast onto parking lots in the northernmost portions of the Whittier Narrows Recreation Area, and the length of shadows would not reach any shade-sensitive uses. In addition, portions of residential neighborhoods adjacent to SR 60 would remain unshaded despite proximity to the SR 60 LRT Alternative alignment because shadows from aerial structures would not project directly to the south, since the sun travels from east to west. (Refer to Appendix Q, Visual and Aesthetic Impacts Technical Memorandum, for a detailed discussion.)

Indirect Impacts

Construction of the SR 60 LRT Alternative would be limited and localized to the areas immediately surrounding the freeway ROW, and would not result in any indirect visual impacts.

The SR 60 LRT Alternative would not result in a construction-related adverse effect under NEPA or a significant impact under CEQA with regard to scenic resources, visual character, nighttime illumination, or shade and shadows.

Operational Impacts

Scenic Vistas

No officially designated scenic vistas exist within the project area; however, distant views of the

downtown Los Angeles skyline, the Puente Hills, and the San Gabriel Mountains, which are only visible on clear days, do exist from the SR 60 Freeway corridor. The SR 60 LRT Alternative would minimally change distant views.

Visual Character

Along the majority of the corridor, the columns and aerial guideway associated with the LRT would be consistent with the predominantly freeway-related visual character. However, at select locations the visual character of the corridor would be noticeably altered. Adjacent to the Montebello Town Center, as shown in **Figure 4.6-2**, distant views of the San Gabriel Mountains from the shopping center parking lot would be blocked.

Figure 4.6-2. Visual Simulation at Montebello Town Center

In addition, through the Whittier Narrows Recreation Area, the aerial LRT would reduce motorist views of the recreation area and North Lake while creating new views for LRT riders. However, the visual character within the Whittier Narrows Recreation Area and at North, Legg, and Center Lakes would not be significantly affected because existing vegetation within the recreation area would continue to shield the majority of views of both the freeway and the new LRT, as shown in **Figure 4.6-3**.

The proposed Mission Junction maintenance yard and park and ride facilities would fit within the context of the existing character and surrounding industrial and commercial land uses.

In all other locations, the LRT improvements would be consistent with the existing visual character of the transportation corridor and the adjacent land uses.

Figure 4.6-3. Visual Simulation from North Lake

Light and Glare

New nighttime lighting associated with the four stations and with the light rail vehicles (LRVs) themselves would be introduced as a result of the

SR 60 LRT Alternative. However, the project area is predominantly urban, and the new light sources would be located along the existing SR 60 Freeway transportation corridor.

Shade and Shadow

Operation of the SR 60 LRT Alternative would involve LRVs running primarily above-grade along the existing SR 60 Freeway transportation corridor.

The supporting columns and aerial guideway would produce shading and shadows that would change throughout the day as the sun moves through the sky. Shade-sensitive uses include residential uses (residences on the south side of Via Campo) and open space uses (Whittier Narrows Recreation Area).

No historical resources exist along the SR 60 corridor, and the lengths of shadows cast along this corridor would not affect the Whittier Narrows Recreation Area or residences along SR 60.

Implementation of the SR 60 LRT Alternative, including all project-related lighting, would be localized and would be visible only from the immediate vicinity of the project alignment.

The SR 60 LRT Alternative would not result in an operational-related adverse effect under NEPA or a significant impact under CEQA with regard to scenic resources, visual character, nighttime illumination, or shade and shadows.

4.6.3.3.2 Mitigation Measures

Construction Mitigation Measures

4.6-i. Construction methods and practices and other management approaches would be consistent with applicable Metro design criteria and local and state regulations, as well as general laws for building and safety.

4.6-ii. Construction staging areas, access roads, and structure locations would be maintained in an orderly manner and kept free of trash and debris daily by the construction contractor.

4.6-iii. Areas disturbed by construction activities would be restored by Metro and the construction contractor to their pre-project condition upon completion of construction activities, where feasible.

4.6-iv. Visually obtrusive erosion control devices, such as silt fences, plastic ground cover, and straw bales, would be removed by the construction contractor as soon as the area is stabilized.

4.6-v. Street trees and other vegetation removed to accommodate construction would, where feasible, be stored by Metro during construction and replanted upon completion of construction. Those trees considered historic would be replanted in close proximity to their original locations. Where storage and replanting is not possible, the mature vegetation would be replaced with appropriate sized trees and vegetation within one month of construction completion.

4.6-vi. Stockpile areas would be located in less visually sensitive areas (i.e., away from public recreational facilities, natural open spaces, residences, and other visually sensitive resources) and would be shielded by the construction contractor from residents and businesses.

4.6-vii. Lighting would be hooded and directed towards the interior of construction staging areas by the construction contractor to minimize spillover effects into adjacent residential areas and other sensitive land uses.

4.6-viii. Screening and construction fences would be used by the construction contractor to shield construction lighting from adjacent residential land uses wherever possible.

4.6-ix. Non-permanent landscaping and aesthetically pleasing fencing, with possible community artwork, where feasible, would be used by Metro and the construction contractor to shield construction activities and staging areas from residential and visually sensitive areas. Metro and the

construction contractor would coordinate with local jurisdictions and school districts to develop art work for fencing.

Operational Mitigation Measures

While operation of the SR 60 LRT Alternative would have no adverse effects or significant impacts to visual and aesthetic resources, the following mitigation measure would further reduce effects/impacts below the level of adverse/significant.

4.6-x. Use of form liners, textured surfaces, and non-reflective building materials would be included in the design of the retaining walls and sound walls, where feasible.

4.6.3.3.3 Impacts Remaining After Mitigation

NEPA Finding

There would be no adverse effects to visual and aesthetic resources under the SR 60 LRT Alternative.

CEQA Determination

There would be no significant impacts to visual and aesthetic resources under the SR 60 LRT Alternative.

4.6.3.4 Washington Boulevard LRT Alternative

4.6.3.4.1 Impact Analysis

Construction Impacts

Scenic Vistas

Background views of downtown Los Angeles from Washington Boulevard would be blocked by construction activities. However, the downtown Los Angeles skyline is only visible from Washington Boulevard on clear days. Vistas of the San Gabriel Mountains and Puente Hills to the north and east, respectively, would not be substantially obstructed during construction.

Visual Character

Construction activities would involve demolishing roadway median and subsequently installing columns primarily on Garfield Avenue, and laying trackwork mostly along Washington Boulevard. The presence of construction equipment, worker vehicles, trailers, and staging locations would be visible to nearby land uses and may visually disrupt the residential and commercial activity of the corridor. Residential areas located immediately adjacent to the Washington Boulevard LRT Alternative alignment would have vast and evolving views of the various phases of construction. The bulk of construction would temporarily alter the visual character along the corridor for a limited duration. In addition, upon completion of construction activities any trees removed would be relocated along the sides of the roadway in order to create a visual effect similar to what currently exists.

Construction of the potential maintenance yards would not result in a substantial change in visual quality. The proposed maintenance yard locations are all in existing industrial zoned areas. Construction of these sites would be designed in a manner that would appropriately consider the existing urban context in which the maintenance yards are located.

Light and Glare

Construction activities would primarily occur during daylight hours, and therefore would not require lighting. However, when limited construction activities are performed during nighttime hours (i.e., closing down intersections) lighting would be directed toward the construction areas such that no spillover lighting is anticipated.

Construction would result in additional nighttime security lighting at construction staging areas, which would be hooded and shielded to minimize spillover effects and glare. Construction activities and the lighting associated with construction would not significantly increase the ambient light and would not constitute a substantial source of light or glare.

Shade and Shadow

Equipment required for construction of columns and aerial stations would include drilling rigs, pile drivers, small bulldozers, large cranes, truck trailers to deliver pre-cast concrete girders, and other related equipment. The erection of falsework or precast girders would be lifted over active roads by large cranes and secured to the columns. However, the potential for construction activities to result in

shading and shadows along the Washington Boulevard LRT Alternative would be minimal.

Construction of the Washington Boulevard LRT Alternative would be limited and would be localized to the areas immediately surrounding the alignment.

The Washington Boulevard LRT Alternative would not result in a construction-related adverse effect under NEPA or a significant impact under CEQA with regard to scenic resources, visual character, nighttime illumination, or shade and shadows.

Operational Impacts

Scenic Vistas

No officially designated scenic vistas exist within the project area; however, distant views of the downtown Los Angeles skyline, the Puente Hills, and the San Gabriel Mountains, which are only visible on clear days, do exist from Washington Boulevard. The Washington Boulevard LRT Alternative would minimally block select distant views along Washington Boulevard; no distant views exist along Garfield Avenue.

Visual Character

The visual character of the existing community through the majority of the Washington Boulevard LRT Alternative alignment would not be negatively affected by the introduction of an aerial and/or at-grade project. However, the potential does exist for significant and adverse impacts to visual character in certain limited sections of the alignment due to the removal of trees and the construction of aerial structures. A number of visual resources exist along Garfield Avenue between Via Campo and Whittier Boulevard, and the low-scale residential (one-story single family homes and two-story multi-family apartments) neighborhood character would be substantially altered with the introduction of an aerial guideway and columns straddling the roadway. **Figures 4.6-4** through **4.6-6** provide conceptual visual simulations of how the visual character would be altered along Garfield Avenue with implementation of the Washington Boulevard LRT Alternative.

The proposed Mission Junction, Commerce, and Santa Fe Springs maintenance yards and park and ride facilities would not result in degradation of visual quality and character along the Washington Boulevard LRT Alternative alignment, as they would be consistent with the industrial and commercial nature of the surrounding areas.

As demonstrated in the conceptual visual simulations, the visual character along the segment of Garfield Avenue between Via Campo and Whittier Boulevard would be altered such that significant impacts would occur.

In addition, mature trees would be removed along the median of Washington Boulevard at the Rio Hondo Coastal Basin Spreading Grounds and near the intersection of Sorenson Avenue in order to accommodate the at-grade LRT. As shown in **Figure 4.6-7**, the loss of these mature trees would have the potential to result in a significant visual impact.

Throughout the remaining Washington Boulevard LRT Alternative alignment, implementation of the LRT project would be consistent with the transportation-related character of Washington Boulevard and visual character impacts would be less than significant.

Light and Glare

New nighttime lighting associated with the six stations and with the LRVs themselves would be introduced as a result of the Washington Boulevard LRT Alternative. However, the project area is predominantly urban and the new light sources would be located along the existing major transportation thoroughfares of Garfield Avenue and Washington Boulevard.

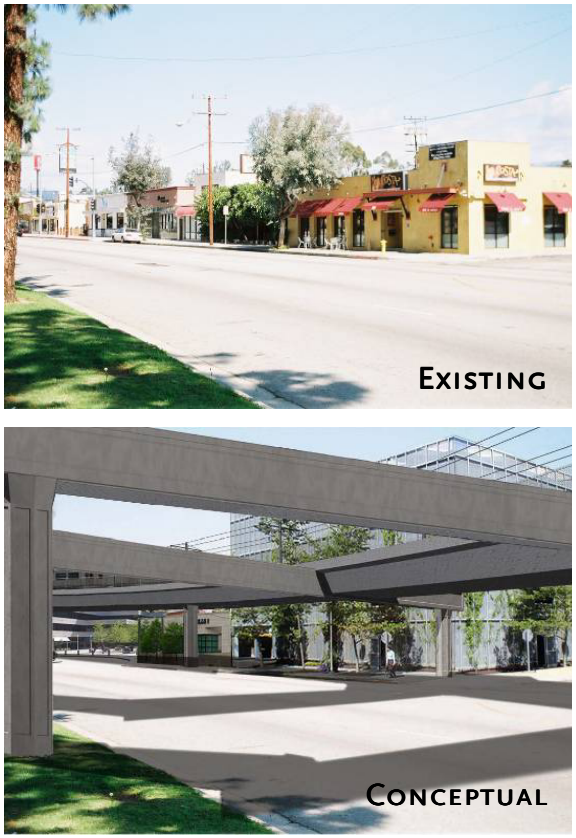


Figure 4.6-4. Visual Simulation of Garfield Avenue and Via San Clemente

Figure 4.6-5. Visual Simulation of Garfield Avenue and Via Acosta

Figure 4.6-6. Visual Simulation of Garfield Avenue and Madison Avenue

Figure 4.6-7. Visual Simulation of Washington Boulevard at Rio Hondo Coastal Basin Spreading Grounds

Shade and Shadow

The Washington Boulevard LRT Alternative would include the construction of an aerial guideway along Garfield Avenue and a portion of Washington Boulevard west of Montebello Boulevard. Shade-sensitive uses, which consist of land uses sensitive to loss of light, include residential, public recreation, historic, and educational uses. **Table 4.6-2** and **Table 4.6-3** summarize Summer Solstice and Winter Solstice shade and shadow impacts, respectively, on shade-sensitive uses.

Based on the shade and shadow analysis completed for the project, during Summer Solstice the multi-family residences located adjacent to the former Rod's Grill Coffee Shop along Garfield Avenue would be shaded for a three-hour period of time. They would therefore be significantly and adversely affected by shadows cast by the aerial guideway.

Based on the shade and shadow analysis completed for the project, during Winter Solstice the Our Lady of Miraculous Medal Church and adjacent multi-family residences along Garfield Avenue, the former Rod's Grill Coffee Shop and adjacent multi-family residences along Garfield Avenue, and the multi-family residences across the street from Cantwell-Sacred Heart of Mary High School would all be shaded for a period of three hours or longer. These locations would, therefore, be significantly and adversely affected by shadows cast by the aerial guideway.

Impacts associated with implementation of the Washington Boulevard LRT Alternative, including all project-related lighting, would be localized and would be visible only from the immediate vicinity of the project alignment.

The Washington Boulevard LRT Alternative would result in an operational-related adverse effect under NEPA and a significant impact under CEQA with regard to visual character and shade and shadows along Garfield Avenue.

4.6.3.4.2 Mitigation Measures

Construction Mitigation Measures

The same construction mitigation measures (mitigation measures 4.6-i through 4.6-ix) identified above in Section 4.6.3.3.2 for the SR 60 LRT Alternative and summarized in Table ES-2 would apply to this alternative.

Operational Mitigation Measures

While there is no mitigation that would enable the light rail components of the build alternatives to become inconspicuous, implementation of the following mitigation measures, including mitigation measure 4.6-x identified above in Section 4.6.3.3.2 for the SR 60 LRT Alternative and summarized in Table ES-2, would reduce the changes to the visual attributes of the surrounding neighborhoods and potentially reduce the severity of adverse visual impacts identified for sensitive land uses along Garfield Avenue between Via Campo and Whittier Boulevard.

Table 4.6-2. Washington Boulevard LRT Alternative Summary of Shade/Shadow Impacts During Summer Solstice

Shade-Sensitive Receptor	Impact
Montebello Golf Course and Bicknell Park	Minimal shading during the day
Our Lady of Miraculous Medal Church and adjacent multi-family residences	Shading from 4:00 PM to 5:00 PM
Rod's Grill Coffee Shop	Minimal shading during the day
Multi-family residences adjacent to Rod's Grill Coffee Shop	**Morning shadows from 9:00 AM to 12:00 PM**
Ashiya Park	Undersized shadows at 5:00 PM would be cast on the southern edge of the park
Cantwell-Sacred Heart of Mary High School and adjacent multi-family residences	Shading from 4:00 PM to 5:00 PM
Montebello Park Historic District	Morning shadows at 9:00 AM for the residences on the west side of Garfield Avenue and from 4:00 PM to 5:00 PM for those on the east side

Source: CDM Smith, January 2012.

Note:
*Receptors that would be impacted for three hours or longer are shown in **bold**.*

Table 4.6-3. Washington Boulevard LRT Alternative Summary of Shade/Shadow Impacts During Winter Solstice

Shade-Sensitive Receptor	Impact
Montebello Golf Course and Bicknell Park	No substantial shading
Our Lady of Miraculous Medal Church and adjacent multi-family residences	**Shading throughout the afternoon hours of 12:00 PM to 3:00 PM**
Rod's Grill Coffee Shop and adjacent multi-family residences	**Shadows in the morning hours of 9:00 AM to 12:00 PM**
Ashiya Park	Southern edge of park would be shaded at 3:00 PM
Multi-family residences facing Cantwell-Sacred Heart of Mary High School	**Shading from 10:00 AM to 3:00 PM**
Cantwell-Sacred Heart of Mary High School	No significant shading
Montebello Park Historic District	Morning shadows would occur from 9:00 AM to 10:00 AM for the residences on the west side of Garfield Avenue and from 2:00 PM to 3:00 PM for those on the east side

Source: CDM Smith January 2012.
Note:
*Receptors that would be impacted for three hours or longer are shown in **bold***

4.6-xi. Existing mature trees that are removed to accommodate LRT components would be preserved and relocated close to their original location by Metro, where feasible. Where practical and appropriate, additional landscape treatments comparable in design to those along the Metro Gold Line Eastside Extension, and consistent with city policies, would be installed by Metro.

4.6-xii. To ensure privacy, screen fencing on the aerial guideway would be provided by the construction contractor to block direct views of homes visible from aerial stations. Aesthetic treatments on screen fencing would be used in order to deter graffiti and vandalism and provide visual attractiveness for the residences.

4.6-xiii. Proposed stations and associated park and ride facilities along street frontages would be visually screened by Metro with landscape buffers which may include a combination of plantings, decorative fencing, planters, and public art.

4.6-xiv. Light source shielding (e.g., canopies, landscaping, and walls) would be installed by Metro on light fixtures in order to cut off the view angle and limit spillover light and glare to residential areas. A lighting plan would be developed with community input during final design.

4.6-xv. Coordination with utility providers would be conducted by Metro to consolidate existing overhead utility wires with an overhead catenary system (OCS) or place existing wires underground, where appropriate, in order to reduce visual clutter in residential areas.

4.6-xvi. Canopies, fencing, and wayfinding signage would be pedestrian-scaled. Signs would also be coated with anti-graffiti coating (easily washable) to deter and discourage graffiti artists. Graffiti removal efforts would be based upon a graffiti control program created and operated by Metro.

4.6-xvii. In locations where project components (i.e., columns, bents, aerial crossings, and retaining walls) are too large to apply minimizing techniques, sensitive "showcasing" of the components would be used by Metro, where practical and appropriate. Showcasing may include, but would not be limited to, decorative lighting, installing texture on project components, relief designs, and contextual art features.

4.6-xviii. Before final design, Metro would coordinate with the cities and communities during the station area planning process to develop guidelines for incorporating design features in and around station areas. Design guidelines include, but are not limited to, conservation of historical character and structures; promotion of a sense of place, safety, and walkability by providing public design features, uniform signage, and lighting schemes consistent with the surrounding neighborhood character; reduction of the massing and profile of the rail structure, where possible; and incorporation of design features in all walls, structures, and fences to improve appearance and reduce visual intrusion.

4.6-xix. Conformance with the following city design guidelines, to the maximum extent practicable, would be incorporated in the project by Metro.

- Pico Rivera – provide well-designed parking facilities that are safe, convenient, and attractive; lighting fixtures would be integrated into the visual environment with an appropriate architectural theme.
- Montebello – add visual interest to the street scene by creating a safe and inviting environment for pedestrian and bicycle mobility with tree-lined streets and drought-tolerant landscaping.

- Monterey Park – avoid sign clutter within commercial districts and achieve an overall sense of community through coordinated design standards.
- Los Angeles County – implement a streetscape beautification program to influence the number of people willing to ride as an alternative to driving. People are likely to walk or ride farther and more often when the streetscape offers more attractions and when they feel comfortable and secure.

4.6.3.4.3 Impacts Remaining After Mitigation

NEPA Finding

The Washington Boulevard LRT Alternative would result in adverse visual effects, including effects from shade and shadows, to the existing community along Garfield Avenue in Montebello between Via Campo and Whittier Boulevard. The removal of trees along the median of Washington Boulevard would create an adverse visual effect before mitigation.

Implementation of mitigation measures would reduce visual effects to not adverse for the removal of trees along the median of Washington Boulevard, but visual effects would remain adverse and unavoidable along Garfield Avenue between Via Campo and Whittier Boulevard.

CEQA Determination

The Washington Boulevard LRT Alternative would substantially change the visual character of Garfield Avenue between Via Campo and Whittier Boulevard and result in significant impacts. The visual alteration of the community along Garfield Avenue, including shading and shadows, would be prominent and would result in significant and unavoidable impacts, even after mitigation.

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Section 4.7

Air Quality

This section summarizes the potential for air quality impacts resulting from construction and operation of the proposed Eastside Transit Corridor Phase 2 Project alternatives. Information in this section is based on, and updated where appropriate from, the Air Quality Impacts and Health Risk Assessment Technical Memorandum, which is incorporated into this Draft EIS/EIR as Appendix R. Greenhouse gas and climate change impacts are discussed in Section 4.8, Climate Change, of this Draft EIS/EIR.

4.7.1 Regulatory Framework/Methodology

4.7.1.1 Regulatory Framework

The Federal Clean Air Act (CAA) and the California Clean Air Act (CCAA) are the primary statutes that establish ambient air quality standards. Under authority of the CAA, the U.S. Environmental Protection Agency (USEPA) established National Ambient Air Quality Standards (NAAQS) for the following criteria pollutants: carbon monoxide (CO), lead (Pb), nitrogen dioxide (NO_2), ozone (O_3), inhalable particulate matter (PM_{10}), fine particulate matter ($PM_{2.5}$), and sulfur dioxide (SO_2). Typical health effects of these pollutants include the following:

- O_3: Eye irritation and respiratory function impairment
- CO: Impairment of oxygen transport in the bloodstream; aggravation of cardiovascular disease; and fatigue, headache, and dizziness
- NO_2: Increased risk of acute and chronic respiratory disease
- SO_2: Increased risk of acute and chronic respiratory disease
- PM_{10} and $PM_{2.5}$: Aggravation of chronic disease and heart and lung disease symptoms

The CCAA, signed into law in 1988, requires all areas of the state to achieve and maintain the California Ambient Air Quality Standards (CAAQS) by the earliest practicable date. CAAQS are at least as stringent as, and often more stringent than NAAQS.

Approval, funding, or implementation of Federal Highway Administration and Federal Transit Administration projects is subject to the transportation conformity regulations under the CAA (40 CFR 93 Subpart A). The Eastside Transit Corridor Phase 2 Project is included in the Southern California Association of Government's (SCAG) *2012-2035 Regional Transportation Plan /Sustainable Communities Strategy* (RTP/SCS) adopted on April 4, 2012. The proposed project is therefore classified as a conforming project under transportation conformity, and a regional analysis of projects emissions is not required. Additionally, the SCAG Transportation Conformity Working Group (TCWG) determined that the project is not a project of air quality concern and does not require project-level PM hot spot analyses for PM_{10}, and $PM_{2.5}$; however, analysis regarding possible localized impacts of CO is still required.

4.7.1.2 Significance Thresholds

4.7.1.2.1 Federal

A project's air quality impacts are considered significant under the CAA if project emissions cause or contribute to ambient air concentrations that exceed a NAAQS. Project emissions are defined as the increment between a future alternative and a future no action alternative. If project emissions do not exceed these thresholds, then it would indicate that the project would not cause or contribute to emission levels that exceed a NAAQS; thus, emissions would not be significant under the CAA.

4.7.1.2.2 State

The South Coast Air Quality Management District (SCAQMD) developed significance thresholds for mass daily emission rates of criteria pollutants for both construction and operational sources. **Table 4.7-1** summarizes the mass daily significance thresholds published by the SCAQMD and used in this analysis.

Table 4.7-1. SCAQMD Air Quality Significance Thresholds (lbs/day)

Pollutant	Construction	Operation
NOx	100	55
VOC*	75	55
PM_{10}	150	150
$PM_{2.5}$	55	55
SOx	150	150
CO	550	550
Lead	3	3

*Volatile organic compounds

The *CEQA Guidelines* provide only qualitative criteria to evaluate significance. Since the SCAQMD publishes quantitative significance thresholds, these are suitable for evaluating compliance with the Initial Study checklist questions contained in the *CEQA Guidelines*.

Concentrations from the CO hot spots analysis are compared with the NAAQS and CAAQS to evaluate significance. As a result, the significance thresholds for localized CO concentrations are 9 parts per million (ppm) for the 8-hour averaging period (NAAQS and CAAQS), 20 ppm for the 1-hour CAAQS, and 35 ppm for the 1-hour NAAQS.

Project emissions for this CEQA analysis are defined as the difference between a project alternative (2035) and the existing conditions in 2010 adjusted for regional growth that would occur by 2035. For the Eastside Transit Corridor Phase 2 Project, this adjusted baseline is equivalent to the No Build Alternative (2035). The build alternatives plus existing conditions (i.e., the alternative as it would exist in 2010) were also compared with existing conditions (2010) and are discussed further in the "Comparison of Alternative Against Existing Conditions" subsections. Project emissions greater than thresholds for a given air pollutant would be considered a significant impact under CEQA.

4.7.1.3 Methodology

4.7.1.3.1 Regional Operational Emissions

Regional emissions were calculated from projected vehicle miles traveled (VMT) for each of the project alternatives. Regional VMT data was estimated from the latest version of the Los Angeles County Metro's regional travel demand forecasting model (Metro Travel Demand Model). This analysis used the current USEPA-approved version of the emissions factors model (EMFAC) to develop emission factors for different vehicle classes. EMFAC was also used to describe the on-road fleet mix (the relative ratio of passenger cars, buses, delivery trucks, heavy duty diesel trucks, motorcycles, recreational vehicles, etc.) for the South Coast Air Basin (SoCAB) in each year of the analysis.

The build alternatives would include the addition of parking spaces to accommodate passengers at several of the stations. The new parking spaces would result in a new source of volatile organic compounds (VOC) emissions, namely evaporative leaks from vehicle fuel tanks. Evaporative emissions from vehicles left in the parking lots throughout the day were also estimated with EMFAC.

Emission factors for urban buses from EMFAC were also used to estimate emissions from changes in transit buses. Any potential increases in criteria pollutants from fossil fuels used to generate electricity used to power the electric light rail transit (LRT) vehicles would not contribute to impacts under the significance thresholds. Impacts from criteria pollutants tend to be localized in nature and the exact power plant from which emissions would occur cannot be identified. As a result, it would be speculative to assume that emissions would occur in the SoCAB and would contribute to a local or regional impact from criteria pollutants.

4.7.1.3.2 CO Hot Spots

Localized concentrations of CO that can occur near roadway intersections from changes in traffic volume, speed, and delay are known as CO hot spots. As explained above, an evaluation of localized impacts is focused on CO because an evaluation of PM_{10} or $PM_{2.5}$ is neither required nor deemed necessary by SCAG TCWG. To determine whether a CO hot spot (high localized ambient concentration) would result from activities associated with the proposed project, an analysis must be conducted to predict ambient CO concentrations from the near-field dispersion of the emissions. The screening procedures in the Bay Area Air Quality Management District *CEQA Guidelines* (1999) and emission factors from EMFAC were used to estimate localized impacts from CO for the following five intersections which have the highest peak hour traffic volumes:

- Washington Boulevard and Rosemead Boulevard
- Washington Boulevard and Pioneer Boulevard
- Washington Boulevard and Norwalk Boulevard
- Washington Boulevard and Paramount Boulevard
- Washington Boulevard and Passons Boulevard

Because these intersections would not be affected by the SR 60 LRT Alternative, the intersection in the vicinity of the SR 60 LRT Alternative alignment with the worst traffic volume (Garfield Avenue and Via Campo) was also analyzed. Additional information on the CO hot spots analysis is provided in Appendix R, Air Quality Impacts and Health Risk Assessment Technical Memorandum.

4.7.1.3.3 Health Risk Assessment

CEQA requires an analysis of the health impacts associated with a proposed project, which may include a health risk assessment (HRA) for sensitive receptors (e.g., residents, workers, and school children) near the project site that are likely to be exposed to toxic air contaminants (TACs) emitted from project activities. TACs can cause cancer or non-cancerous health effects including asthma, nervous system disorders, birth defects, and developmental issues in children. Most TACs are categorized as organic (primarily volatile) or inorganic (primarily particulate) emissions. Therefore, emissions of TACs are typically calculated by applying chemical-specific mass fractions (also called speciation profiles) to the total organic gases (TOG) or PM_{10} emission rates calculated for criteria pollutant emission inventories.

The California Air Resources Board (CARB) has developed speciation profiles (CARB 2010b) for a variety of sources including diesel and gasoline motor vehicles, off-road diesel and gasoline mobile equipment, paved road dust, and construction dust. These speciation profiles were used with projected TOG and PM_{10} emission levels to determine TAC emissions for each alternative.

SCAQMD Rule 1401 was used to determine the TACs to be evaluated for risk. Twenty-five TACs were identified from the speciation profiles for mobile emission sources. Common TACs from mobile sources include benzene, 1,3-butadiene, formaldehyde, acrolein, and diesel particulate matter (DPM). This analysis calculated speciated emissions for exhaust, evaporation, tire wear, brake wear, and paved road dust.

Additional information on TAC emissions and the results of any HRAs that were completed are included in the following discussions for each alternative.

4.7.2 Affected Environment/Existing Conditions

Table 4.7-2 provides a summary of regional highway traffic emissions in the project area and transit bus operations for existing conditions.

The regional traffic emissions are based on modeling that considered freeway mainline traffic in the six-county region covered by the Southern California Association of Governments, including Los Angeles, Orange, Riverside, San Bernardino, Imperial, and Ventura counties.

Table 4.7-2. Existing Conditions (2010) Total Operational Emissions: Regional Traffic and Transit Buses

Emission Source	VOC	CO	NOx	SO_2	PM_{10}	$PM_{2.5}$
	Daily Emissions (lbs/day)					
Regional Traffic	96,360	2,356,768	460,963	3,790	285,408	83,149
Transit Buses	47	340	767	1	64	31
Total	96,407	2,357,108	461,731	3,947	285,473	83,180
Annual Emissions (tpy)						
Regional Traffic	15,321	374,726	73,293	603	45,380	13,221
Transit Buses	8	54	122	<1	10	5
Total	15,329	374,780	73,416	628	45,390	13,226

Source: CDM Smith 2013.
Key:
CO = carbon monoxide
lbs/day = pounds per day
NOx = nitrogen oxides
$PM_{2.5}$ = fine particulate matter
PM_{10} = inhalable particulate matter
SO_2 = sulfur dioxide
tpy = tons per year
VOC = volatile organic compounds

The transit bus VMT is based on the study area described in Appendix R, Air Quality Impacts and Health Risk Assessment Technical Memorandum, and is a subset of Los Angeles County. The transit bus VMT is not a sub-category of the regional traffic emissions, but was estimated separately.

The CAA specifies dates for achieving compliance with NAAQS and regions are designated according to their compliance status. A nonattainment designation means that the area is not in compliance with the NAAQS. A maintenance designation means a pollutant was previously in nonattainment but was subsequently redesignated as in attainment.

The SoCAB is designated as a federal nonattainment area for O_3, $PM_{2.5}$, and Pb. Nonattainment designations may be classified in levels of severity based on the pollutant concentration levels that determine the mandated attainment date. The region is classified as an extreme nonattainment area for O_3 and a serious nonattainment area for PM_{10}. In 1998 the USEPA designated the SoCAB as an attainment/maintenance area for NO_2 because NO_2 levels in SoCAB dropped below NAAQS in the early 1990s. The USEPA designated SoCAB as a maintenance area for CO in 2007 and PM_{10} in 2013.

The SoCAB is designated as a state nonattainment area for O_3, NO_2, PM_{10}, $PM_{2.5}$, and Pb. (Refer to Appendix R, Air Quality Impacts and Health Risk Assessment Technical Memorandum, for a more detailed discussion of the region's attainment status.)

4.7.3 Environmental Impacts/Environmental Consequences

This section describes the results of the construction and operational air quality impact analysis conducted for the proposed Eastside Transit Corridor Phase 2 Project. Construction and operational emissions would occur at different times and would not overlap; therefore, emissions would not be cumulative and are reported separately.

In addition, per the *CEQA Guidelines*, a significant impact would occur if the project would create objectionable odors affecting a substantial number of people. The No Build, TSM, and LRT Alternatives would not generate objectionable odors affecting a substantial number of people. Typical sources of objectionable odors include landfills, rendering plants, chemical plants, agricultural uses, wastewater treatment plants, refineries, and in some instances, restaurants. None of the alternatives include these land uses and, therefore, no impacts associated with objectionable odors would occur.

More detailed emission calculations and model outputs can be found in Appendix R, Air Quality Impacts and Health Risk Assessment Technical Memorandum, of this Draft EIS/EIR. **Table 4.7-3**, below, summarizes the operational air quality impacts for each of the project alternatives.

Table 4.7-3. Summary of Potential Air Quality Impacts

Alternative	Construction (NEPA/CEQA)	Operations (NEPA/CEQA)
No Build	None	None
TSM	Not adverse/Less than significant	Not adverse/Less than significant
SR 60 LRT[1]	Not adverse/Less than significant after mitigation	Not adverse/Less than significant
Washington Boulevard LRT	Not adverse/Less than significant after mitigation	Not adverse/Less than significant

Notes:
[1] Includes the SR 60 North Side Design Variation.

4.7.3.1 No Build Alternative

4.7.3.1.1 Impact Analysis

The No Build Alternative assumes that none of the project alternatives would be built. The No Build Alternative would not create new emissions as it only reflects regional growth in the area, and would not have negative operational air quality impacts. Operational emissions would occur from exhaust emissions associated with regional traffic and buses. **Table 4.7-4** summarizes regional highway traffic and transit bus emissions in the project area. Although there may be more congestion and vehicle miles traveled in 2035 than in 2010, improvements in engine technology, turnover in older vehicles, and stricter exhaust emission factors often result in lower emissions in future years. As a result, emissions in Table 4.7-4 are lower than under the existing conditions shown in Table 4.7-2. As described in Section 4.7.1.2.2, the No Build Alternative is equivalent to an adjusted environmental baseline and is used to evaluate the significance of the alternatives under CEQA and NEPA.

Emissions of TACs from highway vehicles would also occur under the No Build Alternative. Depending on the TAC, emissions range from 1 to 183 pounds per hour for volatile organic compounds and less than 37 pounds per hour for inorganic compounds. Emissions are summarized in Appendix R, Air Quality Impacts and Health Risk Assessment Technical Memorandum, of this Draft EIS/EIR.

This analysis included a CO hot spots evaluation that calculated localized impacts of CO concentrations at several intersections.

Table 4.7-4. No Build Alternative (2035) Total Operational Emissions: Regional Traffic and Transit Buses

Emission Source	VOC	CO	NOx	SO_2	PM_{10}	$PM_{2.5}$
	Daily Emissions (lbs/day)					
Regional Traffic	52,574	1,105,509	256,322	5,774	413,652	117,223
Transit Buses	16	103	280	1	55	24
Total	52,590	1,105,612	256,602	5,775	413,707	117,246
Annual Emissions (tpy)						
Regional Traffic	8,359	175,776	40,755	918	65,771	18,638
Transit Buses	3	16	45	<1	9	4
Total	8,362	175,792	40,800	918	65,779	18,642

Source: CDM Smith 2013.
Key:
CO = carbon monoxide
lbs/day = pounds per day
NOx = nitrogen oxides
$PM_{2.5}$ = fine particulate matter
PM_{10} = inhalable particulate matter
SO_2 = sulfur dioxide
tpy = tons per year
VOC = volatile organic compounds

The maximum CO concentrations at each of the intersections would not exceed the established thresholds (equal to the NAAQS and CAAQS) and would be less than significant.

4.7.3.1.2 Mitigation Measures

Since the No Build Alternative would not result in significant air quality impacts, no mitigation measures are required.

4.7.3.1.3 Impacts Remaining After Mitigation

NEPA Finding

The No Build Alternative would not result in an adverse effect to air quality.

CEQA Determination

The No Build Alternative would not result in significant air quality impacts.

4.7.3.2 TSM Alternative

4.7.3.2.1 Impact Analysis

Construction Impacts

The TSM Alternative would involve minimal construction to add new bus stops, shelters, and other related facilities. As a result, emissions associated with construction would be negligible and were not quantified.

Operational Impacts

The TSM Alternative would improve mobility in the region, but without the construction of a fixed guideway facility.

The TSM Alternative would therefore result in an increase in bus mileage in comparison with the No Build Alternative, but would lead to a corresponding reduction in regional traffic from passengers changing transportation modes. In other words, it is expected that some drivers using single occupancy vehicles would switch to transit with the proposed improvements to public transportation.

Emissions from operation of buses associated with the TSM Alternative were considered together with highway emissions. **Table 4.7-5** shows total regional operational emissions under the TSM Alternative.

As shown in Table 4.7-5, emissions of all pollutants would decrease with implementation of the TSM Alternative.

Table 4.7-5. TSM Alternative (2035) Total Operational Emissions: Regional Traffic and Transit Buses

Emission Source	VOC	CO	NOx	SO_2	PM_{10}	$PM_{2.5}$
	Daily Emissions (lbs/day)[1]					
Regional Traffic	52,526	1,104,492	256,086	5,768	413,271	117,115
Transit Buses	24	154	419	1	83	35
Total Emissions	52,549	1,104,646	256,506	5,770	413,354	117,150
Increment Above No Build Alternative[2]	(41)	(966)	(96)	(5)	(353)	(96)
CEQA Threshold	55	150	55	550	150	55
Significant?	No	No	No	No	No	No
Annual Emissions (tpy)[1]						
Regional Traffic	8,352	175,614	40,718	917	65,710	18,621
Transit Buses	4	25	67	<1	13	6
Total Emissions	8,355	175,639	40,785	917	65,723	18,627
Increment Above No Build Alternative	(6)	(154)	(15)	(1)	(56)	(15)
NEPA Threshold	10	100	10	100	100	100
Adverse?	No	No	No	No	No	No

Source: CDM Smith 2013.
Notes:
[1] Emission reductions (beneficial impacts) are shown in parentheses.
[2] For the purpose of this analysis, the "adjusted environmental baseline," which is defined as the existing conditions in 2010 adjusted for regional growth that would occur by 2035, was equivalent to the No Build Alternative (2035). As a result, the table uses the No Build Alternative to analyze impacts under CEQA.
Key:
CO = carbon monoxide
lbs/day = pounds per day
NOx = nitrogen oxides
$PM_{2.5}$ = fine particulate matter
PM_{10} = inhalable particulate matter
SO_2 = sulfur dioxide
tpy = tons per year
VOC = volatile organic compounds

The TSM Alternative would result in emissions of TACs from regional traffic operations. This alternative would result in decreased TAC emissions from highway vehicles compared with the No Build Alternatives; therefore, no HRA was completed for operational emissions.

A CO hot spots evaluation was completed to calculate localized impacts of CO concentrations at several intersections. According to the analysis completed, the maximum CO concentrations at each of the intersections would not exceed the established thresholds for both the CAA and CEQA.

4.7.3.2.2 Mitigation Measures

Construction Mitigation Measures

Since construction-related emissions would be negligible, no mitigation measures are required.

Operational Mitigation Measures

Since the TSM Alternative would not result in significant air quality impacts from its operation, no mitigation measures are required.

4.7.3.2.3 Impacts Remaining After Mitigation

NEPA Finding

Since the TSM Alternative is expected to involve only minimal construction activities, emissions from those activities are expected to be negligible and were not quantified. Construction-related air quality effects would not be adverse under NEPA.

All criteria pollutant emissions from operations, including TAC emissions and the CO hot spots locations, would not be adverse.

CEQA Determination

Since the TSM Alternative is expected to involve only minimal construction activities, emissions from those activities are expected to be negligible and were not quantified. Construction-related air quality impacts are expected to be less than significant.

Operational emissions for the TSM Alternative, including both the operation of buses and regional traffic, would be less than significant. The CO hot spots analysis under the TSM Alternative was also found to be less than significant.

4.7.3.3 SR 60 LRT Alternative

4.7.3.3.1 Impact Analysis

Construction Impacts

SCAQMD requires an analysis of construction-related emissions. This analysis estimated emissions from off-road construction equipment, fugitive dust, construction worker commuting vehicles, and haul trucks. **Table 4.7-6** shows construction emissions by peak day of operation for the SR 60 LRT Alternative. All phases of construction, including street widening and construction of the elevated guideway, stations, parking facilities, and Mission Junction maintenance yard, are included in the totals shown in Table 4.7-6. Emissions of VOC, NOx, CO, SO_2, PM_{10}, and $PM_{2.5}$ would not be significant, and no mitigation measures would need to be implemented.

This analysis also evaluated construction emissions on a local level and compared them with SCAQMD's localized significance thresholds (LSTs). The analysis used a series of look-up tables for NOx, CO, PM_{10}, and $PM_{2.5}$.

These tables show maximum allowable emission levels, which vary based on project location, size (acreage), and distance to the nearest receptor. Emissions were compared with the LSTs for the South San Gabriel Valley Source Receptor Area (SRA).

The LST evaluation indicates that PM_{10} emissions would be greater than maximum allowable levels during construction of the maintenance yard. Impacts of PM_{10} would have to be mitigated to the maximum extent feasible. Appendix R, Air Quality Impacts and Health Risk Assessment, contains a more detailed analysis of construction-related emissions.

Construction of the SR 60 LRT Alternative would indirectly result in increased emissions of TACs. Projected emissions under the SR 60 LRT Alternative were compared with those under the No Build Alternative (2035) for CEQA analysis. The analysis includes a Tier 1 HRA, which compares emission levels to published screening limits. The pollutant screening index (PSI) for each pollutant is calculated by dividing the maximum annual and hourly emissions of each pollutant by the pollutant screening level (PSL) for the given pollutant.

Table 4.7-6. SR 60 LRT Alternative (2027-2030) Maximum Daily Construction Emissions

	Daily Emissions (lbs/day)					
	VOC	NOx	CO	SO_2	PM_{10}	$PM_{2.5}$
Peak Emissions	66	59	150	<1	25	10
Threshold	75	100	550	150	150	55
Significant	No	No	No	No	No	No

Source: CDM Smith 2013.
Notes: Excavation of 83 cubic yards within the Whittier Narrows Flood Control Basin as part of compensatory mitigation for the SR 60 LRT Alternative would result in five truck trips. Given that the soil would be used on a nearby segment of the alignment outside the Whittier Narrows Flood Control Basin, the additional five truck trips would result in minimal emissions and would not result in an increase in maximum daily construction emissions that would exceed air quality thresholds.
Key:
CO = carbon monoxide
lbs/day = pounds per day
NOx = nitrogen oxides
$PM_{2.5}$ = fine particulate matter
PM_{10} = inhalable particulate matter
SO_2 = sulfur dioxide
VOC = volatile organic compounds

The PSLs are published by the SCAQMD and are emission thresholds that are not expected to exceed the various risk levels. The summation of the PSIs for all pollutants is known as the application screening index (ASI); if the ASI is less than 1, then the emissions source is compliant with the SCAQMD's risk thresholds.

Table 4.7-7 summarizes project-related emissions and Tier 1 HRA results. As shown in Table 4.7-7, the ASI is less than the threshold of 1; therefore, impacts from construction-related TAC emissions under the SR 60 LRT Alternative would not be significant under CEQA.

Operational Impacts

Operational emissions associated with the SR 60 LRT Alternative include emissions from highway traffic, transit buses, a light rail maintenance yard, and parking lots. The SR 60 LRT Alternative would provide an alternative to automobile transportation in the region; therefore, it was necessary to evaluate highway traffic to assess how the SR 60 LRT Alternative would increase or decrease operational emissions from highway vehicles.

Table 4.7-8 summarizes exhaust emissions from regional highway traffic and transit buses, evaporative loss emissions from parking lots, and operational emissions from the LRT maintenance yard in the project area. This table compares emissions associated with the SR 60 LRT Alternative with the adjusted environmental baseline (No Build Alternative) for CEQA.

Criteria pollutant emissions would be less than significant under the SR 60 LRT Alternative, when compared with the adjusted environmental baseline. Although emissions from transit buses would increase compared to the No Build Alternative, highway emissions are expected to decrease which would counteract the transit bus emissions.

Table 4.7-7. SR 60 LRT Alternative (2027-2030) Construction Health Risk Assessment

TAC	CAS #	Emissions (lbs/hr)	PSL (lbs/hr)	PSI
Arsenic	7440-38-2	0.0000079	0.00010	0.079
Chlorine	7782-50-5	0.0013	0.1	0.013
Copper	7440-50-8	0.000045	0.050	0.00090
Mercury	7439-97-6	0.0000089	0.00090	0.010
Nickel	7440-02-0	0.000025	0.0030	0.0084
ASI				0.11
Threshold				1

Source: CDM Smith 2013
Key:
ASI = application screening index (total PSI)
CAS = Chemical Abstracts Service
lbs/hr = pounds per hour
PSI = pollutant screening index (PSL divided by project emissions)
PSL = pollutant screening level (minimum level expected to exceed health risk)
TAC = toxic air contaminant

Table 4.7-8. SR 60 LRT Alternative (2035) Total Operational Emissions: Regional Traffic, Parking Lot Evaporative Emissions, Transit Buses, and LRT Maintenance Yard

Emission Source	VOC	CO	NOx	SO2	PM_{10}	$PM_{2.5}$
	Daily Emissions (lbs/day)[1]					
Regional Traffic	52,524	1,104,458	256,079	5,768	413,259	117,111
Parking	4	N/A	N/A	N/A	N/A	N/A
Transit Buses	22	145	396	1	78	33
LRT Maintenance Yard	3	31	5	<1	6	1
Total Emissions	52,554	1,104,634	256,479	5,769	413,343	117,146
Increment Above No Build Alternative[2]	(36)	(977)	(123)	(5)	(364)	(101)
CEQA Threshold	55	550	55	150	150	55
Significant?	No	No	No	No	No	No

Table 4.7-8. SR 60 LRT Alternative (2035) Total Operational Emissions: Regional Traffic, Parking Lot Evaporative Emissions, Transit Buses, and LRT Maintenance Yard (Continued)

Emission Source	VOC	CO	NOx	SO2	PM_{10}	$PM_{2.5}$
	Daily Emissions (lbs/day)[1]					
Annual Emissions (tpy)[1]						
Regional Traffic	8,351	175,609	40,716	917	65,708	18,621
Parking	<1	N/A	N/A	N/A	N/A	N/A
Transit Buses	4	23	63	0	13	5
LRT Maintenance Yard	<1	6	<1	<1	1	<1
Total Emissions	8,356	175,638	40,781	917	65,722	18,626
Increment Above No Build Alternative	(6)	(155)	(19)	(<1)	(58)	(16)
CAA Threshold	10	100	10	100	100	100
Adverse?	No	No	No	No	No	No

Source: CDM 2013.
Notes:
[1] Emission reductions (beneficial impacts) are shown in parentheses.
[2] For the purpose of this analysis, the "adjusted environmental baseline," which is defined as the existing conditions in 2010 adjusted for regional growth that would occur by 2035, was equivalent to the No Build Alternative (2035). As a result, the table uses the No Build Alternative to analyze impacts under CEQA.

Key:
CO = carbon monoxide
lbs/day = pounds per day
NOx = nitrogen oxides
$PM_{2.5}$ = fine particulate matter
PM_{10} = inhalable particulate matter
SO_2 = sulfur dioxide
tpy = tons per year
VOC = volatile organic compounds

The SR 60 LRT Alternative would result in emissions of TACs from regional traffic operation. Emissions from the maintenance yard and parking lots would be negligible. The SR 60 LRT Alternative would indirectly result in decreased TAC emissions from highway vehicles compared with the No Build Alternative; therefore, an HRA was not completed for operational emissions.

This analysis included a CO hot spots evaluation to calculate localized impacts of CO concentrations at several intersections. The intersection with the highest potential for adverse impacts from the SR 60 LRT Alternative, based on peak hourly traffic volume, was selected for a screening analysis. The maximum CO concentrations at this intersection (Garfield Avenue and Via Campo) would not exceed the established thresholds under either NEPA or CEQA.

An evaluation was also completed to compare the SR 60 LRT Alternative plus existing conditions to existing conditions only, as upheld by the Sunnyvale CEQA decision. **Table 4.7-9** compares emissions from the SR 60 LRT Alternative (as if it had been built in 2010) with existing conditions in 2010.

Table 4.7-9. SR 60 LRT Alternative Daily Operational Emissions as Built in 2010 Compared to Existing Conditions (2010)

Pollutant	Daily Emissions[1,2] (lbs/day)				
	Existing Conditions[3]	SR 60 LRT Alternative[4]	Incremental Emissions	Significance Threshold	Exceed Threshold?
VOC	96,360	24,602	(71,805)	55	No
CO	2,356,768	651,625	(1,705,483)	550	No
NOx	460,963	121,526	(340,205)	55	No
SO_2	3,946	3,946	(2)	150	No
PM_{10}	285,408	280,585	(4,888)	150	No
$PM_{2.5}$	83,149	78,188	(4,992)	55	No

Source: SCAQMD 2011
Notes:
[1] Incremental emissions are determined by subtracting the existing emissions from project emissions.
[2] Emission reductions (beneficial impacts) are shown in parentheses.
[3] Emission factors used in analysis were based on 2010 conditions for Existing Conditions.
[4] Emission factors used in analysis were based on 2035 for future build alternatives based on the year that the proposed project would be operational.
Key:
CO = carbon monoxide
lbs/day = pounds per day
NOx = nitrogen oxides
PM_{10} = inhalable particulate matter
$PM_{2.5}$ = fine particulate matter
SO_2 = sulfur dioxide
VOC = volatile organic compounds

As shown in Table 4.7-9, daily incremental operational emissions associated with the SR 60 LRT Alternative would decrease for all pollutants; thus, all operational emission impacts would be less than significant under CEQA.

4.7.3.3.2 Mitigation Measures

Construction Mitigation Measures

4.7-i. Chemical soil stabilization measures would be implemented by the construction contractor.

4.7-ii. Ground cover in disturbed areas quickly would be replaced quickly by the construction contractor.

4.7-iii. A minimum soil moisture of 12 percent would be maintained by the construction contractor during any equipment loading and unloading activities to control fugitive dust.

The SCAQMD *2003 Air Quality Management Plan* identifies control measures for further emission reductions from fugitive dust sources. One such measure, Control Measure BCM-07, specifically identifies water, chemical stabilization, paving, revegetation, track-out control, and construction project signage as recommended control measures. The mitigation measures identified above would be consistent with Control Measure BCM-07 and thus consistent with the SCAQMD 2003 Air Quality Management Plan. As required by SCAQMD Rule 403, the proposed project would incorporate these

and any other specific dust control measures identified in Rule 403.

Operational Mitigation Measures

Since operation of the SR 60 LRT Alternative would not result in significant air quality impacts, no mitigation measures are required.

4.7.3.3.3 Impacts Remaining After Mitigation

NEPA Finding

Unmitigated regional construction emissions for the SR 60 LRT Alternative would not be adverse under NEPA and therefore no mitigation is required.

Criteria pollutant emissions from operations, including TAC emissions and the CO hot spots, would not be adverse.

CEQA Determination

Regional construction emissions for the SR 60 LRT Alternative would exceed the PM_{10} LST for the Mission Junction maintenance yard option. Mitigation measures, including additional fugitive dust control measures, are expected to reduce emissions to less than significant.

Operational emissions of criteria pollutants, including CO hot spots, would be less than significant when compared with the adjusted environmental baseline (No Build Alternative).

As TAC emissions would be less than those under the No Build Alternative, no HRA was required.

Comparison of Alternative Against Existing Conditions

Operational emissions for all pollutants, including pollutants from regional highway traffic, transit buses, parking lots, and a light rail maintenance yard, would be less than those calculated for existing conditions. Emissions would be less than significant for the SR 60 LRT Alternative and no mitigation measures would be required. Additional information is provided in Appendix GG, Existing Plus Project Conditions.

4.7.3.4 Washington Boulevard LRT Alternative

4.7.3.4.1 Impact Analysis

Construction Impacts

SCAQMD requires an analysis of construction-related emissions. This analysis estimated emissions from off-road construction equipment, fugitive dust, construction worker commuting vehicles, and haul trucks. **Tables 4.7-10** through **4.7-12** show construction emissions by peak day of operation. All phases of construction, including street widening and construction of the elevated guideway, parking facilities, and a maintenance yard are included in the totals shown in Tables 4.7-10 through 4.7-12. Since the Washington Boulevard LRT Alternative includes three options for the maintenance yard (Mission Junction, Commerce, and Santa Fe Springs), each table shows cumulative emissions for one of the maintenance yard options.

Daily criteria pollutant emissions from construction activities would not be significant for any of the maintenance yard scenarios and no mitigation measures would need to be implemented.

The LST evaluation indicates that PM_{10} emissions would be greater than maximum allowable levels during construction of the Mission Junction maintenance yard. Impacts of PM_{10} would have to be mitigated to the maximum extent feasible. If one of the other maintenance yard options (Commerce or Santa Fe Springs) is selected instead of the Mission Junction yard option, then PM_{10} emissions would be less than significant because a smaller area would need to be graded and improved.

Construction of the Washington Boulevard LRT Alternative would indirectly result in increased emissions of TACs. Projected emissions under the Washington Boulevard LRT Alternative were compared with the No Build Alternative for CEQA analysis. The analysis includes a Tier 1 HRA, which compares emission levels to published screening limits.

Table 4.7-10. Washington Boulevard LRT Alternative (2027-2031) with Santa Fe Springs Maintenance Yard Option Maximum Daily Construction Emissions

	Daily Emissions (lbs/day)					
	VOC	NOx	CO	SO_2	PM_{10}	$PM_{2.5}$
Peak Emissions	52	78	157	<1	26	9
Threshold	75	100	550	150	150	55
Significant	No	No	No	No	No	No

Source: CDM Smith 2013
Note:
Emissions shown include all phases of construction, including street widening and construction of the elevated guideway, stations, parking facilities, and the Santa Fe Springs (nine-acre) yard option. The emissions shown do not represent emissions from only the maintenance yard.
Key:
CO = carbon monoxide
lbs/day = pounds per day
NOx = nitrogen oxides
$PM_{2.5}$ = fine particulate matter
PM_{10} = inhalable particulate matter
SO_2 = sulfur dioxide
VOC = volatile organic compounds

Table 4.7-11. Washington Boulevard LRT Alternative (2027-2031) with Commerce Maintenance Yard Option Maximum Daily Construction Emissions

	Daily Emissions (lbs/day)					
	VOC	NOx	CO	SO_2	PM_{10}	$PM_{2.5}$
Peak Emissions	67	78	157	<1	26	9
Threshold	75	100	550	150	150	55
Significant	No	No	No	No	No	No

Source: CDM Smith 2013
Note:
Emissions shown include all phases of construction, including street widening and construction of the elevated guideway, stations, parking facilities, and the Commerce (12-acre) yard option. The emissions shown do not represent emissions from only the maintenance yard.
Key:
CO = carbon monoxide
lbs/day = pounds per day
NOx = nitrogen oxides
PM2.5 = fine particulate matter
PM10 = inhalable particulate matter
SO2 = sulfur dioxide
VOC = volatile organic compounds

Table 4.7-12. Washington Boulevard LRT Alternative (2027-2031) with Mission Junction Maintenance Yard Option Maximum Daily Construction Emissions

	Daily Emissions (lbs/day)					
	VOC	NOx	CO	SO_2	PM_{10}	$PM_{2.5}$
Peak Emissions	62	78	157	<1	26	9
Threshold	75	100	550	150	150	55
Significant	No	No	No	No	No	No

Source: CDM Smith 2013
Note:
Emissions shown include all phases of construction, including street widening and construction of the elevated guideway, stations, parking facilities, and the Mission Junction (11-acre) yard option. The emissions shown do not represent emissions from only the maintenance yard.
Key:
CO = carbon monoxide
lbs/day = pounds per day
NOx = nitrogen oxides
$PM_{2.5}$ = fine particulate matter
PM_{10} = inhalable particulate matter
SO_2 = sulfur dioxide
VOC = volatile organic compounds

Tables 4.7-13 through **4.7-15** summarize project-related emissions and Tier 1 HRA results under each of the maintenance yard options. In each case the ASI is less than the risk threshold of 1; therefore, impacts from construction TAC emissions under the Washington Boulevard LRT Alternative would not be significant under CEQA.

Operational Impacts

Operational emissions associated with the Washington Boulevard LRT Alternative include emissions from highway traffic, transit buses, a light rail maintenance yard, and parking lots. The Washington Boulevard LRT Alternative would provide an alternative to automobile transportation in the region; therefore, it was necessary to evaluate highway traffic to assess how the Washington Boulevard LRT Alternative would increase or decrease operational emissions from passenger vehicles.

Table 4.7-16 summarizes exhaust emissions from regional highway traffic and transit buses, evaporative loss emissions from parking lots, and operational emissions from the LRT maintenance yard in the project area. The table compares emissions associated with the Washington Boulevard LRT Alternative with the adjusted environmental baseline (No Build Alternative) for CEQA.

When compared with the adjusted environmental baseline, all criteria pollutant emissions under the Washington Boulevard LRT Alternative would be less than significant. Although emissions from transit buses would be higher than those under the No Build Alternative, highway emissions are expected to decrease which would counteract the bus emissions.

Table 4.7-13. Washington Boulevard LRT Alternative with the Santa Fe Springs Maintenance Yard (2027-2031) Construction Health Risk Assessment

TAC	CAS #	Emissions (lbs/hr)	PSL (lbs/hr)	PSI
Arsenic	7440-38-2	0.0000073	0.00010	0.073
Chlorine	7782-50-5	0.0013	0.11	0.012
Copper	7440-50-8	0.000042	0.050	0.00084
Mercury	7439-97-6	0.0000066	0.00090	0.0073
Nickel	7440-02-0	0.000023	0.0030	0.0078
ASI				0.10
Threshold				1

Source: CDM Smith 2013
Key:
ASI = application screening index (total PSI)
CAS = Chemical Abstracts Service
lbs/hr = pounds per hour
PSI = pollutant screening index (PSL divided by project emissions)
PSL = pollutant screening level (minimum level expected to exceed health risk)
TAC = toxic air contaminant

Table 4.7-14. Washington Boulevard LRT Alternative with the Commerce Maintenance Yard (2027-2031) Construction Health Risk Assessment

TAC	CAS #	Emissions (lbs/hr)	PSL (lbs/hr)	PSI
Arsenic	7440-38-2	0.0000074	0.00010	0.074
Chlorine	7782-50-5	0.0013	0.11	0.012
Copper	7440-50-8	0.000042	0.050	0.00085
Mercury	7439-97-6	0.0000067	0.00090	0.0074
Nickel	7440-02-0	0.000023	0.0030	0.0078
ASI				0.10
Threshold				1

Source: CDM Smith 2013
Key:
ASI = application screening index (total PSI)
CAS = Chemical Abstracts Service
lbs/hr = pounds per hour
PSI = pollutant screening index (PSL divided by project emissions)
PSL = pollutant screening level (minimum level expected to exceed health risk)
TAC = toxic air contaminant

Table 4.7-15. Washington Boulevard LRT Alternative with the Mission Junction Maintenance Yard (2027-2031) Construction Health Risk Assessment

TAC	CAS #	Emissions (lbs/hr)	PSL (lbs/hr)	PSI
Arsenic	7440-38-2	0.0000074	0.0001	0.074
Chlorine	7782-50-5	0.0013	0.105	0.012
Copper	7440-50-8	0.000042	0.05	0.00085
Mercury	7439-97-6	0.0000067	0.0009	0.0074
Nickel	7440-02-0	0.000023	0.0030	0.0078
ASI				0.10
Threshold				1

Source: CDM Smith 2013
Key:
ASI = application screening index (total PSI)
CAS = Chemical Abstracts Service
lbs/hr = pounds per hour
PSI = pollutant screening index (PSL divided by project emissions)
PSL = pollutant screening level (minimum level expected to exceed health risk)
TAC = toxic air contaminant

Table 4.7-16. Washington Boulevard LRT Alternative (2035) Total Operational Emissions: Regional Traffic, Parking Lot Evaporative Emissions, Transit Buses, and LRT Maintenance Yard

Emission Source	VOC	CO	NOx	SO_2	PM_{10}	$PM_{2.5}$
	Daily Emissions (lbs/day)[1]					
Regional Traffic	52,524	1,104,456	256,078	5,768	413,258	117,111
Parking	3	N/A	N/A	N/A	N/A	N/A
Transit Buses	23	150	409	1	81	35
LRT Maintenance Yard	3	31	5	<1	6	1
Total Emissions	52,554	1,104,637	256,492	5,770	413,345	117,147
Increment Above No Build Alternative[2]	(36)	(974)	(110)	(5)	(363)	(100)
CEQA Threshold	55	550	55	150	150	55
Significant?	No	No	No	No	No	No

Table 4.7-16. Washington Boulevard LRT Alternative (2035) Total Operational Emissions: Regional Traffic, Parking Lot Evaporative Emissions, Transit Buses, and LRT Maintenance Yard(Continued)

Emission Source	VOC	CO	NOx	SO_2	PM_{10}	$PM_{2.5}$
	Daily Emissions (lbs/day)[1]					
Annual Emissions (tpy)[1]						
Regional Traffic	8,351	175,608	40,716	917	65,708	18,621
Parking	1	N/A	N/A	N/A	N/A	N/A
Transit Buses	4	24	65	<1	13	6
LRT Maintenance Yard	<1	6	<1	<1	1	<1
Total Emissions	8,356	175,638	40,783	917	65,722	18,626
Increment Above No Build Alternative	(6)	(154)	(17)	(1)	(57)	(16)
CAA Threshold	10	100	10	100	100	100
Adverse?	No	No	No	No	No	No

Source: CDM Smith 2013
Notes:
[1] Emission reductions (beneficial impacts) are shown in parentheses.
[2] For the purpose of this analysis, the "adjusted environmental baseline," which is defined as the existing conditions in 2010 adjusted for regional growth that would occur by 2035, was equivalent to the No Build Alternative (2035). As a result, the table uses the No Build Alternative to analyze impacts under CEQA.

Key:
CO = carbon monoxide
lbs/day = pounds per day
NOx = nitrogen oxides
$PM_{2.5}$ = fine particulate matter
PM_{10} = inhalable particulate matter
SO_2 = sulfur dioxide
tpy = tons per year
VOC = volatile organic compounds

The Washington Boulevard LRT Alternative would result in emissions of TACs from regional traffic operations. Emissions from the maintenance yard and parking lots would be negligible. The Washington Boulevard LRT Alternative would indirectly result in decreased TAC emissions from highway vehicles compared with the No Build Alternative; therefore, no HRA was completed for operational emissions.

This analysis includes a CO hot spots evaluation that calculated localized impacts of CO concentrations at several intersections. The five intersections with the highest potential for adverse impacts, based on peak hourly volume, were selected for a screening analysis. The maximum CO concentrations at each of the intersections would not exceed the established thresholds and would be less than significant for both NEPA and CEQA.

An evaluation was also completed to compare the Washington Boulevard LRT Alternative plus existing conditions to existing conditions only, as upheld by the Sunnyvale CEQA decision. **Table 4.7-17** compares emissions from the Washington Boulevard Alternative, as if it had been built in 2010, with existing conditions in 2010.

Table 4.7-17. Washington Boulevard LRT Alternative Daily Operational Emissions as Built in 2010 Compared to Existing Conditions (2010)

Pollutant	Daily Emissions[1,2] (lbs/day)				
	Existing Conditions[3]	Washington Boulevard LRT Alternative[4]	Incremental Emissions	Significance Threshold	Exceed Threshold?
VOC	96,360	24,604	(71,803)	55	No
CO	2,356,768	651,689	(1,705,418)	550	No
NOx	460,963	121,550	(340,180)	55	No
SO_2	3,946	3,946	(1)	150	No
PM_{10}	285,408	280,613	(4,860)	150	No
$PM_{2.5}$	83,149	78,196	(4,984)	55	No

Source: SCAQMD 2011
Notes:
[1] Incremental emissions are determined by subtracting the project emissions from the existing emissions.
[2] Emission reductions (beneficial impacts) are shown in parentheses.
[3] Emission factors used in analysis were based on 2010 conditions for Existing Conditions.
[4] Emission factors used in analysis were based on 2035 for future build alternatives based on the year that the proposed project would be operational.
Key:
CO = carbon monoxide
lbs/day = pounds per day
NOx = nitrogen oxides
PM_{10} = inhalable particulate matter
$PM_{2.5}$ = fine particulate matter
SO_2 = sulfur dioxide
VOC = volatile organic compounds

As shown in Table 4.7-17, daily incremental operational emissions associated with the Washington Boulevard LRT Alternative would decrease for all pollutants; thus, all operational emission impacts are less than significant under CEQA.

4.7.3.4.2 Mitigation Measures

Construction Mitigation Measures

The same construction mitigation measures (mitigation measures 4.7-i through 4.7-iii) identified above in Section 4.7.3.3.2 for the SR 60 LRT Alternative and summarized in Table ES-2 would also apply to the Washington Boulevard LRT Alternative.

Operational Mitigation Measures

Since operation of the Washington Boulevard LRT Alternative would not result in significant air quality impacts, no mitigation measures are required.

4.7.3.4.3 Impacts Remaining After Mitigation

NEPA Finding

Unmitigated regional construction emissions from the Washington Boulevard LRT Alternative would not be adverse under NEPA and therefore no mitigation is required.

Criteria pollutant emissions from operations, including TAC emissions and the CO hot spots, would not be adverse.

CEQA Determination

Regional construction emissions from the Washington Boulevard LRT Alternative would exceed the PM_{10} LST for the Mission Junction maintenance yard option. Mitigation measures, including additional fugitive dust control measures, are expected to reduce emissions to less than significant.

Operational emissions for the Washington Boulevard LRT Alternative, including transit buses, a light rail maintenance yard, parking lots, and regional traffic, would be less than significant for CEQA when compared to the adjusted environmental baseline (No Build Alternative) missions of other pollutants, including CO hot spots, would be less than significant.

TAC emissions were less than those under the No Build Alternative and no HRA was required.

Comparison of Alternative Against Existing Conditions

Operational emissions, including regional highway traffic, transit buses, parking lots, and a light rail maintenance yard, for all pollutants would be less than those calculated for existing conditions. Emissions would be less than significant for the Washington Boulevard LRT Alternative and no mitigation measures would be required. Additional information is provided in Appendix GG, Existing Plus Project Conditions.

Section 4.8

Climate Change

This section summarizes the potential for climate change impacts resulting from construction and operation of the proposed Eastside Transit Corridor Phase 2 Project alternatives. Information in this section is based on, and updated where appropriate from, the Climate Change Technical Memorandum, which is incorporated into this Draft EIS/EIR as Appendix S.

4.8.1 Regulatory Framework/Methodology

4.8.1.1 Regulatory Framework

The Council on Environmental Quality (CEQ) published *Draft NEPA Guidance on Consideration of the Effects of Climate Change and Greenhouse Gas Emissions* in February 2010. Although still only available as a draft, the CEQ recommended that federal agencies include greenhouse gas (GHG) emissions in a NEPA analysis if doing so would provide meaningful information to decision makers. The CEQ proposed using a limit of 25,000 metric tons of carbon dioxide equivalent (CO_2e) per year as an indicator that a quantitative assessment may be warranted. While CEQ has not finalized National Environmental Policy Act (NEPA)-specific requirements for GHG and climate change analyses, precedent for completing GHG analyses under NEPA has been established by the Federal Highway Administration (FHWA). In 2008, for example, FHWA published *Integrating Climate Change into the Transportation Planning Process*, which promotes the incorporation of climate change impacts in transportation planning. Furthermore, FHWA published *Climate Change – Model Language in Transportation Plans*, which provides advice to agencies seeking to incorporate climate change in lieu of federal guidance, in May 2010. The proposed project is a transit project that represents an alternative travel mode to single occupancy vehicles. As such, the project's ability to enable mode shift is part of the climate change solution and climate change effects are expected to be positive.

Several of the federal, state, and local regulations that were included as part of this analysis are summarized below. (Please refer to Appendix S, Climate Change Technical Memorandum, for more detailed information about these regulations.)

Federal

- Massachusetts et al. v. Environmental Protection Agency et al., which required the U.S. Environmental Protection Agency (USEPA) to regulate GHGs as a pollutant pursuant to the Federal Clean Air Act (CAA)
- Endangerment Finding (USEPA), which responds to the 2007 U.S. Supreme Court decision that GHGs fit within the CAA's definition of an air pollutant
- Greenhouse Gas and Fuel Efficiency Standards for Clean Vehicles by the USEPA and the Department of Transportation's National Highway Traffic Safety Administration (NHTSA), in response to the U.S. Supreme Court's decision that GHGs should be regulated as air pollutants

State

- California Assembly Bill (AB) 1493
- California Executive Order S-3-05
- Global Warming Solutions Act of 2006 (AB 32)
- Senate Bill (SB) 97
- California Air Resources Board (CARB) Interim Significance Thresholds
- SB 375

- California Executive Order S-01-07 and the Low Carbon Fuel Standard (LCFS)

Local

- South Coast Air Quality Management District (SCAQMD) Guidelines and Regulations

4.8.1.2 CEQA Impact Criteria

California Environmental Quality Act (CEQA) guidance provided by SCAQMD and the California Natural Resources Agency requires the analysis of direct, indirect, and life-cycle GHG emissions that would occur during operation. The project emissions for this CEQA analysis were defined as the difference between a project alternative (2035) and the existing conditions in 2010 adjusted for regional growth (i.e., the adjusted environmental baseline) that would occur by 2035. The adjusted environmental baseline is equivalent to the No Build Alternative (2035). The build alternatives plus existing conditions (i.e., the alternative as it would exist in 2010) were also compared with existing conditions (2010). These are discussed further in the "Comparison of Alternative against Existing Conditions" subsections.

The SCAQMD interim thresholds are largely geared towards industrial, residential, and commercial projects and do not specifically address transportation projects. Since a transportation-specific threshold of significance for GHG emissions has not been established by SCAQMD, a quantitative threshold was not used to analyze the GHG emission impacts associated with the proposed project.

Significance was determined qualitatively by evaluating the project's compliance with the various regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of GHG emissions.

4.8.2 Affected Environment/Existing Conditions

As required by CEQA, existing (2010) emissions from regional traffic were estimated in the analysis for comparison with future build alternatives. Data on vehicle miles traveled (VMT) in the region and emission factors from the Emissions Factor (EMFAC) 2011 model were used to estimate emissions of GHG. The emissions calculations were based on the total VMT in the region and the average speed on the highway network, both of which were estimated based on the latest version of the Los Angeles County Metro's regional travel demand forecasting model (Metro Travel Demand Model). Since the EMFAC model only generates emissions of carbon dioxide (CO_2) and methane (CH_4), guidance on how to calculate nitrous oxide (N_2O) emissions found in the EMFAC frequently asked questions website as well as the California Climate Action Registry (CCAR) *General Reporting Protocol* were used to estimate emissions of N_2O. **Table 4.8-1** summarizes the GHG emissions from existing conditions.

4.8.3 Environmental Impacts/Environmental Consequences

Table 4.8-2 provides a summary of climate change impacts with respect to incremental GHG emissions as compared with existing conditions (2010) and with the No Build Alternative (2035). More detailed data is available in Appendix S, Climate Change Technical Memorandum, of this Draft EIS/EIR. In summary, the project would have a beneficial impact on climate change.

4.8.3.1 No Build Alternative

4.8.3.1.1 Impact Analysis

The No Build Alternative includes all of the projects that are identified for construction and implementation in the "Constrained Plan" of Metro's *2009 Long Range Transportation Plan* (through the year 2035). This plan includes the Metro Gold Line to East Los Angeles to the Atlantic

Table 4.8-1. Existing Conditions: 2010 Annual Regional Highway Traffic GHG Emissions

Source	CO_2	CH_4	N_2O	Total[1]
Vehicle Miles Traveled (VMT)	N/A	N/A	N/A	114,083,059,000
Emission Factor (grams per mile)	461	0.030	0.014	N/A
Emissions (metric tons per year)	52,580,504	3,410	1,612	N/A
Global Warming Potential[2]	1	21	310	N/A
CO_2e Emissions[3] (metric tons per year)	52,580,504	71,601	499,659	53,151,764

Source: CCAR 2009; EMFAC 2011.
Notes:
[1] Totals may vary due to rounding.
[2] Non-CO_2 pollutants have global warming potential (GWP) factors that reflect the degree to which these pollutants affect climate change, as compared to CO_2.
[3] CO_2e emissions are weighted by the GWP for each non-CO_2 pollutant (i.e., CO_2e equals emissions of non-CO_2 pollutant x its GWP).
Key:
CO_2 = carbon dioxide *CH_4 = methane* *N/A = not applicable*
CO_2e = carbon dioxide equivalent *GWP = Global Warming Potential* *N_2O = nitrous oxide*

Table 4.8-2. Summary of Climate Change Impacts

Alternative	Incremental GHG Emissions (metric tons CO_2e per year)[1,2]		Operations and Amortized Construction (NEPA/CEQA)
	Compared with Existing Conditions (2010)[3]	Compared with the No Build Alternative (2035)	
No Build	N/A	N/A	None
TSM	N/A	(65,410)	Not adverse/Less than significant
SR 60 LRT[1]	(17,646,969)	(61,810)	Not adverse/Less than significant
Washington Boulevard LRT[2]	(17,640,721)	(58,944)	Not adverse/Less than significant

Notes:
[1] Includes the SR 60 North Side Design Variation.
[2] Includes the aerial crossing options.

Station, but does not include any project resulting from this Phase 2 study effort. As a result, it represents a future condition where any changes from existing conditions would occur due to growth in regional traffic and planned service changes. GHG emissions associated with the operation of the light rail vehicles (LRV) for the proposed project would not occur under this alternative. Any future GHG emissions that would occur under this scenario are from projected growth in regional traffic. GHG emissions from regional highway traffic that would occur under the No Build Alternative are summarized in **Table 4.8-3**.

Table 4.8-3. No Build Alternative: 2035 Annual Regional Highway Traffic GHG Emissions

Source	CO_2	CH_4	N_2O	Total[1]
Vehicle Miles Traveled (VMT)	N/A	N/A	N/A	166,908,342,000
Emission Factor (grams per mile)	478	0.016	0.006	N/A
Emissions (metric tons per year)	79,823,405	2,725	1,038	N/A
Global Warming Potential[2]	1	21	310	N/A
CO_2e Emissions[3] (metric tons per year)	79,823,405	57,224	321,705	80,202,333

Source: CCAR 2009; EMFAC 2011.
Notes:
[1] Totals may vary due to rounding.
[2] Non-CO_2 pollutants have global warming potential (GWP) factors that reflect the degree to which these pollutants affect climate change, as compared to CO_2.
[3] CO_2e emissions are weighted by the GWP for each non-CO_2 pollutant (i.e., CO_2e equals emissions of non-CO_2 pollutant x its GWP).
Key:
CO_2 = carbon dioxide *CH_4 = methane* *N/A = not applicable*
CO_2e = carbon dioxide equivalent *GWP = Global Warming Potential* *N_2O = nitrous oxide*

4.8.3.1.2 Mitigation Measures

Since the No Build Alternative would not result in significant climate change impacts, no mitigation measures are required.

4.8.3.1.3 Impacts Remaining After Mitigation

NEPA Finding

The No Build Alternative would not result in adverse effects to climate change.

CEQA Determination

The No Build Alternative would not result in significant climate change impacts.

4.8.3.2 TSM Alternative

4.8.3.2.1 Impact Analysis

Construction Impacts

The TSM Alternative assumes that neither LRT build alternative would be constructed. Although some bus stops may be constructed as part of this alternative, construction emissions from the TSM Alternative would be minimal. For this analysis, it was assumed that no construction emissions would occur under the TSM Alternative.

Operational Impacts

The TSM Alternative represents a scenario where reductions in regional traffic would be caused by improvements in the bus system, rather than by extension of the light rail transit (LRT) system.

The TSM Alternative would result in a decrease in total direct GHG emissions, compared with the No Build Alternative, of 65,410 metric tons CO_2e per year. The TSM Alternative is predicted to result in less reduction in VMT than the LRT alternatives.

4.8.3.2.2 Mitigation Measures

Since the TSM Alternative would not result in significant climate change impacts, no mitigation measures are required.

4.8.3.2.3 Impacts Remaining After Mitigation

NEPA Finding

Although some bus stops may be constructed as part of this alternative, construction emissions from the TSM Alternative would be minimal. For this analysis, it was assumed that no construction emissions would occur under the TSM Alternative and the effects would not be adverse.

The TSM Alternative would result in a decrease in GHG emissions when compared with the No Build Alternative and an increase in GHG emissions when compared with existing conditions (2010) because of regional growth. These emission levels are well under CEQ's draft threshold for quantitative analysis (25,000 metric tons CO_2e per year) and GHG emissions effects would not be adverse under NEPA.

CEQA Determination

Although some bus stops may be constructed as part of this alternative, construction emissions from the TSM Alternative would be minimal. For this analysis, it was assumed that no construction emissions would occur under the TSM Alternative and impacts would be less than significant.

The TSM Alternative would result in a decrease in total direct GHG emissions compared with the adjusted environmental baseline (No Build Alternative). The project is predicted to have long-term beneficial climate change impacts when considered with other transit improvement projects that are included in the Regional Transportation Plan. A cumulative decrease in emissions is expected due to changes in transportation modes when other projects are built out.

The state's Climate Change Scoping Plan identifies regional transportation-related GHG emission reduction targets for passenger vehicles, consistent with the requirements of SB 375.[1]

The targets intend to integrate land-use development and the regional transportation network in a way that would reduce VMT and meet housing needs. Therefore, the TSM Alternative would be consistent with SB 375 because it would establish a part of the regional transportation network that would serve to remove vehicles from the roadways.

4.8.3.3 SR 60 LRT Alternative

4.8.3.3.1 Impact Analysis

Construction Impacts

The construction of the SR 60 LRT Alternative would result in GHG emissions from diesel-fueled construction equipment, haul trucks, and construction worker commute vehicles. Four aerial stations with parking structures would be constructed along with the Mission Junction maintenance yard. **Table 4.8-4** summarizes CO_2e emissions resulting from the construction of the SR 60 LRT Alternative.

Operational Impacts

Total operational GHG emissions from regional highway traffic, bus operation, and light rail operation (i.e., LRVs, stations, and maintenance yard) are summarized in **Table 4.8-5**. The SR 60 LRT Alternative includes a robust bus interface plan that would increase the GHG emissions above the No Build Alternative. In other words, while this alternative would reduce highway traffic in comparison with the No Build Alternative, new bus routes would be added to create north-south connections to the light rail. These new routes would increase bus traffic compared with the No Build Alternative. Furthermore, operation of the LRVs would use more electricity than the No Build Alternative. The combination of the robust bus interface plan and the additional electricity needed for LRV operations leads to the perception that the SR 60 LRT Alternative would perform worse than the TSM Alternative, although passenger vehicle emissions are lower in this alternative than in the TSM Alternative. The total increased emissions from the rail vehicles, rail facilities, and additional bus service would counteract the decreased emissions from passenger vehicles. The Eastside Transit Corridor Phase 2 Project is a component of the 2012-2035 *Regional Transportation Plan/ Sustainable Communities Strategy* (RTP/SCS) and it meets California's goal to increase mass transit under the AB 32 Scoping Plan.

[1] SB 375 requires CARB to set regional targets for the purpose of reducing GHG emissions from passenger vehicles for 2020 and 2035. It is intended that regions will meet these emission reduction requirements through integrated land use, housing, and transportation plans. CARB finalized per capita GHG emission reduction targets (relative to 2005) of eight percent by 2020 and 13 percent by 2035 for SCAG.

Table 4.8-4. SR 60 LRT Alternative: Annual Construction GHG Emissions (2027-2030)

Phase	Emissions of CO_2e (metric tons per year)				
	2027	2028	2029	2030	Project
Aerial Guideway Construction[1]	112	1,524	1,313	1,272	4,221
Maintenance Yard Construction[1]	N/A	N/A	1,871	2,077	3,947
Parking Structure Construction[1]	N/A	N/A	N/A	364	364
Total	112	1,524	3,184	3,713	8,532

Source: CDM Smith 2013
Note:
[1] Emissions from off-road diesel equipment, construction worker commuting, and haul/vendor trucks were included in totals.
Key:
CO_2e = carbon dioxide equivalent
N/A = not applicable

In addition, as required by SB 375, implementation of the 2012-2035 RTP/SCS would reduce the per capita CO_2 emissions from light duty trucks and automobiles when compared to business as usual. The Program Environmental Impact Report for the 2012-2035 RTP/SCS states that CO_2 emission reductions would meet CARB's "eight percent less than 2005 in 2020" target and would achieve an even greater emissions reduction in 2035 compared to the "13 percent less than 2005 in 2035" target. In 2035 the region would actually achieve emission reductions of 16 percent per capita.

Table 4.8-5. SR 60 LRT Alternative: Summary of Total Operational GHG Emissions as Built in 2035

Source	Emissions (metric tons CO_2e per year)[1]			
	CO_2	CH_4	N_2O	Total[4]
Regional Traffic[2]	79,747,515	57,170	321,399	80,126,084
Transit Buses	23,419	10	322	23,752
Light Rail[3]	7,442	3	14	7,460
Total Emissions[4]	79,778,377	57,184	321,734	80,157,295
Increment based on Existing Conditions (2010)[5]	27,180,701	(14,425)	(178,161)	26,988,115
Increment based on No Build Alternative (2035)[5]	(61,564)	(48)	(198)	(61,810)

Source: CDM Smith 2013.
Notes:
[1] CO_2e emissions are weighted by the GWP for each non-CO_2 pollutant (i.e., CO_2e equals emissions of non-CO_2 pollutant x its GWP).
[2] Regional traffic emissions are 76,249 metric tons CO_2e per year less than the No Build Alternative, which reflects a mode shift from single-occupancy vehicles to LRT.
[3] Light rail emissions include operation of the train (electricity), stations, and maintenance yard.
[4] Totals may vary due to rounding.
[5] Emission reductions (beneficial impacts) are shown in parentheses.

The SR 60 North Side Design Variation would not change the operating conditions of the SR 60 LRT Alternative. As a result, the operational GHG impacts would be the same for the design variation.

An evaluation was also completed to compare the SR 60 LRT Alternative plus existing conditions with existing conditions, as upheld by the Sunnyvale CEQA decision. **Table 4.8-6** compares emissions for the SR 60 LRT Alternative (as if it had been built in 2010) with existing conditions in 2010.

4.8.3.3.2 Mitigation Measures

No mitigation measures are required for the SR 60 LRT Alternative because it would be consistent with regional and statewide plans to reduce GHG emissions from passenger vehicles.

4.8.3.3.3 Impacts Remaining After Mitigation

NEPA Finding

Unmitigated construction emissions for the SR 60 LRT Alternative would not be adverse under NEPA and therefore do not need to be mitigated.

The SR 60 LRT Alternative would result in a decrease in the total of direct and indirect operational GHG emissions of 61,810 metric tons CO_2e per year by comparison with the No Build Alternative. These emission levels are well under CEQ's draft threshold for quantitative analysis (25,000 metric tons CO_2e per year) and GHG emissions effects would not be adverse under NEPA.

CEQA Determination

Unmitigated construction emissions for the SR 60 LRT Alternative would not be significant under CEQA and therefore do not need to be mitigated.

As described for NEPA, the SR 60 LRT Alternative would result in a decrease in total direct and indirect GHG emissions when compared with the adjusted environmental baseline (No Build Alternative). With the amortized construction emissions (i.e., total construction emissions divided by the lifetime of the project, assumed to be 30 years) added to the operational emissions, the expected decrease in emissions would be 61,525 metric tons CO_2e per year. The SR 60 LRT Alternative would be consistent with the requirements of CARB's Scoping Plan and SB 375 because it would meet California's goal to increase mass transit. Therefore, GHG emissions impacts under the SR 60 LRT Alternative would be less than significant under CEQA.

Comparison of Alternative Against Existing Conditions

The SR 60 LRT Alternative would result in a beneficial reduction in incremental emissions (amortized construction and operational emissions) of 17,646,684 metric tons CO_2e per year compared with existing conditions (2010). Since incremental emissions would be less than those for existing conditions, no CEQA impacts unique to the existing conditions analysis would occur. Appendix GG, Existing Plus Project Conditions, contains additional information on how this analysis was completed.

4.8.3.4 Washington Boulevard LRT Alternative

4.8.3.4.1 Impact Analysis

Construction Impacts

Construction of the Washington Boulevard LRT Alternative would result in GHG emissions from diesel-fueled construction equipment, haul trucks, and construction worker commute vehicles. Three at-grade and three aerial guideway stations would be constructed, with parking structures at five of those stations. Three maintenance yard options are proposed for the

Table 4.8-6. SR 60 LRT Alternative: Summary of Total Operational GHG Emissions as Built in 2010

Source	Emissions (metric tons CO_2e per year)[1]			
	CO_2	CH_4	N_2O	Total[4]
Regional Traffic[2]	35,290,580	26,540	173,880	35,491,000
Transit Buses	23,419	10	322	23,752
Light Rail[3]	7,442	3	14	7,460
Total Emissions[4]	35,321,442	26,554	174,216	35,522,211
Increment based on Existing Conditions (2010)[5]	(17,276,235)	(45,055)	(325,679)	(17,646,969)

Source: CDM Smith 2013.

Notes:
[1] CO_2e emissions are weighted by the GWP for each non-CO_2 pollutant (i.e., CO_2e equals emissions of non-CO_2 pollutant x its GWP).
[2] Regional traffic emissions are 18,673 metric tons CO_2e per year less than the No Build Alternative, which reflects a mode shift from single-occupancy vehicles to LRT.
[3] Light rail emissions include operation of the train (electricity), stations, and maintenance yard.
[4] Totals may vary due to rounding.
[5] Emission reductions (beneficial impacts) are shown in parentheses.
Key:
CO_2 = carbon dioxide
CH_4 = methane
N_2O = nitrous oxide
CO_2e = carbon dioxide equivalent

Washington Boulevard LRT Alternative: Santa Fe Springs (9 acres), Commerce (12 acres), and Mission Junction (11 acres). Construction-related emissions are proportional to the acreage of each construction site; therefore, the maintenance yard at Santa Fe Springs would have the least construction impact (396 metric tons CO_2e) while the maintenance yards at Commerce and Mission Junction would have the same impact (398 metric tons CO_2e) because of their similar size. **Tables 4.8-7** through **4.8-9** summarize construction-related emissions.

Operational Impacts

Total operational emissions from regional highway traffic, bus operation, and light rail operation (i.e., LRVs, stations, and maintenance yard) are summarized in **Table 4.8-10**. The Washington Boulevard LRT Alternative includes a robust bus interface plan that would increase GHG emissions above the No Build Alternative. In other words, while this alternative would reduce highway traffic compared with the No Build Alternative, new bus routes would be added to create north-south connections to the light rail. These new routes would increase bus traffic compared with the No Build Alternative. Furthermore, operation of the LRVs would use more electricity than the No Build Alternative. The combination of the robust bus interface plan and the additional electricity required for LRV operations leads to the perception that the performance of the Washington Boulevard LRT Alternative would be worse than the TSM Alternative, although passenger vehicle emissions are lower in this alternative than in the TSM Alternative. The combination of increased emissions due to the rail vehicles, rail facilities, and additional bus service would counteract the decreased emissions from passenger vehicles. The Eastside Transit Corridor Phase 2 Project is a component of the 2012-2035 RTP/SCS and meets California's goal to increase mass transit under the AB 32 Scoping Plan.

Table 4.8-7. Washington Boulevard LRT Alternative with the Santa Fe Springs Yard Option: Annual Construction GHG Emissions (2028-2031)

Phase	Emissions of CO_2e (metric tons per year) [1]				
	2028	2029	2030	2031	Project
Aerial Guideway Construction[2]	1,944	2,686	2,697	1,114	8,440
Maintenance Yard Construction[2]	--	--	1,046	2,089	3,135
Parking Structure Construction[2]	--	--	--	314	314
Total	1,944	2,686	3,743	3,517	11,890

Source: CDM Smith 2013
Note:
[1] Construction would start in 2027 for both the SR 60 and Washington Boulevard LRT Alternatives. However, the construction phase predicted to occur in 2027 for the Washington Boulevard LRT Alternative would have negligible GHG emissions and was not quantified. For this analysis, the construction duration was estimated to be four years for the SR 60 Alternative (2027-2030) and five years for the Washington Boulevard LRT Alternative (2027-2031). Construction duration of five years instead of six years was assumed for the Washington Boulevard LRT Alternative in order to analyze a worst case scenario for air quality emissions under this alternative.
[2] Emissions from off-road diesel equipment, construction worker commuting, and haul/vendor trucks were included in totals.
Key:
CO_2e = carbon dioxide equivalent

Table 4.8-8. Washington Boulevard LRT Alternative with the Commerce Yard Option: Annual Construction GHG Emissions (2028-2031)

Phase	Emissions of CO_2e (metric tons per year)[1]				
	2028	2029	2030	2031	Project
Aerial Guideway Construction[2]	1,944	2,686	2,697	1,114	8,440
Maintenance Yard Construction[2]	--	--	1,046	2,089	3,135
Parking Structure Construction[2]	--	--	--	378	378
Total	1,944	2,686	3,743	3,581	11,954

Source: CDM Smith 2013
Note:
[1] Construction would start in 2027 for both the SR 60 and Washington Boulevard LRT Alternatives. However, the construction phase predicted to occur in 2027 for the Washington Boulevard LRT Alternative would have negligible GHG emissions and was not quantified. For this analysis, the construction duration was estimated to be four years for the SR 60 Alternative (2027-2030) and five years for the Washington Boulevard LRT Alternative (2027-2031). Construction duration of five years instead of six years was assumed for the Washington Boulevard LRT Alternative in order to analyze a worst case scenario for air quality emissions under this alternative.
[2] Emissions from off-road diesel equipment, construction worker commuting, and haul/vendor trucks were included in totals.
Key:
CO_2e = carbon dioxide equivalent

Table 4.8-9. Washington Boulevard LRT Alternative with the Mission Junction Yard Option: Annual Construction GHG Emissions (2028-2031)

Phase	Emissions of CO2e (metric tons per year)1				
	2028	2029	2030	2031	Project
Aerial Guideway Construction[2]	1,944	2,686	2,697	1,114	8,440
Maintenance Yard Construction[2]	--	--	1,046	2,089	3,135
Parking Structure Construction[2]	--	--	--	364	364
Total	1,944	2,686	3,743	3,567	11,939

Source: CDM Smith 2013
Note:
[1] Construction would start in 2027 for both the SR 60 and Washington Boulevard LRT Alternatives. However, the construction phase predicted to occur in 2027 for the Washington Boulevard LRT Alternative would have negligible GHG emissions and was not quantified. For this analysis, the construction duration was estimated to be four years for the SR 60 Alternative (2027-2030) and five years for the Washington Boulevard LRT Alternative (2027-2031). Construction duration of five years instead of six years was assumed for the Washington Boulevard LRT Alternative in order to analyze a worst case scenario for air quality emissions under this alternative.
[2] Emissions from off-road diesel equipment, construction worker commuting, and haul/vendor trucks were included in totals.
Key:
CO_2e = carbon dioxide equivalent

Table 4.8-10. Washington Boulevard LRT Alternative: Summary of Total Operational GHG Emissions as Built in 2035

Source	Emissions (metric tons CO_2e per year)[1]			
	CO_2	CH_4	N_2O	Total[4]
Regional Traffic[2]	79,747,363	57,170	321,398	80,125,931
Transit Buses	24,216	11	333	24,560
Light Rail[3]	9,647	5	18	9,670
Total Emissions[4]	79,781,227	57,185	321,749	80,160,161
Increment based on Existing Conditions[5]	27,183,550	(14,423)	(178,146)	26,990,981
Increment based on No Build Alternative[5]	(58,715)	(47)	(183)	(58,944)

Source: CDM Smith 2013.
Notes:
[1] CO_2e emissions are weighted by the GWP for each non-CO_2 pollutant (i.e., CO_2e equals emissions of non-CO_2 pollutant x its GWP).
[2] Regional traffic emissions are 76,402 metric tons CO_2e per year less than the No Build Alternative, which reflects a mode shift from single-occupancy vehicles to LRT.
[3] Light rail emissions include operation of the train (electricity), stations, and maintenance yard.
[4] Totals may vary due to rounding.
[5] Emission reductions (beneficial impacts) are shown in parentheses.
Key:
CO_2 = carbon dioxide
CH_4 = methane
N_2O = nitrous oxide

In addition, as required by SB 375, implementation of the 2012-2035 RTP/SCS would reduce per capita CO_2 emissions from light duty trucks and automobiles compared to business as usual. The Program Environmental Impact Report for the 2012-2035 RTP/SCS states that CO_2 emission reductions would meet CARB's "eight percent less than 2005 in 2020" target and would achieve an even greater emissions reduction in 2035 compared to the "13 percent less than 2005 in 2035" target. In 2035 the region would actually achieve emissions reductions of 16 percent per capita.

An evaluation was also completed to compare the Washington Boulevard LRT Alternative plus existing conditions with existing conditions, as upheld by the Sunnyvale CEQA decision. **Table 4.8-11** compares the emissions of the Washington Boulevard Alternative (as if it had been built in 2010) with existing conditions in 2010.

4.8.3.4.2 Mitigation Measures

No mitigation measures are required for the Washington Boulevard LRT Alternative because it would be consistent with regional and statewide plans to reduce GHG emissions from passenger vehicles.

4.8.3.4.3 Impacts Remaining After Mitigation

NEPA Finding

Unmitigated construction emissions for the Washington Boulevard LRT Alternative would not be adverse under NEPA and therefore do not need to be mitigated.

The total direct and indirect operational emissions of GHGs under the Washington Boulevard LRT Alternative would decrease by 59,723 metric tons CO_2e per year compared with the No Build Alternative. These emission levels are well under CEQ's draft threshold for quantitative analysis (25,000 metric tons CO_2e per year) and GHG emissions effects would not be adverse under NEPA.

CEQA Determination

Unmitigated construction emissions for the Washington Boulevard LRT Alternative would not be significant under CEQA and therefore do not need to be mitigated.

The Washington Boulevard LRT Alternative would result in a decrease in the total direct and indirect GHG emissions compared with the adjusted environmental baseline (No Build Alternative). Emissions from three possible maintenance yards (Santa Fe Springs, Commerce, and Mission Junction) were analyzed as part of this alternative, but only one of the three would actually be built. As a result, the GHG emissions (amortized construction and operational emissions) decrease would range from 58,545 metric tons CO_2e per year to 58,548 metric tons CO_2e per year. The Washington Boulevard LRT Alternative would be consistent with the requirements of CARB's Scoping Plan and SB 375 because it would meet California's goal of increasing mass transit; therefore, GHG emissions impacts under the Washington Boulevard LRT Alternative would be less than significant under CEQA.

Comparison of Alternative Against Existing Conditions

The Washington Boulevard LRT Alternative would result in a beneficial reduction in incremental emissions (amortized construction and operational emissions) of 17,640,323 to 17,640,325 metric tons CO_2e per year compared with existing conditions (2010). Since incremental emissions would be less than those for existing conditions, no CEQA impacts unique to the existing conditions analysis would occur. Appendix GG, Existing Plus Project Conditions, contains additional information on how this analysis was completed.

Table 4.8-11. Washington Boulevard LRT Alternative: Summary of Total Operational GHG Emissions as Built in 2010

Source	Emissions (metric tons CO2e per year)1			
	CO_2	CH_4	N_2O	Total[4]
Regional Traffic[2]	35,293,791	26,542	173,896	35,494,229
Transit Buses	24,216	11	333	24,560
Light Rail[3]	9,647	5	18	9,670
Total Emissions[4]	35,327,654	26,558	174,247	35,528,459
Increment based on Existing Conditions (2010)[5]	(17,270,023)	(45,051)	(325,648)	(17,640,721)

Source: CDM Smith 2013.
Notes:
[1] CO_2e emissions are weighted by the GWP for each non-CO_2 pollutant (i.e., CO_2e equals emissions of non-CO_2 pollutant x its GWP).
[2] Regional traffic emissions are 15,445 metric tons CO_2e per year less than the No Build Alternative, which reflects a mode shift from single-occupancy vehicles to LRT.
[3] Light rail emissions include operation of the train (electricity), stations, and maintenance yard.
[4] Totals may vary due to rounding.
[5] Emission reductions (beneficial impacts) are shown in parentheses.
Key:
CO_2 = carbon dioxide
CH_4 = methane
N_2O = nitrous oxide
CO_2e = carbon dioxide equivalent

Section 4.9

Noise and Vibration

This section summarizes the methodology and assumptions used to analyze potential effects from noise and vibration generated during construction and operation of the Eastside Transit Corridor Phase 2 Project alternatives. Potential noise and vibration impacts of the proposed alternatives are also evaluated in this section. Information in this section is based on, and updated where appropriate from, the Noise and Vibration Technical Memorandum, incorporated into this Draft EIS/EIR as Appendix T.

4.9.1 Regulatory Framework/Methodology

4.9.1.1 Federal Transit Administration

4.9.1.1.1 Noise

The Federal Transit Administration's (FTA's) guidance manual *Transit Noise and Vibration Impact Assessment*, May 2006, presents the basic concepts, methods, and procedures for evaluating the extent and severity of noise impacts from transit projects. Transit noise impacts are assessed based on land use categories and sensitivity to noise from transit sources under FTA guidelines. As summarized in **Figure 4.9-1**, FTA noise impact criteria are defined by two curves that allow project noise levels to increase as existing noise increases up to a point, beyond which impact is determined based on project noise alone. FTA land use categories and required noise metrics are described in **Table 4.9-1**.

FTA noise criteria establish three categories of impact: no impact, moderate impact, and severe impact. Under the no impact category, no change in noise level would occur. The moderate impact threshold defines areas where the change in noise is noticeable, but may not be sufficient to cause a strong, adverse community reaction. The severe impact threshold defines the noise limits above which a significant percentage of the population would be highly annoyed by new noise. The level of impact at any specific site can be established by comparing the predicted future project noise level at the site to the existing noise level. For example, for residences and other FTA Category 2 land uses with an existing noise level of 65 A-weighted decibels (dBA), a moderate impact would occur with a future project noise level in the range from 61 to 66 dBA, while a severe impact would occur with a future project noise level greater than 66 dBA.

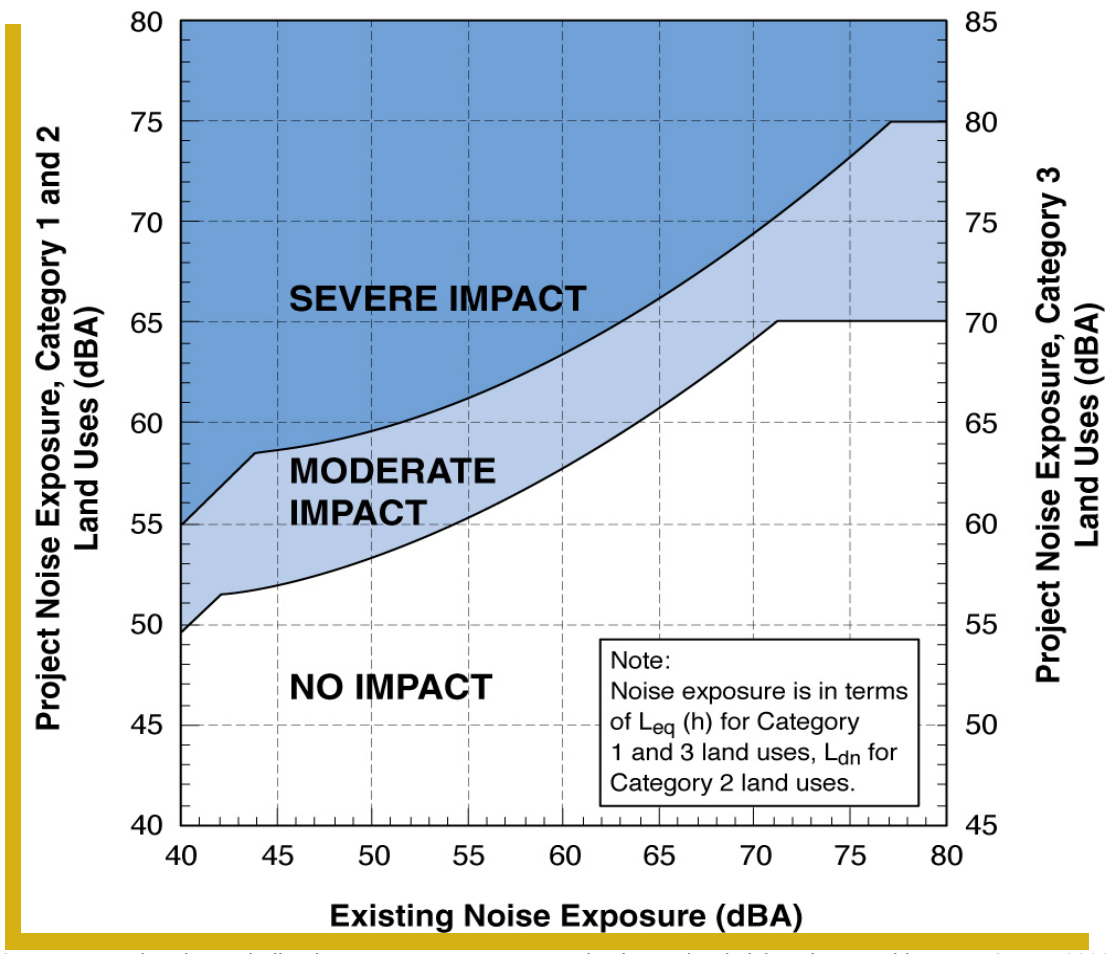
4.9.1.1.2 Vibration

FTA vibration criteria for evaluating ground-borne vibration (GBV) impacts from transit operations (such as train passbys) at nearby sensitive receptors are summarized in **Table 4.9-2**. These vibration criteria are related to root mean squared (RMS) GBV levels that are expected to result in human annoyance.

4.9.1.2 State

4.9.1.2.1 CEQA Guidelines

The California Environmental Quality Act (CEQA) does not provide quantitative thresholds for a substantial noise impact or a significant adverse vibration impact. Therefore, this analysis applied FTA criteria to determine the threshold for significance (FTA 2006). For example, a severe noise impact, as defined by FTA and summarized in Figure 4.9-1, was used to determine the CEQA significance of noise impact for the proposed project. The FTA vibration criteria for frequent events presented in Table 4.9-2 were used as the CEQA significance impact criteria for GBV.



Source: "Transit Noise and Vibration Impact Assessment," Federal Transit Administration, Washington, DC, May 2006.

Figure 4.9-1. FTA Project Noise Impact Criteria

Table 4.9-1. FTA Land Use Categories and Noise Metrics

Land Use Category	Noise Metric	Description
1	Leq(h)	Tracts of land set aside for serenity and quiet, such as outdoor amphitheaters, concert pavilions, and historic landmarks.
2	Ldn	Buildings used for sleeping, such as residences, hospitals, hotels, and other areas where nighttime sensitivity to noise is of utmost importance.
3	Leq(h)	Institutional land uses with primarily daytime and evening uses, including schools, libraries, churches, museums, cemeteries, historic sites, parks, and certain recreational facilities used for study or meditation.

Source: "Transit Noise and Vibration Impact Assessment," Federal Transit Administration, Washington, DC, May 2006.

Table 4.9-2. Ground-Borne RMS Vibration Impact Criteria for Annoyance During Transit Operations and Construction (VdB)

Receptor Land Use		RMS Vibration Levels (VdB)[1]		
Category	Description	Frequent Events[2]	Occasional Events[2]	Infrequent Events[2]
1	Buildings where low vibration is essential for interior operations	65	65	65
2	Residences and buildings where people normally sleep	72	75	80
3	Daytime institutional and office use	75	78	83
Specific Buildings	TV/Recording Studios/Concert Halls	65	65	65
	Auditoriums	72	80	80
	Theaters	72	80	80

Source: "Transit Noise and Vibration Impact Assessment," Federal Transit Administration, Washington, DC, May 2006.
Notes:
[1] GBV levels are referenced to $1x10^{-6}$ inches per second (VdB re 1 micro-inch/sec).
[2] The frequent event category is defined as more than 70 events per day, the occasional event category as 30 to 70 events per day, and the infrequent category as fewer than 30 events per day.

4.9.1.2.2 California Public Utilities Commission (CPUC)

The CPUC has jurisdiction over the operation of LRT systems. CPUC regulations require the use of audible warning devices, including on-vehicle audible warnings and crossing bells, at all grade crossings that are protected by crossing gates. California Public Utilities General Order 143-B states that a bell, siren, horn, whistle, or similar audible warning device should be sounded at any public crossing. Based on the levels used for other Metro transit lines, the default FTA reference levels were used, including 72 dBA for grade crossing bells and 76 dBA for train horns at 50 feet. These default FTA noise levels are below the maximum federal limit specified in the Federal Railroad Administration (FRA) Use of Locomotive Horns at Highway-Rail Grade Crossings; Final Rule (49 CFR Parts 222 and 229, August 17, 2006).

4.9.1.3 Local

Local ordinances are not applicable to the assessment of impacts from operation of federal transit projects. Local ordinances regarding noise and vibration are typically qualitative, however, in that they refer to noise "annoyance" from public disturbances.

4.9.2 Affected Environment/Existing Conditions

A screening assessment was conducted to identify the location and land use category of noise- and vibration-sensitive receptors along the Eastside Transit Corridor Phase 2 alignments. These include residential areas and buildings such as hospitals, schools, churches, parks, and noise-sensitive historic resources.

To determine the existing background noise levels at sensitive receptors in the vicinity of the proposed

LRT alignments, a noise monitoring program was conducted at 17 representative locations selected based on FTA guidelines. Hourly equivalent A-weighted noise levels [or Leq(h) in dBA] were measured during the peak hour at non-residential FTA Category 3 land uses (such as schools and parks) and continuously over a 24-hour period at FTA Category 2 land uses (residential land uses) to determine the average ambient conditions during a typical weekday. The representative noise monitoring locations are shown in **Figure 4.9-2**. The noise measurements document existing noise sources along the project alignments, such as existing aircraft traffic overhead and background traffic along I-605, SR 60, Garfield Avenue, Washington Boulevard, and other major cross streets. The reference noise levels for each of the proposed noise sources (including train passbys and wheel squeal) and other operating characteristics (such as average dwell times and source heights) are summarized in **Table 4.9-3**. Ambient noise levels measured at the representative locations are summarized in **Table 4.9-4**. Along the alignments, 24-hour noise levels range from 66 dBA to 77 dBA and peak-hour noise levels range from 71 dBA to 73 dBA.

Noise monitoring was not intended to document the background noise level at every receptor. Instead, sites were strategically selected to document existing noise exposure at different residential clusters along the proposed alignments. The noise levels from these existing sources were adjusted to reflect distance propagation to other nearby clusters of residences and other noise-sensitive uses where appropriate. For example, the baseline levels measured at the 17 representative monitoring sites were used to estimate background levels at almost 900 receptors along the SR 60 LRT Alternative alignment and over 2,100 receptors along the Washington Boulevard LRT Alternative alignment. The measured noise levels were applied to these other noise-sensitive receptor sites based on their similarities to the monitoring sites regarding nearby roadways and intersections, land use densities, and geographical distance from the monitoring sites.

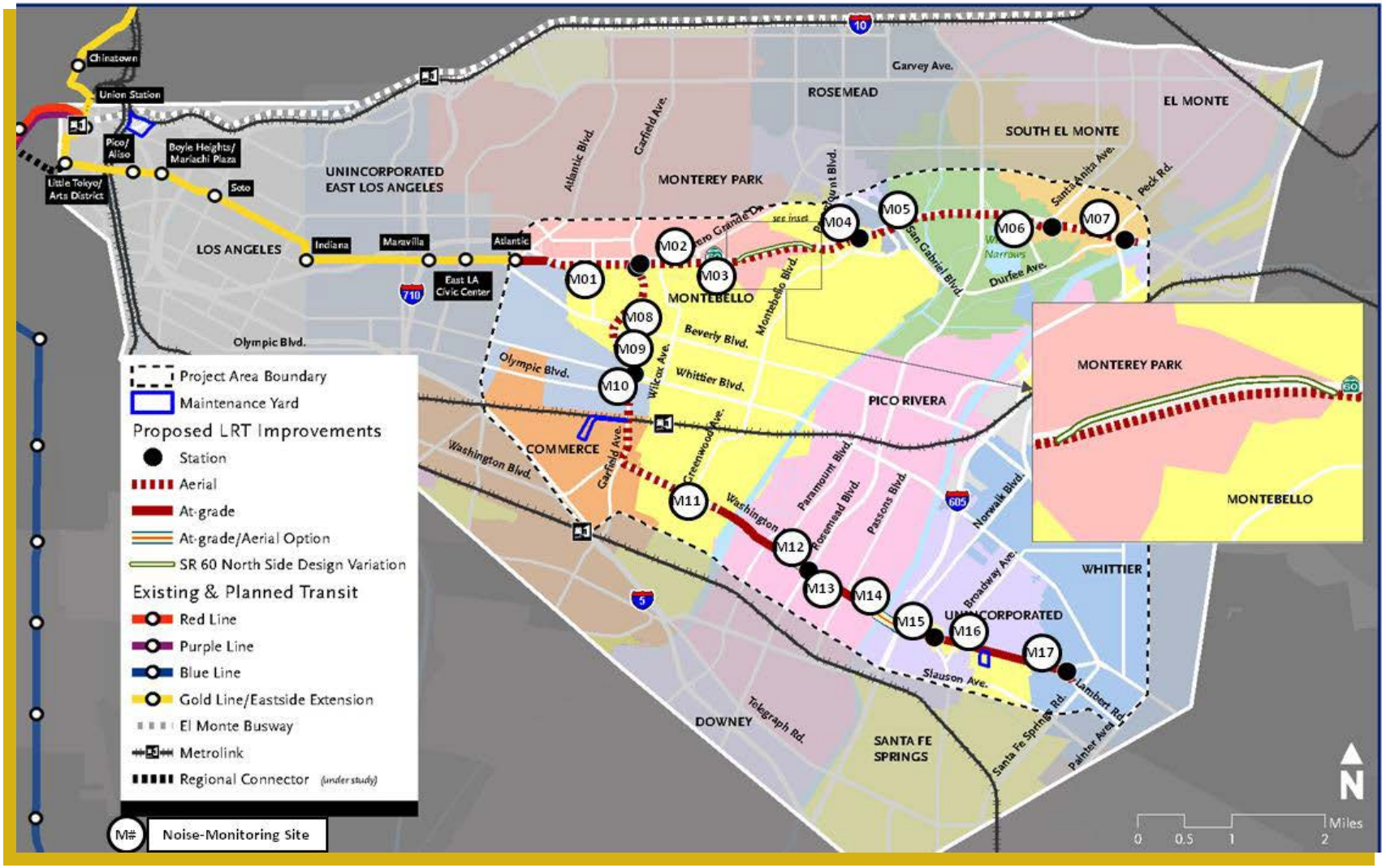
4.9.3 Environmental Impacts/Environmental Consequences

The following sections summarize the evaluation of potential noise and vibration impacts for each alternative as discussed in detail in Appendix T, Noise and Vibration Technical Memorandum, of this Draft EIS/EIR. The thresholds for determining the significance of operational impacts for this analysis were based on FTA *Transit Noise and Vibration Impact Assessment* guidelines (FTA 2006). Per FTA guidelines, the proposed project, or alternatives under consideration, would result in a noise impact if the future project noise is predicted to exceed the FTA moderate or severe thresholds. However, an adverse effect under the National Environmental Policy Act (NEPA) would only occur if the FTA severe impact criteria are exceeded. Similarly, the proposed project would result in a vibration impact if maximum levels from an LRT train passby are predicted to exceed the FTA frequent criteria selected for each land use type.

As indicated above, CEQA does not provide quantitative thresholds for a substantial operational noise impact or a significant adverse vibration impact. Therefore, this analysis applied FTA criteria to determine the thresholds for significance.

The following FTA screening distances were used to develop the population of receptors included in the noise and vibration modeling analyses:

- 350 feet – unobstructed noise screening distance
- 150 feet – unobstructed vibration screening distance



Source: AECOM November 2010.

Figure 4.9-2. Noise Monitoring Locations

Table 4.9-3. Summary of Noise Source Reference Data

Noise Source			Duration(sec)	Height(ft)	Noise Level (dBA)1	
Category	Name	Description			Lmax	SEL
LRT	Passbys	Passby operations	--[2]	2	78[3]	80
	Warning device	Onboard bell	5	10	76[3]	79[3]
	Switches/crossovers	Special track work	--	0	86[3]	88
	Wheel squeal	Curves <65 feet	4	0	100	136
	Auxiliary equipment	Stations only	30[4]	10	70	106
Crossing Bell	Grade crossing bell	Grade crossing	15[3]	10	72[5]	108
Parking	Park and ride	Parking garage	--	10	56	92
Yard	Maintenance yard	Yard	--	2	82	118

Source: AECOM November 2010.

Notes:

[1] All noise levels are reported in dBA at a reference distance of 50 feet and a reference speed of 50 miles per hour for passbys only. Lmax represents the maximum noise level during an event and SEL is the sound exposure level that converts the cumulative noise energy of an event to one second. Default FTA reference levels are reported except where noted.

[2] "—" means not applicable. Duration time is not used to compute passby and facility noise levels.

[3] Noise levels and duration times are based on the Metro Gold Line Phase II – Pasadena to Montclair Draft EIS/EIR (April 2004).

[4] The default dwell time is 30 seconds at all proposed stations.

[5] The Lmax level for the crossing bell reflects a 5-dBA penalty to account for the intrusive character of the noise source.

Table 4.9-4. Baseline Noise Levels Measured along the Project Alignments (in dBA)

Receptor		Alignment	Land Use		24-Hr Ldn	Pk-Hr Leq
ID[1]	Description		Type[2]	FTA		
M01	3509 Via Campo at Keenan Street	SR 60, Washington Blvd.	SFR	2	69	66
M02	385 Pomona Blvd. at Fulton Avenue	SR 60	SFR	2	73	70
M03	1640 Via Palermo at Messina Way	SR 60	SFR	2	77	72
M04	306 Ellingbrook Drive at N. Jerseydale Avenue	SR 60	SFR	2	66	60
M05	8753 Landis View Lane at Muscatel Avenue	SR 60	SFR	2	73	69
M06	Whittier Narrows Recreation Area	SR 60	Park	3	--3	71
M07	11203 E. Maplefield Street at Allgeyer Avenue	SR 60	SFR	2	67	64
M08	608 N. Garfield Avenue at Via San Delarro Street	Washington Blvd.	SFR	2	68	65
M09	444 and 452 Garfield Avenue at N. Hay Street	Washington Blvd.	SFR	2	67	66
M10	1001 Garfield Avenue at Northside Drive	Washington Blvd.	SFR	2	72	69
M11	860 Washington Blvd. at S. Greenwood Avenue	Washington Blvd.	SFR	2	71	68
M12	6735 Keltonview Drive at Washington Blvd.	Washington Blvd.	SFR	2	67	64
M13	Former AT&SF Depot, 9122 Washington Blvd. at Loch Alene Avenue	Washington Blvd.	Museum	3	--	73
M14	6768 Washington Blvd. at Cord Avenue	Washington Blvd.	SFR	2	70	67
M15	7857 Milna Avenue at Washington Blvd.	Washington Blvd.	SFR	2	71	67
M16	7904 Broadway Avenue at Washington Blvd.	Washington Blvd.	SFR	2	66	63
M17	7972 Calobar Avenue at Washington Blvd.	Washington Blvd.	SFR	2	69	67

Source: AECOM November 2010.
Notes:
[1] *ID corresponds to general location as shown in Figure 4.9-2.*
[2] *"SFR" = Single-Family Residence.*
The day-night noise level is not applicable to institutional land uses.

The screening distances were applied from the centerline of the proposed transit corridors to determine the area of potential impact.

The following section summarizes the analysis and conclusions for each project alternative, as discussed in detail in Appendix T, Noise and Vibration Technical Memorandum, of this Draft EIS/EIR. **Table 4.9-5** summarizes the results of the noise and vibration analysis.

Table 4.9-5. Summary of Potential Noise and Vibration Impacts

Alternative	Noise Impacts (NEPA/CEQA)	Vibration Impacts (NEPA/CEQA)	Adverse Noise Effects/Impacts After Mitigation (NEPA/CEQA)	Adverse Vibration Effects/ Impacts After Mitigation (NEPA/CEQA)
No Build (Construction and Operational Impacts)	None	None	None	None
TSM (Construction and Operational Impacts)	None	None	None	None
SR 60 LRT Alternative	**Construction:** Adverse Effect/Significant Impact **Operational:** Adverse Effect/Significant Impact	**Construction:** Adverse Effect/Significant Impact **Operational:** Adverse Effect/Significant Impact	**Construction:** Not adverse after mitigation/Less than significant after mitigation **Operational:** Not adverse after mitigation/Less than significant after mitigation	**Construction:** Not adverse after mitigation/Less than significant after mitigation **Operational:** Not adverse after mitigation/Less than significant after mitigation
Washington Boulevard LRT Alternative	**Construction:** Adverse Effect/Significant Impact **Operational:** Adverse Effect/Significant Impact	**Construction:** Adverse Effect/Significant Impact **Operational:** Adverse Effect/Significant Impact	**Construction:** Not adverse after mitigation/Less than significant after mitigation **Operational:** Not adverse after mitigation/Less than significant after mitigation	**Construction:** Not adverse after mitigation/Less than significant after mitigation **Operational:** Not adverse after mitigation/Less than significant after mitigation

Note: CEQA does not provide quantitative thresholds for a substantial noise impact or a significant adverse vibration impact. Therefore, this analysis applied FTA criteria to determine the threshold for significance (FTA 2006). An adverse effect under NEPA would only occur if the FTA severe impact criteria are exceeded. Potential adverse impacts are analyzed and disclosed in a manner consist with NEPA and CEQA requirements.

4.9.3.1 No Build Alternative

4.9.3.1.1 Impact Analysis

Construction Impacts

No major construction activities are proposed under the No Build Alternative. Therefore, no construction noise and vibration impacts are expected under the No Build Alternative.

Operational Impacts

Future noise levels under the No Build Alternative are anticipated to be similar to those under existing conditions. For example, it takes a doubling of the traffic volumes for the noise levels to increase by 3 dBA, the threshold where most listeners detect the change.

Projected increases in traffic levels of less than 40 percent in the project area between now and 2035 would result in higher congestion and lower average travel speeds and, therefore, lower roadway noise levels. Therefore, no significant noise impacts would occur under the No Build Alternative. Since no project elements are proposed under the No Build Alternative, the alternative would not cause any vibration impacts.

4.9.3.1.2 Mitigation Measures

Since the No Build Alternative would have no noise or vibration impacts, no mitigation measures are required.

4.9.3.1.3 Impacts Remaining After Mitigation

NEPA Finding

The No Build Alternative would not result in any adverse noise or vibration effects.

CEQA Determination

The No Build Alternative would not result in any noise or vibration impacts.

4.9.3.2 TSM Alternative

4.9.3.2.1 Impact Analysis

Construction Impacts

No major construction activities are proposed under the TSM Alternative. Therefore, no construction noise and vibration impacts are expected under the TSM Alternative.

Operational Impacts

The TSM Alternative primarily involves improvements to bus service to reduce traffic congestion. The number of buses that would be added under the TSM Alternative would not result in a doubling of traffic along the roadways in the project area and, therefore, would not result in a noticeable increase in roadway noise.

As a result, the TSM Alternative would not result in noise impacts. Future vibration levels under the TSM Alternative are expected to be similar to those currently experienced under existing conditions. The pneumatic tires and suspension systems of the buses associated with the TSM Alternative would eliminate most GBV and rarely cause vibration annoyance, except at receptors close to potholes or bridge expansion joints. Therefore, the TSM Alternative would not result in any adverse effects to vibration under NEPA or significant impacts under CEQA.

4.9.3.2.2 Mitigation Measures

Since the TSM Alternative would have no noise or vibration effects or impacts, no mitigation measures are required.

4.9.3.2.3 Impacts Remaining After Mitigation

NEPA Finding

The TSM Alternative would not result in any adverse construction or operational noise or vibration effects.

CEQA Determination

The TSM Alternative would have no construction or operational noise or vibration impacts.

4.9.3.3 SR 60 LRT Alternative

4.9.3.3.1 Impact Analysis

Construction Impacts

Several construction activities may be required as part of the SR 60 LRT Alternative including:

- Guideway or track laying (at-grade and aerial)
- Station construction
- Parking garage (site demolition and facility construction)
- Maintenance yard (site demolition and facility construction)

According to the project's Construction Methods Technical Memorandum, included as Appendix L in this Draft EIS/EIR, at-grade track laying or guideway construction equipment would generally consist of rubber-tired excavators, loaders, rubber-tired compactors, graders and small bulldozers, and water trucks for dust control. For aerial guideway construction, activities would include the placement of piles or support columns and girders to create a span between the bents. Equipment required for aerial guideway construction would include pile drivers (vibratory or impact), drilling rigs, possibly specialized water jet excavators, trucks to remove excavated soil, transit mix concrete trucks and concrete pumps, specialized truck trailers to deliver pre-cast concrete beams, cranes, trucks to deliver forms, reinforcing steel, pavement saws, pre-cast concrete post tensioning jacks and related equipment, and water trucks for dust control.

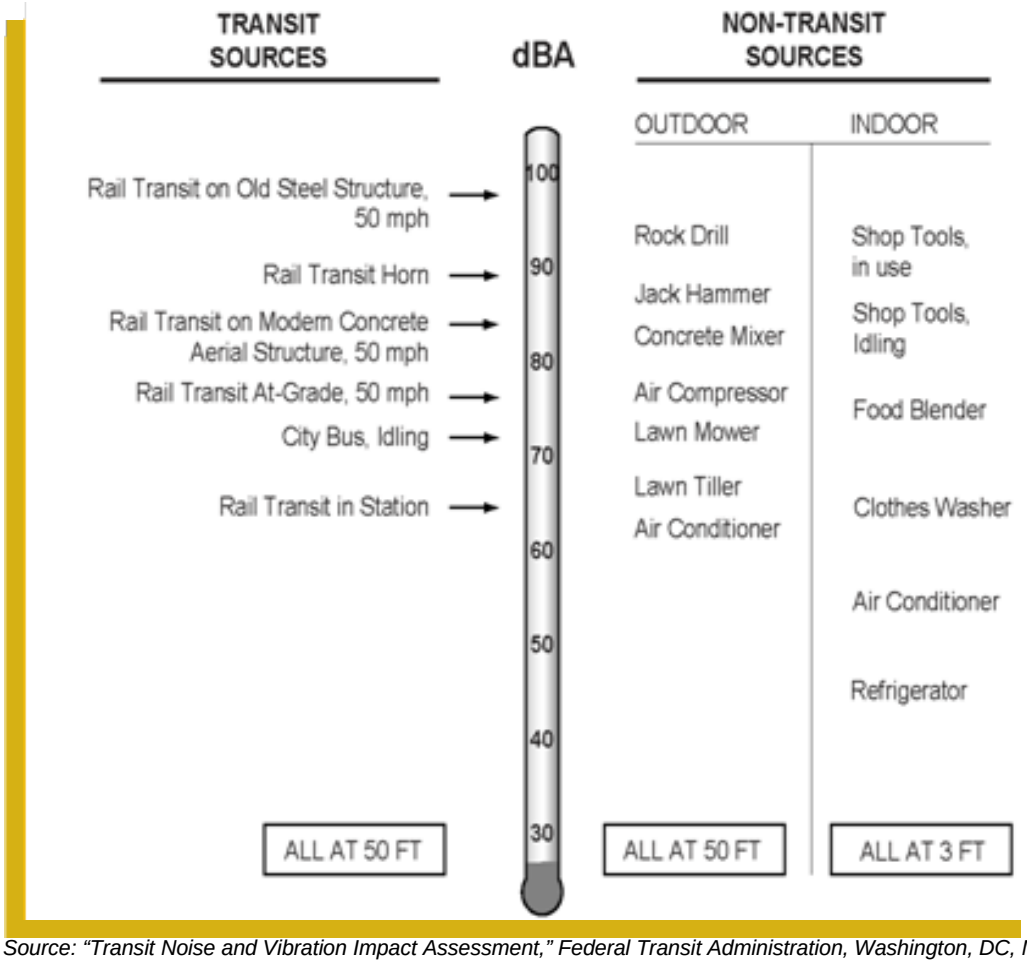
To minimize noise and vibration impacts during construction, the contractor may utilize cast-in-drilled-hole (CIDH) piles in the vicinity of noise sensitive receptors. Piles are support columns that may be driven or hammered into the ground. To accomplish this, contractors typically use equipment called pile drivers for speed and efficiency. CIDH piles eliminate hammering by using large augers to drill a hole into which a steel frame is placed. The drilled hole and steel frame insert are then filled with concrete to create cast-in-drilled-hole columns or piles. Noise and vibration impacts could also be reduced if steel torque-down piles are used instead of driven piles.

The use of CIDH piles that utilize the pre-augering method or steel torque-down piles would not be expected to result in any adverse construction noise or vibration impacts as no pounding effects would occur. Other activities that would utilize piles include station and parking garage construction, which require piles to support the weight of the massive structures. These activities would also be eligible to utilize CIDH piles or steel torque-down piles to eliminate the potential of adverse noise and vibration impacts in the community.

Construction Noise

Typical A-weighted noise levels from construction equipment, transit, and other common sources are summarized in **Figure 4.9-3**. The A-weighting scale is used to best describe the response of human hearing to transit and other environmental noise. Based on laboratory and field testing, acoustical scientists determined that the sensitivity of human hearing generally falls between 250 and 10,000 Hz. Therefore, the A-weighting scale was developed to replicate the sensitivities of human hearing by filtering out low and very high frequencies. The A-weighting scale is utilized by all federal agencies for evaluating impacts in the community. The noise thermometer is intended to show the different levels as measured from a reference distance of 50 feet from the source.

Noise levels from construction activities along the SR 60 LRT Alternative alignment, although temporary, could be a nuisance at nearby sensitive receptors such as residences and schools. Noise levels during construction are difficult to predict and vary depending on the types of construction activity and the types of equipment used for each stage of work. Heavy machinery, the major source of noise in construction, is constantly moving in unpredictable patterns and is not usually at one location very long. Project construction activities include, for example, constructing track bed, installing bents for the aerial structures, relocating utilities, renovating grade crossings, and constructing stations.



Source: "Transit Noise and Vibration Impact Assessment," Federal Transit Administration, Washington, DC, May 2006

Figure 4.9-3. Typical A-weighted Noise Levels

No specific information is available during the environmental analysis phase of the project on the selection of equipment for each construction activity. Details on the actual equipment types and the duration of their use would not be determined until a contractor is selected for the work. However, it is recognized that there would be adverse impacts during construction in some locations.

Since the proposed construction is expected to last about 12 to 18 months at any one location, depending on the type of activity, significant noise impacts are expected, particularly on those receptors adjacent to the SR 60 LRT Alternative alignment. Noise control measures are expected to eliminate impacts and minimize extended disruption of normal activities. Along the SR 60 LRT Alternative, construction activities would include laying track for both aerial and at-grade sections, and construction of Metro stations, bridges, park and ride garages, and a maintenance yard. Daytime noise is predicted to exceed the FTA limit of 90 dBA at residential receptors at distances ranging from 32 feet during station construction to 40 feet during the laying of at-grade track. Daytime noise is predicted to exceed the FTA limit of 100 dBA at commercial receptors at distances that range from 10 feet during station construction to 13 feet during the laying of at-grade track. Based on these preliminary construction noise estimates, construction activities are predicted to exceed the FTA daytime noise limits only at the residences and commercial properties closest to station and guideway construction. As such, construction of the SR 60 LRT Alternative would result in a

temporary adverse effect under NEPA and a significant impact under CEQA if not mitigated.

To ensure that noise impacts are minimized during construction, all construction activities are intended to comply with Metro's baseline specifications (Section 01565, Construction Noise and Vibration Control). Although Metro, as a state-chartered agency, is exempt from local noise ordinances, Metro is committed to consistency with local construction noise limits whenever feasible and reasonable, in accordance with its own construction specifications. For example, Metro's contractor would utilize control measures from its own specifications that effectively minimize noise and vibration impacts in the community, such as:

- Conducting construction activities during the daytime whenever possible;
- Requiring special permits for construction within a specified distance and a specified time period for residential zones during nights and weekends;
- Using construction equipment with effective noise-suppression devices;
- Using noise control measures, such as enclosures and noise barriers, as necessary to protect the public and achieve compliance with Metro's noise limits; and
- Conducting all operations in a manner that will minimize, to the greatest extent feasible, disturbance to the public in areas adjacent to the construction activities and to occupants of nearby buildings. This includes methods that result in shortening the construction period wherever possible.

Construction Vibration

Unlike noise, vibration levels from construction activities are not cumulative, but are instead dependent on the type of activity and equipment used. Vibration is also dependent on the ground and terrain conditions, the presence of underground utilities, and the type and condition of the building at the receptor. As a result, except for digging and pounding activities in hard soils, most construction activities do not contribute to vibration impacts due to the typically long distance between the activity and the sensitive receptor.

Along the SR 60 LRT Alternative, construction activities would include the use of bulldozers, dump trucks, and vibratory rollers. The use of impact pile drivers would be avoided whenever possible to eliminate the potential for vibration impacts (such as minor cosmetic structural damage) at nearby sensitive receptors. The FTA vibration damage criterion of 0.2 inches per second (ips) would be exceeded (for typical timber and masonry residences) at distances ranging from 15 feet for trucks to 20 feet for bulldozers to 35 feet for vibratory rollers. In accordance with the FTA guidelines, the vibration limit is used during the environmental impact assessment phase to identify potential problem locations that should be addressed in more detail during final design. The FTA criterion is intended to be used more as an indicator of potential damage rather than as a definitive evaluation of impact. During final design, when details of the actual construction equipment to be used would be determined, a more definitive evaluation of potential impact and damage is recommended to address these potential concerns.

Similarly, the FTA vibration infrequent annoyance criterion of 80 VdB for residences and other FTA Category 2 land uses would be exceeded at distances ranging from 40 feet for trucks to 50 feet for bulldozers to 70 feet for vibratory rollers. As a result of these preliminary construction vibration estimates, construction activities are predicted to exceed the FTA impact criteria only at the residences and commercial properties closest to construction. The FTA infrequent event category was used to assess impact from perceptible vibration events, since not all construction activity would be perceptible. If not mitigated, construction of the SR 60 LRT Alternative would result in a temporary adverse effect under NEPA and a significant impact under CEQA based on the magnitude and duration of construction.

(See Chapter 2, Table 2-5 Summary of Construction Activities for Both LRT Build Alternatives.)

Operational Impacts

The SR 60 LRT Alternative would have four potential sources of noise and vibration during operations: LRV passbys, special track work, traction power substation (TPSS) facilities, and maintenance yard activities. Noise impacts are summarized in **Table 4.9-6** for representative locations and in **Table 4.9-7** for the entire SR 60 LRT Alternative alignment.

Table 4.9-6. SR 60 LRT Alternative Noise Levels at Representative Receptors (in dBA)

Receptor		Land Use		Existing Noise	Project Noise[4,5]	FTA Criteria	
ID[1]	Description	Type[2]	FTA[3]			"Moderate"	"Severe"
M01	3509 Via Campo	SFR	2	69	**65**	64	69
M02	385 Pomona Blvd.	SFR	2	73	57	65	72
M03	1640 Via Palermo	SFR	2	77	59	65	75
M04	306 Ellingbrook Drive	SFR	2	66	54	62	67
M05	8753 Landis View Lane	SFR	2	73	60	65	72
M06	Whittier Narrows Recreation Area	Park	3	71	58	70	75
M07	11203 E. Maplefield Street	SFR	2	67	52	62	68

Source: AECOM February 2011.
Notes:
[1] ID corresponds to general location as shown in Figure 4.9-2.
[2] SFR = Single-Family Residence
[3] This column refers to the land use categories previously described in Table 4.9-1, FTA Land Use Categories and Noise Metrics.
*[4] FTA moderate impacts are **bold** and **underlined**.*
[5] The "Project Noise" levels represent the future project noise only. The cumulative future ambient noise with the project would be equal to the "Existing Noise" logarithmically added to the "Project Noise."

LRV Passby: Except for receptors in the immediate vicinity of stationary noise sources (such as stations and park and ride facilities or special track work such as switches), receptor noise along the SR 60 LRT Alternative would be primarily due to passbys from LRVs. Maximum passby noise levels from LRVs (shown in Table 4.9-3) were used to develop cumulative day-night noise levels over a 24-hour period using typical weekday operating conditions. Impacts associated with LRV passby are summarized in Table 4.9-7.

Special Track Work: Special track work (such as turnouts and crossovers) is proposed at several locations along the SR 60 LRT Alternative alignment to minimize the number of potential impacts while providing operational flexibility. Special track work has been designed in accordance with Metro's design criteria. Turnouts or switches allow trains to move from one track to another, while crossovers allow trains to move between parallel tracks.

Table 4.9-7. Summary of SR 60 LRT Alternative Noise Impacts

ID[1]	Location	Type of Use[2]	Impact (Moderate or Severe)[3]	No. Residences Affected[4]		Major Source(s) Contributing to Impact[5]
				SR 60	SR 60 Design Variation	
	FTA Category 2					
M01	Via Campo	SFR MFR	Moderate Moderate	13 4	13 4	LRV passbys
M03	Via Palermo	SFR	Moderate	9	0	LRV passbys
M05	Muscatel Avenue	SFR	Moderate	1	1	LRV passbys
M07	Lexington Gallatin Road	SFR	Moderate	3	3	Switches and LRV passbys
	Lexham Avenue	SFR	Moderate Severe	3 1	3 1	
	Fawcett Avenue	SFR	Moderate	3	3	
	Total FTA Category 2		Severe Moderate Total	**[1]** **<u>36</u>** 37	**[1]** **<u>27</u>** 28	
	FTA Category 3					
	Total FTA Category 3		Severe Moderate Total	0 <u>0</u> 0	0 <u>0</u> 0	
	Total – All Uses		Severe Moderate Total	**[1]** **<u>36</u>** 37	**[1]** **<u>27</u>** 28	

Source: AECOM October 2011.
Notes:
[1] ID corresponds to general location as shown in Figure 4.9-2.
[2] SFR = Single-Family Residence; MFR = Multi-Family Residence.
*[3] FTA moderate and severe impacts are **<u>bold</u>** and **<u>underlined</u>** and severe impacts are **bold** and shown in brackets ([ ]).*
[4] The number of affected residences is shown for both the SR 60 LRT Alternative and the SR 60 Design Variation.
[5] Major sources include LRV passbys, LRT warning bells, and switches or special track work. The maintenance yard and TPSS are not expected to be primary sources of impacts in any noise-sensitive locations.

Noise from switches or crossovers comes from a small gap in the central part of the switch known as a frog. Noise levels would increase up to 8 dBA in the vicinity of the switch. Maximum noise levels from special track work (summarized in Table 4.9-3) were used to develop cumulative day-night noise levels over a 24-hour period and Leq noise levels using typical weekday operating conditions. Impacts associated with special track work are summarized in Table 4.9-7.

At FTA Category 2 land uses such as residences, motels, and hospitals, the Ldn descriptor was used to reflect their particularly heightened sensitivity to nighttime noise. At FTA Category 3 land uses such as institutional uses, the peak-hour Leq descriptor was used to reflect their sensitivity to daytime noise.

The noise levels from the existing condition and the predicted future noise levels from operation of the SR 60 LRT Alternative LRVs are summarized in Table 4.9-6 for the same receptor locations used to monitor existing noise levels (see Figure 4.9-2).

For comparison with the FTA criteria, the "Project Noise" levels in Table 4.9-6 represent the future project noise only, without the existing noise. The cumulative future ambient noise with the project would be equal to the "Existing Noise" logarithmically added to the "Project Noise."

As summarized in Table 4.9-6, the Ldn day-night noise levels at residences along the proposed SR 60 LRT Alternative alignment are predicted to range from 52 dBA to 65 dBA and the peak-hour Leq at the Whittier Narrows Recreation Area is predicted to be 58 dBA. At the selected representative receptors, only the noise level at Site M01 is predicted to exceed the FTA moderate impact criteria.

Noise impacts at the selected noise monitoring locations described above were used to determine noise impacts generated by the SR 60 LRT Alternative at approximately 900 sensitive land use receptors along the proposed alignment. The predicted noise impacts associated with operation of the SR 60 LRT Alternative are summarized in Table 4.9-7. As shown in Table 4.9-7, corridor-wide project noise levels associated with LRV passby and special track work are predicted to exceed the FTA moderate impact criteria at 36 residences, and to exceed the FTA severe impact criteria at one additional residence (a single-family residence along Lexham Avenue). The two historical resources identified along the SR 60 LRT Alternative alignment (Helms Bakery and Chinese Garden Restaurant) are not considered sensitive land use receptors; one is now an industrial use and the other is a commercial restaurant. Therefore, significant noise impacts would not occur at these two properties.

In summary, one significant impact would occur at the residence where noise levels would exceed the FTA severe impact criteria. Project noise levels along the SR 60 LRT Alternative would not exceed the FTA impact criteria at any FTA Category 3 land use receptors. The SR 60 LRT Alternative would result in an adverse effect under NEPA and a significant impact under CEQA if not mitigated.

Maximum noise levels from switches located east of the Santa Anita Avenue station are predicted to range from 73 to 83 dBA at residences along Lexham and Fawcett Avenues just west of South El Monte High School. As shown in Table 4.9-7, these switches are predicted to contribute to noise levels that exceed the FTA moderate impact criteria at these residences.

For the SR 60 North Side Design Variation, the impacts are predicted to be exactly the same except in the vicinity of Via Palermo. At Via Palermo, reduced LRT speeds west of the design variation are predicted to result in nine fewer moderate noise impacts at residences, for a total of 27 impacts.

Reduced travel speeds approaching the design variation segment (from 55 mph to 45 mph) are predicted to result in slightly lower operational noise levels at residences along Via Palermo. The one FTA severe impact is predicted at the same

single-family residence along Lexham Avenue. None of the noise levels generated by the SR 60 LRT Alternative with the North Side Design Variation are predicted to exceed the FTA impact criteria at any FTA Category 3 receptors. The noise impacts associated with the SR 60 LRT Alternative are summarized graphically in Appendix T, Noise and Vibration Technical Memorandum, of this Draft EIS/EIR.

Traction Power Substations: As part of the SR 60 LRT Alternative, TPSS facilities would be installed at several locations along the proposed rail corridor to provide adequate electrical power for LRT service. Each TPSS would be designed in accordance with the Metro system-wide design criteria noise guideline of 50 dBA at 50 feet or the nearest residential building, whichever is closer. This operating noise level for the TPSS would be significantly lower than existing ambient noise levels (which range from 66 to 77 dBA) and LRV passby noise levels of 78 dBA at 50 feet. Therefore, noise generated by the TPSS would not exceed the FTA noise impact criteria at any land use receptors along the SR 60 LRT Alternative alignment, and no significant noise impact would occur. The SR 60 LRT Alternative would not result in an adverse effect under NEPA and would have a less than significant impact under CEQA.

Maintenance Yard: One 11-acre site has been identified as a maintenance yard option for the SR 60 LRT Alternative, referred to as the Mission Junction Maintenance Yard Option. The site is located in an industrial area and is adjacent to the existing Mission Junction rail facility, which is directly north of the intersection of Cesar Chavez Avenue and Mission Road. The proposed maintenance yard would accommodate daily maintenance, inspection and repairs, and storage of LRVs.

The closest noise-sensitive receptors are residences located north of Alhambra Avenue over 2,000 feet from the proposed Mission Junction Maintenance Yard Option, which is well outside the FTA screening distance of 1,000 feet. Therefore, noise generated by maintenance yard activity would not exceed the FTA noise impact criteria at the closest sensitive land use receptors and no significant noise impact would occur. The SR 60 LRT Alternative would not result in an adverse effect under NEPA and would have a less than significant impact under CEQA.

Vibration Impacts

Transit vibration impacts are assessed based on individual events, such as when a train passes by. To reduce transit vibration impacts at residences and other sensitive receptors along the build alternative alignments, the entire rail corridor would be constructed with ballast and continuously-welded rail (CWR) track. These measures are expected to reduce vibration levels that are caused by steel wheels rolling over steel rails at rail joints. Along aerial sections, elevated structures create additional separation between the train source and the ground-level receptors, resulting in greater attenuation.

At at-grade crossings, embedded track at cross streets is not expected to result in any vibration impacts due to the short section, which is limited to the width of the cross street. All predicted vibration levels were compared with the FTA frequent impact criteria to assess the severity of impact.

The SR 60 LRT Alternative would have three potential sources of vibration during operations: LRV passbys along tangent or CWR track, LRV passbys through special track work such as switches along the corridor, and switches at the maintenance yard.

Transit vibration levels were predicted at the same receptor locations used for the noise analysis. As summarized in **Table 4.9-8**, the maximum vibration levels from LRVs are predicted to range from 32 VdB to 63 VdB. As summarized in Table 4.9-8, all of the vibration levels at the representative receptor sites are predicted to be below the FTA frequent impact criteria.

Table 4.9-8. SR 60 LRT Alternative Vibration Levels at Representative Receptors (in VdB)

Receptor		Land Use			FTA Criteria	
ID[1]	Description	Type[2]	FTA[3]	Vibration	"frequent"	Impact
M01	3509 Via Campo	SFR	2	63	72	No
M02	385 Pomona Blvd.	SFR	2	50	72	No
M03	1640 Via Palermo	SFR	2	58	72	No
M04	306 Ellingbrook Drive	SFR	2	35	72	No
M05	8753 Landis View Lane	SFR	2	51	72	No
M06	Whittier Narrows Recreation Area	Park	3	60	75	No
M07	11203 E. Maplefield Street	SFR	2	32	72	No

Source: AECOM November 2010.
Notes:
[1] ID corresponds to general location as shown in Figure 4.9-2.
[2] SFR = Single-Family Residence
[3] This column refers to the land use categories previously described in Table 4.9-1, FTA Land Use Categories and Noise Metrics.

Table 4.9-9 summarizes corridor-wide vibration levels associated with LRV passby and special track work. As shown in Table 4.9-9, vibration levels are predicted to exceed the FTA frequent criterion of 72 VdB at three residences (FTA Category 2 land uses). All of these impacts are due to the proximity of residences along Lexham Avenue to the proposed switches east of the Santa Anita Avenue station. Maximum vibration levels at FTA Category 3 land uses are predicted to range from 41 VdB to 62 VdB. No other vibration impacts are predicted at FTA Category 3 land use receptors along the SR 60 LRT Alternative alignment. If not mitigated, the SR 60 LRT Alternative would result in an adverse effect under NEPA and a significant impact under CEQA to these sensitive receptors.

As indicated above, the two historical resources identified along the SR 60 LRT Alternative alignment are not considered sensitive land use receptors and no significant vibration impact would occur at these two properties. The vibration impacts associated with the SR 60 LRT Alternative are summarized graphically in Appendix T, Noise and Vibration Technical Memorandum, of this Draft EIS/EIR. None of the vibration impacts are due to LRV passbys along CWR track. The SR 60 LRT Alternative would not result in an adverse effect under NEPA and would have a less than significant impact under CEQA to historic resources.

Vibration impacts would be the same for the SR 60 LRT Alternative with or without the North Side Design Variation.

A vibration analysis was also prepared on LRV passby affects to slope stability at the OII Landfill site. Based on applied methodologies from FTA's *Transit Noise and Vibration Impact Assessment* guidelines, the maximum potential vibration level from a LRV passby (estimated at the base of the track structure support piling or column) is one or two orders of magnitude less than typical construction activities. Given the above, no vibration levels exceeding the FTA damage criteria

are predicted and therefore no significant vibration effects would occur. Detailed vibration analysis on the OII Landfill site is provided in Appendix T, Noise and Vibration Technical Memorandum, of this Draft EIS/EIR.

The closest vibration-sensitive receptors in the vicinity of the proposed Mission Junction Maintenance Yard Option site are residences north of Alhambra Avenue over 2,000 feet away. Therefore, vibration generated from slow-moving LRVs over switches and other activities at the maintenance yard would not exceed the FTA vibration impact criterion at any of the closest vibration-sensitive receptors and no significant vibration impact would occur.

Table 4.9-9. Summary of SR 60 LRT Alternative Vibration Impacts

ID[1]	Location	Type of Use[2]	Impact (Frequent)	No. Residences Affected[3]		Major Source(s) Contributing to Impact[4]
				Base	North	
	FTA Category 2					
M07	Lexham Avenue	SFR	Frequent	3	3	Switches
	Total FTA Category 2		Frequent	3	3	
	FTA Category 3			0	0	--
	Total – All Uses		**Total**	**3**	**3**	

Source: AECOM February 2011.
Notes:
[1] ID corresponds to general location as shown in Figure 4.9-2.
[2] SFR = Single-Family Residence.
[3] The number of affected residences is shown for both the SR 60 LRT Alternative and the SR 60 North Side Design Variation.
[4] Major sources include LRV passbys, LRT warning bells, and switches or special track work. The maintenance yard and TPSS are not expected to be primary sources of impacts in any noise-sensitive locations.

4.9.3.3.2 Mitigation Measures

Construction Mitigation Measures

The SR 60 LRT Alternative would have temporary adverse effects (limited to the duration of construction) under NEPA and a significant impact under CEQA during construction with regard to noise and vibration; however these effects/impacts would be mitigated through the following measures:

4.9-i Use construction methods that avoid pile-driving at locations with noise- and vibration-sensitive receptors, such as residences, schools, and hospitals. Metro's contractor would consider using cast-in-drilled-hole (CIDH) or other suitable piling methods (such as steel torque-down piles) rather than impact pile drivers to reduce excessive noise and vibration. This should be considered near sensitive receptors.

4.9-ii In areas where vibration-producing equipment would be used, Metro's contractor would conduct a survey of the closest receptors (particularly fragile historic properties) to determine the baseline structural integrity and condition of walls and joints. These surveys would include the installation of strain gauges or

photographic documentation of the interior walls and exterior façade to provide a basis for comparison after construction is completed. Depending on the baseline conditions of the nearby buildings, an appropriate construction and monitoring plan would be developed to minimize potential damage to susceptible structures. Where possible, temporary noise barriers would be erected between noisy activities and noise-sensitive receptors. If driven piles are required for deep foundation support or in areas within the monocover (to contain contaminated materials), steel torque-down piles can also be used to mitigate noise and vibration impacts.

4.9-iii Construction equipment and material staging areas would be located away from sensitive receptors.

4.9-iv Construction traffic and haul routes would be routed along roads in non-noise-sensitive areas where possible.

4.9-v Contractors would be required to use best available control technologies, whenever possible, to limit excessive noise and vibration when working near residences.

4.9-vi Metro will minimize the construction duration using construction methods that would shorten the construction schedule.

4.9-vii Whenever possible, construction activities would be conducted during the daytime and during weekdays in accordance with most local noise-control ordinances.

4.9-viii The public would be adequately notified of construction operations and schedules. Methods such as construction-alert publications or a Project Hotline would be used to handle complaints quickly.

In addition, per Mitigation Measures 3.0-ii through 3.0-viii in Chapter 3, a Traffic Management Plan would also reduce noise and vibration effects/impacts from traffic and freeway operations during construction of the SR 60 LRT Alternative to not adverse under NEPA and less than significant under CEQA. (Refer to the specific section for the detailed mitigation measure.)

Operational Mitigation Measures

Noise

The SR 60 LRT Alternative would have adverse effects under NEPA and a significant impact under CEQA from noise effects/impacts due to gaps at switches. These effects/impacts may be eliminated in a number of ways, such as relocating the switches (which are a crossover component), installing ballast mats under conventional switches to “decouple” the train vibration from the track supporting structure, or using a “gapless” spring frog.

4.9-ix Relocating switches away from noise-sensitive receptors is one cost-effective measure for mitigating this impact. However, if operational concerns interfere with the relocation of switches, then several other viable mitigation options are available such as point-less switches (“gapless spring frogs” that eliminate the gap in the rail) or low-vibration isolators (ballast mats or tie pads) such as have been used on the San Diego Trolley system. The proposed crossover east of the Santa Anita Avenue station would be relocated away from sensitive land use receptors to eliminate noise impacts due to switches per FTA noise criteria.

4.9-x For noise impacts due to LRV passbys along tangent aerial track sections, parapets are recommended in lieu of safety railings as part of the SR 60 LRT Alternative alignment to provide additional shielding for nearby residences. Parapets would be used at the following locations to eliminate noise impacts from LRV passbys:

- Eastbound track side starting just west of Gerhart Avenue to just east of Findlay Avenue – three-foot by 2,500-foot barrier

- Eastbound track side starting just east of Vail Avenue to the Montebello/Monterey Park city boundary – three-foot by 800-foot barrier (not applicable for the SR 60 North Side Design Variation)
- Eastbound track side starting just east of San Gabriel Boulevard to Muscatel Avenue – three-foot by 800-foot barrier

Except for the noise barrier starting just east of Vail Avenue, the proposed mitigation for the SR 60 North Side Design Variation would be the same as for the SR 60 LRT Alternative. No noise impacts are predicted under the SR 60 North Side Design Variation between Vail Avenue and the Montebello/Monterey Park city boundary.

In combination, these measures would address the adverse noise effects under NEPA and significant noise impacts under CEQA.

Vibration

As with the mitigation proposed for noise, vibration impacts due to gaps at switches may be eliminated by available options such as relocating the switches, installing ballast mats under conventional switches to "decouple" the train vibration from the track supporting structure, or using a "gapless" spring frog (see Mitigation Measure 4.9-ix above). The proposed crossover east of the Santa Anita Avenue station would be relocated away from sensitive land use receptors to eliminate predicted vibration impacts due to switches at the three residences along the SR 60 LRT Alternative.

No other vibration impacts are predicted along the SR 60 LRT Alternative alignment due to track switches because the switches would be strategically located as part of the advanced conceptual design to avoid impacts from rail discontinuities.

Mitigation measure 4.9-ix, identified above, would address the adverse vibration effects under NEPA and significant vibration impacts under CEQA. (Refer to Appendix HH, Conceptual Engineering Drawings, for specific crossover locations and Appendix T, Noise and Vibration Technical Memorandum, of this Draft EIS/EIR for specific mile marker locations of noise barriers.)

4.9.3.3.3 Impacts Remaining After Mitigation

NEPA Finding

With the implementation of mitigation measures, no adverse construction noise or vibration effects would occur during construction of the SR 60 LRT Alternative.

With the implementation of mitigation measures, operational noise and vibration levels at all impacted sites along the SR 60 LRT Alternative alignment would be reduced below the FTA severe impact threshold. Therefore, no adverse effects would occur as a result of transit operations.

CEQA Determination

With the implementation of mitigation measures, no significant construction noise and vibration impacts would occur during construction of the SR 60 LRT Alternative.

Along the SR 60 LRT Alternative alignment, with or without the North Side Design Variation, implementation of mitigation measures would reduce the noise impact to less than significant.

4.9.3.4 Washington Boulevard LRT Alternative

4.9.3.4.1 Impact Analysis

Construction Impacts

Several construction activities may be required as part of the Washington Boulevard LRT Alternative, including:

- Guideway or track laying (at-grade and aerial)
- Station construction
- Bridge construction
- Parking garage (site demolition and facility construction)
- Maintenance yard (site demolition and facility construction)

According to the project's Construction Methods Technical Memorandum, included as Appendix L in this Draft EIS/EIR, at-grade track laying or guideway construction equipment would generally consist of rubber-tired excavators, loaders, rubber-tired compactors, graders and small bulldozers, and water trucks for dust control. For aerial guideway construction, activities would include the placement of piles or support columns and girders to create a span between the bents. Equipment required for aerial guideway construction would include pile drivers (vibratory or impact), drilling rigs, possibly specialized water jet excavators, trucks to remove excavated soil, transit mix concrete trucks and concrete pumps, specialized truck trailers to deliver pre-cast concrete beams, cranes, trucks to deliver forms, reinforcing steel, pavement saws, pre-cast concrete post tensioning jacks and related equipment, and water trucks for dust control.

To minimize noise and vibration impacts during construction, the contractor may utilize CIDH piles or steel torque-down piles in the vicinity of sensitive receptors. Piles are support columns that may be driven or hammered into the ground. To accomplish this, contractors typically use equipment called pile drivers for speed and efficiency. CIDH piles eliminate hammering by using large augers to drill a hole in which a steel frame is placed. The drilled hole and steel frame insert are then filled with concrete to create CIDH columns or piles. The use of CIDH piles that utilize the pre-augering method would not be expected to result in any adverse construction noise or vibration impacts. Noise and vibration impacts could also be reduced if steel torque-down piles are used instead of driven piles. Other activities that would also utilize piles including station and parking garage construction in order to support the weight of the massive structures. These activities could also use CIDH piles or steel torque-down piles to eliminate the potential for adverse noise and vibration impacts in the community.

Construction Noise

Typical A-weighted noise levels from construction equipment, transit, and other common sources are summarized above in Figure 4.9-3. The noise thermometer is intended to show the different levels as measured from a reference distance of 50 feet from the source.

Noise levels from construction activities along the Washington Boulevard LRT Alternative alignment, although temporary, could be a nuisance at nearby sensitive receptors such as residences and schools. Noise levels during construction are difficult to predict and vary depending on the types of construction activity and the types of equipment used for each stage of work. Heavy machinery, the major source of noise in construction, is constantly moving in unpredictable patterns and is not usually at one location very long. Project construction activities include, for example, constructing track bed, installing bents for the aerial structures, relocating utilities, renovating grade crossings, and constructing stations. No specific information on the selection of equipment for each construction activity is available during the environmental analysis phase of the project. Details on the actual equipment types and duration of usage would not be determined until a contractor is selected for the work. However, it is recognized that adverse impacts would occur during construction in some locations. In addition, activities associated with construction staging and/or material laydown areas can result in adverse noise impacts if they take place in noise-sensitive areas. Locations for construction staging are identified in the separate Real Estate Acquisition–Displacement and Relocation Technical Memorandum, included as Appendix O in this Draft EIS/EIR.

Since the proposed construction is expected to last about 12 to 18 months at any one location depending on the type of activity, significant noise impacts are expected, particularly for those receptors adjacent to the Washington Boulevard LRT Alternative alignment. Therefore, noise control measures are anticipated to eliminate impacts and minimize the extended disruption of normal

activities. Along the Washington Boulevard LRT Alternative, construction activities would include laying track for aerial and at-grade sections and constructing stations, bridges, park and ride garages, and a maintenance yard. The distances at which daytime noise is predicted to exceed the FTA daytime noise limits of 90 dBA at residential receptors ranges from 32 feet during station construction to 40 feet during at-grade track laying. The distances at which daytime noise is predicted to exceed the FTA limits of 100 dBA at commercial receptors range from 10 feet during station construction to 13 feet during laying of at-grade track. Based on these preliminary construction noise estimates, construction activities are predicted to exceed the FTA daytime noise limits only at the residences and commercial properties closest to station and guideway construction. Construction of the Washington Boulevard LRT Alternative would result in a temporary adverse effect under NEPA and a significant impact under CEQA if not mitigated.

To ensure that noise impacts are minimized during construction, all construction activities would comply with Metro's baseline specifications *Section 01565, Construction Noise and Vibration Control*. Although Metro, as a state-chartered agency, is exempt from local noise ordinances, it is still committed to consistency with local construction noise limits, whenever feasible and reasonable, in accordance with its own construction specifications. For example, Metro's contractor would utilize control measures from its own specifications that effectively minimize noise and vibration impacts in the community, such as:

- Conducting construction activities during the daytime whenever possible;
- Requiring special permits for all construction within a specified distance and a specified time period for residential zones during nights and weekends;
- Using construction equipment with effective noise-suppression devices;
- Using noise control measures, such as enclosures and noise barriers, as necessary to protect the public and achieve compliance with Metro's noise limits; and
- Conducting all operations in a manner that will minimize, to the greatest extent feasible, disturbance to the public in areas adjacent to construction activities and to occupants of nearby buildings. This includes using methods that shorten the duration of construction activities as a whole or in any one particular area.

Construction Vibration

Unlike noise, vibration levels from construction activities are not cumulative; rather, they depend on the type of activity and equipment used.

Vibration is also dependent on the ground and terrain conditions, the presence of underground utilities, and the type and condition of the building at the receptor.

As a result, except for digging and pounding activities in hard soils, most construction activities do not contribute to vibration impacts due to the typically long distance between the activity and the sensitive receptor.

Along the Washington Boulevard LRT Alternative, construction activities would include the use of bulldozers, dump trucks, and vibratory rollers. The use of impact pile drivers would be avoided whenever possible to eliminate the potential of vibration impacts (such as minor cosmetic structural damage) at nearby sensitive receptors. The distances at which vibrations would exceed the FTA vibration damage criterion of 0.2 ips (for typical timber and masonry residences) range from 15 feet for trucks to 20 feet for bulldozers to 35 feet for vibratory rollers. In accordance with the FTA guidelines, the vibration limit is used during the environmental impact assessment phase to identify potential problem locations that should be addressed in more detail during final design. The FTA criterion is intended to be used more as an indicator of potential damage rather than a

definitive evaluation of impact. During final design, when details of the actual construction equipment to be used would be determined, a more definitive evaluation of potential impact and damage is recommended to address these potential concerns.

Similarly, the distances at which vibration levels would exceed the FTA vibration infrequent annoyance criterion of 80 VdB for residences and other FTA Category 2 land uses range from 40 feet for trucks to 50 feet for bulldozers to 70 feet for vibratory rollers. As a result of these preliminary construction vibration estimates, construction activities are predicted to exceed the FTA impact criteria only at the residences and commercial properties closest to construction. The FTA infrequent event category was used to assess impact from perceptible vibration events, since not all construction activity would be perceptible. If not mitigated, construction of the Washington Boulevard LRT Alternative would result in a temporary adverse effect under NEPA and a significant impact under CEQA based on the magnitude and duration of construction. (See Chapter 2, Table 2-5 Summary of Construction Activities for Both LRT Build Alternatives.)

Operational Impacts

The Washington Boulevard LRT Alternative would have five potential sources of noise and vibration during operations: LRV passbys, warning bells associated with at-grade crossings, special track work, TPSS facilities, and maintenance yard activities. Noise impacts are summarized in **Table 4.9-10** for representative locations and in **Table 4.9-11** for the entire Washington Boulevard LRT Alternative alignment.

LRV Passby: Except for receptors in the immediate vicinity of stationary noise sources (such as stations and park and ride facilities or special track work such as switches), receptor noise along the Washington Boulevard LRT Alternative would be primarily due to passbys from LRVs. Maximum passby noise levels from LRVs (summarized in Table 4.9-3) were used to develop cumulative day-night noise levels over a 24-hour period and Leq noise levels using typical weekday operating conditions. Impacts associated with LRV passbys are summarized in Table 4.9-11.

Special Track Work: Special track work (such as turnouts and crossovers) is proposed at several locations along the Washington Boulevard LRT Alternative alignment to minimize the number of potential impacts while providing operational flexibility. Special track work has been designed in accordance with Metro's design criteria. As indicated above, noise levels would increase up to 8 dBA in the vicinity of the switch. Maximum noise levels from special track work (summarized in Table 4.9-3) were used to develop cumulative day-night noise levels over a 24-hour period and Leq noise levels using typical weekday operating conditions. Impacts associated with special track work are summarized in Table 4.9-11.

At-Grade Crossings: There are 12 at-grade crossings along the Washington Boulevard LRT Alternative. However, the closest noise-sensitive receptors at most grade crossings are shielded by commercial buildings (i.e., commercial buildings fill the four quadrants surrounding the grade crossings, thereby blocking the line-of-sight of the crossing signals). At Pioneer Boulevard, for example, Lmax noise levels from grade crossings at the closest residence where impacts are predicted are 76 dBA for LRV warning bells or horns.

Maximum noise levels from warning bells (summarized in Table 4.9-3) were used to develop cumulative day-night noise levels over a 24-hour period and Leq noise levels using typical weekday operating conditions. Impacts associated with LRV warning bells are summarized in Table 4.9-11.

For FTA Category 2 land uses such as residences, motels, and hospitals, the Ldn descriptor was used to reflect their particularly heightened sensitivity to nighttime noise. At FTA Category 3 land uses such as institutional uses, the peak-hour Leq descriptor was used to reflect their sensitivity to daytime noise.

Table 4.9-10. Washington Boulevard LRT Alternative Noise Levels at Representative Receptors (in dBA)

Receptor		Land Use		Existing Noise	Project Noise[3,4]	FTA Criteria	
ID[1]	Description	Type[2]	FTA			"Moderate"	"Severe"
M01	3509 Via Campo	SFR	2	69	**65**	64	69
M08	608 N. Garfield Avenue	MFR	2	68	62	63	68
M09	444 and 452 Garfield Avenue	MFR	2	67	**62**	62	68
M10	1001 Garfield Avenue	SFR	2	72	**65**	65	71
M11	860 Washington Blvd.	SFR	2	71	**66**	65	70
M12	6735 Keltonview Drive	SFR	2	67	**64**	62	68
M13	9122 Washington Blvd.	Museum	3	73	61	70	77
M14	6768 Washington Blvd.	SFR	2	70	61	64	70
M15	7857 Milna Avenue	SFR	2	71	63	65	70
M10	1001 Garfield Avenue	SFR	2	72	**65**	65	71
M11	860 Washington Blvd.	SFR	2	71	**66**	65	70
M12	6735 Keltonview Drive	SFR	2	67	**64**	62	68
M13	9122 Washington Blvd.	Museum	3	73	61	70	77
M16	7904 Broadway Avenue	SFR	2	66	55	62	67
M17	7972 Calobar Avenue	SFR	2	69	61	64	69

Source: AECOM February 2011.
Notes:
[1] ID corresponds to general location as shown in Figure 4.9-2.
[2] SFR = Single Family Residence; MFR = Multi-Family Residence.
*[3] FTA moderate impacts are **bold** and **underlined.***

Table 4.9-11. Summary of Washington Boulevard LRT Alternative Noise Impacts

ID[1]	Location	Land Use Type[2]	Impact (Moderate or Severe)	No. Residences Affected[3]	Major Source(s) Contributing to Impact[4]
	FTA Category 2				
M01	Via Campo	SFR SFR MFR	Moderate Severe Moderate	**15** **[1]** **4**	LRV passbys
M08	North Garfield Avenue	SFR MFR	Moderate Moderate	**3** **30**	Switches and LRV passbys
M09	North Garfield Avenue	MFR	Moderate	**9**	LRV passbys
M10	Montebello Historic District, North Garfield Avenue	SFR MFR	Moderate Moderate	**19** **27**	LRV passbys
M11	Kelly House, Washington Blvd.	SFR	Moderate	**1**	LRV passbys
M12[5]	Washington Blvd. at Paramount Blvd.	MFR	Moderate	**10**	LRV Bells and LRV passbys
M14[6]	Washington Blvd. at Bonnie Vale Place Washington Blvd. at Lemoran Avenue	SFR SFR	Moderate Moderate	**2** **1**	Switches and LRV passbys
M15[6]	Washington Blvd. at Pioneer Blvd.	SFR	Moderate	**3**	LRV Bells and LRV passbys
M16	Washington Blvd. at Ridgeview Lane	SFR	Moderate	**1**	LRV passbys
M17	Sorensen Avenue	SFR	Moderate	**8**	LRV Bells and LRV passbys
	Crowndale Avenue	SFR MFR	Moderate Moderate	**1** **1**	Switches and LRV passbys
	Total FTA Category 2		Severe Moderate Total	**[1]** **135** 136	
	FTA Category 3				
M12	Washington Blvd. at Crossway Drive	School	Moderate	**1**	Switches and LRV passbys

Table 4.9-11. Summary of Washington Boulevard LRT Alternative Noise Impacts (continued)

ID[1]	Location	Land Use Type[2]	Impact (Moderate or Severe)	No. Residences Affected[3]	Major Source(s) Contributing to Impact[4]
	Total FTA Category 3		Severe Moderate Total	**[0]** **<u>1</u>** **1**	
	Total – All Uses		**Severe** **Moderate** Total	**[1]** **<u>136</u>** 137	

Source: AECOM February 2011.
Notes:
[1] ID corresponds to general location as shown in Figure 4.9-2.
[2] SFR = Single-Family Residence; MFR = Multi-Family Residence.
*[3] FTA moderate impacts are **<u>bold</u>** and **<u>underlined</u>** and severe impacts are **bold** and shown in brackets ([ ]).*
[4] Major sources include LRV passbys, LRT warning bells, and switches. The maintenance yard and TPSS are not expected to be major sources of impacts in any noise-sensitive locations.
[5] Receptors along the Rosemead Boulevard aerial option are represented by Site M12. There is no change in the number of predicted noise impacts between the at-grade and the aerial crossings in this area.
[6] Receptors along the San Gabriel River/I-605 aerial crossing option are represented by Sites M14 and M15. There is no change in the number of predicted noise impacts between the at-grade and the aerial options along this section of the proposed alignment.

The noise levels from the existing condition and the predicted future noise levels from operation of the Washington Boulevard LRT Alternative LRVs are summarized in Table 4.9-10 for the same receptor locations used to monitor existing noise levels (see Figure 4.9-2). For comparison with the FTA criteria, the "Project Noise" levels in Table 4.9-10 represent the future project noise only, without the existing noise.

The cumulative future ambient noise with the project would be equal to the "Existing Noise" logarithmically added to the "Project Noise." As summarized in Table 4.9-10, the Ldn day-night noise levels at residences along the Washington Boulevard LRT Alternative alignment are predicted to range from 55 dBA to 66 dBA. At the selected representative receptors, only the noise levels at Sites M01, M09, M10, M11, and M12 are predicted to meet or just exceed the FTA moderate noise impact criteria as listed in Table 4.9-10.

Noise impacts at the selected noise monitoring locations described above were used to determine noise impacts generated by the Washington Boulevard LRT Alternative at over 2,100 receptors throughout the project area, which includes historical resources that are also sensitive land use receptors. The predicted noise impacts associated with operation of the Washington Boulevard LRT Alternative are summarized in Table 4.9-11. As shown in Table 4.9-11, corridor-wide project noise levels associated with LRV passby, warning bells, and special track work (assuming at-grade crossing options at Rosemead Boulevard and San Gabriel River/I-605) are predicted to exceed the FTA moderate impact criteria at 135 residences and to exceed the FTA severe impact criteria at one residence (located just north of the Montebello Golf Course and Country Club).

In addition, project noise levels along the Washington Boulevard LRT Alternative are predicted to exceed the FTA moderate impact

criteria at one FTA Category 3 land use receptor (a school along Washington Boulevard opposite Crossway Drive).

In summary, one significant impact would occur at the residence where noise levels would exceed the FTA severe impact criteria. The same number of noise impacts predicted for the at-grade option is also predicted for the Rosemead Boulevard and San Gabriel River/I-605 aerial crossings. As such, the Washington Boulevard LRT Alternative would result in an adverse effect under NEPA and a significant impact under CEQA if not mitigated.

The noise impacts associated with the Washington Boulevard LRT Alternative are summarized graphically in Appendix T, Noise and Vibration Technical Memorandum, of this Draft EIS/EIR.

Traction Power Substations: As part of the Washington Boulevard LRT Alternative, TPSS facilities would be installed at several locations along the proposed rail corridor to provide adequate electrical power for LRT service. Each TPSS would be designed in accordance with the Metro system-wide design criteria noise guideline of 50 dBA at 50 feet or the nearest residential building, whichever is closer. This operating noise level for the TPSS would be significantly lower than existing ambient noise levels (which range from 66 dBA Ldn to 73 dBA Leq) and LRV passby noise levels of 78 dBA at 50 feet. Therefore, noise generated by the TPSS would not exceed the FTA noise impact criteria at any land use receptors along the Washington Boulevard LRT Alternative alignment, and no significant noise impact would occur. As such, the Washington Boulevard LRT Alternative would not result in an adverse effect under NEPA and would have a less than significant impact under CEQA.

The findings are the same regardless of whether the at-grade or aerial crossing options proposed at Rosemead Boulevard and San Gabriel River/I-605 are selected for implementation.

Maintenance Yard: Along the Washington Boulevard LRT Alternative, three potential options have been preliminarily identified for the location of a new maintenance yard. These potential options include the following locations:

- Mission Junction Maintenance Yard Option - an 11-acre site adjacent to an industrial area generally bounded by I-5 to the east, I-10 to the south, the Los Angeles River to the west, and the Union Pacific rail line to the north
- Commerce Maintenance Yard Option – a 12-acre site located west of Garfield Avenue on Southern California Edison's transmission line right-of-way (ROW) in an industrial area, approximately 1,600 feet away from the mainline in the city of Commerce
- Santa Fe Springs Maintenance Yard Option – a nine-acre site located in a commercial/ industrial area immediately south of Washington Boulevard and east of Allport Avenue in the city of Santa Fe Springs

Activities that would occur at the proposed maintenance yard include daily maintenance, inspection and repairs, and storage of LRVs. The Santa Fe Springs Maintenance Yard Option would require an at-grade crossing at which crossing gates and bells would be activated when the LRT accesses the facility.

Each maintenance yard option is located in a predominantly industrial area and there are no noise-sensitive receptors (such as residences, schools, churches, or parks) located within the 1,000-foot FTA screening distance of each potential site. Therefore noise generated by maintenance yard activity would not exceed the FTA noise impact criteria at the closest sensitive land use receptors, and no significant noise impact would occur. The Washington Boulevard LRT Alternative would not result in an adverse effect under NEPA and would have a less than significant impact under CEQA.

Vibration Impacts

Transit vibration impacts are assessed based on individual events, such as when a train passes by.

To reduce transit vibration impacts at residences and other sensitive receptors along the build alternatives, the entire rail corridor would be constructed with ballast and CWR track. These measures are expected to reduce vibration levels caused by steel wheels rolling over steel rails at rail joints. Along aerial sections, elevated structures create additional separation between the train source and the ground-level receptors, resulting in greater attenuation. At at-grade crossings, embedded track at cross streets is not expected to result in any vibration impacts due to the short section, which is limited to the width of the cross street. All predicted vibration levels were compared with the FTA frequent impact criteria to assess the severity of the impact.

The Washington Boulevard LRT Alternative would have three potential sources of vibration during operations: LRV passbys along tangent or CWR track, LRV passbys through special track work such as switches along the corridor, and switches at the maintenance yard.

Transit vibration levels were predicted at the same receptor locations used for the noise analysis. As summarized in **Table 4.9-12**, the maximum vibration levels from LRVs are predicted to range from 48 VdB to 76 VdB. As summarized in Table 4.9-12, the maximum vibration level in the vicinity of Receptors M12 and M15 would exceed the FTA frequent criterion of 72 VdB for residential land uses. Vibration levels at all other representative receptor sites are predicted to be below the FTA frequent impact criteria.

Table 4.9-12. Washington Boulevard LRT Alternative Vibration Levels at Representative Receptors (in VdB)

Receptor		Land Use		Build Vibration[3]	FTA Criteria	
ID[1]	Description	Type[2]	FTA		"frequent"	Impact
M01	3509 Via Campo	SFR	2	63	72	No
M08	608 N. Garfield Avenue	SFR	2	62	72	No
M09	444 and 452 Garfield Avenue	SFR	2	65	72	No
M10	1001 Garfield Avenue	SFR	2	64	72	No
M11	860 Washington Blvd.	SFR	2	70	72	No
M12	6735 Keltonview Drive	SFR	2	**73**	72	Yes
M13	9122 Washington Blvd.	Museum	3	69	75	No
M14	6768 Washington Blvd.	SFR	2	64	72	No
M15	7857 Milna Avenue	SFR	2	**76**	72	Yes
M16	7904 Broadway Avenue	SFR	2	48	72	No
M17	7972 Calobar Avenue	SFR	2	62	72	No

Source: AECOM November 2010.
Notes:
[1] ID corresponds to general location as shown in Figure 4.9-2.
[2] SFR = Single-Family Residence.
*[3] Instances exceeding the FTA frequent criteria are **bold** and **underlined**.*

Table 4.9-13 summarizes corridor-wide vibration levels associated with LRV passby and special track work. As shown in Table 4.9-13, vibration levels are predicted to exceed the FTA frequent criterion of 72 VdB at 31 residences (FTA Category 2 land uses). All of these impacts are due to the proximity of residences to proposed switches. In addition, vibration levels are predicted to exceed the FTA frequent criterion of 75 VdB at one FTA Category 3 land use (an educational facility along Washington Boulevard at Keltonview Drive). Therefore, the Washington Boulevard LRT Alternative would result in an adverse effect under NEPA and a significant impact under CEQA if not mitigated.

No other vibration impacts are predicted at FTA Category 3 land use receptors along the Washington Boulevard LRT Alternative alignment. The vibration impacts associated with the Washington Boulevard LRT Alternative are summarized graphically in Appendix T, Noise and Vibration Technical Memorandum, of this Draft EIS/EIR. None of the vibration impacts are due to LRV passbys along CWR track.

Vibration impacts would be the same if the Rosemead Boulevard and the San Gabriel River/I-605 crossing were aerial or at-grade except near Site M15 at Milna Avenue. The aerial alignment of the Washington Boulevard LRT Alternative is predicted to result in two fewer vibration impacts compared to the at-grade alignment.

The three potential maintenance yard options were selected because of their location in a predominantly industrial area. There are no vibration-sensitive land use receptors (such as residences, schools, churches or parks) located within the 1,000-foot FTA screening distance of any of the proposed maintenance yard options.

Therefore, vibration generated from slow-moving LRVs over switches and other activities at the maintenance yard would not exceed the FTA vibration impact criterion at any of the closest vibration-sensitive receptors and no significant vibration impact would occur.

4.9.3.4.2 Mitigation Measures

Construction Mitigation Measures

The Washington Boulevard LRT Alternative would have temporary adverse effects (limited to the duration of construction) under NEPA and a significant impact under CEQA during construction due to noise and vibration. However, the same mitigation measures (mitigation measures 4.9-i through 4.9-viii) identified above in Section 4.9.3.3.2 for the SR 60 LRT Alternative and summarized in Table ES-2 would apply to the Washington Boulevard LRT Alternative and would mitigate these effects/impacts. In addition, per Mitigation Measures 3.0-ii through 3.0-viii and 3.0-xvii in Chapter 3, a Traffic Management Plan would also address noise and vibration effects/impacts from traffic and freeway operations during construction of the Washington Boulevard LRT Alternative, resulting in effects/impacts that are not adverse under NEPA and less than significant under CEQA. (Refer to the specific section for the detailed mitigation measure.)

Operational Mitigation Measures

Noise

The Washington Boulevard LRT Alternative would have adverse effects under NEPA and a significant impact under CEQA from noise effects/impacts due to gaps at switches. These effects/impacts may be eliminated in any number of ways such as relocating the switches (which are a crossover component), installing ballast mats under conventional switches to “decouple” the train vibration from the track supporting structure, or using a “gapless” spring frog.

Table 4.9-13. Summary of Washington Boulevard LRT Alternative Vibration Impacts

ID[1]	Location	Type of Use[2]	Impact (Frequent)	No. Residences Affected	Major Source(s) Contributing to Impact[3]
	FTA Category 2				
M01	Via Campo	SFR	Frequent	3	Switches
M08	Garfield Avenue at Via San Delarro	SFR MFR	Frequent	1 5	Switches
M12	Washington Blvd. at Keltonview Drive	SFR	Frequent	5	Switches
M15	Washington Blvd. at Milna Avenue	SFR	Frequent	15	Switches
M17	Calobar Avenue	SFR MFR	Frequent	1 1	Switches
	Total FTA Category 2		**Frequent**	**31**	
	FTA Category 3				
M13	Washington Blvd. at Keltonview Drive	Educational Facility	Frequent	1	Switches
	Total FTA Category 3		Frequent	1	
	Total – All Uses		**Total**	**32**	

Source: AECOM February 2011.
Notes:
[1] ID corresponds to general location as shown in Figure 4.9-2.
[2] SFR = Single-Family Residence; MFR = Multi-Family Residence.
[3] Major sources include LRV passbys, LRT warning bells, and switches or special track work. The maintenance yard and TPSS are not expected to be major sources of impacts in any noise-sensitive locations.

4.9-xi Relocating switches away from noise-sensitive receptors is one cost-effective measure for mitigating this impact. However, if operational concerns interfere with the relocation of switches, then several other viable mitigation options are available such as point-less switches ("gapless spring frogs" that eliminate the gap in the rail) or low-vibration isolators (ballast mats or tie pads) such as those that have been used on the San Diego Trolley system. The following crossovers would be relocated away from sensitive land use receptors to eliminate noise impacts due to switches:

- Relocate crossover proposed along Garfield Avenue south of Via San Del Aro.
- Relocate crossover proposed along Garfield Avenue north of Madison Avenue.
- Relocate crossover proposed along Washington Boulevard west of Crossway Drive.
- Relocate crossover proposed along Washington Boulevard east of Pioneer Boulevard.
- Relocate crossover proposed along Washington Boulevard west of Lambert Road.

4.9-xii For noise impacts due to LRV passbys along tangent aerial track sections, parapets are recommended in lieu of safety railings as part of the Washington Boulevard LRT Alternative alignment to provide additional shielding for nearby residences. Parapets would be used at the following locations to eliminate noise impacts from LRV passbys:

- Eastbound track side starting east of Sadler Avenue to just east of Findlay Avenue – three-foot by 2,500-foot barrier
- Westbound track side starting at Via Alta Mira to just west of Via Acosta - three-foot by 1,500-foot barrier
- Eastbound track side starting just west of Via San Del Aro to Via Acosta – three-foot by 1,300-foot barrier
- Westbound track side starting at Hay Street to Madison Avenue – three-foot by 900-foot barrier
- Eastbound and westbound track side starting west of Alston Street to the Union Pacific Railroad – three-foot by 2,500-foot barrier
- Westbound track side adjacent to the Greenwood Avenue station – three-foot by 200-foot barrier
- Moderate noise impacts predicted along at-grade sections of the Washington Boulevard LRT Alternative would require consideration and adoption of mitigation measures when it is considered reasonable according to FTA guidelines. The use of noise barriers would not be as effective along the aerial sections due to the required openings at street crossings. Other mitigation measures (such as residential sound insulation) may not be cost-effective since many of the impacts are predicted to equal or only slightly exceed the moderate thresholds. Furthermore, all of the predicted noise levels along the Washington Boulevard LRT Alternative alignment are well below the measured existing ambient noise levels.

4.9-xiii For impacts due to at-grade crossings, specifically LRT warning bells, stationary control measures are proposed to eliminate the required sounding of the LRT warning bells. Based on the current operating procedures along the Gold Line, in-street running transit service includes synchronized traffic lights.

- As a result, regular use of warning bells (both stationary and on board trains) is not required. Therefore, the current operating procedures would eliminate the need to sound warning horns. These control measures are an effective tool for mitigating noise impacts from LRT warning bells, particularly during the nighttime when residents are most sensitive to noise intrusion.
- Combined, these measures would address the adverse noise effects under NEPA and significant noise impacts under CEQA.

Vibration

As with the mitigation proposed for noise, vibration impacts due to gaps at switches may be eliminated by available options such as relocating the switches, installing ballast mats under conventional switches to “decouple” the train vibration from the track supporting structure, or using a “gapless” spring frog. The crossovers described in Mitigation Measure 4.9-xi above would be relocated away from sensitive land use receptors to eliminate predicted vibration impacts due to switches along the Washington Boulevard LRT Alternative alignment.

Mitigation Measure 4.9-xi, identified above, would address the adverse vibration effects under NEPA and significant vibration impacts under CEQA. (Refer to Appendix HH, Conceptual Engineering Drawings, for specific crossover locations and Appendix T, Noise and Vibration Technical

Memorandum, of this Draft EIS/EIR for specific mile marker locations of noise barriers.)

4.9.3.4.3 Impacts Remaining After Mitigation

NEPA Finding

With the implementation of mitigation measures, construction noise and vibration levels would be reduced below FTA noise and vibration thresholds. Therefore, no adverse construction noise or vibration effects would occur during construction of the Washington Boulevard LRT Alternative for the at-grade or aerial alignment and with the Maintenance Yard Options.

With the implementation of mitigation measures, operational noise and vibration levels at all impacted sites along the Washington Boulevard LRT Alternative for the at-grade or aerial alignment would be reduced below the FTA severe impact threshold. Therefore, no adverse effects from transit operations would occur.

CEQA Determination

With the implementation of mitigation measures, construction noise and vibration levels would be reduced below FTA noise and vibration thresholds. Therefore, no significant construction noise or vibration impacts would occur during construction of the Washington Boulevard LRT Alternative.

Along the Washington Boulevard LRT Alternative at-grade or aerial alignment and with the Maintenance Yard Options, implementation of mitigation measures would reduce the noise and vibration below the FTA severe impact threshold. Therefore, impacts would be less than significant.

Section 4.10

Ecosystems and Biological Resources

This section summarizes the existing ecosystems and biological resources in the project area and the potential impacts of the proposed alternatives on these resources. Information in this section is based on, and updated where appropriate from, the Ecosystems/Biological Resources Technical Memorandum, which is incorporated into this Draft EIS/EIR as Appendix U.

4.10.1 Regulatory Framework/Methodology

Biological resources within the project area, including within one-quarter mile of each proposed alignment, station, maintenance yard, and park and ride area, are protected by several federal, state, and local laws and policies such as the Endangered Species Act, Migratory Bird Treaty Act (MBTA), Clean Water Act (CWA), Executive Order 11990, California Endangered Species Act, California Fish and Game Code, Native Plant Protection Act, and Executive Order 13112. All cities within the project area, except South El Monte, have tree protection ordinances that prohibit removal or disturbance of native trees. More information about these laws and policies is available in Appendix U, Ecosystems/Biological Resources Technical Memorandum, of this Draft EIS/EIR.

Applying the criteria in Appendix G of the *CEQA Guidelines*, the project would result in a significant impact if it would:

- Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game (CDFG) or U.S. Fish and Wildlife Service (USFWS);
- Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations, or by the CDFG or USFWS;
- Have a substantial adverse effect on federally-protected wetlands as defined by Section 404 of the CWA through direct removal, filling, hydrological interruption, or other means;
- Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites;
- Substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, or reduce the number or restrict the range of a rare or endangered plant or animal;
- Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance; or
- Conflict with the provisions of an adopted habitat conservation plan, natural community conservation plan, or other approved local, regional, or state habitat conservation plan.

Impact analysis methodology was based on a review of existing data sources, including the California Natural Diversity Database (CNDDB) and National Wetlands Inventory (NWI), followed by a field reconnaissance to establish the presence and existing condition of resources within the project area. The potential for the operation of each

alternative to affect any identified resources was evaluated in Appendix U,

Ecosystems/Biological Resources Technical Memorandum, of this Draft EIS/EIR and is summarized below in Section 4.10.3.

4.10.2 Affected Environment/Existing Conditions

The project area is urban and heavily developed with some open space and parklands. Vegetation within the project area includes ornamental trees, shrubs, groundcovers, herbaceous cultivars (common flowering garden plants), and grass lawns along surface streets, sidewalks, and medians as well as surrounding commercial businesses and residences. Sensitive ecosystems and biological resources exist in the area, particularly in the vicinity of the Rio Hondo, the San Gabriel River, and the adjacent spreading grounds, as illustrated in **Figure 4.10-1**. The rivers support natural riparian vegetation, particularly within the Whittier Narrows Flood Control Basin (Whittier Narrows or Basin) located along SR 60. Figure 14.10-1 shows Significant Ecological Areas (SEAs) as designated by Los Angeles County as well as Environmentally Sensitive Areas, which are a U.S. Army Corps of Engineers (USACE) land use classification.

Designated critical habitat for one species, the Coastal California gnatcatcher (*Polioptila californica californica*) occurs in the Whittier Narrows Basin, south of Montebello Boulevard and San Gabriel Boulevard. No other critical habitat has been designated within the project area.

The Whittier Narrows Flood Control Basin is owned by the federal government and operated and maintained by the USACE. The primary purpose of the Basin is flood risk management and the secondary purpose is recreation in the public interest. Los Angeles County and the city of Pico Rivera lease 1,378 acres from USACE for parkland and open space and manage and maintain those areas for recreation. The proposed alignment follows the right-of-way (ROW) of SR 60 as it cuts through the northern third of the Basin.

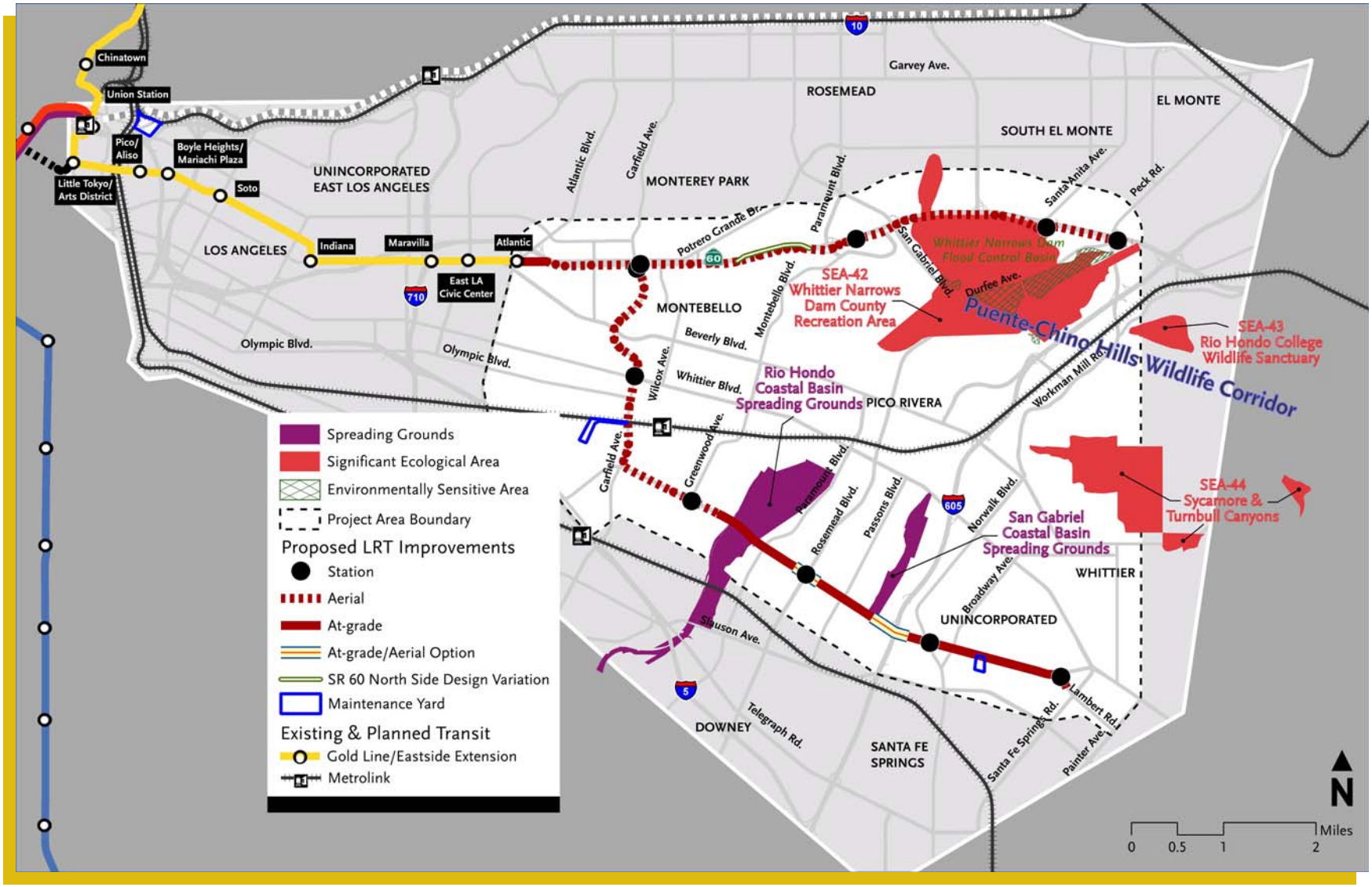
The Whittier Narrows Flood Control Basin includes both active recreation and natural habitat areas. During the field review, it was observed that the proposed alignment crosses natural riparian habitats and the Rio Hondo. It then passes by a shooting range and Legg Lake to the south of SR 60 and recreational trails, picnic areas, and active recreation fields to the north of SR 60. Large protected natural areas that include additional lakes, riparian and marsh habitats, and a nature center are located south of SR 60. There is a screen of mature vegetation along the SR 60 ROW between the highway uses and recreational areas.

SR 60 crosses the Rio Hondo at Whittier Narrows. The field review verified that the Rio Hondo is unlined as it flows under the SR 60 bridge and it supports riparian vegetation, including willow and other native species. Upstream from the SR 60 bridge, the Rio Hondo runs along a narrow riparian corridor adjacent to a large sandy wash supporting native scrub vegetation.

The Rio Hondo Coastal Basin Spreading Grounds, located at the Washington Boulevard crossing of the Rio Hondo, consist of approximately 570 acres and are the largest of the spreading grounds owned and operated by the Los Angeles County Department of Public Works. Water is diverted from the concrete-lined Rio Hondo channel into adjacent spreading grounds with highly permeable soils for groundwater recharge. The Washington Boulevard crossing of the Rio Hondo extends across the concrete-lined river channel west to the adjacent spreading basin, which is unlined and contains some aquatic vegetation.

The Rio Hondo Coastal Basin Spreading Grounds provide aquatic habitat for an abundance of wintering waterbirds (loons, grebes, herons, ducks, and geese) and shorebirds.

Washington Boulevard also crosses the San Gabriel River Coastal Basin Spreading Grounds, which are approximately 128 acres in size. These spreading grounds are also used by the Los Angeles County Department of Public Works for groundwater recharge by diverting water from the river into adjacent spreading grounds. Although this reach of the San Gabriel River is channelized throughout with



Source: County of Los Angeles, Department of Regional Planning, 2009.

Figure 4.10-1. Significant Ecological Areas Located Within the Project Area

concrete banks, it has a soft (mud) bottom. Vegetation in this reach is generally of moderate quality, but there are some areas of high-quality riparian habitat. There is also some low- to medium-quality alluvial sage scrub habitat in this reach (*County of Los Angeles 2006*).During the field review, the San Gabriel River was observed to be a wide channel containing grass and other non-native vegetation with some patchy riparian vegetation, including willow, along the concrete-lined sides.

Non-native fish expected to occur in the reach of the San Gabriel River in this location include channel catfish, common carp, red shiner, fathead minnow, rainwater killifish, and western mosquitofish. Common amphibian species expected to occur include the western toad, Pacific treefrog, black-bellied slender salamander, California treefrog, and bullfrog (*County of Los Angeles 2006*).

Special-Status Species

Based on the California Natural Diversity Database (CNDDB) search, 23 special-status wildlife and plant species (i.e., species that are federally - or state-listed endangered, threatened, or candidate species) have the potential to occur in the project area (the El Monte and Whittier 7.5-minute United States Geological Survey topographic quadrangles). Table 4-1 in Appendix U lists these species and their potential to occur based on the habitat present in the project area.

The CNDDB considers historical sightings as evidence that species still exist; however, many of the observations are based on historical sightings which are dated prior to significant alterations to the habitat. Given that much of the project area is now highly developed, the rivers have been channelized, and habitats have been altered and degraded, many of these species are not expected to currently occur.

Special-status riparian birds including the western yellow-billed cuckoo, southwestern willow flycatcher, and least Bell's vireo are known to occur in Whittier Narrows (*CNDDB 2010*). These species are most likely to occur within high-quality riparian habitat such as along Lario Creek and just upstream of the dam. Recent observations in the vicinity of Whittier Narrows have only been documented for the least Bell's vireo, which was observed nesting in the vicinity of the nature area as recently as 2011 (*CNDDB 2013*). Two other special-status riparian bird species, the yellow-breasted chat and the yellow warbler, have been observed in Whittier Narrows and may utilize the riparian habitat along the Rio Hondo near the SR 60 crossing during migration.

The varied riparian habitats may also support three species of special-status bats including the pallid bat, Western mastiff bat, and the hoary bat. These bats each have different preferred roosting habitats, but they all could occur in the project area. In addition, alluvial sage scrub habitat in this area may support the coast horned lizard, a special-status reptile.

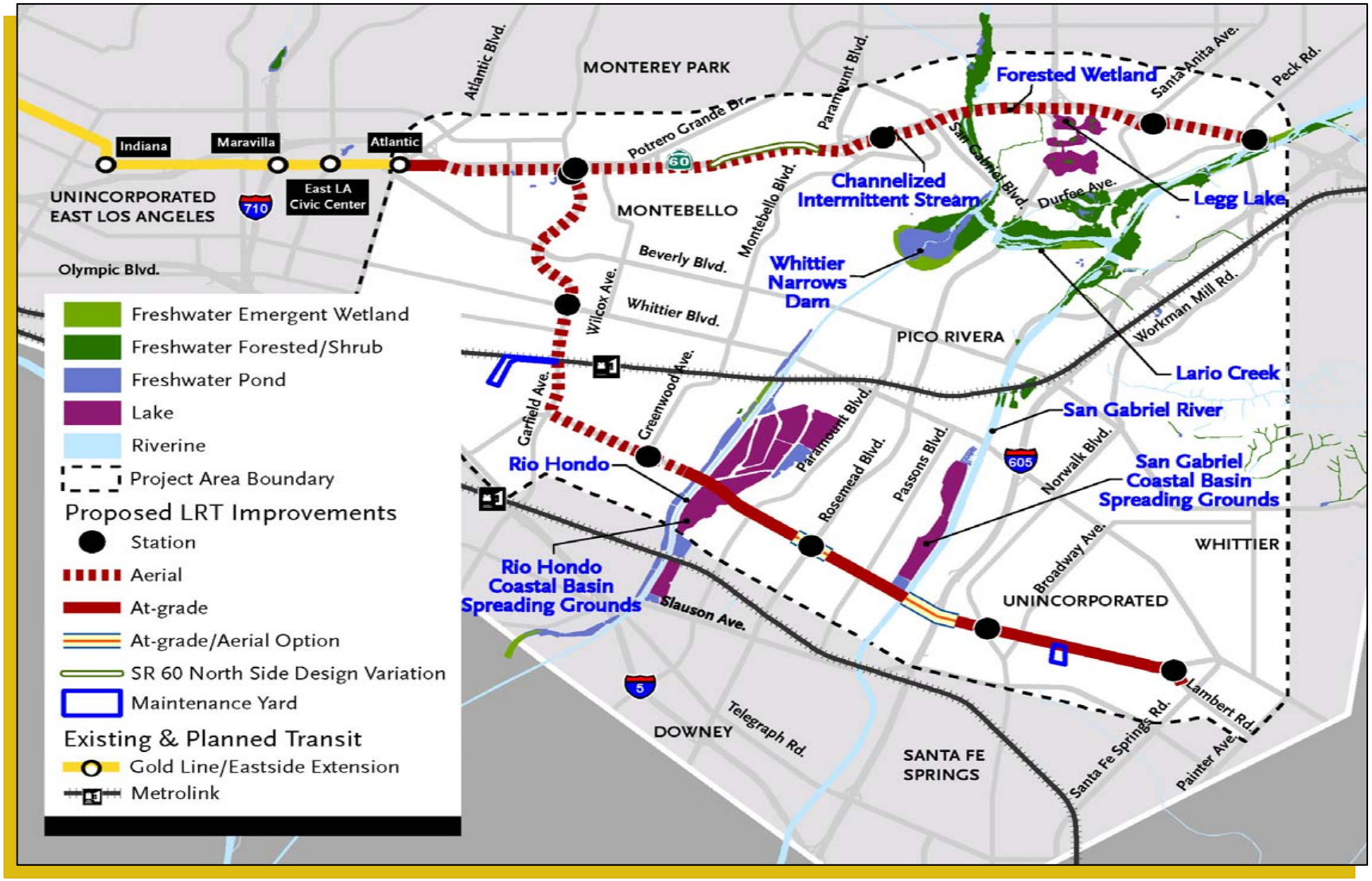
A special-status plant, the southern tarplant, is known to occur in scrub habitat south of SR 60 next to the shooting range (*CNDDB 2010*). Other special-status plants that have the potential to occur along the stream bank in this vicinity include southern mountains skullcap and Nevin's barberry.

At the Washington Boulevard crossing of the Rio Hondo River, special-status riparian bird species are unlikely to occur due to the lack of high-quality riparian vegetation. Some special-status riparian bird species may occur at the Washington Boulevard crossing of the San Gabriel River during migration, but are not likely to breed there due to a lack of sufficient cover. Further, the disturbed nature of the river washes is unlikely to support alluvial sage scrub species such as the coast horned lizard.

No special-status plants or animals were observed during the field review.

Wetlands

The National Wetlands Inventory (NWI) identifies several wetlands located within the project area, as shown in **Figure 4.10-2**. Wetlands exist within Whittier Narrows, including freshwater emergent (palustrine) wetlands along Lario Creek and upstream of the dam and forested/scrub wetlands along Lario Creek, the Rio Hondo and San Gabriel rivers, and at Legg Lake (*NWI 2013*). In addition to palustrine wetlands, a small drainage, classified as



Source: National Wetlands Inventory, USFWS 2010.

Figure 4.10-2. Wetlands within the Project Area

riverine, was identified running along Town Center Drive just south of SR 60 near the Shops at Montebello. Wetlands provide aquatic habitat for many species.

Wildlife Corridor

The Puente-Chino Hills Wildlife Corridor is approximately 26 miles long and supports significant biological and ecological diversity by linking large habitat patches to the 460,000-acre Cleveland National Forest in the Santa Ana Mountains (see Figure 4.10-1). The corridor extends across several SEAs designated by Los Angeles County. The wildlife corridor is significantly fragmented by roads and development.

Protected Trees

Most of the cities in which the project area is located have local regulations pertaining to the protection of native or locally important trees and/or street trees in public areas. All of the various general plan policies and municipal codes are very similar; generally they all require the protection of native trees of a certain size, designated heritage trees, and/or street trees, and have a permit or review process to evaluate proposed impacts to these protected trees. **Table 4.10-1** shows the maximum number of mature trees that would be affected by each alternative.

Conservation Plans

There are no approved habitat conservation plans, natural community conservation plans, or other approved local, regional, or state habitat conservation plans for the project area.

4.10.3 Environmental Impacts/Environmental Consequences

Table 4.10-2 summarizes the potential biological resources adverse effects under NEPA and impacts under CEQA for each alternative. For adverse effects and potential impacts to biological resources, an area within one-quarter mile of either side of the proposed alignments, stations, maintenance yards, and park and ride areas for each of the project alternatives was evaluated.

Table 4.10-1. Affected Trees

Alternative	Affected Trees
No Build	None
TSM	None
SR 60 LRT[1]	25 non-native street trees from Atlantic Station to Garfield Avenue; 40 native trees and 52 non-native trees from Garfield Avenue to end of alignment; and 22 native trees and 58 non-native trees at station and park and ride areas
Washington Boulevard LRT[1]	25 non-native street trees from Atlantic Station to Garfield Avenue; 50 native trees and 550 non-native trees on streets along approximately 8 miles from Garfield Avenue to end of alignment; 5 native trees and 245 non-native tree at station and park and ride areas; and 10 non-native trees at Santa Fe Spring Yard option

Notes:
[1] Tree counts show all of the trees along each alignment. The number of trees potentially affected would be less than the amounts shown. Aerial segments would not likely affect as many trees, as column supports would not affect all of the trees along a block and trees impacted to avoid interference with aerial trackways may be limited to trimming. Final column placement would likely avoid many trees. At-grade segments may require tree removal in medians and redesign of sidewalks, with associated tree removal or trimming.

4.10.3.1 No Build Alternative

4.10.3.1.1 Impact Analysis

There would be no new transit construction or new operations under the No Build Alternative. Therefore, there would be no adverse construction or operational effects under NEPA or significant impacts under CEQA to ecosystems or biological resources, including sensitive species, habitat, or locally protected trees, from the No Build Alternative.

Table 4.10-2. Summary of Potential Biological Resources Impacts

Alternative	Migratory Birds	Special-Status Species	Riparian Habitats and Other Sensitive Natural Communities	Wetlands and Waters of the U.S.	Wildlife Corridors	Protected Trees
No Build	None	None	None	None	None	None
TSM	None	None	None	None	None	None
SR 60 LRT[1]	**Construction:** Not adverse after mitigation/ Less than significant after mitigation **Operation:** Not adverse/Less than significant	**Construction:** Not adverse after mitigation/ Less than significant after mitigation **Operation:** Not adverse/Less than significant	**Construction:** Not adverse/ Less than significant **Operation:** Not adverse/Less than significant	**Construction:** Not adverse/ Less than significant **Operation:** Not adverse/Less than significant	**Construction:** Not adverse/ Less than significant **Operation:** Not adverse/Less than significant	**Construction:** Not adverse after mitigation/ Less than significant after mitigation **Operation:** Not adverse after mitigation/Less than significant after mitigation
Washington Boulevard LRT	**Construction:** Not adverse after mitigation/ Less than significant after mitigation **Operation:** Not adverse/Less than significant	**Construction:** Not adverse after mitigation/ Less than significant after mitigation **Operation:** Not adverse/Less than significant	**Construction:** Not adverse/ Less than significant **Operation:** Not adverse/Less than significant	**Construction:** Not adverse/ Less than significant **Operation:** Not adverse/Less than significant	NA	**Construction:** Not adverse after mitigation/ Less than significant after mitigation **Operation:** Not adverse after mitigation/Less than significant after mitigation

Notes: [1] Includes the SR 60 North Side Design Variation.

NA: Not applicable because the Washington Boulevard LRT does not cross a wildlife corridor.

4.10.3.1.2 Mitigation Measures

Since the No Build Alternative would have no adverse effects or significant impact to biological resources, no mitigation measures are required.

4.10.3.1.3 Impacts Remaining After Mitigation

NEPA Finding

There would be no effect to biological resources under the No Build Alternative.

CEQA Determination

There would be no impact to biological resources under the No Build Alternative.

4.10.3.2 TSM Alternative

4.10.3.2.1 Impact Analysis

Construction Impacts

Construction of the TSM Alternative would be limited to the installation of new bus stops and associated structures within existing street and sidewalk ROWs, which do not contain biological resources. Therefore, there would be no adverse

construction effects under NEPA or significant impacts under CEQA to ecosystems or biological resources.

Operational Impacts

The new bus lines created under the TSM Alternative would operate in existing traffic and would not alter the character of the existing road uses in a way that would affect existing trees or other potential wildlife habitat. Therefore, there would be no adverse operational effects under NEPA or significant impacts under CEQA to ecosystems or biological resources associated with the TSM Alternative.

4.10.3.2.2 Mitigation Measures

Since the TSM Alternative would not have adverse effects or significant impacts on biological resources, including sensitive species, habitat, or locally protected trees, no mitigation measures are required.

4.10.3.2.3 Impacts Remaining After Mitigation

NEPA Finding

There would be no effect to biological resources under the TSM Alternative.

CEQA Determination

There would be no impact to biological resources under the TSM Alternative.

4.10.3.3 SR 60 LRT Alternative

4.10.3.3.1 Impact Analysis

The biological resources potentially affected by the SR 60 North Side Design Variation would be the same as for the SR 60 LRT Alternative. Therefore, there would be no difference in impacts between the design variations.

Construction Impacts

Migratory Birds

Construction of the SR 60 LRT Alternative would have adverse effects under NEPA and impacts under CEQA to migratory birds if an active migratory bird nest is located in any tree or vegetation removed or disturbed during construction. Although trees within 100 feet of the construction footprint would not likely be directly impacted through removal or pruning, there would still be disturbance of nesting birds due to increased noise and vibration during construction activities. In addition, the SR 60 LRT Alternative would have adverse effects under NEPA and impacts under CEQA to migratory birds if an active migratory bird nest located under the SR 60 bridge over the Rio Hondo were disturbed during construction. Mitigation would be implemented to reduce adverse effects to migratory birds under NEPA to not adverse and potentially significant impacts under CEQA to less than significant.

Special-Status Species

As described in Section 4.10.2, several species that are federally or state-listed endangered, threatened, or candidate species could occur in the project area. However, habitat for most of these special-status species would not be affected by the SR 60 LRT Alternative.

Suitable habitat for special-status bats is present under the SR 60 bridges over the Rio Hondo and San Gabriel Rivers, and bats are known to have historically roosted in these areas. While bats were not observed during field surveys, there is the potential for special-status bat species to occur in the project area. Therefore, impacts on special-status bats could occur during construction from disturbance of any active bat roosting sites at the bridges, although no long-term loss of roosting habitat would be expected.

Disturbance of active bat roosting sites during construction would result in adverse effects under NEPA and significant impacts under CEQA. Mitigation would be implemented to reduce adverse effects to special-status bat species under NEPA to not adverse and potentially significant impacts under CEQA to less than significant.

Construction would not substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, or reduce the number or restrict the range of a rare or endangered plant or animal.

Riparian Habitats and Other Sensitive Natural Communities

The SR 60 LRT Alternative crosses the Rio Hondo at Whittier Narrows, where riparian vegetation occurs in a narrow band lining the river corridor. Impacts to this riparian vegetation would occur during construction of the new bridge supporting the aerial LRT tracks over the Rio Hondo. However, these impacts would be localized and short-term in duration, and riparian vegetation is expected to quickly become re-established following construction. No other sensitive natural community would be affected, and no operational impacts would occur. Therefore, there would be no adverse effects under NEPA or significant impacts under CEQA on riparian habitat or other sensitive natural community.

Wetlands and Waters of the U.S.

Construction of the SR 60 LRT Alternative has the potential to impact existing wetlands that occur at the Rio Hondo. Adverse effects to wetlands under NEPA and potentially significant impacts under CEQA would occur during construction of the new bridge supporting the aerial LRT tracks over the Rio Hondo if the new bridge were to require placement of columns and footings that would directly fill wetlands. Current plan and profile drawings of the alignment show the LRT completely spanning the Rio Hondo River, thereby avoiding wetland impacts. Impacts to water quality in wetlands not directly adjacent to the project alignment could occur from sedimentation caused by runoff from construction areas. However, Best Management Practices (BMPs) for erosion control would be employed during construction to avoid downstream effects. Potential impacts related to water quality in wetlands are discussed in the Water Resources Technical Memorandum, included as Appendix W in this Draft EIS/EIR.

Because the Rio Hondo River is considered a water of the U.S. subject to the jurisdiction of USACE, implementation of the proposed project could require a Clean Water Act Section 404 permit and a Section 401 Water Quality Certification prior to construction.

Wildlife Corridor

During construction of the SR 60 LRT Alternative, temporary fences may be constructed for public safety. However, as construction fences would be located along SR 60, they would not create barriers to wildlife movement through the Puente-Chino Hills Wildlife Corridor. Therefore, there would be no adverse effect under NEPA or significant impact under CEQA related to wildlife movement.

Protected Trees

It is unknown at this time exactly how many protected trees would be affected during construction of the SR 60 LRT Alternative, including construction of park and ride areas. At a maximum, 62 native and 135 non-native trees would be affected under the SR 60 LRT Alternative. Table 4.10-1 provides further details regarding the number of trees affected within each segment of the alignment. As project design progresses and construction plans are finalized it may be possible to minimize the number of affected trees by avoidance or fencing. Prior to construction, local ordinances and municipal codes regarding protection of both native trees and street trees would be considered and mitigation would be implemented to ensure that adverse effects under NEPA associated with tree disturbance or removal would be reduced to not adverse, and potentially significant impacts would be reduced to a less than significant level.

Operational Impacts

Migratory Birds

Adverse effects under NEPA and potentially significant impacts under CEQA to biological resources would occur if the SR 60 LRT Alternative resulted in disturbance of nesting birds due to increased noise or vibration associated with ongoing operation. The alignment would run along existing roads, primarily the SR 60 Freeway, which already experiences background noise and vibration levels higher than those predicted for the SR 60 LRT Alternative. Background noise levels and the lack of nesting habitat in this area are likely to discourage birds from nesting nearby. Therefore, noise and vibration associated with operation of the proposed

SR 60 LRT Alternative would not disturb nesting birds or alter existing nesting behavior of migratory birds, including raptors, within the project area; thus, there would be no adverse effects under NEPA and no significant impacts under CEQA.

Special-Status Species

Operation of the SR 60 LRT, including the SR 60 North Side Design Variation, would not occur within designated critical habitat for the California gnatcatcher, which is located south of Montebello Boulevard and San Gabriel Boulevard. No other designated critical habitat is located within the project area.

The only special-status species that could occur in the project area during operation of the SR 60 LRT, including the SR 60 North Side Design Variation, are special-status bat species that may roost under the SR 60 bridges over the Rio Hondo and San Gabriel Rivers. Operation of the SR 60 LRT is not anticipated to result in impacts to roosting bats under the bridges because noise and disturbance would be similar to existing conditions to which bats using these sites are accustomed. No suitable habitat is present to support other special-status species. Therefore, there would be no adverse effects under NEPA and no significant impacts under CEQA.

Operation would not substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, or reduce the number or restrict the range of a rare or endangered plant or animal.

Riparian Habitats and Other Sensitive Natural Communities

No adverse operational effects under NEPA or potentially significant impacts under CEQA to riparian habitats or other sensitive natural communities are anticipated.

Wetlands and Waters of the U.S.

There would be no adverse effects under NEPA on wetlands and no significant impacts under CEQA.

Wildlife Corridor

Operation of the SR 60 LRT Alternative would occur along existing roads and the alignment would be in an aerial configuration. No new barriers to wildlife movement would be created. Therefore, there would be no adverse effects under NEPA and no significant impacts under CEQA on wildlife movement through the Puente-Chino Hills Wildlife Corridor.

Protected Trees

If operation requires pruning of protected trees, mitigation identified in Section 4.10.3.3.2 would be implemented. This mitigation would reduce adverse effects to locally protected trees under NEPA to not adverse and potentially significant impacts under CEQA to less than significant.

4.10.3.3.2 Mitigation Measures

Construction Mitigation Measures

The construction contractor and Metro shall be responsible for assuring the implementation of the following mitigation measures.

4.10-i. Construction activities that involve tree removal or trimming would be timed as much as possible by Metro to occur outside the migratory bird nesting season, which occurs generally from March 1 through August 31, and as early as February 1 for raptors. In addition, construction activities within 150 feet of the SR 60 bridge over the Rio Hondo or the bridge over the San Gabriel River would be timed to occur outside the migratory bird nesting season.

4.10-ii. If construction must occur during the nesting season, two biological surveys would be conducted by Metro, one 15 days and the second 72 hours prior to construction, that would remove or disturb suitable nesting habitat. The surveys would indicate the presence or absence of any protected native bird in the habitat to be removed and any other habitat within 300 feet of the construction work area. If a protected native bird is found, surveys would be continued in order to locate any nests. If an active nest is found,

construction within 300 feet of the nest (500 feet for raptor nests) would be postponed until the nest is vacated and juveniles have fledged (minimum of six weeks after egg-laying), and there is no evidence of a second attempt at nesting.

If construction at the SR 60 bridge over the Rio Hondo or the bridge over the San Gabriel River cannot be conducted outside the migratory bird nesting season, old mud nests located under the bridge would be removed by Metro prior to the start of nesting season and exclusion devices would be installed to prevent swallows or other birds from building new nests prior to February 15th of the year construction would occur.

4.10-iii. Prior to construction activities, Metro would ensure that qualified bat biologists would conduct bat surveys at the SR 60 bridges over the Rio Hondo and San Gabriel River to determine bat use patterns. Surveys would be conducted during the time of year most likely to detect bat usage (March through October).

4.10-iv. If surveys indicate the SR 60 bridges are utilized as bat roosting areas, then one of two mitigation options below would be employed by Metro to minimize disturbance and mortality to roosting bats: a) Construction at the SR 60 bridges would be conducted outside the bat roosting and breeding period (i.e., construction would occur from November 1 to March 1); or b) Bat exclusion methods to seal-up entry sites (e.g., blocking and netting or installing sonic bat deterrence equipment) would be deployed prior to March 1 of the year construction would occur.

4.10-v. During the preliminary engineering phase of the project, Metro would ensure that columns would be located to avoid wetlands and removal of trees and vegetation where feasible.

4.10-vi. If construction of the project requires removal or pruning of a protected tree, consideration by Metro of applicable municipal codes and ordinances of the city in which the affected tree is located would ensure that impacts would be less than significant. This may include replanting of protected trees within the project area or at another location to mitigate the removal of these trees. Replanting would be done at a ratio of one new tree for every one removed.

Operational Mitigation Measures

4.10-vii. If operation of this alternative would entail pruning of any protected tree, the pruning would be performed by Metro in a manner that does not cause permanent damage or adversely affect the health of the tree.

4.10.3.3.3 Impacts Remaining After Mitigation

NEPA Finding

Mitigation would be implemented to ensure that there would be no adverse effects to nesting migratory birds or protected trees during construction of the SR 60 LRT Alternative.

If it is determined that a protected tree would be pruned during operation of the SR 60 LRT Alternative (including the SR 60 North Side Design Variation), mitigation would ensure that no adverse effects to protected trees would occur.

CEQA Determination

Mitigation measures would be implemented to reduce potentially significant impacts to migratory birds and protected trees to less than significant.

If it is determined that a protected tree would be pruned during operation of the SR 60 LRT Alternative (including the SR 60 North Side Design Variation), mitigation would ensure that impacts to protected trees would remain less than significant.

4.10.3.4 Washington Boulevard LRT Alternative

4.10.3.4.1 Impact Analysis

Construction Impacts

Migratory Birds

Construction of the Washington Boulevard LRT Alternative would result in adverse effects under NEPA and potentially significant impacts under CEQA to migratory birds if an active migratory bird nest is located in any tree or vegetation removed or disturbed during construction. Although trees within 100 feet of the construction footprint would not likely be directly impacted through removal or pruning, there would still be disturbance of nesting birds due to increased noise and vibration during construction activities. In addition, the Washington Boulevard LRT Alternative would have adverse effects under NEPA and impacts under CEQA to migratory birds if an active migratory bird nest located under the bridge over the Rio Hondo River or the bridge over the San Gabriel River is disturbed during construction. Mitigation would be implemented to reduce adverse effects under NEPA to migratory birds to not adverse and potentially significant impacts under CEQA to less than significant.

Special-Status Species

Native fish species are not expected to inhabit the concrete-lined channel of the Rio Hondo in the vicinity of the proposed Washington Boulevard LRT Alternative crossing and special-status riparian bird species are unlikely to occur due to the lack of high-quality riparian vegetation. Vegetation in the reach of the San Gabriel River is generally of moderate quality. Riparian bird species may utilize this area during migration, but are not likely to breed there due to a lack of sufficient cover. Further, the disturbed nature of the river washes is unlikely to support alluvial sage scrub habitats. Special-status wildlife and plant species are unlikely to occur during construction of the LRT. Therefore, no adverse effects under NEPA or significant impacts under CEQA are anticipated.

Furthermore, construction would not substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, or reduce the number or restrict the range of a rare or endangered plant or animal.

Riparian Habitats and Other Sensitive Natural Communities

At the Washington Boulevard LRT Alternative crossings of the Rio Hondo and San Gabriel Rivers, patchy riparian vegetation occurs. During construction of new bridges or modifications to existing bridges, adverse effects under NEPA and potentially significant impacts under CEQA to this riparian vegetation would occur. However, these impacts would be localized and short-term in duration, and riparian vegetation is expected to quickly become re-established following construction. No other sensitive natural community would be affected. Therefore, there would not be adverse effects under NEPA or significant impacts under CEQA on riparian habitat or other sensitive natural communities.

Wetlands and Waters of the U.S.

Construction of the Washington Boulevard LRT Alternative would require new bridges or modifications to the existing bridges over the Rio Hondo and San Gabriel Coastal Basin Spreading Grounds, which are considered waters of the U.S. However, since these spreading grounds are designed to accept flood waters from the adjacent rivers and to allow water to quickly infiltrate into the ground, they do not meet the definition of wetlands. While wetlands are habitats for wildlife since they contain a permanent or semi-permanent water supply, spreading grounds are only temporary catchment areas for water in case of flood and these waters are quickly absorbed into the soil.

Work within the spreading grounds would require a CWA Section 404 permit from USACE, a CWA Section 401 Water Quality Certification from LARWQCB, and possibly a Streambed Alteration Agreement from CDFG. Coordination with and an encroachment permit from LACFCD may also be

required. No mitigation measures are required for wetlands, since the spreading grounds are not considered wetlands.

Protected Trees

It is unknown at this time exactly how many trees would be affected during construction of the Washington Boulevard LRT Alternative, including construction of park and ride areas. At a maximum, 55 native and 830 non-native trees would be affected under the Washington Boulevard LRT Alternative. Table 4.10-1 provides further details regarding the number of trees affected within each segment of the alignment. Where the proposed alignment is in an aerial configuration, column placement would require tree removal and the overhead guideways may also require both tree removal and trimming to keep them clear of vegetation. At-grade segments would require tree removal from medians and may require both tree removal and tree trimming along sidewalks as streets are widened or sidewalks are reconfigured. Therefore, not all of the trees along a block would be affected. As project design progresses and construction plans are finalized, it may be possible to further minimize the number of affected trees by avoidance or fencing. Prior to construction, local ordinances and municipal codes regarding protection of native trees and street trees would be considered and mitigation would be implemented to reduce adverse effects under NEPA associated with tree disturbance or removal to not adverse and potentially significant impacts under CEQA to a less than significant level.

Operational Impacts

Migratory Birds

Adverse effects under NEPA and potentially significant impacts under CEQA to biological resources would occur if the Washington Boulevard LRT Alternative resulted in disturbance of nesting birds due to increased noise or vibration associated with ongoing operation. The proposed alignment would run along existing roads, which already experience noise and vibration levels that likely discourage birds from nesting close to the proposed alignment. Therefore, noise and vibration associated with operation of the proposed Washington Boulevard LRT Alternative would not disturb nesting birds or alter existing nesting behavior of migratory birds, including raptors, within the project area. Thus, there would be no adverse effects under NEPA and impacts under CEQA would be less than significant.

Special-Status Species

Special-status wildlife and plant species are unlikely to occur during operation of the Washington Boulevard LRT Alternative because habitat for special-status species is limited and because the LRT alignment would not travel through a designated critical habitat. Therefore, no adverse effects under NEPA or significant impacts under CEQA to special status species are anticipated.

For the same reason, operation would not substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, or reduce the number or restrict the range of a rare or endangered plant or animal.

Riparian Habitats and Other Sensitive Natural Communities

No adverse operational effects under NEPA or significant impacts under CEQA to riparian habitats or other sensitive natural communities would occur.

Wetlands and Waters of the U.S.

No adverse operational effects under NEPA or significant impacts under CEQA would occur to wetlands.

Protected Trees

If operation requires pruning of protected trees, mitigation identified in Section 4.10.3.4.2 would be implemented, which would reduce adverse effects under NEPA to locally protected trees to not adverse and ensure that impacts under CEQA would remain less than significant.

4.10.3.4.2 Mitigation Measures

Construction Mitigation Measures

The construction contractor and Metro shall be responsible for the same mitigation measures (mitigation measures 4.10-i. through 4.10-vi.) identified above in Section 4.10.3.3.2 for the SR 60 LRT Alternative and summarized in Table ES-2, as it relates to the construction of the Washington Boulevard LRT Alternative, with the exception of mitigation measures 4.10-iii and 4.10-iv. These mitigation measures are specific to bats under the SR 60 bridge over the Rio Hondo, which the Washington Boulevard LRT Alternative alignment does not cross.

Operational Mitigation Measures

The construction contractor and Metro shall be responsible for the same mitigation measures (mitigation measure 4.10-vii.) identified above in Section 4.10.3.3.3 for the SR 60 LRT Alternative and summarized in Table ES-2, as it relates to the operation of the Washington Boulevard LRT Alternative.

4.10.3.4.3 Impacts Remaining After Mitigation

The level of impact would be reduced with the implementation of mitigation measures, including measures as required by permits.

NEPA Finding

Mitigation would be implemented to ensure there would be no adverse effects to nesting migratory birds or protected trees during construction of the Washington Boulevard LRT Alternative.

If it is determined that a protected tree would be pruned during operation of the Washington Boulevard LRT Alternative, mitigation would ensure that no adverse effects to protected trees would occur.

CEQA Determination

Mitigation measures would be implemented to reduce potentially significant impacts to migratory birds and protected trees to less than significant.

If it is determined that a protected tree would be pruned during operation of the Washington Boulevard LRT Alternative, mitigation would ensure that impacts to protected trees would remain less than significant.

Section 4.11

Geotechnical/Subsurface/Seismic/ Hazardous Materials

This section summarizes the existing geotechnical, seismic, and hazardous materials conditions within the project area and evaluates the potential for geotechnical, seismic, and hazardous materials impacts resulting from construction and operation of the proposed Eastside Transit Corridor Phase 2 Project alternatives. Information in this section is based on, and updated where appropriate from, the Geotechnical/Seismic/Hazardous Materials Technical Memorandum, which is incorporated into this Draft EIS/EIR as Appendix V.

4.11.1 Regulatory Framework/Methodology

4.11.1.1 Regulatory Framework

Regulations and programs relevant to geotechnical and seismic hazards include the Alquist-Priolo Earthquake Fault Zoning Act, the Seismic Hazards Mapping Act of 1990, and the 1990 Los Angeles County General Plan, Seismic Safety Element, among others. Federal, state, and local regulations and programs governing the use, storage, transport, and disposal of hazardous materials include the Resource Conservation and Recovery Act, Superfund Amendments and Reauthorization Act, Comprehensive Environmental Response, Compensation, and Liability Act, California Hazardous Waste Control Law, Unified Hazardous Waste and Hazardous Materials Management Regulatory Program, and Los Angeles County Fire Department, Health Hazardous Materials Division, among others. These are discussed in further detail in Appendix V, Geotechnical/Seismic/Hazardous Materials Technical Memorandum, of this Draft EIS/EIR.

4.11.1.2 NEPA Impact Criteria

The National Environmental Policy Act (NEPA) requires an evaluation of potential impacts related to hazardous materials, including:

- The potential to encounter existing hazardous materials during project activities; and
- The potential for the proposed project to generate new hazardous materials that would affect the surrounding human and natural environments.

4.11.1.3 CEQA Impact Criteria

The following thresholds of significance, derived from the *L.A. CEQA Threshold Guide* (City of Los Angeles 2006), were used in the evaluation of geologic hazards and hazardous materials for the Eastside Transit Corridor Phase 2 Project to determine the significance of impacts under the California Environmental Quality Act (CEQA).

A significant geologic hazards impact would occur for purposes of the CEQA evaluation if an alternative would:

- Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault, ii) Strong seismic ground shaking, iii) Seismic-related ground failure, including liquefaction, or iv) Landslides; or
- Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse.

A significant impact on mineral resources would occur if an alternative would:

- Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state; or
- Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan.

Additionally, per Appendix G of the *CEQA Guidelines* (as revised), a significant impact with respect to hazardous materials would occur for purposes of the CEQA evaluation if an alternative would:

- Create a significant hazard to the public or environment through the routine transport, storage, use, or disposal of hazardous materials;
- Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment;
- Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school;
- Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5, and, as a result, create a significant hazard to the public or the environment;
- Create a safety hazard for people residing or working in the project area for a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, or a private airstrip;
- Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan; or
- Expose people or structures to a significant risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands.

Since the project is not located within an airport land use plan, or near a public airport or private airstrip, there would be no impacts related to that issue. In addition, the project is located in a highly developed urban area, therefore impacts from wildland fires are not applicable.

These thresholds have been incorporated into the analysis documented in this section.

4.11.1.4 Methodology

As detailed in Appendix V, Geotechnical/Seismic/Hazardous Materials Technical Memorandum, of this Draft EIS/EIR, the method for assessing the potential geologic, seismic, and hazardous materials impacts included reviewing available literature and reports for the project area. Documents reviewed for geotechnical/seismic issues included the safety elements of the general plans for the cities of Commerce, Montebello, Monterey Park, Pico Rivera, Rosemead, Santa Fe Springs, South El Monte, and Whittier and the County of Los Angeles; official Alquist-Priolo Earthquake Fault Zone Maps; official Seismic Hazard Zone Maps, geologic and topographic maps, and other publications by the California Geological Survey (previously California Division of Mines and Geology, U.S. Geological Survey, and California Division of Oil and Gas); and as-built drawings for the SR 60 Freeway construction and bridge crossings along the Rio Hondo and the San Gabriel River along Washington Boulevard. The information was reviewed to describe the environmental setting and the geologic hazards for impact analysis.

Information for the hazardous materials analysis was obtained from the Hazardous Materials Investigation and Analysis (Phase 1 Environmental Assessment) prepared for the project, which was based on a review of regulatory databases and

agency files; historical information, including Sanborn fire insurance maps, historical aerial photographs, and historical topographic maps of the area; information on oil and natural gas from California Department of Oil, Gas and Geothermal Resources maps and record reviews; and a visual survey of the current land uses, locations of properties of concern, and other potential gross hazardous materials usage or releases that were not otherwise identified from the database, records reviews, or aerial photographs.

Additionally, as requested by the U.S. Environmental Protection Agency (USEPA), three supplemental investigations involving literature review and modeling were conducted. These investigations included:

- A literature review and vibration modeling to determine slope stability at the Operating Industries, Inc. (OII) landfill site from train-related vibration;
- A literature review discussing the potential for air leakage into the OII remediation system causing underground fires beneath the OII landfill site; and
- Air dispersion modeling to determine risk to train passengers from exposure to the high temperature plume emitted from the OII remediation system stacks on the north side of SR 60.

A supplemental memorandum was prepared, and is included as Attachment 1 to Appendix V, summarizing the findings from previous studies conducted in the vicinity of the OII landfill site and the SR 60 LRT Alternative alignment, including the North Side Design Variation. The supplemental memorandum addresses the following objectives:

- Clarify the extent to which uncertainties regarding the limits and characteristics of waste, landfill gas concentrations, groundwater conditions, restoration of the monocover remedy, slope stability and erosion controls, and site access and security in the vicinity of the OII landfill affect the constructability and potential environmental impacts of the SR 60 LRT Alternative.
- Provide additional information to document minimal potential for landslide hazards in the vicinity of the OII landfill site, additional information about construction, and design modifications that would be necessary to ensure a safe and structurally sound SR 60 LRT Alternative.
- Identify environmental impacts associated with design modifications, and mitigation measures necessary to address any impacts.
- Identify structural, engineering, and environmental challenges and solution concepts pertaining to the SR 60 LRT Alternative and North Side Design Variation.

4.11.2 Affected Environment/Existing Conditions

The project area is located in the San Gabriel Valley and Gateway Cities areas, near the northwestern boundary of the Los Angeles Basin in the general vicinity of the Whittier Narrows, a prominent gap in the Puente Hills. The proposed corridor traverses the physiographic features known as the Montebello Plain and Montebello Hills, the Rio Hondo, and the San Gabriel River. Topography along the SR 60 LRT Alternative corridor ranges from gently sloping alluvial surface in the west and east, to moderate to steep hillsides where the corridor crosses the Montebello Hills. Elevations range from 220 to 500 feet. Topography along the Garfield Avenue and Washington Boulevard corridor of the Washington Boulevard LRT Alternative consists of gentle slopes along the side of the valley. Elevations range from 150 to 260 feet along this LRT Alternative corridor.

4.11.2.1 Regional Geology

On a regional scale, the project area lies within the Peninsular Ranges geomorphic province and adjacent to the Transverse Ranges geomorphic province. The Peninsular Range is bounded by the

San Jacinto fault zone to the east, the Pacific Ocean coastline to the west, and the Transverse Ranges geomorphic province to the north. The Peninsular Ranges province is characterized by northwest-trending mountain ranges and hills separated by sub-parallel, sediment-filled valleys. The northwest structural trend manifests in regional structures within the province, such as the Whittier, Newport-Inglewood, and Elsinore fault zones and the northwest trending Elysian Park anticline. Faults in the project vicinity are shown in **Figure 4.11-1**.

4.11.2.2 Faulting and Seismicity

4.11.2.2.1 Faulting

The primary seismic considerations are surface rupture of the earth materials along fault traces and damage to structures due to seismically-induced ground shaking. There are numerous faults in Southern California, including active, potentially active, and inactive faults. An active fault is one that has had surface displacement within Holocene time (approximately within the last 11,000 years). A potentially active fault is a fault that has demonstrated surface displacement of Quaternary age deposits (within the last 1.6 million years). Inactive faults have not moved in the last 1.6 million years.

A listing of active faults located within the vicinity of the project area is shown in **Table 4.11-1**.

The Holocene active fault with surface expression closest to the project area is the Whittier fault, located approximately two miles to the northeast of the eastern terminus of the proposed Washington Boulevard LRT Alternative corridor and 2.8 miles southwest of the eastern terminus of the SR 60 LRT Alternative alignment. The Alhambra Wash fault is considered the westernmost extension of the Whittier fault and it traverses the SR 60 LRT Alternative alignment east of the intersection with San Gabriel Boulevard. The Alhambra Wash fault does not traverse the Washington Boulevard LRT Alternative alignment.

4.11.2.2.2 Seismic Hazards

Historical evidence and current technology indicate that at least one moderate to severe earthquake will occur during the design life of the proposed project.

Table 4.11-1. Active Faults

Fault	Distance from SR 60 LRT Alternative Alignment (mi)	Distance from Washington Boulevard LRT Alternative Alignment (mi)
Alhambra Wash Fault	0	4
Whittier Fault	2.8	2.0
Raymond Fault	6	6
San Jose Fault	8.5	9.5
Hollywood Fault	8.8	8.8
Verdugo Fault	9.3	9.3
Sierra Madre Fault	9.3	10.7
Clamshell-Sawpit Fault	9.3	12
Newport-Inglewood Fault	11.8	10
Santa Monica Fault	15.3	15.3
Palos Verdes Fault	20	20
San Andreas Fault	>30	>30

Source: AECOM, CDM 2011.

During a moderate to severe earthquake occurring on the nearby faults, strong ground shaking of the project site would probably occur. In addition to ground shaking, effects of seismic activity on a project site may include surface fault rupture, soil liquefaction, seismically-induced differential settlement of structures, land sliding, earthquake-induced flooding, seiches, and tsunamis.

Earthquake-induced flooding could affect portions of the project area if the Santa Fe Dam, Puddingstone Dam, Garvey Reservoir, or Whittier Narrows Dam were to fail due to an earthquake. However, catastrophic failure of a dam as a result of an earthquake is considered unlikely.

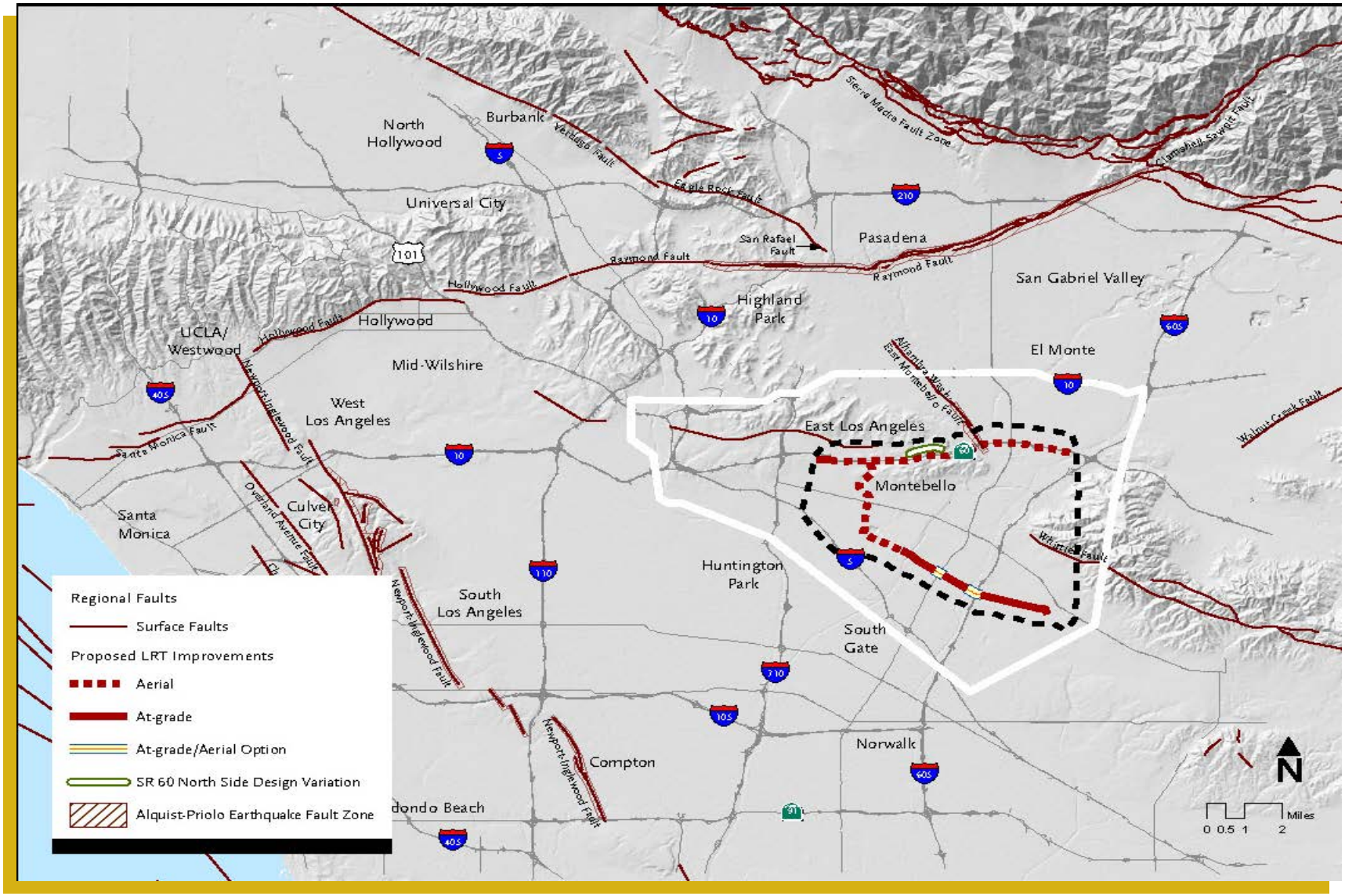


Figure 4.11-1. Regional Faults

Therefore, hazards associated with earthquake-induced dam breaches and seiches are not further discussed. In addition, tsunamis are not a hazard, as the project area is more than 20 miles from the Pacific Ocean.

A portion of the project area lies within the California Geologic Survey's identified liquefaction zone, as shown in **Figure 4.11-2**. Liquefaction refers to the process by which saturated, unconsolidated sediments are transformed into a substance that acts like a liquid. Earthquakes can cause soil liquefaction where loosely packed, water-logged sediments come loose from the intense shaking of the earthquake. Seismically-induced settlement consists of compression of the dry soils above groundwater and liquefaction-induced settlement of the liquefiable soils below groundwater. These settlements occur primarily within the loose to moderately dense sandy soils due to volume reduction during or shortly after an earthquake event.

Mapped liquefaction zones as well as the upper soils along the proposed at-grade alignment segment of the Washington Boulevard LRT Alternative, which consist of predominantly young alluvial fan deposits, have the potential to experience seismically-induced settlement as well as settlement due to traffic loading from operational vibration on the at-grade track.

As shown in Figure 4.11-2, a portion of the project area also lies within an earthquake-induced landslide zone, according to the State of California Seismic Hazard Zones map.

4.11.2.3 Mineral Resources

The project area traverses areas underlain by geologic materials such as sand and gravel that may be considered mineral resources and could be used as construction aggregates. These materials have not been previously mined along the project alignments. Mining of these materials in an urbanized environment is not considered economical, and there are no locally important mineral resource recovery sites delineated on a local general plan, specific plan, or other land use plan for the project area. Therefore, no significant impact on mineral resources would occur, and such impacts are not further discussed.

4.11.2.4 Hazardous Materials

4.11.2.4.1 Properties of Concern

A database search was conducted to identify potential properties of concern within the vicinity of each project alternative. A total of 33 sites were identified as properties of concern due to their proximity to the alignments (within one-quarter mile of either build alternative or a proposed maintenance yard site); being listed on the Cortese, Spills, Leaks, Investigations, and Cleanups (SLIC), Leaking Underground Storage Tank (LUST), EnviroStor, or Geotracker database; having a confirmed release to soil or groundwater; having a regulatory case that is open, pending, or undetermined; or having a probable impact to soil, groundwater, or soil gas based on the type and/or intensity of the land use. **Table 4.11-2** lists the identified properties of concern, which are mapped in **Figure 4.11-3.**

4.11.2.4.2 Superfund Sites

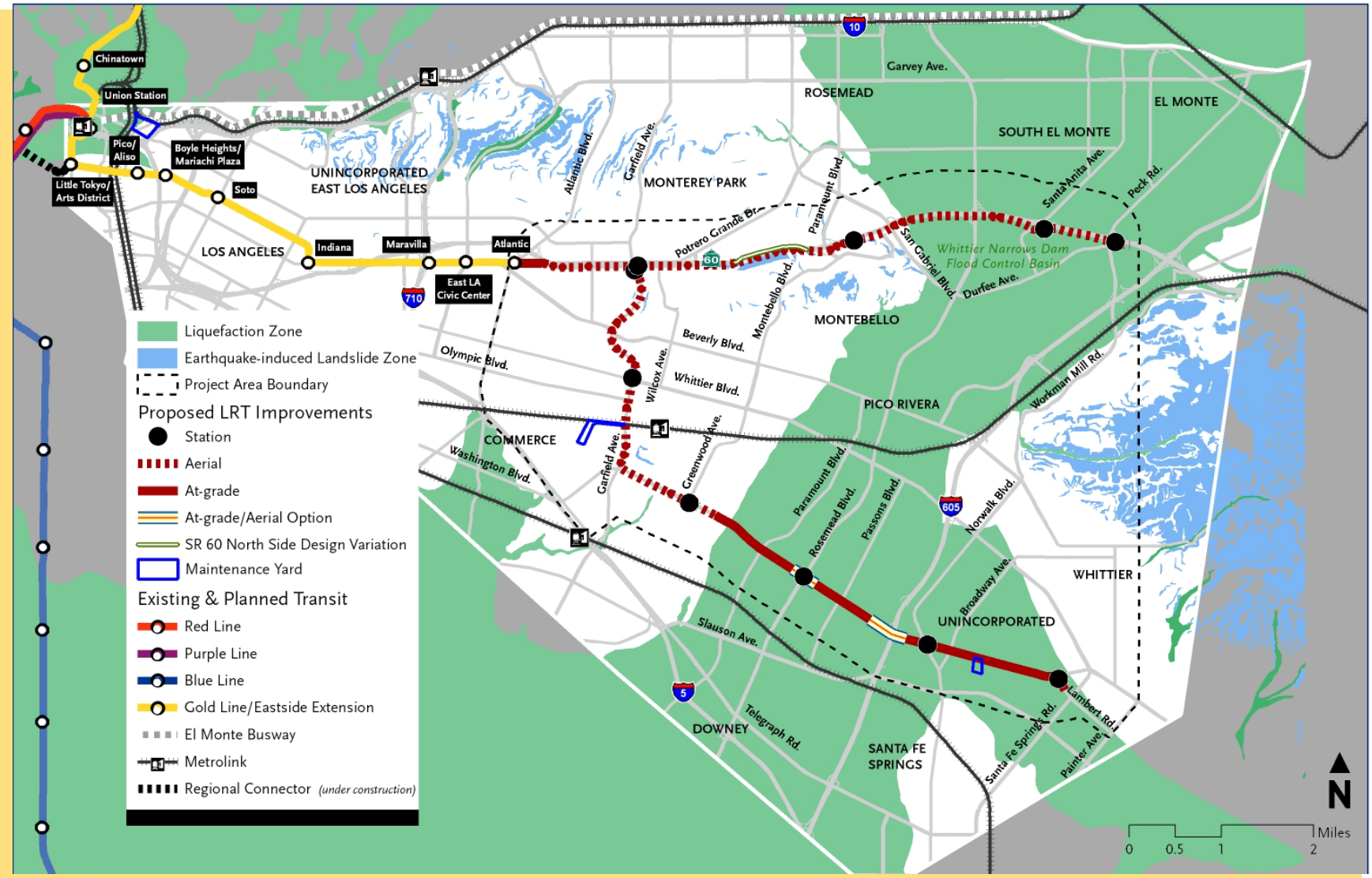
Among the properties of concern are four USEPA Superfund sites, as shown in **Figure 4.11-4**. These sites include:

- OII Landfill
- San Gabriel Valley, South El Monte OU, and Whittier Narrows OU
- Omega Chemical OU1 and OU2
- Waste Disposal, Inc.

These Superfund sites are each associated with large groundwater and/or soil gas plumes, and may pose significant concern for the project due to the extent of contamination and the complexity of various agency involvements in the investigation and remediation of contamination.

OII Landfill

The OII Landfill, in the city of Monterey Park, is located about 10 miles east of downtown Los Angeles and consists of a 190-acre site.



Source: CDMG, Seismic Hazard Zone Maps for El Monte, Los Angeles, South Gate, and Whittier 7.5 Minute Quadrangles, Details below.

Figure 4.11-2. Liquefaction and Landslide Hazard

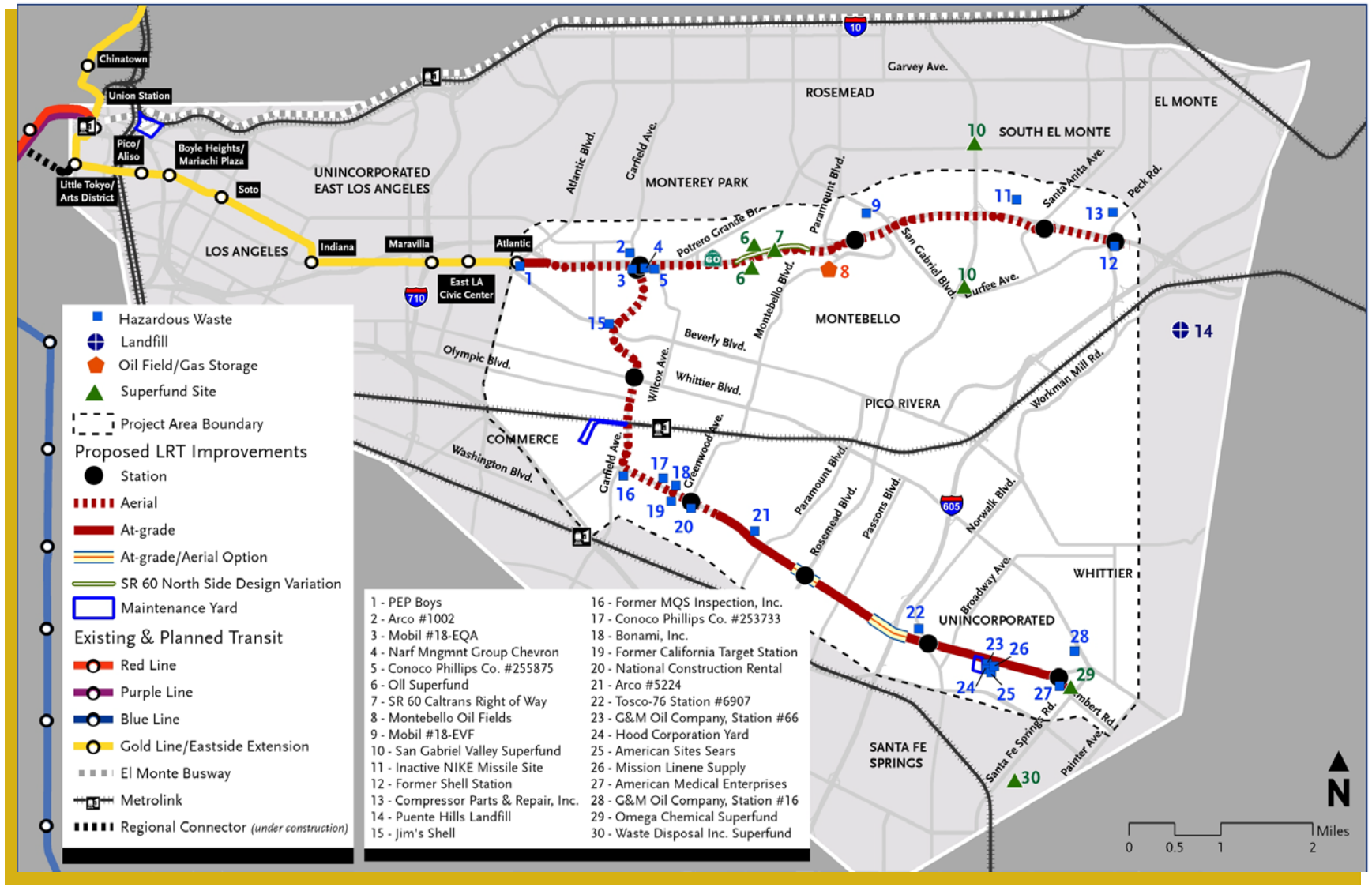
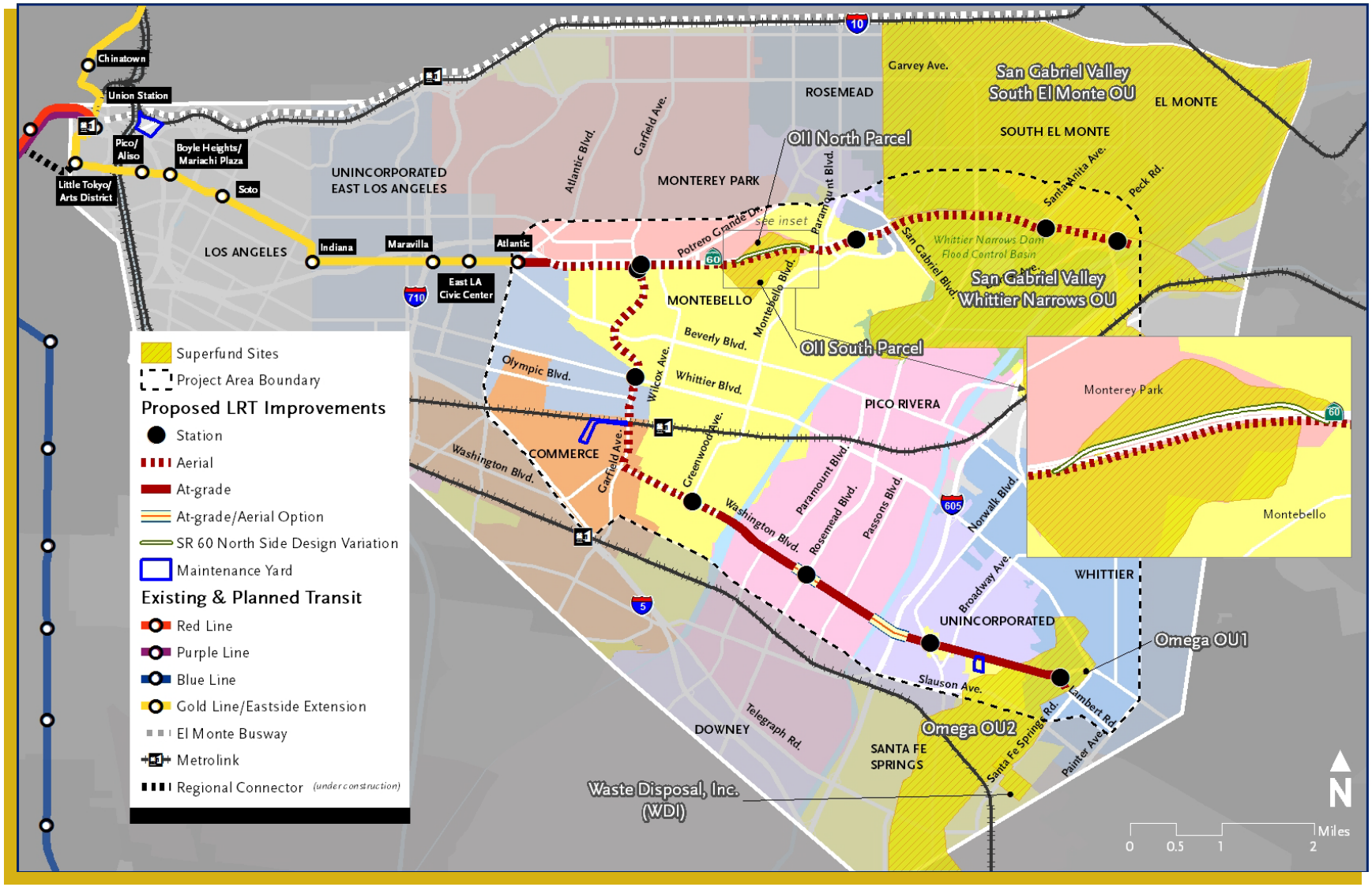


Figure 4.11-3. Properties of Concern within 0.25 Mile of the SR 60 and Washington Boulevard LRT Alternative Alignments



Source: USEPA Geospatial Data Access Project, 2010

Figure 4.11-4. Superfund Sites within the Project Area

Table 4.11-2. Summary of Hazardous Materials Properties of Concern

Site	Location	Description	Distance (feet)	Level of Concern
SR 60 LRT Alternative/Washington Boulevard LRT Alternative Shared Alignment				
PEP Boys	256 S. Atlantic Blvd., Los Angeles	Open site assessment for oil release to soil. Adjacent to alignment.	45	Low
ARCO #1002	2439 S. Garfield Avenue, Monterey Park	Open site assessment for hydrocarbon release to soil.	270	Low
Texaco Service Station	892 Garfield Ave, Montebello	LUST; two cases, both completed - cases closed.	0	Low
Mobil #18-EQA (Mobil Oil Corp SS 11EQA)	897 N. Garfield Avenue, Montebello	Open case for gasoline release to groundwater. Groundwater flow appears to be away from the alignment. Site is located about 320 feet from Garfield Avenue station.	75	Low
NARF Management Group Chevron	2633 W. Via Campo, Montebello	Open case for gasoline release to groundwater. Groundwater flow appears to be away from the SR 60 LRT Alternative alignment and toward the Washington Blvd. LRT Alternative alignment. Site is near Garfield Avenue station for both alignments, especially Washington Blvd.	75 (SR 60) 10 (Washington Blvd.)	Low (SR 60) High (Washington Blvd.)
SR 60 LRT Alternative				
Conoco Phillips Co. #255875	879 N. Wilcox Avenue, Montebello	Recent fuel release to shallow groundwater. Site characterization is incomplete.	80	Medium
OII Superfund Site, North and South Parcel	900 Potrero Grande Drive, Monterey Park	Former municipal/industrial solid waste and liquid hazardous waste landfill that is presently a capped USEPA Superfund site undergoing remedy.	60	High
SR 60 California Department of Transportation (Caltrans) Right-Of-Way (ROW)	SR 60 ROW at OII landfill	Caltrans ROW bounds OII landfill on north and south. Residual landfill material likely present. Associated landfill gas and groundwater impacts are also likely.	0	High
Mobil #18-EVF	939 N. San Gabriel Blvd., Rosemead	Gasoline release to groundwater 600 feet up-gradient of SR 60.	575	Medium
San Gabriel Valley Superfund Site - South El Monte and Whittier Narrows Operable Units (OUs)	South El Monte and Whittier Narrows	Region-wide USEPA Superfund site with volatile organic compounds (VOC)-impacted groundwater beneath SR 60.	0	High

Table 4.11-2. Summary of Hazardous Materials Properties of Concern (continued)

Site	Location	Description	Distance (feet)	Level of Concern
Inactive NIKE Missile Site	1201 Potrero Avenue, South El Monte	Open site assessment with potential effects to drinking water aquifer per database. Records not discovered.	775	Medium
Former Shell Station #204-7389-0232	1130 N. Peck Road, South El Monte	Gasoline release to groundwater 500 feet up-gradient of SR 60. Reportedly closed 10/29/09. Site is located about 290 feet up-gradient of Peck Road station.	310	Medium
Compressor Parts & Repair, Inc.	1501 Peck Road, South El Monte	VOC contamination to groundwater. Remediation began in 1987.	970	Low
Puente Hills Landfill	1955 Workman Mill Road, Whittier	Active Class III municipal landfill.	3,975	Low
Jim's Shell	2900 W. Beverly Blvd., Montebello	Active investigation for gasoline release to soil.	45	Low
Washington Boulevard LRT Alternative				
AMPT Montebello Inc.	500 Garfield Ave., Montebello	LUST; case is closed	0	Low
MQS Inspection, Inc. (Former)	6800 E. Washington Blvd., Commerce	Chlorinated solvent release to soil and groundwater undergoing remediation. Plume previously extended beneath Washington Blvd.	65	High
Conoco Phillips Co. #253733	1628 Washington Blvd., Montebello	Gasoline leak affecting groundwater. Open site assessment. Groundwater flow appears to be toward the alignment.	50	High
Bonami, Inc.	1436 Washington Blvd., Whittier	Hydrocarbon release affecting soil. Open site assessment.	40	Low
California Target #100	869 Washington Blvd., Montebello	Open case for gasoline leak affecting groundwater with reported flow direction away from alignment. Site is located about 45 feet from the Greenwood Ave. station.	40	Medium
National Construction Rental	1045 Greenwood Avenue, Montebello	Open case under assessment for a waste oil release to soil.	410	Low
ARCO #5224	8351 Washington Blvd., Pico Rivera	Open case for soil and groundwater impacts from gasoline with active remediation. Groundwater flow appears to be away from the alignment.	55	Low

Table 4.11-2. Summary of Hazardous Materials Properties of Concern (continued)

Site	Location	Description	Distance (feet)	Level of Concern
TOSCO 76 Station #6907	11025 Washington Blvd., Santa Fe Springs	Hydrocarbon release to groundwater, with a direction of flow potentially toward alignment. Active case. Site is located about 365 feet from Norwalk Blvd. station.	45	High
G & M Oil Co. Station #66	11770 Washington Blvd., Santa Fe Springs	Gasoline leak affecting groundwater. Case is open and under remediation. Groundwater flow appears to be parallel to alignment, and one well located in Washington Blvd. contains VOCs at low concentrations.	50	Medium
Hood Corporation Yard	8201 S. Sorensen Avenue, Santa Fe Springs	Diesel leak into soil. Case is open and under remediation. Groundwater flow is toward the southwest. Impact to alignment unlikely.	375	Low
American Site Sears	8230 Sorensen Avenue, Whittier	Open case for hydrocarbon leak affecting groundwater. Groundwater flow appears to be away from alignment.	1,020	Low
Mission Linen Supply	11920 E. Washington Blvd., Whittier	VOCs in groundwater associated with former industrial laundry. Groundwater flow direction appears to be away from alignment.	55	Low
Chevron #9-7441	12376 Washington Blvd., Whittier	LUST; completed, case is closed	0	Low
American Medical Enterprises	12508 E. Lambert Road, Whittier	Waste oil leak affecting groundwater. Case is open and under remediation. Groundwater flow appears to be away from alignment.	0	Medium
G & M Oil Company Station #16	12559 Lambert Road, Whittier	Open case under remediation for gasoline leak affecting groundwater. Direction of flow appears to be away from alignment.	375	Low
Omega Chemical Superfund Site	12504 E. Whittier Blvd., Whittier	USEPA Superfund site with VOC-impacted groundwater beneath Washington Blvd.	0	High

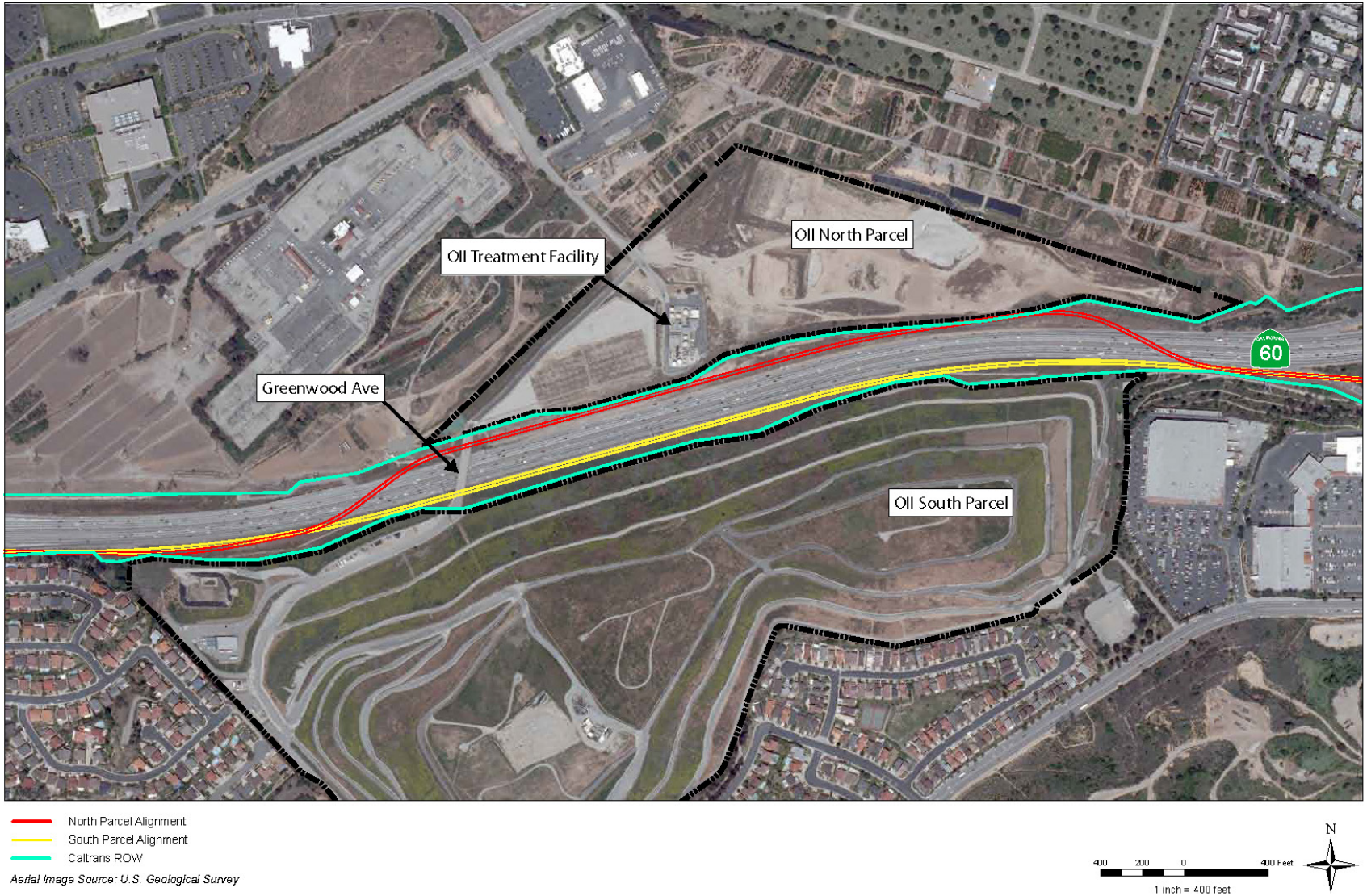
Table 4.11-2. Summary of Hazardous Materials Properties of Concern (continued)

Site	Location	Description	Distance (feet)	Level of Concern
Waste Disposal Inc. Superfund Site	Santa Fe Springs Road and Los Nietos Road, Santa Fe Springs	USEPA Superfund site south of Washington Blvd. terminus.	5,435	Low
Mission Junction Maintenance Yard				
	1430 Bolero Lane	Releases of petroleum hydrocarbons, VOCs, and metals; property is under "open–site assessment" as of June 13, 2000.	<1320	Medium
	490, 496, and 498 Bauchet Street	Former manufactured gas plant; soils reportedly impacted by petroleum hydrocarbons, VOCs, metals, polynuclear aromatic hydrocarbons; soils remediation complete; groundwater remediation not complete.	<1320	Medium
	Keller Yard south of Caesar Chavez	Former manufactured gas plant; soils impacted by petroleum hydrocarbons, VOCs, metals, polynuclear aromatic hydrocarbons; remediation has not been completed.	<1320	Medium

Source: AECOM, CDM Smith 2011, CDM Smith 2010.
Note: The Level of Concern (LOC) rankings are highly subjective and are intended to be relative to other sites listed in the table. The factors below were considered during the assignment of LOC rankings for each site; however, the identification of actual site conditions is limited in most cases by the amount and quality of the data available. Actual conditions may represent a higher or lower LOC:

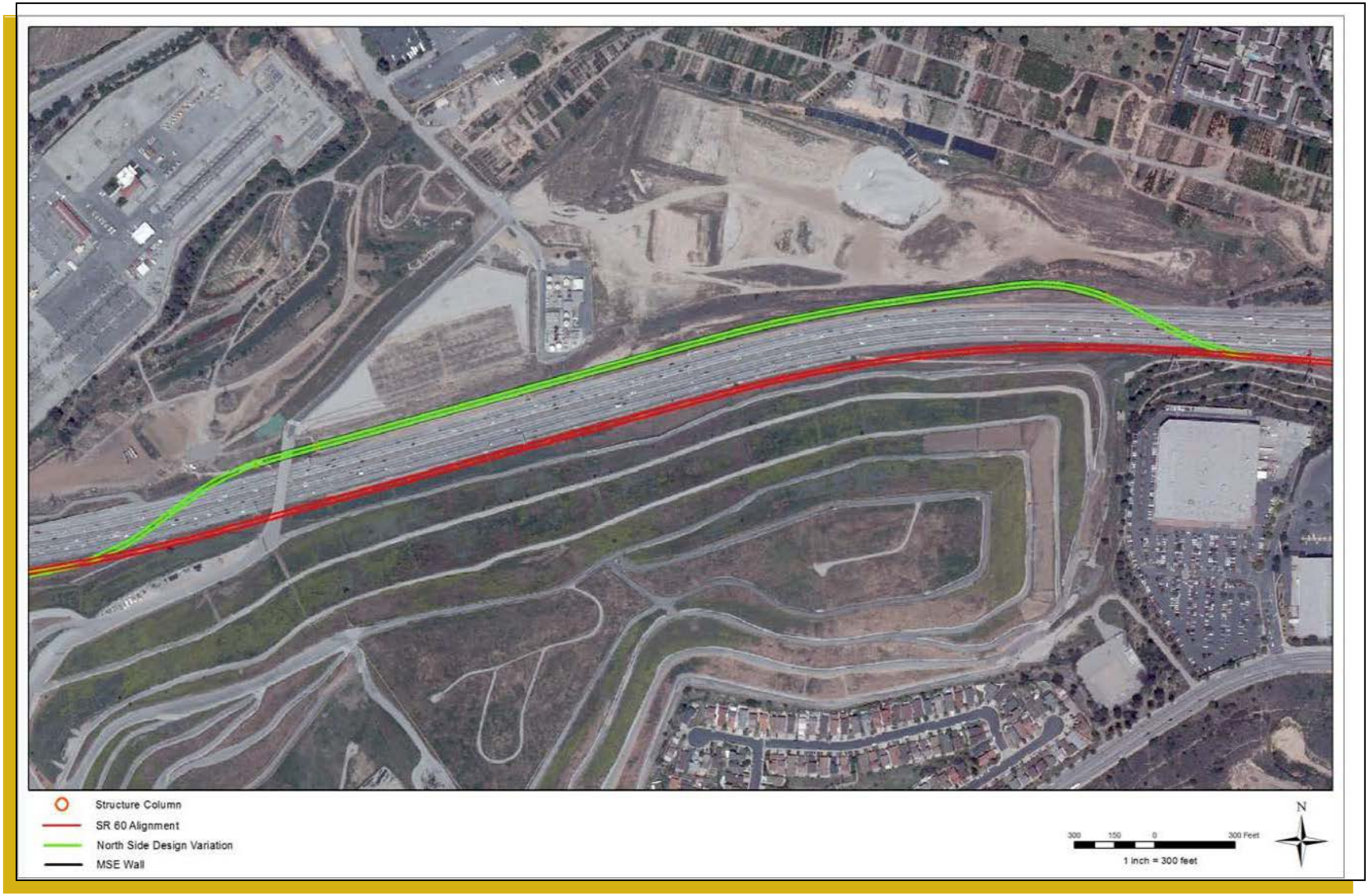
- *Low LOC, sites with: soil-only impacts or impacted groundwater with a flow direction that is away from the alignment, greater distance from the alignment and stations, low mobility contaminants (e.g., waste oil), old or closed cases, relatively complete case files, relatively complete site characterization, and/or greater depth to groundwater.*
- *High LOC, sites with: known or likely soil, groundwater, or soil vapor impacts beneath or near the alignment, groundwater impacts with a flow direction toward the alignment, shallow groundwater, proximity to the alignment/stations, recent releases, and/or incomplete characterization.*
- *Medium LOC, sites with expected conditions intermediate to the Low or High level, or with significant uncertainty.*

As shown in **Figure 4.11-5**, the SR 60 Freeway divides the site into two parcels: the South Parcel and the North Parcel. The South Parcel consists of 145 acres located south of the SR 60 Freeway and the North Parcel consists of 45 acres located north of the SR 60 Freeway. A portion of the SR 60 LRT Alternative would travel adjacent to the South Parcel of the OII landfill site, south of the SR 60 Freeway, within Caltrans ROW between the edge of the eastbound traffic lanes and the Caltrans ROW line. The North Side Design Variation would traverse within Caltrans ROW north of the SR 60 Freeway and would be adjacent to the North Parcel of the OII Landfill. With this variation, instead of running along the South Parcel of the OII Landfill, the LRT alignment would transition from the south side to the north side of SR 60 Freeway, just west of Greenwood Avenue, and return to the south side of SR 60 approximately one-quarter mile west of Paramount Boulevard, as shown in **Figure 4.11-6**.



Source: USEPA Geospatial Data Access Project, 2010

Figure 4.11-5. OII Landfill Site



Source: AECOM/CDM Smith 2013

Figure 4.11-6. North Side Design Variation Alignment

South Parcel Monocover

In 1997, the construction of the cover, referred to as the "monocover", began. The basic cover design for the steep north slope of the South Parcel included the following elements.

- The monocover was constructed by placing a two-foot thick layer of coarse foundation material at the base and then placing fine-grained cover material in compacted lifts.
- To provide additional strength, geogrid material was placed horizontally every five feet on slopes between 30.4 degrees and 33.7 degrees, and horizontally at intervals of every ten feet for slopes between 26.5 degrees and 30.4 degrees.
- Site access roads and drainage structures on the north slope were constructed as the monocover was placed.
- A revised perimeter and interior landfill gas control system was installed on the South Parcel. The gas collection lines are routed to a thermal destruction facility located on the North Parcel (Refer to Figure 4.11-4 above).

In addition to preventing precipitation infiltration, the monocover also works in concert with the gas collection system to prevent gas leakage.

North Parcel Remedial Actions

Figure 4.11-7 shows a cross-section of the North Parcel area in the vicinity of the North Side Design Variation, including the monocover on the North Parcel. The elements of the North Parcel remedy consisted of:

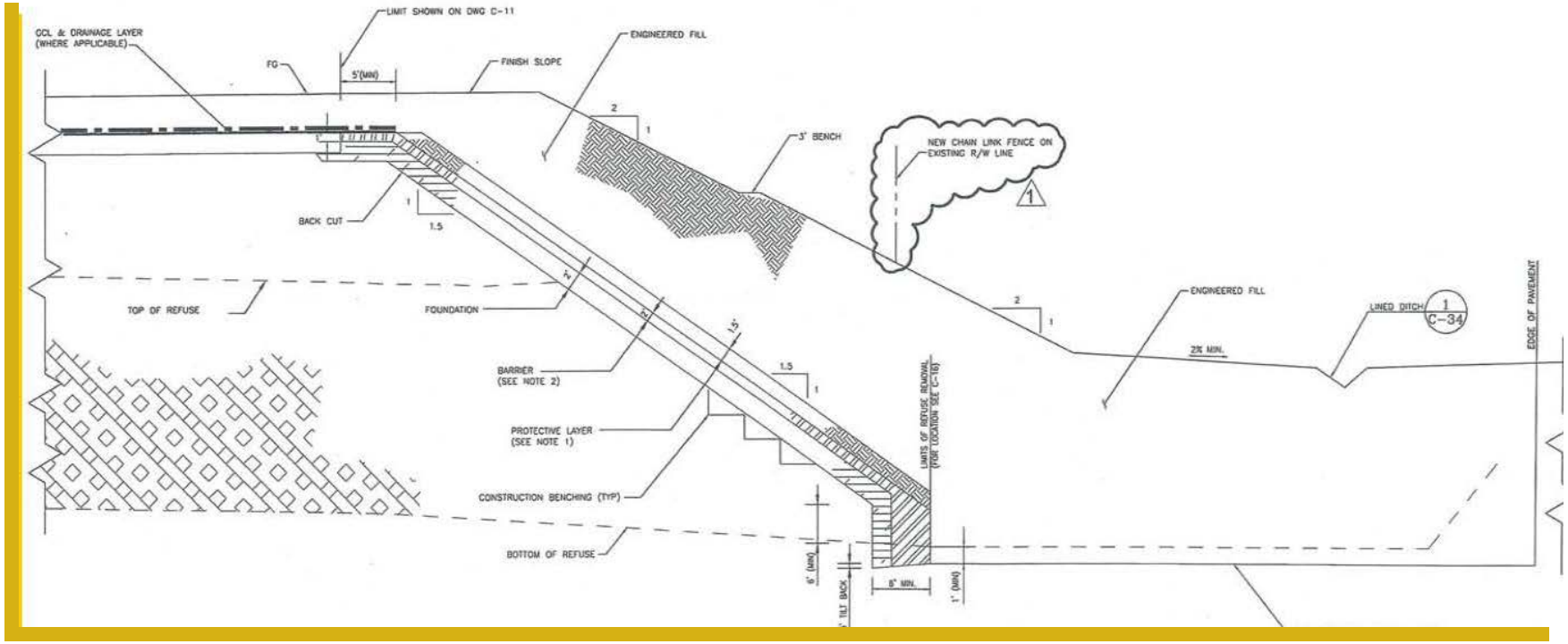
- Removal of waste existing within the Caltrans ROW south of a 73-foot offset line measured northwards from the edge of the traveled way. Waste excavation extended to a depth of 12 inches below the limits of the waste prism. The waste prism was defined as materials containing more than ten percent waste by volume as established by means of visual observations.
- Berm removal within the Caltrans ROW from the vicinity of the Greenwood Avenue Bridge to the Paramount Boulevard over-crossing.
- Removal of aerially deposited lead in soil having a concentration in excess of 255 milligrams per kilogram (mg/kg), as shown in **Figure 4.11-8**.
- A cover (consisting of a low-permeability barrier layer) was constructed over exposed waste on the backcut north of the 73-foot offset line. A vertical low-permeability soil barrier layer was provided in the vicinity of the edge of the shoulder, where the waste extends under the current SR 60 Freeway.
- Imported fill from multiple borrow sites was selected from sites documented via Environmental Data Resources, Inc. record searches to have no industrial or waste use histories, and was tested for organic contamination prior to acceptance.
- Treatment facility consisting of landfill gas treatment and leachate treatment system.
- Grading and drainage system to manage surface water runoff.

Mapped Landslides

Landslide deposits are mapped along the SR 60 Freeway corridor in the vicinity of the OII Landfill site to the west of Greenwood Avenue. The mapped landslides were investigated during preparation of the supplemental memorandum.

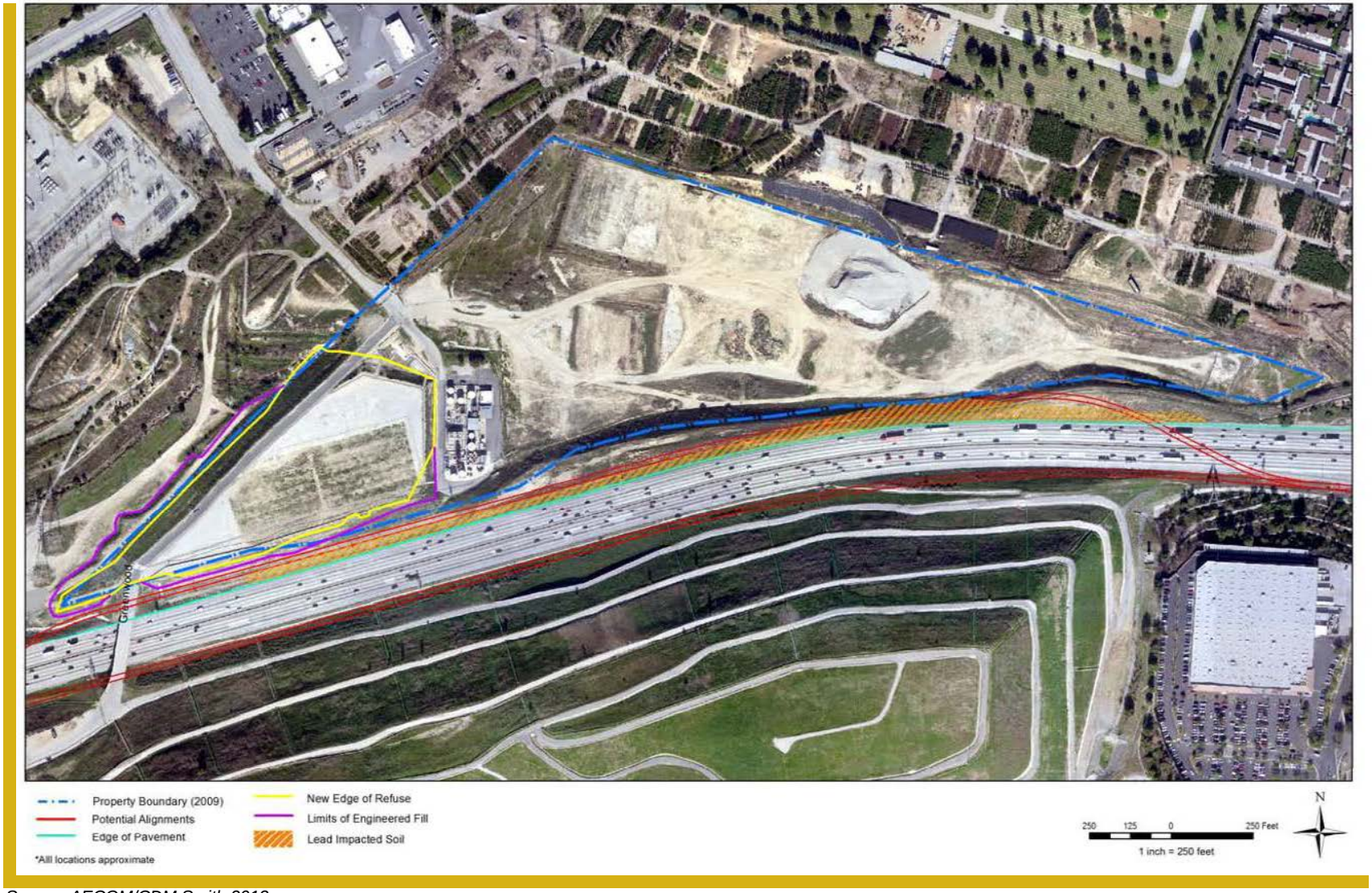
South Parcel:

Maps show landslide over the SR 60 Freeway and extending to the north side of the freeway in the vicinity of the OII Landfill. Mapped landslides in the area to the south of the freeway and west of Greenwood Avenue may have been a likely valid hazard zone prior to the freeway construction. Other landslide maps show areas of significant grading related to OII Landfill and possibly the SR 60 Freeway.



Source: AECOM/CDM Smith 2013

Figure 4.11-7. OII North Parcel Cross Section



Source: AECOM/CDM Smith 2013

Figure 4.11-8. Removal of Lead Impacted Soil on North Parcel

Predesign reports associated with the OII Landfill provide the most detailed information regarding historic landslides in the area, since information was based on site-specific data. The predesign report shows ancient slides near the toe of the OII landfill slope on the south side of the SR 60 Freeway. These ancient slides have been either removed, truncated, or buried under various earthwork and landfill activities of relatively recent times as described below.

Aerial photographs and U.S. Geological Survey (USGS) maps show the presence of large and small scale landsliding at the northwest corner of the South Parcel and a prominent northeast trending, north facing, linear ridge paralleling the now buried natural drainage between the North and South Parcels.

- The larger of the slides measures at least 1,000 feet wide and was delineated in an embayment area along the ridge. The slide appears to have occurred many thousands of years ago and subsequently most of the slide mass was removed by erosion and later debris flows. Most, if not all, of the slide mass was removed during the quarrying operations prior to construction of the landfill.
- A second landslide up to 400 feet across was also located on aerial photographs and USGS maps at the northwest corner of the South Parcel. This slide has been modified by grading (removals) off-site. Portions of the slide scar are still exposed above (south) of the SR 60 Freeway and may require further characterization during the final design phase of the project.
- The approximately 120-foot high ridge has been greatly modified by grading or has been completely removed.

North Parcel:

The toe of the ancient slides described above extended to the south edge of the North Parcel. As discussed above for the South Parcel, these ancient slides have been removed and/or no longer pose a threat.

The north side of the SR 60 Freeway does not pose stability concerns because of the limited slope height given the existing topography. The original grades to the west of Greenwood Avenue were lower, meaning a higher slope existed to the south of the current freeway area. The freeway construction placed approximately 20 feet of fill in this area, and as much as 40 feet of fill further west of this area. This fill is buttressing the slope to the south, with hardly any slope left to the north.

Limits of Waste

The OII landfill received an estimated 38 million cubic yards of solid and liquid wastes before its closure in 1984.

South Parcel:

It is estimated that the thickness of refuse on the South Parcel ranges from a few feet near the shoulder of the SR 60 Freeway, to approximately 325 feet in its thickest portions. Borings that predate construction of the SR 60 Freeway and the later monocover revealed 25 feet of fill material located near the Greenwood Avenue bridge abutment on the South Parcel. The fill was described as general rubbish, trash, tires, and power poles, mixed with sand, gravel, and earth fill. Caltrans is believed to have excavated much of this landfill debris from the ROW in order to construct the SR 60 Freeway on a firm base.

North Parcel:

The estimated thickness of refuse on the North Parcel ranges from a few feet near the shoulder of the SR 60 Freeway, to approximately 55 feet in its thickest portion.

Landfill debris was removed from two large excavation areas (Areas 1 and 2) in the Caltrans ROW along the south side of the North Parcel. In addition to the debris removal, aerially deposited lead in soil with a concentration in excess of 255 mg/kg was also removed from the ROW. The proposed SR 60 North Side Design Variation

would be located entirely outside of the edge of this refuse.

Landfill Gas

South Parcel:

Following the construction of the monocover on the South Parcel, a revised perimeter and interior landfill gas control system was installed. The system includes a series of active landfill gas (LFG) extraction wells and passive gas monitoring probes (GPs). The LFG wells are connected to a system of gas collection lines that are routed to a LFG and leachate treatment facility located on the North Parcel. The LFG collection system prevents the buildup and off-site migration of methane and other toxic or explosive LFGs generated by waste decomposition beneath the monocover. Landfill gas migration from the OII landfill site to off-site locations, including the Caltrans ROW, is presently controlled by the OII gas collection system and an air break system located adjacent to residential properties.

North Parcel:

Following completion of the North Parcel remedy, remedy compliance testing was conducted to demonstrate the effectiveness and compliance of the cover system, gas management and conveyance systems, and the surface water. The compliance tests demonstrated the North Parcel remedy met the USEPA's third partial Consent Decree (CD-3) scope of work and prevention of off-site gas migration.

Groundwater

The estimated depth to groundwater ranges from about 40 feet below the surface of SR 60 Freeway near the east end of the landfill to 50 feet below the SR 60 Freeway near the Greenwood Avenue bridge, and about 60 feet below SR 60 Freeway at the west end of the landfill. The predominant direction of groundwater flow in the vicinity is toward the southwest. Groundwater elevations are depressed beneath the center of the South Parcel in order to prevent contact between the groundwater and the waste.

Data compiled for the OII Landfill remedial investigation revealed that organic compounds in OII Landfill South and North Parcels perimeter groundwater monitoring wells exceed their drinking water maximum containment levels (MCLs) for several compounds. Organic compounds detected in the wells at concentrations greater than their MCL included the volatile organic compounds (VOCs) tetrachloroethene (PCE), trichloroethene (TCE), and benzene, as well as vinyl chloride.

San Gabriel Valley, South El Monte Operable Unit (OU) and Whittier Narrows OU

The San Gabriel Valley, South El Monte OU, and Whittier Narrows OU encompass an area of contaminated groundwater over four miles long and one and one-half miles wide. The VOC groundwater plume beneath the two OUs is essentially one continuous plume. The SR 60 LRT Alternative alignment, including the SR 60 North Side Design Variation, would traverse over the Whittier Narrows OU.

Omega Chemical OU1 and OU2

This site involves high concentrations of chlorinated solvents in subsurface soil and groundwater. The eastern end of the Washington Boulevard LRT Alternative alignment overlies a portion of the Omega OU2 groundwater plume. Of principal concern are contact with, and disposal of, contaminated groundwater encountered during construction and the potential intrusion of vapors from the groundwater plume into structures.

Waste Disposal, Inc.

The Waste Disposal, Inc. site is located approximately one mile south of the Washington Boulevard LRT Alternative alignment and involves contaminants present in soil and soil gas.

4.11.2.4.3 Other Hazardous Materials

As shown in **Figure 4.11-9**, several oil fields are located in the project area. Figure 4.11-9 identifies which wells are active, buried, idle, new, or plugged. Migration of subsurface gases, such as methane and hydrogen sulfide, may be expected in excavations not only within the oil field, but also in areas outside of this and other mapped oil fields. Natural petroleum hydrocarbons may also be encountered in oil-bearing sediments in the vicinity of active oil fields.

Herbicide and pesticide use may have occurred during previous agricultural activities in some areas. Specifically, orchards were present to the north and south of Washington Boulevard between the Rio Hondo and the east end of the Washington Boulevard LRT Alternative alignment. According to historical maps, orchards were present between 1947 and 1953, which is when widespread use of organochlorine pesticides began. Organochlorine pesticides can leave hazardous residues in soil.

Other potential concerns include transformers located above and below grade along the alignments that may contain polychlorinated biphenyls (PCBs). Lead may also be present in surface soil from historic emissions of leaded fuel from vehicles on adjacent roadways. Since most soil along the proposed alignment is covered by asphalt or concrete, exposure to these hazardous materials is unlikely.

Buildings along the proposed alignments that were constructed prior to 1979 may contain asbestos-containing materials (ACM), and buildings constructed prior to 1978 may contain lead-based paint (LBP) that could be released during demolition. These hazardous materials would present a concern for the proposed project, as exposure to these materials at certain levels may cause adverse health effects to workers and the general public.

4.11.3 Environmental Impacts/Environmental Consequences

The following section summarizes the analysis and conclusions for each project alternative, as discussed in detail in Appendix V, Geotechnical/Seismic/Hazardous Materials Technical Memorandum, of this Draft EIS/EIR. Impacts are summarized in **Table 4.11-3**.

Table 4.11-3. Summary of Potential Geotechnical/Subsurface/Seismic/ Hazardous Materials Impacts

Alternative	Geotechnical/ Subsurface/Seismic Hazards Impacts	Hazardous Materials Impacts
No Build	None	None
TSM	None	None
SR 60 LRT[1]	Not adverse after mitigation/Less than significant after mitigation	Not adverse after mitigation/Less than significant after mitigation
Washington Boulevard LRT	Not adverse after mitigation/Less than significant after mitigation	Not adverse after mitigation/Less than significant after mitigation

Notes:
[1] Includes the SR 60 North Side Design Variation.

4.11.3.1 No Build Alternative

4.11.3.1.1 Impact Analysis

There would be no new transit construction or new operations under the No Build Alternative. Therefore, the No Build Alternative would not result in adverse construction or operational effects under NEPA or significant impacts under CEQA associated with geotechnical, subsurface, seismic hazards, or hazardous materials.

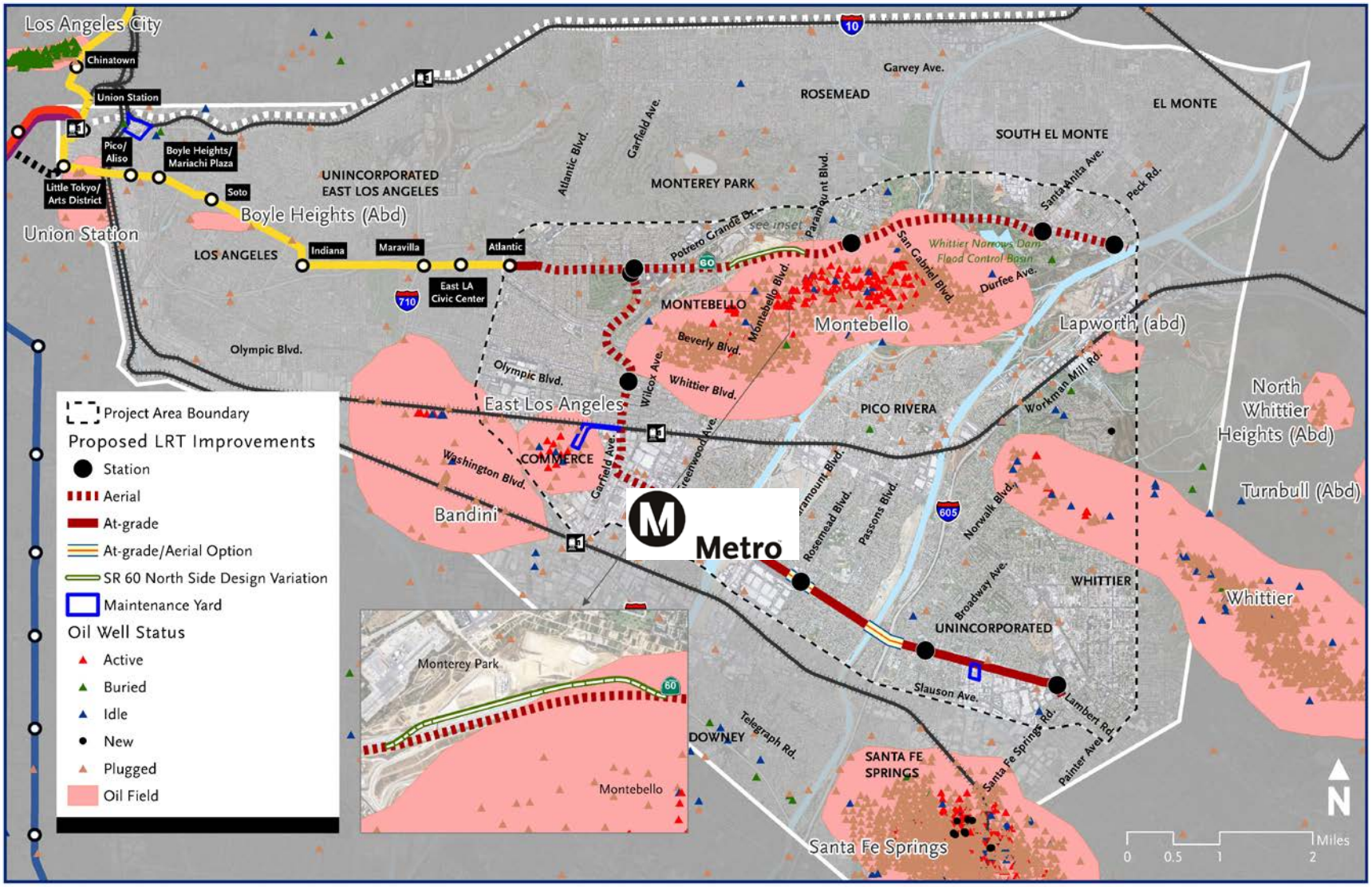


Figure 4.11-9. Oil Fields within the Project Area

4.11.3.1.2 Mitigation Measures

Since the No Build Alternative would have no geotechnical, subsurface, seismic hazards, or hazardous materials impacts, no mitigation measures are required.

4.11.3.1.3 Impacts Remaining After Mitigation

NEPA Finding

There would be no geotechnical, subsurface, seismic hazards, or hazardous materials effects under the No Build Alternative.

CEQA Determination

There would be no geotechnical, subsurface, or seismic hazards or hazardous materials impacts under the No Build Alternative.

4.11.3.2 TSM Alternative

4.11.3.2.1 Impact Analysis

Construction Impacts

The TSM Alternative enhances and improves upon the existing services, and would not require any excavation or earthwork that would potentially impact the geotechnical and subsurface conditions, encounter hazardous materials in soil and/or groundwater, or release hazardous materials to the environment. Therefore, during construction, the TSM Alternative would not result in an adverse effect under NEPA or a significant impact under CEQA related to geotechnical, subsurface, seismic, or hazardous materials.

Operational Impacts

The TSM Alternative improves upon the existing bus services and would not include activities that would result in any impacts related to seismic hazards associated with fault rupture, liquefaction, or seismically-induced settlement during a seismic event. Changes in operation under the TSM Alternative would not change the existing types of hazardous materials used, stored, or transported. Like current operations, operation of the TSM Alternative would not emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school, and would not impair adopted emergency response plans or emergency evacuation plans. Therefore, during operation the TSM Alternative would not result in an adverse effect under NEPA or a significant impact under CEQA related to geotechnical, subsurface, seismic, or hazardous materials.

4.11.3.2.2 Mitigation Measures

Since the TSM Alternative would have no geotechnical, subsurface, seismic hazards, or hazardous materials impacts, no mitigation measures are required.

4.11.3.2.3 Impacts Remaining After Mitigation

NEPA Finding

There would be no effect to geotechnical, subsurface, seismic hazards, or hazardous materials resources under the TSM Alternative.

CEQA Determination

There would be no impact to geotechnical, subsurface, seismic hazards, or hazardous materials resources under the TSM Alternative.

4.11.3.3 SR 60 LRT Alternative

4.11.3.3.1 Impact Analysis

Construction Impacts

Aerial structures would be required to support the LRT for both the SR 60 LRT Alternative and the North Side Design Variation. A part of the SR 60 LRT Alternative alignment is located along the toe of the OII Landfill's north-facing slope. The SR 60 LRT Alternative would be supported on deep foundations penetrating the monocover and refuse, and founded in competent material beneath. The proposed SR 60 North Side Design Variation would consist of a mechanically stabilized earth (MSE) wall to support the LRT tracks. The MSE wall is the most viable option given the topography of the land and the lower

construction costs compared to an aerial structure.

Due to the different constraints applicable to the South and North Parcels, different foundation options have been considered for each alignment. The construction method will be determined during the final design phase of the project.

Three foundation options have been identified for the South Parcel as follows:

Option A – Cast in Drilled Hole (CIDH) Pile Foundation: CIDH method would consist of a single, large diameter pile. Excavation of the pile would be performed inside a steel casing.

Option B – Foundation in Monocover: This alternative entails a pile cap cast on top of a conventional driven or torqued-in pile foundation. The individual piles could be driven H-piles, driven precast concrete piles, or torque-down, closed-end steel pipe piles. The primary advantage of this concept is that the entire foundation element can be constructed within the monocover and without encountering contaminated materials. To do so would require a pile cap that is situated as high as possible, within the monocover. In order to avoid air entry pathways, this alternative would require a seal system at the piles, as well as around the pile cap substructure.

Option C - Foundation below Refuse: This alternative would be beneficial if the refuse tapers out at the edge of SR 60 Freeway. It may then be possible to create excavation access from SR 60 Freeway, removing the refuse as it is encountered. On the uphill side, a sheet pile system would be provided to support the excavation into the refuse. This alternative has the advantage of eliminating or reducing the need for sealing at the pile cap, since the refuse would be removed for the most part and soil settlement would not be a significant concern. Air entry from the top would be controllable by finishing the ground surface and sheet piles (if left in place) with monocover.

Foundations for the SR 60 North Side Design Variation are expected to encounter the following types of conditions:

- A few piers at the western end of this alternative would be at the same locations as the South Parcel alternative piers. Based on the locations of these piers with respect to available information on the refuse limits for the South Parcel, they would be free of refuse, but there is the possibility of encountering minimal amounts of refuse. Further explorations would provide more definitive information. If, based on such explorations, refuse becomes an issue at these locations, then the alternatives and methodologies discussed under South Parcel would apply to the few pier locations at the western limit of the North Side Design Variation, if applicable.
- For the transition areas supported on elevated structures, the piers would be in areas free from refuse since they are in the median or the shoulder area of SR 60 Freeway, which would have been cleaned out during the original highway construction.
- The stretch adjacent to the North Parcel is proposed to be supported on earth fill retained by MSE walls with shallow foundations bearing on a zone of compacted fill. This area is expected to be free from refuse based on available information. The MSE wall system is the only alternative being considered for this area.

Geotechnical, Subsurface, and Seismic Hazards

Landslide/Slope Stability:

Based on evaluation of the OII Landfill contained in Appendix V, Geotechnical/Seismic/Hazardous Materials Technical Memorandum, of this Draft EIS/EIR, there does not appear to be a natural geologic landslide hazard because extensive grading activities have occurred on the South Parcel. Historical landslides no longer appear to exist based on review of available documentation for the vicinity; however, in the event the SR 60

LRT Alternative is selected as the preferred alternative, further characterization and delineation of the landslide remnants would be completed during final design. It is anticipated that no adverse effect would occur under NEPA and impacts would be less than significant under CEQA with regards to landslides on the South Parcel.

The proposed LRT structures, as part of the SR 60 LRT Alternative, would not have an adverse effect or significant impact on the stability of the existing slope, and would not reduce the static or the seismic safety factors below that which now exists. The introduction of deep foundations associated with construction of the SR 60 LRT Alternative would only serve to strengthen the slope, since the deep foundations would act as dowels through the toe of the slope.

However, there could be seismic slope stability issues related to man-placed materials. There is a potential for slope failure within the landfill, due to temporary construction conditions. Examples of this would be excavations on the slope, in general, and excavations downslope of the buttress wall in the eastern part of the OII slope specifically. Other examples would include potential surcharge loads imposed on the slope due to temporary access embankments, and/or surcharge from heavy construction equipment on the slope. This would need to be confirmed during the design phase if the SR 60 LRT Alternative is selected as the locally preferred alternative (LPA). Therefore, an adverse effect would occur under NEPA and a significant impact would occur under CEQA before mitigation with regards to slope stability of man-placed materials on the South parcel. Mitigation measures are available (see below) to reduce these impacts.

Based on evaluation of the OII Landfill contained in Appendix V, Geotechnical/Seismic/Hazardous Materials Technical Memorandum, of this Draft EIS/EIR, there does not appear to be a natural geologic landslide hazard on the North Parcel because of the topography and the grading activities which took place in this area. Historical landslides no longer exist on the North Parcel as discussed above.

Regarding slopes on the north side of the SR 60 Freeway, there is no seismic slope stability issue anticipated because of the limited slope height. Therefore, as for the North Side Design Variation, no adverse effects would occur under NEPA and impacts would be less than significant under CEQA with regards to landslides and slope stability on the North parcel under the North Side Design Variation.

Hazardous Materials

Superfund Sites:

The SR 60 LRT Alternative alignment is located directly along the South Parcel of the OII Landfill, as shown in Figure 4.11-4. Construction of the SR 60 LRT Alternative would occur within the Caltrans ROW, which passes through the OII Landfill. The North Side Design Variation would be located adjacent to the North Parcel of the OII Landfill, which is also located within the Caltrans ROW.

This analysis considers a worse case condition that refuse would exist at all pier locations.

Another Superfund Site, the San Gabriel Valley, South El Monte OU and Whittier Narrows OU, encompasses an area of contaminated groundwater over four miles long and one and one-half miles wide. Groundwater contamination beneath the two OUs is essentially one continuous plume. The SR 60 LRT Alternative alignment traverses the southern side of SR 60 over the Whittier Narrows OU. The depth of contaminated shallow groundwater in this area ranges from 35 to 55 feet below the ground surface (bgs). Installation of support foundation pilings for the aerial alignment would entail excavation up to 100 feet deep. Therefore, an adverse effect under NEPA and a potentially significant impact under CEQA would occur if contaminated groundwater were encountered during construction. Mitigation measures

specified below would address these potential impacts.

Other Properties of Concern:

During construction of the SR 60 LRT Alternative, there is the potential to encounter hazardous materials related to other properties of concern along the proposed SR 60 LRT Alternative alignment, as listed in Table 4.11-2 and shown in Figure 4.11-3. For both the at-grade and aerial sections of the SR 60 LRT Alternative, construction would entail the disturbance of soil and/or shallow groundwater. Construction of the at-grade portions of the SR 60 LRT Alternative alignment would entail clearing and grading of shallow soil, and potential shallow excavation for installation and/or relocation of utility lines, during which shallow groundwater could also be encountered.

During construction, release of hazardous materials in contaminated soil and/or groundwater at these properties of concern could result in exposure to workers, the public and sensitive receptors, such as schools within one-quarter mile. This could occur through the release of dust or vapors from exposed soil and/or groundwater.

Hazardous materials in the project area also include petroleum gases in the subsurface associated with oilfields. Adverse effects under NEPA and potentially significant impacts under CEQA would also occur from release of ACM or LBP during building demolition, or the accidental release of construction-related materials such as fuels.

In addition, construction could involve the transport of soil or other media contaminated with hazardous materials to a disposal facility located away from the project area. As such, there is potential for adverse effects under NEPA and potentially significant impacts under CEQA from the accidental release of these hazardous materials.

Compliance with federal, state, and local laws and regulations regarding hazardous materials would be required during construction of the SR 60 LRT Alternative and the North Side Design Variation. Based on future evaluation of depth to groundwater along the SR 60 LRT Alternative alignment, dewatering may be necessary during the construction process. Groundwater encountered during construction dewatering would require testing, and either on-site treatment and discharge in accordance with applicable standards or transport to a treatment and/or disposal facility. Additional details about dewatering are provided in the Water Resources Technical Memorandum (Appendix X).

A Contaminated Soil/Groundwater Management Plan would be implemented during construction to establish procedures for sampling, analysis, and proper handling, storage, transport, and disposal of contaminated materials in coordination with the appropriate regulatory agency.

In addition, a Worker Health and Safety Plan would be implemented prior to the start of construction to establish procedures to be followed if contamination is encountered. This would include required training prior to the start of work, personal protective equipment, and emergency procedures.

Best Management Practices (BMPs) would also be implemented to reduce adverse effects under NEPA from the accidental release of hazardous materials and/or wastes used or generated during construction to less than adverse, and to ensure that potentially significant impacts under CEQA would be less than significant.

Table 4.11-4 captures the critical topics and issues associated with construction of the SR 60 LRT Alternative and North Side Design Variation in the vicinity of the OII Landfill. The table also summarizes the key findings from the supplemental memorandum prepared in response to USEPA comments and contained in Attachment 1 to Appendix V, of this Draft EIS/EIR.

Table 4.11-4. Summary of Potential Geotechnical/Subsurface/Seismic/ Hazardous Materials Impacts Associated with the OII Landfill – During Construction

No.	Topic/Issue	SR 60 LRT Alternative	North Side Design Variation
1.	Method of Foundation Construction	A) Single CIDH Pile. B) Pile Foundation with Pile Cap in Monocover. C) Pile Foundation with Pile Cap below the Refuse.	Mechanically Stabilized Earth (MSE) wall along North Parcel; CIDH or pile foundations in transition zones.
2.	Landfill Fire Risk Issues	• Penetration of the monocover would create gas leakage pathways that could allow the ingress of atmospheric gas, which would result in an adverse effect under NEPA and significant impact under CEQA before mitigation. • Issue would require coordination with New Cure Inc. (NCI) to balance gas flow during construction, and monitoring post construction. Alternatives A and C would likely have a reduced operational risk since refuse would be removed from beneath the foundation.	• Refuse is not expected to be encountered. Therefore hazardous waste impacts associated with refuse would not be adverse under NEPA and less than significant under CEQA. • Landfill fire risk is considered not adverse under NEPA and less than significant under CEQA compared to construction adjacent to the South Parcel.
3.	Solid Waste Management Issues	• Health and safety impacts associated with removing and disposing of landfill waste or contaminated earth materials would be adverse under NEPA and significant under CEQA before mitigation. • Alternative B would generate a lesser volume of solid waste compared to construction Alternatives A or C.	• Refuse is expected to have been cleaned out of most of the work areas. MSE wall construction would likely not generate solid waste beyond construction debris. • Beyond the MSE wall, risk of encountering refuse for elevated structure foundations is considered minimal. • The need for handling solid and liquid wastes is not expected to be as significant as for the South Parcel. Therefore, no adverse effects under NEPA and no significant impacts under CEQA would occur. • It is noted small amounts of residual landfill waste material may have been missed during the North Parcel remedy actions and could be encountered during construction. A soil management plan would be developed prior to construction that would identify activities for residual waste monitoring, identification, segregation, and disposal.

Table 4.11-4. Summary of Potential Geotechnical/Subsurface/Seismic/ Hazardous Materials Impacts associated with the OII Landfill – During Construction (Continued)

No.	Topic/Issue	SR 60 LRT Alternative	North Side Design Variation
4.	Groundwater Management Issues	• There are health and safety risks associated with removing, possibly treating, and/or disposing of contaminated groundwater. • Significant groundwater management issues exist with the CIDH construction method, which would result in an adverse effect under NEPA and significant impact under CEQA before mitigation. • Contaminated groundwater, if encountered, would require treatment prior to disposal or discharge.	Dewatering is not anticipated under this design variation. MSE wall is not expected to introduce groundwater management issues. If groundwater is encountered for deep foundations in transition zones, it is expected to be a much lesser concern than for the South Parcel. Therefore, no adverse effects under NEPA and no significant impacts under CEQA would occur.
5.	Landfill Gas Issues	• Significant landfill gas issues are associated with health and safety and loss of gases. Penetration of the monocover would create gas leakage pathways, which would result in an adverse effect under NEPA and significant impact under CEQA before mitigation. • This issue is partially mitigated by existing OII LFG extraction system that would tend to pull gases inward toward the wells that are located on the OII landfill. Monitoring and additional control measures would be required.	MSE wall construction or other work on this alignment is not expected to have landfill gas issues as the North Side Design Variation would be constructed outside the boundaries of the OII Landfill and would not penetrate the monocover. Therefore, no adverse effects under NEPA and no significant impacts under CEQA would occur. Nonetheless, a gas management plan would be developed as part of the health and safety program and gas monitoring would be conducted during any excavation or grading activities.

Table 4.11-4. Summary of Potential Geotechnical/Subsurface/Seismic/ Hazardous Materials Impacts associated with the OII Landfill – During Construction (Continued)

No.	Topic/Issue	SR 60 LRT Alternative	North Side Design Variation
6.	Slope Stability Issues	• There could be seismic slope stability issues related to man-placed materials. There is a potential for slope failure within the landfill, which would result in an adverse effect under NEPA and significant impact under CEQA before mitigation. • The global stability of the refuse slope would be confirmed if this alignment is selected as the LPA. • The stability of the slope as influenced by foundation construction (cuts, shoring, equipment surcharge, etc.) would be further evaluated if this alignment is selected as the LPA. • Stability of existing features on the slope (buttress wall, utilities, etc.) as influenced by foundation construction would be evaluated if this alignment is selected as the LPA.	The topography is relatively flat. Therefore, effects under NEPA would not be adverse and impacts under CEQA would be less than significant related to slope stability.
7.	Vibration Issues	A detailed review of vibration impacts during construction was performed and is included as an attachment to Appendix V of this Draft EIS/EIR. Based on the anticipated level of vibrations during construction, it was determined that there would not be an adverse effect under NEPA or a significant impact under CEQA.	The same review of vibration impacts during construction was performed for the North Side Design Variation. Work in the vicinity of the North Parcel is not expected to have adverse vibration impacts during construction give the low vibration levels that would be generated. No adverse effects under NEPA or significant impacts under CEQA are anticipated during construction.

Source: AECOM/CDM Smith 2013.

Operational Impacts

Geotechnical, Subsurface, and Seismic Hazards

A segment of the SR 60 LRT Alternative east of San Gabriel Boulevard is located within the Alquist-Priolo Earthquake Fault zone. Accordingly, there is a potential for fault rupture along this portion of the SR 60 LRT Alternative alignment, which would be an adverse effect under NEPA and a potentially significant impact under CEQA.

A portion of the SR 60 LRT Alternative alignment between Muscatel Avenue and the eastern terminus of the alignment, including the Santa Anita Avenue and Peck Road stations, is mapped in areas potentially susceptible to liquefaction. In addition, the Mission Junction Maintenance Yard Option is located in an area potentially susceptible to liquefaction. The segment, maintenance yard site, proposed stations, and park and ride facility mapped within the potentially liquefiable zone and/or underlain by uncertified fill may be susceptible to seismically-induced settlement, which would be an adverse effect under NEPA and a potentially significant impact under CEQA.

As discussed above, historical landslides have been mapped in the area along the SR 60 Freeway west of Greenwood Avenue in the vicinity of the OII Landfill. While there does not appear to be a natural geologic landslide hazard in this area because of the extensive grading activities which took place on the South Parcel, additional characterization and delineation of the historic landslides would be completed during final design. Adverse effects are not anticipated to occur under NEPA and impacts would be less than significant under CEQA with regards to landslides on the South Parcel.

As for the North Side Design Variation, there does not appear to be a natural geologic landslide hazard on the North Parcel because of the topography and the grading activities which took place in this area. Historical landslides no longer exist on the North Parcel. Therefore, no adverse effect would occur under NEPA and impacts would be less than significant under CEQA for the North Side Design Variation.

The potential impact of vibration from rail operation on the integrity of the landfill was reviewed, and findings from the Noise and Vibration Technical Memorandum (Appendix T) did not identify vibration as a concern. Therefore, there would be no adverse operational effects under NEPA from landslides, and impacts under CEQA would be less than significant.

A portion of the SR 60 LRT Alternative corridor along Via Campo from approximately 600 feet west of Garfield Avenue to 450 feet east of Wilcox Avenue, and from the Rio Hondo crossing to the eastern terminus, are mapped within the Flood Inundation Hazard Area. The SR 60 LRT Alternative alignment is generally in an urbanized area with well-developed drainage infrastructure. The project would not increase the risk of flooding. In addition, the SR 60 LRT Alternative corridor would be on an elevated aerial structure and the impact during operation from flooding is considered low.

Due to the location of portions of the SR 60 LRT Alternative within an Alquist-Priolo Earthquake Fault zone and a liquefaction zone, there could be adverse operational effects under NEPA and potentially significant impacts under CEQA associated with seismic hazards due to fault rupture, liquefaction, and seismically-induced settlement that would require further evaluation during design. Mitigation would be implemented in accordance with standard design specifications to reduce adverse operational effects under NEPA to less than adverse and reduce potentially significant operational impacts under CEQA to less than significant.

The SR 60 North Side Design Variation is not located within the Alquist-Priolo Earthquake Fault zone, or located in an area mapped as susceptible to liquefaction or flooding. In addition, the SR 60 North Side Design Variation alignment would be located within the Caltrans ROW north of the freeway, where landfill refuse has been removed and replaced with engineered

fill. Accordingly, the SR 60 North Side Design Variation would not have any impact on the integrity of the landfill. In summary, there would be limited adverse effects under NEPA and potentially significant impacts under CEQA related to geotechnical, subsurface, and seismic hazards during operation; however, mitigation would reduce these to not adverse and less than significant, respectively.

Hazardous Materials

Accidental Release:

Operation of the SR 60 LRT Alternative would involve the use, storage, and transport of hazardous materials such as fuels, paints, lubricating fluids, and solvents for maintenance. Compliance with hazardous materials laws and regulations would be required, including hazardous materials inventory and emergency response planning, risk planning and accident prevention, employee hazard communication, public notification of potential exposure to specific chemicals, and storage of hazardous materials, as described in Appendix V. Adherence to existing laws and regulations would reduce the potential for adverse operational effects under NEPA to not adverse and potentially significant impacts under CEQA to a less than significant level. Furthermore, if long-term operation of the project requires groundwater to be collected and discharged, compliance with discharge permit standards would be required; therefore, operational effects under NEPA would be reduced to not adverse and potentially significant impacts under CEQA from operation would be less than significant.

Subsurface Oilfield Gases:

The potential presence of hydrogen sulfide and methane in the project area poses long-term operational concerns if these gases are allowed to accumulate in subsurface facilities. However, the SR 60 LRT Alternative does not involve underground segments, and no stations are to be located underground. Therefore, there would be no adverse operational effects under NEPA, impacts from oilfield gases under CEQA would be less than significant, and no mitigation is required.

Electromagnetic Fields (EMF):

Operation of the SR 60 LRT Alternative would introduce new sources of low level EMF associated with the overhead catenary lines and traction power substations. Compared to existing overhead power lines, the LRT would produce weak EMF. Anticipated EMF levels at locations of human exposure within and adjacent to the LRT would be well below exposure guidelines established by the American Conference of Governmental Industrial Hygienists and the International Commission on Non-Ionizing Radiation Protection. Therefore, there would be no adverse effects under NEPA and no significant impacts under CEQA from exposure to EMF.

Additional OII Investigations

Table 4.11-5 summarizes the critical topics and issues associated with operation of the SR 60 LRT Alternative and North Side Design Variation in the vicinity of the OII Landfill. Table 4.11-5 also summarizes the key findings from the supplemental memorandum prepared in response to USEPA comments and contained in Attachment 1 to Appendix V, of this Draft EIS/EIR.

4.11.3.3.2 Mitigation Measures

Construction Mitigation Measures

The construction contractor and Metro shall be responsible for assuring the implementation of the following mitigation measures.

Table 4.11-5. Summary of Potential Hazardous Materials Impacts associated with the OII Landfill – During Operation

No.	Topic/Issue	SR 60 LRT Alternative	North Side Design Variation
1.	Slope Stability	Based on the low level of vibrations, the depth of pile foundations, as well as the stabilizing influence of proposed piles intercepting potential slope failure surface, it was determined that this issue would not cause a reduction in the slope stability factor of safety. No adverse effects under NEPA or significant impacts under CEQA are anticipated during operation.	No slope stability issues are anticipated for the North Parcel alignment. No adverse effects under NEPA or significant impacts under CEQA are anticipated during operation.
2.	Cover Maintenance	Subject to further discussions, Metro would participate in the existing NCI maintenance and integrity of the cover in the immediate vicinity of the LRT piers, if this alternative is selected as the LPA.	No cover inspection is applicable to the North Parcel.
3.	Gas Management	As described above, the future LRT design details for the South Parcel would also include permanent seals and restoration of the monocover to prevent long-term gas leakage during LRT operation. The flexible leak-resistant seal would need to be capable of withstanding landfill settlement, LRT vibration, erosion, and physical damage.	No significant issues are expected for the North Parcel.

Table 4.11-5. Summary of Potential Hazardous Materials Impacts associated with the OII Landfill – During Operation (Continued)

No.	Topic/Issue	SR 60 LRT Alternative	North Side Design Variation
4.	Vibration Issues	A detailed review of vibration impacts during operation was performed and is included as an attachment to Appendix V of this Draft EIS/EIR. Based on the anticipated level of vibrations during operations, it was determined that there would not be an adverse effect under NEPA or a significant impact under CEQA. In accordance with the FTA guidelines, there is no potential for annoyance due to vibration at the South Parcel because there are no vibration-sensitive land uses (such as residences, schools, churches, parks, etc.) in the area. For the SR 60 LRT Alternative alignment, the potential for slope instability due to vibrations is not likely due to the low level of vibrations generated from train operations. The elevated concrete track structure would attenuate the train-induced vibration and transfer residual vibration levels down to the bedrock. It is also noted that the deep foundations would have a slope stabilizing effect. No adverse effects under NEPA or significant impacts under CEQA are anticipated during operation.	Operation of the North Side Design Variation in the vicinity of the North Parcel is not expected to have adverse vibration impacts given the low vibration levels that would be generated. No adverse effects under NEPA or significant impacts under CEQA are anticipated during operation.

Table 4.11-5. Summary of Potential Hazardous Materials Impacts associated with the OII Landfill – During Operation (Continued)

No.	Topic/Issue	SR 60 LRT Alternative	North Side Design Variation
5.	Air Quality Issues	The proposed alignment of the SR60 LRT Alternative elevated track along the south side of the SR 60 Freeway would place the Metro trains at roughly the same elevation as the top of the LFGTS thermal oxidizer stacks. At the nearest point, the proposed SR 60 LRT track along the south side of the SR 60 Freeway would be approximately 360 feet south of the southern LFGTS thermal oxidizer. Results of the thermal plume study, contained in Appendix V of this Draft EIS/EIR, indicate that maximum temperatures at the approximate elevation of the LRT tracks for either the southern alignment or the North Side Design Variation would increase only three to four degrees above ambient temperature, even with worst-case meteorology and ambient temperatures of 110 degrees Fahrenheit. No adverse effect under NEPA or significant impact under CEQA would occur from the existing oxidizer stacks on the proposed alignment.	The North Side Design Variation would be primarily at-grade or on additional engineered fill on retaining walls and would place the Metro trains within 150 feet of the stacks, but at a much lower elevation compared to the SR 60 LRT Alternative. Results of the thermal plume study, contained in Appendix V of this Draft EIS/EIR, indicate that maximum temperatures at the approximate elevation of the LRT tracks for either the southern alignment or the North Side Design Variation would increase only three to four degrees above ambient temperature, even with worst-case meteorology and ambient temperatures of 110 degrees Fahrenheit. No adverse effect under NEPA or significant impact under CEQA would occur from the existing oxidizer stacks on the proposed alignment
6.	Operability and Sustainability	Maintenance and upkeep programs for the monocover would be needed. Inspection, upkeep, and if necessary, replacement of the seal system.	Maintenance requirements would be routine. The monocover would not be affected; thus there would be no need to change current maintenance practices.
7.	Liability Risks	Likely to be significantly higher than the North Side Design Variation alignment.	Expected to be less than the SR 60 LRT Alternative alignment.

Source: AECOM/CDM Smith 2013.

Geotechnical, Subsurface, and Seismic Hazards

Implementation of the following mitigation measure during construction of the SR 60 LRT Alternative would reduce adverse effects under NEPA related to geotechnical, subsurface and seismic hazards to not adverse, and potentially significant impacts under CEQA to less than significant levels:

4.11-i The worst case potential for slope stability impacts are discussed and disclosed above. If the SR 60 LRT Alternative is selected as the LPA, the following would be undertaken to confirm slope stability of man-placed materials on the OII Landfill site:

- Global stability of the refuse slope would be confirmed.
- Stability of the slope as influenced by foundation construction (cuts, shoring, equipment surcharge, etc.).
- Stability of existing features on the slope (buttress wall, utilities, etc.) as influenced by foundation construction.

Hazardous Materials

Implementation of the following mitigation measures during construction of the SR 60 LRT Alternative would reduce adverse effects under NEPA related to hazardous materials to not adverse, and potentially significant impacts under CEQA to less than significant levels. Where noted, mitigation measures unique to the North Side Design Variation would apply; otherwise the mitigation measures listed below apply to the SR 60 LRT Alternative with or without the North Side Design Variation:

4.11-ii As part of solid waste management during construction adjacent to the South Parcel of OII Landfill, the following measures would be implemented for construction options A, B, or C by the construction contractor:

- Prior to construction anticipated solid (and liquid) wastes would be characterized, classified, and profiled for future handling, transportation and disposal/treatment purposes. The waste classification would be based on the results of sampling to identify the waste characteristics. The sampling and profiling would be conducted during pre-construction waste characterization, during which exploratory boreholes would be advanced at the CIDH column locations and waste, soil, and groundwater samples would be collected. In addition to collecting samples for waste characterization, the thickness and volume of the materials, the depth to groundwater, and the gas content in the subsurface would be identified.
- None of the solid waste removed from the construction may be placed in the OII Landfill, therefore the solid waste would require loading, transportation, and ultimately reuse or disposal. Waste segregation would likely be conducted based on the pre-construction classification.
- Removal of water-saturated soil would require runoff controls such as plastic sheeting drained to the toe of the landfill slope with liquid collection. Wet soil could require stabilization prior to transport. Stabilization could include mixing with a sorbent material during loading.
- If, through sampling, removed soil is found to contain hazardous materials, soil handling would be in compliance with applicable federal, state, and local laws and regulations regarding the handling of hazardous materials.

- Given that this is a Resource Conservation and Recovery Act (RCRA) and California hazardous waste project, full hazardous materials training, contractor licensing, and health and safety plans and programs would be required. Exposure to the public, workers and the environment from harmful materials would be prevented by developing the future design details appropriately, and by careful executing the future construction activities.
- Depending on the characterization of each waste stream, a number of disposal options exist. RCRA, non-RCRA, and California hazardous waste solids waste may be transported to a Class 1 hazardous waste treatment and disposal facility for treatment and/or permanent waste isolation.
- A disposal facility may be required to provide the following services for all or some of the OII Landfill waste stream:
  - Hazardous waste disposal.
  - Stabilization of inorganic wastes (e.g., metals).
  - Chemical oxidation treatment of organic waste.

4.11-ii North Side Design Variation: Small amounts of residual landfill waste material may have been missed during the North Parcel remedy actions and could be encountered. As a contingency for this, a soil management plan would be developed prior to construction that would identify activities for residual waste monitoring, identification, segregation, and disposal.

4.11-iii A Contaminated Soil/Groundwater Management Plan would be implemented during construction to establish procedures to follow if contamination is encountered. The plan would include the following procedures to be implemented by the construction contractor:

- Notification procedures and contact information for appropriate regulatory agencies;
- Procedures for sampling and analysis of soil and/or groundwater known or suspected to be impacted by hazardous materials;
- Procedures for the proper handling, storage, transport, and disposal of contaminated soil and/or groundwater, in consultation with regulatory agencies;
- Procedures for the proper containment of refuse or other contaminated soil and/or groundwater during construction to ensure that contamination is not transported vertically or laterally;
  - Dust control measures (e.g., soil wetting, wind screens) for contaminated soil; and
  - Groundwater collection, treatment, and discharge procedures and applicable standards.

4.11-iv In addition to mitigation measure 4.11-iii, as part of liquid waste and groundwater management during construction adjacent to the South Parcel of OII Landfill, the following measures would be implemented for construction option A by the construction contractor (assuming displacement piles are used, dewatering would not be necessary for construction options B or C):

- Pre-construction characterization, which would include solid waste, geotechnical, and aquifer testing, would be required.
- The method of dewatering would be determined as part of the construction planning; however, the objective would be to generate as little water as possible and to capture all water for offsite transport and treatment or recycling. The dewatering effort could include temporary tankage, followed by tank truck transportation to a permitted treatment and/or recycling facility.

- No water would be discharged to the landfill, and no untreated water would be discharged to local storm or sewer drains.

4.11-v Prior to construction, a gas monitoring program would be developed to establish levels of response based on monitoring criteria developed by Metro in conjunction with USEPA and New Cure Inc. (NCI). The construction monitoring program would specify monitoring frequency, constituents and methods. It would also include a communications plan identifying the process for informing and obtaining consent from USEPA and NCI for any changes proposed to the existing gas collection activities based on observed monitoring results.

The expected levels of construction gas mitigation would be:

Level 1 - Gas Monitoring:

- Baseline and routine gas monitoring would be conducted at all existing LFG probes and GP locations. The frequency would be established in the construction monitoring program document. Monitoring data would be tracked and compared to established action levels. Example target limits for a construction gas monitoring program are provided below:
  - Gas temperature in excess of 140° F.
  - Gas temperature rise in excess of three percent per week.
  - Oxygen content in excess of ten percent.
  - Carbon monoxide in excess of 100 ppm.

Level 2 - Gas Flow Reduction or Shutdown:

- Should any of the agreed-to action levels be exceeded, the expected Level 2 response would be to reduce or eliminate LFG extraction at the affected well in addition to those on either side of the well. Gas flow rates could be controlled by the existing LFG extraction well valves.
- Monitoring of the nearest GP would then be increased in order to measure methane, CO2 and pressure to ensure that methane and other LFGs that would otherwise be collected from the LFG extraction wells are not increasing. Note that even with the flow reduction or shutdown of the perimeter LFG extraction wells, gas migration in the vicinity of the LRT construction project would still likely be toward active interior LFG extraction probes, where it would be eventually captured.
- In addition, increased methane and carbon monoxide (CO) health and safety monitoring would be conducted at the construction site, as the reduction or shutdown of the extraction wells could reduce gas protection for the workers.

Level 3 - Construction Site Engineering Controls:

- Should temperatures continue to increase, or remain elevated prior to the completion of construction and the installation of the permanent seal/cover restoration, temporary engineering controls would be initiated at the exposed construction sites in order to prevent air leakage. Controls would be further developed during the LRT detailed design process, and may include:
  - Temporary flexible membrane seals that are installed around the pilings or casing during installation.
  - Temporary flexible membrane seals that are installed over the construction pad, should the pad be cut into the landfill. Spray on foam, visqueen, gunnite, bentonite or other similar material could also be utilized to temporarily seal the construction area from gas intrusion.

4.11-v-NSDV Landfill gas is not anticipated to be a significant issue for construction associated with the North Side Design Variation as the LRT would be constructed entirely outside of the boundaries of the OII landfill and would

not penetrate the monocover. Prior to construction, a gas management plan would nonetheless be developed by the construction contractor as part of the health and safety program and gas monitoring would be conducted during any excavation or grading activities.

4.11-vi A Worker Health and Safety Plan would be developed prior to the start of construction activities. All workers would be required to review the plan, receive training if necessary, and sign the plan prior to starting work. The plan would, at a minimum, identify the following:

- Properties of concern and the nature and extent of contaminants that could be encountered during excavation activities;
- All appropriate worker, public health, and environmental protection equipment and procedures;
- Emergency response procedures, including the most direct route to a hospital; and
- Site Safety Officer.

Operational Mitigation Measures

Geotechnical, Subsurface, Seismic Hazards

Implementation of the following mitigation measures during operation of the SR 60 LRT Alternative would reduce adverse effects under NEPA associated with geotechnical, subsurface and seismic hazards to not adverse, and potentially significant impacts under CEQA to less than significant levels:

4.11-vii To address hazards associated with liquefiable soils and seismically-induced settlement, further evaluation would be conducted to determine the need for mitigation based on standard design specifications. Mitigation, such as replacement of liquefiable soils with engineered fill or ground improvement methods such as grouting, would be implemented to meet design specifications. Allowable differential seismically-induced settlement up to 1 inch and 2 inches is considered appropriate for structures and embankment, respectively.

4.11-viii For the portion of the alignment within an Alquist-Priolo Fault Zone, during the final design phase of the project, Metro would perform a fault investigation to further delineate the location of the fault zone and provide appropriate setback for the foundation support. In general, a minimum setback of 50 feet is commonly used for structures intended for human occupancy, according to the Alquist-Priolo Earthquake Fault Zoning Act.

Hazardous Materials

Implementation of the following mitigation measure during operation of the SR 60 LRT Alternative would reduce adverse effects under NEPA associated with hazardous materials to not adverse, and potentially significant impacts under CEQA to less than significant levels:

4.11-ix To address hazards associated with landfill gases at the South Parcel of the OII Landfill site, permanent seals would be incorporated and the monocover restored as necessary to prevent long-term gas leakage from the OII landfill. Additionally, as part of the long term operation of the LRT, Metro would develop operations and maintenance procedures to inspect, test, and repair the integrity of the LRT foundation seals during existing quarterly cap inspection and maintenance program conducted by NCI.

4.11-ix-NSDV No cover inspection is applicable to the North Parcel. Should future subsurface explorations and the detailed design alter this assumption, measures similar to those mentioned under South Parcel could be considered in limited areas of the North Parcel Alignment, as appropriate.

4.11.3.3.3 Impacts Remaining After Mitigation

NEPA Finding

During construction, mitigation would reduce potential adverse effects on the OII Landfill slope stability and the potential for landfill gas exposure to not adverse under NEPA. In addition, mitigation would reduce potential adverse effects from encountering contaminated soil and/or groundwater at Superfund sites and other properties of concern, and potential impacts from the accidental release of hazardous materials and/or wastes used or generated during construction to not adverse under NEPA

Potential adverse operational effects with respect to liquefaction, seismically-induced settlement, and hazardous materials would be reduced to not adverse under NEPA through implementation of mitigation measures.

CEQA Determination

Potential impacts associated with OII Landfill slope stability during construction would be less than significant with the implementation of mitigation. In addition to compliance with federal, state, and local laws and regulations regarding hazardous materials, mitigation would reduce potential impacts from encountering and/or accidental release of hazardous materials during construction to a less than significant level.

Potential impacts associated with liquefaction, seismically-induced settlement, landslides, and hazardous materials would occur during project operation. Compliance with federal, state, and local laws and regulations regarding hazardous materials would reduce many of these impacts to a less than significant level. In addition, implementation of mitigation measures would reduce impacts related to geotechnical, subsurface, seismic hazards and hazardous materials, including those related to liquefaction, settlement, potential presence of subsurface gases, ACM, and LBP, to less than significant.

4.11.3.4 Washington Boulevard LRT Alternative

4.11.3.4.1 Impact Analysis

Construction Impacts

Geotechnical, Subsurface, Seismic Hazards

Unlike the SR 60 LRT Alternative, the Washington Boulevard LRT Alternative alignment would not involve construction near the OII landfill. There would be no adverse effects under NEPA or potentially significant impacts under CEQA associated with geotechnical, subsurface, and seismic hazards.

Hazardous Materials

Construction impacts related to hazardous materials for the Washington Boulevard LRT Alternative are similar to those for the SR 60 LRT Alternative. The differences among the two build alternatives relate to the properties of concern that are known to occur along the two alignments, as shown in Figure 4.11-3.

Superfund Sites

The Washington Boulevard LRT Alternative alignment avoids construction near the OII Superfund site, where hazardous materials are known to occur within the Caltrans ROW. Construction of the Washington Boulevard LRT Alternative would not occur directly within any Superfund site as shown in Figure 4.11-4, although the eastern end of the alignment overlies a portion of the Omega OU2 groundwater plume, where high concentrations of VOCs occur in groundwater at depths of 30 to 100 feet bgs (CDM Smith 2010). Construction of the Washington Boulevard LRT Alternative at-grade alignment in this area would entail shallow excavation of five to ten feet. Therefore, contaminated groundwater associated with the Omega OU2 is not likely to be encountered during construction of the Washington Boulevard LRT Alternative.

However, since the Washington Boulevard LRT Alternative would be constructed at-grade within the Omega OU2 groundwater plume, there is potential for intrusion of vapors from the

groundwater plume into at-grade structures. During the final design phase of the project, further investigation of soil vapor concentrations at proposed station locations and park and ride areas would be warranted to confirm the presence of vapor intrusion of VOCs into buildings. Mitigation measures listed below are available to reduce these potential impacts.

Other Properties of Concern

As with the SR 60 LRT Alternative, construction of the Washington Boulevard LRT Alternative would occur within or near other contaminated sites that are not classified as Superfund sites. Additional data gathering and/or site-specific soil, groundwater, and/or soil gas investigation activities (e.g., Phase II ESA testing), are warranted for several of the properties of concern located along the Washington Boulevard LRT Alternative alignment to further delineate potential areas of contamination and guide construction activities.

Compared with the SR 60 LRT Alternative, there would be a greater potential for impacts to sensitive receptors from a release of hazardous materials in contaminated soil and/or groundwater, as the Washington Boulevard LRT Alternative would be located within residential neighborhoods in close proximity to schools and other sensitive receptors. Mitigation would reduce adverse effects under NEPA during construction to not adverse and potentially significant impacts under CEQA to a less than significant level.

Hazardous materials could also include petroleum gases in the subsurface. Adverse effects under NEPA and potentially significant impacts under CEQA may also occur from release of ACM or LBP during building demolition, or the accidental release of construction-related materials such as fuels.

In addition, construction could involve the transport of soil or other media contaminated with hazardous materials to a disposal facility located away from the project area. As such, there is potential for adverse effects under NEPA or potentially significant impacts under CEQA from the accidental release of these hazardous materials.

Compliance with federal, state, and local laws and regulations regarding hazardous materials would be required during construction of the Washington Boulevard LRT Alternative. BMPs would be implemented to reduce adverse effects under NEPA from the accidental release of hazardous materials and/or wastes used or generated during construction to not adverse, and potentially significant impacts under CEQA to less than significant. In addition, mitigation would be implemented to reduce all adverse effects under NEPA related to hazardous materials during construction to not adverse, and to ensure that potentially significant impacts under CEQA are less than significant.

Operational Impacts

Geotechnical, Subsurface, Seismic Hazards

Seismic hazards are anticipated during operation of the Washington Boulevard LRT Alternative. The Washington Boulevard LRT Alternative does not cross any known fault; however, there is the potential for liquefaction in the portion of the proposed alignment along Washington Boulevard underlain by young alluvial fan deposits, from South Bluff Road to the eastern terminus of the alignment. The proposed Santa Fe Springs Maintenance Yard Option at the intersection of Washington Boulevard and Allport Avenue, proposed stations at Rosemead Boulevard, Norwalk Boulevard, and Lambert Road, and the associated park and ride facility are within a mapped liquefaction zone. Thus, in these portions of the Washington Boulevard LRT Alternative alignment there would be potential for adverse effects under NEPA from liquefaction and seismically-induced settlement and potentially significant impacts under CEQA; however, proposed mitigation would reduce these to not adverse and less than significant, respectively.

The Washington Boulevard LRT Alternative is located in an urbanized area covered with

impervious surfaces and includes generally well-developed drainage infrastructure. The proposed project would not increase the risk of flooding. However, two segments of the Washington Boulevard LRT Alternative alignment are within the flood inundation zone: Via Campo from approximately 600 feet west of Garfield Avenue to the Garfield Avenue intersection, and continuing southward on Garfield Avenue to the intersection of Hay Street; and Washington Boulevard from the Rio Hondo to approximately 1,150 feet west of Sorensen Street. These segments of the Washington Boulevard LRT Alternative alignment may be subject to stringent drainage impact review by the Los Angeles County Department of Public Works. The elevated portion of the Washington Boulevard LRT Alternative alignment is not subject to adverse effects under NEPA or potentially significant impacts under CEQA related to flooding.

The at-grade segment of the Washington Boulevard LRT Alternative alignment is underlain by young alluvial fan deposits that are potentially loose and compressible when subjected to additional loading. Therefore, there would be adverse operational effects under NEPA and potentially significant operational impacts under CEQA related to liquefaction, seismically-induced settlement, and settlement due to rail/track loading which would require further evaluation during design. Mitigation would be implemented in accordance with standard design specifications to reduce adverse operational effects under NEPA to not adverse and impacts under CEQA to a level that is less than significant.

Hazardous Materials

As with the SR 60 LRT Alternative, an accidental release of hazardous materials used during operation could occur. Adherence to existing laws and regulations, as described in Appendix V, would reduce adverse operational effects under NEPA to not adverse and potentially significant operational impacts under CEQA to a less than significant level.

An additional operational adverse effect under NEPA and impact under CEQA could occur under the Washington Boulevard LRT Alternative due to its at-grade configuration. Specifically, there is potential for vapor intrusion into any newly constructed buildings on contaminated soil and/or groundwater at locations near the Omega Chemical OU1 and OU2 site. This adverse effect under NEPA and potentially significant impact under CEQA would require further investigation prior to construction of any new buildings at-grade to determine whether conditions are such that vapor intrusion could occur and create a public health risk. Based on these investigations, vapor barriers or other design elements would be put in place to reduce adverse effects under NEPA from vapor intrusion to not adverse and potentially significant impacts under CEQA to less than significant.

The Washington Boulevard LRT Alternative would be located near residences, businesses, schools, and other human-occupied structures along its entire length, whereas the SR 60 LRT Alternative would be located adjacent to a freeway. However, levels of EMF would be well below exposure guidelines. Therefore, there would be no adverse effects under NEPA or impacts under CEQA from exposure to EMF from the Washington Boulevard LRT Alternative.

4.11.3.4.2 Mitigation Measures

Construction Mitigation Measures

The construction contractor and Metro shall be responsible for assuring the implementation of the following mitigation measures.

Geotechnical, Subsurface, Seismic Hazards

Since there would be no adverse construction effects under NEPA or impacts under CEQA related to geotechnical, subsurface, or seismic hazards for the Washington Boulevard LRT Alternative, no mitigation measures are required.

Hazardous Materials

Mitigation measures 4.11-iii and 4.11-vi, identified above in Section 4.11.3.3.2 for the SR 60 LRT Alternative and summarized in

Table ES-2, would apply to the Washington Boulevard LRT Alternative during construction related to hazardous materials.

Operational Mitigation Measures

Geotechnical, Subsurface, Seismic Hazards

Mitigation measure 4.11-vii, identified above in Section 4.11.3.3.2 for the SR 60 LRT Alternative and summarized in Table ES-2, would apply to the Washington Boulevard LRT Alternative during operation related to geotechnical, subsurface and/or seismic hazards.

Hazardous Materials

Implementation of the following mitigation measure during operation of the Washington Boulevard LRT Alternative would reduce adverse effects under NEPA associated with hazardous materials to not adverse, and potentially significant impacts under CEQA to less than significant levels:

4.11-x To address hazards associated with vapor intrusion from contaminated soil and/or groundwater at locations near the Omega OU1 and OU2 sites, further investigation would be conducted during final design to determine the need for mitigation based on human health risk-based criteria established by the California Department of Toxic Substances Control. If required, any new buildings would be constructed with vapor barriers or other design elements to reduce adverse effects under NEPA from vapor intrusion to not adverse and ensure that impacts under CEQA are less than significant.

4.11.3.4.3 Impacts Remaining After Mitigation

NEPA Finding

No adverse effects associated with geotechnical, subsurface, or seismic hazards are anticipated during construction of the Washington Boulevard LRT Alternative. Mitigation would be required to reduce potential adverse effects from encountering contaminated soil and/or groundwater at properties of concern, and to reduce potential impacts from the accidental release of hazardous materials and/or wastes used or generated during construction to not adverse.

Potential adverse effects with respect to liquefaction and seismically-induced settlement during operation would be reduced to not averse through implementation of mitigation measures. Mitigation would also be required to reduce hazards associated with vapor intrusion from contaminated soil and/or groundwater at locations near the Omega OU1 and OU2 sites to not adverse.

CEQA Determination

There would be no impacts associated with geotechnical, subsurface, or seismic hazards during construction of the Washington Boulevard LRT Alternative. Compliance with federal, state, and local laws and regulations regarding hazardous materials, as well as mitigation, would be required to reduce potential impacts from encountering and/or accidental release of hazardous materials during construction to a less than significant level.

Impacts associated with liquefaction, seismically-induced settlement, and hazardous materials could occur during project operation. Compliance with federal, state, and local laws and regulations regarding hazardous materials would reduce many of these impacts to a less than significant level. In addition, implementation of mitigation measures would ensure that all impacts related to geotechnical, subsurface, seismic hazards, and hazardous materials would be less than significant.

Section 4.12

Water Resources

This section summarizes the existing water resources in the project area and the potential impacts of the proposed alternatives on these resources. Information in this section is based on, and updated where appropriate from, the Water Resources Technical Memorandum, which is incorporated into this Draft EIS/EIR as Appendix W, as well as Attachments 1 and 2 to the Appendix. Water resources topics include water quality (pollution), drainage, floodplains, and water supply.

4.12.1 Regulatory Framework/Methodology

4.12.1.1 Regulatory Framework

Applicable laws and guidance for the analysis of water resources impacts include federal, state, regional, and local regulations and requirements related to potential water quality and supply, flooding, and hydrology impacts. The following list is a summary of the regulations and permitting requirements pertinent to the proposed alternatives. Permits may be required during construction and operation of the proposed alternatives in order to comply with applicable regulations. Where possible, it is noted whether a specific permit would be required during the construction phases of the proposed alternatives, during operation, or both; however, exact permit requirements will not be known until specific plans for construction are finalized. Specific permitting requirements would depend on the construction phasing of the proposed alternative.

Appendix W, Water Resources Technical Memorandum, includes a full description of the regulatory framework.

4.12.1.1.1 Regulations Requiring a Permit or Formal Approval

Federal

CWA Section 404: The U.S. Army Corps of Engineers (USACE) has jurisdiction over all Waters of the U.S. Under the Clean Water Act (CWA) Section 404, the USACE regulates the discharge of dredged or fill materials (including from construction activities) into Waters of the U.S., which include navigable waters and traditionally navigable waters as defined in 33 CFR 328.3(a) (i.e., the Rio Hondo and San Gabriel River).

Rivers and Harbors Appropriation Act (RHA) of 1899: The USACE has jurisdiction over flood protection systems under Section 14 of the RHA (33 USC § 408). Construction and operation of the alternatives in the Whittier Narrows Dam Flood Control Basin (Basin) and the Rio Hondo or San Gabriel River channel would require review and approval by the USACE through a Section 408 permit.

Federal Regulation of Land Development in Flood Control Basins: The USACE maintains a flowage easement in the vicinity of the proposed Santa Anita Avenue station. Under Policy Guidance Letter No. 32 and Regulation 1110-2-1, the USACE evaluates land development proposals within reservoirs and flood control basins.

National Flood Insurance Program (NFIP): The Federal Emergency Management Agency (FEMA) issues flood zone maps on a countywide level. Volume 44 CFR § 59-65 sets NFIP floodplain management building requirements delineating policies for development in floodplains. Among other provisions, applicable aspects of the NFIP regulations state that if the area of construction is located within a regulatory floodway, as delineated on the Flood Insurance Rate Map, any

development must not increase base flood elevation levels. The term "development" means any man-made change to improved or unimproved real estate including, but not limited to, buildings, other structures, dredging, filling, grading, paving, excavation or drilling operations, and storage of equipment or materials. A hydrologic and hydraulic analysis must be performed prior to the start of development and must demonstrate that the development would not cause any rise in base flood levels.

State

Clean Water Act (CWA) Section 401: The State Water Resources Control Board (SWRCB) has jurisdiction over all Waters of the State (i.e., Rio Hondo and San Gabriel River). Under CWA Section 401, the SWRCB must issue a 401 Water Quality Certification to ensure compliance with state water quality standards for any activity resulting in a discharge to a water body (including the placement of structures in the rivers and/or spreading basins in the project area).

CWA Section 402: Through delegated jurisdiction under the federal CWA, the SWRCB regulates point source discharges to Waters of the U.S. under the National Pollution Discharge Elimination System (NPDES). Regulated discharges also include diffuse sources of discharge caused by general construction activities covering an area greater than one acre, and stormwater discharges in municipal separate storm sewer systems (MS4s) in which runoff is carried through a developed conveyance system to specific discharge locations. The SWRCB issues both a construction general permit for protection of water quality from stormwater discharges during construction activities, and an industrial general permit for protection of water quality from stormwater discharges during industrial activities. Under construction and operation of the proposed alternatives, Metro would be responsible for compliance with both of these NPDES permits.

California Fish and Game Code Section 1602: The California Department of Fish and Game (CDFG) has jurisdiction over ephemeral, intermittent, and perennial waterways, including natural lakes and manmade reservoirs. CDFG's jurisdiction can also extend over the habitats adjacent to waterways. Under Section 1602, CDFG must be notified of any activity that substantially diverts or obstructs a waterway; changes or uses material from the bed, channel, or bank of a waterway; or deposits or disposes of debris, waste, or other material containing ground pavement where it may pass into any waterway. Notification of CDFG (through a Lake or Streambed Alteration Agreement) would be required prior to the start of construction.

Regional/Local

Los Angeles RWQCB: The Los Angeles Regional Water Quality Control Board (LARWQCB) has jurisdiction over stormwater and urban runoff discharges from 84 incorporated cities within the Los Angeles County Flood Control District (LACFCD), including the cities in the project area. Construction and operation of the proposed alternatives would have to comply with the Los Angeles County Municipal Storm Water Permit (Order No. 01-182, NPDES No. CAS-004001); Waste Discharge Requirement (WDR) Order No. 93-010 (for specified discharges to groundwater in the Santa Clara and Los Angeles River Basins); and WDR Order No. 91-93 for discharge of non-hazardous contaminated soils and other wastes in the Los Angeles and Santa Clara River Basins.

Los Angeles County Department of Public Works: The County's Department of Public Works (LACDPW) has jurisdiction over the Rio Hondo and San Gabriel River Spreading Grounds as well as some of the drainage network through the Whittier Narrows area. Coordination with the LACDPW, and an encroachment and/or construction permit therefrom, may be required for construction of the LRT alternatives in these areas.

4.12.1.1.2 Other Applicable Laws

Federal

CWA Section 303(d): The U.S. Environmental Protection Agency (USEPA) has authority under the CWA to implement water pollution control programs. In California, this authority is delegated

to the SWRCB. Section 303(d) requires states to develop a list of water-quality-impaired water bodies and to implement total maximum daily loads (TMDLs) for certain pollutants in order to meet water quality standards.

Executive Order 11988, Floodplain Management: All federal agencies must avoid (to the extent possible) long- and short-term adverse effects associated with the occupancy or modification of floodplains. The Order establishes an eight-step process that agencies should carry out as part of the decision-making process on projects with the potential to impact floodplains. Engineer Regulation (ER)-1165-2-26 describes how the USACE implements Executive Order 11988 to: avoid development in a floodplain unless it is the only practicable alternative; reduce the hazard and risk associated with flooding; minimize the impact of floods on human health, safety and welfare; and restore the beneficial values of floodplains.

Fish and Wildlife Coordination Act: The Fish and Wildlife Coordination Act requires federal agencies to consult with the U.S. Fish and Wildlife Service (USFWS) or, in some instances, with the National Oceanic and Atmospheric Administration, National Marine Fisheries Service (NOAA/NMFS) and with state fish and wildlife resource agencies (such as the CDFG) before undertaking or approving water projects that would control or modify surface water. Consultation ensures that wildlife concerns receive equal consideration in the development of water resource projects and are coordinated with the features of these projects. Federal agencies are required to fully consider these agencies' recommendations in project reports and to include measures to reduce impacts on fish and wildlife in project plans.

State

Porter-Cologne Water Quality Control Act: The act authorizes the SWRCB to adopt, review, and revise policies for all waters of the state (including both surface and groundwater); regulates discharges to surface and groundwater; and directs the Regional Water Quality Control Boards (RWQCB) to develop regional basin plans. The Act divides the state of California into nine RWQCB areas. Each RWQCB implements and enforces provisions of the CWA, subject to policy guidance and review by the SWRCB. The project area is located in the LARWQCB Region 4, the Los Angeles Region.

State Anti-degradation Policy: This policy is also enforced by the SWRCB to maintain high quality waters in California. The policy requires that any activity which produces or may produce a waste or increased volume or concentration of waste and which discharges or proposes to discharge into high quality waters will be required to meet waste discharge requirements (WDRs) to control the discharge and assure that a pollution or nuisance will not occur (USEPA 2010).

Seismic Regulations: Under jurisdiction of the California Department of Conservation, Geological Survey, the Alquist-Priolo Earthquake Fault Zoning Act and the Seismic Hazards Mapping Act regulate the construction and protection of structures used for human occupancy on the surface trace of active faults and non-surface active fault rupture, respectively. State seismic regulations relate to water quality due to potential hazards related to dam failure and inundation caused by earthquake-induced ground shaking or a seiche event, erosion, improper siting and/or design, and rapidly rising floodwaters during heavy storm events.

Regional/Local

Applicable regional and local policies that pertain to the proposed alternatives include:

- L.A. Metro Water Use and Conservation Policy
- County of Los Angeles General Plan
- Los Angeles County Code
- LACFCD – Master Drainage Plan for Los Angeles County
- Multiple city general plans and municipal code requirements, including the cities of Los Angeles, Commerce, Montebello, Monterey Park, Pico Rivera, Rosemead, Santa Fe Springs, South El Monte, and Whittier

These plans and regulations set out policies and guidelines pertaining to water use, water quality, and floodplains. Some local approvals may be required; however, no specific permits pertain to county or city codes and regulations.

More specific information about each of these regulations is provided in Appendix W, Water Resources Technical Memorandum, of this Draft EIS/EIR. **Table 4.12-1** summarizes the potential permits and approval agencies necessary for implementation of the proposed alternatives.

4.12.1.2 NEPA Impact Criteria

In order to address potential impacts, this environmental document evaluates:

- Activities that would generate wastewater and the provisions for containing these possible pollutants; and
- The project's potential for increasing runoff, and measures that will be used to reduce runoff or prevent pollutants from entering stormwater systems.
- Analysis of environmental effects under NEPA includes consideration of both context and intensity of effects to water resources (CEQ Regulations Part 1508.27). Context means that the significance of an action must be analyzed in several different contexts including the affected region, the affected interests, and the locality. Significance varies with the setting of the action. Intensity refers to the severity of the impact.

Table 4.12-1. Summary of Potential Permits and Approval Agencies

Permit	Approving Agency	Necessary During Construction or Operation
CWA Section 404	USACE	Construction
RHA Section 14, (Section 408)	USACE	Construction
CWA Section 401	SWRCB	Construction
NPDES General Construction	SWRCB	Construction
California Fish and Game Code Section 1602 – Lake or Streambed Alteration Agreement	CDFG	Construction
Encroachment/ Construction Permit	LACDPW	Construction
NPDES General Industrial	SWRCB	Operation
NPDES MS4	LARWQCB	Operation

Source: AECOM, CDM Smith 2011.
Notes:
CWA – Clean Water Act
RHA – Rivers and Harbors Act
LACDPW – Los Angeles County Department of Public Works
USACE – U.S. Army Corps of Engineers
SWRCB – State Water Resources Control Board
CDFG – California Department of Fish and Game
NPDES – National Pollutant Discharge Elimination System
MS4 - Municipal Separate Storm Sewer System
LARWQCB – Los Angeles Regional Water Quality Control Board

4.12.1.3 CEQA Impact Criteria

The *California Environmental Quality Act (CEQA) Guidelines* provide a framework for evaluating potential effects. A significant impact to hydrology and water quality would occur if an alternative would:

- Violate any applicable water quality standards or waste discharge requirements, including those defined in Section 13050 of the Clean Water Act;
- Affect the rate or change the direction of movement of existing groundwater contaminants, or expand the area affected by contaminants;
- Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table;
- Substantially alter the existing drainage pattern of the site or area, including the alteration of the course of a stream or river, in a manner that would result in substantial erosion or siltation on- or off-site;
- Create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff;
- Otherwise substantially degrade water quality;
- Place within a 100-year flood hazard area structures that would impede or redirect flood flows; or
- Expose people to a significant risk of loss, injury, or death involving flooding.

4.12.1.4 Methodology

In order to determine alternative-specific impacts to water resources, existing data on surface and groundwater resources, drainage patterns, water quality, water supply, and flooding and inundation hazards was evaluated. Impacts are discussed and analyzed separately for each impact category relative to impacts resulting from construction period activities and operation-related activities.

During construction, the main potential project impacts are likely to arise from stormwater runoff, construction over rivers, potential water quality impacts, floodplain and wetland impacts in the Whittier Narrows/Whittier Narrows Dam area, and impacts to existing drainage infrastructure.

During operation, impacts to water resources would result from increases in polluted stormwater runoff, increases in impervious surfaces throughout the area of potential impact (resulting in decreased infiltration to groundwater), and surface water and groundwater contamination. Each of these potential operational impacts was analyzed in relation to applicable permits and regulations.

Appendix W, Water Resources Technical Memorandum, includes a full description of the methodology for impact analysis.

4.12.2 Affected Environment/Existing Conditions

The alternative alignments and maintenance yard options are located in the Los Angeles River Watershed, the Rio Hondo Watershed, and the San Gabriel River Watershed.

The Los Angeles River Watershed covers an area of over 834 square miles, from the eastern portions of the Santa Monica Mountains, Simi Hills, and the Santa Susana Mountains in the west to the San Gabriel Mountains in the east.

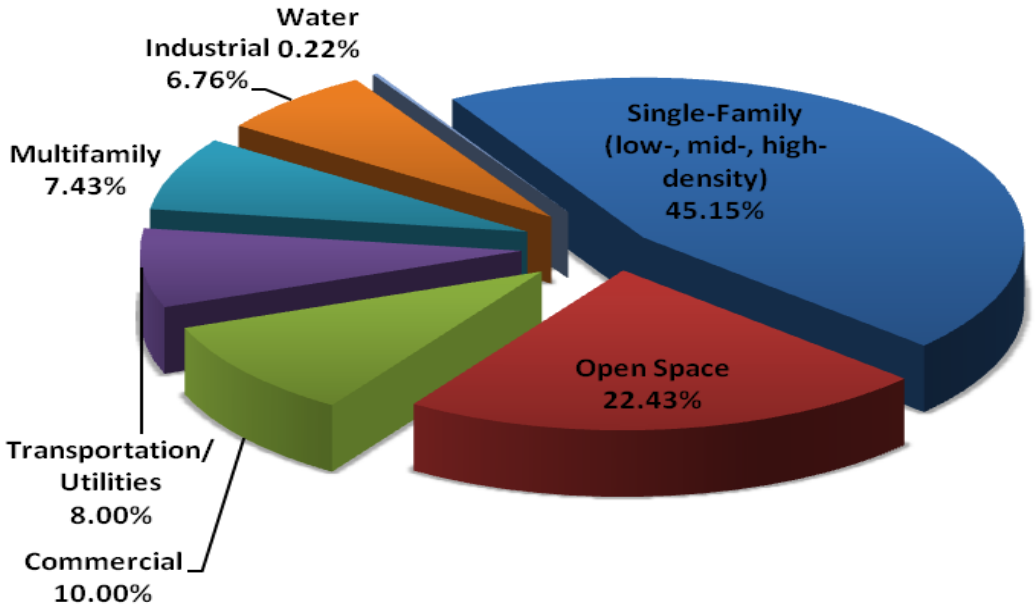
Covering an area of 142 square miles, the Rio Hondo Watershed is a sub-watershed of the Los Angeles River Watershed. The San Gabriel River Watershed borders the Rio Hondo Watershed to the east, extending along Peck Road and the eastern edge of the Whittier Narrows Recreation Area. The entire San Gabriel River watershed covers 689 square miles and includes portions of 37 cities in Los Angeles and Orange counties.

All three watersheds encompass varied topography and land uses. **Figure 4.12-1** illustrates the breakdown of land uses in the Los Angeles River Watershed Management Area. **Figure 4.12-2** shows the three watersheds in which the project is located.

4.12.2.1 Area of Potential Impact

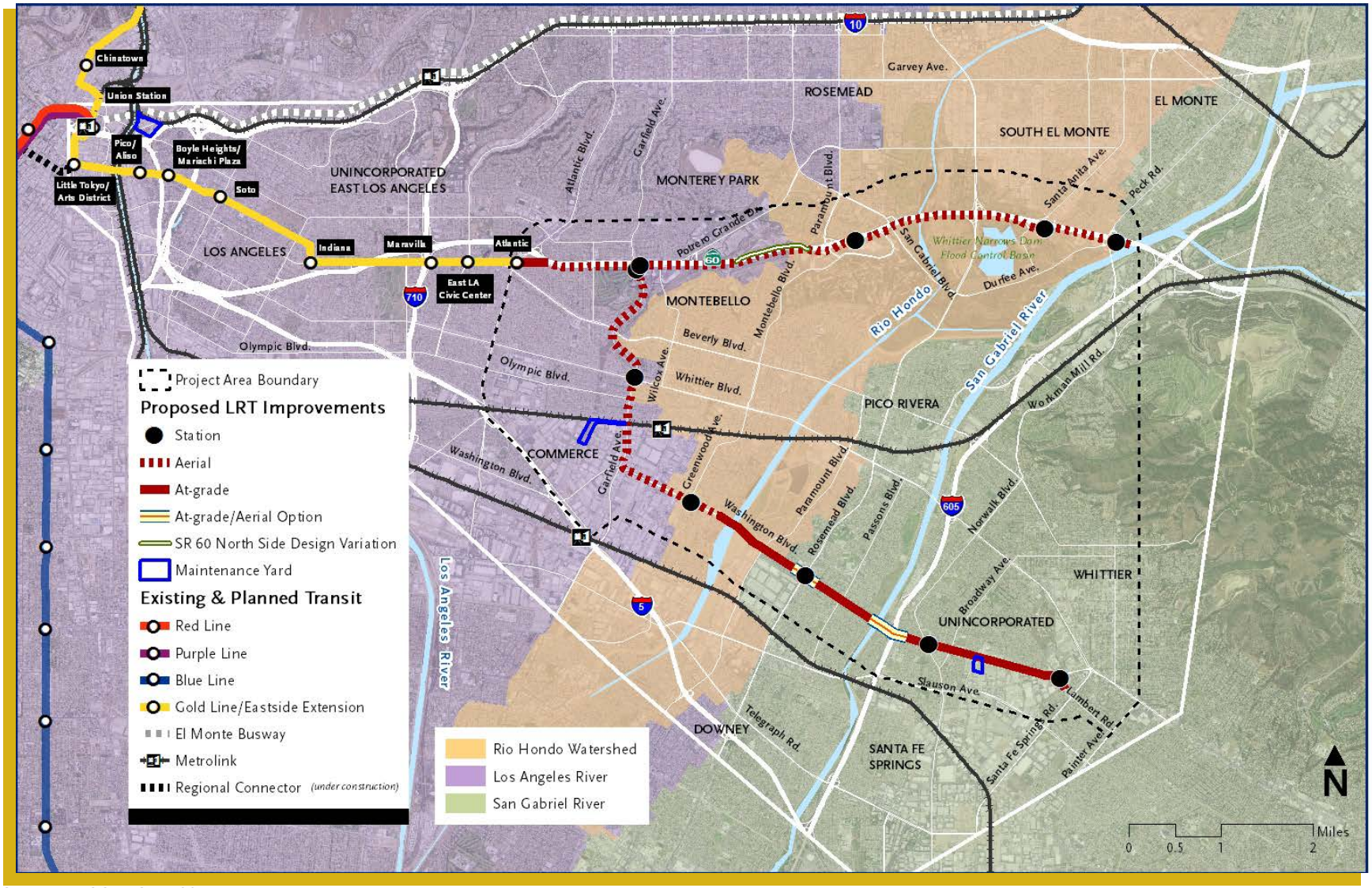
Water resources in the project area are in Region 4 of the State Water Resources Control Board (SWRCB). Region 4 is also known as the Los Angeles Region and is governed by the LARWQCB. As defined by LARWQCB, the area of potential impact (API) for both build alternatives is defined as the Los Angeles River Watershed, Rio Hondo Sub-Watershed, and San Gabriel River Watershed.

In relation to groundwater resources, the Central Sub-Basin of the Coastal Plain of Los Angeles and the San Gabriel Valley Groundwater Basin underlie the project area. The boundaries of these groundwater features were used to define the area where groundwater contamination issues in the project area, as well as any potential impacts from shallow groundwater, were investigated.



Source: LADPW and LADWP 2005.

Figure 4.12-1. Land Use in the Los Angeles River Watershed



Source: AECOM, CDM 2011.

Figure 4.12-2. Watersheds in the Project Area

4.12.2.2 Municipal Water Supply

Local water supply sources in the project area include surface water from mountain runoff, groundwater, and recycled water. Imported sources of water supply include the Colorado River, the Bay-Delta in Northern California via the State Water Project, and the Owens Valley via the Los Angeles Aqueduct.

Municipal water is supplied by local water supply agencies in each of the cities in the project area.

4.12.2.3 Flooding and Inundation

The project area for the alternative alignments is dominated by urban development and extensively engineered stormwater drainage infrastructure. Based on FEMA data, the majority of the project area is located in flood zone X, outside of the 100-year and 500-year flood zones, and thus would not be susceptible to these storm events as defined by FEMA. (100-year and 500-year storms are defined as having a one percent and 0.2 percent chance, respectively, of occurring in any given year.)

An analysis of flood inundation frequency and extent in the Whittier Narrows Dam Flood Control Basin was conducted by the USACE and presented in the *2011 Whittier Narrows Dam Basin Master Plan*. This analysis indicates that portions of the proposed SR 60 alignment within Whittier Narrows would be located in areas that would be inundated during 10-, 50-, and 100-year flood events, as shown in **Figure 4.12-3**.

The proposed options for maintenance yard locations are also mostly outside of the 100-year and 500-year flood zones and thus would not be susceptible to flooding during storm events as defined by FEMA. **Figure 4.12-4** shows the location of proposed maintenance yards for the alternatives. A small portion of the site in the northwest of the Mission Junction rail facility maintenance yard option, where it borders the Los Angeles River, is located in the 100-year flood zone. The remainder of that site, as well as the other proposed maintenance yard option sites, are located in flood zone X, which is defined as a minimal flood risk.

The Inundation Hazard Zone is defined as including areas that would flood should earthquake-induced failure of up-gradient dams, flood control facilities, or other water retaining structures occur.

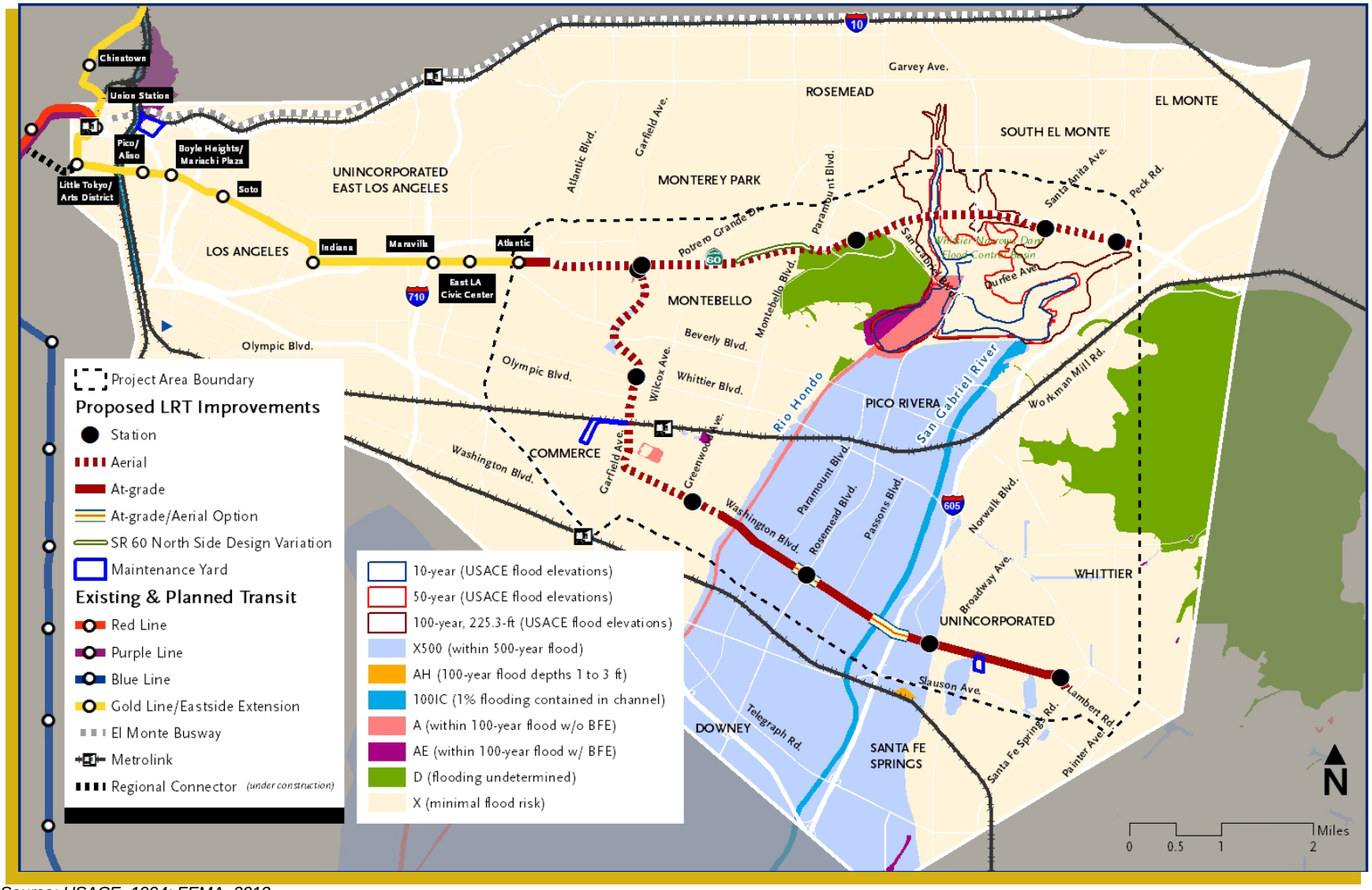
Multiple flood control structures are located in the project area, including the Whittier Narrows Flood Control Basin and Whittier Narrows Dam as well as the channels of the Rio Hondo and San Gabriel River. Flooding or failure of these facilities could cause inundation in the vicinity of the proposed alternative alignments.

The enclosed water bodies nearest to the alignment alternatives are Garvey Reservoir and Legg Lake. At its closest point, Garvey Reservoir is approximately one mile from the SR 60 LRT Alternative alignment where it crosses Potrero Grande Drive. Legg Lake is much closer to the SR 60 LRT Alternative alignment, but it is broken up into several smaller, shallow lake areas which would greatly reduce the potential for large waves to form on the lake surface. The proposed project alignments are located more than 20 miles from the ocean. Therefore, the alignment alternatives are not located within areas potentially impacted by seiches or tsunamis.

Appendices W, Water Resources Technical Memorandum, and V, Geotechnical/Seismic/ Hazardous Materials Technical Memorandum, of this Draft EIS/EIR fully describe the location of inundation zones in the project area. The Geotechnical/Seismic/Hazardous Materials Technical Memorandum, Appendix V, concluded that catastrophic failure of a major dam in the vicinity of the alternative alignments as a result of an earthquake is considered unlikely.

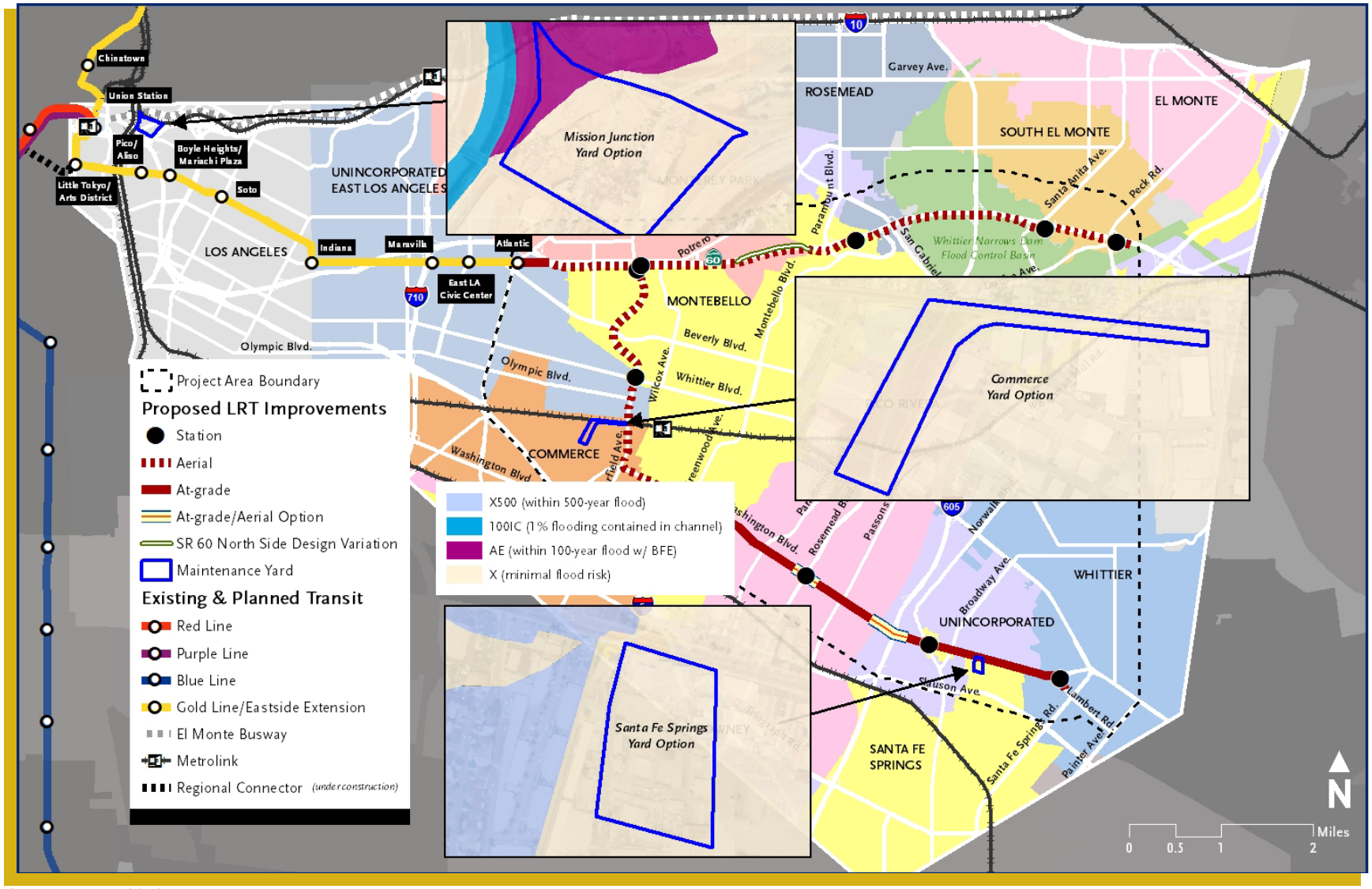
4.12.2.4 Local Surface Water Resources

As depicted in **Figure 4.12-5**, the main surface water resources in the project area include the Rio Hondo, San Gabriel River, and Legg Lake in the Whittier Narrows Dam Flood Control Basin, as well as smaller tributaries and lakes in the watersheds



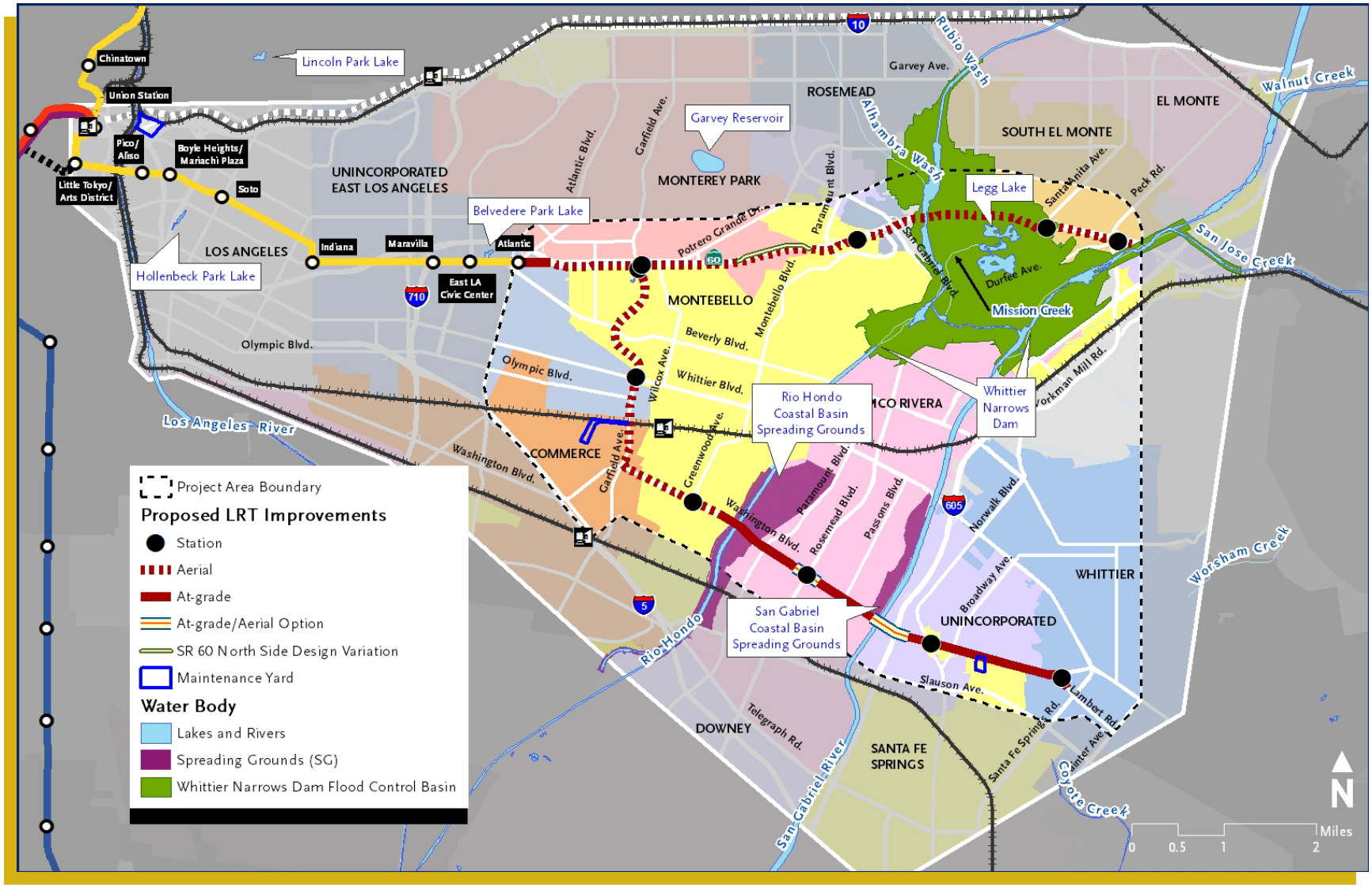
Source: USACE, 1994; FEMA, 2013.

Figure 4.12-3. FEMA Flood Zones in the Project Area



Source: FEMA, 2013.

Figure 4.12-4. FEMA Flood Zones - Maintenance Yard



Source: USACE, 2010; Los Angeles County Department of Public Works, Water Resources Division, 2006.

Figure 4.12-5. Surface Water Resources in the Project Area

The Rio Hondo is hydraulically connected to the San Gabriel River Watershed because flows from the San Gabriel River are routed to Whittier Narrows Reservoir and through the Rio Hondo during larger flood events.

4.12.2.5 Groundwater

Figure 4.12-6 shows the two groundwater basins underlying the project area: the Central Sub-Basin and the Main San Gabriel Basin.

Groundwater resources in these basins are replenished through the spreading grounds in the project area. The main spreading grounds in the project area include the San Gabriel River Spreading Grounds and the Rio Hondo Coastal Basin Spreading Grounds. The San Gabriel River in the project area has a soft, unlined bottom and also serves as a groundwater recharge area.

Table 4.12-2 summarizes the recharge capacity of these areas in the watershed.

Table 4.12-2. Summary of Recharge Basins in the Project Area

Spreading Basin	Area (acres)	Wetted Area (acres)	Recharge Capacity (AFY)	Water Source	Owner
Rio Hondo Coastal Basin Spreading Grounds	570	430	~290,000	Runoff Imported Recycled	LACDPW
San Gabriel River Spreading Grounds	128	96	54,000	Runoff Imported Recycled	LACDPW
San Gabriel River	308	308	54,000	Runoff Imported Recycled	LACDPW
TOTAL	1,006	834	~398,000	--	--

Source: Adapted from MWD of Southern California 2007.

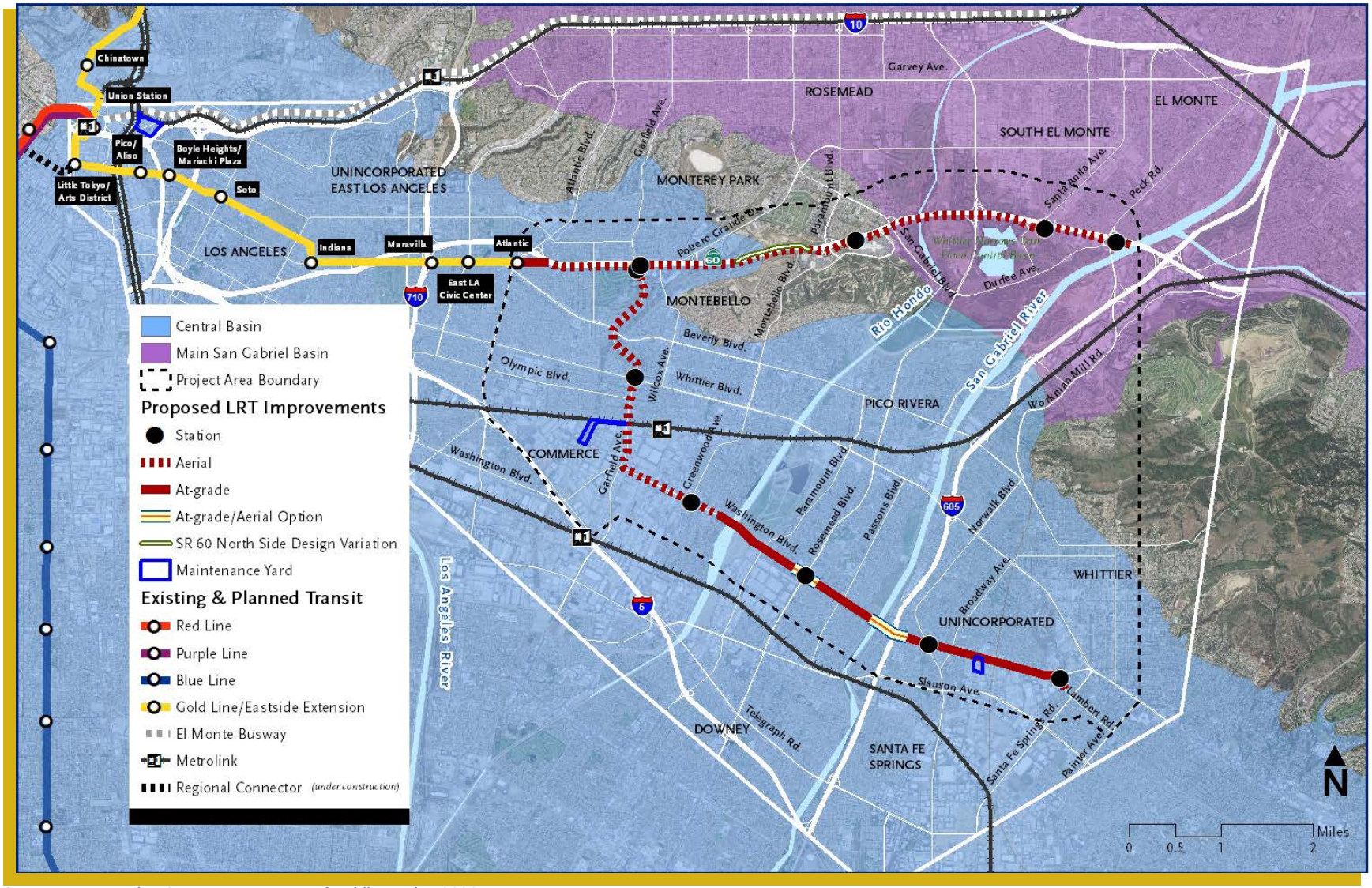
4.12.2.6 Drainage

Along the alternative alignments, stormwater and other surface water runoff is conveyed to municipal storm drains (**Figure 4.12-7**). Most local drainage networks are controlled by structural flood control measures.

The majority of the length of the alternative alignments is along major arterials with curb and gutter features. There are multiple storm drains and drainage features within the project area. Drainage in the northwestern portion of the project area (near the Mission Junction rail facility proposed maintenance yard location) flows generally southeast and southwest through city and county storm drains into the Los Angeles River, which ultimately discharges into the Pacific Ocean.

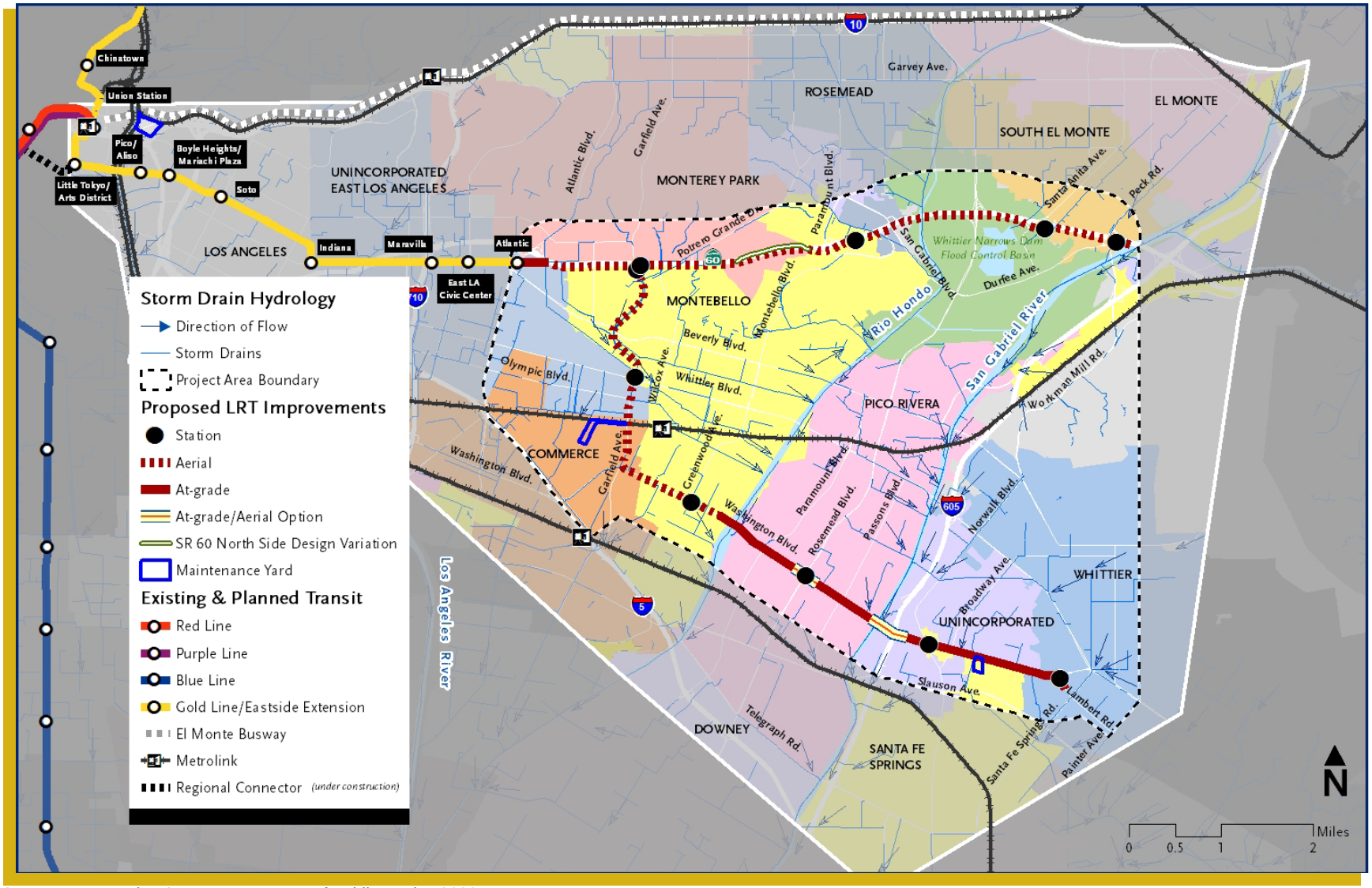
Major storm drains observed during field visits to the project area were located:

- South of SR 60 at the north-central section of the Whittier Narrows Recreation Area, west of the proposed Santa Anita Avenue station site;
- At the cul-de-sac of Muscatel Avenue south of SR 60;
- North of Town Center Drive near Paramount Boulevard;
- On the north side of SR 60 across from the northeast end of the Operating Industries, Inc. (OII) landfill site;
- On the north side of SR 60 directly west of Greenwood Avenue;



Source: Los Angeles County Department of Public Works, 2006.

Figure 4.12-6. Groundwater Basins



Source: Los Angeles County Department of Public Works, 2006.

Figure 4.12-7. Stormwater Drainage Infrastructure

- In Washington Boulevard directly west of the intersection with Calobar Avenue; and
- At smaller concrete drainages south of Washington Boulevard, including Sorensen drain, Effingwell Creek, and La Cañada Verde Creek.

4.12.2.7 Water Quality

Daily urban runoff in the project area has negative impacts to the water quality of the middle reach of the Los Angeles River (located near the proposed Mission Junction Maintenance Yard Option). Runoff washes residues from the land, including deposits from vehicles, pet waste, pesticides, and street litter, into the storm drain system. Surface water resources in the vicinity of the alternative alignments are also negatively impacted by runoff from dense residential and commercial development in the watersheds. In the San Gabriel River, water quality is also affected by tertiary effluent from several sewage treatment plants entering the middle reach of the river.

The presence of these pollutants prevents water bodies in project area watersheds from meeting the designated beneficial uses established by state water quality standards. When beneficial uses are not met, water bodies are placed on the 303(d) List of Water Quality Limited Segments maintained by the LARWQCB, and total maximum daily loads (TMDLs) are developed to address the high levels of pollutants. **Table 4.12-3** summarizes the pollutants requiring the development of TMDLs in the main surface water resources within the project area.

Table 4.12-3. 303(d) List of Pollutants Requiring TMDLs in Surface Water Resources in the Project Area

Pollutant	Expected TMDL Completion Date[1]	Date USEPA Approved TMDL	TMDL Effective Date
Los Angeles River Reach 3			
Ammonia	N/A	03/18/2004	03/23/2004
Copper	N/A	12/22/2005	01/11/2006
Lead	N/A	12/22/2005	01/11/2006
Nutrients (Algae)	N/A	03/18/2004	03/23/2004
Trash	N/A	07/24/2008	09/23/2008
Rio Hondo			
Coliform Bacteria	07/08/2010	N/A	TBD[2]
Legg Lake			
Ammonia	01/01/2019	N/A	N/A
Copper	01/01/2019	N/A	N/A
Lead	01/01/2019	N/A	N/A
Odor	01/01/2019	N/A	N/A
Trash	N/A	02/27/2008	03/06/2008

Table 4.12-3. 303(d) List of Pollutants Requiring TMDLs in Surface Water Resources in the Project Area (continued)

Pollutant	Expected TMDL Completion Date[1]	Date USEPA Approved TMDL	TMDL Effective Date
Legg Lake			
pH	01/01/2019	N/A	N/A
San Gabriel River			
Coliform Bacteria	01/01/2011	N/A	N/A
Cyanide	01/01/2021	N/A	N/A
Lead	N/A	03/27/2007	N/A
Indicator Bacteria	01/01/2021	N/A	N/A

Source: LARWQCB 2008.
Notes:
[1] If a TMDL has a completion date in the future, then it has not been approved by USEPA and it has not yet become effective.
[2] TBD = The TMDL was adopted by the RWQCB on July 8, 2010, but an effective date has not been set by the USEPA.

Due to the long history of commercial and industrial activity in the project area, groundwater in the project area also suffers from quality issues. Contaminants include sulfate, total dissolved solids, iron, chloride, and other types of industrial wastes.

The SR 60 LRT Alternative alignment would be located immediately adjacent to the OII landfill site along the south side of SR 60. The landfill is a toxic Superfund site and has been closed and permitted in accordance with USEPA criteria. In the immediate project area, this site has led to groundwater contamination plumes in the San Gabriel Basin in the project area.

Appendix V, Geotechnical/Seismic/Hazardous Materials Technical Memorandum, describes specific local causes and sources of groundwater contamination within one-quarter mile of the proposed alignments, as well as some that are located directly along the alignments for both the SR 60 LRT Alternative and the Washington Boulevard LRT Alternative.

4.12.3 Environmental Impacts/Environmental Consequences

The following summarizes the evaluation of potential water resource impacts for each alternative. Impact conclusions for all of the alternatives are based on the thresholds identified above in Section 4.12.1. **Table 4.12-4** summarizes the results of the analysis.

4.12.3.1 No Build Alternative

4.12.3.1.1 Impact Analysis

Construction Impacts

There would be no new construction under the No Build Alternative; therefore, there would be no impacts or adverse effects with respect to water supply, groundwater, flooding, or water quality in the project area under CEQA or NEPA significance criteria. The projects identified in the *2009 LRTP* and SCAG's *2012 RTP* would comply with federal, state, and local regulations protecting water resources and floodplains.

Table 4.12-4. Summary of Potential Water Resources Impacts

Alternative	Municipal Water Supply (NEPA/CEQA)	Flooding (NEPA/CEQA)	Watersheds and Surface Water Resources (NEPA/CEQA)	Groundwater Resources (NEPA/CEQA)	Drainage (NEPA/CEQA)	Water Quality (NEPA/CEQA)	Groundwater Contamination (NEPA/CEQA)
No Build (Construction and Operational Impacts)	None	None	None	None	None	None	None
TSM (Construction and Operational Impacts)	None	None	None	None	None	None	None
SR 60 LRT Alternative	**Construction:** Not adverse/ Less than significant	**Construction:** Not adverse/Less than significant (FEMA flood zones along LRT alignment) Not adverse after mitigation/Less than significant after mitigation (flood control facilities and USACE flowage easement)	**Construction:** Not adverse/ Less than significant	**Construction:** Not adverse/ Less than significant	**Construction:** Not adverse/ Less than significant	**Construction:** Not adverse after mitigation/Less than significant after mitigation	**Construction:** Not adverse after mitigation /Less than significant after mitigation

Table 4.12-4. Summary of Potential Water Resources Impacts (continued)

Alternative	Municipal Water Supply (NEPA/CEQA)	Flooding (NEPA/CEQA)	Watersheds and Surface Water Resources (NEPA/CEQA)	Groundwater Resources (NEPA CEQA)	Drainage (NEPA/CEQA)	Water Quality (NEPA/CEQA)	Groundwater Contamination (NEPA/CEQA)
SR 60 LRT Alternative[1]	**Operation:** Not adverse /Less than significant	**Operation:** Not adverse /Less than significant (FEMA flood zones along LRT alignments) Not adverse after mitigation/Less than significant after mitigation (flood control facilities and USACE flowage easement)	**Operation:** None	**Operation:** None	**Operation:** None	**Operation:** Not adverse after mitigation/Less than significant after mitigation	**Operation:** Not adverse/Less than significant after mitigation
Washington Boulevard LRT Alternative	**Construction:** Not adverse/ Less than significant	**Construction:** Not adverse/Less than significant Not adverse after mitigation/Less than significant after mitigation (FEMA flood zones along LRT alignment, flood control facilities)	**Construction:** Not adverse after mitigation/ Less than significant after mitigation	**Construction:** Not adverse/ Less than significant	**Construction:** Not adverse/ Less than significant	**Construction:** Not adverse after mitigation/Less than significant impacts after mitigation	**Construction:** Not adverse after mitigation/Less than significant after mitigation

Table 4.12-4. Summary of Potential Water Resources Impacts (continued)

Alternative	Municipal Water Supply (NEPA/CEQA)	Flooding (NEPA/CEQA)	Watersheds and Surface Water Resources (NEPA/CEQA)	Groundwater Resources (NEPA/CEQA)	Drainage (NEPA/CEQA)	Water Quality (NEPA/CEQA)	Groundwater Contamination (NEPA/CEQA)
Washington Boulevard LRT Alternative	**Operation:** None	**Operation:** Not adverse/Less than significant (USACE flowage easement) Not adverse after mitigation/Less than significant after mitigation (FEMA flood zones along LRT alignment and flood control facilities)	**Operation:** None	**Operation:** None	**Operation:** None	**Operation:** Not adverse after mitigation/Less than significant after mitigation	**Operation:** Not adverse after mitigation/Less than significant after mitigation
Maintenance Yards	**Construction:** Not adverse /Less than significant	**Construction:** Not adverse/Less than significant	**Construction:** Not adverse/ Less than significant	**Construction:** None	**Construction:** Not adverse after mitigation/ Less than significant after mitigation	**Construction:** Not adverse after mitigation/Less than significant after mitigation	**Construction:** Not adverse after mitigation /Less than significant after mitigation

Table 4.12-4. Summary of Potential Water Resources Impacts (continued)

Alternative	Municipal Water Supply (NEPA/CEQA)	Flooding (NEPA/CEQA)	Watersheds and Surface Water Resources (NEPA/CEQA)	Groundwater Resources (NEPA/CEQA)	Drainage (NEPA/CEQA)	Water Quality (NEPA/CEQA)	Groundwater Contamination (NEPA/CEQA)
Maintenance Yards	**Operation:** Not adverse/ Less than significant Compliance with Metro's Sustainability Policy would ensure no adverse effects and less than significant impacts	**Operation:** Not adverse after mitigation/Less than significant after mitigation	**Operation:** None	**Operation:** None	**Operation:** Not adverse after mitigation/ Less than significant after mitigation	**Operation:** Not adverse after mitigation/Less than significant after mitigation	**Operation:** Not adverse after mitigation/Less than significant after mitigation

[1] *Results are for both the SR 60 LRT Alternative and the SR 60 LRT North Side Design Variation.*

Operational Impacts

Operation of the No Build Alternative would not impact groundwater resources, water quality, flooding, hydrology, or water supply. However, under the No Build Alternative there would be less potential for the transit system to replace automobile trips and associated potential reduction in roadway pollutants.

4.12.3.1.2 Mitigation Measures

Mitigation measures are not required because there would be no impacts to water resources and hydrology from operation of the No Build Alternative.

4.12.3.1.3 Impacts Remaining After Mitigation

NEPA Finding

The No Build Alternative would not have adverse effects to water resources, although with fewer transit options potential reductions in roadway pollutants would not occur.

CEQA Determination

The No Build Alternative would have no impacts to water resources.

4.12.3.2 TSM Alternative

4.12.3.2.1 Impact Analysis

Construction Impacts

The minor physical modifications associated with the TSM Alternative would not result in significant or adverse effects to municipal water supplies, surface and groundwater resources, drainage infrastructure, water quality, or flooding in the project area. There would be no adverse construction-related effects under NEPA. Any construction-related impacts under the TSM Alternative would be less than significant under CEQA.

Operational Impacts

Operation of the TSM Alternative would result in negligible increases in the buildup of typical runoff contaminants that collect on streets (i.e., oil, grease, and metals). In addition, operation of new bus lines under the TSM Alternative would be required to comply with existing water quality and stormwater permits and regulations; therefore, there would be no increase in pollutant loadings that would percolate to groundwater. Operation of the TSM Alternative would not increase municipal water use, alter storm sewer drainage infrastructure, or increase flood flows. Overall, operation of the TSM Alternative would result in no adverse effects under NEPA and no significant impacts under CEQA related to water resources, water quality, or hydrology.

4.12.3.2.2 Mitigation Measures

Mitigation measures are not required because there would be no significant impacts to water resources and hydrology from operation of the TSM Alternative.

4.12.3.2.3 Impacts Remaining After Mitigation

NEPA Finding

The TSM Alternative would not have adverse effects on water resources, although the limited increase in transit ridership would limit potential reductions in roadway pollutants.

CEQA Determination

The TSM Alternative would not have significant impacts on water resources.

4.12.3.3 SR 60 LRT Alternative

4.12.3.3.1 Impact Analysis

Construction Impacts

Municipal Water Supply

Construction activities for the SR 60 LRT Alternative (with or without the North Side Design

Flooding

FEMA-Defined Flood Zones: The majority of the SR 60 LRT Alternative (with or without the North Side Design Variation) would be constructed in FEMA-defined flood zone X. Flood zone X is defined as including areas of minimal flood risk located outside of the 100-year and 500-year floodplains. However, based on the *2011 Whittier Narrows Dam Basin Master Plan*, some portions of the SR 60 LRT Alternative alignment could be

inundated with higher frequency, as shown in Figure 4.12-3. Two areas that would be within a floodplain include the area of the proposed new station at Garfield Avenue (within a 500-year floodplain), and the area south of SR 60 between Montebello Boulevard and San Gabriel Boulevard.

In addition to FEMA-defined flood zones, the project area contains several federally-authorized flood risk reduction projects for the Los Angeles County Drainage Area (including the Whittier Narrows Dam Flood Control Basin and the Rio Hondo and San Gabriel River Channels). The Whittier Narrows Dam Flood Control Basin (the Basin) is owned by the federal government and operated and maintained by USACE. The primary purpose of the Basin is flood risk management and its secondary purpose is recreation in the public interest.

Executive Order 11988 Compliance: Under Executive Order 11988, all federal agencies are directed to avoid to the extent possible long-and short-term adverse impacts associated with the occupancy and modification of floodplains. In addition, federal agencies should avoid direct or indirect support of floodplain development wherever there is a practicable alternative. In cases where construction would intersect with the floodplain, compliance with Executive Order 11988 would be required. Furthermore, construction activities would comply with all federal and local floodplain regulations, including applicable NFIP and ER regulations.

In compliance with Executive Order 11988 and ER-1165-2-26, an analysis of the SR 60 LRT Alternative was conducted to determine if there is a practicable alternative to development within the floodplain; this analysis is included as Attachments 1 and 2 to Appendix W of this EIR. The analysis built upon the original Alternatives Analysis conducted for the project as a whole and considered locational advantage, functional need, and the needs and welfare of the people who would benefit from the project. It was determined that there are no practicable alternatives that do not include locating transit structures within a floodplain (e.g. the Washington Boulevard LRT Alternative also crosses floodplains).

The SR 60 LRT Alternative is not anticipated to induce development in the floodplain; rather, it connects existing communities that are currently underserved by public transit. The elevated LRT through the Whittier Narrows Dam Flood Control Basin may also provide a transportation alternative if floodwaters result in the closure of SR 60 Freeway.

Construction within the Whittier Narrows Dam Flood Control Basin

Based on the analysis of flood inundation within Whittier Narrows, construction of the SR 60 LRT Alternative could be affected by flooding and construction could affect floodplain functions. These effects could result in a significant impact. The primary potential impacts would include a potential loss of flood storage capacity, placement of structures and construction equipment that could impede or redirect flows, potential water quality impacts from contact of flood waters with construction equipment or hazardous materials, and potential health and safety impacts if flood waters strand workers. The selection of an elevated LRT would minimize potential impacts to the maximum extent practicable. Mitigation would be implemented to comply with the eight-step decision-making process under Executive Order 11988. With implementation of mitigation, there would be no adverse effects under NEPA and less than significant impacts under CEQA.

Construction of the SR 60 LRT Alternative in the SR 60 ROW through the Whittier Narrows Dam Flood Control Basin and placement of LRT columns in the Basin would be modifications of the flood risk reduction structure described above. The proposed project would be considered a modification beyond that required for normal operation and maintenance of the flood control basin, and would require review and approval under Section 14 of the RHA (33 U.S.C. § 408 [Section 408]).

Based on coordination with USACE, the locations of the support columns associated with the SR 60 LRT Alternative alignment are generally acceptable in terms of avoiding impacts to flows draining into the Whittier Narrows Reservoir, except in the vicinity of the Rio Hondo channel. Hydraulic modeling of the Rio Hondo channel in the vicinity of the proposed SR 60 LRT Alternative alignment was conducted using the USACE Hydrologic Engineering Center River Analysis Software (HEC-RAS). The purpose of this analysis was to determine if the placement of support columns for the SR 60 LRT Alternative crossing over the Rio Hondo would obstruct or otherwise adversely affect flows through the channel (CDM Smith/AECOM 2013). Model results indicate the water surface elevation at bankfull discharge is 212 feet, which is below the bottom of the proposed SR 60 LRT Alternative support columns on the east and west banks (with elevations of 214 feet and 222 feet, respectively). Therefore, the proposed support columns would have no impact on the conveyance of flows through the SR 60 Freeway crossing and Rio Hondo channel under a bankfull discharge scenario. In addition, the project would be designed to allow flood flows to move within the Basin as they do under existing conditions.

Approval of modifications to the flood control structures for construction of the proposed Santa Anita Avenue station would require a risk analysis to evaluate potential impacts to the hydrologic and hydraulic functioning of the flood control system. This analysis would be completed as part of the Section 408 permit application submittal, and would include a technical analysis of potential impacts to the flood control basin as well as system-wide impacts.

In addition, any proposed modification must show that it is not injurious to the public interest and will not impair the usefulness of the flood control facility. Development within flood control basins and flood control facilities must not reduce flood storage capacity and must not impede or redirect flood flows.

The proposed Santa Anita Avenue station and park and ride facility would be located in the flood control basin of Whittier Narrows on elevated platforms and elevated structures supported by columns similar to those supporting the LRT guideway (refer to Appendix HH, Conceptual Engineering Drawings, for a conceptual drawing of the Santa Anita Avenue station). Compensatory mitigation would be required for the potential loss of flood storage capacity at Whittier Narrows, and the structure would be designed so it does not impede the flow of floodwaters in any direction. In total, the columns associated with the LRT track, the Santa Anita Avenue station, and the associated park and ride facility would result in the loss of approximately 83 cubic yards of volume of Basin storage capacity. This would have the potential to change the total water level rise in the Basin by 0.02 inches if the entire Basin were to be inundated. Replacement of the lost 83 cubic yards of storage capacity would offset any potential impacts associated with water level rises during Basin inundation. With implementation of mitigation, there would be no adverse effects under NEPA. Impacts under CEQA would be less than significant.

In addition, to limit potential impacts from floodwaters, buildings and all of the structures' electrical and other systems would be elevated above the base flood elevation level and parking would be allowed only on the second floor and above. Storage of materials or objects that could float or be moved by floodwaters would not be allowed on the lowest levels. Thus, there would be no adverse effects under NEPA and flood impacts to structures would be less than significant under CEQA.

Construction within the Flowage Easement for the Proposed Santa Anita Avenue Station:

In the vicinity of the proposed Santa Anita Avenue station, which is located within Whittier Narrows, USACE owns seven acres of the 28-acre area to the east of Santa Anita Avenue and maintains a flowage easement over the remaining 21 privately-owned acres. This area could be inundated during a

100-year flood (USACE 2011); therefore, there would be a risk to the proposed station and any associated structures from flooding in this area. There would also be a risk to the functions of the floodplain and flood control basin in this area. The easement prohibits the construction of habitable structures and limits what may be stored in areas that could be inundated.

Based on the analysis included in Attachment 1 and 2 to Appendix W of this EIR, there is no practicable alternative to locating the Santa Anita Avenue station within the designated Inactive and/or Future Recreation and Easement Lands areas. In addition to the benefits provided by enhanced transit connectivity to nearby communities and activity centers, various environmental and constructability elements constrain the station location, including the proximity to sensitive parcels (schools and residences) that would require acquisition and displacement if the proposed station were relocated.

USACE Policy Guidance Letter No. 32: Under USACE Policy Guidance Letter No. 32, the USACE evaluates land development proposals within flowage easements such as the one in which the proposed Santa Anita Avenue station would be located. The two main criteria for evaluating the approval of structures on flowage easement lands are compatibility with project operations and compatibility with floodplain management. Construction of the Santa Anita Avenue station could result in incompatibility as defined by Policy Guidance Letter No. 32, which would result in a significant impact. Mitigation would be implemented to ensure compliance with USACE policies for the use of flowage easement lands, which include designing the station so that no parking or storage would be located on the ground level, and so that floodwaters could freely flow under and through the structure, as well as approval from all landowners for any construction in this area. With mitigation, there would be no adverse effects to the flowage easement lands under NEPA and impacts would be less than significant under CEQA.

Corps of Engineers Regulation 1110-2-1: In addition to USACE's Policy Guidance Letter, land development in USACE flood control basins is governed by the South Pacific Division (SPD), Corps of Engineers Regulation 1110-2-1. As discussed above, the Whittier Narrows Dam Flood Control Basin, Rio Hondo, and San Gabriel Rivers all serve as flood risk management basins in the project area. USACE has the responsibility to ensure that the flood control project purposes are not compromised, that the public is not endangered, and that natural and cultural resources associated with flood control project lands are not harmed.

Construction of the Santa Anita Avenue station could conflict with flood control project purposes, which would be a significant impact. Mitigation would be required to ensure compliance with Regulation 1110-2-1. With mitigation, there would be no adverse effects to the flood control project area under NEPA and impacts would be less than significant under CEQA.

Maintenance Yards: The majority of the proposed maintenance yard at the Mission Junction rail facility would be located in FEMA-defined flood zone X. As shown on Figure 4.12-4, the northwest corner of this maintenance yard location is in flood zone AE, a 100-year flood zone with defined base flood elevations. Construction activities in this area would be temporary and would not impede or redirect flood flows.

Employee parking and shop areas are planned for the area of the maintenance yard in flood zone AE. Construction in this area would comply with NFIP regulations (44 CFR 59-65) and Metro would ensure that all new construction would be properly designed and adequately anchored, constructed with materials resistant to flood damage, and constructed with equipment and other service facilities that are designed or located to prevent water from entering components during flood conditions. There would be no adverse effects under NEPA. Impacts would be less than significant under CEQA.

Watersheds and Surface Water Resources

The impervious surface added by construction of the columns in the Whittier Narrows Dam Flood Control Basin, as well as the proposed station east of Santa Anita Avenue and proposed TPSS, would have minimal impacts to the watershed and local surface water bodies. There would be no adverse effects under NEPA and less than significant impacts under CEQA.

New column structures supporting the aerial LRT tracks would span the Rio Hondo, and would therefore not be below the ordinary high water mark (OHWM). Thus, there would be no need for a CWA Section 404 permit from the USACE. There would be no adverse effects under NEPA. Construction of the SR 60 LRT Alternative, with or without the North Side Design Variation, would not alter the course of a river; thus, impacts under CEQA would be less than significant.

In addition, as the LACDPW manages some of the drainages through the Whittier Narrows Dam Flood Control Basin, coordination with and an encroachment permit from the LACDPW may be required for construction through this area.

Groundwater

As described above, construction of the SR 60 LRT Alternative with or without the North Side Design Variation would have negligible impacts on the amount of impervious surface area of the watersheds in the project area. Groundwater replenishment takes place primarily through the earthen bottom of the Rio Hondo in the project area and in the spreading basins associated with the Rio Hondo and San Gabriel River. Construction of the SR 60 LRT Alternative would not take place in the vicinity of the recharge basins and would not impact the recharge capabilities of these areas. In addition, construction of the SR 60 LRT Alternative would involve minimal groundwater dewatering and would not deplete local groundwater resources.

Based on future evaluation of depth to groundwater along the alignment, dewatering may be necessary during the construction process. Groundwater encountered during construction dewatering would require testing and either on-site treatment and discharge in accordance with applicable standards, or transport to a treatment and/or disposal facility. Additional details about dewatering are provided in the Water Resources Technical Memorandum, which is incorporated as Appendix W in this Draft EIS/EIR.

There would be no adverse effects to groundwater supplies under NEPA. Construction of the SR 60 LRT Alternative, with or without the North Side Design Variation, would not substantially deplete supplies of potable groundwater, as construction dewatering would be short-term and would not extract groundwater from the main source of potable groundwater in the Central Basin, the San Pedro Formation. In addition, as there would be no substantial interference with groundwater recharge as a result of construction of the SR 60 LRT Alternative, impacts would be less than significant under CEQA.

Drainage

Two drainages are in direct proximity to where construction of the SR 60 North Side Design Variation would occur; one is located on the north side of SR 60 across from the northeast end of the OII landfill site, and the other lies along the north side of SR 60 directly west of Greenwood Avenue. The v-ditch located directly west of Greenwood Avenue is the only drainage that would have to be relocated for construction. This drainage would be relocated along the north side of the mechanically stabilized earth (MSE) wall for the SR 60 North Side Design Variation. There would be no adverse effects under NEPA. Given the relocation of the drainage in the area of construction, the existing drainage pattern would not be substantially altered in a way that would result in substantial erosion or siltation on- or off-site. Under CEQA, impacts to drainage during construction would be less than significant.

Water Quality

Construction activities have the potential to increase erosion and sedimentation around proposed construction and staging areas. Grading activities associated with construction would potentially result in a temporary increase in the amount of suspended solids running off construction sites. If a storm event were to occur, construction site runoff could result in sheet erosion of exposed soil. If not adequately controlled, contaminated water runoff from these areas would have the potential to degrade surface water quality. In order to reduce potential impacts to surface water quality during construction of the SR 60 LRT Alternative, with or without the North Side Design Variation, construction activities would comply with the following permits and regulations:

- SWRCB General Construction Permit, including preparation of the stormwater pollution prevention plan (SWPPP)
- Compliance with Los Angeles County's Standard Urban Stormwater Management Plan (SUSMP) and implementation of appropriate required construction Best Management Practices (BMPs)
- Compliance with LARWQCB's municipal stormwater NPDES permit and implementation of a program to control runoff from construction activities

Compliance with these permits as well as implementation of BMP mitigation measures listed in Section 4.12.3.3.2 would avoid adverse effects to water quality under NEPA during construction. Construction activities would not violate applicable water quality standards, substantially increase the amount of erosion or siltation on- or off-site, or otherwise substantially degrade water quality. Impacts under CEQA would be less than significant with mitigation.

During construction of the SR 60 LRT Alternative, there is the potential to encounter shallow groundwater due to clearing and grading activities, shallow excavation, or relocation of utility lines. Known and/or suspected groundwater contamination exists in areas directly within or near the project area.

Construction of the SR 60 LRT Alternative would take place partly on an engineered slope that is part of the OII landfill site. The extent of contamination in soil at this site is uncertain, and a clay monocover is in place to control landfill contaminants. Foundation support for the aerial structure adjacent to the landfill is anticipated to encounter refuse material, and has the potential to adversely affect the quality of groundwater in the area due to toxic substances entering and polluting groundwater.

As described in the Geotechnical/Seismic/ Hazardous Materials Technical Memorandum, a geotechnical investigation would be performed during preliminary design along the preferred alignment to further establish the depth and thickness of the refuse in the vicinity of the OII landfill site, and the potential to encounter hazardous materials during construction.

The Lead Agency met with USEPA to discuss geotechnical issues and hazardous materials associated with the OII landfill site. Coordination with USEPA would be ongoing during future design phases. If contaminated groundwater is encountered during construction, disposal would be required to comply with WDRs set by the LARWQCB. Therefore, there would be no adverse effects under NEPA and impacts under CEQA would be less than significant with mitigation. Specific mitigation measures that would address groundwater quality are discussed in the Geotechnical/Seismic/Hazardous Materials Technical Memorandum.

Operational Impacts

Municipal Water Supply

Operation of the SR 60 LRT Alternative, with or without the North Side Design Variation, would result in a minimal increase in the use of municipal water supply resources. While no public restrooms would be located at the proposed stations or at the park and ride facilities along the SR 60 LRT Alternative alignment, there would be employee

restrooms at the proposed maintenance yard. Specific water use and water supply would be reconfirmed during final design of the project.

Potential water use related to operation of the SR 60 LRT Alternative, proposed stations, park and ride facilities, and the maintenance yard would be in compliance with Metro's Sustainability Policy as described in Appendix W, Water Resources Technical Memorandum. There would be no adverse effects under NEPA and impacts under CEQA would be less than significant.

Flooding

Small portions of the SR 60 LRT Alternative, with or without the North Side Design Variation, would be constructed near areas mapped by FEMA as 500-year floodplain areas (i.e., the proposed Garfield Avenue station). In addition, some portions of the SR 60 LRT Alternative alignment within Whittier Narrows Dam Flood Control Basin could be inundated during 10-, 50-, or 100-year flood events (USACE 2011). During operation of the Santa Anita Avenue station, it is possible that commuters or their cars could become stranded in the parking structure, or transit patrons could be unable to disembark from the LRT at the station. Metro's Procedures Plan, which outlines procedures to follow when bypassing a station, would be used to assist commuters in the event of a flood that reaches the station. Compliance with federal floodplain regulations as well as implementation of a drainage control plan (described in Section 4.12.3.3.2) would minimize and avoid adverse effects under NEPA. Operation of the SR 60 LRT Alternative, with or without the North Side Design Variation, would not expose people to a significant risk of loss, injury, or death involving flooding; thus, impacts under CEQA would be less than significant.

Operation of the SR 60 LRT Alternative could potentially provide access across Whittier Narrows for commuters in the event that the SR 60 Freeway was closed due to floods. This would result in a beneficial effect on the transportation network. There would be no adverse effects under NEPA and impacts under CEQA would be less than significant with mitigation with regards to impacts associated with flooding.

The proposed Santa Anita Avenue station and park and ride facility would be located in the flood control basin of Whittier Narrows on elevated platforms and elevated structures supported by columns similar to those supporting the LRT guideway. Any proposed modification to the flood control basin must show that it is not injurious to the public interest and would not impair the usefulness of the flood control facility or reduce flood storage capacity. As indicated above, the LRT track, the Santa Anita Avenue station, and the associated park and ride facility would result in the loss of approximately 83 cubic yards of volume of Basin storage capacity, which would have the potential to change the total water level rise in the Basin by 0.02 inches if the entire Basin were to be inundated. Replacement of the lost 83 cubic yards of storage capacity would offset any potential impacts associated with water level rises during Basin inundation.

In addition, to limit potential impacts from floodwaters, buildings and all of the structure's electrical and other systems would be elevated above the base flood elevation level and parking would be allowed only on the second floor and above. Signage would also be provided prior at the entrance of the parking structure to alert riders that in the event of flooding, the Santa Anita station would be non-operational and access to the parking structure and vehicles would be prohibited. Storage of materials or objects that could float or be moved by floodwaters would not be allowed on the lowest levels. Thus, there would be no adverse effects under NEPA and flood impacts to structures would be less than significant under CEQA.

As described above under construction impacts, a portion of the proposed Mission Junction maintenance yard is in the 100-year flood zone (zone AE). Given compliance with federal NFIP regulations as well as implementation of a drainage control plan (described in Section 4.12.3.3.2); there would be no adverse operational effects under NEPA. In addition, development and

implementation of a drainage control plan (described in Section 4.12.3.3.2) would ensure that drainage would be properly conveyed away from the site so it does not induce ponding or flooding on-site or on adjacent properties. The proposed maintenance yard is located in an urbanized area composed mainly of impervious surfaces and possessing an extensive drainage infrastructure. With implementation of a drainage control plan, operation of the maintenance yard would not expose people to a significant risk of loss, injury, or death involving flooding. Impacts under CEQA would be less than significant with mitigation.

Groundwater

Operation of the SR 60 LRT Alternative, with or without the North Side Design Variation, (including proposed stations, park and ride facilities, and the Mission Junction maintenance yard) would not impact the recharge capabilities of the spreading basins. Further, operation of the SR 60 LRT Alternative would not involve groundwater dewatering and would not deplete local groundwater resources. There would be no adverse effects under NEPA and no impacts under CEQA.

Drainage

As the majority of the SR 60 LRT Alternative, with or without the North Side Design Variation, would be aerial, there would be no street widening and no conflicts with existing drainage infrastructure. There would be no operational-related impacts to drainage capacity or drainage infrastructure under the SR 60 LRT Alternative with its proposed stations and park and ride facilities. Thus, there would be no adverse effects under NEPA and no impacts under CEQA.

Proposed improvements to the maintenance yard would not substantially increase the amount of impervious cover at the yard and would not create a significant increase in runoff that would exceed the drainage and flood control capacity of the storm drain system. As the rail yard currently has aboveground structures, proposed development would not substantially impede or redirect flood flows in the long term. There would be no adverse effects under NEPA and impacts under CEQA would be less than significant. While impacts would be less than significant, implementation of a drainage control plan (as described for flooding impacts) would ensure that drainage would be properly conveyed away from the site and does not induce ponding or flooding on-site or on adjacent properties.

Water Quality

Potential direct impacts to surface water quality include increased stormwater runoff that would contaminate local surface water resources in the project area. There would be a minimal addition of impervious surfaces as a result of construction of the SR 60 LRT Alternative, with or without the North Side Design Variation (including proposed stations, park and ride facilities, and the Mission Junction maintenance yard). While any new impervious surface has the potential to increase the concentration and accumulation of pollutants associated with stormwater runoff from transit projects (e.g., oil and grease), the project area is already mostly covered by impervious surfaces.

Additionally, placement of the aerial structure within the SR 60 embankment would minimize the addition of impervious materials. These facts, combined with the mitigation described in Section 4.12.3.3.2, would result in no adverse effects to water quality under NEPA. In order to protect water quality, operation of the SR 60 LRT Alternative, with or without the North Side Design Variation, would comply with applicable NPDES permits and permanent treatment and post-construction BMPs (described under Section 4.12.3.3.2). BMPs would minimize and treat potential runoff to conditions that comply with permit limits. Operation of the SR 60 LRT Alternative, with or without the North Side Design Variation (including proposed stations, park and ride facilities, and the Mission Junction maintenance yard) would not create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems, or provide substantial additional sources of polluted runoff. Therefore, there would be no adverse effects under NEPA and impacts would be less than significant with mitigation under CEQA. Indirect impacts to water quality associated with

long-term operation of the SR 60 LRT Alternative, with or without the North Side Design Variation, would be similar to direct impacts but would occur later. Indirect impacts would be related to the release of pollutants such as heavy metals and petroleum hydrocarbons during operation of the trains. If such pollutants were released onto the ground during operation, they would travel through stormwater runoff and reach surface water resources in the project area, resulting in negative impacts to surface water quality. Following compliance with post-construction BMPs, as part of the SWRCB's NPDES permit, there would be no adverse effects under NEPA. Potential long-term indirect impacts to water quality would be less than significant with mitigation under CEQA. Post-construction BMPs are described in more detail in Section 4.12.3.3.2 and in Appendix W, Water Resources Technical Memorandum.

As discussed in Chapter 3, Transportation Impacts and Mitigation (Section 3.3), operation of the SR 60 LRT Alternative would likely decrease annual vehicle miles traveled (VMT) of personal automobiles through the project area. An overall reduction in VMT would decrease the primary pollutants associated with all types of transportation operations such as heavy metals, solvents, and petroleum hydrocarbons. This would be an indirect beneficial effect under NEPA and an indirect beneficial impact under CEQA.

Similar to surface water quality impacts, compliance with applicable NPDES permit requirements and implementation of applicable mitigation measures would limit the percolation of polluted runoff to groundwater underlying the project area. There would be no adverse effects under NEPA. The impact would be less than significant with mitigation under CEQA.

4.12.3.3.2 Mitigation Measures

Construction Mitigation Measures

The following mitigation measures would be implemented to reduce construction impacts discussed in Section 4.12.3.3.1.

Flooding

4.12-i. Construction of the SR 60 LRT Alternative in the SR 60 ROW through Whittier Narrows Dam Flood Control Basin and placement of LRT columns in the flood control basin as well as construction of the proposed Santa Anita Avenue station would be modifications of the flood damage reduction structure. Approval of modifications to flood control structures would require additional coordination with USACE. Metro would submit a Section 408 permit application to USACE and would include a technical analysis of the potential impacts to the flood control basin. This would include completion of the eight-step decision-making process under Executive Order 11988 for construction within the 100-year floodplain, as well as completion of an evaluation required under Regulation 1000-2-1 for construction within flood control basins. In addition, an evaluation would be completed as required in compliance with USACE Policy Guidance Letter No. 32 for construction on flowage easement land (at the proposed Santa Anita Avenue station). Based on these evaluations, the SR 60 LRT Alternative construction designs would incorporate all required measures related to being located within a flood control basin which could include, but are not limited to, the following:

- Buildings that contain utilities, records, and/or equipment shall either be flood-proofed; or
- Development of contingency plans for evacuation of moveable items before floods.

4.12-ii. To compensate for potential loss of flood storage capacity or alteration of flood flow direction and velocity due to placement of LRT columns in USACE and LACDPW flood control facilities, Metro would provide

83 cubic yards of compensatory mitigation to replace lost storage capacity. Compensatory mitigation for flood storage impacts would, at a minimum, replace any lost flood capacity. In addition, the Santa Anita Avenue station would be designed so that there would be no parking or storage located on the ground level and so that floodwaters could freely flow under and through the structure. In general, mitigation can occur at or below the elevation of impact. The area chosen for compensatory mitigation must be free draining (e.g., pooled water must be able to flow out of the storage area as floodwaters recede) and would comply with USACE drainage requirements.

4.12-iii Metro would ensure that construction of the portion of the SR 60 LRT Alternative within the Whittier Narrows Flood Control Basin, would be in compliance with all applicable USACE Reservoir Regulations, which could include but not be limited to preparation of an emergency evacuation plan, balanced cut and fill to retain basin storage, and limitations based upon rainy season requirements.

Water Quality

4.12-iv. In compliance with the SWRCB's General Construction Permit (Order #2009-0009-DWQ), Metro would prepare a SWPPP that would specify properly designed, centralized storage areas that would keep these materials out of the rain. Spill cleanup materials (e.g., rags, absorbent materials, and secondary containment) would be kept at the work site when handling materials. Metro would ensure that site supervisors and workers have knowledge of the SWPPP. Therefore, site supervisors would conduct regular meetings to discuss pollution prevention. The frequency of such meetings and the personnel required to attend would be specified in the SWPPP.

4.12-v. The SWPPP would also specify a monitoring program to be implemented by the construction site supervisor and Metro and would include both dry and wet weather inspections. City personnel from each applicable jurisdiction would also conduct regular inspections to ensure compliance with the SWPPP.

4.12-vi. Metro would oversee implementation of BMPs designed to reduce erosion of exposed soil. These may include, but are not limited to: soil stabilization controls; water for dust control; perimeter silt fences; placement of straw wattles; and sediment basins. The potential for erosion is generally greater when grading is performed during the rainy season, as disturbed soil can be exposed to rainfall and storm runoff. If grading activities must take place during the rainy season, the BMPs selected would focus on erosion control and keeping sediment in place. End-of-pipe sediment control measures (e.g., basins and traps) would be used as secondary measures. Entry and egress from construction sites would be carefully controlled to minimize off-site tracking of sediment. Additional sources of information regarding BMPs include the California Storm Water Municipal and Construction Activity BMP Handbooks, as well as the California Department of Transportation's (Caltrans) *Storm Water Quality Handbooks, Project Planning and Design Guide* (2003).

4.12-vii. As required under the NPDES MS4 permit, specific categories of projects in jurisdictions covered by the permit must comply with the SUSMP. Metro would prepare a SUSMP that describes necessary BMPs which must be incorporated into design plans for specific categories of development and redevelopment. The proposed alternatives require compliance with the SUSMP under project category seven: parking lot 5,000 square feet or

more of surface area or with 25 or more parking spaces.

4.12-viii. The Los Angeles County Building and Safety Division determines compliance of the proposed alternatives with the SUSMP through the incorporation of BMPs in drainage and grading plans. Prior to issuance of any grading or building permits, the County Building and Safety Division must approve the BMPs. The contractor would be responsible for preparing the drainage and grading plans and obtaining approval of the plans prior to the start of construction.

Applicable BMPs that may be included in the drainage plan include:

- Oil/water separators;
- Catch basin inserts;
- Storm drain inserts;
- Media filtration; and/or
- Catch basin screens.

4.12-ix. LARWQCB's municipal stormwater NPDES permit (Order No. 01-182 and NPDES No. CAS004001) specifies that permittees must implement a program to control runoff from construction activity. As part of this, an erosion and sediment control plan would be prepared and established by Metro prior to the initiation of construction activities. Ultimately approved by the LARWQCB, the plan would include BMPs such as the following measures as appropriate:

- Use of natural drainage, detention ponds, sediment ponds, or infiltration pits to allow runoff to collect and to reduce or prevent erosion;
- Use of barriers to direct and slow the rate of runoff and to filter out large sediments;
- Use of downdrains or chutes to carry runoff from the top of a slope to the bottom; and
- Control of the use of water for irrigation so as to avoid off-site runoff.

4.12-x. If contaminated groundwater is encountered during construction, the contractor would stop work in the vicinity, cordon off the area, contact the appropriate hazardous waste coordinator and maintenance hazardous spill coordinator at Metro, and immediately notify the Certified Unified Program Agencies (County of Los Angeles Fire Department and LARWQCB) responsible for hazardous materials and wastes. Through coordination with LARWQCB, an investigation and remediation plan would be developed in order to protect public health and the environment. The contractor would properly treat or dispose of any hazardous or toxic materials according to local, state, and federal regulations.

Operational Mitigation Measures

The following mitigation measures would be implemented to reduce operational impacts discussed in Section 4.12.3.3.1.

4.12-xi. To compensate for potential effects to users of the transit system in the event of a flood, Metro's Procedures Plan would be executed to close the Santa Anita station and assist commuters in the event of a flood that reaches the station.

4.12-xii. A drainage control plan would be developed by Metro during project design to properly convey drainage from the project area and avoid ponding on adjacent properties. The flood capacity of existing drainage or water conveyance features would not be reduced in a way that would cause ponding or flooding during storms. Implementation of this plan would protect

against localized flooding impacts during operation of the SR 60 LRT Alternative (with or without the North Side Design Variation).

4.12-xiii. The following permanent treatment/post-construction BMPs would be incorporated by Metro into the proposed project where needed or necessary (each of the measures below is explained in detail in Section 6.0 of Appendix W, Water Resources Technical Memorandum):

- Extended/dry detention basins or underground detention tanks;
- Infiltration basins/trenches;
- Bioretention facilities;
- Media filtration;
- Porous pavement; and
- Vegetated filter strips.

4.12.3.3.3 Impacts Remaining After Mitigation

NEPA Finding

Construction and operation of the SR 60 LRT Alternative, with or without the North Side Design Variation, would result in potential adverse effects to flooding, surface water quality, and groundwater quality. Through compliance with applicable permits and implementation of mitigation measures, no adverse effects related to water quality or flooding would occur.

CEQA Determination

Impacts to floodplains, surface and groundwater resources, and water quality would occur during construction and operation of the SR 60 LRT Alternative, with or without the North Side Design Variation (including proposed stations, park and ride facilities, and the Mission Junction maintenance facility). Impacts related to flooding and water quality during construction and operation could be significant under CEQA. Compliance with applicable NPDES permits as well as CWA Sections 404 and 401 and RHA Section 14 (33 U.S.C. § 408), and a CDFG Lake or Streambed Alteration Agreement, would ensure that project construction and operation would protect water quality. In addition, implementation of mitigation measures related to flooding and water quality would reduce construction and operational impacts to a less than significant level. Overall, impacts from construction and operation of the SR 60 LRT Alternative would be less than significant.

4.12.3.4 Washington Boulevard LRT Alternative

4.12.3.4.1 Impact Analysis

Construction Impacts

Construction impacts from the Washington Boulevard LRT Alternative, both the aerial and at-grade options, would be similar to those described for the SR 60 LRT Alternative. The following sections describe specific impacts that would differ during construction of the Washington Boulevard LRT Alternative.

Flooding

The Washington Boulevard LRT Alternative Rosemead Boulevard at-grade crossing and San Gabriel River/I-605 at-grade crossing pass through the 500-year flood zone that stretches from the Rio Hondo east to the area of Norwalk Boulevard, as shown in Figure 4.12-3. From the crossing of the Rio Hondo to the proposed Norwalk Boulevard station, the Washington Boulevard LRT Alternative would be located in the 500-year floodplain. For the at-grade crossing option, construction would result in tracks running through the flood zone area as well as two stations, two park and ride facilities, and TPSS.

Construction of the proposed project in this area of 500-year floodplain would not result in adverse effects under Executive Order 11988.

Under the Washington Boulevard LRT Alternative, the existing support columns located inside the Rio Hondo and San Gabriel River channels (100-year flood hazard areas) may require additional reinforcement due to the proposed widening of the

existing bridges. If reinforcement of existing support columns becomes necessary, potential increases to the risk of flooding of these two channels due to an increased impediment to the channel flows could occur and could expose people or structures to a risk of flooding.

Construction of expanded columns on the bridges over the Rio Hondo and San Gabriel Rivers and associated spreading basins, would span the USACE jurisdictional limits of the rivers and would not alter the levees; therefore, a Section 408 permit would not be necessary for this part of the construction. However, expansion or reinforcement would have the potential to decrease the capacity of these areas, which would be addressed with the LCDPW. Implementation of mitigation measures (compensatory flood storage) would reduce these impacts. Overall, with mitigation, there would be no adverse effects under NEPA. Impacts under CEQA would be less than significant with mitigation.

Potential flooding impacts during construction of the Washington Boulevard LRT Alternative Rosemead Boulevard aerial crossing and San Gabriel River/I-605 aerial crossing would be similar to those described for the at-grade crossing option. The aerial crossing options would result in the placement of a smaller structure surface area in the previously described 500-year floodplain. While park and ride facilities and TPSS would be constructed in this flood zone, they would not result in adverse effects under Executive Order 11988. Reinforcement of existing columns within the Rio Hondo and San Gabriel Rivers could impede or redirect flood flows within a 100-year flood hazard area (within the Rio Hondo and San Gabriel channels) and could expose people or structures to a risk of loss or injury from flooding. However, these risks would be reduced through mitigation such as compensatory storage and a design that avoids impeding or redirecting flood flows. Therefore, with mitigation adverse effects would not occur under NEPA and impacts under CEQA would be less than significant.

As shown in Figure 4.12-4, the two maintenance yard options unique to the Washington Boulevard LRT Alternative are located in Flood Zone X. There would be no adverse effects under NEPA and no impacts under CEQA.

Watersheds and Surface Water Resources

If reinforcement of existing support columns associated with retrofitted bridges in the spreading grounds becomes necessary, this would add a minimal amount of impervious surfaces to these areas. As the spreading grounds are owned and operated by the LACDPW, a construction permit from the County would be necessary. The construction permit would dictate approaches for mitigating construction-related impacts to the spreading basins. Potential requirements of the County construction permit include:

- Conducting construction outside of the rainy season (October to April);
- Placing staging areas outside of the spreading grounds and LACDPW ROW areas; and
- Conducting all construction activities outside of the LACDPW ROW areas (including access roads).

Reinforcement of columns in the spreading grounds would require ongoing communication with the County at later stages of project design. These later stages would also determine the potential impact to water storage from construction of retrofitted columns in the spreading basins. The LACDPW would base potential mitigation on these impacts once final design is known. Mitigation would require adding recharge capacity to another area in the Central Basin. Coordination and permit approvals from LACDPW as well as compliance with potential mitigation measures, as required by the County and described in Section 4.12.3.3.2 (compensatory storage mitigation), would result in no adverse effects under NEPA and would reduce potential construction-related impacts in the watershed and the spreading grounds to less than significant with mitigation under CEQA.

The spreading basins are not considered part of the flood control structures because they are located outside of the river levees and, therefore, do not fall under Section 14 of the RHA. However, both spreading grounds have outlets back to the rivers. While the outlets are not routinely used, they have been used in emergency situations where water needs to be moved from the spreading grounds back into the rivers. Based on this hydrologic connection with the rivers, the placement of bridge columns below the OHWM in the spreading grounds would require a CWA Section 404 permit from USACE, a CWA Section 401 Water Quality Certification from LARWQCB, and approval from the LACDPW, which owns the flood control channels.

The above impacts would be the same for both the aerial and at-grade crossing options.

Groundwater

Placement of concrete columns in the spreading grounds has the potential to impact recharge and water storage capacity in the spreading grounds. The potential magnitude of these impacts would be determined during later stages of engineering design and required mitigation would be dictated by LACDPW. Compliance with LACDPW construction permit requirements would reduce potential impacts to groundwater recharge. There would be no adverse effects under NEPA. Impacts under CEQA would be less than significant with mitigation.

Aside from potential impacts at the spreading grounds, potential impacts to groundwater supplies and groundwater recharge and compliance with applicable regulations and requirements under the Washington Boulevard LRT Alternative would be similar to those described for the SR 60 LRT Alternative.

Drainage

The at-grade portion of the Washington Boulevard LRT Alternative Rosemead Boulevard at-grade crossing and San Gabriel River/I-605 at-grade crossing would be constructed in the middle of the existing street; therefore, the street would need to be widened and stormwater infrastructure would be relocated. Relocation of drainage infrastructure would not impact the direction, flow, or capacity of the stormwater drainage system; thus, there would be no adverse effect under NEPA. Relocation of drainages at this location would not substantially alter the existing drainage pattern of the site or area; thus the impact under CEQA would be less than significant.

Under the Rosemead Boulevard aerial crossing and San Gabriel River/I-605 aerial crossing, roadways would not have to be widened and no drainage infrastructure would have to be relocated. There would be no impact to stormwater drainage from construction of the aerial crossing option.

Water Quality

Unlike the SR 60 LRT Alternative, the Washington Boulevard LRT Alternative would avoid construction near the OII landfill site where hazardous materials are known to occur within the Caltrans ROW. While construction of the Washington Boulevard LRT Alternative would not occur directly within any of the Superfund sites identified in the project area, it would likely encounter groundwater contaminated with hazardous materials from other sources. Additional data gathering and/or site-specific groundwater investigation activities would be warranted for several areas along the Washington Boulevard LRT Alternative alignment to delineate potential areas of groundwater contamination and guide construction activities. Implementation of water quality mitigation measures described in Section 4.12.3.3.2 would ensure no adverse effects under NEPA. With implementation of mitigation and continued coordination with appropriate agencies, construction would not violate any applicable water quality standards, affect the rate or change the direction of movement of existing groundwater contaminants, expand the area affected by contaminants, or otherwise substantially degrade water quality. Thus, the impact under CEQA would be less than significant after mitigation.

Operational Impacts

Operational impacts under the Washington Boulevard LRT Alternative, including both the aerial and at-grade options, would be similar to those described for the SR 60 LRT Alternative.

Potentially adverse effects and significant impacts related to flooding and water quality would be reduced to no adverse effects under NEPA and less than significant impacts under CEQA.

4.12.3.4.2 Mitigation Measures

In addition to the mitigation measures below, the mitigation measures described in Section 4.12.3.3.2 and summarized in Table ES-2, except for mitigation measures 4.12-i through 4.12-iii and 4.12-xi, would be implemented to reduce potentially adverse effects and significant impacts during construction of the Washington Boulevard LRT Alternative.

4.12-xiv. Should reinforcement of the existing support columns located inside the Rio Hondo and San Gabriel River channels become necessary during the final design phase of this alternative, Metro would conduct a quantitative hydraulic analysis to evaluate the flood risk. The increased flood risk, if determined to be significant, could be mitigated with, but not limited to the following options: 1) raising the height of the existing channel banks; 2) constructing a flow bypass; or 3) providing an inline or offline flood storage facility.

4.12-xv. To compensate for potential loss of flood storage capacity or alteration of flood flow direction and velocity due to placement of LRT structures in Rio Hondo and San Gabriel spreading basins, and potential loss due to the possible reinforcement of existing columns within the Rio Hondo and San Gabriel Rivers, Metro would provide compensatory mitigation to replace lost storage capacity. Compensatory mitigation for flood storage impacts would, at a minimum, replace any lost flood capacity. In addition, the Washington Boulevard LRT Alternative would be designed so that floodwaters could freely flow under and through the structure in the affected areas.

4.12.3.4.3 Impacts Remaining After Mitigation

NEPA Finding

As with the SR 60 LRT Alternative, construction and operation of both the at-grade and aerial crossing options of the Washington Boulevard LRT Alternative would affect floodplains, surface and groundwater resources, and water quality. Through compliance with applicable permits and implementation of mitigation measures, no adverse effects on water resources or hydrology would occur under the Washington Boulevard LRT Alternative.

CEQA Determination

Impacts to floodplains, surface and groundwater resources, and water quality would occur during construction and operation of both the at-grade and aerial crossing options of the Washington Boulevard LRT Alternative (including proposed stations, park and ride facilities, and maintenance yard options).

Impacts related to flooding and water quality during construction and operation could be significant under CEQA. Compliance with applicable NPDES permits as well as CWA Sections 404 and 401 and RHA Section 14 (33 U.S.C. § 408), and a CDFG Lake or Streambed Alteration Agreement, would ensure that project construction and operation would protect water quality. Implementation of mitigation measures related to flooding and water quality would reduce construction and operational impacts to a less than significant level.

Overall, impacts from construction and operation of the Washington Boulevard LRT Alternative would be less than significant. Under both the at-grade crossing and aerial crossing options for the Washington Boulevard LRT Alternative, implementation of mitigation measures would ensure that these potential impacts would be less than significant.

Operation of the Washington Boulevard LRT Alternative could impact municipal water supply and surface and groundwater resources in the project area. However, compliance with applicable permits as well as implementation of mitigation measures during operation would ensure that impacts would be less than significant under both the at-grade crossing and aerial crossing options for the Washington Boulevard LRT Alternative.

Section 4.13

Energy Resources

This section summarizes the energy resources in the project area, the usage associated with operation of the proposed Eastside Transit Corridor Phase 2 Project alternatives, and the net energy demand associated with changes to the regional transportation network under each of the proposed alternatives. Information in this section is based on, and updated where appropriate from, the Energy Resources Technical Memorandum which is incorporated into this Draft EIS/EIR as Appendix X.

4.13.1 Regulatory Framework/Methodology

4.13.1.1 Regulatory Framework

Energy and energy use within the project area are governed by several federal, state, and local laws and policies, such as:

4.13.1.1.1 Federal

- The Energy Policy and Conservation Act of 1975
- The Alternative Fuels Act of 1988
- Moving Ahead for Progress in the 21st Century Act (MAP-21)
- Section 403(b) of the Power Plant and Industrial Fuel Use Act of 1978 (P.L. 95-629)
- Executive Order 12185, Conservation of Petroleum and Natural Gas (December 17, 1979, 44 F.R. §75093)
- Executive Order 13423, Strengthening Federal Environmental, Energy, and Transportation Management (January 24, 2007, 72 F.R. §3919)
- Executive Order 13514, Federal Leadership in Environmental, Energy, and Economic Performance (October 5, 2009, 75 F.R. §52117)

4.13.1.1.2 State

- California Senate Bill 1389
- Executive Order S-3-05
- Metro's Energy and Sustainability Policy

4.13.1.1.3 Regional/Local

The following regional and local policies play a role in governing energy resources and energy use in the project area and the region:

- Southern California Association of Governmental (SCAG)Regional Transportation Plan
- South Coast Air Quality Management District (SCAQMD) daily and quarterly emission thresholds for construction and operational emission sources; SCAQMD development of State Implementation Plans (SIPs) in compliance with the Federal Clean Air Act (CAA) and California Clean Air Act (CCAA) regulations to reduce unhealthy levels of air pollutants
- Metro's Energy and Sustainability Policy
- County of Los Angeles General Plan
- Other local policies that pertain to energy resources and the LRT alternatives, include the City of Los Angeles General Plan, City of Commerce General Plan, City of Montebello General Plan, Montebello Hills Specific Plan, City of Pico Rivera General Plan, and City of Rosemead General Plan

Electricity and transportation are the major energy use sectors analyzed by the California Energy Commission (CEC). Federal and state policies and regulations are gradually transforming electricity generation to cleaner sources and away from reliance on petroleum sources. More information regarding these laws and policies is available in Appendix X, Energy Resources Technical Memorandum, of this Draft EIS/EIR.

4.13.1.2 NEPA Impact Criteria

The Council on Environmental Quality (CEQ) dictates requirements for reporting environmental consequences under the National Environmental Policy Act (NEPA). While there are no specific NEPA criteria for analyzing impacts to energy resources, 40 CFR § 1502.16(e) directs that environmental impact statements include a discussion of the "energy requirements and conservation potential of various alternatives," "natural or depletable resource requirements and conservation potential of various alternatives," and potential mitigation measures.

4.13.1.3 CEQA Impact Criteria

The following significance criteria are based on Appendices F (Energy Conservation) and G (Environmental Checklist Form) of the *California Environmental Quality Act (CEQA) Guidelines*.

The purpose of Appendix F of the *CEQA Guidelines* is to ensure that energy implications are considered in project decisions. As described in the *CEQA Guidelines*, the goal of conserving energy implies the wise and efficient use of energy. The means of achieving this goal include:

- Decreasing overall per capita energy consumption;
- Decreasing reliance on fossil fuels such as coal, natural gas, and oil; and
- Increasing reliance on renewable energy sources.

Specific emphasis is given to reducing inefficient, wasteful, and unnecessary consumption of energy. The *CEQA Guidelines* require that a project's cost-effectiveness be reviewed in terms of energy requirements in addition to dollars.

Appendix G of the *CEQA Guidelines* establishes the following criteria, which were used to determine whether the proposed project alternatives would result in a significant impact to energy resources. Significant impacts would result if the proposed project alternatives would:

- Require new (off-site) energy supply facilities and distribution infrastructure or capacity enhancing alterations to existing facilities;
- Conflict with adopted energy conservation plans;
- Use nonrenewable resources in a wasteful and inefficient manner; or
- Result in a need for new systems or substantial alterations to power or natural gas.

4.13.1.4 Area of Potential Impact

The area of potential impact for energy resources analysis is defined based on whether the potential impact stems from direct or indirect energy consumption as related to the proposed alternatives. The areas of direct or indirect potential impacts differ from each other, but are the same for all alternatives.

Direct energy resource consumption and potential impacts would stem from short-term construction-related energy use as well as the long-term operation of stations, buildings, and facilities that are part of the build alternatives. The area of potential impact for direct impacts is defined by Southern California Edison's (SCE's) local service area as well as the eastern section of the Los Angeles Department of Water and Power's (LADWP's) service area which covers the area of the proposed Mission Junction Maintenance Yard Option.

Indirect energy resource consumption would stem from long-term changes in vehicle miles traveled (VMT) and corresponding changes in vehicle fuel consumption (and equivalent barrels of oil). Changes in VMT were calculated by using data generated by the transportation model for both the

region and the project area; therefore, the area of potential impact used to compare changes in VMT and corresponding energy use between alternatives was the same as that used in the transportation modeling and the traffic analysis. The regional area would be that defined by the Metro traffic model, which includes the counties of Imperial, Riverside, San Bernardino, Los Angeles, Orange, and Ventura.

The project area, defined as the more immediate area in the vicinity of the proposed alternative alignments, extends west to east from the intersection of Atlantic Boulevard and SR 60 (at the existing Atlantic Boulevard Metro station) to east of the I-605 Freeway in the vicinity of Peck Road and Lambert Road. The project area to the north and south extends from north of SR 60 near Potrero Grande Drive to south of Washington Boulevard near Slauson Avenue.

While the transportation model generated traffic data for the larger Los Angeles region as well as for the immediate project area, both of which would be affected by operation of the alternative alignments, the energy resources analysis used VMT data for the region to determine and analyze impacts.

4.13.1.5 Methodology

Potential impacts to energy resources were assessed based on the amount of energy consumed during construction of the alternatives, as well as the operational energy consumption associated with station and maintenance yard operation and projected changes in regional VMT for highway and major road vehicle traffic, buses, and light rail.

Energy needs for the proposed alternatives were measured in British Thermal Units (BTUs) and equivalent barrels of crude oil. A BTU is defined as the quantity of heat required to raise the temperature of one pound of water one degree Fahrenheit at sea level. **Table 4.13-1** compares various types of energy and their equivalent BTUs.

Analysis of potential impacts to energy resources includes consideration of the following elements:

- Construction-related energy
- Energy operating costs
- Direct energy consumption (measured in BTUs per vehicle mile for cars, trucks, buses, and light rail operating in the project area)
- Net project operating energy savings or costsEnergy consumption during construction was determined by analyzing the energy requirements of construction equipment and construction processes. While energy requirements differ for the construction phase of at-grade alternatives versus aerial alternatives, the methodology for determining construction-related impacts is the same for both build alternatives.

Table 4.13-1. Energy Comparisons

Energy Type	Energy Unit	Equivalent BTUs
Electrical	Kilowatt-Hour (kWh)	3,412
Natural Gas	Cubic Foot	1,034
Crude Oil	Barrel (42 Gallons)	5,800,000
Gasoline	Gallon	125,000

Source: California Energy Commission 2007a.

Construction-related impacts were estimated by applying a highway construction energy factor to the total estimated construction cost of the Eastside Transit Corridor Phase 2 Project. The California Department of Transportation (Caltrans) derived energy consumption for different light rail transit (LRT) facilities in *Energy and Transportation Systems* (1983), and these factors are still widely used in the industry today.

Consumption factors are reported in BTUs per dollar of construction spending. Given the date of this data source (1983), the energy consumption factors were adjusted to account for the change in construction costs. The California Construction

Cost Index was used to adjust the factors to 2010 dollars. The consumption factors used are as follows:

- Track Elements: 7,494 BTU/2010$
- Stations, stops, and terminals: 7,494 BTU/2010$
- Parking: 9,218 BTU/2010$
- Maintenance yards: 9,218 BTU/2010$
- Site work: 7,494 BTU/2010$
- Systems: 11,519 BTU/2010$

Only direct construction costs related to this project were used to calculate energy consumption during construction. The professional engineering and ROW costs were not considered in the analysis.

Operational energy use was determined by calculating changes in VMT for cars, buses, and light rail, as applicable, for each alternative. In order to identify the BTUs for each vehicle type in the project area, the United States Department of Energy's (DOE) *Transportation Energy Data Book*, Edition 27 (2008) was used to determine energy consumption factors for the different modes of transportation. **Table 4.13-2** summarizes these energy consumption factors. For transit buses, the DOE provides only one level of energy intensity regardless of fuel type (e.g., compressed natural gas (CNG) or diesel). The light rail transit mode energy intensity does account for electricity use. Change in VMT was calculated based on the BTU per vehicle mile rate shown in Table 4.13-2. The passenger miles for each alternative were obtained from the travel demand model.

Analysis of the operational energy impact of proposed stations for the build alternatives was determined following the same methodology used in the climate change analysis, which follows Chester and Horvath's electricity usage factors used for the San Francisco Municipal Railway (Muni) in San Francisco.

Table 4.13-2. Energy Consumption Factors

Mode	Factor (BTU/Vehicle Mile)
Cars/Light Trucks[1]	6,213
Buses[2]	5,101
Light Rail[2]	79,424

Sources:
[1] RY2008 Database: http://www.ntdprogram.gov/ntdprogram/data.htm;
[2] DOE, 2008.

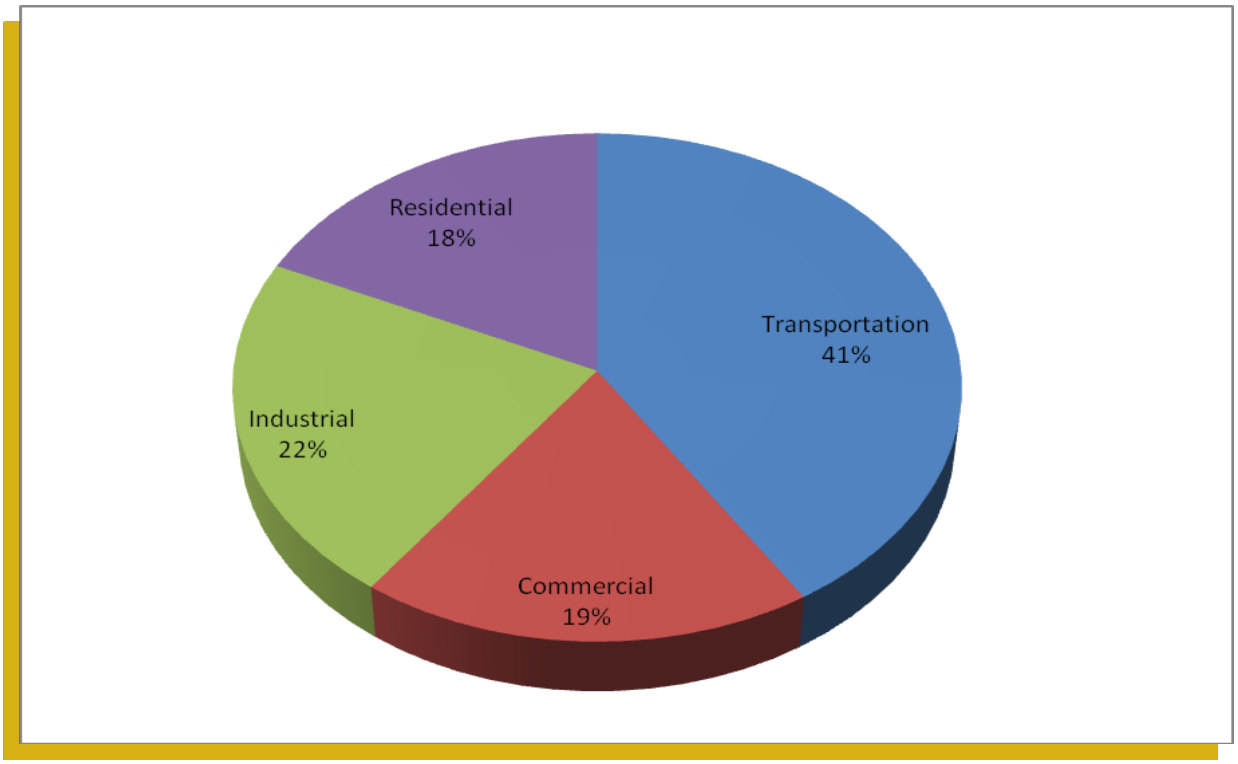
4.13.2 Affected Environment/Existing Conditions

Energy usage in California continues to be dominated by the transportation sector. There has been a dramatic increase in the number of vehicles operated and vehicle miles traveled (VMT) in the state since the early 1970s. The CEC reports that Californians consumed approximately 20 billion gallons of gasoline and diesel fuel from transportation uses in 2007. This amount represents an increase of nearly 50 percent over the last 20 years.

Figure 4.13-1 shows that over 40 percent of all energy consumed in the state is used for transportation.

Similarly, transportation in the County of Los Angeles continues to be dominated by single-occupancy automobiles. In 2005, 74.7 percent of all people in the Southern California region drove alone to work. High percentages of single-occupancy vehicles result in higher VMT throughout the state. In turn, high VMT translate into high energy use and increased air pollutants in the SCAG region.

As described in the Climate Change Technical Memorandum, Appendix S, of this Draft EIS/EIR, transportation is responsible for 38 percent of the state's greenhouse gas (GHG) emissions.



Source: California Energy Commission 2007a.

Figure 4.13-1. California Energy Use by Sector – 2006

Table 4.13-3 summarizes baseline (2010) annual transportation energy usage in the Los Angeles region. The most recent available data for Metro light rail energy consumption in the project region are from 2008. Baseline data for bus operations and energy consumption was modeled with a base year of 2010. Existing conditions for bus and light rail operation show a combined annual VMT of approximately 11.7 million. This translates into approximately 356 billion BTUs and the equivalent of approximately 61,000 barrels of oil. The most recent data for annual automobile energy consumption in the region comes from the transportation model. Automobiles in the region were projected to consume approximately 760,000 billion BTUs in 2010, the equivalent of over 122 million barrels of oil.

Metro's electricity use is split between powering the rail system and powering transit facilities.

For both light rail and facility electrical requirements, Metro buys power from LADWP, SCE, and Pasadena Water and Power. In 2008, Metro rail consumed 175 million kilowatt hours (kWh) of electricity (approximately 597 billion BTUs) and Metro facilities consumed 69 million kWh (approximately 235,000 BTUs). Metro would purchase additional electricity from its current providers to facilitate the proposed project.

Metro's 2009 *Baseline Sustainability Report* presents goals and recommendations for tracking and improving these performance measures. (Refer to Appendix X, Energy Resources Technical Memorandum, of this Draft EIS/EIR for more information regarding existing energy supplies and usage.)

Table 4.13-3. Annual Regional Transportation Energy Use, Existing Conditions[a]

Vehicle Class	Consumption Factors[1,2] (BTU/mi)	Vehicle Miles Traveled (Annual)	Percentage of Total Miles Traveled in Region	Total BTU Consumption (Billions)	Total Equivalent Barrels of Oil	Percentage of Total BTU and Equivalent Barrels of Oil
Light Rail[3]	79,424	3,980,819	0.004	316	54,513	0.04
Bus[4]	5,101	7,697,851	0.007	39	6,770	0.006
Automobiles	6,213	114,083,059,241	99.9	708,789	122,206,559	99.95
Annual Total	**N/A**	**114,094,737,911**	**100**	**709,153**	**122,267,842**	**100**

Sources: [1] DOE 2008; [2] RY2008 (Database: http://www.ntdprogram.gov/ntdprogram/data.htm); [3] CDM Smith 2010, AECOM 2013; [4] AECOM 2010.
Note:
[a] Existing conditions are reported from data sources dated 2008 and 2010. The 2008 data are the most recent available data from the National Transportation Data Program for Metro-reported light rail and bus miles traveled annually.
BTU/mi = British thermal unit per mile

4.13.3 Environmental Impacts/Environmental Consequences

The following sections summarize the evaluation of potential energy resource impacts for each alternative. Impact conclusions for all of the alternatives are based on the thresholds identified above in Section 4.13.1. **Table 4.13-4** summarizes the results of the analysis.

Table 4.13-5 summarizes annual changes in energy consumption associated with regional highway VMT for each of the action alternatives, compared with the No Build Alternative. Calculations were based on data from the transportation model that projected changes in daily VMT throughout the region. As shown in Table 4.13-5, all of the alternatives would result in a net decrease in VMT throughout the region when compared with the No Build Alternative.

Table 4.13-6 summarizes total operational energy demands under all of the proposed alternatives. Table 4.13-6 compares BTUs and barrels of oil under each alternative, as well as the percent change in BTUs between each build alternative and the No Build Alternative. As discussed below, none of the alternatives would result in a significant impact to energy resources. Therefore, no new (off-site) energy supply facilities, distribution infrastructure, capacity-enhancing alterations to existing facilities, or new systems or substantial alterations to power or natural gas would be required under any of the alternatives. The impact analysis for each alternative, based on the remaining thresholds identified in Section 4.13.1, is included below.

Table 4.13-4. Summary of Potential Energy Resources Impacts

Alternative	Energy Consumption – (NEPA/CEQA)
No Build	**Construction:** None **Operations:** None (increase associated with projected growth)
TSM	**Construction:** Not adverse/Less than significant **Operations:** None
SR 60 LRT Alternative and North Side Design Variation	**Construction:** Not adverse/Less than significant **Operations:** Beneficial long-term effects/beneficial long-term impacts (overall net benefit to energy)
Washington Boulevard LRT Alternative (at-grade and aerial options)	**Construction:** Not adverse/Less than significant **Operations:** Beneficial long-term effects/beneficial long-term impacts (overall net benefit to energy)

Table 4.13-5. Estimated Regional Highway VMT and Energy Consumption Comparisons

Scenario	Annual Change in Highway VMT	Annual Change in Energy Consumption (BTUs in billions)	Annual Change in Equivalent Barrels of Oil
TSM Alternative vs. No Build Alternative	(153,594,000)	(954)	(164,531)
SR 60 LRT Alternative vs. No Build Alternative	(158,682,000)	(985)	(169,981)
Washington Boulevard LRT Alternative vs. No Build Alternative	(159,000,000)	(987)	(170,322)

Source: AECOM, CDM Smith 2011.
Note:
Parentheses indicate a reduction compared with the No Build Alternative.

Table 4.13-6. Estimated Annual Operational Energy Consumption for Each Alternative

Annual Regional VMT[1] (billions) for Each Alternative	BTUs[2] (billions)	Barrels of Oil	Total BTUs (billions)	Percent Change in BTUs from No Build[3]	Total Barrels of Oil
Baseline (2010)					
Highway – 114.08	708,798	122,206,560	708,837	--	122,213,330
Bus[4] – 0.00769	39.26	6,770			
No Build Alternative (2035)					
Highway - 166.91	1,036,999	178,793,367	1,037,037	--	178,799,887
Bus – 0.00741	37.81	6,520			
TSM Alternative					
Highway – 166.75	1,036,042	178,628,836	1,036,099	(0.090)	178,638,619
Bus – 0.01112	56.74	9,783			
SR 60 LRT Alternative					
Highway – 166.75	1,036,011	178,623,386	1,036,118	(0.088)	178,641,778
Bus – 0.01049	53.55	9,233			
Light Rail – 0.000634	50.35	8,682			
Stations – N/A	0.8	137.9			
Maintenance – N/A	1.97	339.7			
SR 60 LRT Alternative North Side Design Variation					
Highway – 166.75	1,036,011	178,623,386	1,036,118	(0.088)	178,641,778
Bus – 0.01049	53.55	9,233			
Light Rail – 0.000634	50.35	8,682			
Stations – N/A	0.8	137.9			
Maintenance – N/A	1.97	339.7			

Table 4.13-6. Estimated Annual Operational Energy Consumption for Each Alternative (continued)

Regional VMT[1] (billions) for Each Alternative	BTUs[2] (billions)	Barrels of Oil	Total BTUs (billions)	Percent Change in BTUs from No Build[3]	Total Barrels of Oil
Washington Boulevard LRT Alternative					
Highway – 166.75[5]	1,036,011	178,623,045	1,036,138	(0.086)	178,644,879
Bus – 0.01085	55.37	9,547			
Light Rail – 0.000861	68.38	11,790			
Stations – N/A	0.9	156.9			
Maintenance – N/A	1.97	339.7			

Source: AECOM, CDM Smith 2011.
Notes:
[1] Calculation of VMT describes changes in highway VMT within the regional area projected by the transportation model for the 2035 horizon year under each alternative. Project area bus VMT are included in the baseline and all the alternatives. Added light rail VMT are included in the two LRT build alternatives. Operation of buses and light rail outside of the proposed alternatives are assumed to remain unchanged.
[2] Operational BTUs also include the energy required to operate additional stations and maintenance yards under the LRT build alternatives.
[3] This percentage represents percent change in operational BTUs and does not include construction.
[4] Buses were not included in the traffic model; therefore, bus VMT, calculated as additional buses operating under each alternative, are shown separately in the table by alternative.
[5] Actual, non-rounded values of annual VMT for the SR 60 LRT and Washington Boulevard LRT Alternatives are 166,749,660,000 and 166,749,342,000, respectively.

4.13.3.1 No Build Alternative

4.13.3.1.1 Impact Analysis

Construction Impacts

The No Build Alternative would not include any construction of new light rail lines in the project area. The No Build Alternative would not result in construction-related impacts to energy use or resources in the project area or region. There would be no adverse effects under NEPA and no impacts under CEQA.

Operational Impacts

Under the No Build Alternative, no energy consumption would be associated with the operation of new light rail lines, stations, or maintenance yards. Increased energy consumption that would occur under the No Build Alternative represents predicted increases in VMT unrelated to the project. Annual highway VMT in the region would increase from 114.08 billion VMT (2010) to 166.91 billion VMT (2035) as shown in Table 4.13-6. Correspondingly, energy consumption throughout the region would increase by approximately 382,200 billion BTUs (see Table 4.13-6). Since the No Build Alternative assumes that the Eastside Transit Corridor Phase 2 Project would not be built, this increase in BTUs is a result of projected growth in traffic that is expected to occur in the region without the project. There would be no operational impacts as a result of this alternative, since the No Build Alternative assumes that the Eastside Transit Corridor Phase 2 Project would not be constructed. Thus, there would be no adverse effects under NEPA and no impacts under CEQA.

4.13.3.1.2 Mitigation Measures

Mitigation measures are not required because there would be no impacts to energy resources from operation of the No Build Alternative.

4.13.3.1.3 Impacts Remaining After Mitigation

NEPA Finding

The No Build Alternative would not have adverse effects with respect to energy resources in the region.

CEQA Determination

The No Build Alternative would not have significant impacts with respect to energy resources in the region. (Refer to the Energy Resources Technical Memorandum (Appendix X) for complete analysis.)

4.13.3.2 TSM Alternative

4.13.3.2.1 Impact Analysis

Construction Impacts

The TSM Alternative assumes that the project would not be constructed. While some bus stations would be constructed under this alternative, there would be minimal construction impact on energy resources or energy use in the project area or region. For this analysis, it was assumed that no construction energy use would occur under the TSM Alternative. There would be no adverse effects under NEPA and no impacts under CEQA.

Operational Impacts

Operational impacts of the TSM Alternative are compared with the 2035 No Build Alternative to determine significance under NEPA and to the 2010 Baseline to determine significance under CEQA.

Operation of the TSM Alternative (2035) would reduce highway VMT in the project area by approximately 153 million vehicle miles per year compared with the 2035 No Build Alternative, as shown in Table 4.13-5.

Correspondingly, as shown in Table 4.13-5, automobile energy consumption would decrease by over 954 billion BTUs (equivalent to a decrease of over 164,000 barrels of oil) under the TSM Alternative (2035) compared with the 2035 No Build Alternative. Thus, under NEPA the TSM Alternative would have potentially beneficial effects to energy and vehicle fuel resources in the project area.

Table 4.13-6 summarizes total energy use under the TSM Alternative, including bus and highway VMT. With the addition of bus lines, the TSM Alternative would result in increased bus VMT (an increase of approximately 3.7 million VMT compared with the 2035 No Build Alternative and approximately 3.4 million VMT compared with the 2010 Baseline). As shown in Table 4.13-6, this increased bus VMT would result in corresponding increases in BTUs and barrels of oil consumed by buses/bus operations. Under the TSM Alternative, buses would use 56.74 billion BTU and 9,783 barrels of oil. For bus operations, this is an increase of approximately 18.9 billion BTU and 3,263 barrels of oil compared with the 2035 No Build Alternative, and approximately 17.5 billion BTU and 3,013 barrels of oil compared with the 2010 Baseline.

Despite these increases in VMT and energy use from the addition of bus lines, operation of the TSM Alternative would still result in total annual net energy savings compared with the No Build Alternative (2035). Net energy savings from operation would be more than 900 billion BTUs (equivalent to approximately 161,000 barrels of oil) as indicated in Table 4.13-5. Given the reduced energy consumption compared with the No Build Alternative (2035), the operational effect of the TSM Alternative would be potentially beneficial under NEPA for energy resources in the long term. Decreases in highway VMT and net decreases in energy use throughout the region would result in beneficial impacts under CEQA.

Total energy use under the TSM Alternative would increase compared with the 2010 Baseline; however, the majority of this increase would be due to background growth in highway vehicle use (projected growth in traffic that is expected to occur in the region without the project), and is not

attributable to the TSM Alternative (see Table 4.13-6).

Given the net reduction in energy consumption compared with the 2035 No Build Alternative, the TSM Alternative would not require new (off-site) energy supply facilities, distribution infrastructure, or capacity-enhancing alterations to existing facilities, or result in a need for new systems or substantial alterations to power or natural gas. Therefore, impacts to these facilities would be less than significant under CEQA.

4.13.3.2.2 Mitigation Measures

Mitigation measures are not required because potential impacts to energy resources from operation of the TSM Alternative would be beneficial.

4.13.3.2.3 Impacts Remaining After Mitigation

NEPA Finding

The TSM Alternative would not have adverse effects with respect to energy resources. The overall net energy effects would be beneficial.

CEQA Determination

The TSM Alternative would not have significant impacts with respect to energy resources. The overall net energy impacts would be beneficial.

4.13.3.3 SR 60 LRT Alternative

4.13.3.3.1 Impact Analysis

Construction Impacts

Construction of the SR 60 LRT Alternative would result in a temporary energy demand of 6,482 billion BTUs as shown in **Table 4.13-7**.

This impact would be temporary, whereas operation of the project would result in long-term decreases in energy use and highway VMT in the region. LADWP and SCE are committed to increasing electricity generation from renewable energy sources and ensuring a reliable flow of electricity to users in their service areas.

Construction of the SR 60 LRT Alternative North Side Design Variation would have energy consumption requirements similar to those presented and analyzed above. **Table 4.13-8** summarizes construction energy impacts of the SR 60 LRT Alternative North Side Design Variation.

Table 4.13-7. Estimated Energy Consumption from Construction – SR 60 LRT Alternative

Project Component	Base Year (2010) Dollars (thousands)	Energy Consumption Factor (BTU/2010$)	Total BTU Consumption (billions)
Track elements	377,139	7,494	2,826
Stations, stops, terminals	68,750	7,494	515
Parking structures	98,750	9,218	910
Maintenance yard	86,250	9,218	795
Site work	56,081	7,494	420
Systems	88,140	11,519	1,015
Total	**775,110**	**N/A**	**6,482**

Table 4.13-8. Estimated Energy Consumption from Construction – SR 60 LRT Alternative – North Side Design Variation

Project Component	Base Year (2010) Dollars (thousands)	Energy Consumption Factor (BTU/2010$)	Total BTU Consumption (billions)
Track elements	357,615	7,494	**2,679**
Stations, stops, terminals	68,750	7,494	515
Parking structures	98,750	9,218	910
Maintenance yard	86,250	9,218	795
Site work	56,256	7,494	**422**
Systems	88,530	11,519	**1,019**
Total	**756,151**	**N/A**	**6,342**

Construction-related energy expenditures that differ from the SR 60 LRT Alternative are in bold. Construction of the SR 60 LRT Alternative North Side Design Variation would result in a one-time energy use of 6,342 billion BTUs. This impact would be temporary and the project would result in net decreases in energy use and highway VMT in the region.

Overall, a net beneficial impact to energy resources would be expected to occur given the long-term reduction in energy use from operation of the SR 60 LRT Alternative or the SR 60 LRT Alternative North Side Design Variation.

Additionally, at the contracting stage, Metro can establish terms encouraging productivity gains and integrated project delivery, which cut down on energy use and waste during construction. Specific energy conservation measures would be confirmed in final design. Implementation of air quality construction mitigation measures would ensure that the SR 60 LRT Alternative and the SR 60 LRT Alternative North Side Design Variation would not consume energy resources in a wasteful or inefficient manner.

There would be no adverse effects under NEPA from construction of the SR 60 LRT Alternative, with or without the North Side Design Variation. Impacts under CEQA would be less than significant.

Operational Impacts

Under the SR 60 LRT Alternative, with or without the North Side Design Variation, there would be an increase in operational energy uses from added light rail, stations, buses, and the maintenance yard compared with the 2035 No Build Alternative as shown in Table 4.13-6. Table 4.13-5 shows that while operation of the SR 60 LRT Alternative, with or without the North Side Design Variation, would require new energy expenditures (compared with the 2035 No Build condition), this alternative would decrease regional annual highway VMT. Regional VMT would decrease compared with the 2035 No Build Alternative by over 158 million VMT (equivalent to 985 billion BTUs or 169,981 barrels of oil per year). Long-term decreases in highway VMT would be a beneficial effect under NEPA and a beneficial impact under CEQA.

Total annual BTU consumption in 2035 under the SR 60 LRT Alternative, with or without the North Side Design Variation, would be approximately 1,036,118 billion BTUs (see Table 4.13-6). While total BTUs are used to compare overall operational impacts of the SR 60 LRT Alternative with the 2035 No Build conditions, as described in further detail below and shown in Table 4.13-6, the total BTU numbers include background growth in highway

VMT in the region as well as added energy use from light rail, buses, stations, and the maintenance yard. It is important to note that background growth in VMT is unrelated to the project.

Total energy use under the alternative is compared with that of the No Build Alternative (2035) to determine significance under NEPA. Total energy use under the alternative is compared with current (2010) total energy usage to determine significance under CEQA. Section 4.13.3.3.3 includes a CEQA-specific analysis comparing existing conditions with operation of the SR 60 LRT Alternative to existing conditions without operation of the SR 60 LRT Alternative.

Total operational energy consumption under the SR 60 LRT Alternative would be greater than 2010 Baseline levels; however, this increase would result from increases in regional VMT unrelated to the project. Total annual net savings from operation under this alternative compared with the No Build Alternative (2035) would be approximately 919 billion BTUs (equivalent to approximately 158,109 barrels of oil) as shown in Table 4.13-6. Given that this alternative would result in overall reduced energy consumption (compared with the 2035 No Build Alternative), there would be long-term beneficial effects under NEPA and beneficial impacts under CEQA.

Due to the overall decrease in energy use in the region under the SR 60 LRT Alternative, there would be no additional requirement for new (off-site) energy supply facilities, distribution infrastructure, or capacity-enhancing alterations to existing facilities. Operation of the SR 60 LRT Alternative, with or without the North Side Design Variation, would not conflict with adopted energy conservation plans and would not result in the wasteful or inefficient use of nonrenewable resources. In addition, there would be no need for new systems or substantial alterations to power or natural gas. Thus, there would be no impact to these facilities as a result of long-term operation of the SR 60 LRT Alternative, with or without the North Side Design Variation.

4.13.3.3.2 Mitigation Measures

Mitigation measures are not required because potential impacts to energy resources from operation of the SR 60 LRT Alternative, with or without the North Side Design Variation, would be beneficial.

4.13.3.3.3 Impacts Remaining After Mitigation

NEPA Finding

Construction of the SR 60 LRT Alternative, with or without the North Side Design Variation, would not have adverse effects with respect to energy resources. Long-term reductions in highway VMT and overall net reductions in energy use would be expected to have long-term beneficial effects.

CEQA Determination

Construction and operation of the SR 60 LRT Alternative, with or without the North Side Design Variation, would comply with federal, state, and local energy standards and would not exceed the CEQA significance thresholds listed in Section 4.13.1. The overall net energy impact would be beneficial.

Comparison of Alternative Against Existing Conditions

Construction of the SR 60 LRT Alternative, with or without the North Side Design Variation, would result in one-time energy usage and would not exceed significance thresholds under CEQA; impacts would be less than significant.

The VMT modeling data show a decrease in regional annual VMT and corresponding BTU and equivalent barrels of oil when existing conditions with operation of the SR 60 LRT Alternative are compared with existing conditions without the SR 60 LRT Alternative. That is, VMT and corresponding BTU and equivalent barrels of oil are less with operation of the SR 60 LRT Alternative than under existing conditions in 2010. This is a beneficial impact.

Operation of the light rail trains, stations, and maintenance facilities would consume energy (BTUs and equivalent barrels of oil). However, this energy use would be small compared with the energy reduction derived from decreased annual regional VMT and the corresponding reduction in BTU or barrels of oil consumed. Under the SR 60 LRT Alternative, annual regional VMT would decrease by approximately 60 million vehicle miles (a decrease of approximately 372 billion BTUs and 64,000 equivalent barrels of oil). Long-term impacts under CEQA would be beneficial.

4.13.3.4 Washington Boulevard LRT Alternative

4.13.3.4.1 Impact Analysis

Construction Impacts

Construction of the Washington Boulevard LRT Alternative with the option of at-grade crossings at Rosemead Boulevard and the I-605/San Gabriel River would result in a one-time consumption of approximately 6,439 billion BTUs. Construction of the alternative with aerial crossings at these locations would result in a one-time total consumption of approximately 6,553 billion BTUs as shown in **Table 4.13-9**. SCE and LADWP are committed to increasing electricity generation from renewable energy sources and ensuring a reliable flow of electricity to users in its service area.

Additionally, at the contracting stage Metro can establish terms encouraging productivity gains and integrated project delivery, which cut down on energy use and waste during construction. Specific energy conservation measures would be confirmed in final design. Implementation of air quality construction mitigation measures would ensure that this alternative would not consume energy resources in a wasteful or inefficient manner. Construction would not result in adverse effects under NEPA. Energy resource impacts under CEQA would be less than significant.

Table 4.13-9. Estimated Energy Consumption from Construction – Washington Boulevard LRT Alternative

Project Component	Base Year (2010) Dollars (thousands) At-Grade Crossing Option	Base Year (2010) Dollars (thousands) Aerial Crossing Option	Energy Consumption Factor (BTU/2010$)	Total BTU Consumption (billions) At-Grade Crossing Option	Total BTU Consumption (billions) Aerial Crossing Option
Track elements	280,037	296,178	7,494	2,099	2,220
Stations, stops, terminals	76,875	86,250	7,494	576	646
Parking structures	67,500	67,500	9,218	622	622
Maintenance yards	86,250	86,250	9,218	795	795
Site work	108,357	98,061	7,494	812	734
Systems	133,250	133,250	11,519	1,535	1,535
Total	**752,269**	**767,489**	**N/A**	**6,439**	**6,553**

Operational Impacts

Similar to the operation of the SR 60 LRT Alternative, operation of the Washington Boulevard LRT Alternative would result in increased energy use from added light rail, stations, buses, and maintenance yards compared with the 2035 No Build Alternative (see Table 4.13-6). Table 4.13-5 shows that while operation of the Washington Boulevard LRT Alternative would require new energy expenditures when compared with 2035 No Build conditions, the alternative would decrease regional annual highway VMT. Regional annual highway VMT would decrease compared with the 2035 No Build Alternative by 159 million VMT (equivalent to 987 billion BTUs or 170,322 barrels of oil). Long-term decreases in highway VMT would be a beneficial effect under NEPA and a beneficial impact under CEQA.

Total annual BTU consumption under the Washington Boulevard LRT Alternative would be approximately 1,036,138 billion BTUs (see Table 4.13-6). While total BTUs are used to compare overall operational impacts of the Washington Boulevard LRT Alternative with the 2035 No Build conditions, as described in further detail below and shown in Table 4.13-6, the total BTU numbers include background growth in highway VMT in the region as well as added energy use from light rail, buses, stations, and the maintenance yard. It is important to note that background growth in VMT is unrelated to the project.

Total energy use under the alternative is compared with the No Build Alternative (2035) to determine significance under NEPA. Total energy use under the alternative is compared with current total energy use (2010) to determine significance under CEQA. Section 4.13.3.4.3 includes a CEQA-specific analysis comparing existing conditions with operation of the Washington Boulevard LRT Alternative to existing conditions without operation of this alternative.

Total operational energy consumption under the Washington Boulevard LRT Alternative would be greater than 2010 Baseline levels; however, this increase would result from increases in regional VMT unrelated to the project. Total annual net savings from operation under this alternative compared with the No Build Alternative (2035) would be approximately 899 billion BTUs (equivalent to approximately 155,008 barrels of oil) as shown in Table 4.13-6. Given that this alternative would result in overall reduced energy consumption (compared with the 2035 No Build Alternative), there would be long-term beneficial effects under NEPA and beneficial impacts under CEQA.

Due to the overall decrease in energy use in the region under the Washington Boulevard LRT Alternative, there would be no additional requirement for new (off-site) energy supply facilities, distribution infrastructure, or capacity-enhancing alterations to existing facilities. Operation of the Washington Boulevard LRT Alternative would not conflict with adopted energy conservation plans and would not result in the wasteful or inefficient use of nonrenewable resources. In addition, there would be no need for new systems or substantial alterations to power or natural gas. Thus, there would be no impact to these facilities as a result of long-term operation of the Washington Boulevard LRT Alternative.

There would be no difference in energy consumption between the at-grade and aerial crossings options.

4.13.3.4.2 Mitigation Measures

Mitigation measures are not required because potential impacts to energy resources from operation of the aerial and at-grade options of the Washington Boulevard LRT Alternative would be beneficial.

4.13.3.4.3 Impacts Remaining After Mitigation

NEPA Finding

Construction of the Washington Boulevard LRT Alternative, with either the aerial or at-grade option, would not result in adverse effects under NEPA.

Long-term reductions in regional annual highway VMT during operation of the Washington Boulevard LRT Alternative, either aerial or at-grade, and overall net reductions in energy use would be expected to result in beneficial energy resource effects under NEPA.

CEQA Determination

Construction and operation of both the at-grade and aerial options of the Washington Boulevard LRT Alternative would comply with federal, state, and local energy standards and would not exceed the CEQA significance thresholds listed in Section 4.13.1. Long-term (operational) energy use under the at-grade and aerial options of the Washington Boulevard LRT Alternative would be less than significant.

Long-term reductions in regional annual highway VMT would be expected to be a beneficial impact.

Comparison of Alternative against Existing Conditions

Impacts would be similar to those described for the SR 60 LRT Alternative. Construction would result in one-time energy usage and would not exceed significance thresholds under CEQA; impacts would be less than significant.

Long-term operation of the Washington Boulevard LRT Alternative, under either the at-grade or aerial option, would decrease annual regional highway VMT by approximately 50 million vehicle miles (equivalent to approximately 308 billion BTUs and 53,000 equivalent barrels of oil) compared with 2010 Baseline conditions. Any potential net increase in operational BTU consumption associated with operation of added light rail, stations, buses, and maintenance yards would be negligible and less than the accuracy factor inherent in the traffic modeling. These results indicate that there would be no adverse effect on energy consumption when compared with existing 2010 Baseline conditions.

Section 4.14

Cultural and Historical Resources

This section summarizes the existing historical resources within the project area and evaluates the potential for impacts resulting from construction and operation of the proposed Eastside Transit Corridor Phase 2 Project alternatives. This includes Section 106 and Section 4(f) findings. Impacts on archaeological and paleontological resources are also evaluated. Information in this section is based on, and updated where appropriate from, the Cultural Resources Technical Memorandum which is incorporated into this Draft EIS/EIR as Appendix Y.

4.14.1 Built Environment

4.14.1.1 Regulatory Framework/Methodology

This section describes the regulatory setting associated with cultural resources, the affected environment for cultural resources, the impacts on cultural resources that would result from the proposed project, and the mitigation measures that would reduce these impacts. Since there is considerable overlap between the regulatory framework for historic properties, archaeological resources, and paleontological resources, the applicable laws and regulations are summarized here and referenced in Sections 4.14.2.1 and 4.14.3.1.

4.14.1.1.1 Federal

The most relevant federal laws for the evaluation of effects to cultural resources are the National Environmental Policy Act (NEPA) of 1969, as amended (42 United States Code [U.S.C.] 4321 et seq.) and Section 106 of the National Historic Preservation Act (NHPA), as amended (hereafter, Section 106) (16 U.S.C. 470f) and its regulations for implementation (36 Code of Federal Regulations (CFR) Part 800). Other relevant legislation that applies to cultural resources includes the Antiquities Act of 1906 (16 U.S.C. 431 et seq.); the Archaeological Resources Protection Act (ARPA) of 1979 (16 U.S.C. 470 et seq.); the American Indian Religious Freedom Act (AIRFA) of 1978 (Public Law 95-341); Section 4(f) of the Department of Transportation Act (49 U.S.C. 303); the Archaeological and Historic Preservation Act of 1974 ("Moss-Bennett" Act, 16 U.S.C. 469); and the Native American Graves Protection and Repatriation Act (NAGPRA) (25 U.S.C. 3001-3013).

National Environmental Policy Act

NEPA establishes the federal policy for protecting important historic, cultural, and natural aspects of our national heritage during federal project planning. NEPA also obligates federal agencies to consider the environmental consequences and costs of their projects and programs as part of the planning process. All federal or federally-assisted projects requiring action pursuant to Section 102 of NEPA must take into account the effects on cultural resources.

According to NEPA regulations, in considering whether an action may "significantly affect the quality of the human environment," an agency must consider, among other things, unique characteristics of the geographic area such as proximity to historic or cultural resources (40 CFR 1508.27(b)(3)) and the degree to which the action may adversely affect districts, sites, highways, structures, or objects listed in or eligible for listing in the National Register of Historic Places (NRHP) (40 CFR 1508.27(b)(8)). NEPA regulations also require that, to the fullest extent possible, agencies shall prepare draft EISs concurrent with and integrated with environmental impact analyses and related surveys

and studies required by the NHPA (40 CFR 1502.25(a)).

Section 106 of the National Historic Preservation Act

Section 106 applies when a project has been determined to be an undertaking, which includes a project, activity, or program, funded in whole or part under the direct or indirect jurisdiction of a federal agency, including those carried out by or on the behalf of a federal agency; those carried out with federal financial assistance; those requiring a federal permit, license, or approval; and those subject to state or local regulation administered pursuant to a delegation or approval by a federal agency (36 CFR 800.16(y)). If the undertaking would have an adverse effect on historic properties, the agency must continue to consult to resolve the adverse effects. Federal agencies follow the Section 106 process in reviewing project activities and prescribing appropriate actions to meet the requirements for compliance.

Section 106 requires that impacts on significant cultural resources, hereafter called historic properties, be taken into consideration in any federal undertaking. Historic property means any prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion in, the NRHP maintained by the Secretary of the Interior. This term includes artifacts, records, and remains that are related to and located within such properties. The term includes properties of traditional religious and cultural importance to an Indian tribe or Native Hawaiian organization that meet the [NRHP] criteria (36 CFR §800.16(l)).

Section 106 affords the Advisory Council on Historic Preservation (ACHP) and the State Historic Preservation Officer (SHPO) a reasonable opportunity to comment on any undertaking that would adversely affect properties eligible for listing in the NRHP. Section 101(d)(6)(A) of the NHPA allows properties of traditional religious and cultural importance to a Native American tribe to be determined eligible for inclusion in the NRHP.

Section 106 regulations prescribe the following steps for identifying and assessing effects on historic properties:

- Determine and document the area of potential effect (APE);
- Identify consulting and interested parties;
- Identify potential historic properties;
- Evaluate the significance of potential historic properties by applying NRHP eligibility criteria in consultation with SHPO or Indian tribes, as appropriate;
- Assess effects on historic properties by applying Section 106 criteria of adverse effect;
- Develop avoidance and mitigation measures if necessary; and
- Document the process.

Antiquities Act

The Antiquities Act of 1906 was enacted with the primary goal of protecting cultural resources in the U.S. As such, it prohibits appropriation, excavation, injury, or destruction of "any historic or prehistoric ruin or monument, or any object of antiquity" located on lands owned or controlled by the federal government, without permission of the secretary of the federal department with jurisdiction. It also establishes criminal penalties, including fines or imprisonment, for these acts, and sets forth a permit requirement for collection of antiquities on federally-owned lands.

The American Indian Religious Freedom Act

The AIRFA proclaims that the U.S. government will respect and protect the rights of Indian tribes to the free exercise of their traditional religions; the courts have interpreted this as requiring agencies to consider the effects of their actions on traditional religious practices.

Section 4(f) of the Department of Transportation Act of 1966

Section 4(f) protects important historical resources as well as publicly-owned recreation areas, parks, and wildlife refuges. This law prevents projects

under the jurisdiction of the Department of Transportation from involving use of resources eligible for Section 4(f) protection, unless there is no feasible and prudent alternative or the project includes all possible measures to minimize the impacts of using the resources. The separate Section 4(f) chapter (Chapter 5) of this Draft EIS/EIR presents the detailed regulatory framework and analysis for Section 4(f) of the Department of Transportation Act.

National Register of Historic Places

The federal significance of an archaeological site or an architectural structure is established when the NRHP criteria for evaluation are met (36 CFR §60.4). Section 101(d)(6)(A) of the NHPA also allows properties of traditional religious and cultural importance to a Native American tribe to be determined eligible for inclusion in the NRHP.

The NRHP criteria for evaluation are as follows:

The quality of significance in American history, architecture, archaeology, engineering, and culture is present in a district, site, building, structure, and object that possesses integrity of location, design, setting, materials, workmanship, feeling, and association, and:

A. is associated with events that have made a significant contribution to the broad patterns of history;

B. is associated with the lives of persons significant in the past;

C. embodies the distinctive characteristics of a type, period, or method of construction, represents the work of a master, possesses high artistic values, or represents a significant and distinguishable entity whose components may lack individual distinction; or

D. has yielded, or may be likely to yield, information important in prehistory or history.

If a particular resource meets one of these criteria, it is considered as an eligible historic property for listing in the NRHP.

Federal Impact Criteria

According to NEPA regulations, in considering whether an action may "significantly affect the quality of the human environment," an agency must consider, among other things, the unique characteristics of the geographic area such as proximity to historic or cultural resources (40 CFR 1508.27(b)(3)), and the degree to which the action may adversely affect districts, sites, highways, structures, or objects listed in or eligible for listing in the NRHP(40 CFR 1508.27(b)(8)).

To comply with Section 106 of the NHPA, any effects of the proposed undertaking on properties listed in or determined eligible for inclusion in the NRHP must be analyzed by applying the Criteria of Adverse Effect (36 CFR Part 800.5(a)), as described below.

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 shall 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. Adverse effects may include reasonably foreseeable effects caused by the undertaking that may occur later in time, be farther removed in distance, or be cumulative.

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 contribute 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.

4.14.1.1.2 State

California Environmental Quality Act

According to the California Environmental Quality Act (CEQA) (Public Resources Code [PRC] Section 21084.1), historical resources include any resource listed or determined to be eligible for listing in the CRHR. Properties listed in or determined eligible for listing in the NRHP, such as those identified in the Section 106 process, are automatically listed in the CRHR. Therefore, all "historic properties" under federal preservation law are automatically "historical resources" under state preservation law.

Historical resources are also presumed to be significant if they are included in a local register of historical resources or identified as significant in a qualified historical resources survey. Section 15064.5 of the *CEQA Guidelines* sets forth the criteria and procedures for determining significant historical resources and the potential effects of a project on such resources.

CEQA Regulations (Section 15064.5)

Section 15064.5 of the *CEQA Guidelines* (Title 14 California Code of Regulations [CCR], Chapter 3) sets forth the criteria and procedures for determining significant historical resources and the potential significant impacts of a project on such resources.

The CEQA statute and guidelines provide five basic definitions as to what may qualify as a historical resource. Specifically, Section 21048.1 of the CEQA statute provides a description for the first three of these definitions, simplified as follows:

1. Listed in the CRHR;
2. Determined eligible for the CRHR by the State Historical Resources Commission; or
3. Included in a local register of historical resources.

Section 15064.5 of the CEQA Guidelines supplements the statute by providing two additional definitions of historical resources, which may be simplified in the following manner. A historical resource is a resource that is:

1. Identified as significant in a historical resource survey meeting the requirements of PRC §5024.1(g); or
2. Determined by a lead agency to be historically significant or significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California. Generally, this category includes resources that meet the criteria for listing on the CRHR (PRC §5024.1, Title 14 CCR, Section 4852).

California Register of Historical Resources

Generally, a resource is considered by the lead state agency to be "historically significant" if the resource meets the criteria for listing on the CRHR under (b) Criterion for evaluating the significance of historical resources (Title 14, Chapter 11.5, CCR §4852), as follows:

A historical resource must be significant at the local, state, or national level under one or more of the following four criteria:

(1) It is associated with events that have made a significant contribution to the broad patterns of local or regional history, or the cultural heritage of California or the United States;

(2) It is associated with the lives of persons important to local, California, or national history;

(3) It embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of a master or possesses high artistic values; or

(4) It has yielded, or has the potential to yield, information important to the prehistory or history of the local area, California, or the nation.

(c) Integrity is the authenticity of a historical resource's physical identity evidenced by the survival of characteristics that existed during the resource's period of significance. Historical resources eligible for listing in the CRHR must meet one of the criteria of significance described in section 4852 (b) of this chapter and retain enough of their historic character or appearance to be recognizable as historical resources and to convey the reasons for their significance. Historical resources that have been rehabilitated or restored may be evaluated for listing.

Integrity is evaluated with regard to the retention of location, design, setting, materials, workmanship, feeling, and association. It must also be judged with reference to the particular criterion under which a resource is proposed for eligibility. Alterations over time to a resource or historic changes in its use may themselves have historical, cultural, or architectural significance.

It is possible that historical resources may not retain sufficient integrity to meet the criteria for listing in the NRHP, but they may still be eligible for listing in the CRHR. A resource that has lost its historic character or appearance may still have sufficient integrity for the CRHR if it maintains the potential to yield significant scientific or historical information or specific data.

(d) Special considerations:

(1) Moved buildings, structures, or objects. The Commission encourages the retention of historical resources on site and discourages the non-historic grouping of historic buildings into parks or districts. However, it is recognized that moving a historic building, structure, or object is sometimes necessary to prevent its destruction. Therefore, a moved building, structure, or object that is otherwise eligible may be listed in the CRHR if it was moved to prevent its demolition at its former location and if the new location is compatible with the original character and use of the historical resource. A historical resource should retain its historic features and compatibility in orientation, setting, and general environment.

(2) Historical resources achieving significance within the last fifty (50) years. In order to understand the historic importance of a resource, sufficient time must have passed to obtain a scholarly perspective on the events or individuals associated with the resource. A resource less than fifty (50) years old may be considered for listing in the CRHR if it can be demonstrated that sufficient time has passed to understand its historical importance.

(3) Reconstructed buildings. Reconstructed buildings are those buildings not listed in the CRHR under the criteria in Section 4853(b)(1), (2), or (3) of this chapter. A reconstructed building less than fifty (50) years old may be eligible if it embodies traditional building methods and techniques that play an important role in a community's historically rooted beliefs, customs, and practices; e.g., a Native American roundhouse.

State Impact Criteria

Section 21084.1 of the PRC provides that "[a] project that may cause a substantial adverse change in the significance of a historical resource is a project that may have a significant impact on the environment." Substantial adverse change is defined as the physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of a historical resource would be materially impaired.

CEQA Guidelines Sections 15064.5(b)(1) and (2) identify the threshold for a significant impact on a historical resource as the potential to cause a substantial adverse change in the significance of a historical resource. That means the physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of the resource would be materially impaired. The significance of a historical resource is materially impaired when a project results in the following:

A. Demolition or material alteration in an adverse manner of those physical characteristics of a historical resource that convey its historical significance and justify its inclusion in, or eligibility for inclusion in, the CRHR;

B. Demolition or material alteration in an adverse manner of those physical characteristics that account for its inclusion in a local register of historical resources pursuant to PRC Section 5020.1(k) or its identification in a historical resources survey meeting the requirements of PRC Section 5024.1(g), unless the public agency reviewing the effects of the project establishes by a preponderance of evidence that the resource is not historically or culturally significant; or

C. Demolition or material alteration in an adverse manner of those physical characteristics of a historical resource that convey its historical significance and that justify its eligibility for inclusion in the CRHR as determined by a lead agency for purposes of CEQA.

4.14.1.1.3 Local

A resource included in a local register of historical resources shall be presumed to be historically or culturally significant according to Section 15064.5(a)(2) of the *CEQA Guidelines*. Only one of the communities in the project area, the city of Whittier, has a historic preservation element or ordinance.

City of Whittier

City of Whittier Municipal Code, Division IV, Chapter 18.84, Historic Resources, Article II. Designation of Historic Landmarks and Districts.

18.84.050 Designation Criteria for Historic Landmarks

A historic resource shall be designated a historic landmark if the council finds that it meets the criteria for listing on the NRHP or the CRHR; or meets one or more of the following criteria:

A. It is particularly representative of a distinct historical period, type, style, region, or way of life;

B. It is connected with someone renowned, important, or a local personality;

C. It is connected with a use that was once common, but is now rare;

D. It represents the work of a master builder, engineer, designer, artist, or architect whose individual genius influenced his age;

E. It is the site of an important historic event or is associated with events that have made a meaningful contribution to the nation, state, or city;

F. It exemplifies a particular architectural style;

G. It exemplifies the best remaining architectural type of a neighborhood;

H. It embodies elements of outstanding attention to architectural or engineering design, detail, material, or craftsmanship; or

I. It has a unique location, singular characteristic or is an established and familiar visual feature of a neighborhood, community, or the city.

(Ord. 2785 Exh. A (part), 2001: Ord. 2598 § 1(C), 1993; Ord. 2389 § 1 (part), 1986)

18.84.060 Designation Criteria for Historic Districts

A neighborhood consisting primarily of historic resources, or the thematic grouping of same, shall be designated a historic district if the council finds that it meets one or more of the following criteria:

A. It meets the criteria for a historic landmark;

B. It contributes to the architectural, historic or cultural significance of an area, being a geographically definable area possessing a concentration of historic resources or a thematically related grouping of structures which contribute to each other and are unified by plan, style, or physical development; or

C. It reflects significant geographical patterns, including those associated with different eras of settlement and growth, particular transportation modes, or distinctive examples of a park landscape, site design, or community planning.

(Ord. 2785 Exh. A (part), 2001)

4.14.1.1.4 Methodology

To establish the APE for the proposed project, in accordance with Section 106 regulation 800.4(a)(3), FTA and Metro sought information, as appropriate, from consulting parties and other individuals and organizations likely to have knowledge of, or concerns with, historic properties in the area. Letters were sent to the parties listed in the Cultural Resources Technical Memorandum, Appendix Y of this Draft EIS/EIR. There are no federally-recognized tribes in the project area. A list of Native American groups and individuals contacted is provided in the Cultural Resources Technical Memorandum, included as Appendix Y of this Draft EIS/EIR.

Metro then identified potential historic properties by consulting national, state, and local inventories of architectural and historical resources in order to identify significant local historical events and personages, development patterns, and unique interpretations of architectural styles. The following inventories and sources were consulted:

- The NRHP Information System
- California Register of Historical Resources (CRHR)
- California Office of Historic Preservation Historical Resources Inventory System
- California Historical Landmarks
- California Points of Historical Interest
- City of Whittier Historic Landmarks and Districts

A field survey of all properties within the APE was undertaken according to standard Section 106 regulations and related procedures, as described in Section 4.14.1.1.1. Field investigations by qualified architectural historians, a qualified archaeologist, and historic researchers were conducted on multiple occasions in 2010. During the field investigations, the boundaries of the APE were confirmed and an assessment was made of all extant buildings and structures within the APE to determine if their age and integrity warrant application of NRHP criteria.

The field survey of historical resources included the following steps:

- A field survey consisting of a visual on-site examination of every parcel within the APE, including an assessment of integrity.
- Identification of the age of all major buildings, structures, objects, and potentially coherent districts located within the APE.
- Photography of each potential district feature, major structure, building, or object within the APE.
- Review in the field of previous survey data, comments from interested parties, and lists of significant historic properties.

Following the field survey, site-specific research was conducted to establish the construction history of buildings and structures and potential associations with historic persons and events.

The properties were recorded and evaluated on California Historical Resource Inventory forms (series Department of Parks and Recreation [DPR] 523) and are being submitted to the California SHPO for review and concurrence.

The historical and architectural resources survey and archaeological survey resulted in preparation of a Historic Property Survey Report (HPSR), in accordance with the Section 106 process and in compliance with CEQA. Research was conducted for only those properties within the APE. The goal was to identify any areas providing basic documentation about potentially significant buildings and structures. An evaluation of the eligibility of resources for listing in the NRHP and any that are historical resources for the purposes of CEQA was completed as applicable.

During the process of accomplishing archival research and conducting field studies for potential historic properties, Metro's professional qualified consultants maintained communication with SHPO and other jurisdictional agencies. The consultant archaeologists also conferred with the Native American Heritage Commission (NAHC) in Sacramento, local California Native American organizations, or cultural organizations. The consultant historians or architectural historians contacted interested parties who may have knowledge of or concerns about historic properties in the APE, including historical societies, museums, and preservation organizations.

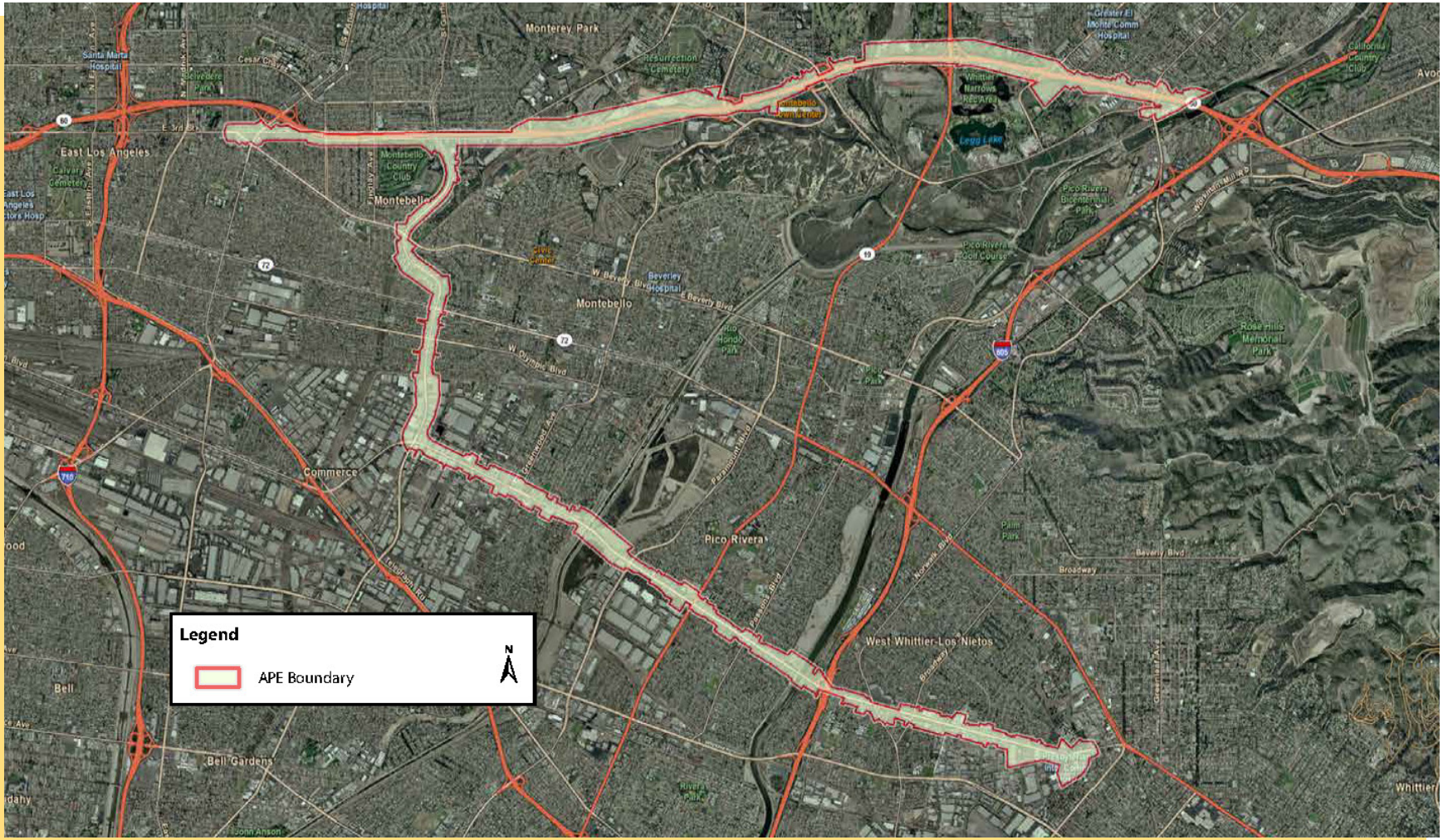
For any properties found to be historical resources under CEQA, the impact criteria in Section 15064.5(b) of the *CEQA Guidelines* was applied. Generally, an adverse effect under Section 106 is also considered a significant impact under CEQA as a substantial change in the significance of a historical resource. Therefore, unless otherwise stated, there is no difference between the compliance methodology for "historic properties" under federal law and "historical resources" under state law. For the purposes of this section, the term "historic properties" is hereafter used to represent both the federal term "historic properties" and state term "historical resources," unless otherwise noted.

4.14.1.2 Affected Environment/Existing Conditions

As defined in 36 CFR 800.16(d), an APE is "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."

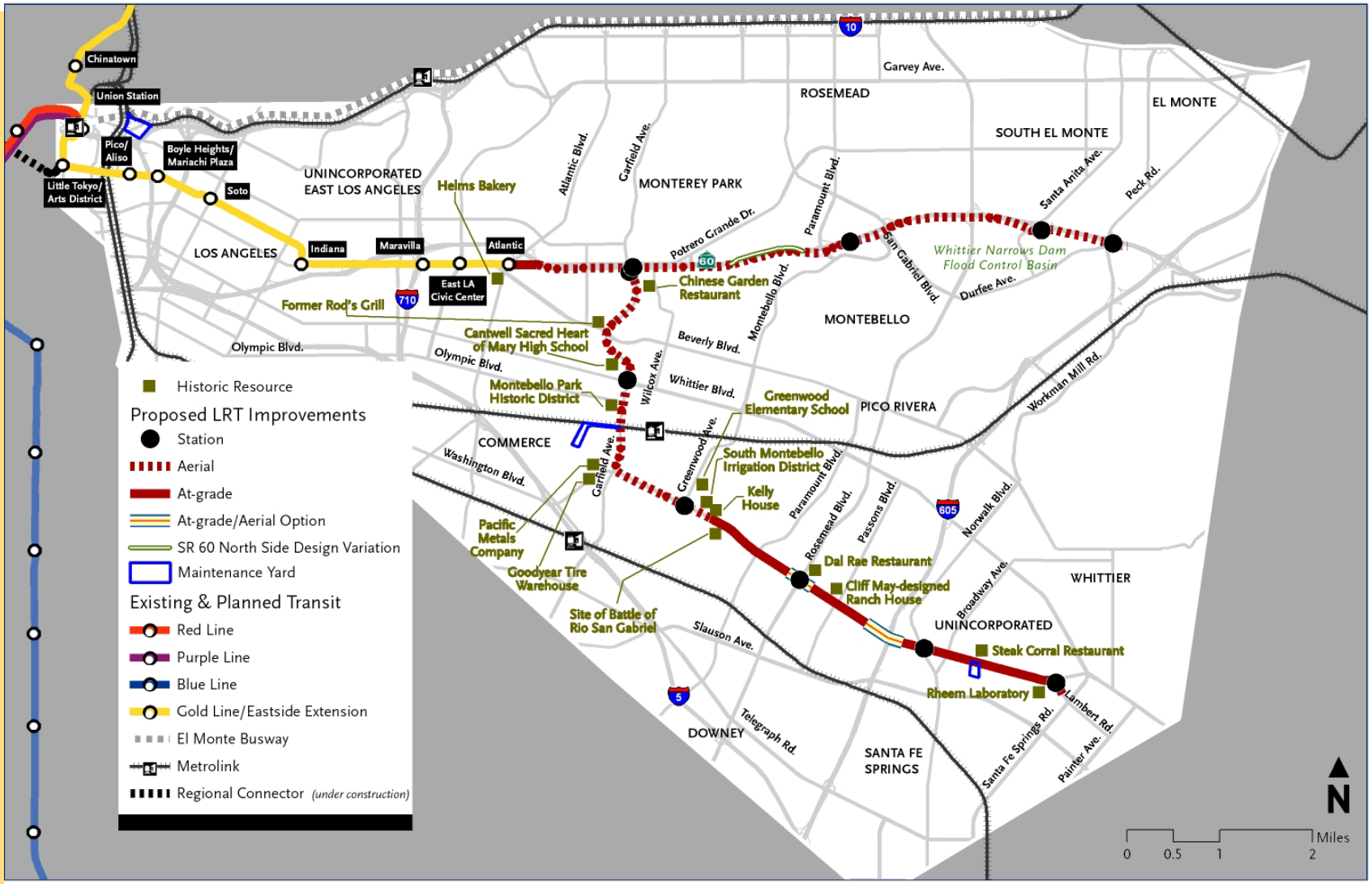
The APE includes all proposed ROW, land acquisition and construction areas, and all parcels adjacent to permanent site improvements and facilities, including at-grade and grade-separated alignments; stations and power substations; park and ride facilities; and maintenance yards and buildings. For elevated alignments, the APE includes any additional parcels where the elevated structure may alter the character, use, or setting of a potential historic property. Thus, the APE boundaries vary along the alignment. However, they typically extend out from the alignment approximately 150 to 350 feet, or a depth of from one to three parcels depending on parcel sizes, intervening landscape and buildings, and whether the historic land use is sensitive to the proposed change in setting. The APE was established in accordance with 36 CFR Part 800.4(a)(1), was determined during a discussion with SHPO staff on February 16, 2010, and was reported to SHPO in a letter from FTA dated June 7, 2010. A draft APE map was submitted to SHPO with the letter. The boundaries of the APE are shown in **Figure 4.14-1**.

A map of the identified historic properties listed or deemed eligible for NRHP and/or CRHR is presented in **Figure 4.14-2**.



Source: AECOM 2010; ICF International 2010.

Figure 4.14-1. Area of Potential Effect



Source: CDM Smith 2011.

Figure 4.14-2. Location Map of Historical Resources

4.14.1.3 Environmental Impacts/Environmental Consequences

This section discusses the construction and operational impacts of the proposed alternatives. Potentially significant impacts are discussed in this section. Additional information is provided in the Cultural Resources Technical Memorandum, Appendix Y, of this Draft EIS/EIR. **Table 4.14-1** summarizes the historic resources affected, their eligibility for the NRHP and CRHR, the applicable alternative, and impact. **Table 4.14-2** shows the cultural resources construction and operational impact findings. SHPO's concurrence on the determinations of effects for federal historic resources occurred on March 18, 2013. This section describes impacts to historic properties. Impacts to archaeological resources are described in Section 4.14.2.3, and impacts to paleontological resources are described in Section 4.14.3.3.

4.14.1.3.1 No Build Alternative

Impact Analysis

No impacts to historic properties would be associated with the No Build Alternative.

Mitigation Measures

Since no impacts to historic properties would be associated with the No Build Alternative, no mitigation measures are required.

Impacts Remaining After Mitigation

NEPA/NHPA Finding (Section 106 Determination)

The No Build Alternative does not include any construction and, therefore, no significant adverse effects would result. Consequently, no mitigation is required and there would be no impacts remaining after mitigation.

CEQA Determination

The No Build Alternative does not include any construction and, therefore, would result in no impacts to the resources. Consequently, no mitigation is required and there would be no impacts remaining after mitigation.

4.14.1.3.2 TSM Alternative

Impact Analysis

The TSM Alternative would involve minimal construction of new facilities such as bus stops. Construction associated with these facilities would not involve excavation at sufficient depths to encounter paleontological resources. As such, no impacts on historic properties are anticipated.

Mitigation Measures

Since there would be no impacts to historic properties associated with the TSM Alternative, no mitigation measures are required.

Impacts Remaining After Mitigation

NEPA/NHPA Finding (Section 106 Determination)

The TSM Alternative includes only minimal construction; therefore, no significant adverse effects would result. Consequently, no mitigation is required and there would be no impacts remaining after mitigation.

CEQA Determination

The TSM Alternative includes only minimal construction and, therefore, would result in no impacts to the resources. Consequently, no mitigation is required and there would be no impacts remaining after mitigation.

4.14.1.3.3 SR 60 LRT Alternative

Impact Analysis

Only two historic properties are located within the APE for the SR 60 LRT Alternative and the SR 60 North Side Design Variation: the Helms Bakery Distribution Plant (a federal historic property) and the Chinese Garden Restaurant (a CEQA historical resource). No historic properties were identified on the proposed SR 60 LRT Alternative maintenance yard site. The Macy Street Viaduct, which was previously determined eligible for the NRHP, is located immediately south of the proposed maintenance yard site, but it or its historic setting would not be altered in any demonstrable way by the proposed project.

Table 4.14-1. Historic Properties - Summary of Resources within APE and Effects after Mitigation

Name	Address	Year Built	NRHP or CRHR Criteria: Area of Significance	Effect[1, 2]: SR 60 LRT Alternative	Effect[1]: Washington Boulevard LRT Alternative
Helms Bakery Distribution Plant	318 S. Woods Avenue, Los Angeles County	1941	A: Industry	No Effect/Less than significant	No Effect/ No Impact
Chinese Garden Restaurant	856 N. Garfield Avenue, Montebello	1962	1: Ethnic Heritage – Asian and 3: Design (CRHR only)	N/A3/Less than significant	N/A3/Significant Impact
Former Rod's Grill	525 N. Garfield Avenue, Montebello	1954	C: Architecture	No Effect/No Impact (outside the APE)	Not Adverse/Less than significant
Cantwell-Sacred Heart of Mary High School	315 N. Garfield Avenue, Montebello	1946	A: Education and Ethnic Heritage – Hispanic	No Effect/No Impact (outside the APE)	Not Adverse/Less than significant
Montebello Park Historic District	Between Whittier Boulevard, Ferguson Drive, Gerhart Avenue, and Vail Road, Montebello	1925	A: Community Planning and Development	No Effect/No Impact (outside the APE)	Not Adverse/Less than significant
Pacific Metals Company/Rolled Steel Products	2187 Garfield Avenue, Commerce	1952	C and A: Architecture and Industry	No Effect/No Impact (outside the APE)	Not Adverse/Less than significant
Goodyear Tire and Rubber Company Warehouse	6666 E. Washington Boulevard/2353 Garfield Avenue, Commerce	1952	A: Industry	No Effect/No Impact (outside the APE)	No Effect/No Impact
Yale Filing Company	6865 E. Washington Boulevard, Montebello	1961	3: Architecture (CRHR only)	N/A3/No Impact (outside the APE)	N/A3/Less than significant
Greenwood Elementary School	900 Greenwood Avenue, Montebello	1948	A: Education	No Effect/No Impact (outside the APE)	Not Adverse/Less than significant
South Montebello Irrigation District Building	864 W. Washington Boulevard, Montebello	1940	A: Agriculture	No Effect/No Impact (outside the APE)	NEPA: Not Adverse/Less than significant
William and Florence Kelly House	860 W. Washington Boulevard, Montebello	1937	A: Early Settlement	No Effect/No Impact (outside the APE)	Not Adverse/Less than significant
Site of the Battle of Rio San Gabriel	Northeast corner of Bluff Road and Washington Boulevard, Montebello and Pico Rivera	1847	A: Military: Mexican War	No Effect/No Impact (outside the APE)	Not Adverse/Less than significant
Dal Rae Restaurant	9023 E. Washington Boulevard, Pico Rivera	1954	A: Social History	No Effect/No Impact (outside the APE)	Not Adverse/Less than significant

Table 4.14-1. Historic Properties - Summary of Resources within APE and Effects after Mitigation (Continued)

Name	Address	Year Built	NRHP or CRHR Criteria: Area of Significance	Effect[1, 2]: SR 60 LRT Alternative	Effect[1]: Washington Boulevard LRT Alternative
Atchison, Topeka & Santa Fe (AT&SF) Depot	9122 E. Washington Boulevard, Pico Rivera	1886 – 1887	1: Transportation (CRHR only)	N/A3/No Impact (outside the APE)	N/A3/Less than significant
Cliff May-designed Ranch House	6751 Lindsey Avenue, Pico Rivera	1954	C: Architecture	No Effect/No Impact (outside the APE)	Not Adverse/Less than significant
Steak Corral Restaurant	11605 E. Washington Boulevard, unincorporated Los Angeles County	1965	A: Social History C. Architecture	No Effect/No Impact (outside the APE)	Not Adverse/Less than significant
Rheem Laboratory	12000 E. Washington Boulevard, Whittier	1952	A: Industry	No Effect/No Impact (outside the APE)	Not Adverse/Less than significant

Notes:
[1] Findings of Effect per NEPA and Determinations of Impact per CEQA are both shown to satisfy Federal (NEPA/Section 106) and State (CEQA) requirements.
[2] The effects shown for the SR 60 LRT Alternative would be the same with or without the SR 60 North Side Design Variation.
[3] NEPA: N/A = Property is not eligible for the NRHP but is eligible for the CRHR.

Table 4.14-2. Summary of Potential Cultural and Historical Resources Impacts after Mitigation

	No Build	TSM	SR 60 LRT[1]	Washington Boulevard LRT[1]
Historic Properties	None	None	Not adverse/Less than significant	Less than significant
Archaeological Resources	None	None	Not adverse/Less than significant	Not adverse/Less than significant
Paleontological Resources	None	None	Not adverse/Less than significant	Not adverse/Less than significant

Notes:
[1] Maintenance Yard Option(s) and North Side Design Variation under this alternative result in the same findings for historic properties, archaeological resources, and paleontological resources.

Helms Bakery Distribution Plant

The Helms Bakery Distribution Plant property is eligible for the NRHP under Criterion A (see National Register of Historic Places under Section 4.14.1.1.1) and for the CRHR under Criterion 1 (see California Register of Historic Resources under Section 4.14.1.1.2) for its association with the history of the industry in the Southern California region.

Construction Impacts

There would be no construction-related effect on the Helms Bakery Distribution Plant property under the SR 60 LRT Alternative, either with or without the SR 60 North Side Design Variation, because the proposed Metro ROW for the SR 60 LRT Alternative would be nearly 300 feet from the building. There would be no project-related construction that could destroy, damage, relocate, or alter the building or its setting; therefore, the proposed project would result in no effect under federal impact criteria and no significant impact under state impact criteria on the Helms Bakery Distribution Plant building.

Operational Impacts

There would be no effect on the Helms Bakery Distribution Plant property because the proposed Metro ROW for the SR 60 LRT Alternative, with or without the SR 60 North Side Design Variation, would be nearly 300 feet from the building, the line would run at-grade, and the proposed project would not change the character of the setting.

NEPA/Section 106 Effects Analysis for Historic Properties

Federal impact criteria stated in Section 4.14.1.1.1 of this document were applied during analysis of construction and operational effects of the SR 60 LRT Alternative to Helms Bakery Distribution Plant. The SR 60 LRT Alternative would not change the building's historic or current use (Criterion IV); introduce visual or audible elements (Criterion V) beyond what currently exists; or result in neglect (Criterion VI) because the building is currently occupied and maintained. Criterion VII does not apply because the property is not owned by the federal government.

CEQA Impact Analysis for Historic Resources

State impact criteria stated in Section 4.14.1.1.2 of this document was applied during analysis of construction and operational effects of the SR 60 LRT Alternative to Helms Bakery Distribution Plant. The SR 60 LRT Alternative would not diminish, destroy, relocate, or alter this building.

Chinese Garden Restaurant

The Chinese Garden Restaurant is eligible for listing in the CRHR under Criterion 1 (see California Register of Historic Resources under Section 4.14.1.1.1.2) for its association with Chinese-American chop suey restaurants that operated during the post-World War II era. The Chinese Garden Restaurant is not eligible for listing in the NRHP.

Construction Impacts

The SR 60 LRT Alternative would locate the Garfield Avenue station in a somewhat different location on a different parcel than the Washington Boulevard LRT Alternative. The station would be along the north side of the site, away from the Chinese Garden Restaurant, which fronts on the east side of Garfield Avenue. There would be no project-related construction under the SR 60 LRT Alternative, with or without the SR 60 North Side Design Variation, that could destroy, damage, or alter the Chinese Garden Restaurant or its setting along Garfield Avenue. The parking lot in the rear would be changed to provide a kiss and ride space, and a park and ride lot of surface and structured parking with approximately 425 parking spaces, but the rear entrance to the restaurant would remain unchanged.

The significance of the property would not be diminished, and there would be no significant construction impact under state impact criteria.

Operational Impacts

As discussed in the Construction Impact section, the SR 60 LRT Alternative, with or without the SR 60 North Side Design Variation, would locate the Garfield Avenue station away from the Chinese Garden Restaurant. The parking lot in the rear would be changed, but the rear entrance to the restaurant would remain unchanged. The significance of the property would not be diminished (CEQA Section 15064.5), and there would be no significant operational impact under state impact criteria.

NEPA/Section 106 Effects Analysis for Historic Properties

The Chinese Garden Restaurant is not eligible for listing in the NRHP; therefore, federal impact criteria stated in Section 1.14.1.1.1 do not apply.

CEQA Impact Analysis for Historic Resources

State impact criteria stated in Section 4.14.1.1.2 of this document were applied during the analysis of construction and operational effects of the SR 60 LRT Alternative on the Chinese Garden Restaurant. The SR 60 LRT Alternative would not diminish, destroy, relocate, or alter this building.

Mitigation Measures

Since there would be no impacts to historic properties associated with the SR 60 LRT Alternative, with or without the North Side Design Variation, no mitigation measures are required.

Impacts Remaining After Mitigation

NEPA/NHPA Finding (Section 106 Determination)

The SR 60 LRT Alternative, including the North Side Design Variation, would not result in adverse effects on historic properties.

CEQA Determination

The SR 60 LRT Alternative, including the North Side Design Variation, would not result in significant impacts to historic properties.

4.14.1.3.4 Washington Boulevard LRT Alternative

Impact Analysis

A total of 16 historic properties and resources are located in the APE of the Washington Boulevard LRT Alternative as shown in Figure 4.14-2. Of these, only three have the potential for impact. They include one state historic resource, the Chinese Garden Restaurant, which would be affected by construction activities; one federal historic property, the site of the Battle of Rio San Gabriel, which could be affected by construction activities; and the former Rod's Grill restaurant, which could be affected by either construction or operational activities. Each of these three sites is discussed below.

No historic properties were identified on the proposed Mission Junction Maintenance Yard site. The Macy Street Viaduct, which was previously determined eligible for the NRHP, is located immediately south of the proposed maintenance yard site, but neither it nor its historic setting would be altered in any demonstrable way by the proposed project.

No historic properties were identified on or adjacent to the two other proposed maintenance yard sites, Commerce and Santa Fe Springs Maintenance Yards. No historic properties were identified in the location of the aerial or at-grade options for crossings of Rosemead Boulevard and the I-605/San Gabriel River; therefore, there would be no effect on historic properties under either of these two options.

Chinese Garden Restaurant

The Chinese Garden Restaurant is eligible for listing in the CRHR under Criterion 1 (see California Register of Historic Resources under Section 4.14.1.1.1.2) for its association with Chinese-American chop suey restaurants that operated during the post-World War II era. The Chinese Garden Restaurant is not eligible for listing in the NRHP.

Construction Impacts

The Washington Boulevard LRT Alternative would have permanent impacts to the Chinese Garden Restaurant and would result in physical demolition and destruction of this historical resource, which would be a potentially significant effect. The Chinese Garden Restaurant is located directly within the proposed Metro ROW for the Garfield Avenue station under the Washington Boulevard LRT Alternative. **Figure 4.14-3** shows that the proposed Metro ROW for the Washington Boulevard LRT Alternative would require acquisition of the Chinese Garden Restaurant, which would result in demolition of the building. Demolition of the building for the Washington Boulevard LRT Alternative would result in a substantial adverse change in the significance of this historical resource and a significant impact on the environment. Mitigation measures described below, if successfully implemented, would reduce significant impacts to the restaurant to a less than significant level.

Operational Impacts

For the Washington Boulevard LRT Alternative, the state operational impact criterion would not be applicable to the Chinese Garden Restaurant because it would be acquired and demolished prior to construction of the proposed project. The federal impact criteria do not apply because the Chinese Garden Restaurant does not appear eligible for the NRHP.

NEPA/Section 106 Effects Analysis for Historic Properties

The Chinese Garden Restaurant is not eligible for listing in the NRHP; therefore, federal impact criterion stated in Section 4.14.1.1.1 do not apply.

CEQA Impact Analysis for Historic Resources

State impact criteria stated in Section 4.14.1.1.2 of this document were applied during analysis of construction and operational effects of the Washington Boulevard LRT Alternative on the Chinese Garden Restaurant. The Washington Boulevard LRT Alternative would diminish, destroy, relocate, or alter this building. If the recommended mitigation for relocation is successfully implemented, such that the project "would not cause a substantial adverse change in its significance," it would lessen the significant impact on the Chinese Garden Restaurant to a level that is less than significant, per the effect/impact criteria outlined in Section 15064.5 of the *CEQA Guidelines*.

Site of the Battle of Rio San Gabriel

The site of the Battle of Rio San Gabriel has the potential to meet NRHP Criterion D for military history (see National Register of Historic Places under Section 4.14.1.1.1) if any archaeological artifacts were still extant; however, this is considered unlikely due to subsequent disturbance from construction of Washington Boulevard and channelization of the river.

Construction Impacts

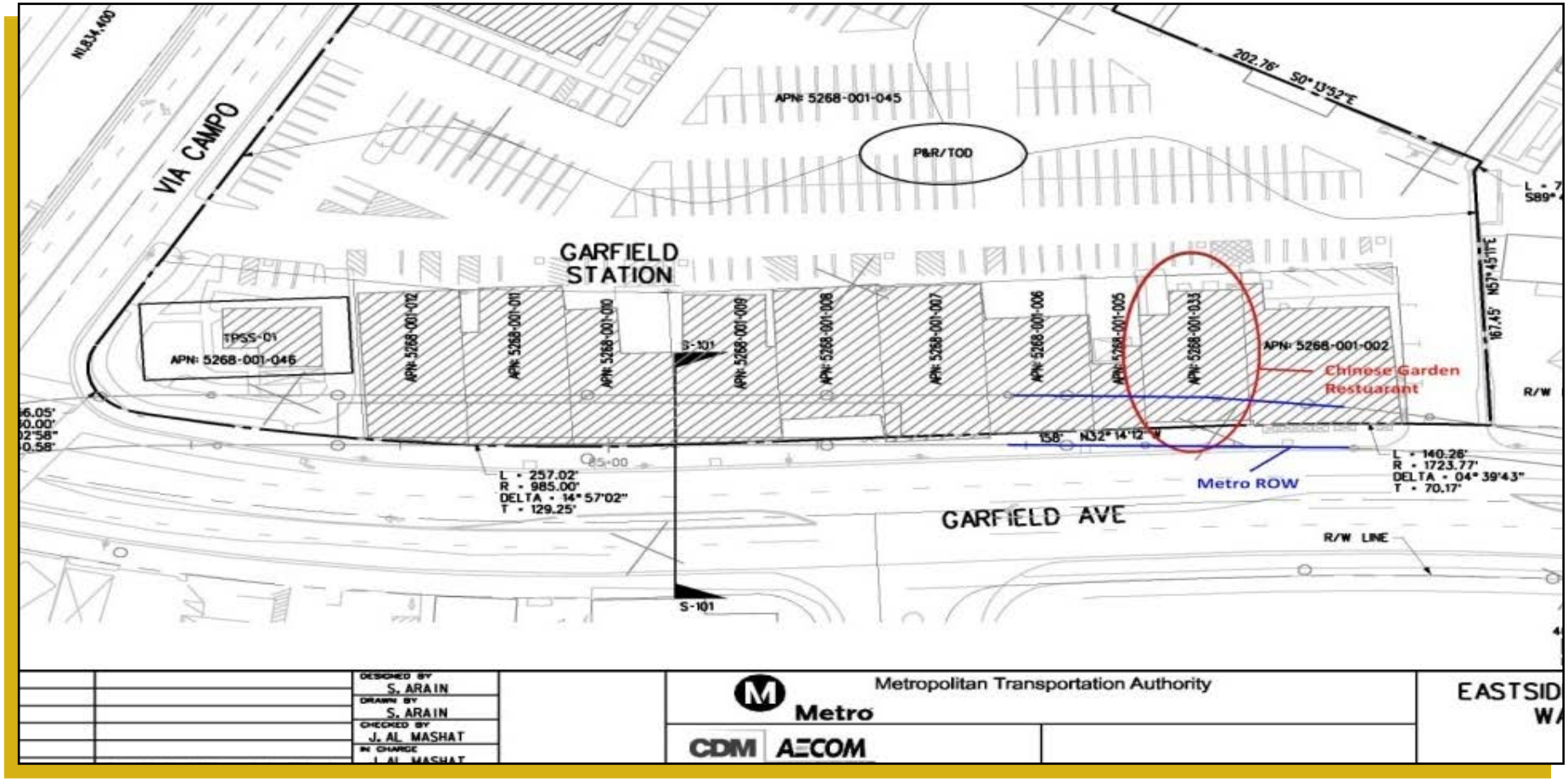
The proposed Metro ROW would run along Washington Boulevard. The at-grade Washington Boulevard LRT Alternative alignment would pass the approximate site of the Battle of Rio San Gabriel at the northeast corner of Bluff Road and Washington Boulevard, on the border of Montebello and Pico Rivera. Physical destruction of significant artifacts, if found during project construction, would be a potentially adverse effect under federal impact criteria and a potentially significant impact under state impact criteria; however, this is unlikely because the Metro ROW runs within Washington Boulevard at this location. Mitigation consisting of archaeological monitoring and salvage, if needed, would mitigate this impact.

Operational Impacts

There would be no operational impacts to the site of the Battle of Rio San Gabriel because operation would be within the Metro ROW within Washington Boulevard at this location.

NEPA/Section 106 Effects Analysis for Historic Properties

Federal impact criteria stated in Section 4.14.1.1.1 of this document were applied during analysis of construction and operational effects of the Washington Boulevard LRT Alternative on the site of



Source: ICF International 2011.

Figure 4.14-3. Chinese Garden Restaurant within Proposed Washington Boulevard LRT Alternative Alignment

the Battle of Rio San Gabriel. The Washington Boulevard LRT Alternative would not change the property's historic or current use because it had been altered previously (Criterion IV), or introduce visual or audible elements (Criterion V) beyond what currently exists. Criterion VI and VII do not apply because there is nothing to maintain on the property which pertains to the historic site and the property is not owned by the federal government. This property has the potential to meet NRHP Criterion D if any archaeological artifacts are still extant, although this is considered unlikely. However, there is potential for an adverse effect if artifacts are discovered, so monitoring during construction at this location is proposed. Therefore, there would be no adverse effect with implementation of the mitigation measure for monitoring.

CEQA Impact Analysis for Historic Resources

State impact criteria stated in Section 4.14.1.1.2 of this document were applied during analysis of construction and operational effects of the Washington Boulevard LRT Alternative on the site of the Battle of Rio San Gabriel. The site is not eligible for listing in the CRHR.

The Former Rod's Grill

The former Rod's Grill appears eligible for the NRHP at the local level of significance under Criterion C because it is an important, rare, and unusually intact example of coffee shop architecture from the early 1950s. The property is also eligible for the CRHR under Criterion 3 for architecture.

Construction Impacts

The proposed aerial structure would result in the placement of a column on the sidewalk near the southeast corner of the former Rod's Grill. The restaurant has a large expanse of windows, which have historically provided street views of Garfield Avenue. The nearly floor-to-ceiling windows make the flat roof appear to float above the building because the structure lacks strong vertical elements.

The proposed column would be placed near the southwest corner of the building to maintain the most important views of the architecture. However, less important views from the southeast would be compromised. Physical features within the setting of the building at the corner of Garfield Avenue and Via Acosta would not be changed. Historic views from the restaurant to the street would not be blocked by any of the columns, thereby retaining the patrons' traditional view to the street. The historic use of the building would be unchanged, and important views of the architecture and setting would be maintained.

The most important views of the architecture from the northeast would be maintained. The column would obscure less important views of the architecture from the southeast and would somewhat diminish the integrity of the setting and feeling. The aerial structure would introduce a major visual element above the adjacent street; however, the building's architectural identity as a roadside coffee shop would continue.

Therefore, the construction of the Washington Boulevard LRT Alternative would have no adverse effect on the former Rod's Grill restaurant related to cultural resources.

Operational Impacts

It has been determined in Chapter 4.6 of this EIS/EIR that a significant aesthetic impact to the former Rod's Grill related to shade and shadow during the winter solstice would result from operation of the aerial guideway. However, the shade and shadow impact to the structure would not diminish the integrity of the property's significance historic features, nor would it demolish, destroy, relocate, or alter the building. Therefore, impacts from the operation of the aerial guideway would not result in a significant historical impact to the former Rod's Grill.

NEPA/Section 106 Effects Analysis for Historic Properties

Federal impact criteria stated in Section 4.14.1.1.1 of this document were applied during analysis of construction and operational effects of the Washington Boulevard LRT Alternative to the former Rod's Grill. The Washington Boulevard LRT Alternative would not change the historic use of the building, and important views of the architecture and setting would be maintained (Criterion IV); or

diminish the integrity of the property's significant historic features (Criterion V) beyond what currently exists. Criterion VI and VII do not apply because there is nothing to maintain on the property which pertains to the historic site and the property is not owned by the federal government. Therefore, there would be no adverse effect with regard to cultural resources from the project to the former Rod's Grill.

CEQA Impact Analysis for Historic Resources

State impact criteria stated in Section 4.14.1.1.2 of this document were applied during analysis of construction and operational effects of the Washington Boulevard LRT Alternative to the former Rod's Grill. The project would not demolish, destroy, relocate, or alter this building. All aspects of the interior's integrity would not be materially impaired by the proposed project. Under CRHR Criterion 3, the most important views of the architecture from the northeast would be maintained. The project would result in no significant impact on the former Rod's Grill.

Mitigation Measures

Chinese Garden Restaurant

The Chinese Garden Restaurant is the only historic building whose entire structure would require physical demolition as a result of the Washington Boulevard LRT Alternative. Relocation is one type of mitigation to avoid demolition of a historic building.

The CRHR Special Considerations (14 CCR 4852.d.1.) indicate that a building may still be eligible for the CRHR after it has been relocated, as follows:

> The State Historical Resources Commission encourages the retention of historical resources on site and discourages the non-historic grouping of historic buildings into parks or districts. However, it is recognized that moving a historic building, structure, or object is sometimes necessary to prevent its destruction. Therefore, a moved building, structure, or object that is otherwise eligible may be listed in the California Register if it was moved to prevent its demolition at its former location and if the new location is compatible with the original character and use of the historical resource. A historical resource should retain its historic features and compatibility in orientation, setting, and general environment.

The mitigation measures below would be used as needed to minimize adverse construction-related effects on historic properties and CEQA historical resources within the APE and address the requirements of the Special Considerations by requiring the new location to be compatible with the original character and use of the historical resource. Two options for relocation would be considered, and each requires the resource to retain its historic features and compatibility with respect to orientation, setting, and the general environment.

4.14.1-i. Relocation of the Chinese Garden Restaurant, Option A: Relocation would require safely moving the building to the rear parking lot of its current location. Relocation of the building would be the responsibility of Metro and would meet the following requirements:

- This site shall provide adequate on-street and off-street parking to maintain current levels of patronage;
- Existing landscaping shall be preserved after the relocation;
- The freestanding "Chinese Garden Restaurant" sign shall remain in front of the restaurant after the relocation;
- The building shall be protected before, during, and after the move; and
- There shall be adequate public notification of the move.

4.14.1-ii. Relocation of the Chinese Garden Restaurant, Option B: Relocation would require safely moving the building to a similar lot along Garfield Avenue. Relocation of the building would be the responsibility of Metro and would meet the following requirements:

- This site shall provide adequate on-street and off-street parking to maintain current levels of patronage;
- The building shall have similar street frontage to maintain access and visibility to patrons, with a best effort to maintain its current streetscape orientation;
- Existing landscaping shall be preserved after the relocation;
- The freestanding "Chinese Garden Restaurant" sign shall remain in front of the restaurant after the relocation;
- The building shall be protected before, during, and after the move; and
- There shall be adequate public notification of the move.

For either option, relocation of the restaurant to a new location would maintain contributing aspects of its historic orientation, immediate setting, and the general environment. Any relocation efforts implemented for the Chinese Garden Restaurant would be conducted in accordance with the guidelines recommended by the National Park Service, which are outlined in the booklet *Moving Historic Buildings* by John Obed Curtis (1979). In addition, any maintenance, repair, rehabilitation, stabilization, or preservation work performed in conjunction with relocation of the Chinese Garden Restaurant would be undertaken in a manner consistent with the Secretary of the Interior's standards.

If the recommended mitigation for relocation is successfully implemented, such that the project "would not cause a substantial adverse change in its significance," it would lessen the significant impact on the Chinese Garden Restaurant to a level that is less than significant, per the effect/impact criteria outlined in Section 15064.5 of the *CEQA Guidelines*.

A third mitigation measure for the Chinese Garden Restaurant is recommended for implementation alongside Relocation Option A or Option B to reduce the potential impacts of the Washington Boulevard LRT Alternative and relocation of the restaurant to a less than significant level. If neither of the Relocation Options is implemented, the third mitigation measure below by itself would not lessen the impact of demolition of the historical resource to less than significant, and the impact would still be significant after mitigation.

4.14.1-iii. Archival Documentation of the Chinese Garden Restaurant: Prior to demolition or removal of the Chinese Garden Restaurant, Metro would arrange for a photographic documentation report to be prepared by a qualified architectural historian, historic architect, or historic preservation professional who satisfies the Secretary of the Interior's Professional Qualification Standards for History, Architectural History, or Architecture pursuant to 36 CFR 61. This report would document the significance of the Chinese Garden Restaurant, its physical conditions, and setting along Garfield Avenue, both historic and current, through photographs and text. Photographs noting all elevations and details of the building's architectural features should be taken using 35 mm black-and-white film. The photographer should be familiar with the recordation of historical resources. Photographs should be prepared in a format consistent with the Historic American Buildings Survey (HABS) standard for field photography. Copies of the report would be submitted to the city of Montebello Planning and Development Department and the Montebello Public Library.

Site of the Battle of Rio San Gabriel

The site of the Battle of Rio San Gabriel is the only historic property located within the APE for the Washington Boulevard LRT Alternative that could be affected by construction impacts. The following mitigation is recommended to reduce significant impacts resulting from construction activities that could impact unknown archeological resources associated with this site.

4.14.1-iv. Metro would arrange to have archaeological monitoring during construction at the site of the Battle of Rio San Gabriel, in accordance with the Cultural Resources Monitoring and Mitigation Plan (CRMMP).

Impacts Remaining After Mitigation

NEPA/NHPA Finding (Section 106 Determination)

The Washington Boulevard LRT Alternative would not result in adverse effects on historic properties, provided that proper treatment of found artifacts during construction is implemented according to the CRMMP at the site of the Battle of Rio San Gabriel. This finding applies regardless of which maintenance yard option or design variation is selected.

CEQA Determination

The Washington Boulevard LRT Alternative would result in a significant impact to one historical resource: the Chinese Garden Restaurant. Mitigation measures regarding relocation would reduce impacts associated with the Washington Boulevard LRT Alternative to a less than significant level. This determination applies regardless of which maintenance yard option or design variation is selected. If relocation of the Chinese Garden Restaurant is not performed, a significant impact under CEQA to this CRHR-eligible resource would remain.

4.14.2 Archaeological Resources

This section discusses the construction and operational impacts of the proposed alternatives. Potentially significant impacts are discussed in this section. Discussion of impacts that would not be significant is provided in the Cultural Resources Technical Memorandum, Appendix Y, of this Draft EIS/EIR.

4.14.2.1 Regulatory Framework/Methodology

In addition to the regulatory framework presented for historic properties in Section 4.14.1.1, the following regulations are applicable to archaeological resources.

4.14.2.1.1 Federal

Archaeological Resources Protection Act

The ARPA was enacted in 1979 and amended in 1988. The ARPA states that archaeological resources on public or Indian lands are an accessible and irreplaceable part of the nation's heritage and provides for the following:

- Establishes protection for archaeological resources to prevent loss and destruction due to uncontrolled excavations and pillaging;
- Encourages increased cooperation and an exchange of information between government authorities, the professional archaeological community, and private individuals having collections of archaeological resources prior to the enactment of this act; and
- Establishes permit procedures to permit excavation or removal of archaeological resources (and associated activities) located on public or Indian land. The ARPA defines excavation, removal, damage, or other alteration or defacing of archaeological resources as a "prohibited act" and provides for criminal and monetary rewards to be paid to individuals furnishing information leading to the finding of a civil violation or conviction of a criminal violator.

Section 4 of the ARPA and Sections 5 through 12 of the uniform regulations establish a permitting system through which federal agencies can authorize professional scientific excavation and removal of archaeological resources from their lands. Permits for these activities may still be issued under the Antiquities Act of 1906, but the ARPA is now the standard basis on which federal archaeological permitting authority is derived. Important provisions of these sections of the law and the regulations deal with applications for permits, the requirements to be met for permit issuance, consultation with Indian tribes regarding permits, and suspension and revocation of permits.

Archaeological and Historic Preservation Act

The Archaeological and Historic Preservation Act provides for the preservation of historical and archaeological data (including relics and specimens) which might otherwise be irreparably lost or destroyed as the result of alteration of the terrain caused as a result of any federal construction project or federally-licensed activity or program.

Native American Graves Protection and Repatriation Act

The NAGPRA would also apply to this project if human remains of Native American origin are discovered on federal land during implementation of the project. The NAGPRA requires federal agencies and federally-assisted museums to return "Native American cultural items" to the federally-recognized Indian tribes or Native Hawaiian groups with which they are associated. Regulations (43 CFR 10) stipulate the following procedures be followed.

If Native American human remains are discovered, the following provisions would be followed to comply with regulations:

- Notify, in writing, the responsible federal agency;
- Cease activity in the area of discovery and protect the human remains;
- Certify receipt of the notification;
- Take steps to secure and protect the remains;
- Notify the Native American tribes likely to be culturally affiliated with the discovered human remains within one working day; and
- Initiate consultation with the Native American tribe or tribes in accordance with regulations described in 43 CFR, Part 10 Subpart B, Section 10.5.

4.14.2.1.2 State

California Public Resource Code 5097

If human remains of Native American origin are discovered during project construction not on federal land, it will be necessary to comply with state laws relating to the disposition of Native American burials, which fall within the jurisdiction of the NAHC (PRC 5097). If any human remains are discovered or recognized in any location other than a dedicated cemetery, there will be no further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent human remains until:

The County Coroner has been informed and has determined that no investigation of the cause of death is required; and

If the remains are of Native American origin:

- The descendants of the deceased Native Americans have made a recommendation to the landowner or the person responsible for the excavation work for means of treating or disposing of, with appropriate dignity, the human remains and any associated grave goods as provided in PRC 5097.98, or
- The NAHC was unable to identify a descendant or the descendant failed to make a recommendation within 48 hours after being notified by the NAHC.

According to California Health and Safety Code, six or more human burials at one location constitute a cemetery (Section 8100) and disturbance of Native American cemeteries is a felony (Section 7052). Section 7050.5 requires that construction or excavation be stopped near discovered human remains until the coroner can determine whether the remains are those of a Native American.

Public Resources Code 21083.2

In addition, if an archaeological resource does not fall within the definition of a historical resource, but does meet the definition of a “unique archaeological resource” (PRC 21083.2), then the site must be treated in accordance with the special provisions for such resources. An archaeological resource is unique if it:

1. Is associated with an event or person of recognized significance in California or American history or recognized scientific importance in prehistory;

2. Can provide information that is of demonstrable public interest and is useful in addressing scientifically consequential and reasonable research questions; or
3. Has a special or particular quality such as oldest, best example, largest, or last surviving example of its kind.

Methodology

In conjunction with the research and survey activities described in Section 4.14.1.2, a Phase I archaeological reconnaissance survey of the APE was conducted to provide data concerning the presence or absence of archaeological resources. This section contains the environmental setting, cultural history, previous archaeological studies, results of archival research and records search, survey results, and recommendations for monitoring or archaeological evaluation (Phase II effort), if warranted.

Archival research was conducted to determine the nature and substance of existing documentation or archaeological resources within the APE. The research was conducted at the California State University, Fullerton Archaeological Information Center, for existing site records and files, and the Los Angeles County Tax Assessor's Office, for early land ownership records. In addition, local archives, museums, libraries, and knowledgeable local historians were consulted as appropriate.

Potential disturbance or damage to identified archaeological resources was determined by comparison with the project description and construction methods. Avoidance options were offered where appropriate. Where avoidance is not possible, subsequent mitigation activities were identified, potentially including more detailed documentation and, in some instances, recovery activities.

As defined in 36 CFR 800.16(d), an APE is "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."

For archaeological resources, the proposed APE includes the proposed at-grade ROW and any areas of direct ground disturbance during project construction, including areas for staging and temporary construction activities. The APE includes all proposed ROW, land acquisition and construction areas, and all parcels adjacent to permanent site improvements and facilities, including at-grade and grade-separated alignments, stations and power substations, park and ride facilities, and maintenance yards and buildings. For elevated alignments, the APE includes any additional parcels where the elevated structure may alter the character, use, or setting of a potential historic property. Thus, the APE boundaries vary along the alignment. However, they typically extend out from the alignment approximately 150 to 350 feet, or a depth of from one to three parcels depending on parcel sizes, intervening landscape and buildings, and whether the historic land use is sensitive to the proposed change in setting.

4.14.2.2 Affected Environment/Existing Conditions

One archaeological resource site was recorded along SR 60, the Whittier Narrows Dam Recreation Area. This expansive park is still in use; no archaeological artifacts were observed in this area during the survey. Six historic-era structures in the recreation area have been recorded in the Whittier Narrows Nature Center, all of them located south of the SR 60 LRT Alternative with or without the SR 60 North Side Design Variation. The Washington Boulevard LRT Alternative also encompasses dense commercial and residential development as well as portions of the existing highway, which precludes a pedestrian field survey. Open areas along the alignment include the Rio Hondo Coastal Basin Spreading Grounds in Montebello and the San Gabriel Coastal Basin Spreading Grounds in Whittier. One cultural resources site, the site of the 1847 Battle of Rio San Gabriel, was identified along the alignment (shown in Figure 4.14-2). A field

survey on both alternative alignments is precluded because ground surfaces are already densely developed with buildings and man-made landscaped features, and have been paved over and/or disturbed by prior earth-moving actions. Additional details are provided in the Cultural Resources Technical Memorandum, Appendix Y, of this Draft EIS/EIR.

4.14.2.3 Environmental Impacts/Environmental Consequences

This section discusses the construction and operational impacts of the proposed alternatives on archaeological resources. Potentially significant impacts are discussed in this section. Additional information is provided in the Cultural Resources Technical Memorandum, Appendix Y, of this Draft EIS/EIR. Table 4.14-2 summarizes the cultural resources impacts of each proposed alternative.

4.14.2.3.1 No Build Alternative

Impact Analysis

There would be no impacts to archaeological resources associated with the No Build Alternative.

Mitigation Measures

Since there would be no impacts to archaeological resources associated with the No Build Alternative, no mitigation measures are required.

Impacts Remaining After Mitigation

NEPA/NHPA Finding (Section 106 Determination)

The No Build Alternative does not include any construction and, therefore, no adverse effects would result. Consequently, no mitigation is required and there would be no impacts remaining after mitigation.

CEQA Determination

The No Build Alternative does not include any construction and, therefore, would result in no impacts to the resource. Consequently, no mitigation is required and there would be no impacts remaining after mitigation.

4.14.2.3.2 TSM Alternative

Impact Analysis

The TSM Alternative would involve minimal construction of new facilities such as bus stops. Construction associated with these facilities would not involve excavation at sufficient depths to encounter archaeological resources. As such, no impacts on archaeological resources are anticipated.

Mitigation Measures

Since there would be no impacts to archaeological resources associated with the TSM Alternative, no mitigation measures are required.

Impacts Remaining After Mitigation

NEPA/NHPA Finding (Section 106 Determination)

The TSM Alternative includes only minimal construction and, therefore, no adverse effects would result. Consequently, no mitigation is required and there would be no impacts remaining after mitigation.

CEQA Determination

The TSM Alternative includes only minimal construction and, therefore, would result in no impacts to the resource. Consequently, no mitigation is required and there would be no impacts remaining after mitigation.

4.14.2.3.3 SR 60 LRT Alternative

Impact Analysis

Construction Impacts

Undiscovered buried archaeological resources may exist within the project area, and it is possible that these archaeological materials could be unearthed during project excavation activities. In the event that such resources are identified, the significance of each discovered resource would be determined upon discovery. The alignment for the SR 60 LRT Alternative is within public street ROW that has been disturbed with utility and street construction, including the SR 60 Freeway and its embankments; therefore, it is highly unlikely that there will be archaeological materials in these areas, but there is still a limited potential. However the maintenance yards and park and ride locations, which are less

disturbed, have a potential to yield archaeological materials. The North Side Design Variation would not introduce any additional impacts.

Therefore, construction of the SR 60 LRT Alternative, with or without the SR 60 North Side Design Variation, could have the potential to disturb and destroy an undiscovered archaeological resource. If unmitigated, this disturbance of undiscovered archaeological resources would result in an adverse effect under federal impact criteria (NEPA) and a significant impact under CEQA. However, project mitigation measures would reduce archaeological resources impacts, if any resources are found during construction, to less than significant levels. The proposed mitigation measures are listed below.

Operational Impacts

There would be no impacts to archaeological sites during operation because no physical changes would occur.

Mitigation Measures

There could be significant impacts to unknown archaeological resources during construction activities. The following mitigation measures would reduce impacts to archeological resources determined to be significant, if any are found during construction, to less than significant levels.

4.14.2-i. Prior to any ground-disturbing activities, a project-wide CRMMP would be developed and implemented by Metro. This document would address areas where potentially significant prehistoric and historic archaeological deposits are likely to be located within the proposed project area. The CRMMP would also include a detailed prehistoric and historic context that clearly demonstrates the themes under which any identified subsurface deposits would be determined significant.

4.14.2-ii. Should significant deposits be identified during earth-moving activities, the CRMMP overseen by Metro would address methods for data recovery, anticipated artifact types, artifact analysis, report writing, repatriation of human remains and associated grave goods, and curation.

4.14.2-iii. The CRMMP overseen by Metro would also require that an archaeologist qualified in prehistoric and historical archaeology be retained prior to ground-disturbing activities.

4.14.2-iv. The CRMMP overseen by Metro would be a guide for monitoring activities. If buried cultural resources, such as flaked or ground stone, historic debris, building foundations, or non-human bone, are discovered during ground-disturbing activities, work will stop in that area and within 50 feet of the find until a qualified archaeologist can assess the significance of the find and, if necessary, develop appropriate treatment measures.

4.14.2-v. Metro would retain a Native American monitor if treatment involved work at a prehistoric site. Treatment measures typically include: development of avoidance strategies, capping with fill material, or mitigation of impacts through data recovery programs such as excavation or detailed documentation.

4.14.2-vi. If during cultural resources monitoring the qualified archaeologist determines that the sediments being excavated are previously disturbed or unlikely to contain significant cultural materials, the qualified archaeologist can specify that monitoring be reduced or eliminated.

Impacts Remaining After Mitigation

NEPA/NHPA/Section 106 Determination

Within the APE for the SR 60 LRT Alternative, unidentified archaeological resources have not been formally evaluated for NRHP listing. The SR 60 LRT Alternative may have adverse effects upon unidentified resources, if they are determined to be eligible during implementation of the CRMMP discussed in the Mitigation Measures section. Any adverse effects under Section 106 will be resolved during SHPO coordination and implementation of

the CRMMP. The SR 60 LRT would not result in adverse effects to archaeological resources with implementation of mitigation measures described below.

CEQA Determination

The SR 60 LRT Alternative would have no significant construction or operational impacts to archaeological resources. This determination applies regardless of whether the North Side Design Variation is implemented.

4.14.2.3.4 Washington Boulevard LRT Alternative

Impact Analysis

Construction Impacts

Undiscovered buried archaeological resources may exist within the project area, and it is possible that these archaeological materials could be unearthed during project excavation activities. In the event that such resources are identified, the significance of each discovered resource would be determined upon discovery. Therefore, construction of the Washington Boulevard LRT Alternative, including aerial or at-grade crossings of Rosemead Boulevard and the I-605/San Gabriel River, have the potential to disturb and destroy a significant archaeological resource. The alignment for the Washington Boulevard LRT Alternative is within public street ROW that has been disturbed with utility and street construction, including the SR 60 Freeway and its embankments, so it is highly unlikely that there would be archaeological materials in these areas; but there is still a limited potential. However, the maintenance yards and park and ride locations, which are less disturbed, have a potential to yield archaeological materials. If unmitigated, this disturbance of significant archaeological resources would result in an adverse effect under federal impact criteria (NEPA) and a significant impact under CEQA. However, project mitigation measures would reduce archaeological resource impacts, if any resources are found during construction, to less than significant levels.

Operational Impacts

There would be no impacts to archaeological sites during operation of all proposed components, because no physical changes would occur.

Overall, the Washington Boulevard LRT Alternative, including aerial and at-grade crossings, would have no adverse effect on archaeological resources under NEPA with implementation of mitigation measures, and no significant impact to archaeological resources under CEQA with implementation of mitigation measures. None of the proposed maintenance yard options would introduce any additional impacts.

NEPA/NHPA Analysis (Section 106 Determination)

Within the APE for the Washington Boulevard LRT Alternative, unidentified archaeological resources have not been formally evaluated for NRHP listing. The Washington Boulevard LRT Alternative may have adverse effects upon unidentified resources, if they are determined to be eligible during implementation of the CRMMP. Any adverse effects under Section 106 will be resolved during SHPO coordination and implementation of the CRMMP.

The Washington Boulevard LRT Alternative would not result in adverse effects to archaeological resources with implementation of mitigation measures described below.

CEQA Impact Analysis

With implementation of the CRMMP, potential construction and operational impacts from the Washington Boulevard LRT Alternative would not be significant under CEQA.

Mitigation Measures

The same mitigation measures (mitigation measures 4.12.2-i through 4.14.2-vi) identified above in Section 4.14.2.3.3 for the SR 60 LRT Alternative, and summarized in Table ES-2, would apply to the Washington Boulevard LRT Alternative.

Impacts Remaining After Mitigation

NEPA/NHPA Finding (Section 106 Determination)

The Washington Boulevard LRT Alternative would have no adverse construction or operational effects to archaeological resources.

This finding applies regardless of which maintenance yard option or design variation is selected.

CEQA Determination

The Washington Boulevard LRT Alternative would have no significant construction or operational impacts to archaeological resources. This determination applies regardless of which maintenance yard option or design variation is selected.

4.14.3 Paleontological Resources

This section discusses the construction and operational impacts of the proposed alternatives. Potentially significant impacts are discussed in this section. Additional information is provided in the Cultural Resources Technical Memorandum, Appendix Y, of this Draft EIS/EIR.

4.14.3.1 Regulatory Framework/Methodology

In addition to the regulatory framework presented in Section 4.14.1.1.2, the following CEQA guidance is applicable to the analysis of paleontological resource impacts.

4.14.3.1.1 Paleontological Regulatory Setting

CEQA also categorizes paleontological resources as cultural resources and requires an evaluation of impacts to such resources. Impacts to paleontological resources are considered under CEQA only and are not considered historic properties to be evaluated under NEPA or the Section 106 process.

Significant paleontological resources are defined as fossils or assemblages of fossils that are unique, unusual, rare, uncommon, or important to define a particular time frame or geologic strata, or that add to an existing body of knowledge in specific areas, in local formations or regionally. Paleontological remains are accepted as nonrenewable resources significant to our culture and, as such, are protected under provisions of the Antiquities Act of 1906 and subsequent related legislation, policies, and enacting responsibilities.

In the state of California, fossil remains are considered to be limited, nonrenewable, and sensitive scientific resources.

4.14.3.1.2 Methodology

A paleontological resources assessment was obtained for this project from the Natural History Museum of Los Angeles County (LACM). Pertinent geological information was reviewed for the project extent, including a review of known paleontological localities; no paleontological field survey was performed. Paleontological sensitivity of the project area was addressed, and potential paleontological mitigation measures offered, as appropriate.

4.14.3.2 Affected Environment/Existing Conditions

As defined in 36 CFR 800.16(d), an APE is “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 would include any area where construction activities would excavate to a depth sufficient to encounter paleontological resources.

Two paleontological localities were discovered within a three-mile radius of the proposed alternatives. Recovery of vertebrate fossils yielded fossil materials at 11 to 34 feet below grade. Given the results of the paleontological research, the entire project area is considered to have high paleontological sensitivity, with the exception of the channels of the Rio Hondo and the San Gabriel River. The river channels are considered to have low

paleontological sensitivity. Additional details are available in the Cultural Resources Technical Memorandum, Appendix Y, of this Draft EIS/EIR.

4.14.3.3 Environmental Impacts/Environmental Consequences

This section discusses the construction and operational impacts of the proposed alternatives. Potentially significant impacts are discussed in this section. Additional information is provided in the Cultural Resources Technical Memorandum, Appendix Y, of this Draft EIS/EIR. Table 4.14-2 summarizes the cultural resources impacts of each proposed alternative.

4.14.3.3.1 No Build Alternative

Impact Analysis

There would be no impacts to paleontological resources associated with the No Build Alternative.

Mitigation Measures

Since there would be no impacts to paleontological resources associated with the No Build Alternative, no mitigation measures are required.

Impacts Remaining After Mitigation

NEPA Finding

The No Build Alternative does not include any construction and, therefore, no significant adverse effects would result. Consequently, no mitigation is required and there would be no impacts remaining after mitigation.

CEQA Determination

The No Build Alternative does not include any construction and, therefore, would result in no impacts to the resource. Consequently, no mitigation is required and there would be no impacts remaining after mitigation.

4.14.3.3.2 TSM Alternative

Impact Analysis

The TSM Alternative would involve minimal construction of new facilities such as bus stops. Construction associated with these facilities would not involve excavation at sufficient depths to encounter paleontological resources. As such, no impacts on paleontological resources are anticipated.

Mitigation Measures

Since there would be no impacts to paleontological resources associated with the TSM Alternative, no mitigation measures are required.

Impacts Remaining After Mitigation

NEPA Finding

The TSM Alternative includes only minimal construction and, therefore, no significant adverse effects would result. Consequently, no mitigation is required and there would be no impacts remaining after mitigation.

CEQA Determination

The TSM Alternative includes only minimal construction and, therefore, would result in no impacts to the resource. Consequently, no mitigation is required and there would be no impacts remaining after mitigation.

4.14.3.3.3 SR 60 LRT Alternative

Impact Analysis

Construction Impacts

At depths within the older Quaternary sediments and the Fernando Formation, there is a high potential of encountering significant vertebrate fossils. Paleontological sensitivity is considered high. The alignment for the SR 60 LRT Alternative is within public street ROW that has been disturbed with utility and street construction, including the SR 60 Freeway and its embankments; therefore, it is highly unlikely that there will be paleontological materials in these areas, but there is still a limited potential. The North Side Design Variation would not introduce any additional impacts. However, the maintenance yards and park and ride locations, which are less disturbed, have a potential to yield paleontological materials. Surface grading or very shallow excavations into the younger Quaternary alluvial deposits and the Fernando Formation are unlikely to expose significant fossilized vertebrate remains. However, excavations of six feet or more in depth, extending into undisturbed deposits, may expose significant fossilized vertebrate remains. If

unmitigated, the destruction of any unique fossil resources would result in a significant impact under CEQA. However, project mitigation measures would reduce paleontological resource impacts, if any resources are found during construction, to less than significant levels. Mitigation measures to reduce impacts to less than significant levels are listed below.

Operational Impacts

There would be no impacts to paleontological resources during operation.

NEPA Finding

Paleontological resources are not considered historic properties to be evaluated under NEPA or the Section 106 process, therefore no NEPA finding is needed.

CEQA Finding

During construction of the SR 60 LRT Alternative and Maintenance Yard Option, significant impacts on paleontological resources could occur. The mitigation measures listed below would reduce potential impacts to paleontological resources to less than significant. The SR 60 LRT Alternative would not result in significant impacts to paleontological resources with implementation of the mitigation measures described below.

Mitigation Measures

There could be significant impacts to unknown paleontological resources during construction activities. The following mitigation measures would reduce impacts to paleontological resources, if any are found during construction, to less than significant levels.

4.14.3-i. Metro shall retain a qualified paleontological monitor to monitor excavation in areas identified as likely to contain paleontological resources. These areas are defined as all areas within the proposed project site where planned excavation will exceed depths of six feet into native undisturbed sediments.

4.14.3-ii. The qualified paleontological monitor shall retain the option to reduce monitoring if, in his or her professional opinion, sediments being monitored are previously disturbed. Monitoring may also be reduced if the potentially fossiliferous units, previously described, are not found to be present or, if present, are determined by qualified paleontological personnel to have low potential to contain fossil resources.

4.14.3-iii. Metro would make sure that the monitor is equipped to salvage fossils and samples of sediments as they are unearthed to avoid construction delays, and empowered to temporarily halt or divert equipment to allow removal of abundant or large specimens. Since older Quaternary deposits yield small fossil specimens likely to go unnoticed during typical large-scale paleontological monitoring, matrix samples shall be collected and processed to determine the potential for small fossils to be recovered prior to substantial excavations in those sediments. If this sampling indicates that these units do possess small fossils, a matrix sample of up to 6,000 pounds shall be collected at various locations, to be specified by the paleontologist, within the construction area. These matrix samples shall also be processed for small fossils.

4.14.3-iv. The paleontological monitor would make certain that recovered specimens be prepared to a point of identification and permanent preservation, including washing of sediments, to recover small invertebrates and vertebrates.

4.14.3-v. Metro would make certain that specimens shall be curated into a professional, accredited museum repository with permanent retrievable storage. A report of findings, with an appended itemized inventory of specimens, shall be prepared. The report and inventory, when submitted

to Metro, will signify completion of the program to mitigate impacts to paleontological resources.

Impacts Remaining After Mitigation

NEPA Finding

Paleontological resources are not considered historic properties to be evaluated under NEPA or the Section 106 process; therefore, no NEPA finding is needed.

CEQA Determination

The SR 60 LRT Alternative and Maintenance Yard Option would have no significant construction or operational impacts to paleontological resources. This determination applies regardless of whether the North Side Design Variation is implemented.

4.14.3.3.4 Washington Boulevard LRT Alternative

Impact Analysis

Construction Impacts

At depths within the older Quaternary sediments and the Fernando Formation, there is a high potential of encountering significant vertebrate fossils. Paleontological sensitivity is considered high. The alignment for the Washington Boulevard LRT Alternative and aerial or at-grade crossings are within public street ROW that has been disturbed with utility and street construction, including the SR 60 Freeway and its embankments; therefore it is highly unlikely that there will be paleontological materials in these areas, but there is still a limited potential. However, the maintenance yards and park and ride locations, which are less disturbed, have a potential to yield paleontological materials. Surface grading or very shallow excavations into the younger Quaternary alluvial deposits and the Fernando Formation is unlikely to expose significant fossilized vertebrate remains. However, excavations of six feet or more in depth, extending into undisturbed deposits, may expose significant fossilized vertebrate remains. If unmitigated, this destruction of any unique fossil resources would result in a significant impact under CEQA. However, project mitigation measures would reduce impacts to paleontological resources, if any resources are found during construction, to less than significant levels. Mitigation measures to reduce impacts to less than significant levels are listed below.

Operational Impacts

There would be no impacts to paleontological resources during operation.

Mitigation Measures

The same mitigation measures (mitigation measures 4.14.3-i through 4.14.3-v) identified above in Section 4.14.3.3.3 for the SR 60 LRT Alternative, and summarized in Table ES-2, would also apply to the Washington Boulevard LRT Alternative.

Impacts Remaining After Mitigation

NEPA Finding

Paleontological resources are not considered historic properties to be evaluated under NEPA or the Section 106 process; therefore, no NEPA finding is needed.

CEQA Determination

The Washington Boulevard LRT Alternative would have no significant construction or operational impacts to paleontological resources. This determination applies regardless of which maintenance yard option or design variation is selected.

Section 4.15

Parklands and Other Community Facilities

This section summarizes the existing parklands and community facilities within the project area and evaluates the potential for parklands and community facilities impacts resulting from construction and operation of the proposed Eastside Transit Corridor Phase 2 Project alternatives. Potential impacts to historical community resources are summarized in Section 4.14.1, Cultural and Historical Resources - Built Environment. Section 4(f) findings regarding impacts on parks and historic resources are provided in Chapter 5.

Information in this section is based on, and updated where appropriate from, the Parklands and Other Community Facilities Technical Memorandum, which is incorporated into this Draft EIS/EIR as Appendix Z.

4.15.1 Regulatory Framework/Methodology

4.15.1.1 Federal

The National Environmental Policy Act (NEPA) does not have specific requirements related to impacts on parklands and community facilities. Therefore, the California Environmental Quality Act (CEQA) Guidelines were used to assess the potential adverse effects to parklands and other community resources with respect to NEPA. Section 4(f) of the United States Department of Transportation (USDOT) Act of 1966 also requires protection of parklands and some community facilities, as specified in Chapter 5, Section 4(f) Evaluation, and the Section 4(f) Evaluation, which is incorporated into this Draft EIS/EIR as Appendix F.

4.15.1.2 State

The *California Environmental Quality Act (CEQA) Guidelines* are used to assess the significance of potential impacts to parklands and other community resources. CEQA requires mitigation for significant adverse changes in physical condition or service ratios to fire, police, park, and school facilities. Applying the criteria in Appendix G of the *CEQA Guidelines*, the project would have a significant impact on recreation or public services if it would:

- Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities; or in the need for new or physically altered governmental facilities, the construction of which would cause significant environmental impacts, in order to maintain acceptable service ratios or response times or other performance objectives for fire protection, police protection, schools, parks, or other public facilities; or
- Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated; or
- Include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment.

The analysis of existing conditions within the project area in Section 4.15.2 identifies resources to which these significance thresholds would potentially apply.

4.15.1.3 Local

Each of the cities in the project area and the County of Los Angeles maintain and regularly update a general plan. Project impacts have been evaluated against each general plan to gauge consistency

with local government and community goals. The required land use and open space elements are of particular relevance to parklands and community facilities. Where applicable, recreation plans and specific plans have been reviewed to identify ordinances that apply to the project alternatives.

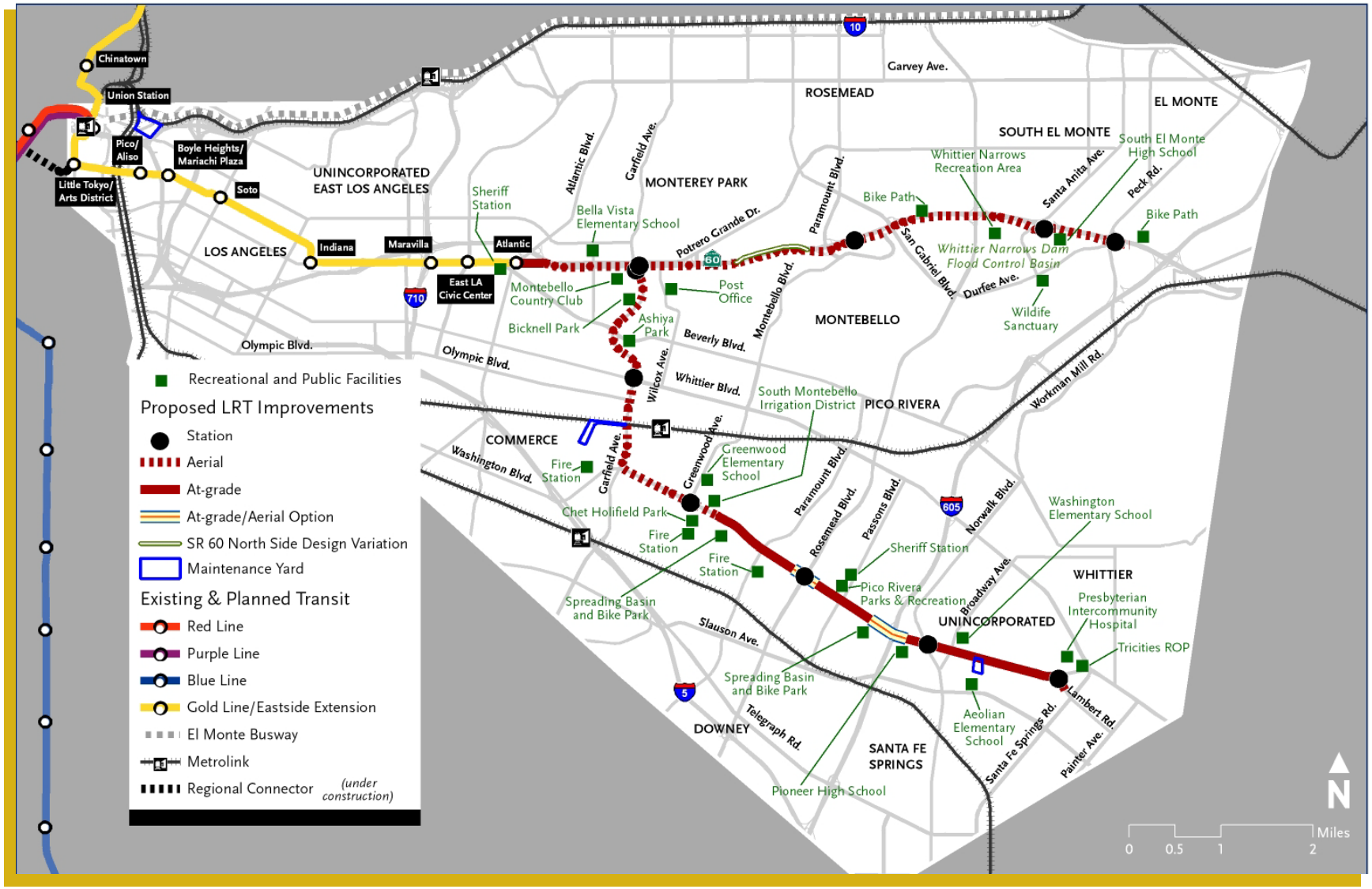
The general plans, recreation plans, and specific plans revealed common goals of improving and maintaining community facilities and recreational opportunities, improving transit access to recreational facilities, making facilities accessible to a wide array of residents, and being responsive to community needs. Specific goals and policies included in the general plans, recreation plans, and specific plans from each of the project area cities and the County of Los Angeles are described in more detail in the Parklands and Other Community Facilities Technical Memorandum included as Appendix Z of this Draft EIS/EIR.

4.15.2 Affected Environment/Existing Conditions

The affected environment includes public schools, emergency services, other public services, parks, and recreational facilities. For parklands and other community facilities impacts, the area considered for potential impacts extends 350 feet from either side of the proposed project alignments, design variations, stations, park and ride lots, potential maintenance yard locations, and sites associated with construction. For emergency services, a radius of one-quarter mile was used, since the service quality of these facilities is partly dependent upon emergency vehicles being able to enter and exit quickly via local streets. The recreational and public facilities are shown in **Figure 4.15-1**. Detailed descriptions of these facilities are provided in the Parklands and Other Community Facilities Technical Memorandum, Appendix Z, of this Draft EIS/EIR.

A large number of community events occur in the project area each year, including music and cultural festivals, parades, arts and theater performances, and exhibitions. Large events often attract thousands and, in some instances, tens of thousands of people and rival some of the more commercialized sports and entertainment venues in Los Angeles County. Key annual events include:

- Fourth of July Carnival (Harbor Street, Commerce)
- National Night Out (Bandini Park, Commerce)
- Taste of East Los Angeles (East Los Angeles Civic Center)
- Montebello Fall Festival (Whittier and Montebello Boulevards, Montebello)
- Taste of the Town (Holy Cross Armenian Cathedral Hall, Montebello)
- Harmony Festival (Barnes Park, Monterey Park)
- Health Fair (Barnes Park, Monterey Park)
- Independence Day Festival (Smith Park, Pico Rivera)
- Summer Movies in the Park Series (Smith Park, Pico Rivera)
- Summer Concerts in the Park Series (Smith Park, Pico Rivera)
- Halloween Spooktacular (Smith Park, Pico Rivera)
- Holiday Tree Lighting Ceremony (Pico Rivera City Hall and Rosemead City Hall)



Source: CDM 2011.

Figure 4.15-1. Project Area Parklands and Other Community Facilities

- Independence Day Celebration (Rosemead Park, Rosemead)
- Rockin' Rosemead Summer Concert Series (Garvey Park and Rosemead Park, Rosemead)
- 4th of July Celebration (New Temple Park, South El Monte)
- Concerts Under the Stars (Community Center, South El Monte)
- Concerts in the Park (Central Park and Parnell Park, Whittier)
- Wednesday Night Family Festival (Greenleaf Avenue, Whittier)
- Whittier Christmas Parade (Greenleaf Avenue, Whittier)
- Mexican Independence Day Festival (Whittier Narrows)
- Fall Fair (Whittier Narrows)

4.15.3 Environmental Impacts/Environmental Consequences

This section focuses on the potential operational adverse effects and significant impacts that would result from the proposed alternatives. Further detailed analysis is included in the Parklands and Other Community Facilities Technical Memorandum, Appendix Z, of this Draft EIS/EIR. Impact conclusions are summarized in **Table 4.15-1**.

Table 4.15-1. Summary of Potential Parklands and Community Facilities Impacts

Alternative	Public Schools	Emergency Services	Other Public Services	Parks and Recreational Facilities
No Build	None	None	None	None
TSM	None	None	None	None
SR 60 LRT[1]	Not adverse after mitigation/Less than significant after mitigation	Not adverse after mitigation/ Less than significant after mitigation	Not adverse after mitigation/ Less than significant after mitigation	Not adverse after mitigation/ Less than significant after mitigation
Washington Boulevard LRT	Not adverse/Less than significant	Not adverse/Less than significant	Not adverse/Less than significant	Not adverse/Less than significant

Notes:
[1] Results are for the SR 60 LRT Alternative as well as the SR 60 LRT North Side Design Variation.

4.15.3.1 No Build Alternative

4.15.3.1.1 Impact Analysis

The No Build Alternative would not cause any new physical impacts associated with governmental facilities or parks because no new construction or major modification of existing transit service would occur within the project area. However, the No Build Alternative would fail to satisfy general plan goals encouraging improved transit access to recreational facilities, as identified in Section 4.15.1.3. Over time, access to these facilities may deteriorate due to worsening traffic congestion and lack of improved transit alternatives to driving. This would not constitute an adverse effect or a significant impact. No adverse effects under NEPA or significant impacts under CEQA would occur to parklands or other community facilities as a result of the No Build Alternative.

4.15.3.1.2 Mitigation Measures

The No Build Alternative would have no adverse effects or significant impacts on parklands or other community facilities; therefore, no mitigation measures are required.

4.15.3.1.3 Impacts Remaining after Mitigation

NEPA Finding

The No Build Alternative would not result in adverse physical effects on existing parklands or other community facilities because no new facilities would be constructed.

The No Build Alternative would not result in substantial adverse physical effects with the provision of new or physically altered governmental facilities or the need for new or physically altered governmental facilities. It would not increase the use of existing recreational facilities to the point of substantial physical deterioration, and would not require construction or expansion of recreational facilities. No adverse effects would occur as a result of the No Build Alternative.

CEQA Determination

The No Build Alternative would not result in adverse physical impacts on existing parklands or other community facilities because no new facilities would be constructed.

The No Build Alternative would not result in substantial physical impacts with the provision of new or physically altered governmental facilities or the need for new or physically altered governmental facilities. It would not increase the use of existing recreational facilities to the point of substantial physical deterioration, and would not require construction or expansion of recreational facilities. No significant impacts would occur as a result of the No Build Alternative.

4.15.3.2 TSM Alternative

4.15.3.2.1 Impact Analysis

Construction Impacts

Minor construction of bus stop shelters and benches would occur at key stops along the routes, and some additional embedded wiring in the street may be needed to provide new bus routes with traffic signal priority. This construction would not result in physical impacts to parklands or other community facilities. No adverse effects under NEPA and no significant impacts under CEQA would occur as a result of construction of this alternative.

Operational Impacts

The TSM Alternative would satisfy the general plan goals of improving transit access to recreational facilities as identified in Section 4.15.1.3, although not as much as the two proposed build alternatives. Over time, access to these facilities may deteriorate due to worsening traffic congestion and the tendency for buses to be subject to the same traffic delays as solo drivers. This would not constitute an adverse effect or a significant impact. No adverse effects under NEPA or significant impacts under CEQA would occur to parklands or other community facilities as a result of the TSM Alternative.

4.15.3.2.2 Mitigation Measures

The TSM Alternative would have no adverse effects or significant impacts on parklands and other community facilities. Therefore, no mitigation measures would be required for either construction or operation of this alternative.

4.15.3.2.3 Impacts Remaining after Mitigation

NEPA Finding

Construction-related activities that occur as a result of the TSM Alternative would be minor, related only to the construction of bus stop shelters and benches. These construction activities would not result in substantial adverse physical effects on existing parklands or other community facilities. No adverse construction-related effects would occur as a result of the TSM Alternative.

The TSM Alternative would not result in substantial adverse physical effects with the provision of, or need for, new or physically altered governmental facilities. It would not increase the use of existing recreational facilities to the point of substantial physical deterioration, and would not require construction or expansion of recreational facilities. No adverse effects would occur as a result of the TSM Alternative.

CEQA Determination

Construction-related activities that occur as a result of the TSM Alternative would be minor, related only to the construction of bus stop shelters and benches. These construction activities would not result in substantial adverse physical impacts on existing parklands or other community facilities. No significant construction-related impacts would occur as a result of the TSM Alternative.

The TSM Alternative would not result in substantial adverse physical impacts with the provision of, or need for, new or physically altered governmental facilities. It would not increase the use of existing recreational facilities to the point of substantial physical deterioration, and would not require construction or expansion of recreational facilities. No significant impacts would occur as a result of the TSM Alternative.

4.15.3.3 SR 60 LRT Alternative

4.15.3.3.1 Impact Analysis

Construction Impacts

The proposed LRT alignment would run along the northern edge of South El Monte High School property, but would be located completely within the SR 60 right-of-way (ROW). The school property contains a driveway fronting the SR 60 ROW, and construction workers may need temporary intermittent access to the LRT alignment area along this driveway during construction. Access would be scheduled outside of the school's operating hours so as not to interfere with school activities or diminish the school's functionality. Metro would coordinate with school officials to ensure that safe routes to school are maintained at all times for pedestrians, bicyclists, and motorists. As such, no adverse effects under NEPA or significant construction impacts under CEQA would occur.

During construction, lane closures and overnight street closures along Pomona Boulevard may require detours for emergency vehicles traveling to and from the Los Angeles County Sheriff's Station located on 3rd Street. Metro would coordinate with station staff in advance of any necessary closures to ensure that service ratios and response times would not be affected. Metro would secure all construction sites with fencing and security patrols as needed to prevent intrusion and illegal activities at all times. As a result, no adverse effects under NEPA or significant construction impacts under CEQA would occur to emergency services during construction.

Viaduct construction may require temporary closure of the Rio Hondo Bike Path, which runs along the Rio Hondo and traverses the recreation area within the Whittier Narrows Dam Flood Control Basin. This effect would be mitigated by temporary re-routing of the bike path around the construction area to allow the bike path to remain open continuously. A short, temporary re-routing of this nature would be unlikely to cause physical effects or impacts.

Operational Impacts

Emergency Services

LRT grade crossings along the western portion of the alignment could potentially delay emergency vehicles if they arrive at a crossing at the same time as a passing train. However, such delays would be brief and would not likely affect overall service response times. Given that trains would be operating in exclusive street-running ROW at these

locations, it would be possible for trains to yield to emergency vehicles or clear intersections quickly to allow emergency vehicles to pass. The SR 60 LRT Alternative is mostly located within an aerial fixed guideway; thus, light rail vehicles would only travel through traffic intersections at one location. At-grade operation would occur only on Pomona Boulevard between Atlantic Boulevard and Sadler Avenue in East Los Angeles. This applies to the SR 60 North Side Design Variation as well. Metro would coordinate with emergency response officials when designing grade crossings to ensure that emergency response times do not deteriorate as a result of the project.

LRT systems can encourage growth in surrounding areas, but that growth would occur within the existing zoning established by the local cities and the County of Los Angeles. Any observed growth not currently planned by the jurisdiction would not occur without modification of local zoning ordinances. Therefore, this alternative would not induce any population changes that would alter service ratios for parklands or other community facilities.

Implementation of this alternative would not place additional demands on police, fire, or medical services during operation and no change in existing service ratios would occur. No new public facilities would be required. In addition, Metro would coordinate with emergency response officials to ensure that response times are not compromised as a result of the project.

As a result, no adverse effects under NEPA or significant impacts under CEQA would occur as a result of implementation of this alternative.

Park Safety

There is a perception that LRT facilities can be attractive venues for loitering and illegal activity. Metro would provide security services at all Eastside Transit Corridor Phase 2 facilities during their operation to prevent criminal activity, including at stations located near park facilities. The stations would become centers of pedestrian activity during the 20 hours per day that trains would operate, and this may create a beneficial public presence in the surrounding community, including at nearby parks, that would dissuade criminal activity. All LRT facilities and crossings would be designed to ensure safety and minimize potential hazards. As a result, no adverse effects under NEPA or significant impacts under CEQA would occur as a result of implementation of this alternative.

Whittier Narrows Recreation Area

The proposed Santa Anita Avenue station would provide park visitors with a new way to access the Whittier Narrows Recreation Area, which is located within the Whittier Narrows Dam Flood Control Basin. The station would be located along the eastern edge of the park, across from one of the main entrances. Since the Whittier Narrows Recreation Area is a regional recreational destination, the new light rail line may increase park attendance. This is directly supportive of the Los Angeles County General Plan goal of improving transit access to regional parks. The improvement would make it more feasible for transit-dependent persons to use the park, given its location in a largely automobile-dominated area. Park officials have indicated that attendance could reach 25,000 to 30,000 per day in the areas closest to the proposed station and 45,000 to 50,000 per day park wide before service to users (particularly the staff's ability to maintain restrooms) would deteriorate. This is nearly double the current attendance on two of the five busiest days of the year, and is far in excess of the anticipated ridership expected at the Santa Anita Avenue station. Therefore, the new light rail line would not increase park attendance to the point where staff-identified service deterioration thresholds would be surpassed. Crowds exceeding the service deterioration threshold of 50,000 do visit the park on the three busiest days of the year (Easter Sunday, Cinco de Mayo, and Fiestas Patrias). The addition of the light rail line would not cause new service deterioration, however, as crowding is already occurring on these days under existing conditions. Staff indicated that the number of parking spaces at the park (approximately 4,500) is a limiting factor for the park's service levels. The proposed Santa Anita Avenue station would improve the park's service

levels by giving visitors a new non-automobile means of access to the park, potentially reducing the use of parking facilities.

Field visits revealed that the portions of the park east of Santa Anita Avenue are utilized less than portions west of Santa Anita Avenue, and there are no legal crosswalks connecting the two sides of the park north of Durfee Avenue. If a signalized intersection and crosswalk is added by Metro or the City of South El Monte at the entrance to the proposed Santa Anita Avenue station park and ride facility entrance, the crosswalk would link the two sides of the park and potentially allow crowds to spread across the park grounds more evenly on peak usage days.

The light rail station at Santa Anita Avenue may attract additional visitors to the park, but this would not result in any additional days each year when acceptable service ratios are exceeded. Average daily attendance at the park is approximately 5,500. As such, there would be no additional physical deterioration of the facility beyond what would occur under the No Build Alternative. Service ratios may be improved by the potential addition of a crosswalk across Santa Anita Avenue connecting two portions of the park which currently have poor pedestrian linkages, and by reducing strain on the recreation area's parking lots by providing visitors with alternative access to the park. This project alternative would not increase use of the Whittier Narrows Recreation Area to a point where substantial physical deterioration would occur; thus, no adverse effects under NEPA or significant impacts under CEQA would occur as a result of implementation of this alternative.

4.15.3.3.2 Mitigation Measures

Construction Mitigation Measures

Metro would implement the following construction mitigation measures related to the construction of the SR 60 LRT Alternative:

4.15-i. Schedule construction access to the SR 60 ROW through the South El Monte High School property at times when it would not disrupt school activities.

4.15-ii. Coordinate with school district officials to ensure that viable, safe pedestrian, bicycle, and automobile routes to schools are maintained.

4.15-iii. Coordinate with local emergency response personnel in advance of any necessary street closures to ensure that service ratios and response times are not affected.

4.15-iv. Provide a temporary re-routing of the Rio Hondo (and San Gabriel River) bike path(s) if any construction-related closures are needed, in order to keep the bike path open at all times.

4.15-v. Access to the SR 60 ROW through the Whittier Narrows Recreation Area would only occur during times when the park is normally closed.

4.15-vi. Construction within the Whittier Narrows Recreation Area, including any partial closures for construction access and staging areas, would be done in coordination with Los Angeles County Department of Parks and Recreation.

4.15-vii. Minimize temporary tree removal in the Whittier Narrows Recreation Area along the edge of the SR 60 ROW, and replace trees as quickly as possible. Tree removal would be done in coordination with Los Angeles County Department of Parks and Recreation. In accordance with the Whittier Narrows Dam Basin Master Plan, if temporarily removed trees are non-native, they would be replaced with native species.

Operational Mitigation Measures

No adverse effects or significant impacts are anticipated for the SR 60 LRT Alternative during operation, regardless of whether the SR 60 North Side Design Variation is implemented. However, Metro would coordinate with emergency response officials to ensure that response times are not compromised as a result of the project. Metro would also provide security services at all stations to prevent criminal activity. Because no adverse effects

or significant impacts would occur, no mitigation measures are required.

4.15.3.3.3 Impacts Remaining after Mitigation

NEPA Finding

Construction of the SR 60 LRT Alternative would not result in substantial construction-related adverse physical effects on existing parklands or other community facilities. No adverse construction-related effects would occur after mitigation as a result of the SR 60 LRT Alternative.

The SR 60 LRT Alternative would not result in substantial operational adverse physical effects with the provision of, or need for, new or physically altered governmental facilities. It would not increase the use of existing recreational facilities to the point of substantial physical deterioration, and would not require construction or expansion of recreational facilities. No adverse operational effects would occur as a result of the SR 60 LRT Alternative. This determination also applies to the SR 60 North Side Design Variation.

CEQA Determination

Construction of the SR 60 LRT Alternative would not result in substantial construction-related adverse physical impacts on existing parklands or other community facilities.

No significant construction-related impacts would occur after mitigation as a result of the SR 60 LRT Alternative.

The SR 60 LRT Alternative would not result in substantial operational adverse physical impacts with the provision of, or need for, new or physically altered governmental facilities. It would not increase the use of existing recreational facilities to the point of substantial physical deterioration, and would not require construction or expansion of recreational facilities. No significant operational impacts would occur as a result of the SR 60 LRT Alternative. This determination also applies to the SR 60 North Side Design Variation.

4.15.3.4 Washington Boulevard LRT Alternative

4.15.3.4.1 Impact Analysis

Construction Impacts

Construction of this alignment would be far enough from both Greenwood Elementary School and Pioneer High School that no effects under NEPA or impacts under CEQA to these school facilities would occur.

No sheriff or fire stations are located close enough to the alignment to be impacted by construction. As a result, no effects under NEPA or impacts under CEPA would occur.

The South Montebello Irrigation District office is located on Washington Boulevard east of Greenwood Avenue, adjacent to the proposed aerial LRT viaduct and station. The lots bordering the South Montebello Irrigation District building on the west and north would be acquired and used as a construction staging area and park and ride facility. However, no physical alterations to the Irrigation District building itself would occur during construction, and its services would be unaffected. As a result, no adverse construction effects under NEPA or significant construction impacts under CEQA would occur.

Temporary tree removal and rerouting of bicycle paths would occur within some of the remaining parks and recreational facilities.

However, all trees would be replaced. In addition, the temporary re-routing of bike paths would allow them to remain open during construction. As a result, no adverse construction effects under NEPA or significant construction impacts under CEQA would occur as a result of construction of this alternative.

Operational Impacts

Emergency Services

Since the sheriff's and fire stations are all located at least one block from the LRT alignment, no alterations to the facilities or effects on their operation are anticipated. LRT grade crossings for those portions of the alignment that are at-grade can potentially delay emergency vehicles if they arrive at a crossing at the same time as a passing train. However, such delays would be brief and

would not likely affect overall service response times. Given that trains would be operating in exclusive street-running ROW at all grade crossings on the Washington Boulevard LRT Alternative, it would be possible for trains to yield to emergency vehicles or clear intersections quickly to allow emergency vehicles to pass. At-grade operation would occur:

- Along Pomona Boulevard between Atlantic Boulevard and Sadler Avenue in East Los Angeles
- From 5th Street in Montebello to Lambert Road station in Whittier

Metro would coordinate with emergency response officials when designing grade crossings to ensure that emergency response times do not deteriorate as a result of the project. Implementation of this alternative would not place additional demands on police, fire, or medical services during operation and no change in existing service ratios would occur.

No new facilities would be required. As a result, no adverse effects under NEPA or significant impacts under CEQA would occur as a result of implementation of this alternative.

Park Safety

There is a perception that LRT facilities can be attractive venues for loitering and illegal activity. Metro would provide security services at all Eastside Transit Corridor Phase 2 facilities during their operation, including those in the vicinity of parklands, as needed to prevent an increase in criminal activity. The stations would become centers of pedestrian activity during the 20 hours per day that trains would operate, and this may create a beneficial public presence in the surrounding community, including at area parks, that would dissuade criminal activity.

All LRT facilities and crossings would be designed to ensure safety and minimize potential hazards. As a result, no adverse effects under NEPA or significant impacts under CEQA would occur as a result of implementation of this alternative.

Parks and Recreational Facilities

Several parks and recreational facilities are located near the proposed alignment. However, the alternative would not cause any of these facilities to deteriorate physically. In addition, the alignment would not induce growth or increase visitation to any of these facilities to a level that would result in deterioration of the facilities.

LRT systems can encourage growth in surrounding areas, but that growth would occur within the existing zoning established by the local cities and the County of Los Angeles. Any observed growth not currently planned by the city would not occur without modification of local zoning ordinances. Therefore, this alternative would not induce any population changes that would alter service ratios for parklands or other community facilities. No adverse effects under NEPA or significant impacts under CEQA would occur as a result of implementation of this alternative.

4.15.3.4.2 Mitigation Measures

Construction Mitigation Measures

No adverse effects or significant impacts are anticipated for the Washington Boulevard LRT Alternative during construction. Because no impacts would occur, no construction mitigation measures are required.

Operational Mitigation Measures

No adverse effects or significant impacts are anticipated for the Washington Boulevard LRT Alternative during operation. However, Metro would coordinate with emergency response officials to ensure that response times are not compromised as a result of the project. Metro would also provide security at all stations as needed to prevent an increase in criminal activity. Because no effects or impacts would occur, no mitigation measures are required.

4.15.3.4.3 Impacts Remaining after Mitigation

NEPA Finding

Construction of the Washington Boulevard LRT Alternative would not result in substantial construction-related adverse physical effects on

existing parklands or other community facilities. No adverse construction-related effects would occur as a result of the Washington Boulevard LRT Alternative. The Washington Boulevard LRT Alternative would not result in substantial adverse operational physical effects from the provision of, or need for, new or physically altered governmental facilities. It would not increase the use of existing recreational facilities to the point of substantial physical deterioration, and would not require construction or expansion of recreational facilities.

No adverse operational effects would occur as a result of the Washington Boulevard LRT Alternative. This determination applies to both the aerial and at-grade crossing options at Rosemead Boulevard and San Gabriel River/I-605, and to all of the proposed maintenance yard options.

CEQA Determination

Construction of the Washington Boulevard LRT Alternative would not result in substantial construction-related adverse physical impacts on existing parklands or other community facilities. No significant construction-related impacts would occur as a result of the Washington Boulevard LRT Alternative. The Washington Boulevard LRT Alternative would not result in substantial operational physical impacts from the provision of, or need for, new or physically altered governmental facilities. It would not increase the use of existing recreational facilities to the point of substantial physical deterioration, and would not require construction or expansion of recreational facilities.

No significant operational impacts would occur as a result of the Washington Boulevard LRT Alternative. This determination applies to both the aerial and at-grade crossing options at Rosemead Boulevard and San Gabriel River/I-605, and to all of the proposed maintenance yard options.

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Section 4.16

Safety and Security

This section identifies, evaluates, and characterizes existing and future safety and security issues as they relate to passengers, pedestrians, motorists, and the public. Potential safety and security impacts associated with each alternative are analyzed, and where appropriate potential mitigation and/or avoidance measures are identified. Information in this section is based on, and updated where appropriate from, the Safety and Security Technical Memorandum which is incorporated into this Draft EIS/EIR as Appendix BB.

4.16.1 Regulatory Framework/Methodology

The National Environmental Policy Act (NEPA) does not include specific criteria for the evaluation of alternatives' effects on public safety and security; however, applicable federal regulations were reviewed for compliance and consistency.

Appendix G of the *California Environmental Quality Act (CEQA) Guidelines* provides guidance used to address public safety. Potential impacts exist if the project would:

- Create the potential for increased pedestrian and/or bicycle safety risks.
- Create substantial adverse safety conditions, including station accidents, boarding and disembarking accidents, ROW accidents, collisions, fires, and major structural failures.
- Substantially limit the delivery of community safety services, such as police, fire, or emergency services, to locations along the proposed alignment.
- Create the potential for adverse security conditions including incidents, offenses, and crimes.

Other safety and security regulations applicable to the proposed project include:

- Moving Ahead for Progress in the 21st Century Act (Map-21).
- Uniform Fire Code.
- California Public Utilities Commission (CPUC) Safety Rules and Regulations Governing Light-Rail Transit in California.
- Federal Transit Administration's (FTA's) State Safety Oversight Rule.
- Metro Grade Crossing Policy for Light Rail Transit.
- California Health and Safety Code.
- Metro Rail Emergency Response Policy.
- Fire/Life Safety Design Criteria.
- National Fire Protection Association 130 Standard for Fixed Guideway Transit and Passenger Rail Systems.

More information regarding these regulations and criteria is available in Appendix BB, Safety and Security Technical Memorandum, of this Draft EIS/EIR.

Safety assessment includes consideration of potential safety conflicts for pedestrians, bicyclists, transit riders, and automobiles along the two build LRT alternative alignments. The pedestrian safety assessment of the proposed LRT corridors focused on pedestrian safety in four settings: at station sites, at park and ride facilities, in the vicinity of trackway, and at designated grade crossings.

Fire services and emergency response factors were also considered.

To evaluate security risks of the proposed alternatives, current crime statistics for areas surrounding existing Metro rail stations and major bus stops in the project area were identified and documented.

4.16.2 Affected Environment/Existing Conditions

4.16.2.1 Safety

Metro is regulated by the CPUC. In operating LRT, subways, and bus transit (including dedicated bus transitways) throughout Los Angeles County, Metro has established departments to address specific issues. One department is the Transit Education Programs Department, which works to create programs to educate the public on proper safety practices with respect to LRT. To improve the safety of passengers and pedestrians, Metro operates all transit-related vehicles according to the guidelines established by the CPUC for light rail vehicles (LRV), which include the provision of rear view mirrors, audible warning devices, and grab handles for standing passengers. The CPUC also regulates LRV braking, lighting, and operating speeds. The project area includes pedestrian infrastructure amenities to ensure pedestrian safety; these amenities include crosswalks, paths, sidewalks, and mid-block crossings. In addition, the Rail Safety Orientation Safety Program uses photos to illustrate safety practices for vehicles near rail alignments and rail crossings. Separating the tracks from street level can also reduce the potential for conflict between vehicles and LRVs. The design of any crossings would be approved by the CPUC and local public agencies, such as Los Angeles County and the city and county fire departments.

Metro's Corporate Safety Department has overall responsibility for safety on the project, extending from the planning stage through design, construction, and rail activation and into revenue service. This department would oversee system safety, fire and life safety, grade crossing safety, construction safety, and operations safety for the project. The Corporate Safety Department would also coordinate the CPUC oversight function throughout all phases of the project.

4.16.2.2 Security

Metro monitors activities and includes measures to protect security on the existing rail system, both at the stations and in the vehicles. Passengers, transit employees, vendors, contractors, and members of the general public who come in contact with the system, as well as the transit property and equipment, would be susceptible to the same crimes experienced in the neighborhoods surrounding the two build LRT alternative alignments.

Current Metro system passenger security features include closed circuit television cameras (CCTV), emergency call boxes, and fully lighted station stops and parking areas. These features are provided in all trains and buses, as well as rail stations, and are designed to offer security and a personal sense of well-being to passengers.

The Los Angeles County Sheriff's Department (LACSD) is under contract to provide full police services for stations, rail vehicles, and property belonging to Metro. These services include patrols of stations, platforms, and rail cars.

Metro and LACSD coordinate regularly, at several levels, with the U.S. Department of Homeland Security (DHS). Collectively, they are part of the Regional Transit Security Working Group, are members of the local Joint Terrorist Task Force, and coordinate on homeland security concerns with the area Federal Security Director for the Transportation Security Administration (TSA). Metro is currently in compliance with all TSA directives as well as 49 Code of Federal Regulations (CFR) 1580, which requires designating a rail security coordinator and reporting significant security concerns to TSA.

4.16.3 Environmental Impacts/Environmental Consequences

Table 4.16-1 summarizes the potential safety and security impacts for each alternative.

4.16.3.1 No Build Alternative

4.16.3.1.1 Impact Analysis

The No Build Alternative would maintain the current level of transit service in the project corridor, and would therefore have no direct or indirect adverse effect under NEPA or significant impact under CEQA with regard to public safety, security, or accidents.

4.16.3.1.2 Mitigation Measures

Since the No Build Alternative would have no safety or security impacts, no mitigation measures are required.

4.16.3.1.3 Impacts Remaining After Mitigation

NEPA Finding

There would be no adverse safety or security effects related to the No Build Alternative.

CEQA Determination

The No Build Alternative would not result in safety or security impacts.

4.16.3.2 TSM Alternative

4.16.3.2.1 Impact Analysis

Construction Impacts

Under the TSM Alternative, proposed enhancements to bus services would occur; there would be no construction in the project area associated with transit infrastructure investments. Therefore, no direct or indirect construction-related adverse effects under NEPA or significant impacts under CEQA would occur with regard to public safety, security, or accidents.

Operational Impacts

The TSM Alternative would improve upon the current level of bus transit service in the project area. The TSM Alternative would not have a detrimental or increased direct impact on public safety, security, or accidents. The TSM Alternative would not result in an adverse effect under NEPA or a significant impact under CEQA with regard to safety and security. Potential negative impacts on safety and security would be less than significant under CEQA.

Table 4.16-1. Summary of Potential Safety and Security Impacts

Alternative	Potential Effects (NEPA/CEQA)	NEPA Effects After Mitigation	CEQA Impacts After Mitigation
No Build	None	None	None
TSM	Negative indirect impact would be the "induced demand"	Not adverse	Less than significant
SR 60 LRT1	Potential adverse effects to pedestrian safety and overall security	Not adverse	Less than significant
Washington Boulevard LRT	Potential adverse effects to pedestrian safety and overall security	Not adverse	Less than significant

Notes:
[1]Results are for the SR 60 LRT Alternative as well as the SR 60 North Side Design Variation.

4.16.3.2.2 Mitigation Measures

Since the TSM Alternative would have no safety or security impacts, no mitigation measures are required.

4.16.3.2.3 Impacts Remaining After Mitigation

NEPA Finding

There would be no adverse safety or security effects related to the TSM Alternative during construction or operation.

CEQA Determination

The TSM Alternative would not result in direct safety or security impacts during construction or operation. Potential negative indirect impacts on safety and security during operation would be less than significant.

4.16.3.3 SR 60 LRT Alternative

4.16.3.3.1 Impact Analysis

Construction Impacts

Pedestrian, Bicycle, and Motorist Safety

Potential impacts to pedestrian, bicycle, and motorist safety would primarily be associated with the at-grade portion of construction activities and the overall traffic increases expected due to the delivery of construction materials, including the following:

- Intense construction activities in the center of Pomona Boulevard, from the existing Metro Gold Line Eastside Extension Atlantic Station to approximately Sadler Avenue, where the centerline of the track and columns required for the aerial configuration would begin to shift off the existing roadway system. Construction activities associated with the at-grade portion would impact residents and businesses.
- Shallow excavation and construction activity along the centerline of streets along the LRT route between stations, to install columns, track, and power facilities.
- Activities at staging and storage locations for construction equipment and materials.
- Movement of construction equipment and materials between staging and storage areas and the areas of construction.
- Heavy excavation activities in and around concrete columns that are needed to support the aerial configuration.
- Transport of debris from excavation along the haul route to the point that trucks enter the freeway and depart the community.
- Unprotected construction sites and staging areas, which may cause safety concerns if not barricaded to protect passersby from falls or other mishaps.

Emergency Response Services

Construction-related activities (i.e., roadway detours, street closures, increased traffic near emergency facilities, and construction staging) would affect the ability to provide emergency response services including medical, police, and fire. However, the SR 60 LRT Alternative Alignment is mostly aerial within the SR 60 right-of-way and not within the lanes utilized by vehicles. Therefore, use of the existing roadways by emergency vehicles would be unaffected.

Crime and Terrorist Activities

The potential for crime and terrorism during construction is primarily related to construction equipment and staging areas, as described below:

- Construction equipment stored at construction sites and staging areas may be attractive to thieves if not adequately secured.
- The visibility of construction elements from SR 60 may encourage heightened visitation from criminals into the project area.

The SR 60 LRT Alternative, including the North Side Design Variation, would result in a potential construction-related adverse effect under NEPA and a significant impact under CEQA with regard to safety and security. Mitigation, as identified below, would reduce these impacts.

Operational Impacts

The SR 60 LRT Alternative has the potential to result in significant impacts to pedestrian safety and in overall security concerns during LRT operation. However, potential impacts would be less than those anticipated with the Washington Boulevard LRT Alternative, mainly because the configuration of the SR 60 LRT Alternative is mostly aerial while the Washington Boulevard LRT Alternative contains more at-grade elements.

Safety

Pedestrian safety at stations, designated grade crossings, and near the trackway are key factors to be considered in the design of LRT systems. This safety consideration is relevant only to the at-grade portions of the SR 60 LRT Alternative alignment along Pomona Boulevard, because there would be no opportunity for pedestrians to cross tracks that run in an aerial configuration adjacent to SR 60.

For at-grade portions of the SR 60 LRT Alternative alignment, a potential safety hazard would occur if the distance between designated crossings tempts pedestrians to cross the tracks at locations other than designated pedestrian crossings. In addition, potential riders who see a train approaching may attempt to cross streets and tracks illegally to avoid missing a train, in much the same way as these violations currently occur at bus stops. The single most frequent cause of motor vehicle/light rail accidents at intersections is a motorist turning left in front of an LRV that is traveling in the same direction. To reduce this risk, it is assumed that a left turn from Pomona Boulevard, or from the side streets to Pomona Boulevard, would not be permitted when LRVs are approaching the intersection from either direction. Other accidents between LRVs and motorists stem from motorists disobeying red light signals.

As part of the SR 60 LRT North Side Design Variation, the alignment would cross Greenwood Avenue, which is a restricted access roadway for the Oll landfill Superfund site. Crossing gates at this location would be included in the project's design to prevent private vehicles from crossing the tracks when trains are present.

At peak times of operation, trains are projected to run at five minute headways in each direction. This would result in a maximum of 24 trains crossing Greenwood Avenue in an hour (during non-peak hours, the headways would be greater and the number of trains per hour would be lower). Conservatively, it is estimated that vehicles would have to wait approximately 35 to 40 seconds for trains to cross Greenwood Avenue when the gates are activated. Using a conservative estimate of three seconds for each private vehicle to clear the crossing gate area, this would allow approximately 900 vehicles an hour in each direction (during peak hours) to travel safely on Greenwood Avenue with operation of the LRT.

Security

Design elements (i.e., emergency telephones, public address systems, and CCTV) and law enforcement personnel would provide a safe, secure, and comfortable transit system. Aerial portions of the SR 60 LRT Alternative require support columns, which would create shadows and hiding places along SR 60 that may add to crime problems in the area. These columns may also be conducive to graffiti. However, incorporating crime prevention efforts including, but not limited to, lighting pedestrian areas and maintaining visible areas would tend to deter criminal acts and protect transit patrons, employees, and the community from crime.

In addition, all site access to the maintenance yard would be controlled by an on-site guard and security team. Fencing would be provided around the perimeter of the maintenance yard to prevent unauthorized individuals from accessing the facility.

Operation of the SR 60 LRT Alternative, including the North Side Design Variation, would potentially result in an adverse effect under NEPA and a significant impact under CEQA with regard to safety and security. Mitigation, as identified below, would reduce these impacts.

4.16.3.3.2 Mitigation Measures

Construction Mitigation Measures

Metro will implement the following mitigation measures as they relate to the construction of the SR 60 LRT Alternative:

4.16-i. Metro would provide alternative walkways for pedestrians around construction staging areas where sidewalks currently exist, in accordance with Americans with Disabilities Act (ADA) requirements.

4.16-ii. Metro would sign and properly mark all pedestrian and bicycle detour locations around staging sites, in accordance with the Manual on Uniform Traffic Control Devices "work zone" guidance and other applicable local and state requirements.

4.16-iii. Metro would coordinate work plans and traffic control measures with emergency responders to prevent effects on emergency response times.

4.16-iv. Metro would develop a Construction Mitigation Program during final design and implement the program during construction. The program would guide Metro in obtaining input from residents and businesses affected during construction, and in communicating with the community regarding traffic control measures, the schedule of activities, and their duration of operations.

4.16-v. Metro would coordinate with and notify the Los Angeles Unified School District (LAUSD), Montebello Unified School Dsitrict (USD), El Rancho USD, Whittier Union High/Los Nietos Elementary, Whittier Union High/Whittier City Elementary, and El Monte Union High/Valle Indo Elementary, and individual school administrators to ensure that safe and convenient pedestrian and bicycle routes to schools are maintained. This would include the publication and distribution of school pedestrian and bicycle route maps.

4.16-vi. Metro would provide sufficient notice to forewarn students and parents when school pedestrian and bicycle routes are affected by construction.

4.16-vii. Metro would notify LAUSD and other local unified school districts of impending impacts on existing school bus routes.

4.16-viii. Metro would inform the public, including LAUSD and other local unified school districts, of bus stops that will be abandoned or changed during or after construction of the LRT line.

4.16-ix. Metro would provide security at the construction sites and staging areas in the form of barriers at excavation sites, installation of temporary fencing, security patrols, and appropriate signage and lighting.

4.16-x. Metro would assess and coordinate with police and fire service providers prior to and during construction to share daily construction schedules and how emergency services would serve the area during periods of construction.

4.16-xi. Temporary evacuation plans would be developed by Metro and put in place for those areas that are temporarily affected by construction activities, such as the overnight closure of a roadway and/or other temporary detours that may affect evacuation plans. Additionally, public events would be taken into consideration when construction activities occur to ensure safety of workers, participants, Metro patrons, and other members of the public.

Operational Mitigation Measures

All proposed mitigation measures regarding safety and security would be developed in conformance with Metro's *Rail Transit Design Criteria and Standards, Fire/Life Safety Criteria, Volume IX*. These criteria specifically address fire protection requirements for the design and construction of LRT systems. The criteria identify and discuss fire safety as it corresponds to the following specific design criteria: station and guideway facilities, passenger vehicles, vehicle and maintenance yards, system fire/life safety procedures, communications, rail operations control, and inspection, maintenance, and training. The criteria establish minimum requirements that would provide for the protection of life and property from the effects of fire. Proposed safety and security mitigation recommendations would be based on the results of, and become a part of, the Threat and Vulnerability Assessment that will be conducted for the locally preferred alternative when one is selected. These security measures may include:

- A CCTV system.
- Emergency push-button call system for patrons.
- Intrusion detection system.
- Dedicated security patrol protocols and procedures.
- Employing "Crime Prevention through Environmental Design" principles during the design phase.

The following mitigation measures apply to at-grade or aerial portions of the SR 60 LRT Alternative alignment:

4.16-xii. To reduce the risk of collisions between LRVs and automobiles on the street portion of the proposed alignments, Metro would coordinate with the CPUC, the Los Angeles County Department of Public Works and its traffic and lighting division, and the city and county fire departments, and would also comply with the Federal Highway Administration's *Manual on Uniform Traffic Control Devices* for signing and pavement marking treatments.

4.16-xiii. Metro would ensure that all stations would be lighted to avoid/minimize shadows, and all pedestrian pathways leading to/from sidewalks and parking facilities would be well illuminated. In addition, lighting would provide excellent visibility for train operators to be able to react to possible conflicts, especially with pedestrians crossing the track.

4.16-xiv. Metro's proposed station designs would not include design elements that obstruct visibility or observation or provide discrete locations favorable to crime; pedestrian access to at-grade stations would be at ground level with clear sight lines.

4.16-xv. Sidewalk widths and placements would be designed appropriately by Metro to accommodate a wide variety of users. In areas directly adjacent to the rail stations: 1) sidewalk widths would be designed using the widest dimensions feasible, in conformance with Metro's adopted "Land Use/Transportation Policy," and with widths exceeding ten feet; 2) minimum widths would not be

less than those allowed by the State of California Title 24 access requirements of 48 inches, or the ADA design recommendations of 60 inches; 3) accommodating pedestrian movements and flows would take priority over other transportation improvements, including automobile access; and 4) physical improvements would ensure that all stations are fully accessible, as defined in the ADA.

4.16-xvi. Adequate pedestrian queuing and refuge areas and wide crosswalks would be provided by Metro in areas immediately around proposed stations and park and ride facilities to promote pedestrian safety and mobility.

4.16-xvii. The Metro Fire/Life Safety Committee has developed standard safety-related design criteria to ensure adequate LRT operation in and around LRT stations. These include: 1) fire alarm protection within the station area, 2) a minimum of two fire emergency routes from each proposed station, 3) emergency ventilation and lighting, 4) communication systems between adjoining fire agencies, and 5) a methane detection system for each proposed station.

4.16-xviii. Metro would ensure that building construction for stations would not be less than Type I Construction as defined in the Uniform Building Code (UBC). For portions of the alignment where pedestrians and/or motor vehicles must cross the tracks, Metro would design crossings in accordance with CPUC and local public agency requirements.

4.16-xix. All proposed LRT stations and related park and ride facilities would be equipped with monitoring equipment and/or be monitored by Metro security personnel on a regular basis.

4.16-xx. Metro would implement a security plan for LRT operations. The plan would include both in-car and station surveillance by Metro security or other local jurisdiction security personnel.

4.16-xxi. Prior to project opening, Metro would coordinate and consult with the LACSD and local municipal police departments to develop safety and security plans for the proposed alignment, park and ride facilities, and station areas.

4.16-xxii. Metro would continue to provide security services to cover the Eastside Transit Corridor Phase 2 Project.

4.16-xxiii. Fire separations would be provided and maintained by Metro in public occupancy areas. Station public occupancy would be separated from station ancillary occupancy by a minimum 2-hour fire-rated wall. The only exception is that a maximum of two station agents, supervisors, or information booths may be located within station public occupancy areas when constructed of approved non-combustible materials and limited in floor area to 100 square feet.

4.16-xxiv. The diverse needs of different types of travelers, including students, senior citizens, disabled citizens, and low-income citizens, would be addressed through a formal educational and outreach campaign conducted by Metro prior to and during project operation. The campaign would target these diverse community members to educate them on proper system use and benefits of riding LRT.

4.16-xxv. Metro would control all site access to maintenance yard(s) with an on-site guard and security team. Metro would place fencing around the perimeter of the maintenance yard(s) to prevent unauthorized individuals from accessing them. The yard(s) would also include adequate lighting throughout.

4.16.3.3.3 Impacts Remaining After Mitigation

NEPA Finding

The SR 60 LRT Alternative, including the North Side Design Variation, would not have adverse effects on safety and security during construction or operation after proposed mitigation measures are implemented.

CEQA Determination

The SR 60 LRT Alternative, including the North Side Design Variation, would not have significant impacts on safety and security during construction or operation after proposed mitigation measures are implemented.

4.16.3.4 Washington Boulevard LRT Alternative

4.16.3.4.1 Impact Analysis

Construction Impacts

Pedestrian, Bicycle, and Motorist Safety

Construction-related activities that may affect pedestrian, bicycle, and motorist safety include:

- Intense construction activities in the center of several existing streets would occur, beginning with the connection to the existing Metro Gold Line Eastside Extension Atlantic Station. Aerial elements would be supported at various locations either by columns straddling both sides of the street or by single columns, and at-grade portions along Washington Boulevard would also see intense construction activity. Both types of activities would impact residents and businesses.
- Shallow excavation and construction activity along the centerline of streets or at sidewalks along the LRT route between stations to install columns, track, and power facilities.
- Activities at staging and storage locations of construction equipment and materials.
- Movement of construction equipment and materials between staging and storage areas and the areas of construction.
- Heavy excavation activities in and around concrete columns that are needed to support the aerial configuration.
- Transport of debris from excavation along the haul route to the point that trucks enter the freeway and depart the community.
- Unprotected construction sites and staging areas may cause safety concerns if not barricaded to protect passersby from falls or other potential concerns.

Emergency Response Services

Construction activities (i.e., roadway detours, street closures, increased traffic near emergency facilities, and construction staging) would affect the ability to provide emergency response services including medical, police, and fire. At-grade segments along Washington Boulevard have the greatest potential to disrupt emergency service response times, especially with the cluster of medical services near the terminus of the Washington Boulevard LRT Alternative alignment at Lambert Road.

Crime and Terrorist Activities

The potential for crime and terrorism during construction is related primarily to construction equipment and staging areas, as described below:

- Construction equipment stored at construction sites and staging areas may be attractive to thieves if not adequately secured.

- The visibility of construction elements may encourage heightened visitation from criminals into the project area.

Perceived high gang activity both in the industrial area and in residential and commercial areas north and south of Washington Boulevard would merit additional consideration during construction activities to ensure that emergency response times are not compromised.

The Washington Boulevard LRT Alternative would potentially result in a construction-related adverse effect under NEPA and a significant impact under CEQA with regard to safety and security.

Operational Impacts

The Washington Boulevard LRT Alternative has the potential to result in significant impacts to pedestrian safety and in overall security concerns during LRT operation, similar to those described for the SR 60 LRT Alternative; however, the impacts have the potential to affect a much larger geographic area and influence more existing streets. This is predominantly because a substantial portion of the Washington Boulevard LRT Alternative alignment is at-grade.

Safety

Pedestrian safety at stations, designated grade crossings, and near the trackway are key factors to be considered in the design of LRT systems. This pedestrian crossing safety consideration is relevant only to the at-grade portions of the Washington Boulevard LRT Alternative alignment because there would be no opportunity for pedestrians to cross tracks that run on an aerial structure.

Toward the eastern half of the Washington Boulevard LRT Alternative, the alignment would transition from aerial to at-grade. Pedestrian safety is a concern particularly near Rio Vista Elementary School, El Rancho High School, Rivera Elementary School and Middle School, Pioneer High School, Nelson Elementary School, Brethren Christian Private School, and Washington Elementary School, where many students walk to and from the facility. Large numbers of students and other pedestrians typically cross the at-grade rail tracks or run to catch the train at station platforms, violating warning signs. Pedestrian treatments (such as barriers), adequate sidewalk widths, and channelization techniques would be implemented to control pedestrian mobility at intersections, minimize inappropriate crossing behaviors, and encourage the use of designated pedestrian crossings.

Impacts related to pedestrian safety may be less for the Rosemead Boulevard aerial crossing and San Gabriel River/I-605 aerial crossing options than for the at-grade options at these locations, since an aerial configuration eliminates potential pedestrian crossings. This concept also applies to the Rosemead Boulevard station and adjacent park and ride/TOD facilities. If the Rosemead Boulevard aerial crossing design variation is selected, the station would be an aerial center platform station accessible from either side of the street, which would reduce the potential for conflict between LRVs and pedestrians to less than that of the at-grade configuration.

At-grade segments along Washington Boulevard also have the greatest potential to disrupt emergency service response times, especially with the cluster of medical services and the Presbyterian Intercommunity Hospital near the terminus of the Washington Boulevard LRT Alternative alignment at Lambert Road. The single most frequent cause of motor vehicle/light rail accidents at intersections is a motorist turning left in front of an LRV traveling in the same direction. To reduce this risk, it is assumed that left turns from existing streets with the at-grade alignment, or from the side streets to the street with the at-grade alignment, would not be permitted when LRVs are approaching the intersection from either direction. Other accidents between LRVs and motorists stem from motorists disobeying red light signals.

Security

Perceived high gang activity in the industrial and residential and commercial areas of Washington Boulevard would merit design considerations (i.e., emergency telephones, public address systems, and CCTV) and law enforcement personnel to ensure a safe, secure, and comfortable transit system. Aerial portions of the Washington Boulevard LRT Alternative require support columns, which may be targets for graffiti. However, incorporation of crime prevention measures including, but not limited to, lighting pedestrian areas and maintaining visible areas would tend to deter criminal acts and protect transit patrons, employees, and the community from crime. Stations would also have covered waiting platforms and secure lighting.

In addition, all site access to the maintenance yard(s) would be controlled by an on-site guard and security team. Fencing would be provided around the perimeter of the maintenance yard(s) to prevent access by unauthorized individuals.

Operation of the Washington Boulevard LRT Alternative would potentially result in an adverse effect under NEPA and a significant impact under CEQA with regard to safety and security.

4.16.3.4.2 Mitigation Measures

Construction Mitigation Measures

The same mitigation measures (mitigation measures 4.16-i through 4.16-xi) identified above in Section 4.16.3.3.2 for the SR 60 LRT Alternative and summarized in Table ES-2 would also apply to this alternative.

Operational Mitigation Measures

The same mitigation measures (mitigation measures 4.16-xii through 4.16-xxv) identified above in Section 4.16.3.3.2 for the SR 60 LRT Alternative and summarized in Table ES-2 would also apply to this alternative.

4.16.3.4.3 Impacts Remaining After Mitigation

NEPA Finding

The Washington Boulevard LRT Alternative would not have adverse effects on safety and security during construction or operation with implementation of the proposed mitigation measures.

CEQA Determination

The Washington Boulevard LRT Alternative would not have significant impacts on safety and security during construction or operation with implementation of the proposed mitigation measures.

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Section 4.17

Growth-Inducing Impacts

This section summarizes the potential population, housing, and employment growth that may directly or indirectly occur due to the project. Information in this section is based on, and updated where appropriate from, the Growth-Inducing Impacts Technical Memorandum, which is incorporated into this Draft EIS/EIR as Appendix CC. The analysis herein compares the employment and population changes associated with the project to the Southern California Association of Governments (SCAG) projections for growth.

4.17.1 Regulatory Framework/Methodology

The National Environmental Policy Act (NEPA) requires projects to examine the potential indirect or secondary effects that may occur as a result of a proposed federal activity or action. NEPA guidelines require an evaluation of reasonably anticipated growth in comparison to the population, households, and employment projections developed by a federally-designated metropolitan planning organization (MPO). SCAG is the federally-designated MPO for Los Angeles County and it has developed regional growth management plans that contain growth projections.

The California Environmental Quality Act (CEQA) Guidelines require an assessment of the ways in which the project could promote economic or population growth in the vicinity of the project [*CEQA Guidelines* Section 15126.2(d)]. Included in this are projects that would "remove obstacles to population growth." Growth inducement may occur if "the project fosters economic or population growth or the construction of additional housing either directly or indirectly." *CEQA Guidelines* also state that growth in any area should not be assumed to be necessarily beneficial, detrimental, or of little significance to the environment.

4.17.2 Affected Environment/Existing Conditions

4.17.2.1 Historic Growth

4.17.2.1.1 Population and Households

Table 4.17-1 summarizes the population trends for the cities that comprise the project area, Los Angeles County, and the entire SCAG region. The current population of the SCAG region is approximately 18.8 million, of which 10.4 million live in Los Angeles County. Since 2000, the population of the region experienced an average annual growth rate of 1.4 percent, while the County and most of the cities within the project area had average annual growth rates of less than one percent. This indicates that the higher growth areas in the region are outside the project area and Los Angeles County.

As Table 4.17-1 also illustrates, the areas with the largest gains in the number of households between 2000 and 2010 were the SCAG region, Los Angeles County, and the city of Los Angeles by virtue of their much larger size. Among the smaller cities, Monterey Park and Rosemead added the most new households.

Table 4.17-1. Historic Population and Household Growth, 2000-2010

	Population				Household			
Area	2000	2010	2000-2010 Change	Annual Average Change (%)	2000	2010	2000-2010 Change	Annual Average Change (%)
Commerce	12,568	13,581	1,013	0.81%	3,377	3,456	79	0.23%
Los Angeles	3,694,742	4,094,764	400,022	1.08%	1,337,654	1,417,311	79,657	0.60%
Montebello	62,150	65,781	3,631	0.58%	19,416	19,598	182	0.09%
Monterey Park	60,051	65,027	4,976	0.83%	20,209	20,872	663	0.33%
Pico Rivera	63,428	66,967	3,539	0.56%	16,807	16,944	137	0.08%
Rosemead	53,505	57,756	4,251	0.79%	14,345	14,776	431	0.30%
Santa Fe Springs	16,413	17,929	1,516	0.92%	4,932	5,142	210	0.43%
South El Monte	21,144	22,627	1,483	0.70%	4,724	4,820	96	0.20%
Whittier	83,639	87,128	3,489	0.42%	28,958	29,087	129	0.04%
Los Angeles County	9,519,330	10,441,080	921,750	0.97%	3,270,906	3,431,588	160,682	0.49%
SCAG 6-County Area	16,516,703	18,847,967	2,331,264	1.41%	5,722,035	6,285,473	563,438	0.98%

Source: California Department of Finance, E-4: Population Estimates for Cities, Counties, and the State, 2001-2009 with 2000 Benchmark.

4.17.2.1.2 Employment

Table 4.17-2 summarizes the employment trends for the cities that comprise the project area, Los Angeles County, and the entire SCAG region. As seen in the table, the only area that experienced a growth in employment between 2000 and 2010 was the SCAG region. Los Angeles County and the cities within the project area lost jobs during this period. Given the average annual growth rates shown in Table 4.17-2, the employment loss experienced throughout the project area was generally similar among the cities.

The fact that the SCAG region experienced employment gains during this period indicates that the Southern California region is still growing slightly and is attracting jobs; however, this growth has not been occurring within the project area.

Table 4.17-2. Historic Employment Growth, 2000-2010

Area	2000	2010	2000-2010 Change	Annual Average Change (%)
Commerce	4,500	4,400	(100)	-0.22%
Los Angeles	1,710,700	1,647,900	(62,800)	-0.37%
Montebello	25,700	24,800	(900)	-0.35%
Monterey Park	27,300	26,300	(1,000)	-0.37%
Pico Rivera	26,500	25,500	(1,000)	-0.38%
Rosemead	22,800	22,000	(800)	-0.35%
Santa Fe Springs	7,200	6,900	(300)	-0.42%
South El Monte	8,300	8,000	(300)	-0.36%
Whittier	40,600	39,200	(1,400)	-0.34%
Los Angeles County	4,424,900	4,262,300	(162,600)	-0.37%
SCAG 6-County Area	7,627,500	7,647,600	20,100	0.03%

Source: State of California Employment Development Department, Labor Market Information, Custom Data Tables, 2011.

4.17.2.2 Future Growth

The growth projections for the cities within the project area, Los Angeles County, and the SCAG region (see **Tables 4.17-3** and **4.17-4)** are provided in SCAG's adopted *2012-2035 Regional Transportation Plan (RTP) Growth Forecast*. It is important to note that this forecast was adopted in 2012 and its development began during the middle of the most recent recession (2007-2009); therefore, the 2008 regional growth forecast methodology was revised and updated. It was adjusted for both short-term and long-term job growth and its potential impact on domestic and international migration. In addition, cities within the project area may create transit-oriented districts or other ordinances in response to the advent of light rail. According to the SCAG forecast, population and employment are expected to reach approximately 22.1 million and 9.4 million, respectively, by 2035. This represents a 23.4 percent increase in population and a 22 percent increase in employment between 2008 and 2035. Similarly, the household forecast for the SCAG region is expected to reach 7.3 million by 2035, a 26 percent increase from 2008.

In general, the SCAG forecasts for the project area show a slower rate of growth in population, households, and employment between 2010 and 2035 than in the larger SCAG region. Of the cities in the project area, only Los Angeles, Monterey Park, Pico Rivera, and Santa Fe Springs are expected to experience total population growth in excess of ten percent during the forecast period (14.6 percent, 29.3 percent, 11.4 percent, and 25.3 percent, respectively). Four project area cities (Los Angeles, Pico Rivera, Rosemead, and Santa Fe Springs) are projected to have total household growth in excess of ten percent during the forecast period, which is a slightly higher growth rate than the other project area cities but still well below that of the SCAG region as a whole.

Table 4.17-3. Population and Household Growth, 2008-2035

Area	Population			Household		
	2008	2035	2008-2035 Change (%)	2008	2035	2008-2035 Change (%)
Commerce	12,800	13,000	1.6%	3,400	3,500	2.9%
Los Angeles	3,770,500	4,320,600	14.6%	1,309,900	1,626,600	24.2%
Montebello	62,500	66,400	6.2%	19,000	20,500	7.9%
Monterey Park	60,100	77,700	29.3%	19,900	21,700	9.0%
Pico Rivera	62,900	70,100	11.4%	16,600	18,700	12.7%
Rosemead	53,600	58,100	8.4%	14,200	15,800	11.3%
Santa Fe Springs	16,200	20,300	25.3%	4,800	5,800	20.8%
South El Monte	20,100	21,800	8.5%	4,600	5,000	8.7%
Whittier	85,300	90,500	6.1%	28,300	30,500	7.8%
Los Angeles County	9,778,000	11,353,000	16.1%	3,228,000	3,852,000	19.3%
SCAG 6-County Area	17,895,000	22,091,000	23.4%	5,814,000	7,325,000	26.0%

Source: SCAG, Adopted 2012 Regional Transportation Plan 2012-2035, Growth Forecast Appendix.

Table 4.17-4. Employment Growth, 2008-2035

Area	2008	2035	2008-2035 Change (%)
Commerce	48,100	48,600	1.0%
Los Angeles	1,735,200	1,906,800	9.9%
Montebello	25,700	27,400	6.6%
Monterey Park	30,400	33,700	10.9%
Pico Rivera	16,100	16,900	5.0%
Rosemead	16,400	17,600	7.3%
Santa Fe Springs	49,600	50,500	1.8%

Table 4.17-4. Employment Growth, 2008-2035 (continued)

Area	2008	2035	2008-2035 Change (%)
South El Monte	15,700	15,400	-1.9%
Whittier	31,300	34,800	11.2%
Los Angeles County	4,340,000	4,827,000	11.2%
SCAG 6-County Area	7,738,000	9,441,000	22.0%

Source: SCAG, Adopted 2012 Regional Transportation Plan 2012-2035, Growth Forecast Appendix.

These population and household forecasts indicate that the primary areas of growth for the SCAG region are anticipated to be outside the project area. In terms of employment, the projected growth rates for the cities within the project area are generally less than half the forecasted growth for the SCAG region between 2008 and 2035.

4.17.3 Environmental Impacts/Environmental Consequences

Table 4.17-5 summarizes the impacts associated with each alternative and describes why growth is not induced. The following sections present the evaluation and findings for each of the project alternatives.

4.17.3.1 No Build Alternative

4.17.3.1.1 Impact Analysis

The intent of the No Build Alternative is to preserve existing service levels and projects included in Metro's 2009 Long Range Transportation Plan. There would be no opportunities to induce development in the project area. As a result, the No Build Alternative would not result in an adverse effect under NEPA or a significant impact under CEQA with regard to growth inducement.

The No Build Alternative does not have the potential to support jobs and income in the region, either directly or indirectly, through capital and operating and maintenance (O&M) expenditures. Since no construction expenditures are associated with the No Build Alternative, no construction jobs or additional infrastructure (i.e., housing, roads, and utilities) would be required. Therefore, the No Build Alternative would maintain the status quo for transit in the project area and would not directly or indirectly induce growth.

4.17.3.1.2 Mitigation Measures

The No Build Alternative would not directly or indirectly induce growth. Therefore, no mitigation measures are required for the No Build Alternative.

4.17.3.1.3 Impacts Remaining After Mitigation

NEPA Finding

The No Build Alternative would not result in any direct or indirect adverse growth-inducing effects.

CEQA Determination

The No Build Alternative would not significantly impact the communities in the project area. The No Build Alternative would not result in any significant direct or indirect growth-inducing impacts.

4.17.3.2 TSM Alternative

4.17.3.2.1 Impact Analysis

The intent of the TSM Alternative is to improve bus service levels to help accommodate the forecasted growth in the region's population and workforce. The TSM Alternative would not induce development in the project area. The TSM Alternative would not provide new opportunities for land use connections, transit-oriented developments (TODs), higher-density development patterns, or compliance with federal guidance for transportation investments.

Table 4.17-5. Summary of Potential Growth-Inducing Impacts

Impact Measures	No Build Alternative	TSM Alternative	SR 60 LRT Alternative[1]	Washington Blvd. LRT Alternative
Operation	3,728 recurring jobs supported in the Metropolitan Statistical Area (MSA)	4,438 recurring jobs supported in the MSA	4,908 recurring jobs (4,911 for North Side Design Variation) supported in the MSA	5,249 recurring jobs (5,249 with Aerial Crossings) supported in the MSA
Travel Time Savings	No mobility savings	$81.6M in annual savings	$128.9M in annual savings ($128.3M for North Side Design Variation)	$125.5M in annual savings ($125.5M with Aerial Crossings)
Economic Development	The improvements would not be enough to induce development in the project area or act as a catalyst for appropriate economic development	The TSM improvements would not be enough to induce development in the project area or act as a catalyst for appropriate economic development	While development would not be induced, there are opportunities where the alternative could serve as a catalyst for economic revitalization and growth in areas where growth has already occurred	While development would not be induced, there are opportunities where the alternative could serve as a catalyst for economic revitalization and growth in areas where development has already occurred
Land Use	Would not provide new opportunities for land use connections, transit-oriented development, or higher-density development patterns	Would not provide new opportunities for land use connections, transit-oriented development, or higher-density development patterns	The opportunities for economic revitalization and growth are consistent with (not in addition to) the applicable land use plans, policies, and regulations of agencies with jurisdiction over the project area, including the Whittier Narrows Dam Basin Master Plan with the implementation of the mitigation plan	The opportunities for economic revitalization and growth are consistent with (not in addition to) the applicable land use plans, policies, and regulations of agencies with jurisdiction over the project area
Growth-Inducing	Not a significant generator of new jobs or development opportunities; therefore, not adverse (NEPA)/less than significant (CEQA)	Offers limited mobility improvements, but is not a significant generator of new jobs or development opportunities; therefore, not adverse (NEPA)/less than significant (CEQA)	Offers mobility improvements, but is not a significant generator of new jobs or development (beyond that planned for the project area); therefore, not adverse (NEPA)/less than significant (CEQA)	Offers mobility improvements, but is not a significant generator of new jobs or development (beyond that planned for the project area); therefore, not adverse (NEPA)/less than significant (CEQA)

Notes:

[1] Results are for both the SR 60 LRT Alternative as well as the SR 60 LRT North Side Design Variation.

As a result, the TSM Alternative would not result in an adverse effect under NEPA or a significant impact under CEQA with regard to growth inducement.

The TSM Alternative does not have the potential to substantially support jobs and income in the region, either directly or indirectly, through capital and O&M expenditures. The TSM Alternative is not designed to induce growth; rather, the intent is for the TSM Alternative to improve service levels to help accommodate the forecasted growth in the region's population and workforce. Therefore, the TSM Alternative improvements would not be enough to induce development in the project area.

4.17.3.2.2 Mitigation Measures

The TSM Alternative would not directly or indirectly induce growth. Therefore, no mitigation measures are required for the TSM Alternative.

4.17.3.2.3 Impacts Remaining After Mitigation

NEPA Finding

The TSM Alternative offers modest mobility improvements relative to the No Build Alternative but less than the build alternatives, as it does not have a dedicated ROW. The TSM Alternative would not result in any direct or indirect adverse growth-inducing effects.

CEQA Determination

The TSM Alternative would implement modest mobility improvements relative to the No Build Alternative but less than the build alternatives, as it would not have a dedicated ROW. The TSM Alternative would not result in any significant direct or indirect growth-inducing impacts.

4.17.3.3 SR 60 LRT Alternative

4.17.3.3.1 Impact Analysis

The SR 60 LRT Alternative, with or without the North Side Design Variation, would not involve infrastructure (e.g., housing, roads, and utilities) that would directly or indirectly induce growth in the area.

The intent of the SR 60 LRT Alternative is to accommodate forecasted growth in the region's population and workforce and meet future demand for transit. It would not remove a barrier to growth or induce growth beyond that already planned for the project area. The development opportunities would be separate from this proposed transit project.

While development would not be induced, there are opportunities where the SR 60 LRT Alternative could serve as a catalyst for economic revitalization and growth in areas where growth has already occurred. The Land Use and Development Opportunities Technical Memorandum, Appendix N, of this Draft EIS/EIR identifies many opportunities within the project area for joint development at station locations, as well as other public/private transit-oriented development opportunities along the proposed alignment. These are summarized below.

- **Garfield Avenue Station**: Potential development would be limited to the redevelopment of existing land uses. Land use controls associated with land use and zoning designations imposed by the city of Montebello would limit the intensity of redevelopment.
- **Shops at Montebello Station**: There is potential for additional net new development. Land use controls associated with land use and zoning designations imposed by the city of Montebello would limit the intensity of net new development.
- **Santa Anita Avenue Station**: The U.S. Army Corps of Engineers (USACE) manages the property where this proposed station and associated facilities could be built. The property's use as a flood control basin and the USACE's development policies for this type of use are likely to limit the potential for development at this site.

- **Peck Road Station**: Potential development would be limited to the redevelopment of existing land uses. Land use controls associated with land use and zoning designations imposed by the city of South El Monte would limit the intensity of redevelopment.

Regarding the development opportunities discussed above, it is important to note that this growth is consistent with current development and land use plans and is not in addition to these plans. While this alternative would not create any new land uses, some land uses would be converted or cities may create transit-oriented development districts, but not in ways that are inconsistent with current land use plans or incompatible with the surrounding areas. The proximity of light rail stations would encourage land uses that are not auto dependent and not as likely to induce auto trips, which is also consistent with regional and local environmental goals. The Land Use and Development Opportunities Technical Memorandum, Appendix N, of this Draft EIS/EIR states that the opportunity for future development along the SR 60 LRT Alternative alignment is less than that associated with the Washington Boulevard LRT Alternative alignment. This is due to the fewer number of stations proposed under the SR 60 LRT Alternative, with or without the North Side Design Variation, compared with the Washington Boulevard LRT Alternative, and also because of the USACE's development restrictions at the Santa Anita Avenue station site.

Overall, the SR 60 LRT Alternative would have long-term benefits for the communities it traverses and would further goals and policies for revitalization and investment within the project area. The project's operation would have long-term mobility benefits for the communities in terms of travel time cost savings; however, these benefits would not be great enough to induce development beyond the development opportunities associated with the land use plans, policies, and regulations of agencies with jurisdiction over the project area. As a result, the SR 60 LRT Alternative, with or without the North Side Design Variation, would not result in an adverse effect under NEPA or a significant impact under CEQA with regard to growth inducement.

4.17.3.3.2 Mitigation Measures

While the SR 60 LRT Alternative, with or without the North Side Design Variation, would not create any new land uses, some land uses would be converted, but not in ways that are inconsistent with current land use plans or incompatible with the surrounding areas. The beneficial impacts associated with the alternative would not induce direct or indirect growth in excess of that already anticipated for the project area and region. Therefore, no mitigation measures are required for the SR 60 LRT Alternative, with or without the North Side Design Variation.

4.17.3.3.3 Impacts Remaining After Mitigation

NEPA Finding

The potential for transit-oriented development at the proposed stations along the SR 60 LRT Alternative alignment would be less than that associated with the Washington Boulevard LRT Alternative alignment because fewer stations are proposed under this alternative. The SR 60 LRT Alternative, with or without the North Side Design Variation, would not result in any direct or indirect adverse growth-inducing effects and would improve mobility through travel time and cost savings.

CEQA Determination

The potential for transit-oriented development at the proposed stations along the SR 60 LRT Alternative alignment would be less than that associated with the Washington Boulevard LRT Alternative alignment because fewer stations are proposed under this alternative. The SR 60 LRT Alternative, with or without the North Side Design Variation, would not result in any significant direct or indirect growth-inducing impacts and would improve mobility through travel time and cost savings.

4.17.3.4 Washington Boulevard LRT Alternative

4.17.3.4.1 Impact Analysis

The Washington Boulevard LRT Alternative would not involve infrastructure (e.g., housing, roads, utilities, schools) that would directly or indirectly induce growth in the area.

The intent of the Washington Boulevard LRT Alternative is to accommodate forecasted growth in the region's population and workforce and meet future demand for transit. It would not remove a barrier to growth or induce growth beyond that already planned in the project area. The development opportunities would be separate from this proposed project.

While development would not be induced, there are opportunities where the Washington Boulevard LRT Alternative could serve as a catalyst for economic revitalization and growth in areas where development has already occurred. The Land Use and Development Opportunities Technical Memorandum, Appendix N, of this Draft EIS/EIR identified many opportunities within the project area for joint development at station locations and other public/private transit-oriented development opportunities along the proposed alignments. These are summarized below.

- **Garfield Avenue Station**: Potential development would be limited to the redevelopment of existing land uses. Land use controls associated with land use and zoning designations imposed by the city of Montebello would limit the intensity of redevelopment.
- **Whittier Boulevard Station**: The opportunity exists to redevelop lower-density commercial uses to higher-density commercial and transit-oriented uses. Land use controls associated with land use and zoning designations imposed by the city of Montebello would limit the intensity of redevelopment.
- **Greenwood Avenue Station**: The opportunity exists to redevelop lower-density commercial uses to higher-density commercial and transit oriented uses. Land use controls associated with land use and zoning designations imposed by the city of Montebello would limit the intensity of redevelopment.
- **Rosemead Boulevard Station**: Much redevelopment has already occurred; as a result, limited opportunities remain. Land use controls associated with land use and zoning designations imposed by the city of Pico Rivera would limit the intensity of redevelopment.
- **Norwalk Boulevard Station**: Potential development would be limited to the redevelopment of existing land uses and a few vacant sites. Los Angeles County's existing land use controls associated with land use and zoning designations would limit the intensity of redevelopment.
- **Lambert Road Station:** Potential development would be limited to redevelopment of existing land uses and a few vacant sites. The city of Whittier's land use controls associated with land use and zoning designations would limit the intensity of redevelopment.

Regarding these development opportunities, it is important to note that this growth is consistent with current development and land use plans and is not in addition to these plans. While this alternative would not create any new land uses, some land uses would be converted or cities may create transit-oriented development districts, but not in ways that are inconsistent with current land use plans or incompatible with the surrounding areas. The proximity of rail stations would encourage land uses that are not auto dependent and not as likely to induce auto trips, which is also consistent with regional and local environmental goals. Greater opportunity exists for future development along the Washington Boulevard LRT Alternative alignment than along the SR 60 LRT Alternative alignment, given the higher number of stations proposed under the Washington Boulevard LRT Alternative and the

development restriction at the Santa Anita Avenue station site for the SR 60 LRT Alternative.

Overall, the Washington Boulevard LRT Alternative would have long-term benefits for the communities it traverses and would further goals and policies for revitalization and investment within the project area. The project's operation would have long-term mobility benefits for the communities in terms of travel time cost savings; however, these benefits would not be great enough to induce development beyond the development opportunities associated with the land use plans, policies, and regulations of agencies with jurisdiction over the project area. As a result, the Washington Boulevard LRT Alternative would not result in an adverse effect under NEPA or a significant impact under CEQA with regard to growth inducement.

4.17.3.4.2 Mitigation Measures

While the Washington Boulevard LRT Alternative would not create any new land uses, some land uses would be converted, but not in ways that are inconsistent with current land use plans or incompatible with the surrounding areas. These beneficial impacts associated with the alternative would not induce direct or indirect growth in excess of that already anticipated for the project area and region. Therefore, no mitigation measures are required for the Washington Boulevard LRT Alternative.

4.17.3.4.3 Impacts Remaining After Mitigation

NEPA Finding

The potential for transit-oriented development at the proposed stations along the Washington Boulevard LRT Alternative alignment would be greater than that associated with the SR 60 LRT Alternative alignment because more stations are proposed under this alternative. The Washington Boulevard LRT Alternative would not result in any direct or indirect adverse growth-inducing effects and would improve mobility through travel time and cost savings.

CEQA Determination

The potential for transit-oriented development at the proposed stations along the Washington Boulevard LRT Alternative alignment would be greater than that associated with the SR 60 LRT Alternative alignment because more stations are proposed under this alternative. The Washington Boulevard LRT Alternative would not result in any significant direct or indirect growth-inducing impacts and would improve mobility through travel time and cost savings.

Section 4.18

Environmental Justice

This section summarizes, and updates where appropriate, the potential impacts described in Chapter 3, Transportation Impacts and Mitigation, and other sections of Chapter 4, Environmental Analysis, Consequences, and Mitigation, and identifies potentially disproportionate environmental justice impacts (i.e., impacts that could affect low-income and minority populations more than other population groups). Additional detail is provided in the Environmental Justice Technical Memorandum, which is incorporated into this Draft EIS/EIR as Appendix DD.

4.18.1 Regulatory Framework/Methodology

This section presents the federal, state, and local regulations that govern environmental justice issues.

4.18.1.1 Federal

4.18.1.1.1 Federal Definition of Environmental Justice Populations

The United States Department of Transportation (USDOT) Order (5610.2(a)) on environmental justice provides clear definitions of the minority groups addressed by the Executive Order. Minority groups are defined as Black, Hispanic, Asian American, American Indian and Alaskan Native, and Native Hawaiian or Other Pacific Islander. Low-income populations are defined as individuals or households with incomes at or below the U.S. Census poverty thresholds.

The following Executive Orders and regulations apply to environmental justice:

- Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations
- Executive Order 13166, Improving Access to Services for Persons with Limited English Proficiency: The public outreach efforts for the environmental process will be conducted with provisions to reach LEP communities during the scoping and screening process, and in other such public outreach meetings
- FTA Circular 4703.1 Environmental Justice Policy Guidance for Federal Transit Administration Recipients
- USDOT Order 5610.2(a) on Environmental Justice to Address Environmental Justice in Minority Populations and Low-Income Populations

4.18.1.2 State

State law defines environmental justice in California Government Code §65040.12 as "the fair treatment of people of all races, cultures, and incomes with respect to the development, adoption, implementation, and enforcement of environmental laws, regulations and policies." While there is no requirement under the California Environmental Quality Act (CEQA) to address environmental justice, California law requires the Office of Planning and Research to coordinate with federal agencies regarding environmental justice based on Executive Order 12898.

4.18.1.3 Local

Metro includes guidelines and planning policies regarding environmental justice issues in its current *Long Range Transportation Plan* (LRTP). Metro's LRTP evaluates how much additional transit service would be provided in areas with high concentrations of low-income and minority populations. The LRTP includes extensive transit investments and policies for placement of these investments in proximity to areas with minority and

lower-income populations as well as near job opportunities that support those areas. The Eastside Transit Corridor Phase 2 Project is included in the LRTP.

4.18.1.4 Methodology

To complete the analysis in Appendix DD, Environmental Justice Technical Memorandum, as summarized herein, the following steps were taken:

Concentrations of minority and low-income populations (i.e., environmental justice areas) within the area of potential impact (API) were identified through analysis of U.S. Census data (and SCAG data, if available) at both the county and Census tract and block level. The API includes those Census tracts and blocks within one-half mile of the proposed alignment and associated facilities, such as those used for proposed park and ride lots and maintenance yards. Note that the Census tract is the lowest geographic level for which income data is available.

Using the U.S. Census Bureau 2010 Census, the API's population was evaluated for poverty status. Poverty status computations were derived by the U.S. Census using the Health and Human Services poverty thresholds. The annual income thresholds for poverty status are as follows:

- One-person household is $11,139
- Two-person household is $14,218
- Three-person household is $17,374
- Four-person household is $22,314
- Five-person household is $26,439
- Six-person household is $29,897
- Seven-person household is $34,009
- Eight-person household is $37,934

The individual block data were compared with the countywide data to determine if any of the blocks would qualify as having large concentrations of one or more special populations. Definitions of minority and low-income areas were established based on guidance provided by the Council on Environmental Quality (CEQ) and FTA Circular 4703.1.

A U.S. Census block in this study was categorized as having a large concentration of a special population if either:

- At least 50 percent of the population in the Census block was minority and at least 50 percent of the Census tract was low-income; or
- The proportion of minority residents in the block was greater than the average of the minority populations in the County, or the proportion of low-income residents in the tract was greater than the average of the County low-income population.

Environmental topics where disproportionate impacts to environmental justice communities occur were then identified. The following factors were evaluated to determine if a disproportionate share of the proposed project effects would be placed on or in environmental justice communities:

- Beneficial effects of the project
- Adverse effects to human health
- Other effects

Potentially adverse effects were examined in these critical areas: 1) property acquisition and displacements; 2) transportation access, parking, and traffic congestion; 3) air quality; 4) climate change; 5) water resources and water quality; 6)noise and vibration; 7) community facilities and parklands; 8) hazardous materials; 9) safety and security; 10) visual and aesthetics; and 11) construction effects. Where disproportionately high and adverse effects are anticipated, the analysis took into account mitigation and enhancement measures and potential offsetting benefits to the affected environmental justice populations. A disproportionately high and adverse effect on minority and low income population is an adverse effect that is predominantly borne by a minority population and/or a low-income population, or one that will be suffered by the minority population and/or low-income population and is appreciably more severe or greater in magnitude than the

adverse effect that will be suffered by the non-minority population and/or non-low-income population.

4.18.1.5 Public Participation

Full and fair access to meaningful involvement by low-income and minority populations in project planning and development is an important aspect of environmental justice. Ensuring full and fair access means actively seeking the input and participation from those typically under-represented groups throughout all project stages. Residents can provide important information on community concerns, special sites, and unusual traffic, pedestrian, or employment patterns in the corridor. This information can be used in the design and evaluation of alternatives, to avoid negative impacts to valued sites, and to support the development of safe, practical, and attractive transportation options that are responsive to the concerns of Environmental Justice communities.

Metro has implemented a robust outreach program with an emphasis on meaningful exchange with minority and low-income populations, which is described in detail in the Eastside Transit Corridor Phase 2 Scoping Outreach Report and Section 4.18.1.5, Public Participation. The engagement of local residents, business owners, and other stakeholders began with scoping in 2010 and continues to this day. Participation of low-income and minority populations in the Eastside Transit Corridor Phase 2 decision-making process has been advanced through:

- Expanded outreach to environmental justice communities to encourage attendance at and participation in project meetings and open houses.
- Translation of outreach materials into Spanish, Traditional Chinese, Simplified Chinese, Vietnamese, and/or Armenian.
- Availability of interpreters at scoping meetings to provide Spanish and Chinese translation. Participants wishing to listen to the proceedings in Spanish or Chinese were provided audio headsets.
- Meetings with city and county agency staff, local elected officials, and community leaders to identify leaders of local communities, particularly those traditionally under-represented in the civic process.
- Advertisements and press releases in a variety of minority-focused community publications and local and regional daily and weekly newspapers, including:
  - Eastern Group Publications (English/Spanish bilingual)
  - La Opinion (Spanish)
  - Whittier Daily News
  - Chinese LA Daily (Chinese)
  - South El Monte News
  - Pico Rivera Community Newspaper
  - East Los Angeles College Campus News
  - El Paisano at Rio Hondo College (Spanish)
  - Quaker at Whittier College
  - Spotlight on Montebello Newsletter
  - Industry Chamber Newsletter
  - Facebook online
- Direct mailings about the project to elected officials, government and city agencies, resource agencies, chambers of commerce, residents, businesses, churches, and community based organizations.
- Briefings for property owners and tenants located within the project area to educate businesses and property owners on the proposed alignments, study process, and right-of-way issues.
- Extended outreach to chambers of commerce, colleges, schools, churches, and community groups in the project area to promote project awareness and provide the opportunity for project involvement.

- Project tours to help project stakeholders and city representatives experience light rail transit first hand; Metro hosted several bilingual resident and city offical tours of the Eastside Gold Line Extension and the Pasadena Gold Line.

4.18.2 Affected Environment/Existing Conditions

4.18.2.1 Los Angeles County

According to the 2010 U.S. Census and 2011 American Community Survey, approximately 9.8 million persons resided in Los Angeles County. Roughly 72 percent of the Los Angeles County population is characterized as minority and 16 percent is characterized as low-income. The largest minority population is Hispanic, making up approximately 48 percent of the total population. Demographic data for the County and the project area are summarized in **Table 4.18-1**.

4.18.2.2 SR 60 LRT Alternative

According to the 2010 U.S. Census, there were 79,221 persons and 23,659 households residing in the SR 60 LRT Alternative API in 2010.

4.18.2.2.1 Minority

Approximately 94 percent of the population in the SR 60 LRT Alternative API belonged to a defined minority group in 2010 (US Census, 2010). As shown in **Figure 4.18-1,** all Census blocks in the API have high concentrations of minority populations. The minority group with the largest representation in the SR 60 LRT Alternative API in 2010 was Hispanic or Latino (approximately 69 percent). The second largest minority group in the SR 60 LRT Alternative API in 2010 was Some Other Race at 26 percent followed by Asian (approximately 24 percent), and the fourth largest minority group was made up of those categorized as Two or More Races (approximately four percent). All Census blocks in the SR 60 LRT Alternative API had minority population concentrations of 50 percent or greater, meaning that all Census blocks in the API are characterized as environmental justice areas for high minority concentrations.

For each of the station areas associated with the SR 60 LRT Alternative, the largest minority group in 2010 was Hispanic or Latino. For the one-half mile radius surrounding each station, 94 percent of the population near the Garfield Avenue station is minority, 89 percent of the population near the Shops at Montebello station is minority, 96 percent of the population near the Santa Anita Avenue station is minority, and 94 percent of the population near the Peck Road station is minority.

4.18.2.2.2 Low-Income

Approximately 16 percent of the population in the SR 60 LRT Alternative API in 2010 was considered low-income, i.e. living below the poverty threshold. Of the 25 Census tracts in the SR 60 LRT Alternative API, six had a low-income population concentration greater than the Los Angeles County average.

Of the proposed station locations, the Santa Anita Avenue station area had the largest percentage of population living below the poverty level at 10.2 percent. The Garfield Avenue and Peck Road stations followed close behind, with 10.1 percent of the population living below the poverty level.

4.18.2.3 Washington Boulevard LRT Alternative

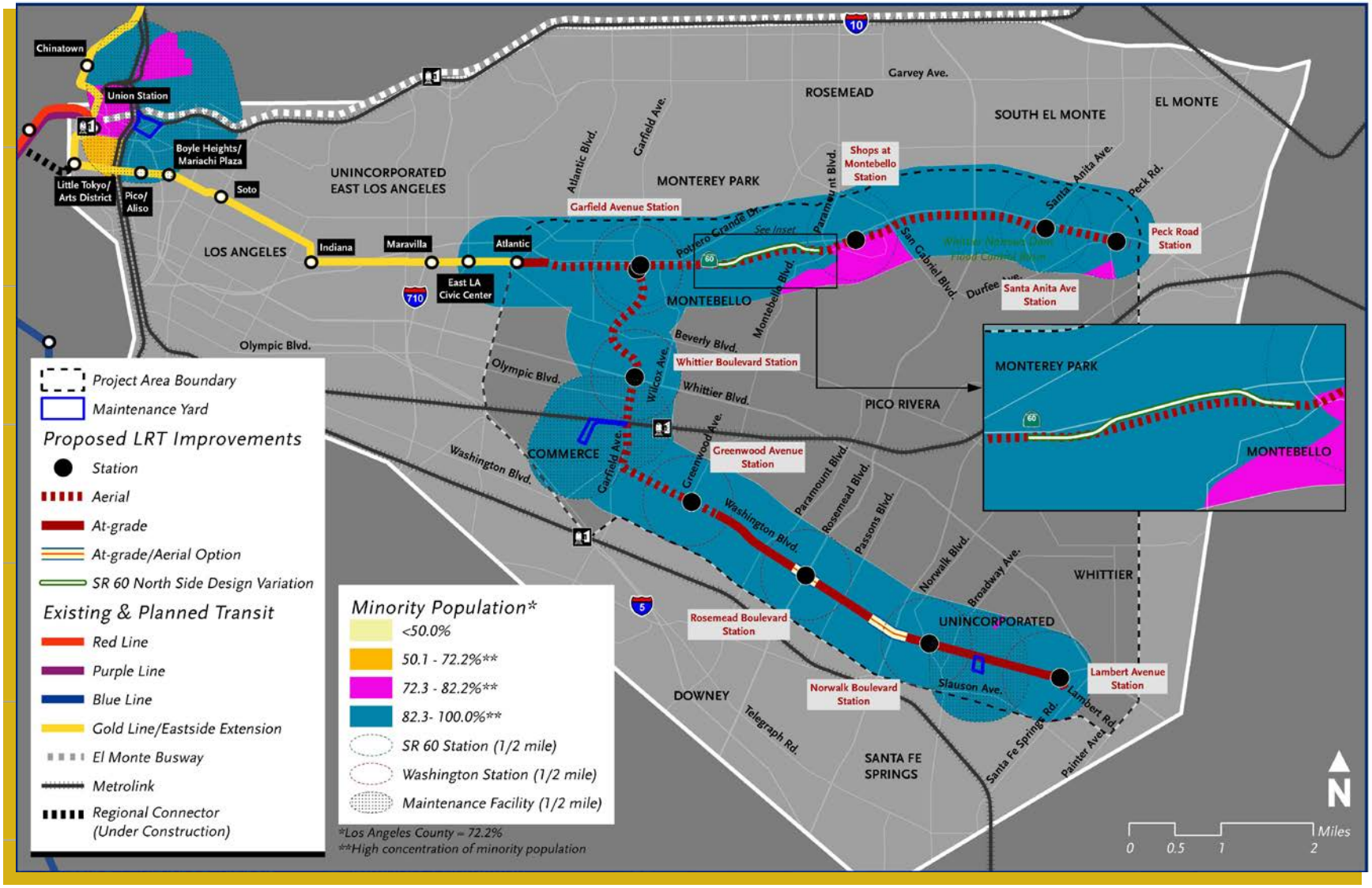
According to the 2010 U.S. Census, there were 136,234 persons and 37,993 households residing in the API of the Washington Boulevard LRT Alternative. The API for the environmental justice analysis includes those Census blocks within one-half mile of the Washington Boulevard LRT Alternative alignment and associated facilities such as those used for proposed park and ride lots and maintenance yards.

Table 4.18-1. Summary of Demographic Data

Demographic Area	Population	Percentage Minority	Percentage Black or African American	Percentage American Indian and Alaska Native	Percentage Asian	Percentage Native Hawaiian and Other Pacific Islander	Percentage Some Other Race	Percentage Two or More Races	Largest Minority Population (Hispanic or Latino)	Percentage Living Below Poverty Level
Los Angeles County	9,818,605	72.2%	8.7%	0.7%	13.7%	0.3%	21.8%	4.5%	47.7%	16.3%
SR 60 LRT	**79,221**	**94.0%**	**0.8%**	**0.9%**	**23.6%**	**0.1%**	**26.0%**	**3.7%**	**68.5%**	**13.3%**
Garfield Avenue Station	14, 991	94.2%	0.6%	0.8%	33.3%	0.0%	21.5%	3.9%	58.7%	10.1%
Shops at Montebello Station	14, 063	89.3%	1.2%	0.5%	46.1%	0.0%	14.7%	3.5%	41.0%	4.8%
Santa Anita Avenue Station	6,074	96.1%	0.5%	1.2%	10.4%	0.1%	28.3%	4.5%	84.6%	10.2%
Peck Road Station	15,116	94.4%	0.9%	1.0%	10.8%	0.0%	29.3%	4.5%	78.8%	10.1%
Washington Boulevard LRT	**136,234**	**94.4%**	**0.9%**	**1.2%**	**7.1%**	**0.1%**	**32.6%**	**3.7%**	**86.2%**	**16.2%**
Garfield Avenue Station	17,152	94.3%	0.6%	0.9%	30.1%	0.0%	21.8%	3.8%	61.5%	12.2%
Whittier Blvd. Station	25,100	95.4%	0.6%	1.3%	2.6%	0.1%	34.8%	3.9%	91.5%	19.2%
Greenwood Avenue Station	15,267	95.8%	1.4%	1.0%	2.6%	0.1%	31.2%	3.3%	91.8%	18.1%
Rosemead Blvd. Station	15,102	93.8%	1.0%	1.5%	2.0%	0.1%	30.8%	3.2%	90.9%	9.1%
Norwalk Blvd. Station	14,183	92.4%	1.1%	1.6%	1.6%	0.2%	34.4%	4.0%	89.2%	11.5%
Lambert Avenue Station	12,722	90.1%	1.2%	1.5%	1.8%	0.2%	36.2%	3.8%	85.8%	11.8%

Source: U.S. Census Bureau, Census 2010

Note: Refer to Figure 4.18-1. Minority Populations within One-Half Mile of Build Alternatives and Figure 4.18-2. Population below Poverty Level within One-Half Mile of Build Alternatives, which depict the areas considered environmental justice communities.



Source: AECOM, CDM 2011.

Figure 4.18-1. Minority Populations within One-Half Mile of Build Alternatives

The average unemployment rate for persons living within the Washington Boulevard API in 2010 was nine percent, compared with the overall Los Angeles County unemployment rate of eight percent.

4.18.2.3.1 Minorities

In 2010, approximately 94 percent of the population in the Washington Boulevard LRT Alternative API belonged to a minority group. As shown in Figure 4.18-1, all Census blocks in the API have high concentrations of minority populations. The minority group with the largest representation in the Washington Boulevard LRT Alternative API in 2010 was Hispanic or Latino (86 percent). The second largest minority group in 2010 was Some Other Race with 33 percent, followed by Asian (seven percent). All 89 Census blocks in the Washington Boulevard LRT Alternative API had minority population concentrations greater than 50 percent.

All proposed station areas had a minority population of over 50 percent in 2010 (Garfield Avenue at 94 percent, Whittier Boulevard at 95 percent, Greenwood Avenue at 96 percent, Rosemead Boulevard at 94 percent, Norwalk Boulevard at 92 percent, and Lambert Avenue at 90 percent), indicating that all station areas have high concentrations of minority populations. Each station also has a majority of Latino or Hispanic residents.

4.18.2.3.2 Low-Income

The population distribution of persons below the poverty level, or low-income, within the API is depicted in **Figure 4.18-2**. Approximately 16 percent of the population was considered low-income, or living below the poverty threshold, in 2010. Of the 39 Census tracts in the Washington Boulevard LRT Alternative API, 16 had a low-income population concentration greater than that of Los Angeles County.

Of the Census tracts surrounding the proposed station areas for the Washington Boulevard LRT Alternative API, two (Whittier Boulevard and Greenwood Avenue) had low-income population concentrations greater than that of Los Angeles County.

4.18.3 Environmental Impacts/Environmental Consequences

1) ***Beneficial Effects of the Project.*** To estimate the extent of the benefits derived from the project alternatives, the following analysis provides a comparison of the alternatives with regard to the following criteria:

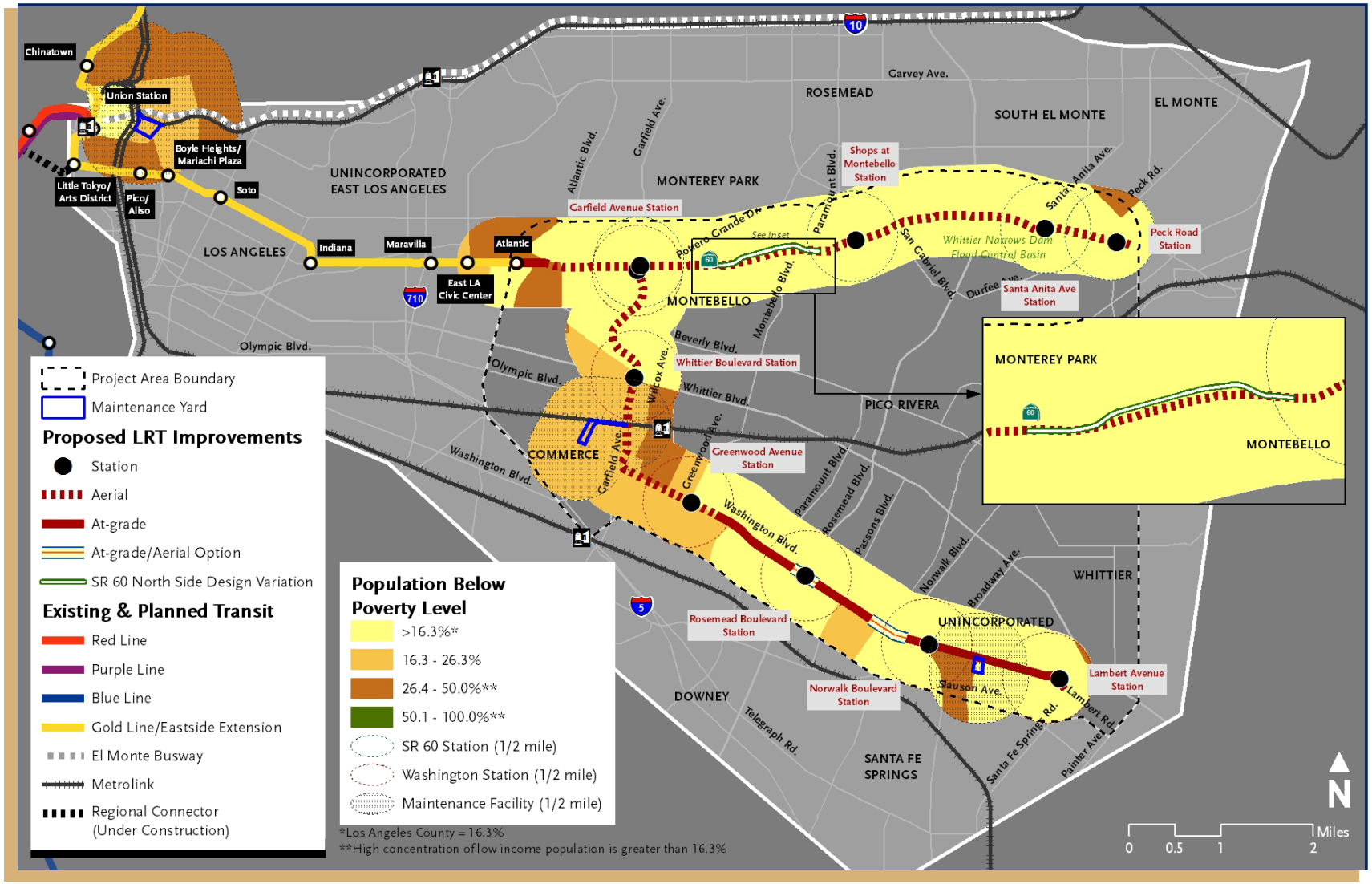
- Daily transit trips and mobility
- Travel time savings
- Regional mobility
- Economic vitality and employment opportunities

2) ***Adverse Effects to Human Health***. The discussion of health issues includes the environmental issues of air quality, climate change, noise and vibration, water quality, and exposure to contaminated soils.

3) ***Other Effects.*** This analysis focuses on potential adverse environmental effects of the project to natural and scenic resources, as well as the effects on the community and neighborhoods.

As previously stated, 94 percent of the project area is an Environmental Justice area. While all impacts from the project would affect Environmental Justice populations, they would not be disproportionate adverse impacts given the offsetting benefits and available mitigation measures.

Adverse effects would occur after mitigation for the Washington LRT Alternative related to traffic congestion, community and neighborhoods, and visual and aesthetics. These adverse effects would not be fully addressed through mitigation measures, resulting in unavoidable adverse effects. However, the effects would be distributed proportionally throughout the corridor.



Source: AECOM, CDM Smith 2011.

Figure 4.18-2. Population below Poverty Level within One-Half Mile of Build Alternatives

In view of the considerable project benefits and local support for implementing the Washington Boulevard LRT Alternative, the potential adverse effects would be outweighed by the increased mobility, regional connectivity, equity, and economic gains that this alternative could offer. As such, there would be no disproportionate adverse effects for all alternatives.

Beneficial effects of the project are summarized in **Table 4-18-2**. Potential effects after mitigation are summarized in **Table 4.18-3.**The analysis and conclusions for each project alternative are discussed in detail in Appendix DD, Environmental Justice Technical Memorandum, of this Draft EIS/EIR.

It should be noted that no CEQA guidance is given for the assessment of impacts on environmental justice populations. As such, the potential impacts described here relate only to NEPA.

4.18.3.1 No Build Alternative

4.18.3.1.1 Impact Analysis

Operational Impacts

Beneficial Effects

The No Build Alternative would not increase travel-time savings, enhance regional mobility, or boost economic vitality and employment opportunities. No positive benefits are associated with the No Build Alternative in regards to low-income and minority communities.

Human Health Effects

The No Build Alternative would not cause disproportionate adverse effects to low-income and minority populations related to human health issues, including air quality, climate change, noise and vibration, water quality, and exposure to soils contamination.

Other Effects

The No Build Alternative would not cause disproportionate adverse effects to low-income and minority populations related to parking, displacements, community cohesion, visual and aesthetics, historical, archaeological and paleontological resources, parklands, or safety and security.

4.18.3.1.2 Mitigation Measures

No mitigation measures are required.

4.18.3.1.3 Impacts Remaining After Mitigation

No major capital investment in mass transit in the project area would occur under the No Build Alternative. Therefore, no disproportionate adverse effects to environmental justice populations associated with construction are anticipated because of the No Build Alternative.

While the No Build Alternative would not result in disproportionate adverse effects to low-income and minority populations, the benefits that would be provided by the build alternatives would not be realized for those populations that rely on transit. The No Build Alternative would not provide the positive benefits of improved mobility and travel time and cost savings as would the other alternatives.

4.18.3.2 TSM Alternative

4.18.3.2.1 Impact Analysis

Construction Impacts

The minimal construction that would occur under the TSM Alternative for enhancements to bus services would take place within existing street and sidewalk networks. Any construction equipment and materials used would be typical of existing construction throughout the region. As the TSM Alternative would only involve the addition of new bus service in the project area, it would not negatively affect traffic flows or parking. The TSM Alternative would have temporary adverse effects during construction to local transit, pedestrian, and bicycle conditions through the duration of construction; however these effects would be mitigated through Traffic Management Plans and the use of alternative routes (see Chapter 3, Mitigation Measure 3.0-i).

Table 4.18-2. Summary of Beneficial Effects

Effects	No Build Alternative	TSM Alternative	SR 60 LRT Alternative[1]	Washington Boulevard LRT Alternative
Daily transit trips/ mobility	--	Increase in daily trips and increased mobility	Increase in daily trips and improved mobility with more transportation options	Increase in daily trips and increased mobility with more transportation options
Travel time savings	No improvement to travel times; will affect all populations; no disproportionate adverse effect	Improved travel time savings; no disproportionate adverse effect	Improved travel time savings	Improved travel time savings
Regional mobility	No new transit service or improvements to existing service; no disproportionate adverse effect	Improved regional mobility; no disproportionate adverse effect	Enhanced regional connectivity with more transportation choices, improved mobility, and greater access to regional employment, services, and recreational centers	Enhanced regional connectivity with more transportation choices, improved mobility, and greater access to regional employment, services, and recreational centers
Economic vitality and employment opportunities	--	--	Potential economic opportunity for communities with the development of stations	Potential economic opportunity for communities with the development of stations
Community and neighborhoods	--	--	Proposed new service would provide quality of life benefits through improved mobility, travel time savings, and access to various businesses, employment, and community services; would reduce the dividing effects of the SR 60 Freeway, Rio Hondo, and Whittier Narrows Recreation Area, which would be a beneficial effect	Proposed new service would provide quality of life benefits through improved mobility, travel time savings, and access to various businesses, employment, and community services.

[1] *Results are for both the SR 60 LRT Alternative and the SR 60 LRT North Side Design Variation.*

Table 4.18-3. Summary of Potential Effects After Mitigation

Effects	No Build Alternative	TSM Alternative	SR 60 LRT Alternative[1]	Washington Boulevard LRT Alternative
Noise and Vibration	--	--	**Construction** and **Operation**: No disproportionate adverse effect after mitigation	**Construction** and **Operation**: No disproportionate adverse effect after mitigation
Traffic Congestion	--	--	**Construction** and **Operation**: No disproportionate adverse effect after mitigation	**Construction**: No disproportionate adverse effect after mitigation **Operation**: Adverse effect after mitigation, but no disproportionally adverse effect since the effect would be distributed proportionally throughout the corridor.
Parking	--	--	**Construction** and **Operation**: No disproportionate adverse effect after mitigation	**Construction** and **Operation**: No disproportionate adverse effect after mitigation
Transit	--	**Construction**: No disproportionate adverse effect after mitigation	**Construction**: No disproportionate adverse effect after mitigation **Operation**: --	**Construction**: No disproportionate adverse effect after mitigation **Operation**: --
Pedestrian and Bicycle Circulation	--	**Construction**: No disproportionate adverse effect after mitigation **Operation**: --	**Construction**: No disproportionate adverse effect after mitigation **Operation**: --	**Construction**: No disproportionate adverse effect after mitigation **Operation**: No disproportionate adverse effect after mitigation
Displacements	--	--	--	**Construction**: No disproportionate adverse effect after mitigation **Operation**: No disproportionate adverse effect after mitigation

Table 4.18-3. Summary of Potential Effects After Mitigation (continued)

Effects	No Build Alternative	TSM Alternative	SR 60 LRT Alternative[1]	Washington Boulevard LRT Alternative
Community and Neighborhoods	--	--	**Construction and Operation:** No disproportionate adverse effect after mitigation.	**Construction:** No disproportionate adverse effect after mitigation **Operation:** Adverse effect after mitigation, but no disproportionally adverse effect since the effect would be distributed proportionally throughout the corridor.
Visual and Aesthetics	--	--	**Construction**: No disproportionate adverse effect after mitigation **Operation**: No disproportionate adverse effect after mitigation	**Construction**: No disproportionate adverse effect after mitigation **Operation**: Adverse effect after mitigation, but no disproportionally adverse effect since the effect would be distributed proportionally throughout the corridor.
Parklands and Other Community Resources	--	--	**Construction**: No disproportionate adverse effect after mitigation **Operation**: --	--
Safety and Security	--	--	**Construction:** No disproportionate adverse effect after mitigation **Operation**: --	**Construction:** No disproportionate adverse effect after mitigation **Operation**: --

Notes
-- = No disproportionate adverse effect before mitigation (no mitigation required).
[1] *Results are for both the SR 60 LRT Alternative and the SR 60 LRT North Side Design Variation.*

Operational Impacts

Beneficial Effects

The TSM Alternative would expand Rapid Bus transit and add express and local bus service. As a result, the TSM Alternative would serve to invest in and enhance transit resources in communities with high concentrations of low-income and minority populations.

Region-wide, slight reductions in overall vehicle miles traveled (VMT), vehicle hours traveled (VHT), and peak hour trips would occur when compared with the No Build Alternative. This indicates that the TSM Alternative would offer increased mobility and travel time savings for the low-income and minority populations in the project area. Since the TSM Alternative would invest transit resources in a minority and low-income community, no disproportionate adverse effects are anticipated. However, the travel time savings and mobility benefits that would be provided under the TSM Alternative would not be as great as those that would be provided under the LRT build alternatives.

The TSM Alternative would not result in disproportionate adverse effects to low-income and minority populations associated with diminished economic vitality and employment opportunities.

Human Health Effects

The TSM Alternative would also not cause disproportionate adverse effects to low-income and minority populations related to human health issues, including air quality, climate change, noise and vibration, water quality, and exposure to soils contamination.

Other Effects

Although minimal, the TSM Alternative would reduce traffic congestion since slight reductions in overall VMT, VHT, and peak auto trips would occur.

The TSM Alternative would not cause disproportionate adverse effects to low-income and minority populations related to parking, displacements, community and neighborhoods, visual and aesthetics, historic, archaeological and paleontological resources, parklands, or safety and security.

The TSM Alternative would not result in an adverse effect under NEPA with regard to low-income and minority populations.

4.18.3.2.2 Mitigation Measures

Construction Mitigation Measures

A Traffic Management Plan would be developed and implemented by Metro to address the temporary disruptions to local transit, pedestrian, and bicycle conditions during construction as discussed above. (See Chapter 3, Mitigation Measure 3.0-i.)

Operational Mitigation Measures

No mitigation measures would be required.

4.18.3.2.3 Impacts Remaining After Mitigation

Under the TSM Alternative, proposed enhancements to bus services would utilize the existing street and sidewalk networks and would require minimal construction. Any construction equipment and materials used would be typical of existing construction throughout the region. In addition, the Traffic Management Plan (Mitigation Measure 3.0-i) would mitigate temporary disruptions to transit service as well as bicycle and pedestrian conditions. Therefore, no disproportionate adverse effects related to construction would occur.

No disproportionate adverse effects to low-income and minority populations associated with construction or operation of the TSM Alternative would occur under NEPA.

As indicated above, the beneficial effects that would be provided under the TSM Alternative, travel time savings and mobility benefits, would not be as great as those that would be provided under the LRT build alternatives.

4.18.3.3 SR 60 LRT Alternative

4.18.3.3.1 Impact Analysis

Construction Impacts

Since 94 percent of the block groups in the SR 60 LRT Alternative project area are environmental justice areas, it is to be expected that adverse effects would be experienced by environmental justice populations and non-environmental justice areas. Prior to the incorporation of mitigation measures, temporary construction activity associated with the SR 60 LRT Alternative (with or without the North Side Design Variation) would have adverse effects associated with noise and vibration; traffic congestion; parking; transit, pedestrian and bicycle circulation; community and neighborhoods; visual and aesthetics; parklands and other community resources; and safety and security as described in detail in Appendix DD, Environmental Justice Technical Memorandum, of this Draft EIS/EIR.

Regarding noise and vibration, there would be potential adverse noise effects at residences adjacent to the construction activities.

Traffic congestion effects would include temporary closure of travel lanes through the duration of construction. Haul and delivery truck routes may affect residents and commuters along the alignment by affecting traffic flow patterns. If this occurs, vehicular travel times and intersection operations may be affected along these roadways. This would also have a temporary adverse effect on transit operations during construction. Current off-street parking facilities would be utilized for construction activities, particularly near the proposed stations, which would result in a temporary adverse effect during construction.

During construction, effects to pedestrian and bicycle circulation would be adverse as intermittent sidewalk closures would be needed. Temporary pedestrian detours would inhibit, but not prevent, access along the proposed alignment.

Temporary disruption of community activity in established communities and neighborhoods would also occur during construction.

Construction of the SR 60 LRT Alternative would require the removal of screening trees along the southern ROW of SR 60, which would result in a temporary adverse visual effect. There would also be temporary adverse effects with regards to pedestrian safety and overall security concerns during construction. With regard to parklands and other community resources, there would be temporary closure of some bike paths in the project area during construction.

Operational Impacts

Both the beneficial and potential adverse effects of operations after mitigation are summarized in Table 4.18-2 and Table 4.18-3. This would predominately affect environmental justice populations because all Census blocks in the study area have 94 percent or more minority residents.

Beneficial Effects

The SR 60 LRT Alternative, with or without the North Side Design Variation, would expand light rail service as well as provide bus improvements within the project area. Positive effects of the SR 60 LRT Alternative would include increased mobility and travel time savings for environmental justice communities. The SR 60 LRT Alternative would also result in improved regional connectivity due to the higher quality of service and reduced travel times, as well as the rail-to-rail connections that would be offered by light rail. This enhanced regional connectivity would allow improved mobility and greater access to regional employment, educational, medical, social service, and recreational centers for the large percentage of low-income and minority populations who live in the corridor. In addition, the SR 60 LRT Alternative could provide increased employment opportunities due to a number of development opportunities at proposed station locations, which would result in positive economic gains in the form of increased wages and spending.

Human Health Effects

The SR 60 LRT Alternative would not cause disproportionate adverse effects related to human health issues including air quality, climate change, water quality, and exposure to soils contamination on low-income and minority populations.

Other Effects

Although minimal, the SR 60 LRT Alternative would have beneficial effects on both a region-wide and project area level by reducing overall VMT, VHT, and peak hour vehicle trips, all of which would reduce traffic congestion. The SR 60 LRT Alternative would have adverse effects under NEPA with regards to traffic operations and parking. (See Chapter 3, Section 3.3.3 SR 60 LRT Alternative, 3.3.3.1 Impact Analysis.)

The SR 60 LRT Alternative would also have the following adverse effects under NEPA prior to implementation of mitigation measures. With regards to noise and vibration, moderate noise effects would occur at residences along the south side of Via Campo and along the south side of the SR 60 freeway in Montebello (west of Montebello Country Club and east of Markland Drive) and South El Monte (between Lexington-Gallatin Road and Farmer Avenue).The proposed elevated structure would create a new visual element, which would slightly change the visual character of the corridor. Details of adverse effects to the project study area are described in detail in Appendix DD, Environmental Justice Technical Memorandum, of this Draft EIS/EIR.

The SR 60 LRT Alternative would not result in disproportionate adverse effects to low-income and minority populations associated with pedestrian and bicycle circulation; displacement (no housing or persons would be displaced or relocated and no employment would be permanently lost due to displacement); community and neighborhoods; historical, archaeological, and paleontological resources; parklands; or safety and security.

4.18.3.3.2 Mitigation Measures

Metro is committed to implementing mitigation strategies for any potential adverse effects not offset by identified project benefits, and will continue to coordinate with the environmental justice communities throughout the duration of the project. Mitigation measures for construction and operations are summarized in **Table 4.18-4** and Table ES-2. More details on the referenced mitigation measures can be found in the technical memoranda of supporting analyses located in Appendix DD.

4.18.3.3.3 Impacts Remaining After Mitigation

The improvements from the SR 60 LRT Alternative would benefit low-income and minority areas throughout the project corridor. There are no disproportionate adverse effects remaining after the incorporation of mitigation measures as summarized in Table 4.18-3 above.

As previously stated, the SR 60 LRT Alternative is located largely within environmental justice communities, and thus, both adverse and beneficial effects would be experienced by environmental justice communities. Where there are adverse impacts, Metro has committed to apply the mitigation measures equally through the project corridor. No disproportionate adverse effects to environmental justice populations associated with construction and operation of the SR 60 LRT Alternative, with or without the North Side Design Variation, would occur. Nonetheless, Metro recognizes that some of the specific impacts of the SR 60 LRT Alternative may adversely affect environmental justice populations. Mitigation measures identified throughout Chapters 3.0, and 4.0 of this EIS/EIR would address impacts from LRT operations and construction activities that may affect environmental justice populations.

Table 4.18-4. Summary of Mitigation Measures for the SR 60 LRT Alternative

Resource	Construction	Operation
Traffic Congestion	A Traffic Management Plan would be developed and implemented by Metro. All ramp closures or usage of ramp shoulders would need to be approved by Caltrans before implementation. Mitigation measures would reduce potential effects to transit, traffic, and freeway operations during construction of the SR 60 LRT Alternative to a level less than adverse. Mitigation measures 3.0-ii through 3.0-vii in Chapter 3 would address traffic congestion during construction.	Measures 3.0-xiv and 3.0-xv proposed to improve intersection operations would mitigate potential adverse effects at Santa Anita Avenue/SR 60 EB Ramps and Peck Road/Durfee Avenue.
Parking	Mitigation measures 3.0-ii and 3.0-ix in Chapter 3 would address parking effects during construction.	Mitigation measure 3.0-xvi in Chapter 3 would address parcels that could be affected by the partial acquisition of parking and replacement parking.
Pedestrian and bicycle circulation	Mitigation measures 3.0-ii and 3.0-x through 3.0-xiii in Chapter 3 would address the temporary disruptions to pedestrian and bicycle circulation.	None
Displacements	None	Mitigation measures 4.3-ii and 4.3-iii in Section 4.3, Displacements and Relocation would address these impacts.
Community and Neighborhoods	Mitigation measures 3.0-ii through 3.0-vii in Chapter 3 as well as mitigation measures 4.5-i through 4.5-xiii in Section 4.5, Community and Neighborhood Impacts, would address community and neighborhood impacts.	Mitigation measures 4.5-xiv through 4.5-xv in Section 4.5, Community and Neighborhood Impacts would reduce the effects on the community and neighborhoods in the project area.
Visual and Aesthetics	See mitigation measures 4.6-i through 4.6-xi in Section 4.6, Visual and Aesthetic Impacts. While no mitigation measures are available to make construction vehicles, heavy equipment, and other related components less than visible during construction, implementation of mitigation measures could further reduce the potential effects as identified for the build alternatives.	While there is no mitigation available to make the light rail components of the build alternatives visually inconspicuous, implementation of mitigation measure 4.6-xii in Section 4.6, Visual and Aesthetic Impacts would reduce the changes to the visual attributes of the surrounding neighborhoods.
Parklands and community facilities	The mitigation measures 4.15-i through 4.15-vii in Section 4.15, Parklands and Community Facilities would be implemented for potential effects to parklands and community facilities.	None
Noise and Vibration	Mitigation measures 4.9-i through 4.9-vii in Section 4.9, Noise and Vibration, would address noise and vibration impacts.	Mitigation measures 4.9-viii and 4.9-ix in Section 4.9, Noise and Vibration would address noise and vibration effects due to gaps at switches, LRT passbys along tangent aerial track sections, and grade crossings.
Water Resources	Mitigation measures 4.12-i through 4.12-ix in Section 4.12, Water Resources would address water resource impacts during construction.	Mitigation measures 4.12-xiv through 4.12-xv in Section 4.12, Water Resources would address impacts to water resources during operation.
Safety and Security:	Mitigation measures 4.16-i through 4.16-xi in Section 4.16, Safety and Security would address safety and security impacts during construction.	Mitigation measures 4.16-xii through 4.16-xxv in Section 4.16, Safety and Security would address safety and security impacts.

Note: Please refer to the specific section for the detailed mitigation measure. The referenced mitigation measures are also summarized in Table ES-2.

Metro would continue to provide enhanced outreach to environmental justice communities throughout the duration of the project to implement mitigation strategies effectively in those communities.

4.18.3.4 Washington Boulevard LRT Alternative

4.18.3.4.1 Impact Analysis

Construction Impacts

Since 94 percent of the block groups in the Washington Boulevard LRT Alternative project area are environmental justice areas, it is to be expected that adverse effects would be experienced by environmental justice populations and non-environmental justice areas.

Prior to the incorporation of mitigation measures, temporary construction activity associated with the Washington Boulevard LRT Alternative would have adverse effects associated with water resources; noise and vibration; traffic congestion; parking; transit; pedestrian and bicycle circulation; displacements; community and neighborhoods; visual and aesthetics; and safety and security, as described in detail in Appendix DD, Environmental Justice Technical Memorandum, of this Draft EIS/EIR.

For water resources, construction could result in temporary effects to floodplains and flood control facilities, surface water and groundwater resources, and water quality.

For noise and vibration, there would be potential adverse noise effects at residences adjacent to the construction activities.

Traffic congestion effects would include temporary closure of travel lanes through the duration of construction. Haul and delivery truck routes may affect residents and commuters along the alignment by affecting traffic flow patterns. If this occurs, vehicular travel times and intersection operations may be affected along these roadways. This would also have a temporary adverse effect on transit operations during construction. Current off-street parking facilities would have temporary adverse effects as they would be utilized for construction activities, particularly near the proposed stations.

During construction, temporary effects to pedestrian and bicycle circulation would be adverse as intermittent sidewalk closures would be needed. Temporary pedestrian detours would inhibit, but not prevent, access along the proposed alignment.

Temporary disruption of community activity in established communities and neighborhoods would also occur during construction.

The loss of mature trees and the visual prominence of construction activities within close proximity to visually-sensitive resources would result in temporary visual and aesthetic adverse effects during construction. There would also be temporary adverse effects to pedestrian safety and overall security concerns during construction.

Operational Impacts

Both the beneficial and potential adverse effects of operation of the Washington Boulevard LRT Alternative would predominately affect environmental justice populations because all Census blocks in the study area are 75 percent or more minorities.

Beneficial Effects

The Washington Boulevard LRT Alternative would expand light rail service as well as provide bus improvements within the project area, which has high concentrations of minority and low-income populations. Positive effects of the Washington Boulevard LRT Alternative include improvements to transit service, increased mobility, and travel time savings for low-income and minority populations. The number of boardings under the Washington Boulevard LRT Alternative would be greater than the SR 60 LRT Alternative by about 3,200. (See Chapter 6, Table 6-3 Alternatives Evaluation Results for a more detailed discussion.) The proposed service improvements would increase transit trips and reduce travel times as well as rail-to-rail connections. This enhanced regional connectivity would allow

improved mobility and greater access to regional employment and educational, medical, social service, and recreational centers for the large percentage of low-income and minority residents in the corridor. In addition, the Washington Boulevard LRT Alternative could provide increased employment opportunities due to a number of development opportunities at proposed station locations, which would result in positive economic gains in the form of increased wages and spending.

Human Health Effects

The Washington Boulevard LRT Alternative (including the selection of a maintenance yard location) would not cause disproportionate adverse effects related to human health issues – including air quality, climate change, noise and vibration, water quality, and exposure to soils contamination – on low-income and minority populations residing in the project area.

Other Effects

The Washington Boulevard LRT Alternative would not result in disproportionate adverse effects on low-income and minority populations associated with displacement; community and neighborhoods; historical, archaeological, and paleontological resources; parklands; and safety and security. The potential adverse effects on environmental justice populations, prior to the incorporation of mitigation measures, in the project corridor are listed below.

- Transportation and parking impacts
- Pedestrian and bicycle circulation impacts
- Noise and vibration impacts
- Displacements and relocation
- Community and neighborhoods
- Visual and aesthetics

Traffic congestion would be adversely affected at multiple intersections and in the project area. For parking effects, the Washington Boulevard LRT Alternative would require the elimination of existing off-street parking facilities near each of the proposed stations, which would result in displaced parking.

For pedestiran and bicycle circulation, the transition of the proposed LRT service between the median alignment along Washington Boulevard and Santa Fe Springs Maintenance Yard Option would create a conflict between the LRT and pedestrians when the LRT is accessing the maintenance yard. The reduction in travel lanes east of Montebello Boulevard would create conflicts between bicycle and automobile traffic along the at-grade segment of the alignment.

Under noise and vibration impacts, the noise from passing trains would introduce new moderate effects in the center of the residential areas along Garfield Avenue, which have high concentrations of low-income and Hispanic or Latino populations.

Full acquisitions associated with the alignment would displace approximately nine residetial units and approximately 30 persons. It is anticipated that the persons diplaced could be relocated to comparable housing in the project area.

The visual character along Garfield Avenue, an area with high concentrations of low-income and Hispanic or Latino populations, would be permanently altered with the introduction of the aerial structure, resulting in adverse effects.

4.18.3.4.2 Mitigation Measures

Metro is committed to implementing mitigation strategies for any potential adverse effects not offset by identified project benefits, and will continue to coordinate with the environmental justice communities throughout the duration of the project. More details on the referenced mitigation measures can be found in the technical memoranda of supporting analyses located in Appendix DD.

Construction Mitigation Measures

Mitigation measures would reduce potential effects to transit, traffic, and freeway operations during construction of the Washington Boulevard

LRT Alternative to a level less than adverse. The same mitigation measures described for the SR 60 LRT Alternative (Mitigation measures 3.0-ii through 3.0-viii in Chapter 3 and summarized in Table 4.18-4 above and Table ES-2) would also apply to the Washington Boulevard LRT Alternative. In addition, the following mitigation measures apply:

Transportation and Parking: The San Gabriel River/I-605 aerial crossing option would have additional temporary adverse effects under NEPA and significant impacts under CEQA to the I-605 Freeway mainline. Mitigation measures 3.0-xvii and 3.0-ii through 3.0-iv in Chapter 3 would mitigate this impact. With this mitigation measure, the closures would not cause an adverse effect under NEPA and no disproportionate adverse effects to low-income and minority populations are anticipated.

Operational Mitigation Measures

The operational mitigation measures described for the SR 60 LRT Alternative, and summarized in **Table 4.18-4** above and Table ES-2, would also apply to the Washington Boulevard LRT Alternative. In addition, the following mitigation measures would apply for intersections, parking, pedestrian and bicycle circulation, noise and vibration, community and neighborhood, and visual and aesthetics effects and impacts for the Washington Boulevard LRT Alternative.

Traffic Congestion: The loss of travel lanes along Garfield Avenue and Washington Boulevard would decrease the capacity of the roadways along the Washington Boulevard LRT Alternative and would result in substantial adverse effects at many of the intersections. With implementation of mitigation measure 3.0-xviii in Chapter 3 of this EIS/EIR, the substantial adverse effect at the intersection of Montebello Boulevard/ Washington Boulevard during the AM peak hour would be mitigated. (Refer to the specific chapter for the detailed mitigation measure.) Since the remaining adversely affected intersections could not be mitigated, effects would be adverse and unavoidable under NEPA and significant and unavoidable under CEQA.

Parking: Mitigation measure 3.0-xix in Chapter 3 of this EIS/EIR would address impacts to parcels that would be affected by the acquisition of parking. (Refer to the specific chapter for the detailed mitigation measure.)

Pedestrian and Bicycle Circulation: Mitigation measures 3.0-xx through 3.0-xxiii in Chapter 3 of this EIS/EIR would address adverse effects on pedestrian and bicycle circulation for the Washington Boulevard LRT Alternative. (Refer to the specific chapter for the detailed mitigation measure.)

Noise and Vibration: Mitigation measures 4.9-x through 4.9-xii in Section 4.9, Noise and Vibration, of this EIS/EIR would address noise and vibration effects due to gaps at switches, LRT passbys along tangent aerial track sections, and grade crossings. (Refer to the specific section for the detailed mitigation measure.)

Community and Neighborhoods: Mitigation measures 4.5-xvi through 4.5-xvii in Section 4.5, Community and Neighborhood Impacts, of this EIS/EIR would address community and neighborhood impacts. (Refer to the specific section for the detailed mitigation measure.)

Visual and Aesthetics: While there is no mitigation available to make the light rail components of the Washington Boulevard LRT Alternative visually inconspicuous,

implementation of mitigation measures 4.6-xii through 4.6-xx in Section 4.6, Visual and Aesthetic Impacts, of this Draft EIS/EIR could reduce the changes to the visual attributes of the surrounding neighborhoods and potentially reduce the severity of adverse visual effects identified for sensitive land uses along Garfield Avenue, an area with high concentrations of low-income and Hispanic or Latino populations.

(Refer to the specific section for the detailed mitigation measure.)

4.18.3.4.3 Impacts Remaining After Mitigation

The improvements from the Washington Boulevard LRT Alternative would benefit low-income and minority areas throughout the project corridor.

As previously stated, the Washington Boulevard LRT Alternative is located largely within environmental justice communities, and thus both adverse and beneficial effects would be experienced by environmental justice communities. Where there are adverse impacts, Metro has committed to apply the mitigation measures equally through the project corridor. No disproportionate adverse effects to environmental justice populations associated with construction and operation of the Washington Boulevard LRT Alternative would occur.

Nonetheless, Metro recognizes that some of the specific impacts of the Washington Boulevard LRT Alternative may adversely affect environmental justice populations. Mitigation measures identified throughout Chapters 3.0 and 4.0 of this Draft EIS/EIR would address impacts from LRT operations and construction activities that may affect environmental justice populations.

Metro would continue to provide enhanced outreach to environmental justice communities throughout the duration of the project to implement mitigation strategies effectively in those communities. Potential adverse effects remaining after mitigation are summarized in Table 4.18-3.

Section 4.19

Cumulative Impacts

This section summarizes potential cumulative impacts that could result from the Eastside Transit Corridor Phase 2 Project in combination with identified past, present and reasonably foreseeable projects. Information in this section is based on, and updated where appropriate from, the Cumulative Impacts Technical Memorandum which is incorporated into this Draft EIS/EIR as Appendix FF.

4.19.1 Regulatory Framework/Methodology

4.19.1.1 Federal

The Council on Environmental Quality's (CEQ) Regulations for Implementing the Procedural Provisions of the National Environmental Policy Act (NEPA) defines cumulative impact (40 CFR 1508.7) as follows:

"'Cumulative impact' is the impact 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 (Federal or non-Federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time."

The CEQ regulations (40 CFR 1508.25) indicate that cumulative impacts shall be considered and discussed in the environmental impact statement. Many federal agencies provide their own guidance regarding how to evaluate cumulative impacts in federal NEPA documents. The Federal Highway Administration (FHWA) offers guidance for Department of Transportation projects in their environmental guidebook found at: http://www.environment.fhwa.dot.gov/guidebook/qaimpact.asp.

4.19.1.2 State

The *California Environmental Quality Act (CEQA) Guidelines* mandate that an Environmental Impact Report (EIR) discuss cumulative impacts of a project when the project's incremental effect is cumulatively considerable (Section 15130). "Cumulatively considerable" means that the incremental effects of an individual project are significant when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects (Section 15064).

4.19.1.3 Thresholds of Significance

The standard for a NEPA finding of adverse effect for a cumulative effect is not well-defined. However, the cumulative impacts under NEPA are resource-specific and may follow the same standards of significance established for direct and indirect impacts of the alternative on each resource area.

Per CEQA, a cumulative impact may be considered significant if the project's incremental effect is cumulatively considerable as indicated above. In considering whether the project's incremental impact is cumulatively considerable, mitigation measures that will be implemented by the project sponsor may be considered. If the mitigation measures alleviate the cumulative impact caused by the project's contribution, then the project does not result in a significant impact that is cumulatively considerable.

A lead agency may also determine that a project's incremental contribution to a cumulative impact is

not cumulatively considerable if the project will comply with the requirements in a previously approved plan or mitigation program (including, but not limited to, a water quality control plan, air quality attainment or maintenance plan, integrated waste management plan, habitat conservation plan, natural community conservation plan, plans or regulations for the reduction of greenhouse gas (GHG) emissions that provide specific requirements that will avoid or substantially lessen the cumulative problem. For these cases, the lead agency should explain how implementing the particular requirements in the plan, regulation, or program ensure that the project's incremental contribution to the cumulative impact is not cumulatively considerable.

For both CEQA and NEPA purposes, it should be noted that the limited details available about other projects may also limit the extent of the evaluation possible for some cumulative impacts/effects as compared to that for the evaluation of direct and indirect impacts/effects.

The CEQA thresholds of significance are applied in this section for determining the significance of the impact.

4.19.1.4 Methodology

The cumulative impact of several projects is the change in the environment that results from the incremental impact of the project when added to other, closely related past, present, or reasonably foreseeable, probable future projects.

The tentative year of opening for the proposed project is 2033. Construction would occur approximately between 2027 and 2032 (years 2033 and 2034 are system testing and year 2035 is the first year of operation). Due to the long-term nature of project implementation, the list of projects analyzed in assessing cumulative impacts is highly speculative. For purposes of this Draft EIS/EIR analysis, a good faith attempt has been made to identify relevant possible public works and private projects. However, it was necessary to rely considerably on long-term plans and to make some speculative assumptions about future development.

A cumulative impact assessment has been conducted for each environmental discipline being evaluated as part of this Draft EIS/EIR. To accomplish the evaluation, a list of probable future projects with the potential to produce related or cumulative impacts has been identified (refer to Section 4.19.2 below) to supplement the information already available regarding past and present projects. The future projects were identified through review of existing plans including those of the municipalities within the area of potential impact (API) and regional long-term plans for economic and land use and transportation development, the region's and the Federal Transportation Improvement Program (FTIP), the high-speed rail program plan, and utility providers' long-term plans as available. This list is subject to the limitations described above due to the long-term build out of the proposed build alternatives.

This evaluation summarizes expected cumulative impacts produced by these projects and references any additional information that may be used to help determine the impacts.

The methodology used for this analysis follows *CEQA Guidelines* (Section 15130). The cumulative impact discussion for each specific discipline being assessed in this Draft EIS/EIR is intended to reflect the potential severity of the impacts and the likelihood of their occurrence. The focus is on the various projects' contributions to the cumulative impact for each discipline assessed.

For those disciplines where the combined cumulative impact associated with the build alternatives and the other listed projects is not significant, this section briefly discusses why the cumulative impact is not significant. Note that the *CEQA Guidelines* indicate that the mere existence of significant cumulative impacts caused by other projects alone does not constitute substantial evidence that the proposed project's incremental effects are cumulatively considerable.

4.19.2 Affected Environment/Existing Conditions

The cumulative context includes the geographic area, timeframe, and/or type of projects that would contribute to the potential cumulative effect. This context differs for each discipline. Each discipline identifies a relevant geographic area for evaluation of direct, indirect, and cumulative impacts. The geographic range considered for the cumulative analysis can vary based on the resource area.

The forecast approach was used in the analysis of cumulative operational impacts for the transportation and air quality disciplines. This approach was also used in the analysis of cumulative impacts for the climate change discipline, which combined construction and operational emissions per the South Coast Air Quality Management District's recommendation. The general geographic range used to forecast cumulative conditions for these three disciplines was the Southern California Association of Governments (SCAG) region, which also assumed operation of the Metro rail projects identified in Chapter 2, Alternatives Considered. For all other disciplines, the list of reasonably foreseeable related projects was used to determine the scope of analysis for cumulative impacts, including the cumulative construction impacts analysis for the transportation and air quality disciplines. For these disciplines, the geographic range considered for the cumulative analysis is generally located within about one-half mile in each direction of each proposed build alternative, since many transit agencies consider this distance as the typical area of influence for a high capacity transit project such as the Eastside Transit Corridor Phase 2 Project.

Available plans of the following jurisdictions and agencies were reviewed:

- Eastern portion of East Los Angeles (unincorporated)
- Alameda Corridor East Construction Authority
- California High-Speed Rail (HSR) Authority
- Caltrans
- Commerce
- Los Angeles County
- Montebello
- Monterey Park
- Pico Rivera
- Rosemead
- Santa Fe Springs
- South El Monte
- Southern California Association of Governments
- Southern California Edison
- Whittier

The types of plans reviewed included the cities' and region's long-term plans for economic and land use and transportation development, FTIP, high-speed rail program plan, and utility providers' long-term plans as available.

Since the horizon year for this Draft EIS/EIR is 2035, it is likely that many projects for development in the later years of the period to be assessed are unknown at this time. Nonetheless, a concentrated effort was made to find out what current and future projects are now known.

A number of development projects are currently under construction, in the planning stages, or proposed within the vicinity of (approximately a one-half-mile radius) or adjacent to the Eastside Transit Corridor Phase 2 LRT build alternatives. These projects are listed in **Tables 4.19-1** and **4.19-2**, and their locations are shown in **Figures 4.19-1** and **4.19-2**.

In addition, the California High-Speed Rail Study proposes an alignment alternative for the Los Angeles to San Diego via Ontario project that would use the SR 60 corridor in the Eastside Transit Corridor Phase 2 project area; this segment is currently not funded.

Table 4.19-1. Recent and Future Development Activity in the Vicinity of the SR 60 LRT Alternative

Map No.	Project	Location	Size[1]	Land Use	Status	Estimated Completion[1]
1	Atlantic/Garvey Redevelopment	Various locations in Monterey Park bounded by the city boundary to the east and Atlantic Blvd., Garvey Avenue, and SR 60	520 acres	Commercial	Proposed	-----
2	South Garfield Village Specific Plan	Garfield Avenue and Pomona Boulevard	20 acres	Transportation	Planned	Winter 2015
3	Southern California Edison Tehachapi Renewal Transmission Project	Near Garfield Avenue and at Whittier Narrows	250 miles	Utility	Under construction	2015
4a	Remediation of Operating Industries, Inc. (OII) North Parcel	North of SR 60 west of Paramount Blvd., Monterey Park (also the future site of Cascade Market Place)	45 acres	Commercial	Completed	2009
4b	Monterey Park Market Place[2]	Same site as remediation of OII North Parcel once work is completed	51 acres	Commercial	Approved	2016
5	SR 60 Paramount Boulevard Bridge Repair	SR 60 and Paramount Blvd. intersection	128 feet wide, 32 feet wide	Transportation	Completed	2012
6	Merged Redevelopment	Various locations bounded by Montebello city limits	---	Commercial	Proposed	-----
7	Montebello Hills Specific Plan	Montebello Hills	488 acres	Residential	Planned	2022
8	San Gabriel Blvd. Intersection Improvements	Intersection of San Gabriel Blvd./SR 60 WB and intersection of Walnut Grove Avenue/San Gabriel Blvd. in Rosemead	---	Transportation	Completed	2013

Table 4.19-1. Recent and Future Development Activity in the Vicinity of the SR 60 LRT Alternative (continued)

Map No.	Project	Location	Size[1]	Land Use	Status	Estimated Completion[1]
9	Whittier Narrows Recreation Area Master Development Plan Input	Whittier Narrows Flood Control Basin	1,258 acres	Recreation/Open Space	Proposed	As funding is available
10	Emerald Necklace	Interconnected series of parks and trails in a 17-mile loop around Rio Hondo and San Gabriel River	Unifying ≈ 1,500 acres of park space	Open Space	Planned	As funding is available
11	Whittier Narrows Dam Safety Modification	Whittier Narrows Flood Control Basin	--	Safety Infrastructure	Planned	-----
12	Santa Anita and Merced Avenue Mixed-Use	Santa Anita and Merced Avenues, South El Monte	30 single family tract homes; 6.37 acres	Mixed-Use	Under construction	-----
13	San Gabriel River Discovery Center	1000 North Durfee Avenue, South El Monte	11.5 acres	Educational/ Recreational	Planned	-----
14	Durfee Housing	1181 Durfee Avenue, South El Monte	116 town homes	Residential	Under construction	Spring 2016
15	Michael Hunt Drive Mixed-Use	Peck Road and Michael Hunt Drive, South El Monte	72 senior apartment units; 21,000 square feet	Mixed-Use	Completed	2012
16	Whittier Narrows 66-kilovolt Underground Re-Route of Subtransmission Line	Intersection of Peck Road and Durfee Avenue, South El Monte	3,300 linear feet	Utility	Under construction	2015
17	Plaza del Sol Shopping Center	North of SR 60 near the Peck Road exit	168,291 square feet	Commercial	Completed	2010

Table 4.19-1. Recent and Future Development Activity in the Vicinity of the SR 60 LRT Alternative (continued)

Map No.	Project	Location	Size[1]	Land Use	Status	Estimated Completion[1]
18	Puente Hills Intermodal Facility	On Pellissier Place, south of I-605 and west of SR 60	17.2 acres	Transportation fully integrated waste-by-rail system to transport containerized municipal solid waste to the Mesquite Regional Landfill in Imperial County for disposal	Under construction	2014
19	Southeast Water Reliability Project	Within road right-of-way (ROW) in cities of Pico Rivera and Montebello, including Montebello Golf Course	4.5 miles	Water pipeline. Water recycling system to deliver 800 acre feet per year of recycled water	Completed	2013

Source: AECOM, CDM Smith 2014.
Notes:
[1] --- = Information not provided in sources investigated.
[2] Remediation has been completed. However, there are ongoing activities to remove and burn subterranean gas from the site. The market place will be built around existing facilities used to remove the gas since those facilities will still be operating after the market place is opened for business. In addition, the Monterey Park Market Place EIR identifies the berm along the freeway as having contaminated soil, but it implies that the contamination is lead from the freeway, not from the landfill. The Market Place project will remove the contaminated soil from the berm.

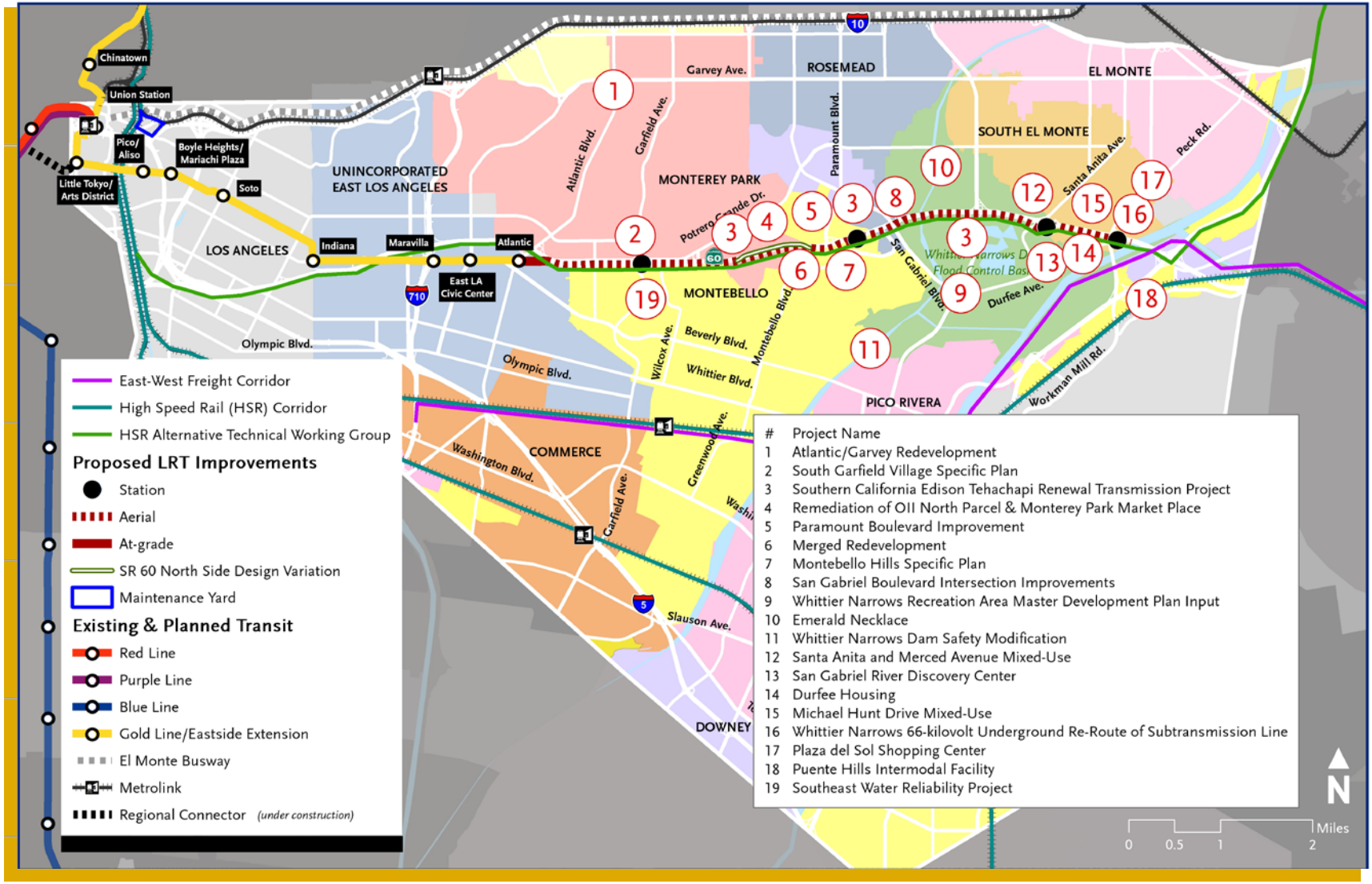
Table 4.19-2. Recent and Future Development Activity in the Vicinity of the Washington Boulevard LRT Alternative

Map No.	Project	Location	Size[1]	Land Use	Status	Estimated Completion[1]
19	Southeast Water Reliability Project	Within road ROW in cities of Pico Rivera and Montebello, including Montebello Golf Course	4.5 miles	Water pipeline. Water recycling system to deliver 800 acre feet per year of recycled water	Completed	2013
20	High-Speed Rail Crossing at Garfield Avenue	Garfield Avenue, Commerce	---	Transportation	Planned	2029
21	East-West Freight Corridor Crossing at Garfield Avenue	Garfield Avenue, Commerce	---	Transportation	Proposed	-----
22	Intersection Reconstruction at Flotilla Street and Garfield Avenue	Intersection of Flotilla Street and Garfield Avenue, Commerce	---	Transportation	Proposed	-----
23	Montebello Business Facade Improvements	Whittier Avenue from Garfield Avenue east to Concourse Avenue, Montebello	---	Commercial	On hold	-----
24	Montebello Blvd. Grade Separation	Montebello Blvd. and Olympic Blvd., Montebello	---	Transportation	Planned	2016
25	Whittier Blvd. Specific Plan and Streetscape	Whittier Blvd., Montebello	---	Residential	Construction starts end of July 2010	-----
26	Pico Rivera Commerce Center	Rosemead Blvd. and Danbridge Street in Pico Rivera	100 acres	Commercial	Completed	2006
27	San Gabriel River Coastal Basin Spreading Ground Pump Station and Pipeline Project	Beneath Mines Avenue between Rio Hondo and San Gabriel Coastal Basin Spreading Grounds	6,000 linear feet	Water pipeline. Installation of concrete pipe to allow greater water conservation potential	Completed	2012

Table 4.19-2. Recent and Future Development Activity in the Vicinity of the Washington Boulevard LRT Alternative (Continued)

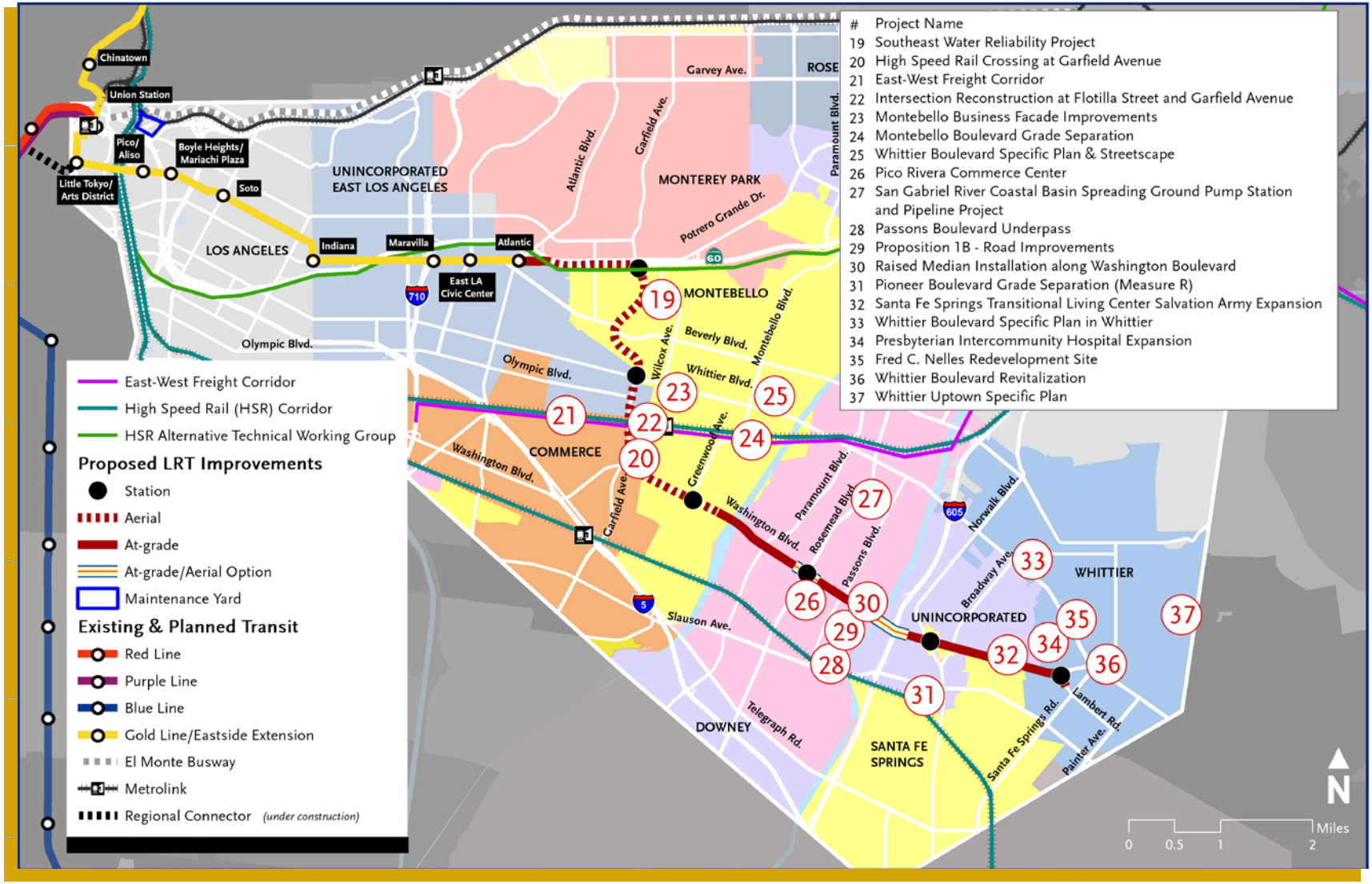
Map No.	Project	Location	Size1	Land Use	Status	Estimated Completion 1
28	Passons Blvd. Underpass	Passons Blvd. and Slauson Avenue, Pico Rivera	---	Transportation	Completed	December 2012
29	Proposition 1B - Road Improvements	Pico Rivera	---	Transportation	Under Construction	-----
30	Raised Median Installation along Washington Blvd.	Washington Blvd., within Pico Rivera city limits	---	Transportation	Planned	-----
31	Pioneer Blvd. Grade Separation (Measure R)	Santa Fe Springs	---	Transportation	Planned	Subject to funding availability
32	Santa Fe Springs Transitional Living Center Salvation Army Expansion	12000 E. Washington Blvd., Santa Fe Springs	10 units	Residential	Completed	2014
33	Whittier Blvd. Specific Plan in Whittier	Whittier Blvd. and Washington Blvd. from the Washington/Whittier Santa Fe Springs intersection to the western limit of Whittier	---	Commercial	Planned	2030
34	Presbyterian Intercommunity Hospital Expansion	12401 Washington Blvd., Whittier	200,449 square feet	Medical Facility	Completed	2014
35	Fred C. Nelles Redevelopment Site	11850 East Whittier Blvd., Whittier, CA 90601	74 acres	Commercial/ Residential	Proposed	2020
36	Whittier Blvd. Revitalization	Washington Blvd. Between I-605 and Colima Road in Whittier	---	Commercial	Proposed	-----
37	Whittier Uptown Specific Plan	Whittier Uptown	220 acres	Commercial	Planned	-----

Source: AECOM, CDM Smith 2014.
Notes:
[1] --- = Information not provided in sources investigated.



Source: AECOM, CDM Smith 2014.

Figure 4.19-1. Recent and Future Development Activity along the SR 60 LRT Alternative



Source: AECOM, CDM Smith 2014.

Figure 4.19-2. Recent and Future Development Activity along the Washington Boulevard LRT Alternative

An alignment alternative for the Los Angeles to Anaheim HSR project would traverse the Los Angeles to San Diego Rail Corridor (LOSSAN) through the project area and would cross the proposed Washington Boulevard LRT Alternative along Garfield Avenue between Olympic and Washington Boulevards where the LRT guideway would be located on aerial structure. Funding for this segment has been identified and a Draft EIS/EIR is being prepared. The LOSSAN corridor is currently used by Burlington Northern Santa Fe, Metrolink, and Amtrak. These high-speed rail segments are not listed in Tables 4.19-1 and 4.19-2 but are illustrated in Figures 4.19-1 and 4.19-2. In addition to HSR being considered along the SR 60 corridor, Caltrans is also considering widening the SR 60 but there are no plans or funding for this project at this time.

SCAG has established a vision for a regional goods movement system through the Comprehensive Regional Goods Movement Plan and Implementation Strategy. The plan presents a long-range comprehensive plan for the goods movement system in Southern California. The plan includes projects and strategies to promote the fluid movement of goods and people. The plan and vision are critical components of SCAG's adopted *2012-2035 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS)*.

As part of the 2012–2035 RTP/SCS, SCAG has identified strategies to relieve congestion, reduce delay and harmful emissions, and improve safety on major truck corridors. The SCAG 2012-2035 RTP/SCS identifies a corridor concept, known as the East-West Freight Corridor, which would connect to the north end of the I-710 freight corridor and roughly parallel the Union Pacific Railroad Los Angeles Subdivision before finally following a route adjacent to SR 60 just east of SR 57. Additional study of this alignment concept is being conducted.

Communities along the SR 60 LRT and Washington Boulevard LRT Alternative corridors have expressed interest in extending the Eastside Transit Corridor Phase 2 project, if developed in their area, farther east from Peck Road or Lambert Road, respectively. However, no plans have been developed and no funding is in place at this time for such projects.

The U.S. Army Corps of Engineers (USACE) is currently conducting a Dam Safety Modification Study for the Whittier Narrows Dam. The Whittier Narrows Dam received a Dam Safety Action Class II (DSAC II) rating in December 2008. A DSAC II rating is given to dams where failure could begin during normal operations or be initiated as the consequence of an event. USACE will develop and evaluate scenarios to modify the dam to withstand failure during rare events. A Dam Safety Modification Study is similar to a feasibility study, with a similar projected duration of two to three years. The result of the study will be a recommended mitigation plan that will undergo peer review, go through an approval process and, depending on the availability of funds, ultimately be designed and constructed. Metro will coordinate with USACE regarding safety modifications to the Whittier Narrows Dam if the SR 60 LRT Alternative is selected as the locally preferred alternative (LPA). In addition, construction of the SR 60 LRT Alternative would not interfere with safety modifications to the Whittier Narrows Dam.

4.19.3 Environmental Impacts/Environmental Consequences

This section summarizes the cumulative impact assessment conducted for all of the environmental disciplines. (Refer to Appendix FF, Cumulative Impacts Technical Memorandum, and the separate environmental discipline technical memoranda appendices of this Draft EIS/EIR for additional information specific to a particular topic.) **Table 4.19-3** summarizes the results of the cumulative impacts analysis.

Table 4.19-3. Comparison of the Cumulative Impacts of the Alternatives[1]

Alternative				
Environmental Category	No Build	TSM	SR 60 LRT[2]	Washington Boulevard LRT[3]
Transportation	Impact not cumulatively considerable	Impact not cumulatively considerable with mitigation. Benefits: Reduction in vehicle miles traveled (VMT) and congestion. Increased transit ridership and reduced travel times.	Same as TSM Alternative	Same as TSM Alternative
Displacement/ Relocation	Impact not cumulatively considerable	Impact not cumulatively considerable	Impact not cumulatively considerable with mitigation	Impact not cumulatively considerable with mitigation
Communities/ Neighborhoods	Impact not cumulatively considerable	Impact not cumulatively considerable	Impact not cumulatively considerable with mitigation Benefits: Transit-dependent populations would benefit from transit service improvements; Access to transit for planned developments in the area; New and enhanced opportunities for businesses to locate in the area, in conjunction with proposed developments.	Impact not cumulatively considerable with mitigation Benefits: Transit-dependent populations would benefit from transit service improvements; Access to transit for planned developments in the area; New and enhanced opportunities for businesses to locate in the area, in conjunction with proposed developments.
Noise/Vibration	Impact not cumulatively considerable	Impact not cumulatively considerable	Impact not cumulatively considerable with mitigation	Impact not cumulatively considerable with mitigation
Ecosystems/Biological Resources	Impact not cumulatively considerable	Impact not cumulatively considerable	Impact not cumulatively considerable	Impact not cumulatively considerable

Table 4.19-3. Comparison of the Cumulative Impacts of the Alternatives[1] (continued)

Alternative				
Environmental Category	No Build	TSM	SR 60 LRT[2]	Washington Boulevard LRT[3]
Visual/Aesthetics	Impact not cumulatively considerable	Impact not cumulatively considerable	Impact not cumulatively considerable	Impact cumulatively considerable: Visual impacts would be cumulatively considerable along Segment 2, Garfield Avenue to the Union Pacific Railroad (UPRR). Impacts cannot be mitigated to less than significant.
Geotechnical/ Subsurface/Seismic	Impact not cumulatively considerable	Impact not cumulatively considerable	Impact not cumulatively considerable with mitigation	Impact not cumulatively considerable with mitigation
Hazardous Materials	Impact not cumulatively considerable	Impact not cumulatively considerable	Impact not cumulatively considerable with mitigation	Impact not cumulatively considerable with mitigation
Water Resources	Impact not cumulatively considerable	Impact not cumulatively considerable	Impact not cumulatively considerable with mitigation	Impact not cumulatively considerable with mitigation
Cultural Resources	Impact not cumulatively considerable	Impact not cumulatively considerable	Historic Properties: No cumulative impacts Archaeological and Paleontological Resources: Impact not cumulatively considerable with mitigation	Historic Properties: Impact not cumulatively considerable with mitigation Archaeological and Paleontological Resources: Impact not cumulatively considerable with mitigation
Safety/Security	Impact not cumulatively considerable	Impact not cumulatively considerable	Impact not cumulatively considerable with mitigation	Impact not cumulatively considerable with mitigation

Table 4.19-3. Comparison of the Cumulative Impacts of the Alternatives[1] (continued)

Alternative				
Environmental Category	No Build	TSM	SR 60 LRT[2]	Washington Boulevard LRT[3]
Energy Resources	Impact not cumulatively considerable	Impact not cumulatively considerable	Impact not cumulatively considerable	Impact not cumulatively considerable
Climate Change	Impact not cumulatively considerable	Impact not cumulatively considerable	Impact not cumulatively considerable	Impact not cumulatively considerable
Parklands/Other Community Facilities	Impact not cumulatively considerable	Impact not cumulatively considerable	Impact not cumulatively considerable	Impact not cumulatively considerable
Air Quality/Health Risk	Impact not cumulatively considerable	Impact not cumulatively considerable	Impact not cumulatively considerable with mitigation	Impact not cumulatively considerable with mitigation
Land Use/ Development	Impact not cumulatively considerable	Impact not cumulatively considerable	Impact not cumulatively considerable with mitigation Benefits: Would encourage transit-supportive development and increase transit ridership; would provide alternative to auto to access planned development in the area.	Impact not cumulatively considerable Benefits: Would encourage transit-supportive development and increase transit ridership; would provide alternative to auto to access planned development in the area.
Environmental Justice	Impact not cumulatively considerable	Impact not cumulatively considerable	Impact not cumulatively considerable with mitigation	Impact not cumulatively considerable with mitigation

Table 4.19-3. Comparison of the Cumulative Impacts of the Alternatives[1] (continued)

Alternative				
Environmental Category	No Build	TSM	SR 60 LRT[2]	Washington Boulevard LRT[3]
Economic/Fiscal	Impact not cumulatively considerable	Impact not cumulatively considerable	Impact not cumulatively considerable with mitigation Benefits: Travel time cost savings and mobility. Would further goals and policies for revitalization and investment within project area.	Impact not cumulatively considerable with mitigation Benefits: Travel time cost savings and mobility. Would further goals and policies for revitalization and investment within project area.

Notes:
[1] Table describes the impacts per CEQA. CEQA and NEPA each have specific terms for evaluating impacts. Note that the CEQA determination of "impact not cumulatively considerable," also termed as "less than significant," is roughly similar to a finding of "no adverse cumulative effect" for NEPA purposes for the environmental categories presented. A CEQA determination of "impact cumulatively considerable," also termed "significant impact," is roughly similar to a finding of "adverse effect" for NEPA purposes. The benefits described are generally the same for both NEPA and CEQA.
[2] The cumulative impacts associated with the SR 60 LRT Alternative, with or without the North Side Design Variation, are the same because the features of the project that resulted in the findings for each category of impact evaluated for the SR 60 LRT Alternative are the same for the SR 60 North Side Design Variation.
[3] The cumulative impacts of the Washington Boulevard LRT Alternative are the same regardless of whether the crossings at Rosemead Boulevard and the San Gabriel River/I-605 are at-grade or on aerial structure. This is because the features of the crossing at-grade or on aerial structure that resulted in the findings for each category of impact evaluated for each crossing location are the same regardless of whether the crossing is at-grade or on an elevated structure.

4.19.3.1 No Build Alternative

4.19.3.1.1 Impact Analysis

A variety of bus services are currently provided in the Eastside Transit Corridor Phase 2 project area, including Metro Local, Limited, Express, and Rapid buses as well as local bus lines. In addition to bus services, the No Build Alternative includes two Metrolink commuter rail routes, each of which has one station located within the project area: Riverside Line and Orange County/91 Lines. The Metrolink stations would be served by bus.

The No Build Alternative would not result in adverse direct or indirect impacts related to the following environmental issues: traffic, circulation, and parking; displacement and relocation; community and neighborhoods; noise and vibration; ecosystems and biological resources; visual and aesthetic impacts; geotechnical, subsurface, and seismic hazards; hazardous materials; water resources; cultural resources; safety and security; energy resources; climate change; parklands and other community facilities; air quality and health risk impact; land use and development; environmental justice; or economic and fiscal. Therefore, this alternative would not contribute to any significant cumulative impacts with respect to these environmental resources.

The No Build Alternative would maintain bus services in the Eastside Transit Corridor Phase 2 project area; however, it would not include new bus lines nor would it include major capital investment in mass transit infrastructure and service in the corridor. Since congestion in the corridor is anticipated to increase and the No Build Alternative would not include additional transit service, the existing transit service would be affected by the increased congestion. This would in turn increase commute times and potentially restrict mobility for the transit-dependent population in the Eastside Transit Corridor Phase 2 project area.

Given the above, this alternative would not include the proposed transit improvements, and thus would not contribute to a cumulative beneficial effect on transit, as is the case for the other alternatives.

4.19.3.1.2 Mitigation Measures

No feasible mitigation (other than construction of one of the build alternatives) exists to minimize the environmental justice impact associated with the No Build Alternative.

4.19.3.1.3 Impacts Remaining After Mitigation

NEPA Finding

The No Build Alternative would not contribute to any adverse cumulative effects related to the following environmental issues: traffic, circulation, and parking; displacement and relocation; community and neighborhoods; noise and vibration; ecosystems and biological resources; visual and aesthetic impacts; geotechnical, subsurface, and seismic hazards; hazardous materials; water resources; cultural resources; safety and security; energy resources; climate change; parklands and other community facilities; air quality and health risk impact; land use and development; environmental justice; or economic and fiscal.

The No Build Alternative would not provide the positive benefits of mobility and travel time and cost savings of the other alternatives.

CEQA Determination

The No Build Alternative would not contribute to a significant cumulative impact with respect to the following environmental issues: traffic, circulation, and parking; displacement and relocation; community and neighborhoods; noise and vibration; ecosystems and biological resources; geotechnical, subsurface, and seismic hazards; hazardous materials; water resources; cultural resources; safety and security; energy resources; climate change; parklands and other community facilities; air quality and health risk impact; land use and development; or economic and fiscal.

The No Build Alternative would not provide the positive benefits of mobility and travel time and cost savings of the other alternatives.

4.19.3.2 TSM Alternative

4.19.3.2.1 Impact Analysis

The TSM Alternative would not result in adverse direct or indirect impacts related to the following environmental issues: displacement and relocation; community and neighborhoods; noise and vibration; ecosystems and biological resources; visual and aesthetic impacts; geotechnical, subsurface, and seismic hazards; hazardous materials; water resources; cultural resources; safety and security; energy resources; climate change; Section 4(f) protected resources or parklands and other community facilities; air quality and health risk; land use and development; environmental justice; or economic and fiscal. Therefore, this alternative would not contribute to significant cumulatively considerable impacts with respect to these environmental resources.

Transit, Traffic, Circulation, and Parking: Construction impacts would be temporary and intermittent during the overall construction period for the TSM Alternative. As continued development is planned throughout the project area, individual development projects may occur simultaneously adjacent to the project alignment. This may result in a short-term cumulative adverse effect during construction. This alternative includes measures to minimize the anticipated adverse effects during construction, which would reduce the project's contribution to cumulative construction effects.

The TSM Alternative would expand regional transportation choices that aim to improve overall regional mobility. As such, the TSM Alternative would result in a decrease in VMT due to the increased use of transit. The TSM Alternative would therefore result in a beneficial cumulative effect on area-wide traffic conditions.

The TSM Alternative would have a beneficial impact on transit, as it would result in increases to transit ridership and decreases in travel times on a regional basis. Locally, this alternative would not have a significant impact on transit operations and circulation as there would be minimal impacts on individual bus lines or stops. Increase in transit use also reduces the reliance on automobiles and generally reduces the demand for parking on a regional basis. In general, it is not anticipated that the TSM Alternative would affect overall parking conditions.

Operation of the increased transit service associated with the TSM Alternative would add pedestrians and bicyclists to the current facilities in the areas surrounding stops and stations. Although there would also be an increase in pedestrian and bicycle activity in the vicinity of individual development projects, the cumulative result of these new users would not result in a significant impact on pedestrian or bicycle conditions.

4.19.3.2.2 Mitigation Measures

Chapter 3, Transportation Impacts and Mitigation, and Table ES-2 outlines mitigation measures that would be implemented to mitigate potentially significant construction-related impacts.

4.19.3.2.3 Impacts Remaining After Mitigation

NEPA Finding

The TSM Alternative would not contribute to any adverse cumulative effects related to the following environmental issues: displacement and relocation; community and neighborhoods; noise and vibration; ecosystems and biological resources; visual and aesthetic impacts; geotechnical, subsurface, and seismic hazards; hazardous materials; water resources; cultural resources; safety and security; energy resources; climate change; Section 4(f) protected resources; air quality and health risk; land use and development; environmental justice; or economic and fiscal.

With implementation of mitigation measures, the TSM Alternative would not contribute to any adverse cumulative effects with respect to transit, traffic, circulation, and parking.

The TSM Alternative would expand regional transportation choices that aim to improve overall regional mobility. As such, the TSM Alternative would result in decreases in VMT and regional travel times due to the increased use of transit. The TSM

Alternative would therefore result in a beneficial cumulative effect on area-wide traffic conditions.

Locally, this alternative would not have an adverse effect to transit operations or circulation as there would be minimal effects on individual bus lines or stops. Increase in transit use also reduces the reliance on automobiles and generally reduces the demand for parking on a regional basis.

CEQA Determination

The TSM Alternative would not contribute to a significant cumulative impact with respect to the following environmental issues: displacement and relocation; community and neighborhoods; noise and vibration; ecosystems and biological resources; visual and aesthetic impacts; geotechnical, subsurface, and seismic hazards; hazardous materials; water resources; cultural resources; safety and security; energy resources; climate change; parklands and other community facilities; air quality and health risk; land use and development; or economic and fiscal.

With implementation of mitigation measures, the TSM Alternative would not result in a considerable contribution to cumulative impacts with respect to transit, traffic, circulation, and parking.

As indicated above, the TSM Alternative would result in decreases in VMT and regional travel times due to the increased use of transit. The TSM Alternative would therefore result in a beneficial cumulative impact on area-wide traffic conditions.

Locally, this alternative would not have a significant impact on transit operations and circulation as there would be minimal impacts on individual bus lines or stops. Increase in transit use also reduces the reliance on automobiles and generally reduces the demand for parking on a regional basis.

4.19.3.3 SR 60 LRT Alternative

4.19.3.3.1 Impact Analysis

Cumulative impacts associated with the SR 60 LRT Alternative, with or without the North Side Design Variation, are the same because the features of the project that resulted in the findings for each category of impact evaluated for the SR 60 LRT Alternative are the same for the SR 60 North Side Design Variation. Therefore, reference to the SR 60 LRT Alternative in this discussion refers to both the SR 60 LRT Alternative and its North Side Design Variation.

Transit, Traffic, Circulation, and Parking: Construction impacts would be temporary and intermittent during the overall construction period for the SR 60 LRT Alternative. As continued development is planned throughout the project area, individual development projects may occur simultaneously adjacent to the project alignment. This may result in a short-term cumulatively considerable adverse effect during construction. The SR 60 LRT Alternative includes measures to minimize the anticipated adverse effects during construction, which would reduce the project's contribution to cumulative construction effects.

The SR 60 LRT Alternative would expand regional transportation choices and aims to improve overall regional mobility. As such, the SR 60 LRT Alternative would result in decreases in VMT and travel time compared to the No Build Alternative due to the increased use of transit. The SR 60 LRT Alternative would therefore result in a beneficial cumulative effect on area-wide traffic conditions. In addition, the SR 60 LRT Alternative would not have an adverse effect on local transit operations and circulation as there would be minimal impacts to individual bus lines or stops.

However, the SR 60 LRT Alternative would result in substantial adverse effects to traffic operations due to the concentration of vehicles traveling to and from the proposed park and ride and drop-off/pick-up facilities. The SR 60 LRT Alternative includes measures to minimize the anticipated adverse effects on intersections, which would also reduce the project's contribution to cumulative effects.

At the proposed station locations with areas of limited on-street and off-street parking availability, the SR 60 LRT Alternative could result in a substantial adverse effect if the on-site parking

supply does not meet the demands of the transit users and land uses generating parking demand. However, transit use reduces reliance on automobiles and generally reduces demand for parking on a regional basis. Given that development around the stations is likely to be transit oriented, the proposed project may contribute to some cumulative effects on parking. However, the SR 60 LRT Alternative includes measures to minimize the anticipated adverse effects on parking, which would reduce the project's contribution to cumulative effects.

Operation of the increased transit service associated with the SR 60 LRT Alternative would add pedestrians and bicyclists to the current facilities in the areas surrounding stops and stations. Although there would also be an increase in pedestrian and bicycle activity in the vicinity of individual development projects, the cumulative result of these new users would not cause an adverse effect on pedestrian or bicycle conditions. However, the SR 60 LRT Alternative would have substantial adverse effects adjacent to the proposed stations if adequate pedestrian facilities (such as crosswalks and pedestrian push buttons at crossings) are not provided. In combination with increases in pedestrians due to individual development projects, this would result in a cumulatively considerable adverse effect on pedestrian conditions. However, the SR 60 LRT Alternative includes measures to minimize the anticipated adverse effects on pedestrians, which would also reduce the project's contribution to cumulative effects.

Displacement and Relocation: A project may have cumulatively considerable impacts associated with displacement, even when mitigated, if it would contribute cumulatively to displacement of the same land uses or important resources. It is anticipated that loss of jobs and business activity due to displacement associated with the SR 60 LRT Alternative would be retained with relocation in the project area or region. Thus, cumulative impacts due to job loss and business activity would not be significant. To the extent that similar high-capacity transit projects tend to spur additional economic development, the project could have a beneficial cumulative impact on creation of new businesses and jobs in the project area.

The parcel located at 1181 Durfee Avenue in the city of South El Monte was identified for acquisition as part of the Peck Road station park and ride facilities. However, due to recent developments on this property, this parcel would not be acquired if the SR 60 LRT Alternative is selected as the LPA. Park and ride spaces identified for this station would be accommodated on the remaining properties identified for acquisition for this station and associated park and ride facilities.

It is estimated that approximately 895 off-street parking spaces would be displaced as a result of construction of the SR 60 LRT Alternative. Of these, approximately 725 parking spaces would require consideration of mitigation measures for replacement parking to help offset the loss. The remaining estimated 170 displaced parking spaces are subject to full property acquisition. The parking loss associated with the full property acquisitions would not require replacement because it serves the acquired business locations, and does not substantially serve a broader parking demand or customer base.

Where permanent parking displacement that serves multiple businesses would occur, parking would be replaced by Metro through a combination of a reconfigured site, optimization of parking at nearby lots, shared parking arrangement with new Metro facilities, and partial offset of parking demand by the increased public transit access provided by the proposed project.

It is anticipated that new developments expected by 2035, which represent mostly residential and commercial uses, would provide the required parking for their occupants. The stock of publicly accessible parking would not be greatly reduced. The removal of parking is not anticipated to affect the local community or business operations.

Overall, the loss of publicly accessible surface parking due to the proposed project in conjunction

with other planned developments would not represent a cumulative loss.

Typically, transit projects themselves serve as mitigation for the loss of parking because they would remove vehicles from the road, thereby reducing the demand for parking. The Eastside Transit Corridor Phase 2 Project would provide new non-auto access to the region and its activity centers. Therefore, the proposed SR 60 LRT Alternative would partially offset potential adverse impacts due to loss of parking. Some cumulative impacts due to parking loss would remain, but they would not be significant.

Community and Neighborhoods: The cumulative impacts discussion for community and neighborhoods focuses on cities and Census designated places (CDPs) where the SR 60 LRT Alternative alignment would be constructed. The LRT alignment would pass through the following cities and CDPs: East Los Angeles, Montebello, Monterey Park, Rosemead, and South El Monte.

Given the proposed park and ride lots and connecting bus service at many of the stations, other surrounding communities and neighborhoods may benefit from the SR 60 LRT Alternative.

Social and Physical Character: None of the projects identified in Section 4.19.2 would cause adverse cumulative impacts to social and community character in the project area. Some of the proposed projects, such as the mixed-use development at Santa Anita Avenue and Plaza del Sol shopping center at Peck Road, would complement the urban design elements of the SR 60 LRT Alternative stations and yield beneficial cumulative impacts. Construction activities for these adjacent projects would also occur near the freeway ROW, but they would not be large enough in scale to substantially alter the social and physical character of the area, even if they do occur at the same time as Eastside Transit Corridor Phase 2 construction.

Crime and Public Health/Safety/Services: LRT stations and facilities can be perceived as potential safety hazards and attractive locations for illegal activities. However, Metro would provide security services at all Eastside Transit Corridor Phase 2 facilities as needed to prevent an increase in criminal activity. The stations themselves would become centers of pedestrian activity during train operation, and this may create a beneficial public presence in the surrounding community that would dissuade criminal activity. All LRT facilities and crossings would be designed to ensure safety and minimize potential hazards. After mitigation, no adverse impacts regarding crime, public health, safety, or public services would remain. No contribution to cumulative impacts would occur.

Community Resources and Events: Some construction projects in the vicinity of the SR 60 LRT Alternative would require additional road closures in the vicinity of community events and resources if they would occur at the same time as the LRT construction. This would lengthen traffic and pedestrian detours and cause additional delay. Metro would coordinate with any simultaneous construction projects in the area to minimize detours and accommodate access to community events. After mitigation, no significant adverse impacts would remain and no contribution to cumulative impacts would occur.

Minority, Low-Income, Senior Citizen, and Disabled Persons: Construction of the SR 60 LRT Alternative would occur primarily in the SR 60 ROW and in some off-street parcels surrounding the proposed station locations. None of these parcels contain services specifically for minority, low-income, senior citizen, or disabled persons, nor are these populations within the project area clustered near the proposed LRT alignment.

Minority, low-income, senior citizen, and disabled persons tend to be more dependent on transit service for mobility than other segments of the population, and they would likely benefit from the transit service improvements the SR 60 LRT Alternative would provide. All LRT stations and trains would be compliant with the Americans with Disabilities Act to ensure accessibility to all passengers.

No adverse impacts to minority, low-income, senior citizen, or disabled persons are expected, and therefore no contribution to adverse cumulative impacts on these populations would occur.

Viability of Local Businesses: Other construction projects that would require street closures in the vicinity of the SR 60 LRT Alternative would compound construction effects if they occur simultaneously. This would temporarily heighten the inconvenience of accessing nearby businesses. Metro would coordinate with other construction projects in the area to minimize street closures and maintain access to businesses. After mitigation, cumulative impacts would be less than significant.

The proposed developments, in conjunction with the LRT, would offer new and enhanced opportunities for new businesses to locate in the area or for existing businesses to relocate here. This potential cumulative impact would be beneficial.

Mobility: Other construction projects that would require street closures in the vicinity of the SR 60 LRT Alternative would temporarily reduce mobility further if they occur during the LRT construction phase. Metro would coordinate with other construction projects in the area to minimize street and sidewalk closures. After mitigation, cumulative impacts would be less than significant.

Population and Employment: Since little net population or employment changes would occur, the project would not result in a considerable contribution to cumulative population or employment changes.

Physical Division: Some of the other construction projects proposed in the vicinity of the SR 60 ROW, such as the Paramount Boulevard improvements, could also require temporary freeway crossing closures. This would compound the dividing effect of the closures needed for construction of the SR 60 LRT Alternative if they occur simultaneously. Metro would coordinate with other ongoing construction projects to ensure that any cumulative temporary physical division impacts are minimized. After mitigation, significant cumulative impacts would be reduced to less than significant.

Noise and Vibration: Noise levels along the route would be somewhat increased by the presence of the SR 60 LRT Alternative, since it would involve operating transit vehicles. Some of the other planned projects in the area would also increase noise because they would result in increased travel, which would result in significant cumulative noise impacts. With implementation of all noise and vibration mitigation measures identified for the SR 60 LRT Alternative, all project-related noise and vibration impacts would be reduced to less than significant. Since the LRT project would provide an alternative source of transportation to many of the other planned projects as well as to other destinations in the area, it would reduce the number of auto trips and the noise levels associated with those foregone auto trips. Therefore, the SR 60 LRT Alternative would not contribute to cumulative impacts and may provide a beneficial overall effect.

Ecosystems and Biological Resources: Construction activities associated with future projects have the potential to affect biological resources including sensitive habitats, migratory birds, locally protected trees, and wildlife corridors. Other ongoing and future construction projects would be required to implement mitigation measures to address any potential impacts to biological resources. With implementation of all ecosystems and biological resource mitigation measures, and given that the SR 60 LRT corridor would occur in a mostly urban area, the SR 60 LRT Alternative would not contribute to a cumulative impact with respect to biological resources.

Visual and Aesthetic Impacts: The SR 60 Freeway is a heavily traveled freeway serving commuters and large commercial vehicles. Given the short-term nature of construction activities, no adverse impacts would occur to visually-sensitive resources along the SR 60 LRT Alternative. Additionally, views of visual resources within the surrounding area would remain intact.

Other planned and/or proposed development projects throughout the project area have gone through or are going through the planning process. These future development projects, which consist mostly of transportation and commercial projects, would be subject to independent environmental review and mitigation in accordance with state and federal laws. Given the transportation and commercial nature of these projects proposed within an existing transportation corridor, adverse effects on visual quality and character from these proposed and reasonably foreseeable projects would not be expected. Additionally, none of these projects are expected to be under construction simultaneously with the SR 60 LRT Alternative. Therefore, in combination with other planned and approved projects in the area, construction of the SR 60 LRT Alternative would not contribute to a cumulatively significant impact on visual quality or character.

As indicated above, future development projects, which consist mostly of transportation and commercial projects, would be subject to independent environmental review and mitigation in accordance with state and federal laws. The SR 60 LRT Alternative would not result in direct or indirect nighttime illumination impacts during construction, nor would the alternative result in significant shade and shadow impacts. When limited construction activities associated with the SR 60 LRT Alternative do occur during nighttime hours, lighting would be directed toward the construction areas and no spillover lighting is anticipated. Therefore, the SR 60 LRT Alternative would not contribute to cumulative nighttime illumination. Equipment required for construction of columns and aerial stations would include drilling rigs, small bulldozers, large cranes, truck trailers to deliver pre-cast concrete girders, and related equipment. Falsework or precast girders would be lifted over active roads by large cranes and secured to the columns. Given the above and the lack of shade-sensitive land uses along the SR 60 LRT alignment, the potential for construction activities to result in shading and shadows along the SR 60 corridor would be minimal and the alternative would not contribute to cumulative shade and shadow impacts.

Visual impacts associated with the operation of the SR 60 LRT Alternative, with or without the North Side Design Variation, would be cumulatively considerable if combined with potentially similar impacts of existing, planned, and reasonably foreseeable development in the API.

The Monterey Park Market Place would be developed north of SR 60 on an area formerly used as a landfill (OII North Parcel), but it would be consistent with the surrounding urban character. The signage for this commercial development project would not substantially alter the existing urban character and is anticipated to be taller than the mechanically stabilized earth (MSE) wall associated with SR 60 North Side Design Variation. The MSE wall would not obstruct views of the proposed development, given that the wall would be lower than the berm located between the freeway ROW and the OII North Parcel property line. The MSE wall would include aesthetic treatments such as landscaping or concrete designs, which would not detract from visibility and would enhance the appearance of the freeway adjacent to the proposed Monterey Park Market Place development. No cumulative impacts to aesthetic resources and scenic vistas would occur.

Given the infrastructure-related nature of transportation projects proposed within an existing transportation corridor, cumulative adverse effects on visual quality and character would not be expected. Therefore, in combination with other planned and/or reasonably foreseeable future projects in the vicinity of the SR 60 alignment, operation of the SR 60 LRT Alternative, with or without the North Side Design Variation, would not contribute to a cumulatively significant impact on visual quality and character.

Both light and glare impacts associated with project operations are site-specific. Cumulative development within the surrounding areas could result in an increase in daytime glare and ambient

nighttime lighting. For instance, the proposed lighting on the buildings and signs of the Monterey Park Market Place would create new sources of light in the area that would contribute to cumulative light levels. However, the city of Monterey Park's Municipal Code requires all outdoor lighting in commercial zones to be shielded to prevent light spillage. The SR 60 LRT Alternative would not result in light and glare impacts during operation and related projects would be required to adhere to the applicable jurisdiction's nighttime lighting ordinance. Therefore, the SR 60 LRT Alternative and related projects would not result in a considerable contribution to significant cumulative light and glare impacts. In addition, the shade and shadow impacts from operations within the surrounding area would not be significant; consequently, the project would not result in a considerable contribution to cumulative shade and shadow impacts.

Geotechnical, Subsurface, and Seismic Hazards: A number of development projects are currently under construction, in the planning stages, or proposed within the vicinity or adjacent to the SR 60 LRT Alternative alignment, as discussed in Section 4.19.2. Such projects have the potential to result in impacts related to geotechnical, subsurface, and seismic hazards during construction and/or operation.

A portion of the SR 60 LRT Alternative would be constructed adjacent to the South Parcel of the OII landfill, and the North Side Design Variation would be constructed adjacent to the North Parcel of the OII landfill. Given that several construction options have been developed for the foundation support of the elevated structures based on existing information and studies about the soils on the North and South Parcels, and vibration levels generated during construction would be below the damage criterion, vibration impacts on the overall slope stability would be minimized. However, as the project moves forward, final design will be based on site-specific conditions at the time and the alignment design and construction plans will be reviewed and approved by the U.S. Environmental Protection Agency (USEPA).

A segment of the SR 60 LRT Alternative east of San Gabriel Boulevard is located within the Alquist-Priolo Earthquake Fault zone. Accordingly, there is a potential for fault rupture along this portion of the alignment. Further engineering would be performed during advanced stages of design to confirm the limits of the fault zone to provide appropriate setback for foundation support. In addition, the results from geotechnical investigations would delineate the depth/thickness of the refuse in the vicinity of the OII landfill and the potentially loose and liquefiable soils within the young alluvial fan deposits.

As such, the SR 60 LRT Alternative would contribute to cumulative impacts associated with geotechnical, subsurface, and seismic hazards if other related projects in the area result in impacts related to geotechnical, subsurface, and seismic hazards; however, mitigation identified in Section 4.11, Geotechnical/Subsurface/Seismic/Hazardous Materials, would reduce potential impacts associated with geotechnical, subsurface, and seismic hazards for this alternative to less than significant. In addition, future development projects, which consist mostly of transportation and commercial projects, would be subject to independent environmental review and mitigation in accordance with state and federal laws to address any potential impacts related to geotechnical, subsurface, and seismic hazards. Therefore, the SR 60 LRT Alternative's incremental contribution to the cumulative impacts would not be cumulatively considerable.

Hazardous Materials: Construction of some of the related projects listed in Section 4.19.2 could result in hazardous impacts due to hazardous materials in soil and/or groundwater and the possible release of asbestos fibers from asbestos-containing material (ACM) or lead particles from lead-based paint (LBP) associated with building demolition. The additive effect of construction activities would result in cumulative impacts to human health or the environment through release of hazardous materials. Construction of the SR 60 LRT Alternative would contribute to cumulative impacts associated

with hazardous materials; however, mitigation identified in Section 4.11, Geotechnical/Subsurface/Seismic/Hazardous Materials, would reduce potential impacts associated with hazardous materials for the SR 60 LRT Alternative to less than significant. In addition, future development projects would be subject to independent environmental review and mitigation in accordance with state and federal laws to address any potential hazardous impacts. Therefore, the SR 60 LRT Alternative's contribution to cumulative impacts would not be cumulatively considerable.

Water Resources: Development of the SR 60 LRT Alternative and associated maintenance yard within the Mission Junction rail facility in combination with related renovation, new construction, and transportation projects identified in the vicinity or adjacent to the project area would result in cumulative impacts to water resources and hydrology.

The proposed Santa Anita Avenue station and park and ride facility would be located in the flood control basin of Whittier Narrows on elevated platforms and elevated structures supported by columns similar to those supporting the LRT guideway. Compensatory mitigation would be provided for the potential loss of flood storage capacity within the Whittier Narrows Flood Control Basin, and the structure would be designed to not impede the flow of floodwaters in any direction. Other planned and/or proposed development projects that would be located in or cross the Whittier Narrows Flood Control Basin (the Basin) would also be required to provide compensatory mitigation for the potential loss of flood storage capacity within the Basin.

The project area, which is within the Los Angeles River, Rio Hondo, and San Gabriel River Watersheds, is covered by urban uses. The existing drainage system in the watersheds consists of engineered storm channels and, therefore, would be expected to change little due to potential cumulative increases in stormwater runoff. It is not expected that any of the other reasonably foreseeable projects would result in a substantial change to the amount of impervious land cover in the project area, or a substantial alteration of the drainage systems. Since the amount of runoff generated in the project area would not be expected to significantly increase due to development of surrounding projects, substantial increases in erosion, siltation, flooding, or exceedance of the stormwater drainage system would not be expected and cumulative impacts would be less than significant.

With regard to surface water and groundwater quality in the project area, each of the concurrent projects would be subject to applicable water quality regulations and thus would be required to prepare a storm water pollution prevention plan (SWPPP) for construction activities and to incorporate BMPs to control pollutant discharges. In addition, operation of all the related projects would be required, by Chapter 13.29, Storm Water and Urban Runoff Pollution Prevention Control and Standard Urban Stormwater Management Plan (SUSMP) of the Los Angeles Municipal Code, to submit and implement a SUSMP.

With compliance of applicable State Water Resources Control Board (SWRCB) permits and other approvals as well as implementation of mitigation measures for surface water quality, construction and operation of the SR 60 LRT Alternative would not result in a considerable contribution to potential cumulative water quality impacts.

Construction of the SR 60 LRT Alternative has the potential to encounter and release contaminated groundwater during shallow excavations along the alignment. There are Superfund areas along the alignment where groundwater is contaminated by chemical plumes. Additionally, there is potential for construction activities to disturb the OII landfill site and for hazardous waste materials to be released into groundwater. Mitigation proposed in Section 4.11, Geotechnical/Subsurface/Seismic/Hazardous Materials, would reduce potential impacts associated with hazardous materials to less than significant and the SR 60 LRT Alternative's

contribution to cumulative effects would also not be cumulatively considerable.

Overall, construction and operation of the SR 60 LRT Alternative would not result in a considerable contribution to significant cumulative water quality, hydrology, and/or drainage impacts.

Cultural Resources: There would be no adverse effect or significant impact on the only two historic properties located within the area of potential effect (APE) for the SR 60 LRT Alternative: the Helms Bakery and the Chinese Garden Restaurant. Therefore, the SR 60 LRT Alternative would not contribute to any cumulative impacts on historic properties.

Since significant buried cultural or paleontological resources may exist within the project area, and it is possible these materials could be unearthed during project excavation activities, construction of the SR 60 LRT Alternative could have the potential to disturb and destroy a significant archaeological resource or paleontological resource. If unmitigated, this disturbance of significant archaeological and paleontological resources in combination with other development projects discussed in Section 4.19.2 would result in significant cumulative impacts.

However, with the incorporation of project-level mitigation measures, the SR 60 LRT Alternative's contribution to archaeological and paleontological cultural resources impacts, if any are found during construction, it would not be considerable. Therefore, construction of the SR 60 LRT Alternative would not result in a considerable contribution to potential cumulative cultural resource impacts.

Safety and Security: Related projects in the vicinity of or adjacent to the SR 60 LRT Alternative alignment have the potential to result in safety and/or security impacts during construction and/or operation. The SR 60 LRT Alternative would contribute to cumulative safety and security impacts during construction and operation. However, mitigation proposed in Section 4.16, Safety and Security, would reduce potential impacts to safety and security associated with this alternative to less than significant, which would reduce the SR 60 LRT Alternative's contribution to the cumulative safety and security impacts to less than cumulatively considerable.

Energy Resources: Construction of the SR 60 LRT Alternative would result in less than significant impacts to energy resources. The proposed project, as well as renovation, new construction, and transportation projects in the vicinity of the proposed project, would be consistent with federal, state, and local regulations to conserve and reduce energy usage. Construction of the SR 60 LRT Alternative would require energy from both transportation fuels and Southern California Edison's (SCE) and Los Angeles Department of Water and Power's (LADWP) electricity supply.

SCE and LADWP are working to develop new renewable energy and energy efficient resources. The SR 60 LRT Alternative, and other potential projects in the area, would be consistent with applicable energy efficiency guidance set by SCE and LADWP. Potential cumulative impacts related to construction would be less than significant.

Both SCE and LADWP predict increases in electricity demand over the next decade. Both have increased their ability to serve the area by adding new facilities and increasing and diversifying their energy supplies. Operation of the SR 60 LRT Alternative would not result in a considerable contribution to cumulative impacts on energy.

Climate Change: The SR 60 LRT Alternative would be consistent with the 2012 RTP/SCS because it would improve regional transit by expanding the region's light rail service. In addition to the SR 60 LRT Alternative, other transit projects identified in the LRTP and in Section 4.19.2 would have an overall beneficial effect from the reduction in passenger vehicle use expected under the various transit improvements. An overall increase in emissions would not be expected when the other transit improvement projects are taken into consideration.

The SR 60 LRT Alternative would also result in a net decrease in GHG emissions when compared to the No Build Alternative and to the existing conditions (2010). As such, the SR 60 LRT Alternative would not contribute to cumulative impacts to climate change during operation because emissions would be less than significant. In addition, the SR 60 LRT Alternative would be consistent with the requirements of CARB's Scoping Plan and SB 375 because it would meet California's goal to increase mass transit. Therefore, under CEQA, GHG emissions associated with the SR 60 LRT Alternative would not be cumulatively considerable.

Parklands and Other Community Facilities:

Public Schools: None of the proposed developments identified in Section 4.19.2 would likely physically alter or disrupt the public schools located within the API for the SR 60 LRT Alternative, Bella Vista Elementary School or South El Monte High School. Therefore, the SR 60 LRT Alternative would not contribute to any potentially significant cumulative impacts on schools.

Emergency Services: None of the projects identified in Section 4.19.2 would involve alterations to the emergency service facility located within the API for the SR 60 LRT Alternative, the East Los Angeles Sheriff's Station. Therefore, no cumulative impacts would occur. Light rail can encourage, but does not cause, growth to occur, therefore no induced growth that could affect emergency service levels would occur.

Other Public Services: None of the projects identified in Section 4.19.2 would involve alterations to non-emergency, non-educational public service facilities located within the API of the SR 60 LRT Alternative, namely the post office near Via Paseo (Montebello) and the Los Angeles County Office of the Assessor. Therefore, no cumulative impacts would occur.

Parks and Recreational Facilities: No new recreational facilities would be constructed as part of the SR 60 LRT Alternative, and no existing facilities would be expanded.

None of the projects identified in Section 4.19.2 would involve alterations to the existing parks and recreational facilities, as discussed in Section 4.15, Parklands and Other Community Facilities, and none of the projects would be located near the proposed SR 60 LRT Alternative. None of the projects would generate substantial additional use of the bike paths along the Rio Hondo and San Gabriel River. As a result, no cumulative impacts to park and recreational facilities would occur.

Air Quality and Health Risk Impact: The SR 60 LRT Alternative would be consistent with the 2012-2035 RTP/SCS because it would improve regional transit by expanding the region's light rail service.

In addition to the SR 60 LRT Alternative, other transit projects identified in the LRTP and in Section 4.19.2 that would be implemented by 2035 would have a net cumulative beneficial effect to regional air quality operational emissions from the reduction in passenger vehicle use expected under the various transit improvements. In addition, as part of the 2012–2035 RTP/SCS, SCAG has identified strategies to relieve congestion, reduce delay and harmful emissions, and improve safety on major truck corridors.

Potential impacts to air quality for the SR 60 LRT Alternative during construction and operation would be less than significant. The SR 60 LRT Alternative would result in less than significant air quality impacts during operation when compared to the No Build Alternative. As a result, operational emissions associated with the SR 60 LRT Alternative would not be cumulatively considerable.

Land Use and Development: Implementation of the SR 60 LRT Alternative would not contribute to cumulative land use impacts within the project area. The SR 60 LRT Alternative would not create any new land uses that could, in combination with any current and reasonably foreseeable related actions, generate conflicts with land uses adjacent to the alignment or result in inconsistency or conflict with local land use plans, policies, or regulations, except

for the Whittier Narrows Dam Basin Master Plan with regards to flood storage capacity. With implementation of mitigation, the SR 60 LRT Alternative would be consistent with the Whittier Narrows Dam Basin Master Plan.

Some land uses would be converted, but not in ways that are inconsistent with current land use plans or incompatible with the surrounding areas. Future developments on these parcels could also integrate with nearby bus routes to encourage transit-supportive land uses, community growth, and increased transit ridership, which are considered beneficial impacts. Therefore, the SR 60 LRT Alternative would not result in a considerable contribution to adverse cumulative land use impacts.

In addition, the new transit service would help offset the impacts associated with commercial and residential developments planned and underway in the vicinity of the SR 60 LRT Alternative, such as the Montebello Hills Specific Plan and the South El Monte two-phased mixed-use project along Peck Road north of SR 60, by providing alternatives to driving to access these sites.

Environmental Justice: The SR 60 LRT Alternative would not result in any cumulatively significant impacts to environmental justice populations. No disproportionate adverse impacts associated with diminished economic vitality and employment opportunities are anticipated.

Economic and Fiscal: The SR 60 LRT Alternative would have long-term benefits for the communities it traverses and would further goals and policies for revitalization and investment within the project area. The project's operation would have beneficial long-term mobility impacts for the communities in terms of travel time cost savings. The loss of tax revenue, although not significant, would likely be offset by increased development near stations and along the LRT alignment. The SR 60 LRT Alternative would not contribute to cumulative economic or fiscal impacts during operation and would be economically beneficial to its surrounding communities. Construction activities associated with other development projects could contribute to community disruption if they occur at the same time as the SR 60 LRT Alternative. This may result in short-term economic impacts on local businesses, but these would be temporary. Overall, the contribution of the SR 60 LRT Build Alternative to cumulatively significant economic and fiscal impacts would not be cumulatively considerable. Rather, the SR 60 LRT Alternative could result in beneficial contributions.

Maintenance Yard Option: Construction of the Mission Junction Maintenance Yard Option and other projects that may occur simultaneously would require obtaining the necessary construction permits that require incorporation of appropriate avoidance and minimization measures and techniques to reduce adverse short-term cumulative impacts during construction. In the long-term, construction impacts would not be cumulatively considerable.

The Mission Junction Maintenance Yard Option would not result in significant noise and vibration impacts on sensitive areas during operations and would not contribute to cumulative impacts. The Mission Junction Maintenance Yard Option would not result in a considerable contribution to cumulative impacts on traffic, community and neighborhoods, ecosystems and biological resources, visual and aesthetic impacts, cultural resources, safety and security, climate change, parklands and other community facilities, air quality and health risk impacts, land use and development, or environmental justice populations.

With regard to displacements and relocations, the Mission Junction Maintenance Yard Option would require acquisition of property necessitating relocation of several businesses. Metro would be required to follow stipulations of certain federal and state acquisition and relocation programs, policies, and procedures. While this yard option would require relocation of businesses and the associated jobs, it is likely the businesses and jobs could be relocated at other available sites within the region or project area.

4.19.3.3.2 Mitigation Measures

Mitigation measures that would be implemented to avoid, minimize, or mitigate potentially significant impacts are identified within the specific EIS/EIR section for each environmental resource and summarized in Table ES-2.

4.19.3.3.3 Impacts Remaining After Mitigation

NEPA Finding

The SR 60 LRT Alternative would not result in adverse direct or indirect effects related to the following environmental issues: energy resources, climate change, ecosystems/biological resources, cultural resources (historical resources), Section 4(f) protected resources, visual and aesthetic impacts, or environmental justice. Therefore, the SR 60 LRT Alternative would not contribute to any adverse cumulative effects with respect to these environmental resources.

With implementation of project-level mitigation measures, the SR 60 LRT Alternative is not anticipated to contribute to any adverse cumulative effects with respect to the following environmental issues: transit, traffic, circulation, and parking; displacement and relocation; community and neighborhoods; noise and vibration; geotechnical, subsurface, and seismic hazards; hazardous materials; water resources; cultural resources (archaeology); air quality and health risk; land use and development; economic and fiscal; and safety and security.

The SR 60 LRT Alternative would have beneficial cumulative effects on community and neighborhood resources. Proposed projects presented in Section 4.19.2, such as the mixed-use development at Santa Anita Avenue and Merced Avenue on the north side of SR 60 and Plaza del Sol shopping center, at Peck Road, would have access to convenient and reliable transit via the SR 60 LRT Alternative to destinations within the project area and the region. The proposed developments, in conjunction with the SR 60 LRT Alternative, would offer new and enhanced opportunities for new businesses to locate in the area or for existing businesses to relocate in the area. Transit-dependent populations such as low-income, senior citizens, and disabled persons would benefit from the transit service improvements.

The SR 60 LRT Alternative would have beneficial cumulative effects on economic and fiscal resources. The SR 60 LRT Alternative's operation would have beneficial long-term mobility effects for the communities it traverses in terms of travel time cost savings. The minimal loss of tax revenue would likely be offset by increased development near stations and along the LRT alignment. The SR 60 LRT Alternative would also further goals and policies for revitalization and investment within the project area.

The SR 60 LRT Alternative would have beneficial cumulative effects on parking and noise levels because the LRT alternative would provide an alternative source of transportation to many of the other planned projects as well as to other destinations in the area. This would reduce the number of auto trips, partially offset any loss of parking, and lower the noise levels associated with those foregone auto trips. Therefore, the SR 60 LRT Alternative and maintenance yard option would not result in a considerable contribution to adverse cumulative effects and would provide a beneficial overall effect.

CEQA Determination

The SR 60 LRT Alternative would not contribute to any significant cumulative impacts with respect to the following environmental issues: energy resources, climate change, ecosystems and biological resources, cultural resources (historical resources), parklands and other community facilities, or visual and aesthetic impacts.

With implementation of project-level mitigation measures, the SR 60 LRT Alternative would not contribute to any significant cumulative impacts with respect to the following environmental issues: transit, traffic, circulation, and parking; displacement and relocation; community and neighborhoods; noise and vibration; geotechnical, subsurface, and seismic hazards; hazardous

materials; water resources; cultural resources (archaeological and paleontological resources); air quality and health risk; land use and development; economic and fiscal; or safety and security.

The SR 60 LRT Alternative would have beneficial cumulative impacts on community and neighborhood resources by providing convenient and reliable transit for future planned projects to destinations within the project area and the region. The proposed developments, in conjunction with the LRT, would offer new and enhanced opportunities for new businesses to locate in the area or for existing businesses to relocate in the area.

The SR 60 LRT Alternative would have beneficial cumulative impacts on economic and fiscal resources. The SR 60 LRT Alternative's operation would have beneficial long-term mobility impacts for the communities it traverses in terms of travel time cost savings and would further goals and policies for revitalization and investment within the project area.

The SR 60 LRT Alternative would have beneficial cumulative impacts on parking and noise levels because the LRT alternative would reduce the number of auto trips, partially offset any loss of parking, and lower the noise levels associated with those foregone auto trips. Therefore, the SR 60 LRT Alternative and maintenance yard option would not result in a considerable contribution to adverse cumulative impacts and may provide a beneficial overall impact.

4.19.3.4 Washington Boulevard LRT Alternative

4.19.3.4.1 Impact Analysis

This section discusses the cumulative impacts evaluation of the Washington Boulevard LRT Alternative. Note that there are no differences in the cumulative impacts regardless of whether the aerial or at-grade crossing options at Rosemead Boulevard and the San Gabriel River/I-605 are implemented. This is because the features of the crossing at-grade or aerial structure that resulted in the findings for each category of impact evaluated for each crossing location are the same regardless of whether the crossing is at-grade or on an elevated structure.

Transit, Traffic, Circulation, and Parking: Construction impacts would be temporary and intermittent during the overall construction period for the Washington Boulevard LRT Alternative. As continued development is planned throughout the project area, individual development projects may occur simultaneously adjacent to the project alignment. This may result in a short-term cumulatively considerable adverse effect during construction. The Washington Boulevard LRT Alternative includes measures to minimize the anticipated adverse effects during construction, which would reduce the project's contribution to cumulative construction effects.

The Washington Boulevard LRT Alternative would expand regional transportation choices and is aimed at improving overall regional mobility. As such, the Washington Boulevard LRT Alternative would result in decreases in VMT and travel time due to the increased use of transit. The Washington Boulevard LRT Alternative would therefore result in a beneficial cumulative effect on area-wide traffic conditions. In addition, the Washington Boulevard LRT Alternative would not have an adverse effect to local transit operations and circulation as there would be minimal impacts to individual bus lines or stops.

However, the Washington Boulevard LRT Alternative would result in substantial adverse effects to traffic operations due to the concentration of vehicles traveling to and from the proposed park and ride and drop-off/pick-up facilities. In addition, the required modifications to the roadway network to accommodate the LRT (such as the elimination of travel lanes) would lead to additional future circulation effects with the Washington Boulevard LRT Alternative. In conjunction with the growth in vehicles from new development throughout the project area, this would result in cumulatively considerable adverse effects to intersection operations. The Washington Boulevard LRT Alternative includes measures to minimize the anticipated adverse effects on intersections, which

would also reduce the project's contribution to cumulative effects, but the adverse effect cannot be fully mitigated; therefore, the project's contribution would be cumulatively considerable.

At the proposed station locations with areas of limited on-street and off-street parking availability, the Washington Boulevard LRT Alternative would result in a substantial adverse effect if the on-site parking supply does not meet the demands of the transit users and land uses generating parking demand. However, transit use reduces reliance on automobiles and generally reduces demand for parking on a regional basis. Given that development around the stations is likely to be transit oriented, the proposed project may contribute to some cumulative effects on parking. However, the Washington Boulevard LRT Alternative includes measures to minimize the anticipated adverse effects on parking, which would reduce the project's contribution to cumulative effects.

Operation of the increased transit service associated with the Washington Boulevard LRT Alternative would add pedestrians and bicyclists to the current facilities in the areas surrounding stops and stations. Although there would also be an increase in pedestrian and bicycle activity in the vicinity of individual development projects, the cumulative result of these new users would not cause an adverse effect to pedestrian or bicycle conditions. However, the Washington Boulevard LRT Alternative would have substantial adverse effects adjacent to the proposed stations if adequate pedestrian facilities (such as crosswalks and pedestrian push buttons at crossings) are not provided. In combination with increases in pedestrians due to individual development projects, this would result in a cumulatively considerable adverse effect to pedestrian conditions. However, the Washington Boulevard LRT Alternative includes measures to minimize the anticipated adverse effects to pedestrians, which would also reduce the project's contribution to cumulative effects.

Displacement and Relocation: A project may have cumulatively considerable impacts associated with displacement, even when mitigated, if it would contribute cumulatively to displacement of the same land uses or important resources. It is anticipated that loss of jobs and business activity due to displacement associated with the Washington Boulevard LRT Alternative would be retained with relocation in the project area or region. Thus, adverse cumulative impacts due to job loss and business activity would not be significant. To the extent that similar high-capacity transit projects tend to spur additional economic development, the project could have a beneficial cumulative impact on creation of new businesses and jobs in the project area.

Overall, because displacement of property is site-specific in nature it is not expected to contribute cumulatively to other property acquisition in the project area. Therefore, no adverse cumulative impacts associated with displacement and relocation is anticipated.

It is estimated that approximately 1,794 parking spaces would be displaced as a result of construction of the Washington Boulevard LRT Alternative. Of these, approximately 935 parking spaces would require consideration of mitigation measures for replacement parking to help offset the loss. The remaining estimated 859 displaced parking spaces are subject to full property acquisition. The parking loss associated with the full property acquisitions would not require replacement because it serves the acquired business locations and does not substantially serve a broader parking demand or customer base.

Where permanent parking displacement would occur that serves multiple businesses, parking would be replaced by Metro through a combination of a reconfigured site, optimization of parking at nearby lots, shared parking arrangement with new Metro facilities, and partial offset of parking demand by the increased public transit access provided by the proposed project.

It is anticipated that new developments expected by 2035, representing mostly residential and commercial uses, could provide the required parking

for their occupants. The stock of publicly accessible parking would not be greatly reduced. The removal of parking is not anticipated to affect the local community or business operations.

Overall, the loss of publicly accessible surface parking due to the proposed project in conjunction with other planned developments would not represent a cumulative loss.

Typically, transit projects themselves serve as mitigation for the loss of parking because they would remove vehicles from the road, thereby reducing the demand for parking. The Eastside Transit Corridor Phase 2 Project would provide new non-auto access to the region and its activity centers. Therefore, the proposed Washington Boulevard LRT Alternative would partially offset potential adverse impacts due to loss of parking. Some cumulative impacts due to parking loss would remain but they would not be significant.

Community and Neighborhoods: The cumulative impacts discussion for community and neighborhoods focuses on CDPs where the Washington Boulevard LRT Alternative alignment would be constructed. The Washington Boulevard LRT Alternative alignment would pass through the following cities and CDPs: East Los Angeles, Montebello, Commerce, Pico Rivera, West Whittier/Los Nietos, Santa Fe Springs, and Whittier.

Given the proposed park and ride lots and connecting bus service at many of the stations, other surrounding communities and neighborhoods may benefit from the Washington Boulevard LRT Alternative.

Social and Physical Character: Should any of the construction projects along the Washington Boulevard LRT Alternative alignment identified in Section 4.19.2 occur at the same time as the Eastside Transit Corridor Phase 2 construction, impacts would be cumulatively significant. Noise and temporary visual changes to surrounding neighborhoods could be exacerbated. Metro would coordinate with other construction projects to minimize impacts where possible. After mitigation, these cumulative impacts would be less than significant.

Crime and Public Health/Safety/Services: LRT stations and facilities can be perceived as potential safety hazards and attractive locations for illegal activities. However, Metro would provide security services at all LRT facilities as needed to prevent an increase in criminal activity. All LRT facilities and crossings would be designed to ensure safety and minimize potential hazards. The stations themselves would become centers of pedestrian activity during train operation, and this may create a beneficial public presence in the surrounding community that would dissuade criminal activity. After mitigation, no adverse impacts regarding crime, public health, safety, or public services would remain. No contribution to cumulative impacts would occur.

Community Resources and Events: Some construction projects in the vicinity of the Washington Boulevard LRT Alternative would require additional road closures in the vicinity of community events and resources if they occur at the same time as the LRT construction. This would lengthen traffic and pedestrian detours and cause additional delay. Metro would coordinate with simultaneous construction projects in the area to minimize detours and accommodate access to community events. After mitigation, no significant adverse impacts would remain and no contribution to cumulative impacts would occur.

Minority, Low-Income, Senior Citizen, and Disabled Persons: Minority, low-income, senior citizen, and disabled persons, who tend to be more dependent on transit service for mobility than other segments of the population, would likely benefit from the transit service improvements the Washington Boulevard LRT Alternative would provide. All LRT stations and trains would be compliant with the Americans with Disabilities Act to ensure accessibility to all passengers. No adverse impacts to minority, low-income, senior citizen, or disabled persons are expected, and therefore no contribution

to adverse cumulative impacts on these populations would occur.

Viability of Local Businesses: Other construction projects that would require street closures in the vicinity of the Washington Boulevard LRT Alternative would compound construction effects if they occur simultaneously. This would temporarily heighten the inconvenience of accessing nearby businesses. Metro would coordinate with other construction projects in the area to minimize street closures and maintain access to businesses. After mitigation, cumulative impacts would be less than significant.

The proposed developments, in conjunction with the LRT, would offer new and enhanced opportunities for new businesses to locate in the area or for existing businesses to relocate here. This potential cumulative impact would be beneficial.

Mobility: Other construction projects that would require street closures in the vicinity of the Washington Boulevard LRT Alternative would temporarily reduce mobility further if they occur during the LRT construction phase. Metro would coordinate with other construction projects in the area to minimize street and sidewalk closures. After mitigation, cumulative impacts would be less than significant.

Population and Employment: Since little net population or employment changes would occur, the project would not result in a considerable contribution to cumulative population or employment changes.

Physical Division: Some of the other construction projects proposed in the vicinity of the Washington Boulevard LRT Alternative could also require temporary street closures. This would compound the temporary dividing effect of the closures needed for the Washington Boulevard LRT Alternative construction if they occur simultaneously. Metro would coordinate with other ongoing construction projects to ensure that any cumulative physical division impacts are minimized. After mitigation, significant cumulative impacts would be reduced to less than significant.

Noise and Vibration: Noise levels along the route would be somewhat increased by the presence of the Washington Boulevard LRT Alternative, since it would involve operating transit vehicles. Some of the other planned projects in the area would also increase noise because they would result in increased travel, which would result in significant cumulative noise impacts. With implementation of all the noise and vibration mitigation measures identified for the Washington Boulevard LRT Alternative , all project-related noise and vibration impacts would be reduced to a level that is less than significant. Since the Washington Boulevard LRT Alternative would provide an alternative source of transportation for many of the other planned projects as well as to other destinations in the area, it would reduce the number of auto trips and the noise levels associated with those foregone auto trips. Therefore, the Washington Boulevard LRT Alternative would not contribute to cumulative impacts and may provide a beneficial overall effect.

Ecosystems and Biological Resources: Construction activities associated with future projects have the potential to affect biological resources, including sensitive habitats, migratory birds, locally protected trees, and wildlife corridors. Other ongoing and future construction projects would be required to implement mitigation measures to address any potential impacts to biological resources. With implementation of all ecosystems and biological resource mitigation measures, and given that the Washington Boulevard LRT corridor would occur in a mostly urban area, the Washington Boulevard LRT Alternative would not contribute to a cumulative impact with respect to biological resources.

Visual and Aesthetic Impacts: Construction of the Washington Boulevard LRT Alternative would result in less than significant impacts to visual quality and character along both Garfield Avenue and Washington Boulevard.

Other planned and/or proposed development projects throughout the project area have gone

through or are going through the planning process. These future development projects would be subject to independent environmental review and mitigation in accordance with state and federal laws. Given the transportation infrastructure-related nature of these projects proposed within an existing transportation corridor, adverse effects on visual quality and character from these proposed and reasonably foreseeable projects would not be expected. Additionally, none of these projects are expected to be in construction simultaneously with the Washington Boulevard LRT Alternative. Therefore, in combination with other planned and approved projects in the area, construction of the Washington Boulevard LRT Alternative would not contribute to a cumulatively significant impact on visual quality or character.

The Washington Boulevard LRT Alternative would not result in direct or indirect nighttime illumination impacts during construction, nor would the alternative result in significant shade and shadow impacts. Reasonably foreseeable future development would also not have the potential to combine with the construction of the Washington Boulevard LRT Alternative to create new lighting or shadows on sensitive uses. Therefore, significant cumulative impacts during construction with respect to nighttime illumination or shade and shadows would not occur.

Visual impacts associated with the operation of the Washington Boulevard LRT Alternative would be cumulatively considerable if combined with potentially similar impacts of existing, planned, and reasonably foreseeable development in the API.

Furthermore, foreseeable development would likely result in possible densification of land uses throughout the project corridor. These areas may develop with taller buildings that would change the visual surroundings near the stations. Proposed and other reasonably foreseeable future projects would include measures to substantially reduce or avoid adverse visual impacts. Operation of the Washington Boulevard LRT Alternative would result in significant shade and shadow impacts within Segment 2 (Garfield Avenue to UPRR) due to the presence of the LRT aerial structure along this visually-sensitive segment which contains many residences and a church. Operation of the Washington Boulevard LRT Alternative in combination with other planned and/or reasonably foreseeable future projects would result in significant visual alteration of the project corridor such that cumulatively significant visual impacts would occur.

Geotechnical, Subsurface, and Seismic Hazards: A number of development projects are currently under construction, in the planning stages, or proposed within the vicinity of or adjacent to the Washington Boulevard LRT Alternative alignment, as discussed in Section 4.19.2. Some of those projects could involve ground-disturbing construction where there is potential to encounter hazardous materials in soil and/or groundwater. In addition, other construction activities in the project area may entail building demolition, with the potential for release of asbestos fibers from ACM and lead particles from LBP. Such projects have the potential to result in impacts related to geotechnical, subsurface, and seismic hazards during construction and/or operation.

Operation of the Washington Boulevard LRT Alternative would result in adverse effects from liquefaction and seismically-induced settlement. As such, construction and operation of the Washington Boulevard LRT Alternative would contribute to cumulative impacts associated with geotechnical, subsurface, and seismic hazards if other related projects in the area result in impacts related to geotechnical, subsurface, and seismic hazards; however, mitigation identified in Section 4.11, Geotechnical/Subsurface/Seismic/Hazardous Materials, would reduce potential impacts associated with geotechnical, subsurface, and seismic hazards for this alternative to less than significant. In addition, future development projects would be subject to independent environmental review and mitigation in accordance with state and federal laws to address any potential impacts related to geotechnical, subsurface, and seismic hazards.

Therefore, the Washington Boulevard LRT Alternative's incremental contribution to the cumulative effect would not be cumulatively considerable.

Hazardous Materials: Construction of some of the related projects listed in Section 4.19.2 could result in hazardous impacts due to hazardous materials in soil and/or groundwater and the possible release of asbestos fibers from ACM or lead particles from LBP associated with building demolition. The additive effect of construction activities would result in cumulative impacts to human health or the environment through release of hazardous materials. Construction of the Washington Boulevard LRT Alternative would contribute to cumulative impacts associated with hazardous materials; however, mitigation identified in Section 4.11, Geotechnical/Subsurface/Seismic/ Hazardous Material, would reduce potential impacts to hazardous materials for this alternative to a level less than significant. In addition, future development projects would be subject to independent environmental review and mitigation in accordance with state and federal laws to address any potential hazardous impacts. Therefore, the Washington Boulevard LRT Alternative's contribution to the cumulative impacts would not be cumulatively considerable.

Water Resources: Development of the Washington Boulevard LRT Alternative in combination with related renovation, new construction, and transportation projects identified in the vicinity or adjacent to the project area would result in cumulative impacts to water resources and hydrology.

Compliance with required SWRCB permits, in addition to LACDPW approvals and potential mitigation for potential impacts at the spreading grounds and implementation of mitigation measures listed in Section 4.12, Water Resources, which includes the provision of compensatory mitigation of the potential loss of flood storage, would reduce all potential impacts to less than significant. All of the projects considered for cumulative impacts would also be required to comply with applicable permits. It is not anticipated that any of the reasonably foreseeable related projects would have significant impacts on hydrology or water resources in the project area. Therefore, construction and operation of the Washington Boulevard LRT Alternative would not result in a considerable contribution to potential cumulative impacts to hydrology or water resources in the project area.

Cultural Resources: The Washington Boulevard LRT Alternative is not anticipated to result in an adverse cumulative effect on any historic property per NHPA Section 106 unless a significant discovery of an unknown archaeological resource is made at the Site of the Battle of Rio San Gabriel. The effects of discovery of unknown archaeological resources at this location or other possible locations within the APE of the Washington Boulevard LRT Alternative are further discussed below. With regard to CEQA, the demolition of the state-listed Chinese Garden Restaurant associated with the Washington Boulevard LRT Alternative, in combination with the other development projects, would result in a significant impact on historical resources. With incorporation of mitigation measures presented in Section 4.14, Cultural Resources, the Washington Boulevard LRT Alternative would not result in a considerable contribution to cumulative impacts on historical resources.

Since significant buried cultural or paleontological resources may exist within the project area, and it is possible these materials could be unearthed during project excavation activities, construction of the Washington Boulevard LRT Alternative could have the potential to disturb and destroy a significant archaeological resource or paleontological resource. If unmitigated, this disturbance of significant archaeological and paleontological resources in combination with other development projects would result in significant cumulative impacts.

However, with the incorporation of mitigation measures presented in Section 4.14, Cultural Resources, the Washington Boulevard LRT

Alternative's contribution to archaeological and paleontological cultural resource impacts, if any are found during construction, would not be considerable.

Safety and Security: Related projects in the vicinity of or adjacent to the Washington Boulevard LRT Alternative alignment have the potential to result in safety and/or security impacts during construction and/or operation. The Washington Boulevard LRT Alternative would contribute to cumulative impacts to safety and security during construction and operation. However, mitigation proposed in Section 4.16, Safety and Security, would reduce potential impacts to safety and security for this alternative to less than significant, which would reduce the Washington Boulevard LRT Alternative's contribution to cumulative safety and security effects to less than cumulatively considerable.

Energy Resources: Construction of the Washington Boulevard LRT Alternative would result in less than significant impacts to energy resources. The proposed project, as well as renovation, new construction, and transportation projects in the vicinity of the proposed project, would be consistent with federal, state, and local regulations to conserve and reduce energy usage. Construction would require energy from both transportation fuels and the electricity suppliers, SCE and LADWP.

SCE and LADWP are working to develop new renewable energy and energy efficient resources. The Washington Boulevard LRT Alternative, and other potential projects in the area, would be consistent with applicable energy efficiency guidance set by SCE and LADWP. Potential cumulative impacts related to construction would be less than significant.

Both SCE and LADWP predict increases in electricity demand over the next decade and have increased their ability to serve the area by adding new facilities and increasing and diversifying its energy supplies. Operation of the Washington Boulevard LRT Alternative would not result in a considerable contribution to cumulative impacts on energy.

Climate Change: The Washington Boulevard LRT Alternative would be consistent with the 2012 RTP/SCS because it would improve regional transit by expanding the region's light rail service. In addition to the Washington Boulevard LRT Alternative, other transit projects identified in the LRTP and in Section 4.19.2 would have an overall beneficial effect on operational emissions from the reduction in passenger vehicle use expected under the various transit improvements.

The Washington Boulevard LRT Alternative would result in a net decrease in GHG emissions compared to the No Build Alternative and to existing conditions (2010). As such, the Washington Boulevard LRT Alternative would not contribute to cumulative impacts to air quality because emissions would be less than significant. The Washington Boulevard LRT Alternative would also be consistent with the requirements of CARB's Scoping Plan and SB 375 because it would meet California's goal to increase mass transit. Therefore, under CEQA, GHG emissions associated with the Washington Boulevard LRT Alternative would not be cumulatively considerable.

Parklands and Other Community Facilities:
Public Schools: None of the proposed developments identified in Section 4.19.2 would likely physically alter or disrupt the schools discussed in Section 4.15, Parklands and Other Community Facilities. Therefore, the Washington Boulevard LRT Alternative would not contribute to any potentially significant cumulative impacts on schools.

Emergency Services: None of the projects identified in Section 4.19.2 would involve alterations to nearby emergency facilities located within the API for the Washington Boulevard LRT Alternative. Therefore, no cumulative impacts would occur. Light rail can encourage, but does not cause, growth to occur; therefore, no induced growth that could affect emergency service levels would occur.

Other Public Services: None of the projects identified in Section 4.19.2 would involve alterations to non-emergency, non-educational public service facilities located within the API of the

Washington Boulevard LRT Alternative, which include the South Montebello Irrigation District Office and the Pico Rivera Department of Parks and Recreation office. Therefore, no cumulative impacts would occur.

Parks and Recreational Facilities: No new recreational facilities would be constructed as part of the Washington Boulevard LRT Alternative, and no existing facilities would be expanded.

None of the projects identified in Section 4.19.2 would involve alterations to the existing parks and recreational facilities, as discussed in Section 4.15, Parklands and Other Community Facilities, and none of the projects would be located near the proposed Washington Boulevard LRT Alternative. Therefore, no significant cumulative impacts would occur.

Air Quality and Health Risk Impact: The Washington Boulevard LRT Alternative would be consistent with the 2012-2035 RTP/SCS because it would improve regional transit by expanding the region's light rail service.

In addition to the Washington Boulevard LRT Alternative, other transit projects identified in the LRTP and in Section 4.19.2 that would be implemented by 2035 would have a net cumulative beneficial effect to regional air quality operational emissions from the reduction in passenger vehicle use expected under the various transit improvements. In addition, as part of the 2012–2035 RTP/SCS, SCAG has identified strategies to relieve congestion, reduce delay and harmful emissions, and improve safety on major truck corridors.

Potential impacts to air quality for the Washington Boulevard LRT Alternative during construction and operation would be less than significant. The Washington Boulevard LRT Alternative would result in less than significant air quality impacts during operation when compared to the No Build Alternative. As a result, operational emissions associated with the Washington Boulevard LRT Alternative would not be cumulatively considerable.

Land Use and Development: Implementation of the Washington Boulevard LRT Alternative would not contribute to cumulative land use impacts within the project area. The Washington Boulevard LRT Alternative would not create any new land uses that could, in combination with any current and reasonably foreseeable related actions, generate conflicts with land uses adjacent to the alignment, or result in inconsistency or conflict with local land use plans, policies, or regulations.

Some land uses would be converted, but not in ways that are inconsistent with current land use plans or incompatible with the surrounding areas. Future developments on these parcels could also integrate with nearby bus routes to encourage transit-supportive land uses, transit oriented development, community growth, and increased transit ridership, which are considered beneficial impacts. Therefore, the Washington Boulevard LRT Alternative would not result in a considerable contribution to adverse cumulative land use impacts.

Commercial and residential developments planned and underway in the vicinity of the Washington Boulevard LRT Alternative include the Presbyterian Intercommunity Hospital Expansion, Fred C. Nelles California Youth Authority Site, and the Whittier Commercial Corridor Redevelopment Plan. In addition, the new transit service would help offset the impacts associated with the commercial and residential developments planned and underway in the vicinity of the Washington Boulevard LRT Alternative.

Environmental Justice: Because effects associated with the Washington Boulevard LRT Alternative would affect both environmental justice and non-environmental justice communities, and in view of the considerable project benefits and local support for implementing the Washington Boulevard LRT Alternative, the adverse effects associated with this alternative would not be disproportionate to the mobility, regional connectivity, equity, and economic gains that this alternative could offer. The Washington Boulevard LRT Alternative would not result in any cumulatively significant impacts to

environmental justice populations. No disproportionate adverse impacts associated with diminished economic vitality and employment opportunities are anticipated.

Economic and Fiscal: The Washington Boulevard LRT Alternative would have long-term benefits for the communities it traverses and would further goals and policies for revitalization and investment within the project area. The project's operation would have long-term mobility impacts for the communities in terms of travel time and cost savings. The loss of tax revenue, although not significant, would likely be offset by increased development near stations and along the LRT alignment. The adverse impacts from the Washington Boulevard LRT Alternative would not result in a considerable contribution to cumulative economic or fiscal impacts during operation and would be economically beneficial to its surrounding communities. Construction activities could contribute to community disruption, particularly if other development projects occur at the same time as the Washington Boulevard LRT Alternative. This may result in short-term economic impacts on local businesses, but these would be temporary. Overall, the contribution of the Washington Boulevard LRT Alternative to cumulatively significant economic and fiscal impacts would not be cumulatively considerable. Rather, the Washington Boulevard LRT Alternative could result in beneficial contributions.

Maintenance Yard Options: Construction of any of the three maintenance yard options and other projects that may occur simultaneously would require obtaining the necessary construction permits that necessitate the incorporation of appropriate avoidance and minimization measures and techniques to reduce adverse short-term cumulative impacts during construction. In the long term, construction impacts would not be cumulatively considerable.

Significant noise and vibration impacts on sensitive areas during operations would not occur at the yard sites, and the yard options would not contribute to cumulative impacts. None of the yard options would have a considerable contribution to cumulative impacts on community and neighborhoods, ecosystems and biological resources, visual and aesthetic impacts, cultural resources, safety and security, climate change, parklands and other community facilities, air quality and health risk impacts, land use and development, and environmental justice populations.

With regard to displacements and relocations, the Commerce Maintenance Yard Option would require acquisition of property owned by the UPRR. However, no residences or businesses would be displaced as a result of this option. Both the Mission Junction Maintenance Yard Option and the Santa Fe Springs Maintenance Yard Option would require acquisition of property necessitating relocation of several businesses. Metro would be required to follow the stipulations of certain federal and state acquisition and relocation programs, policies, and procedures. While both options would require relocation of businesses and the jobs associated with them, it is likely the businesses and jobs could be relocated to other available sites within the region or project area.

Neither the Mission Junction nor Commerce Maintenance Yard Options would have an adverse effect on traffic during operations. The Santa Fe Springs Maintenance Yard Option would have an adverse impact on intersection operations. However, mitigation measures are available to reduce the impact. Therefore, none of the yard options would result in a considerable contribution to cumulative traffic impacts.

4.19.3.4.2 Mitigation Measures

Mitigation measures that would be implemented to avoid, minimize, or mitigate potentially significant impacts are identified within the specific EIS/EIR section for each environmental resource and summarized in Table ES-2.

4.19.3.4.3 Impacts Remaining After Mitigation

NEPA Finding

The Washington Boulevard LRT Alternative would not result in adverse direct or indirect effects related to the following environmental issues: parking; energy resources; ecosystems/biological resources; Section 4(f) protected resources; or land use and development. Therefore, the Washington Boulevard LRT Alternative would not contribute to any adverse cumulative effects with respect to these environmental resources.

With implementation of project-level mitigation measures, the Washington Boulevard LRT Alternative is not anticipated to contribute to any adverse cumulative effects with respect to the following environmental issues: transit, traffic (with the exception of effects on several intersections), and circulation; displacement and relocation; community and neighborhoods; noise and vibration; geotechnical, subsurface, and seismic hazards; hazardous materials; water resources; cultural resources (historic and archaeological resources); air quality and health risk; environmental justice; economic and fiscal; and safety and security.

Even with implementation of mitigation measures, operation of the Washington Boulevard LRT Alternative would still result in a considerable contribution to adverse cumulative visual and aesthetic effects along Segment 2, Garfield Avenue to the UPRR, due to the elevated structure that would be built along Garfield Avenue in the surrounding neighborhood.

Even with implementation of mitigation measures, operation of the Washington Boulevard LRT Alternative would still result in a considerable contribution to adverse cumulative effects on intersection operations.

The Washington Boulevard LRT Alternative would have beneficial cumulative effects on community and neighborhood resources. Proposed projects identified in Section 4.19.2, such as the Fred C. Nelles Redevelopment site in Whittier, would have access to convenient and reliable transit via the Washington Boulevard LRT Alternative to destinations within the project area and the region. The proposed developments, in conjunction with the LRT, would offer new and enhanced opportunities for new businesses to locate in the area or for relocation of existing businesses. Transit-dependent populations such as low-income, senior citizens, and disabled persons would benefit from the transit service improvements.

The Washington Boulevard LRT Alternative would have beneficial cumulative effects on economic and fiscal resources. The Washington Boulevard LRT Alternative's operation would have beneficial long-term mobility effects for the communities it traverses in terms of travel time cost savings. The minimal loss of tax revenue would likely be offset by increased development near stations and along the LRT alignment. The Washington Boulevard LRT Alternative would also further goals and policies for revitalization and investment within the project area.

The Washington Boulevard LRT Alternative would have beneficial cumulative effects on parking and noise levels because the LRT alternative would provide an alternative source of transportation to many of the other planned projects as well as to other destinations in the area. This would reduce the number of auto trips, partially offset any loss of parking, and lower the noise levels associated with those foregone auto trips. Therefore, with the exception of adverse cumulative visual/aesthetics effects along Segment 2 and adverse cumulative effects on several traffic intersections, the Washington Boulevard LRT Alternative and maintenance yard options would not result in a considerable contribution to adverse cumulative effects and would provide a beneficial overall effect.

CEQA Determination

The Washington Boulevard LRT Alternative would not contribute to any significant cumulative impacts with respect to the following environmental issues: parking; energy resources; ecosystems/biological resources; parklands and other community facilities; or land use and development.

With implementation of project-level mitigation measures, the Washington Boulevard LRT Alternative would not contribute to any significant cumulative impacts with respect to the following environmental issues: transit, traffic (with the exception of impacts on several intersections), and circulation; displacement and relocation; community and neighborhoods; noise and vibration; geotechnical, subsurface, and seismic hazards; hazardous materials; water resources; cultural resources (historical, archaeological, and paleontological resources); air quality and health risk; economic and fiscal; or safety and security.

Even with implementation of mitigation measures, operation of the Washington Boulevard LRT Alternative would still result in a considerable contribution to significant cumulative visual and aesthetic impacts along Segment 2, Garfield Avenue to the UPRR, due to the elevated structure that would be built along Garfield Avenue in the neighborhood.

Even with implementation of mitigation measures, operation of the Washington Boulevard LRT Alternative would still result in a considerable contribution to significant cumulative impacts on intersection operations.

The Washington Boulevard LRT Alternative would have beneficial cumulative impacts on community and neighborhood resources by providing convenient and reliable transit for future planned projects to destinations within the project area and the region.

The proposed developments, in conjunction with the LRT, would offer new and enhanced opportunities for new businesses to locate in the area or for relocation of existing businesses. Transit-dependent populations such as low-income, senior citizens, and disabled persons would benefit from the transit service improvements.

The Washington Boulevard LRT Alternative would have beneficial cumulative impacts on economic and fiscal resources.

The Washington Boulevard LRT Alternative's operation would have beneficial long-term mobility effects for the communities it traverses in terms of travel time cost savings, and would further goals and policies for revitalization and investment within the project area.

The Washington Boulevard LRT Alternative would have beneficial cumulative impacts on parking and noise levels because the LRT alternative would reduce the number of auto trips, partially offset any loss of parking, and lower the noise levels associated with those foregone auto trips.

Therefore, the Washington Boulevard LRT Alternative and maintenance yard options would not result in a considerable contribution to significant cumulative impacts, with the exception of cumulatively considerable visual impacts along Segment 2 and cumulatively considerable impacts on several traffic intersections. Overall the cumulative impacts of the Washington Boulevard LRT Alternative would be beneficial.

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Section 4.20

Relationship between Short-Term Uses of the Environment and Long-Term Productivity

Pursuant to the National Environmental Policy Act (NEPA) and the California Environmental Quality Act (CEQA), significant irreversible environmental changes are described as the use of nonrenewable resources during the initial and continued phases of a project that may be irreversible (losses that cannot be recovered or reversed) if removal of the resources occurs or if there is the loss of future options and the resource cannot be recovered or reused. Primary and secondary impacts, such as dedication of right-of-way (ROW) to transportation uses, typically commit future generations to similar uses. In addition, irreversible damage can result from environmental accidents associated with a project (*CEQA Guidelines* 15126.2(c)). These thresholds were used to determine potential significant irreversible environmental changes associated with all of the proposed alternatives.

The Eastside Transit Corridor Phase 2 Project is included in Metro's 2009 *Long Range Transportation Plan* (*LRTP*) and the Southern California Association of Governments (SCAG) 2012 *Regional Transportation Plan* (RTP), which consider the need for present and future transportation systems within the context of present and future land use development. The local short-term impacts and use of resources through implementation of any of the build alternatives would be consistent with the maintenance and enhancement of long-term productivity for the local area and region.

The No Build Alternative would not entail construction beyond the projects that are currently under construction or planned for operation by the year 2035 in Metro's LRTP. It would not result in short- or long-term losses or gains nor would it resolve worsening congestion on local streets and highways. As a result, it would not enhance the project area or regional long-term productivity.

The TSM Alternative would include construction of new bus stops, which would not be considered major construction, and it would not result in short-term losses or gains associated with construction. By enhancing existing bus service, the TSM Alternative would offer long-term gains associated with reducing traffic on local streets and increasing mobility within the project area. However, it would not contribute as much to congestion relief in the Los Angeles County region as the other build alternatives. The TSM Alternative would increase jobs and revenue through expanded transit services. It would enhance local and regional long-term productivity, but to a lesser extent than the other build alternatives.

The two light rail transit (LRT) build alternatives (SR 60 LRT Alternative and Washington Boulevard LRT Alternative) would result in short-term economic losses experienced by businesses that relocate and construction impacts (e.g., noise, visual quality, air quality, and motorized and non-motorized traffic delays or detours). A short-term loss of plant resources would result from removing street trees and landscaping in the construction areas. This would be considered a short-term loss since Metro would comply with local tree ordinances and replace trees, as necessary. Short-term benefits would include increased jobs and revenue generated during construction.

Long-term losses associated with the build alternatives would include use of construction materials and energy. Construction activities may result in loss of paleontological and archaeological site values. The SR 60 LRT

Alternative would not result in long-term losses associated with the removal of historic properties. Long-term losses associated with the Washington Boulevard LRT Alternative would include the demolition of the Chinese Garden Restaurant, which is eligible for listing in the California Register of Historical Resources (CRHR).

In addition, construction activities associated with the Washington Boulevard LRT Alternative could result in the disturbance of archaeological artifacts associated with the Site of the Battle of Rio San Gabriel, a National Register of Historic Places (NRHP) historic property.

Long-term gains associated with both LRT build alternatives would include transit network improvement, increased regional and local activity center access, reduced local street and highway congestion, and increased jobs and revenue through expanded transit services. Equally important, the build alternatives would locate transit alignments and stations in areas where existing land uses are conducive to transit use and the potential exists to develop additional transit-supportive land uses. Development of the construction staging areas after the project is completed would also offer an opportunity for transit oriented development. Therefore, the LRT build alternatives would enhance local and regional long-term productivity.

Section 4.21

Irreversible and Irretrievable Commitments of Resources

California Environmental Quality Act (CEQA) Guidelines Section 15126.2(c) requires a discussion of any significant irreversible environmental impacts that would be caused by implementation of a proposed project. Generally, a project would result in significant irreversible environmental impacts if any of the following would occur:

- The project would involve a large commitment of nonrenewable resources.
- The project consumption of resources is not justified (i.e., the project involves wasteful energy use).
- The primary and secondary impacts would generally commit future generations to similar uses.
- The project involves uses in which irreversible damage would result from any potential environmental accidents associated with the project.

These thresholds were used to determine significant irreversible environmental impacts that would potentially occur under all of the alternatives.

Under the No Build Alternative, no new infrastructure would be built within the project area, aside from projects currently under construction or funded for construction and operation by 2035 in Metro's *Long Range Transportation Plan* (*LRTP*). The No Build Alternative provides the baseline conditions for comparing the impacts of all of the alternatives.

The TSM Alternative has a limited construction component and would not have an irreversible and irretrievable commitment of nonrenewable resources associated with construction. Operation of enhanced bus services under the TSM Alternative would rely on the use of nonrenewable resources or a commitment of physical resources, such as metal, for the expanded bus fleet. Operation of the TSM Alternative would increase energy consumption due to maintenance and operation of the expanded bus fleet. The use of fossil fuels would be necessary to provide electricity and fuel for buses, worker vehicles, and maintenance operations.

Construction of the build alternatives would entail a one-time, irreversible, and irretrievable commitment of nonrenewable resources such as energy (fossil fuels used for construction vehicles and equipment and in the manufacturing process for project components) and construction materials (such as lumber, sand, gravel, metals, and water). In addition, labor and natural resources would be used to produce construction materials that are not generally retrievable. However, these materials are generally not in short supply and usage would not result in a significant impact to continued availability of these resources. Construction of the light rail transit (LRT) build alternatives would also require a substantial one-time expenditure, which is not retrievable, of local and perhaps federal funds. This expense would be offset by the direct and indirect benefits to the local and regional economy from new construction employment, purchases of construction materials and services, and long-term economic development opportunities resulting from a LRT system.

Land used to construct proposed facilities is considered an irreversible commitment during the period the land is used. After construction is completed, the project would potentially commit land at stations, park and ride facilities, a maintenance yard, and street right-of-way (ROW) to

transit uses. Some station pedestrian entrances and maintenance facilities for the project would be located on sites with existing commercial, retail, and industrial uses, and would not require a substantial land commitment. The commitment of long-term land resources is consistent with the policies of the County of Los Angeles and local jurisdictions within the project area which promote transit uses, as discussed in Section 4.2, Land Use and Development, of this Draft EIS/EIR.

The consumption of nonrenewable resources related to the build alternatives would include water, petroleum products, and electricity. Fossil fuels would also be used for transporting workers and materials during construction, and electricity and fuel would be used for trains, stations, and worker vehicles for maintenance and operation during the life of the project. The amount and rate of consumption of these resources would not result in significant environmental impacts or the unnecessary, inefficient, or wasteful use of such resources, because they would increase transit use (which increases energy efficiency) and decrease automobile use (which uses fossil fuels).

The Eastside Transit Corridor Phase 2 Project benefits would include improved mobility, transit accessibility, and time savings. In addition, the build alternatives would result in total annual net energy savings compared with the No Build Alternative (2035). The resources committed and consumed for the build alternatives would be considered appropriate because regional and local area residents and visitors would benefit from improved transit services, which, in turn, would result in an overall decrease in the irreversible and irretrievable commitment of nonrenewable resources. For example, transportation sources account for over 40 percent of the energy consumed in California.

The project would remove passenger cars from the regional roadway network, easing the increase in vehicle miles traveled (VMT) and the usage of fossil fuels.

Maintenance of the transit stations, pedestrian station entrances, pedestrian bridges, and maintenance facilities associated with the LRT alternatives would use household-type cleaning materials such as detergents and cleansers. Oil, solvents, and other materials would be used for train maintenance in relatively small volumes and these are not considered acutely hazardous materials according to the National Institute of Health. There is the potential for hazardous materials/waste spills to occur; however, the storage and disposal of hazardous materials/waste would be conducted in accordance with all federal and state requirements to prevent or manage hazards, as discussed in Section 4.11, Geotechnical/Subsurface/ Seismic/Hazardous Materials, of this Draft EIS/EIR. In the unlikely event that a spill does occur, remediation would be conducted accordingly. Therefore, there would be a minimal risk of irreversible damage caused by an environmental accident associated with hazardous or acutely hazardous materials.

Section 4.22

Anticipated Permits and Approvals

This section summarizes the federal, state, and local permits and approvals that Metro would acquire for construction of the build alternatives.

The TSM Alternative would require compliance with Construction General Permit (Order 2009-0009-DWQ) and local municipal grading, construction, street use, and tree protection ordinances.

The light rail transit (LRT) build alternatives would require compliance with the State General Permit for Storm Water Discharges Associated with Construction Activity (Order No. 99-08-DWQ), Construction General Permit (Order 2009-0009-DWQ), and Industrial General Permit (Order No. 97-03-DWQ).

Environmental permits are required for the waterway bridges near the Rio Hondo spreading grounds and the San Gabriel River under the Washington Boulevard LRT Alternative, and over the Rio Hondo under the SR 60 LRT Alternative; these permits may include a Clean Water Act (CWA) Section 404 Individual Permit from the U.S. Army Corps of Engineers (USACE), a CWA Section 401 Water Quality Certification from the Los Angeles Regional Water Quality Control Board (LARWQCB), and a Streambed Alteration Agreement (Section 1601 of the California Fish and Game Code) from the California Department of Fish and Game (CDFG). Both the SR 60 LRT Alternative and the Washington Boulevard LRT Alternative would require Section 401 and 404 permits for bridges within the waterways regardless of whether a wetland would be impacted.

Construction of the SR 60 LRT Alternative in the SR 60 ROW through the Whittier Narrows Dam Flood Control Basin and placement of LRT columns in the Basin would be modifications of the flood risk reduction structure. The proposed project would be considered a modification beyond those required for normal operation and maintenance of the flood control basin, and would therefore require review and approval under Section 14 of the Rivers and Harbor Act (33 U.S.C. § 408 [Section 408]). Metro would submit a Section 408 permit application to USACE and would include a technical analysis of the potential impacts to the flood control basin. This would include completion of the eight-step decision-making process under Executive Order 11988 for construction within the 100-year floodplain, as well as completion of an evaluation required under Regulation 1000-2-1 for construction within flood control basins. In addition, an evaluation would be completed as required in compliance with USACE Policy Guidance Letter No. 32 for construction on flowage easement land at the proposed Santa Anita Avenue station.

Compliance with applicable permits and implementation of Best Management Practices (BMPs) in the Storm Water Pollution Prevention Plan, as discussed in the Water Resources Technical Memorandum, would avoid and minimize potential water quality impacts to wetlands during construction.

A LARWQCB dewatering permit would be required. Stormwater and urban runoff discharges must comply with LARWQCB Municipal National Pollutant Discharge Elimination System (NPDES) Permit (LARWQCB Order No. R4-2009-0130), including a program to control runoff from construction activity, an erosion and sediment control plan, and other BMPs. Discharges to surface water must meet waste discharge requirements

(WDRs) (Order No. 93-010 and Order No. 91-93) and related NPDES permits.

Approvals for discharges into drainage and sewer systems would be required from the cities within the area of potential impact, the Los Angeles County Sanitation District, and the Los Angeles County Department of Public Works Flood Control District (LACFCD) under Municipal Separate Storm Sewer System (MS4) Permits (Order No. 01-182) (NPDES No. CAS004001). An encroachment permit from LACFCD may also be required, as LACFCD manages some of the drainage through the Whittier Narrows Recreation Area.

Grading and construction permits and compliance with tree protection ordinances would be required by the County of Los Angeles (for construction in East Los Angeles) and by the cities of Commerce, South El Monte, Montebello, Monterey Park, Pico Rivera, Rosemead, Santa Fe Springs, and Whittier.

The encroachment on the SR 60 right-of-way (ROW) would require California Department of Transportation (Caltrans) review and approval through an encroachment permit application or a Permit Evaluation Engineering Report (PEER). All ramp closures or usage of ramp shoulders would also need to be approved by Caltrans before implementation. In addition, a Caltrans Transportation Permit would be required for the transport of any over-size or over-weight construction equipment on state highways.

Metro has been coordinating closely with potential permitting agencies during preparation of this EIS/EIR and will continue to do so if a build alternative is designated and moves into permitting.

Coordination with the U.S. Environmental Protection Agency (USEPA) would be ongoing during design phases regarding geotechnical issues and hazardous materials associated with the Operating Industries, Inc. (OII) Superfund site and protection of the existing cap during project construction. Construction activities, and particularly excavation work, would require prior USEPA review and approval to ensure that the existing cap remains protected.

Metro is regulated by the California Public Utilities Commission (CPUC). Metro is required to operate all transit-related vehicles according to the guidelines established by the CPUC. The CPUC will provide regulatory oversight for all phases of the project. Coordination and approvals from communications and utility purveyors (including, but not limited to, Southern California Edison, Southern California Gas Company, AT&T, Verizon, Metropolitan Water District (MWD), and Los Angeles County Department of Public Works (LADPW)) would be needed for temporary or permanent utility relocation or service interruption.

Chapter 5

Section 4(f) Evaluation

This chapter summarizes the Section 4(f) resources within the project area and evaluates the potential for Section 4(f) impacts resulting from operation of the proposed Eastside Transit Corridor Phase 2 Project alternatives. Information in this chapter is based on, and updated where appropriate from, the Section 4(f) Evaluation, which is incorporated into this Draft EIS/EIR as Appendix F.

5.1 Regulatory Framework/Methodology

Section 4(f) is a part of the U.S. Department of Transportation (USDOT) Act of 1966, which applies only to projects sponsored by USDOT. It is intended to protect historical and recreational resources and minimize their use by federal transportation projects. Section 4(f) applies to the Eastside Transit Corridor Phase 2 Project because this project may seek federal funds through the Federal Transit Administration (FTA), a branch of USDOT.

5.1.1 Federal

5.1.1.1 U.S. Department of Transportation (USDOT) Act of 1966

Section 4(f) of the USDOT Act of 1966 protects significant historical resources (regardless of ownership) as well as publicly-owned, publically accessible parklands and recreational areas, and public wildlife/waterfowl refuges, regardless of public access. This federal law prevents USDOT from using or approving the use of resources eligible for Section 4(f) protection, unless there is no feasible and prudent alternative to the use of that land and the project includes all possible planning to minimize harm of using the resource or FTA has determined that the use of the property, including any measure(s) to minimize harm, will have a de minimis impact on the property as defined in 23 CFR 774.17 (Title 23 United States Code (USC) Section 138, Title 49 USC Section 303). As defined in 23 CFR 774.17, a use of a protected Section 4(f) property occurs when any of the following conditions are met: (1) Direct Use - When land is permanently incorporated into a transportation facility. This may occur as a result of partial or full acquisition of a fee simple interest, permanent easement, or temporary easement that exceeds regulatory limits; (2) Temporary Use - When there is a temporary occupancy of land that is considered adverse in terms of the preservation purposes of the Section 4(f) statute; or (3) Constructive Use - When a transportation project does not incorporate land from the resource, but the proximity of the project results in impacts so severe that the *protected activities, features, or attributes that qualify the resource for protection under Section 4(f) are substantially impaired* (23 CFR 774.15). "Use" is defined as permanent incorporation of any amount of land from a property protected by Section 4(f) and certain instances of temporary occupancy of the property, or "constructive uses" such as noise or visual effects that substantially impair the protected resource. If an alternative is found to use Section 4(f) resources, an avoidance alternative must be selected. If no feasible and prudent avoidance alternative exists, then the alternative with the least overall harm to Section 4(f) resources must be selected.

5.1.1.2 Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users

The federal transportation policy and spending bill passed in 2005, SAFETEA-LU, included an amendment to Section 4(f) intended to expedite the approval process for projects that would have only minor impacts on protected resources. These

"*de minimis*" impacts include uses and temporary occupancies that do not adversely affect the activities, features, or attributes qualifying the property eligible for Section 4(f) protection. SAFETEA-LU allowed projects with *de minimis* impacts to Section 4(f) resources may proceed without needing to make a finding that no feasible and prudent avoidance alternatives exist (SAFETEA-LU Section 6009(a)). SAFETEA-LU also clarified the process for selecting alternatives with the least impacts to Section 4(f) resources, and the standards for determining whether potential avoidance alternatives are reasonable and prudent. MAP-21, the transportation policy and spending bill passed in 2012, did not change the Section 4(f) process or requirements.

5.1.1.3 Criteria for Determining Use of Section 4(f) Resources

Section 4(f) is a federal regulation separate from the National Environmental Policy Act (NEPA) and the California Environmental Quality Act (CEQA). As such, impacts are not described in terms of NEPA or CEQA.

Criteria for determining use of Section 4(f) resources fall into three categories: permanent incorporation, temporary occupancy, and constructive use.

"Permanent incorporation" of a Section 4(f) resource would include purchasing part or all of it for use as right-of-way (ROW) or for transportation facilities, or purchasing a permanent easement for construction or operations. Even small partial acquisitions of Section 4(f) lands are considered permanent incorporation. Permanent incorporation does not include the maintenance or rehabilitation of historic transportation facilities for projects that will not affect the historic qualities of these facilities.

"Temporary occupancy" is not considered use of a Section 4(f) resource as long as the duration is temporary (duration is less than the time needed for construction of the project and there is no change in ownership of the land); the magnitude and nature of changes to the Section 4(f) property are minimal; there are no anticipated permanent adverse physical impacts, nor is there interference with the protected activities, features, or attributes of the property on either a temporary or permanent basis; the land is fully restored to a condition at least as good as that which existed prior to the project; and there is a documented agreement among appropriate federal, state, and local officials with jurisdiction over the Section 4(f) resource regarding the above conditions.

"Constructive use" is defined as proximity impacts, such as noise or visual effects, that substantially impair the activities, features, or attributes that qualify a resource for Section 4(f) protection. These impacts would have to substantially reduce the value of the resource in terms of its Section 4(f) significance in order to be considered a constructive use. Title 23 Code of Federal Regulations (CFR) Section 774.15 further defines constructive use as occurring when:

- The projected noise level increase attributable to the project substantially interferes with the use and enjoyment of a noise-sensitive facility of a property protected by Section 4(f), such as:
  - Hearing the performances at an outdoor amphitheater;
  - Sleeping in the sleeping area of a campground;
  - Enjoyment of a historic site where a quiet setting is a generally recognized feature or attribute of the site's significance;
  - Enjoyment of an urban park where serenity and quiet are significant attributes; or
  - Viewing wildlife in an area of a wildlife and waterfowl refuge intended for such viewing.

- The proximity of the proposed project substantially impairs aesthetic features or attributes of a property protected by Section 4(f), where such features or attributes are considered important contributing elements to the value of the property. Examples of substantial impairment to visual or aesthetic qualities would be the location of a proposed transportation facility in such proximity that it obstructs or eliminates the primary views of an architecturally significant historic building, or substantially detracts from the setting of a Section 4(f) property which derives its value in substantial part due to its setting;
- The project results in a restriction of access which substantially diminishes the utility of a significant publicly-owned park, recreation area, or historic site;
- The vibration impact from construction or operation of the project substantially impairs the use of a Section 4(f) property, such as projected vibration levels that are great enough to physically damage a historic building or substantially diminish the utility of the building, unless the damage is repaired and fully restored consistent with the Secretary of the Interior's Standards for the Treatment of Historic Properties (i.e., the integrity of the contributing features must be returned to a condition which is substantially similar to that which existed prior to the project); or
- The ecological intrusion of the project substantially diminishes the value of wildlife habitat in a wildlife and waterfowl refuge adjacent to the project, substantially interferes with access to a wildlife and waterfowl refuge when such access is necessary for established wildlife migration or critical life cycle processes, or substantially reduces the wildlife use of a wildlife and waterfowl refuge.

The regulation also defines that a constructive use does not occur when:

- Compliance with the requirements of 36 CFR 800.5 for proximity impacts of the proposed action, on a site listed on or eligible for the National Register of Historic Places (NRHP), results in an agreement of “no historic properties affected” or “no adverse effect”;
- The impact of projected traffic noise levels of the proposed highway project on a noise-sensitive activity does not exceed the Federal Highway Administration (FHWA) noise abatement criteria, or the projected operational noise levels of the proposed transit project do not exceed the noise impact criteria for a Section 4(f) activity in FTA guidelines for transit noise and vibration impact assessment;
- The projected noise levels exceed the relevant criteria because of high existing noise, but the increase in the projected noise levels if the proposed project is constructed, when compared with the projected noise levels if the project is not built, is barely perceptible (3 A-weighted decibels (dBA) or less);
- There are proximity impacts on a Section 4(f) property, but a governmental agency's ROW acquisition or adoption of project location, or FTA’s approval of a final environmental document, established the location for the proposed transportation project before the designation, establishment, or change in the significance of the property. However, if it is reasonably foreseeable that a property would qualify as eligible for the NRHP prior to the start of construction, then the property should be treated as a historic site for the purposes of Section 4(f) evaluation;
- Overall (combined) proximity impacts caused by a proposed project do not substantially impair the activities, features, or attributes that qualify a property for protection under Section 4(f);

- Proximity impacts will be mitigated to a condition equivalent to, or better than, that which would occur if the project were not built, as determined after consultation with the official(s) with jurisdiction;
- Changes in accessibility will not substantially diminish the utilization of the Section 4(f) property; or
- Vibration levels from project construction activities are mitigated, through advanced planning and monitoring of the activities, to levels that do not cause a substantial impairment of protected activities, features, or attributes of the Section 4(f) property.

As discussed in Section 5.1.1.2, a *de minimis* finding can be made for uses that do not adversely affect the activities, features, or attributes that make the property eligible for Section 4(f) protection.

5.1.1.4 De Minimis Impacts

The requirements of Section 4(f) are satisfied with respect to a Section 4(f) resource if it is determined by the FTA that a transportation project would have only a "de minimis impact" on the Section 4(f) resource. The provision allows avoidance, minimization, mitigation, and enhancement measures to be considered in making the de minimis determination. The official(s) with jurisdiction over the resource must be notified of the Agency's determination. 23 CFR 774.17 defines a de minimis impact as follows:

- For parks, recreation areas, and wildlife/waterfowl refuges, a de minimis impact is one that would not adversely affect the features, attributes, or activities qualifying the property for protection under Section 4(f), and the official with jurisdiction has concurred with this determination after there has been a chance for public review and comment.
- For historic sites, de minimis impact means that the FTA has determined, in accordance with 36 CFR part 800, that either no historic property is affected by the project, or the project would have "no adverse effect" on the property in question. The official with jurisdiction must be notified that the FTA intends to make a de minimis finding based on their concurrence with the "no adverse effect" determination under 36 CFR 800. This is usually done in the effect determination letter sent to the official with jurisdiction for their concurrence.

5.1.2 State

There are no state regulations pertaining to Section 4(f).

5.1.3 Local

There are no local regulations pertaining to Section 4(f).

5.1.4 Methodology

5.1.4.1 Historic Properties

A comprehensive program of archival research was undertaken for all historic properties within the area of potential effect (APE). This study phase consisted of the review of existing materials related to historic and prehistoric resources within the project area. Reports, records, maps, and documents at various institutions, libraries, federal, state, and local agencies, and archives were examined. Archaeologists, historians, and architectural historians who meet the Secretary of the Interior's Professional Qualification Standards (36 CFR Part 61; 48 FR 44716) and are familiar with project area resources and research considerations performed the research.

A background research survey was undertaken to identify previously documented historical and architectural resources within and near the APE and to help establish a context for resource significance. National, state, and local inventories of architectural and historical resources were examined in order to identify significant local historical events and personages, development patterns, and unique interpretations of architectural styles. The following inventories and sources were consulted:

- The NRHP Information System

- The California Register of Historical Resources (CRHR)
- California Office of Historic Preservation Historical Resources Inventory System
- California Historical Landmarks
- California Points of Historical Interest
- City of Whittier Historic Landmarks and Districts
- Field survey of the resources identified through the above sources, and of other non-listed buildings to evaluate their eligibility for listing

For the purposes of the Section 4(f) evaluation, properties within the APE listed on the NRHP or deemed eligible for listing per the analysis process described above were evaluated for potential use under the criteria presented in Section 5.1.

If archaeological resources are encountered inadvertently during construction, are determined to be eligible for the NRHP, and warrant preservation in place, FTA will prepare separate Section 4(f) evaluations for such resources according to Section 774.9(f): "In such cases, the Section 4(f) process will be expedited, and any required evaluation of feasible and prudent avoidance alternatives will account for the level of investment already made. The review process, including the consultation with other agencies, will be shortened as appropriate."

5.1.4.2 Parks, Recreation Areas, and Refuges

The Section 4(f) analysis for parks, recreation areas, and refuges identified the locations of these facilities within the project area and graphically overlaid the sites on a map of the transit alternatives. The first step undertaken was to identify resources within the area of potential impact specified above. These sites were identified from existing sources, including planning documents such as general plans for the cities through which the proposed alignments pass and the County of Los Angeles. Other sources consulted include various internet sites for federal, state, and local agencies, map and satellite imagery of the area of potential impact, and field investigations. This research was supplemented by field visits to the identified facilities and comparison with alternative alignment drawings and renderings presented in Section 4.6, Visual and Aesthetic Impacts, and Appendix HH, Conceptual Engineering Drawings, to confirm findings. Additional details about the facilities were recorded during these field visits, and are presented in Section 5.3 below. More detailed descriptions are available in Appendix F, Section 4(f) Evaluation, of this Draft EIS/EIR.

The environmental analysis includes potential short-term and long-term impacts on Section 4(f) resources associated with construction and operation of the proposed alternatives. The analysis in Section 5.3 addresses potential direct and indirect impacts based on proposed acquisitions and potential effects of operations.

5.1.4.3 Identification of Avoidance Alternatives

An individual Section 4(f) evaluation must be completed when the use of a Section 4(f) property results in a greater than de minimis impact. The individual Section 4(f) evaluation requires two findings:

- That there is no feasible and prudent alternative that completely avoids the use of Section 4(f) property; and
- That the project includes all possible panning to minimize hard to the Section 4(f) property.

A feasible and prudent avoidance alternative, as defined in 23 CFR 774.17, avoids using the Section 4(f) property and does not cause other severe problems of a magnitude that substantially outweigh the importance of protecting the Section 4(f) property. If there is no prudent and feasible alternative, the project must include all possible planning to minimize harm to the site, which includes all reasonable measures to minimize harm or mitigate impacts (49 U.S.C. 303(c)(2)). Since none of the proposed alternatives would involve a transportation use of a Section 4(f) property resulting in a greater than di minimis impact, no

identification of avoidance alternatives is required. More detail about the regulatory framework for identifying avoidance alternatives and planning to minimize harm is provided in Appendix F, Section 4(f) Evaluation, of this Draft EIS/EIR.

5.2 Affected Environment/Existing Conditions

Section 4(f) protects two categories of resources:

- Significant historic sites
- Publicly-owned parks, recreation areas, wildlife refuges, and waterfowl refuges

The listed resources in **Table 5-1** are within the APE (for historic resources) or within 350 feet of the proposed alternatives (for other 4(f) resources). For the Section 4(f) evaluation, the APE was derived from Section 4.14, Cultural and Historical Resources, and the area of potential impact was derived from Section 4.15, Parklands and Other Community Facilities, of this Draft EIS/EIR, as described in the following sections. The resources evaluated for Section 4(f) purposes are shown in **Figure 5-1**. Additional information about these resources is provided in Section 4.14, Cultural and Historical Resources, and Section 4.15, Parklands and Other Community Facilities, of this Draft EIS/EIR.

5.3 Environmental Impacts/Environmental Consequences

This section describes the Section 4(f) analysis performed for the proposed alternatives. Findings are summarized in **Table 5-2**. Potential Section 4(f) uses are described in the Section 4(f) Finding sections below for each alternative. The final determinations will be made by FTA in the Record of Decision.

5.3.1 No Build Alternative

5.3.1.1 Impact Analysis

The No Build Alternative would not involve any new construction in the project area beyond what is already identified in the constrained portion of Metro's 2009 *Long Range Transportation Plan* (LRTP). No new construction or major modifications of existing transit service would occur.

The No Build Alternative would not require construction as part of the Eastside Transit Corridor Phase 2 Project. As such, it would not result in the use of any resources potentially protected under Section 4(f).

5.3.1.2 Mitigation Measures

The No Build Alternative would not result in the use of any resources protected by Section 4(f). Therefore, no mitigation measures are required.

5.3.1.3 Section 4(f) Finding

The No Build Alternative would not result in the use of any resources protected by Section 4(f).

5.3.2 TSM Alternative

5.3.2.1 Impact Analysis

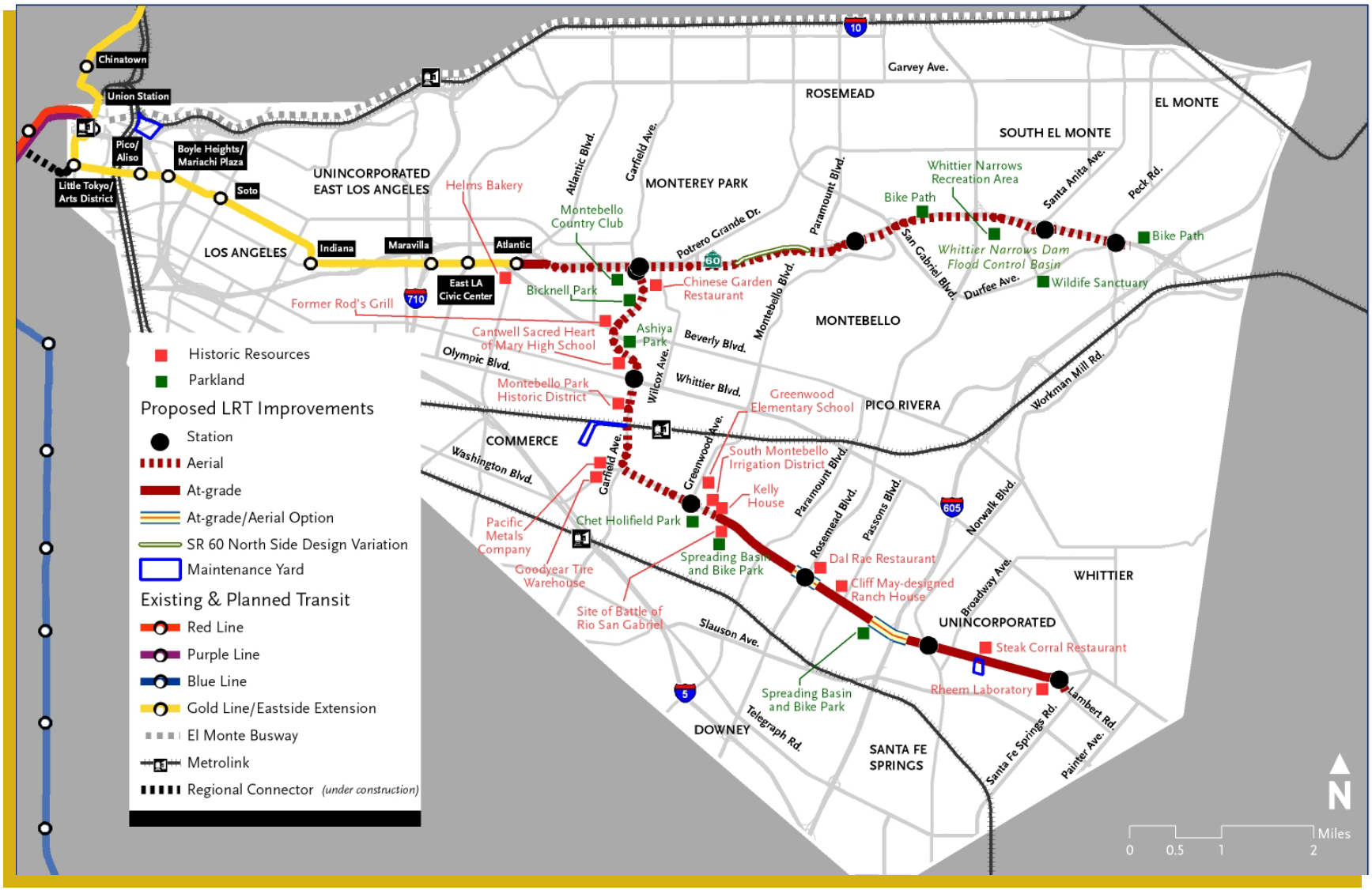
The TSM Alternative would include the provisions of the No Build Alternative, and would add enhanced bus service to the project area along major streets. Minor construction of bus stop shelters and benches would occur at key stops along the routes, and some additional embedded wiring in the street may be needed to provide new bus routes with traffic signal priority.

The TSM Alternative would not require construction of major infrastructure or any infrastructure outside of the existing public street ROW as part of the Eastside Transit Corridor Phase 2 Project. As such, the TSM Alternative would not result in the use of any resources potentially protected under Section 4(f).

Table 5-1. Resources Protected by Section 4(f)

Property	City	Alternative
Historic Properties Protected by Section 4(f)		
Helms Bakery Distribution Plant	East Los Angeles (unincorporated)	SR 60 LRT and Washington Boulevard LRT
Cantwell-Sacred Heart of Mary High School	Montebello	Washington Boulevard LRT
Former Rod's Grill	Montebello	Washington Boulevard LRT
Montebello Park Historic District	Montebello	Washington Boulevard LRT
Pacific Metals Company	Commerce	Washington Boulevard LRT
Goodyear Tire and Rubber Company Warehouse	Commerce	Washington Boulevard LRT
Greenwood Elementary School	Montebello	Washington Boulevard LRT
South Montebello Irrigation District Building	Montebello	Washington Boulevard LRT
Kelly House	Montebello	Washington Boulevard LRT
Site of the Battle of Rio San Gabriel	Montebello and Pico Rivera	Washington Boulevard LRT
Dal Rae Restaurant	Pico Rivera	Washington Boulevard LRT
Cliff May-designed Ranch House	Pico Rivera	Washington Boulevard LRT
Steak Corral Restaurant	West Whittier/Los Nietos (unincorporated)	Washington Boulevard LRT
Rheem Laboratory	Whittier	Washington Boulevard LRT
Parks, Recreation Area, and Refuges Protected by Section 4(f)		
Montebello Country Club and Bicknell Park	Montebello	SR 60 LRT and Washington Boulevard LRT
Bike Path along Rio Hondo	Whittier Narrows (unincorporated), Montebello, Pico Rivera	SR 60 LRT and Washington Boulevard LRT
Whittier Narrows Recreation Area and Wildlife Refuge	Whittier Narrows (unincorporated)	SR 60 LRT
Bike Path along the San Gabriel River	South El Monte, Pico Rivera, West Whittier/Los Nietos (unincorporated)	SR 60 LRT and Washington Boulevard LRT
Ashiya Park	Montebello	Washington Boulevard LRT
Chet Holifield Park	Montebello	Washington Boulevard LRT
Rio Hondo Spreading Grounds	Montebello, Pico Rivera	Washington Boulevard LRT
San Gabriel River Spreading Grounds	Pico Rivera, West Whittier/Los Nietos (unincorporated)	Washington Boulevard LRT

Note:
[1] De minimis impact findings would need to be made in conjunction with the regulatory agencies that oversee the affected properties.



Source: CDM 2011

Figure 5-1. Project Area and 4(f) Resources

Table 5-2. Section 4(f) Findings Summary

Alternative	Historic Properties Finding	Parks, Recreation Areas, Refuges Finding
No Build	No Use	No Use
TSM	No Use	No Use
SR 60 LRT	No Use	*De Minimis and Temporary Occupancy*[1]
Washington Boulevard LRT	No Use	*De Minimis and Temporary Occupancy*[1]

Note:
[1] *De minimis impact findings would need to be made in conjunction with the regulatory agencies that oversee the affected properties. Temporary occupancy for both alternatives is not adverse.*

5.3.2.2 Mitigation Measures

The analysis in Section 5.3.2.1 assumes that all proposed mitigation measures presented in Chapter 3, Transportation Impacts and Mitigation, and Chapter 4, Environmental Analysis, Consequences, and Mitigation, of this Draft EIS/EIR would be implemented.

5.3.2.3 Section 4(f) Finding

The TSM Alternative would not result in the use of any resources protected by Section 4(f).

5.3.3 SR 60 LRT Alternative

5.3.3.1 Impact Analysis

Historic Properties

The Helms Bakery Distribution Plant building, located in unincorporated East Los Angeles, is the only eligible historic property located within the APE for the SR 60 LRT Alternative. The SR 60 LRT Alternative would result in no Section 4(f) use of the Helms Bakery Distribution Plant. The Helms Bakery Distribution Plant would be located nearly 300 feet from the proposed rail alignment. No project-related activities would destroy, damage, relocate, or alter the building or its setting. (Refer to Appendix F, Section 4(f) Evaluation, of this Draft EIS/EIR for a detailed Section 4(f) analysis of this resource.)

Parks, Recreation Areas, and Refuges

The SR 60 LRT Alternative would result in no Section 4(f) use, temporary occupancy, or constructive use of the following parks, recreation areas, and refuges in the project area:

- The Whittier Narrows Wildlife Sanctuary; and
- Bike path along the San Gabriel River.

(Refer to Appendix F, Section 4(f) Evaluation, of this Draft EIS/EIR for a detailed analysis of these resources.)

The SR 60 LRT Alternative would result in a de minimis impact on and/or temporary occupancy of the following parks, recreation areas, and refuges located within the area of potential impact for the alternative. Metro has met with the agencies that have jurisdiction over the affected parks, recreation areas, and refuges, and their concurrence on the Section 4(f) use, where applicable, will be included in the Final EIS/EIR.

Montebello Country Club and Bicknell Park

Montebello Country Club and Bicknell Park are located across Via Campo from the proposed elevated LRT structure in the southern portion of the SR 60 ROW. Montebello Country Club is a public golf course operated by the city of Montebello. The golf course and the adjacent Bicknell Park function together as a single contiguous park. On the north side of the park, the elevated LRT structure would be located across Via Campo in the southern portion of the SR 60 ROW.

As noted in the Noise and Vibration, Visual and Aesthetic, and Displacement and Relocation analyses in Chapter 4 of this Draft EIS/EIR, no adverse physical impacts or alterations would occur in the park or golf course areas.

Construction of bents along Garfield Avenue would require removal of some trees in the street ROW fronting Bicknell Park. Although it is not anticipated that the bents would encroach onto Bicknell Park, tree removal and the design of the bents will be further refined during final design. Additional adjacent trees located in the park would still provide a visual screen that would obscure any views of the

freeway and the new LRT infrastructure. The visual impact to Montebello Country Club would be minimal as the golf area is approximately 45 to 60 feet from the new LRT infrastructure. The removal of the trees and the visual impacts to the park would be a de minimis impact that would not substantially affect the recreational activities, features, or attributes that make the property eligible for Section 4(f) protection. Through ongoing agency coordination, the city of Montebello would need to agree, in writing, with the findings that the de minimis impact would not substantially affect the recreational activities, features, or attributes that make the property eligible for Section 4(f) protection.

Whittier Narrows Recreation Area (including Whittier Narrows Wildlife Sanctuary and Rio Hondo Bike Path)

The elevated LRT structure would run through the Whittier Narrows Recreation Area entirely within the SR 60 ROW. The new elevated LRT structure would pass above the bike path along Rio Hondo as part of the SR 60 LRT Alternative. The park and ride lot for the Peck Road station would be built within 350 feet of the Whittier Narrows Wildlife Sanctuary, on the site of two existing gas stations, a motel, and an abandoned restaurant building. Potential Section 4(f) impacts on the recreation area's bike path, lake, and wildlife sanctuary are discussed separately in the following sections.

Bike Path Along Rio Hondo

Construction of the elevated LRT structure above the bike path would constitute a temporary occupancy under Section 4(f). The bicycle path would be temporarily re-routed around the construction area such that it remains open at all times as a mitigation measure, and would be restored to its original condition and location after construction. Given that the bike path would be re-routed around the construction area so that it remains open at all times and it would be restored to its original condition and location after construction, this temporary occupancy would not be adverse in terms of the statute's preservation purpose.

Viaduct construction may require temporary closure of the bike path along Rio Hondo, although this effect would also be mitigated by temporary re-routing of the bike path around the construction area to allow it to remain open continuously. As indicated above, the bike path would be re-routed around the construction area so it remains open at all times and it would be restored to its original condition and location after construction. This temporary occupancy would not be adverse in terms of the statute's preservation purpose.

Once completed, the new viaduct would cast additional shadow on the bike path. Since the viaduct would be immediately adjacent to the existing SR 60 overpass, it would be a comparatively minor extension of the already-shaded area. This slight additional shadow would be a de minimis impact that would not substantially affect the recreation activities, features, or attributes that make the property eligible for Section 4(f) protection. Through ongoing agency coordination, the three agencies that have jurisdiction in this area – the U.S. Army Corps of Engineers (USACE), the California Department of Transportation (Caltrans), and the Los Angeles County Department of Parks and Recreation – would need to agree, in writing, with the findings that the de minimis impact would not substantially affect the recreational activities, features, or attributes that make the property eligible for Section 4(f) protection.

Legg Lake

East of Rosemead Boulevard, recreational uses are primarily associated with Legg Lake and the surrounding paths, picnic areas, and expanses of grass and trees. These areas are separated from the SR 60 ROW and proposed elevated LRT structure by a parking lot and a row of trees. Temporary construction access through the parking lot may be needed during hours when the park is normally closed, although most access would occur from the SR 60 Freeway. Such access would not constitute a use under Section 4(f).

The SR 60 LRT Alternative alignment would be adjacent to a parking lot and both the parking lot and recreational areas of the park contain trees that

would shield the LRT facilities from view. Since the SR 60 LRT Alternative alignment would be mostly shielded from the recreational areas of the park by the trees, views from the park would not be significantly altered per the analysis performed in Section 4.6, Visual and Aesthetic Impacts, of this Draft EIS/EIR, and no significant increase in noise beyond the existing freeway noise is anticipated. Temporary tree removal may be needed to allow construction equipment to move between the trees, although trees within the park area would be replaced once the need for construction access has ended. However, the duration of tree removal would be brief, tree trimming minimal, and the trees replaced once construction activities have finished. This effect would be a de minimis impact that would not substantially affect the recreation activities, features, or attributes that make the property eligible for Section 4(f) protection. The extent of tree removal and trimming would be confirmed during the preliminary engineering phase of the project. Through ongoing agency coordination, the USACE and the Los Angeles County Department of Parks and Recreation would need to agree, in writing, with the findings that the de minimis impact would not substantially affect the recreational activities, features, or attributes that make the property eligible for Section 4(f) protection.

5.3.3.2 Mitigation Measures

The analysis in Section 5.3.3.1 assumes that all proposed mitigation measures presented in Chapter 3, Transportation Impacts and Mitigation, and Chapter 4, Environmental Analysis, Consequences, and Mitigation, of this Draft EIS/EIR would be implemented. Of particular relevance are those pertaining to:

- Parklands and Other Community Facilities (Section 4.15)
- Cultural Resources (Section 4.14)
- Noise and Vibration (Section 4.9)
- Visual and Aesthetic Resources (Section 4.6)

(Please refer to the specific section for the detailed mitigation measures.)

5.3.3.3 Section 4(f) Finding

The SR 60 LRT Alternative would not result in the use of any historic properties protected by Section 4(f). It would result in *de minimis* impacts to the Montebello Country Club and Bicknell Park and one resource within Whittier Narrows Recreation Area, Legg Lake. The SR 60 LRT Alternative would result in a temporary occupancy during construction, which would not be adverse in terms of the statute's preservation purpose, and would result in *de minimis* impacts during operation to the bike path located in the Whittier Narrows Recreation Area along the Rio Hondo. No operational impacts would occur to this resource. Table 2-5, located in Chapter 2, Alternatives Considered, presents a summary of construction activities and their estimated durations for both LRT Build Alternatives. In addition, construction activities will be refined during final design. Through ongoing agency coordination, regulatory agencies that oversee these properties would need to agree, in writing, with the findings that the de minimis impact would not substantially affect the recreational activities, features, or attributes that make the property eligible for Section 4(f) protection, and/or the temporary occupancy would be so minimal that it would not constitute a use within the meaning of Section 4(f). These conclusions apply regardless of whether the SR 60 North Side Design Variation is implemented.

5.3.4 Washington Boulevard LRT Alternative

5.3.4.1 Impact Analysis

Historic Properties

The following historic properties are within the APE for the Washington Boulevard LRT Alternative and are protected by Section 4(f):

- Cantwell-Sacred Heart of Mary High School
- Cliff May-designed Ranch House
- Dal Rae Restaurant
- Former Rod's Grill
- Goodyear Warehouse
- Greenwood Elementary School

- Helms Bakery Distribution Plant
- Kelly House
- Montebello Park Historic District
- Pacific Metals Company
- Rheem Laboratory
- Site of the Battle of Rio San Gabriel
- South Montebello Irrigation District
- Steak Corral Restaurant

The Washington Boulevard LRT Alternative would result in no Section 4(f) use, temporary occupancy, or constructive use of these historic properties. (Refer to Appendix F, Section 4(f) Evaluation, of this Draft EIS/EIR for a detailed analysis of these resources.)

Parks, Recreation Areas, and Refuges

The Washington Boulevard LRT Alternative would result in no Section 4(f) use, temporary occupancy, or constructive use of the following parks, recreation areas, and refuges in the project area:

- Ashiya Park;
- Chet Holifield Park; and
- Montebello Country Club and Bicknell Park.

(Refer to Appendix F, Section 4(f) Evaluation, of this Draft EIS/EIR for a detailed analysis of these resources.)

The Washington Boulevard LRT Alternative would result in a *de minimis* impact on and/or temporary occupancy of the following parks, recreation areas, and refuges are within the area of potential impact for the alternative. Metro has met with the agencies that have jurisdiction over the affected parks, recreation areas, and refuges, and their concurrence on the Section 4(f) use, where applicable, will be included in the Final EIS/EIR.

Bike Path along Rio Hondo and Spreading Grounds

The new LRT tracks would run in the median of an expanded Washington Boulevard bridge across the Rio Hondo. The existing bridge passes above the bike path, and the expansion would span a larger portion of the path. The new, larger bridge would cast additional shadow on the bike path. This would be a comparatively minor extension of the already-shaded area. The passing light rail trains would be similar in character to existing truck and bus traffic, and would not pose new adverse impacts to the recreational facilities.

Bridge construction may require temporary closure of the bike path, although this effect would be mitigated by temporarily re-routing the bike path around the construction area to allow it to remain open continuously. Bridge construction across the bike path would constitute a temporary occupancy under Section 4(f). However, given that the bicycle path would be temporarily re-routed around the construction area such that it remains open at all times, and would be restored to its original condition and location after construction, the temporary occupancy would not be adverse in terms of the statute's preservation purpose. Through ongoing agency coordination, the Los Angeles County Flood Control District and the city of Montebello would need to agree, in writing, with the finding that the temporary occupancy of the land is so minimal as not to constitute a use within the meaning of Section 4(f).

Bike Path along the San Gabriel River and Spreading Grounds

The San Gabriel River has bike paths on both sides of the channel at Washington Boulevard. Similar to the Rio Hondo crossing, the new LRT tracks would run in the median of an expanded Washington Boulevard bridge across the San Gabriel River. There is also an option to construct a new LRT bridge immediately south of the Washington Boulevard bridge to allow the LRT tracks to cross over I-605. The finished bridge structure (either the expanded at-grade option bridge or the new aerial option bridge) would be similar in character to the existing bridge, and would not pose new adverse impacts to the landscaped recreational space. Once completed, additional shadow would be cast on the bike path by either the second bridge or the expanded bridge. This would be a comparatively minor extension of the already-shaded area.

Construction would occur adjacent to the recreational space in the spreading grounds, but the expanded bridge would still be contained within the city ROW and would not require acquisition of any recreational land. Bridge construction may require temporary closure of the bike path, although this effect would be mitigated by temporarily re-routing the bike path around the construction area to allow it to remain open continuously. The bike path would be restored to its original condition and location after construction.

Potential construction across the bridge would constitute a temporary occupancy under Section 4(f). However, given that the bicycle path would be temporarily re-routed around the construction area such that it remains open at all times and would be restored to its original condition and location after construction, the temporary occupancy would not be adverse in terms of the statute's preservation purpose. Through ongoing agency coordination, the Los Angeles County Flood Control District and the city of Pico Rivera would need to agree, in writing, with the finding that the temporary occupancy of the land is so minimal as not to constitute a use within the meaning of Section 4(f).

5.3.4.2 Mitigation Measures

The analysis in Section 5.3.4.1 assumes that all proposed mitigation measures presented in Chapter 3, Transportation Impacts and Mitigation, and Chapter 4, Environmental Analysis, Consequences, and Mitigation, of this Draft EIS/EIR would be implemented. Of particular relevance are those pertaining to:

- Parklands and Other Community Facilities (Section 4.15)
- Cultural Resources (Section 4.14)
- Noise and Vibration (Section 4.9)
- Visual and Aesthetic Resources (Section 4.6)

(Please refer to the specific section for the detailed mitigation measures.)

5.3.4.3 Section 4(f) Finding

The Washington Boulevard LRT Alternative would not result in the use of any historic properties protected by Section 4(f). It would result in a temporary occupancy during construction, which would not be adverse in terms of the statute's preservation purpose, and would result in *de minimis* impacts during operation to the bike paths along Rio Hondo and the San Gabriel River. Table 2-5, located in Chapter 2, Alternatives Considered, presents a summary of construction activities and their estimate durations for both LRT Build Alternatives.

Additionally, construction activities will be refined during final design. Through ongoing agency coordination, the regulatory agencies that oversee these properties would need to agree, in writing, with the findings that the de minimis impact would not substantially affect the recreational activities, features, or attributes that make the property eligible for Section 4(f) protection, and/or the temporary occupancy would be so minimal that it would not constitute a use within the meaning of Section 4(f). These findings apply regardless of which of the maintenance yard options is selected.

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Chapter 6
Evaluation of Alternatives

6.1 Introduction

This chapter summarizes the capital costs and planned sources of funding for the Eastside Transit Corridor Phase 2 build alternatives. This chapter also includes a comparison of the alternatives analyzed in this Draft EIS/EIR.

This initial analysis will assist the Federal Transit Administration (FTA), Metro, city officials, and the general public in understanding and evaluating Metro's financial capacity to construct the Eastside Transit Corridor Phase 2 and to operate and maintain the existing transit system and the proposed extension.

Costs and funding presented in this chapter are in 2010 base year dollars and in Year of Expenditure (YOE) dollars, assumed to be 2035. YOE dollars reflect the financial impact of funds that would need to be expended in the actual year of expenditure and the relative effects of inflation on costs and revenues. Annual and compounded inflation rates and the project implementation schedule are used to project from base year dollars to YOE dollars. This inflation rate is the most current rate used for other projects. For example, in YOE dollars, $1.00 in 2011 is equivalent to $1.03 in 2012, using an inflation rate of 3.0 percent. Year of expenditure cost estimates are derived by multiplying the constant dollar cost estimate for a particular year by the inflation factor calculated for that year. In addition, costs and revenues presented are consistent with Metro's fiscal year, which begins July 1 and runs through June 30.

6.2 Capital Costs and Funding

This section presents the capital cost of the project and the federal, state, and local revenue sources proposed for funding.

6.2.1 Capital Costs

Capital cost estimates for the alternatives were developed based on concept drawings reflecting an approximate ten percent level of engineering completion.

As shown in **Table 6-1**, capital costs for the TSM and build alternatives are presented in 2010 base dollars and in YOE dollars. Costs for the No Build Alternative are not included because no new transit investment in the project area, beyond what is planned for in Metro's 2009 *Long Range Transportation Plan* (LRTP), would be constructed. The capital costs of the alternatives range from approximately $100.1 million ($203.6 million in YOE dollars) for the TSM Alternative to $1.70 billion ($3.29 billion in YOE dollars) for the Washington Boulevard LRT Alternative with the Rosemead Boulevard and the I-605/San Gabriel River aerial crossing options. The YOE costs for the TSM Alternative and build alternatives reflect the implementation plan assumed in Metro's LRTP.

Table 6-2 presents the capital costs of the alternatives using FTA's Standard Cost Categories (SCC). FTA requires submission of capital costs in SCC format at key milestones in the project development process. These cost figures are the gross capital expenditures relative to the No Build Alternative. Total capital costs are divided into five major categories. These include:

- General Construction: guideway elements, stations, maintenance yards, sitework, systems, and contingencies;
- Vehicles: vehicle manufacturing and assembly;
- Right-of-Way (ROW): all rights-of-way, land, maintenance yards, and existing improvements;

Table 6-1. Capital Cost Estimates in 2010 and YOE Dollars ($ in Millions)

Alternative	2010 Dollars	YOE Dollars
TSM Alternative	$100.1	$203.6
SR 60 LRT Alternative		
SR 60 LRT Alternative	$1,296.1	$2,549.0
SR 60 LRT Alternative with North Side Design Variation	$1,271.2	$2,499.7
Washington Blvd. LRT Alternative		
Washington Blvd. LRT Alternative	$1,425.25	$2,835.8
Washington Blvd. LRT Alternative with Aerial Crossings Options	$1,661.0	$3,288.8

Source: AECOM, CDM Smith 2013

Table 6-2. Capital Cost Estimates by Alternative (2010 $ in Thousands)

Cost Category	TSM Alternative	SR 60 LRT Alternative		Washington Blvd. LRT Alternative	
		Without North Side Design Variation	With North Side Design Variation	Without Aerial Crossings Options	With Aerial Crossings Options
Construction	$2,500	$781,429	$762,425	$752,202	$767,448
ROW, Land, Maintenance Yards, and Existing Improvements	$4,900	$114,750	$116,375	$218,000	$412,860
Vehicles	$83,633	$66,150	$66,150	$117,600	$117,600
Professional Services	$ -	$215,910	$210,713	$207,875	$212,115
Unallocated Contingency (Construction)	$9,103	$117,824	$115,566	$129,568	$151,002
Total	**$100,136**	**$1,296,062**	**$1,271,229**	**$1,425,245**	**$,1,661,025**

Source: AECOM, CDM Smith 2013.
Notes:
This table lists only the net capital expenditures for each alternative relative to the No Build Alternative.
Capital costs include construction of a maintenance yard for each of the build alternatives.

- Soft Costs: professional engineering and related services. Generally, soft costs are the capital expenditures that are required to complete an operational transit project, but are not spent directly on activities related to brick-and-mortar construction, vehicle and equipment procurement, or land acquisition. Instead, these expenses are incurred for professional services that are necessary to complete the project; and,
- Unallocated Contingency: additional cost included in the estimate that may be used to cover unforeseen costs, inflation, and/or mitigation measures.

As the Eastside Transit Corridor Phase 2 Project moves through FTA's major capital project development process the costs and implementation schedule will be further refined.

6.2.2 Capital Funding Sources

Metro's approved 2009 LRTP has established a budget of $2.49 billion for the life of the project, which is the present worth in 2010 dollars, escalated to the year of expenditure. The following combination of federal, state, and local revenue sources could be used to fund the Eastside Transit Corridor Phase 2 Project:

- Federal Sources
  - Congestion Management and Air Quality (CMAQ)
  - Regional Surface Transportation Program (RSTP)
  - Other future FTA funding
- State Sources
  - Regional Improvement Program Funds (RIP)
- Local Sources
  - Measure R Sales Tax
  - Local Agency Funds
  - Proposition A
  - Proposition C
- Additional Local, State, and Federal Funding Levels

Measure R is projected to provide $1.271 billion, approximately 50 percent of the capital cost necessary for the Eastside Transit Corridor Phase 2 project. Additional revenues will need to be identified to fully fund the capital costs of the LRT build alternatives. The required additional revenues range from approximately $10 million for the SR 60 LRT Alternative to $60 million for the SR 60 LRT Alternative with the North Side Design Variation; and from $285 million for the Washington Boulevard LRT Alternative to $732 million for the Washington Boulevard LRT Alternative with Aerial Crossing Options. Metro will also conduct value engineering and potentially refine the locally preferred alternative (LPA) during the Final EIS/EIR process in order to reduce cost. This may include the development of a Minimal Operable Segment (MOS).

Measure R was amended by the Metro Board of Directors in June 2013 to reflect changes to the availability date of Measure R funds for the Eastside Transit Corridor Phase 2 and other projects. This amendment reflected the availability of funds for the Eastside Transit Corridor Phase 2 project prior to 2024, but only if certain conditions are met. The change in Measure R funding availability is conditioned on meeting several threshold tests, including passage of the American Fast Forward Tax Credit Bond program. If these conditions are met and the funds are available, then the Metro Board of Directors can amend or reflect this change in availability in the LRTP. As such, the financial plan contained in the Final EIS/EIR will reflect the Measure R amendment and clearly identify the timeframe in which Measure R funds are available for this project.

In an effort to implement third decade projects, as identified by Measure R, sooner and to advance the issuance of the Final EIS/EIR, thereby reducing costs and providing new services sooner to riders, the Metro Board is pursuing additional funding mechanisms for projects planned for the later years of Measure R. Metro's effort includes the second part of its America Fast Forward legislation, a new

class of Qualified Tax Credit Bonds for Transportation.

A brief description of each funding source is provided in the following sections.

6.2.2.1 Federal Sources

Congestion Management and Air Quality

The CMAQ program is a federal formula grant program for use on projects that contribute to attainment of national ambient air quality standards (NAAQS). CMAQ is also programmed for rail and bus operations and can be used for the first three years of operation of individual new rail and bus projects.

CMAQ funds are expected to cover approximately 0.7 percent of the capital costs necessary for the Eastside Transit Corridor Phase 2 Project.

Regional Surface Transportation Program

Established by the State of California Statute, the RSTP program funds projects using funds from the Surface Transportation Program in accordance with Section 133 (f) of Title 23 of the United States Code (USC). Of the $320 million apportioned annually, 76 percent is directed to California's eleven urbanized areas with a population greater than 200,000.

6.2.2.2 State Sources

Regional Improvement Program Funds

RIP funding is derived from the State Highway Account and programmed in the State Transportation Improvement Program (STIP). Funds in the State Highway Account are comprised of state fuel excise taxes, truck weight fees, and other state transportation revenues as well as California's allocation of federal highway trust funds. Within the STIP, 75 percent of the funding is allocated and programmed by regional transportation planning agencies such as Metro under the RIP. The remaining 25 percent is programmed by the state under the Interregional Improvement Program.

Based on a fund estimate prepared by the California Department of Transportation (Caltrans), the California Transportation Commission develops the annual RIP programming targets for each agency. Metro selects and programs the projects to be funded through its Call for Projects process and the Metro Long and Short Range Transportation Plans. Metro has programmed and re-programmed its STIP projects to conform to the targets, which have been subject to change based on the level of funds available and the extent of borrowing of transit revenues by the state for use in balancing the state budget.

RIP funding would provide approximately $0.5 million dollars towards the Eastside Transit Corridor Phase 2 Project capital costs.

6.2.2.3 Local Sources

Measure R Sales Tax

The majority of the project would be funded with Measure R funds, which are collected via a sales tax for the purpose of making transportation investments in the county. Measure R is a half-cent transportation sales tax approved in November 2008 by Los Angeles County voters to meet the transportation needs of Los Angeles County. This is the third half-cent transportation sales tax implemented in Los Angeles County; the others are Proposition A and Proposition C. Collection of the Measure R tax began on July 1, 2009 for public transit purposes (rail expansion, local street improvements, traffic reduction, improved public transportation, and quality of life) for a period of 30 years.

Metro is responsible for administering Measure R revenues. Measure R revenues flow to Metro. The revenues are then allocated in accordance with legally binding allocation rules delineated by Los Angeles County Ordinance #08-01, the Metro Formula Allocation Procedure, and Metro Board of Directors actions. Ordinance #08-01 mandates that 65 percent of Measure R revenues be allocated to rail or bus transit.

Local Agency Funds

The Measure R Expenditure Plan calls for local jurisdictions to provide three percent of total project costs for Measure R transit projects.

Approximately three percent of total project costs of the Eastside Transit Corridor Phase 2 Project will be provided from local agency funds.

Proposition A

Proposition A is a half-cent sales tax designated for transportation projects throughout Los Angeles County. Proposition A was approved in 1980 by county voters and was instrumental in the advancement of several projects, including the Metro Blue Line to Long Beach and Metro Red Line to North Hollywood.

Proposition C

Proposition C was also approved by county voters in 1990 as a half-cent sales tax for transportation improvements throughout the county. Revenues from the sales tax are distributed to five different categories, including five percent to rail and bus security; 10 percent to commuter rail, transit centers, and park and ride lots; 25 percent to transit-related improvements to streets and highways; 20 percent as local return; and 40 percent discretionary for capital and operations improvement projects.

6.3 Comparison of Alternatives

This section summarizes the information from the other chapters of this Draft EIS/EIR and highlights important trade-offs between the proposed alternatives. Section 6.3.1 contains a summary of the evaluation methodology used to compare the alternatives. Further information on the cost and ridership estimates used in this analysis is provided in Chapter 2, Alternatives Considered. Detailed discussions of environmental considerations are provided in Chapter 4, Environmental Analysis, Consequences, and Mitigation.

6.3.1 Evaluation Methodology

Metro applied the following objectives for evaluating potential alternatives for the Eastside Transit Corridor Phase 2 Project. These objectives reflect Metro's mission to meet public transportation and mobility needs for transit infrastructure while also being a responsible steward of the environment and being considerate of affected agencies and community members when planning a fiscally sound project.

- Serve the large number of transit-dependent and low-income residents in the project area.;
- Increase access to major employment centers, activity centers, and destinations in the project area and Los Angeles County;
- Provide regional transit connectivity with the Metro Gold Line Eastside Extension and Measure R projects; and,
- Provide transit alternatives to alleviate roadway congestion, improve mobility options for enhanced quality of life, and provide a convenient and reliable alternative to the automobile.

These goals draw upon those presented in the Alternatives Analysis Report and an addendum to the report, both completed in 2009. For the purposes of this Draft EIS/EIR, these goals have been updated and refined based on public involvement and further analysis of the proposed alternatives, the project area, and the background transportation system.

In addition to the extent to which each alternative achieves the objectives above, the alternatives were compared based on features and environmental impacts remaining after mitigation.

6.3.2 Evaluation Results

This section examines the proposed TSM Alternative and the two build alternatives, the SR 60 LRT Alternative and the Washington Boulevard LRT Alternative, based on the criteria discussed in Section 6.3.1. These criteria were used to compare the alternatives to each other and to the No Build Alternative, which represents year 2035 conditions

without the proposed Eastside Transit Corridor Phase 2 Project. Detailed descriptions of the potential alternatives are provided in Chapter 2, Alternatives Considered. The results of the evaluation are presented in **Table 6-3**. Further discussion of the results is provided in the following sections.

6.3.2.1 Achievement of Project Objectives

As indicated in Table 6-3, the TSM Alternative and build alternatives would serve transit-dependent/low-income populations. However, the LRT build alternatives would provide better service to transit-dependent populations given their shorter travel times compared to the TSM Alternative.

The TSM Alternative and build alternatives would increase access to activity and employment centers. However, the LRT build alternatives would provide better and more reliable access than the TSM Alternative because the LRT build alternatives would not be subject to roadway traffic conditions, and would not require patrons to transfer in order to access the existing Metro Gold Line Eastside Extension.

The LRT build alternatives would be more successful in leveraging transit investments (from the existing Metro Gold Line Eastside Extension and Measure R projects) to provide connections farther east than the No Build and TSM Alternatives. The LRT build alternatives would extend the Metro Gold Line Eastside Extension from the existing Atlantic Station to the east by 6.9 or 9.5 miles, depending on the alternative selected. The LRT build alternatives would be an extension of the Metro Gold Line Eastside Extension and would not require patrons to transfer in order to access the existing Gold Line Eastside Extension. This improved transit connectivity would increase transit ridership, provide an alternative to automobile travel, and increase access to major employment centers, activity centers, and destinations within the project area and the region.

Increased transit ridership would also generate environmental benefits through reduced vehicle trips, reduced roadway congestion, reduced emissions of several air pollutants, and offset of greenhouse gas (GHG) emissions associated with automobile travel. Improved accessibility and mobility associated with the alternative would also lead to an increase in employment opportunities for the regional population. Implementation of an LRT system would also make it easier for new developments to integrate alternative transportation into their project designs.

The TSM Alternative is predicted to have the least reduction in vehicle miles traveled (VMT) compared with the LRT build alternatives (see Section 4.8, Climate Change). In addition, the LRT build alternatives would not be subject to roadway traffic conditions, would provide a greater number of new daily linked trips, and would have shorter travel times, as shown in Table 6-3. Therefore, the LRT build alternatives would provide greater increases in mobility, accessibility, and reliability of alternative transportation in the project area compared to the No Build and TSM Alternatives.

6.3.2.2 Land Use Benefits

Opportunities for future development on underutilized parcels, vacant sites, and surface parking lots are present in the vicinity of station locations along both LRT alignments.

The TSM Alternative would not provide new rail service to the project area; rather, it would improve existing bus service. Since bus routes can be changed easily, developers do not readily respond to improvements in bus service compared to investment in rail infrastructure. The TSM Alternative improvements would not be enough to induce development in the project area or act as a catalyst for appropriate economic development.

Table 6-3. Alternatives Evaluation Results

Criteria	No Build Alternative	TSM Alternative	SR 60 LRT Alternative	Washington Blvd. LRT Alternative
Project Objectives				
Enhance service to transit-dependent/low-income populations	No	Yes	Yes	Yes
Increase access to activity and employment centers	No	Yes	Yes	Yes
Leverage transit investments to provide connections farther east	Low	Low	High	High
Alleviate roadway congestion	No	No	Yes	Yes
Improve mobility options	No	No	Yes	Yes
Provide a convenient/reliable alternative to the automobile	No	No	Yes	Yes
Alternative Features				
New Daily System-wide Linked Trips in 2035	N/A	22,798	28,683	29,575
Average Weekday Daily Boardings	N/A	N/A	16,700	19,900
Travel Time (minutes)	50-60	30-42	13	17.5 to 22
Capital Costs (millions of 2010 $)	None	100.1	1,271 to 1,296	1,425 to 1,661
Alternative Length (miles)	N/A	N/A	6.9	9.5
New Stations	0	0	4	6
Environmental Impacts Remaining After Mitigation (Adverse/Significant?)				
Transportation: Intersection impacts during operation	No	No	No	Yes
Community and Neighborhood Impacts: Changes to the physical character of the existing community; community/resource events	No	No	No	Yes (adverse but not significant)
Visual and Aesthetic Impacts: Visual alteration of the existing community	No	No	No	Yes

Table 6-3. Alternatives Evaluation Results (continued)

Criteria	No Build Alternative	TSM Alternative	SR 60 LRT Alternative	Washington Blvd. LRT Alternative
Cumulative Impacts: Visual and aesthetic impacts	No	No	No	Yes
Cumulative Impacts: Intersection impacts	No	No	No	Yes

Source: CDM Smith 2014.
Note: 'Adverse' refers to the level of effect under NEPA and 'significant' refers to the level of impact of significance per CEQA. Adverse but not significant impacts are perceived as negative are considered 'adverse' under NEPA but do not reach a level of significance under CEQA.

6.3.2.3 Alternative Features

As presented in Table 6-3 and Appendix II, Travel Demand Modeling Technical Memorandum, the Washington Boulevard LRT Alternative would attract the highest number of new daily systemwide linked trips in 2035, approximately 29,575 trips. A linked trip is a trip from origin to destination on the transit system. Even if a person must make several transfers during a journey, the trip is counted as one linked trip on the system. Boardings are unlinked trips which occur every time a person boards a transit vehicle.

The SR 60 LRT Alternative would have the shortest travel time compared to the other alternatives, with a travel time of 13 minutes from the existing Eastside Extension Atlantic Station to the Peck Road station, and the lowest capital costs of the two LRT alternatives.

Although the TSM Alternative has the lowest capital costs compared to the build alternatives, it has the second longest travel time and the lowest number of new linked trips.

The Washington Boulevard LRT Alternative is the longer of the two LRT alternatives (9.5 miles) and would provide two more stations than the SR 60 LRT Alternative. In addition, the Washington Boulevard LRT Alternative would have the highest average weekday daily boardings, with 19,900.

6.3.2.4 Travel Time and Cost Savings

The project's impact on livability was evaluated by applying USDOT guidance for value of time analysis to calculate the value of the time savings associated with transit provision. Travel cost savings associated with diverting riders from autos to transit were also considered.

The quantity of time saved due to the build alternatives was estimated using Metro's travel demand model. The value of travelers' time relies on local wage rates, the quantity of local and intercity travel, and the distribution of personal and business travel. The value of time for regional, personal, and business travel was estimated following USDOT guidelines.

An overall weighted value of travel time was computed based on local household incomes, regional wages, and number of person hours distributed across travel types, adjusted for the mix of personal and business trips.

The number of auto vehicle miles traveled (VMT) that would be diverted to transit is the basis for estimating the travel costs saved. Average vehicle operating costs were applied to VMT avoided to obtain the estimate of costs avoided.

The TSM Alternative would provide enhanced bus service along major streets and freeways in the project area. The TSM Alternative would save travelers approximately 6.78 million hours of travel time and attract an additional 7.41 million riders per year by 2035 relative to the No Build Alternative. The value of the time savings is $152.9 million and the travel cost savings is $33.5 million in 2035 relative to the No Build Alternative.

Operation of the LRT alternatives would improve mobility within the project area relative to the No Build Alternative. Along the SR 60 corridor, the average peak auto travel time from Peck Road to Union Station in 2035 is projected to be just over 43 minutes. The comparable peak LRT travel time under the SR 60 LRT Alternative with the North Side Design Variation is projected to be less than 37 minutes. The SR 60 LRT Alternative would save travelers 8.8 million hours of travel time and attract an additional 9.3 million riders per year by 2035 relative to the No Build Alternative. The value of the time savings would be just over $191.5 million and the travel cost savings would be just over $42.1 million in 2035 relative to the No Build Alternative.

Along the Washington Boulevard LRT corridor, the average peak auto travel time from Lambert Road to Union Station in 2035 is projected to be just over 46 minutes. The comparable peak LRT travel time under the Washington Boulevard LRT Alternative is projected to be 41.5 minutes.

The Washington Boulevard LRT Alternative would result in just over $201.1 million in travel time savings and just over $43.5 million in travel cost savings annually by 2035. The Washington Boulevard LRT Alternative would save travelers just under 9.1 million hours of travel time and attract an additional 9.6 million riders per year by 2035 relative to the No Build Alternative.

The mobility benefits under the light rail alternatives would be greater than those enjoyed under the TSM Alternative. The SR 60 LRT Alternative would have a shorter travel time than the Washington Boulevard LRT Alternative. However, the Washington Boulevard LRT Alternative benefits are modestly greater than those generated by the SR 60 LRT Alternative, due to the projected land uses and growth in the area.

6.3.2.5 Environmental Impacts Remaining After Mitigation

As shown in Table 6-3 above, the Washington Boulevard LRT Alternative would result in more adverse effects/significant impacts remaining after mitigation compared to the SR 60 LRT Alternative. With regards to the unavoidable community and neighborhood impacts associated with the Washington Boulevard LRT Alternative, the alternative would provide benefits in most of the other categories that federal guidance (Section 4.5.1.1) considers in weighing the effect of a project on quality of life by increasing mobility and access to the various populations, businesses, and community services listed in that guidance. This would lessen impacts. Nonetheless, the adverse changes to the physical character of the existing community in this area cannot be mitigated. All impacts can be mitigated to less than significant levels for the SR 60 LRT Alternative.

Table ES-2 summarizes the impacts, mitigation measures, and impacts remaining after mitigation associated with each alternative.

6.3.2.6 Areas of Controversy/Issues to be Resolved

Based on comments received from scoping meetings held as part of the Notice of Preparation (NOP) public review period, comments received after the NOP public review period, and coordination with cooperating agencies, the following areas of controversy and issues to be resolved are identified and addressed in this Draft EIS/EIR.

The comments received demonstrated substantial support for the two LRT alternatives, the SR 60 LRT Alternative and the Washington Boulevard LRT Alternative. Common themes regarding concerns of the community and public agencies included the importance of transit connectivity, service to colleges and universities, providing service to underserved areas, concerns regarding

environmental and engineering challenges along the two alignments, and potential economic opportunities for the cities along the corridors. Environmental concerns included, but were not limited to, traffic impacts associated with construction and operation, construction impacts to residents and businesses, potential visual impacts to residential and business communities, and the potential for future projects to impact the proposed project's ridership. Appendix H, Final Scoping Report, of this Draft EIS/EIR includes a scoping comment log with comments received during the scoping period. Appendix I, Agency Coordination and Public Involvement, of this Draft EIS/EIR includes public comments received after the close of the scoping period.

Cooperating agencies and the public expressed environmental concerns regarding the proximity of the SR 60 LRT Alternative to the former Operating Industries, Inc. (OII) landfill Superfund site. Cooperating agencies and the public also expressed concern over the proposed location of the Santa Anita Avenue station and park and ride facilities within a flowage easement maintained by the U.S. Army Corps of Engineers (USACE). In coordination with Caltrans, U.S. Environmental Protection Agency (USEPA), and USACE, the SR 60 North Side Design Variation was analyzed as a way to minimize potential impacts to the OII landfill Superfund site, located through the SR 60 corridor in the city of Monterey Park. Appendix I includes formal correspondence from the three cooperating agencies. With this variation, instead of running along the edge of the OII landfill Superfund site on the south side of SR 60, the LRT alignment would transition from the south side to the north side of SR 60 just west of Greenwood Avenue and return to the south side of SR 60 approximately one-quarter mile west of Paramount Boulevard.

Issuance of the Final EIS/EIR to the public will be dependent upon Metro's ability to develop a constrained financial plan which demonstrates construction initiating within three years after issuance of the ROD, the time frame by which information within an EIS/EIR is still valid. If the publication of the Final EIS/EIR occurs sometime prior to 2026 (likely within the next five to ten years), a Supplemental Draft EIS will be required prior to its publication.

The Project is currently included within the constrained component of Metro's LRTP and the 2012-2035 RTP, which commit funding to the project starting in 2026. This commitment is based on the availability of funds from Measure R, which funds $1.25 billion of the project starting in FY 2026. Metro's LRTP envisions the project to begin construction between 2027 and 2035 and to be in operations in 2035.

In an effort to implement the project sooner and to advance the issuance of the Final EIS/EIR, thereby reducing costs and providing new services earlier than originally planned, the Metro Board is pursuing additional funding mechanisms for projects planned for the later years of Measure R. Metro's effort includes the second part of its America Fast Forward legislation, a new class of Qualified Tax Credit Bonds for Transportation.

Measure R was amended by the Metro Board of Directors in June 2013 to reflect changes to the availability date of Measure R funds for Eastside Transit Corridor Phase 2 and other projects. This amendment reflected the availability of funds for the Eastside Transit Corridor Phase 2 project prior to 2024, but only if certain conditions are met. The change in Measure R funding availability is conditioned on meeting several threshold tests, including passage of the America Fast Forward Tax Credit Bond program. If these conditions are met and the funds are available, then the Metro Board of Directors can amend or reflect this change in availability in the LRTP. As such, the financial plan contained in the Final EIS/EIR will reflect the Measure R amendment and will clearly identify the timeframe in which Measure R funds are available for this project.

In order to accelerate a project in the LRTP, the funds must be available and the Metro Board must approve an amendment to the 2009 LRTP or an update to the overall LRTP, approving the project, its new schedule, and its new funding. Should this occur, and the new dates of construction are

known, a supplemental environmental analysis will be conducted, if warranted.

6.4 Environmentally Superior Alternative

Identification of an environmentally superior alternative is required per Section 15126.6(e)(2) of the CEQA Guidelines. The environmentally superior alternative is based on the results of the technical analysis of all the alternatives as reported in the Draft EIS/EIR and on input from the public during public scoping. The identification of an environmentally superior alternative is separate from the selection of an LPA. The LPA is the alternative eventually studied in a Final EIS/EIR. Following the Draft EIS/EIR public comment period, the Metro Board of Directors may choose to select an LPA after examining the Draft EIS/EIR, comments received during the public comment period, and other relevant information. After certification of the Final EIS/EIR, Metro will consider officially adopting a project alternative for implementation.

Both LRT alternatives provide environmental and social benefits for the project area as described above. The SR 60 LRT Alternative meets all the project objectives, would have the shortest travel time, and would not result in any adverse effects or significant impacts after mitigation. The majority of the SR 60 LRT alignment would occur within the Caltrans ROW. However, there are constraints associated with construction of the alignment adjacent to the OII site, which are minimized with the North Side Design Variation, and with a portion of the alignment within the Whittier Narrows Flood Control Basin. The Washington Boulevard LRT Alternative also meets all of the project objectives and would have more average weekday daily boardings than the SR 60 LRT Alternative. However, the Washington Boulevard LRT Alternative would result in unavoidable adverse effects/significant impacts with regard to 16 intersections and the visual character of the existing community. The project benefits along with mitigation measures would lessen some of the unavoidable adverse effects/significant impacts associated with the Washington Boulevard LRT Alternative, but not to a level of not adverse/less than significant. Based on the above and the analysis presented in Chapter 3, Transportation Impacts and Mitigation, and Chapter 4, Environmental Analysis, Consequences, and Mitigation, and because the alternative meets all the project objectives, would have the shortest travel time, and would not result in any adverse effects or significant impacts after mitigation, Metro staff has identified the SR 60 LRT Alternative, with the North Side Design Variation, as the environmentally superior alternative.

Table ES-2 is a summary of impacts, mitigation measures, and impacts remaining after mitigation associated with each alternative. For further information regarding impacts and mitigation measures associated with each alternative, refer to the environmental resource sections in Chapter 3, Transportation Impacts and Mitigation, and Chapter 4, Environmental Analysis, Consequences, and Mitigation, of this Draft EIS/EIR.

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Chapter 7

Public and Agency Outreach

7.1 Introduction and Summary of Outreach Efforts

Metro initiated a comprehensive outreach program for the Eastside Transit Corridor Phase 2 Project in 2007, at the outset of the Alternatives Analysis (AA) phase. Outreach has continued throughout preparation of this Draft EIS/EIR. The outreach program is focused on increasing project awareness and education, disseminating project information, garnering public input, and supporting the technical and legal environmental processes. Through the use of traditional and innovative outreach methods, the outreach activities conducted during the AA, Draft EIS/EIR, and post-scoping phases have yielded nearly 900 comments; Metro hosted over 300 meetings with over 2,800 participants. This effort has included an array of project stakeholders including elected officials, jurisdictions, resource agencies, residential and business communities, academic institutions, civic and professional organizations, and many others. A complete listing of stakeholders and meetings is included in Appendix I, Agency Coordination and Public Involvement, of this Draft EIS/EIR.

Through the use of public open houses, focus groups, workshops, tours, social media outlets, webinars, and conferences such as Rail~Volution, project stakeholders have been involved in each of the major technical milestones of the project development process that has occurred to date. In addition, tours of light rail systems in other cities such as Pasadena, California; Portland, Oregon; and Seattle, Washington were conducted to help stakeholders better understand how the proposed project would operate.

This chapter, together with the supporting information included in Appendix H, Final Scoping Report, and Appendix I, Agency Coordination and Public Involvement, of this Draft EIS/EIR, documents the outreach efforts completed during the AA phase through the release of the Draft EIS/EIR.

7.2 Background

In 2007, Metro initiated a comprehensive public participation program for the Eastside Transit Corridor Phase 2 Project. This program used various communication tools to reach out to the large project study area, which encompasses over 80 square miles. Stakeholders and interested parties were informed and educated about the various project development phases, including the AA phase, the Draft EIS/EIR phase, and future project development phases, including the Final EIS/EIR, preliminary engineering, final design, and construction.

7.3 Public Participation Plan (PPP)

To inform the public and provide opportunities for comment at key milestones throughout the study, a detailed Public Participation Plan (PPP) was developed at the commencement of the AA phase (included in Appendix H, Final Scoping Report, of this Draft EIS/EIR). The PPP includes community profiles illustrating the unique characteristics of each community within the project area, detailed stakeholder database categories, collateral material recommendations, AA and Draft EIS/EIR notification strategies, communication protocols, proposed schedules for interfacing with the public and elected officials, and recommendations for

meeting formats throughout both the AA and Draft EIS/EIR phases. The PPP served as a blueprint for outreach activities and has been integrated into the technical project schedule.

In order to adapt to the communities' needs and allow appropriate modifications and refinements to the project alternatives, the PPP strategies are flexible and can be modified to meet the project demands and political climate when and where necessary. As detailed below, the PPP for the Eastside Transit Corridor Phase 2 Project is consistent with outreach requirements outlined in the Moving Ahead for Progress in the 21st Century (MAP-21) and incorporates the public participation requirements of the National Environmental Policy Act (NEPA), California Environmental Quality Act (CEQA), and Federal Transit Administration (FTA) New Starts Program.

7.4 Government and Other Agency Consultation

7.4.1 Section 6002 of SAFETEA-LU

Section 6002 of SAFETEA-LU promotes efficient project management by lead agencies and enhanced opportunities for coordination with the public and other federal, state, local, and tribal government agencies during project development. In accordance with these requirements, Metro, in coordination with FTA, prepared and mailed Participating Agency invitation letters to approximately 177 agency representatives on February 4, 2010. A full listing of these agencies is included in Appendix I, Agency Coordination and Public Involvement, of this Draft EIS/EIR. At that time, three agencies were asked if they would like to serve as Cooperating Agencies for the project: U.S. Environmental Protection Agency (USEPA), U.S. Army Corps of Engineers (USACE), and the California Department of Transportation (Caltrans). Agencies were given until April 14, 2010 (10 weeks from the date of the letter) to respond.

A total of 24 agencies accepted the invitation to become a Participating Agency and USEPA, USACE, and Caltrans requested to be Cooperating Agencies. Caltrans is a cooperating agency as delegated by FHWA under Section 6002 of SAFETEA-LU. A complete list of Participating and Cooperating Agencies is included in Appendix I, Agency Coordination and Public Involvement, of this Draft EIS/EIR.

Outreach efforts to agencies affiliated with the project included agency scoping meetings, participation in the Technical Advisory Committee (TAC), and 37 individual agency coordination meetings with USEPA, USACE, Caltrans, Southern California Edison, and Union Pacific Railroad.

Additionally, SAFETEA-LU requires that the planning processes “be developed in consultation with all interested parties and provide that all interested parties have reasonable opportunities to comment on the contents of the transportation plan.” As part of the outreach program during the AA and Draft EIS/EIR phases, Metro has held over 300 meetings with a wide array of stakeholder groups, including:

- 31 community meetings;
- 52 small group meetings, including chambers, interested groups, business associations, schools, universities, churches, foundations, and hospitals;
- 75 elected official briefings with federal, state, regional, and local officials;
- 68 meetings with city staff;
- 44 combined meetings with the executive office and transportation committees of the San Gabriel Valley and Gateway Cities Councils of Government;
- 13 meetings with the Metro Board of Directors staff and committees;

- 37 meetings with regulatory and other agencies; and
- 10 TAC meetings.

A complete list of meetings, briefings, and tours is included in Appendix I, Agency Coordination and Public Involvement, of this Draft EIS/EIR.

7.4.2 Section 106 Consultation

To comply with Section 106 requirements, FTA sent a Letter of Initiation to the State Historic Preservation Officer (SHPO) initiating consultation under Section 106 of the National Historic Preservation Act. The letter also included the area of potential effects (APE) maps for the build alternatives and requested SHPO's concurrence with these maps.

FTA sent a letter to the California SHPO on June 10, 2010. Metro's consultants sent letters to the Native American parties on June 29, 2010. A letter of concurrence was received from the California SHPO on March 18, 2013.

During preparation of the Draft EIS/EIR, Metro contacted local historic groups and stakeholders who potentially have an interest in the project. Metro also contacted and consulted with Native American groups, as identified in the State of California's Native American Heritage Commission (NAHC) scoping comment letter submitted to Metro on January 27, 2010. An inventory of properties within the APE and listed in the National Register of Historic Places, as well as those properties potentially eligible for listing, has been conducted. SHPO's concurrence on the determinations of effects for federal historic resources occurred on March 18, 2013. (Refer to Section 4.14, Cultural and Historical Resources, and Appendix Y, Cultural Resources Technical Memorandum for more information.)

7.4.3 Tribal Coordination

During preparation of this Draft EIS/EIR, the team conferred with the NAHC, local California Indian organizations, and interested public historical and cultural organizations. The NAHC conducted a search of the sacred lands file and provided the results to Metro on January 27, 2010. As recommended by the NAHC, individuals who may have further knowledge of sacred or prehistoric cultural resources within the project area were contacted. These included individuals from the Gabrieleño-Tongva Indians of California Tribal Council, Gabrieleño-Tongva Nation, Gabrieleño-Tongva Territorial Tribal Nation, and city and County of Los Angeles NAHC. Coordination with SHPO, interested parties of the Native American Heritage Commission, and the Native American community is ongoing. A complete list of all parties consulted during preparation of this Draft EIS/EIR is included in Appendix I, Agency Coordination and Public Involvement, of this Draft EIS/EIR.

7.5 Community Outreach

A variety of notification tools were used during the AA and Draft EIS/EIR phases to reach out to targeted audiences. Outreach methods included:

- Direct mail notification
- Email notification
- Newspaper display ads and online ads
- Meetings with cities, chambers of commerce, councils of governments, and educational institutions
- Placement of pamphlets in Metro buses and trains
- Stakeholder briefings
- Street banners
- Project website
- Project helpline
- School district meeting flyer
- Social media – Facebook and Twitter
- City and chamber newsletters
- City cable channels and electronic boards

This set of notification tools was customized throughout the AA and Draft EIS/EIR phases of the project, taking into account cost-effectiveness and trying to maximize stakeholder participation.

Throughout the AA and Draft EIS/EIR phases, a variety of informational documents was made available to the public. These included project fact sheets, frequently asked questions, meeting notices, electronic newsletters/e-bulletins, and other collateral materials. In addition, a complete set of collateral pieces was developed and distributed at community meetings, stakeholder briefings, and public events, as well as electronically when requested. These collateral materials were updated throughout the project development process and were produced in English and Spanish. These materials are included in Appendix I, Agency Coordination and Public Involvement, of this Draft EIS/EIR.

7.5.1 Alternatives Analysis Phase

As discussed above, in 2007 Metro initiated the AA phase of the Eastside Transit Corridor Phase 2 Project. The focus of the outreach program during the AA phase was to increase project awareness and initiate public participation in the multi-phased project development process.

Public participation during this phase assisted in the refinement of alternatives. Ultimately, during the AA phase 47 project alternatives were narrowed down to five.

At the outset of the AA phase, early scoping was conducted for the project. A 30-day public comment period was held from November 1 through November 30, 2007. A total of five early scoping meetings, including four community meetings and one agency meeting, were held between November 8 and 15, 2007. Meeting locations near the major east-west corridors were selected to maximize attendance and community input. Interpreters were available at the four community meetings to provide simultaneous Spanish translation. A detailed list of the early scoping meeting dates and times is included in Appendix I, Agency Coordination and Public Involvement, of this Draft EIS/EIR.

A total of 224 attendees, representing a cross-section of the project area communities, participated in the early scoping meetings held in 2007. Public input was substantial, with a total of 159 comments received during the comment period. Participants were well-versed on the issues and opportunities associated with the proposed Eastside Transit Corridor Phase 2 Project and commented on various topics, including Light Rail Technology as the preferred mode of transit, the project area's proximity to downtown Los Angeles as a reason for considering public transit, and the problem of increasing congestion that continues to lengthen daily commutes. Court reporters were available at the four public meetings to document public comments received. A comprehensive summary of information presented and comments received at these meetings is included in Appendix I, Agency Coordination and Public Involvement, of this Draft EIS/EIR.

In addition to early scoping meetings, 12 additional public meetings were held post-AA preparation and pre-Draft EIS/EIR scoping. Over 550 stakeholders participated in the various meetings listed below, details of which are included in Appendix I, Agency Coordination and Public Involvement, of this Draft EIS/EIR:

- Four community workshops in April 2008, informing the public of results from early scoping and the AA development process;
- Five focus group meetings in June and July 2009, where groups analyzed the remaining alternatives in detail while discussing the surrounding land uses;
- One property owners' open house in July 2009, the purpose of which was to provide all property owners within one-quarter mile of each alternative with information on the project; and

- Two community open houses in October 2009 to provide a project update to interested community members.

7.5.2 Draft EIS/EIR Phase

The scoping period began with the publication of the Notice of Preparation/Notice of Intent on January 25, 2010 and continued through April 14, 2010. During the 80-day scoping period, Metro hosted a total of five scoping meetings, including four public meetings and one agency meeting, between February 22 and 27, 2010. The meetings were attended by more than 300 people. In addition to the official scoping meetings, Metro also participated in various city and stakeholder events as requested by the respective groups to enhance the outreach effort and increase awareness during the scoping period. (For a detailed list of the scoping meeting dates and times, please refer to Appendix H, Final Scoping Report, of this Draft EIS/EIR.)

During the 80-day scoping period, Metro accepted oral comments at meetings and via the project helpline, written comments on meeting comment cards or via letters, e-mailed comments to the Metro project manager, and electronic comments via the Metro project website. A total of 527 oral and/or written public comments were received from agencies and the public, including elected officials, residents, grassroots organizations, chambers of commerce, developers, hospitals, agencies, educational institutions, and businesses.

The comments received demonstrated substantial support for each of the two LRT alternatives, the SR 60 LRT Alternative and the Washington Boulevard LRT Alternative. Common themes included the importance of transit connectivity, service to colleges and universities, providing service to underserved areas, concerns regarding environmental and engineering challenges along the two alignments, and potential economic opportunities for the cities along the corridors. Comments were categorized and sorted by 24 environmental topics and then grouped into six major categories:

- Purpose and Need;
- Alternatives;
- Configuration;
- Stations;
- Economic Development; and
- Potential Impacts.

Appendix H, Final Scoping Report, of this Draft EIS/EIR, includes the scoping comment log, which lists comments received according to the six categories identified above.

7.5.3 Post-Scoping

Outside of the scoping period and during preparation of the technical memoranda and Draft EIS/EIR, Metro hosted additional community meetings. These meetings included:

- Five urban design community workshops in July 2010 to discuss and explore the station area concepts for each of the proposed Eastside Transit Corridor Phase 2 station locations.
- Two community open houses in September 2010 to provide stakeholders with a project update, and share project refinements and the environmental review schedule.
- As part of the 2010 Rail-Volution Conference, Metro hosted two tours of the Portland, Oregon rail transportation network, which features similarities to the project area. The tours highlighted the MAX Green Line along I-210 to Clackamas County and the MAX Blue Line to Hillsboro. Stakeholders experienced light rail on the I-210 freeway and its integration with the urban fabric of a suburban community in Hillsboro.
- A project webinar held in May 2011 informed project stakeholders of similar light rail projects operating in San Diego, California; Portland, Oregon; and Pasadena, California.

- Two open houses in September 2011 provided additional project updates and information about environmental findings and the Draft EIS/EIR preparation schedule.
- In October 2012, the Rail-Volution conference hosted in Los Angeles highlighted Metro's rail system. The corridor cities were invited to participate in tours of Metro's Green Line and Gold Line.
- During the 2013 Rail-Volution Conference, Metro hosted a tour of the Seattle, Washington rail transportation network. The tours were guided by Sound Transit and key city staff for the Central Link and East Link lines and highlighted characteristics similar to the two proposed LRT alignments. The corridor cities were invited to participate in tours of Sound Transit's Central Link and East Link lines.
- In anticipation of the release of the Draft EIS/EIR, Metro hosted a technical advisory council meeting in addition to open house and city council briefings for the eight corridor cities during May 2014. The purposes of these meetings and presentations were to reacquaint the city council and community with the project; describe the environmental review process, the locally preferred alternative (LPA) selection process, and the project schedule; and explain how to submit comments during the upcoming public review period. Appendix Q includes materials, notifications, and correspondence received during the pre-release period.

7.6 Public Hearings

Following the release of the Draft EIS/EIR, a 60 day public comment period will be held from July 25, 2014 to September 23, 2014. One interagency scoping meeting and four public hearings will be held to receive oral and written comments on the Draft EIS/EIR. The interagency scoping meeting will be held at Metro's offices and the public hearings will be in the cities of Montebello, Pico Rivera, South El Monte and Whittier. Metro will provide notice of these public hearings in compliance with CEQA and NEPA and will follow the same notification methods that proved effective during scoping. The following outreach strategies will be implemented:

- Direct mail notification
- Email notification
- Legal, display, and online newspaper ads
- Placement of posters in Metro buses and trains
- Street banners
- Project website
- Project helpline
- School district coordination
- Corridor city coordination and notification plan
- City and chamber newsletters
- City cable channels and electronic boards
- Social media – Facebook and Twitter

During the formal comment period for the Draft EIS/EIR, agencies and the public will be able to submit comments in writing directly to Metro and FTA. Comments will also be received at the public hearing through a court reporter. The Draft EIS/EIR will also be distributed on Metro's website at www.metro.net/projects/eastside_phase2. CDs and paper copies will also be available for public review at the public hearings and at the following depositories:

- Chet Holifield County Library
- Commerce Public Library
- East Los Angeles County Library
- Los Nietos County Library
- Montebello Public Library
- Monterey Park Public Library
- Pico Rivera Public Library

- Rivera County Library
- Rosemead City Library
- Santa Fe Springs Public Library
- Sorensen County Library
- South El Monte Public Library
- Whittier Public Library
- Whittwood Branch Library

7.7 Accommodations for Minority, Low-Income, and Persons with Disabilities

Special outreach efforts were made to reach minority, low-income, and limited English proficiency (LEP) populations and persons with disabilities. The communities along the SR 60 LRT Alternative are diverse, with approximately 69 percent Hispanic or Latino, 26 percent Some Other Race (a defined category according to the 2010 census), 24 percent Asian, and 4 percent Two or More Races. In addition, approximately 13 percent of the population along the SR 60 LRT Alternative is considered low-income. The communities along the Washington Boulevard LRT Alternative are diverse as well, with approximately 86 percent Hispanic or Latino, 33 percent Some Other Race, and 7 percent Asian. In addition, approximately 16 percent of the population along the Washington Boulevard LRT Alternative is considered low-income. Low-income households are defined as below 80 percent of the Area Median Income (AMI).

Bilingual (English/Spanish) announcements and briefings to neighborhood councils, local business groups, and non-governmental organizations were conducted. These announcements and briefings were posted in non-English newspapers/publications such as La Opinión, Impacto USA, Vivelohoy, and Chinese Daily News.

Strategies to reach minority, low-income, and disabled populations included holding meetings in transit-accessible locations and at a variety of meeting times, including nights and weekends, in order to allow maximum participation. All meeting announcements, advertisements, brochures, and collateral materials have been produced bilingually (English/Spanish).

In addition, Metro produced a multilingual document for the public so that meeting attendees could easily request project materials in their preferred language. The multilingual request document was written in various languages to ensure stakeholders' full comprehension. These languages included English, Spanish, Traditional and Simple Chinese, Vietnamese, and Armenian (Traditional and Simplified Chinese are written forms of Chinese. Traditional Chinese has many extra strokes in the written character. Traditional Chinese is the international standard language in Macao, Hong Kong, and Taiwan, whereas Simplified Chinese is used in China, Singapore, and Malaysia). All meeting venues were Americans with Disabilities (ADA) compliant and accessible.

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