Los Angeles County
Metropolitan Transportation Authority

West Santa Ana Branch Transit Corridor

Draft EIS/EIR Appendix F
Final Safety and Security Impact Analysis Report

Metro

WEST SANTA ANA BRANCH TRANSIT CORRIDOR PROJECT

Draft EIS/EIR Appendix F
Final Safety and Security Impact Analysis Report

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Metro

Los Angeles County
Metropolitan Transportation Authority

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ACRONYMS AND ABBREVIATIONS

Acronym	Definition
ADA	Americans with Disabilities Act
BRT	bus rapid transit
CCTV	closed-circuit television
CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
CPTED	Crime Prevention through Environmental Design
CPUC	California Public Utilities Commission
EPP	emergency preparedness plan
FAST	Fixing America's Surface Transportation
FRA	Federal Railroad Administration
FTA	Federal Transit Administration
GO	General Order
I-	Interstate
LA	Los Angeles
LACoFD	Los Angeles County Fire Department
LACSD	Los Angeles County Sheriff's Department
LAFD	Los Angeles Fire Department
LAPD	Los Angeles Police Department
LAUS	Los Angeles Union Station
LBPD	Long Beach Police Department
LRT	light rail transit
LRTP	Long Range Transportation Plan
LRV	light rail vehicle
Metro	Los Angeles County Metropolitan Transportation Authority
MRDC	Metro Rail Design Criteria
MSF	maintenance and storage facility
MUTCD	Manual of Uniform Traffic Control Devices
MWD	Metropolitan Water District
NEPA	National Environmental Policy Act
NFPA	National Fire Protection Association
OCS	overhead catenary system

Acronym	Definition
OSHA	Occupational Safety and Health Administration
PEROW	Pacific Electric Right-of-Way
Project	West Santa Ana Branch Transit Corridor
ROW	right-of-way
RTP/SCS	Regional Transportation Plan/Sustainable Communities Strategy
SCAG	Southern California Association of Governments
SSMP	Safety and Security Management Plan
TPSS	traction power substations
TSA	Transportation Security Administration
TSB	Transit Services Bureau
TVA	Threat and Vulnerability Assessment
UFC	Uniform Fire Code
UPRR	Union Pacific Railroad
USDOT	United States Department of Transportation
U.S.C.	United States Code
US-101	U.S. Highway 101
WSAB	West Santa Ana Branch

1 INTRODUCTION

1.1 Study Background

The West Santa Ana Branch (WSAB) Transit Corridor (Project) is a proposed light rail transit (LRT) line that would extend from four possible northern termini in southeast Los Angeles (LA) County to a southern terminus in the City of Artesia, traversing densely populated, low-income, and heavily transit-dependent communities. The Project would provide reliable, fixed guideway transit service that would increase mobility and connectivity for historically underserved, transit-dependent, and environmental justice communities; reduce travel times on local and regional transportation networks; and accommodate substantial future employment and population growth.

1.2 Alternatives Evaluation, Screening and Selection Process

A wide range of potential alternatives have been considered and screened through the alternatives analysis processes. In March 2010, the Southern California Association of Governments (SCAG) initiated the Pacific Electric Right-of-Way (PEROW)/WSAB Alternatives Analysis (AA) Study (SCAG 2013) in coordination with the relevant cities, Orangeline Development Authority (now known as Eco-Rapid Transit), the Gateway Cities Council of Governments, the Los Angeles County Metropolitan Transportation Authority (Metro), the Orange County Transportation Authority, and the owners of the right-of-way (ROW)—Union Pacific Railroad (UPRR), BNSF Railway, and the Ports of Los Angeles and Long Beach. The AA Study evaluated a wide variety of transit connections and modes for a broader 34-mile corridor from Union Station in downtown Los Angeles to the City of Santa Ana in Orange County. In February 2013, SCAG completed the PEROW/WSAB Corridor Alternatives Analysis Report[1] and recommended two LRT alternatives for further study: West Bank 3 and the East Bank.

Following completion of the AA, Metro completed the WSAB Technical Refinement Study in 2015 focusing on the design and feasibility of five key issue areas along the 19-mile portion of the WSAB Transit Corridor within LA County:

- Access to Union Station in downtown Los Angeles
- Northern Section Options
- Huntington Park Alignment and Stations
- New Metro C (Green) Line Station
- Southern Terminus at Pioneer Station in Artesia

In September 2016, Metro initiated the WSAB Transit Corridor Environmental Study with the goal of obtaining environmental clearance of the Project under the California Environmental Quality Act (CEQA) and the National Environmental Policy Act (NEPA).

Metro issued a Notice of Preparation (NOP) on May 25, 2017, with a revised NOP issued on June 14, 2017, extending the comment period. In June 2017, Metro held public scoping meetings in the Cities of Bellflower, Los Angeles, South Gate, and Huntington Park. Metro

[1] Initial concepts evaluated in the SCAG report included transit connections and modes for the 34-mile corridor from Union Station in downtown Los Angeles to the City of Santa Ana. Modes included low speed magnetic levitation (maglev) heavy rail, light rail, and bus rapid transit (BRT).

provided Project updates and information to stakeholders with the intent to receive comments and questions through a comment period that ended in August 2017. A total of 1,122 comments were received during the public scoping period from May through August 2017. The comments focused on concerns regarding the Northern Alignment options, with specific concerns related to potential impacts to Alameda Street with an aerial alignment. Given potential visual and construction issues raised through public scoping, additional Northern Alignment concepts were evaluated.

In February 2018, the Metro Board of Directors approved further study of the alignment in the Northern Section due to community input during the 2017 scoping meetings. A second alternatives screening process was initiated to evaluate the original four Northern Alignment options and four new Northern Alignment concepts. The *Final Northern Alignment Alternatives and Concepts Updated Screening Report* was completed in May 2018 (Metro 2018a). The alternatives were further refined and, based on the findings of the second screening analysis and the input gathered from the public outreach meetings, the Metro Board of Directors approved Build Alternatives E and G for further evaluation (now referred to as Alternatives 1 and 2, respectively, in this report).

On July 11, 2018, Metro issued a revised and recirculated CEQA Notice of Preparation, thereby initiating a scoping comment period. The purpose of the revised Notice of Preparation was to inform the public of the Metro Board's decision to carry forward Alternatives 1 and 2 into the Draft Environmental Impact Statement/Environmental Impact Report (EIS/EIR). During the scoping period, one agency and three public scoping meetings were held in the Cities of Los Angeles, Cudahy, and Bellflower. The meetings provided Project updates and information to stakeholders with the intent to receive comments and questions to support the environmental process. The comment period for scoping ended in August 24, 2018; over 250 comments were received.

Following the July 2018 scoping period, a number of Project refinements were made to address comments received, including additional grade separations, removing certain stations with low ridership, and removing the Bloomfield extension option. The Metro Board adopted these refinements to the project description at their November 2018 meeting.

1.3 Report Purpose and Structure

The purpose of this report is to evaluate existing safety and security conditions within the Affected Area and analyze potential safety and security impacts of the Project. This report presents the environment/existing conditions of the Affected Area as well as the regulatory settings, impact criteria/thresholds, impact analysis, mitigation, and CEQA determination related to safety and security impacts. For this evaluation, the Affected Area is defined as the area within 100 feet of the project alignments, including the proposed Traction Power Substation (TPSS), stations, and Maintenance and Storage Facility (MSF) sites as the Project passes through a series of 12 jurisdictions. Modifications to the optional stations and MSF site locations are pending and will be addressed as the Project proceeds.

This Impact Analysis Report examines the environmental effects of the Project as it relates to safety and security. The report is organized into nine sections:

- Section 1 – Introduction
- Section 2 – Project Description
- Section 3 – Regulatory Framework

- Section 4 – Affected Environment/Existing Conditions
- Section 5 – Environmental Impacts/Environmental Consequences
- Section 6 – CEQA Determination
- Section 7 – Construction Impacts
- Section 8 – Project Measures and Mitigation Measures
- Section 9 – References

1.4 General Background

The construction and operation of the Project could result in safety and security impacts within the Affected Area. The Affected Area is defined as the area within 100 feet of the Project, including the alignments, stations, parking facilities, and MSFs. The 12 jurisdictions of the Affected Area are: Cities of Los Angeles, Vernon, Huntington Park, Bell, Cudahy, South Gate, Downey, Paramount, Bellflower, Artesia and Cerritos, and the unincorporated community of Florence-Firestone of LA County.

Implementation of the Project could result in new safety and security issues for pedestrians, bicyclists, motorists, LRT passengers, and employees, and a change in response times for emergency services (police, fire, and ambulance).

Safety and security must also be considered during construction of the Project. Depending on the type of construction and construction sequencing, temporary barricades may be necessary to prevent unauthorized personnel from entering construction areas, especially after hours and when there is no construction activity. This is especially important when construction activities expose underground utilities or open excavated trenches. Coordination with police and fire service providers regarding construction schedules and how emergency service providers would serve the area during construction must occur prior to and continually through construction.

1.4.1 Safety

System safety refers to the prevention of accidents to transit passengers, employees, or others present at or adjacent to Metro transit facilities, which include stations, tracks, pedestrian walkways, TPSSs and trains.

In this report, safety is divided into sub-topics, including transit system safety and pedestrian and bicyclist safety. Transit system safety is defined as identifying, eliminating, and controlling safety hazards related to the project's systems and equipment, including signalization, traction power, overhead catenary system (OCS), stations, alignment, track, and communication. The safety assessment also includes consideration of potential safety conflicts with pedestrians, bicyclists, transit passengers, and motorists along the Project.

Impact criteria and thresholds for safety issues are described in Section 1.4.3. To evaluate these potential issues, safety and security conditions within Metro's existing LRT system were reviewed. In addition, lessons learned from other studies such as the SCAG *Pacific Electric Right-of-Way/West Santa Ana Branch Corridor Alternatives Analysis Report* (SCAG 2013) and the *West Santa Ana Branch Transit Corridor Technical Refinement Study* (Metro 2015), among others, were used. Best practices in safety and security analysis relative to LRT systems were evaluated using guidance contained in the *Transit Cooperative Research Program (TCRP) Report 17 – Integration of Light Rail Transit into City Streets* (Korve Engineering, Inc. 1996) and the *Transit Cooperative Research Program (TCRP) Report 69 – Light Rail Service:*

Vehicular and Pedestrian Safety (Korve Engineering, Inc. 2001). In addition, information and input at public meetings and during scoping were considered.

Additional factors related to construction and operations of the Project were evaluated at intersections, proposed stations, MSFs, proposed parking facilities, and near important generators of pedestrian movements such as community centers, parks, and schools along the proposed alignment. In addition, fire services, emergency response factors, station, track design, and operational procedures pertinent to emergency response efficiency were also considered.

Other data reviewed included:

- Traffic queuing at selected locations
- Sight distance at intersections and along the proposed LRT alignment
- Type and availability of pedestrian/patron stacking or queuing areas
- Overall area geometrics
- Proposed signage and pavement markings readability/delineation
- Overall operational observations
- Freight interface at crossings and shared corridors

1.4.2 Security

Security relates to protection of people from intentional acts that could result in injury or harm, and protection of property from deliberate acts of vandalism. This includes crime prevention, law enforcement, and protection against terrorism. The Build Alternatives, including proposed station areas, parking facilities, MSFs, TPSSs, and guideway were evaluated to determine potential security risks.

A Threat and Vulnerability Assessment (TVA) would be conducted during preliminary engineering activities for the Project. The TVA would follow Federal Transit Administration (FTA) Project Management Guidelines (FTA 2007, 2016) and Metro protocols or equivalent, such as the Metro Rail Design Criteria (MRDC) (Metro 2020b) and Metro Fire/Life Design Criteria (Metro 2010a). The TVA process would give a more refined and detailed analysis of the security environment, identifying potential domestic and international security threats and potential vulnerabilities and shortcomings in the transit system, and making recommendations to reduce identified vulnerabilities to acceptable levels.

The TVA analysis of crime prevention and security issues would focus on the potential for violent crimes, property theft, fare evasion, vandalism, quality of life offenses, and terrorist attacks. Terrorism is defined by the Homeland Security Act of 2002 as acts that are dangerous to human life or potentially destructive of critical infrastructure or key resources. Examples of quality of life offenses include disorderly conduct, littering, excessive noise, and loitering. To evaluate security risks, Metro security personnel would be consulted, and information related to security issues on Metro and other similar transit systems would be reviewed. The process for determining vulnerabilities begins with the identification and grouping of transit agency assets based on their criticality to transit operations, their attractiveness as targets for security breaches or terrorist attacks, and their vulnerability to the consequences of a successful breach or act of terrorism.

Critical assets are defined as the specific assets most critical to Metro's ability to provide transit service and to protect people. Threat types would be identified using existing crime statistics for the area as well as threat information received from local, state, and federal law enforcement sources. Each critical asset would be assessed for its vulnerability to each potential threat, coupled with the frequency probability of each threat actually occurring. Severity of consequences for each threat would be given a rating ranging from catastrophic to negligible. This information would be put into a criticality matrix that organizes the resulting consequences into categories of high, serious, and low. The matrix would help prioritize consequences and focus available resources on the most serious potential threats requiring resolution, while effectively managing the available resources. The TVA would identify the design and procedural mitigation to reduce the likelihood of terrorist activity.

Strategies would be identified for incorporation into security planning during the conceptual design, environmental clearance, preliminary engineering, and final design to minimize potential impacts associated with the alternatives under consideration.

Security risks and potential threats would also be evaluated for possible impacts during construction activities. Mitigation strategies will be developed to help minimize identified impacts.

1.4.3 Impact Criteria and Thresholds

A safety or security impact would occur if:

- Construction would expose workers or others to hazards that are not addressed by standard safety procedures mandated by local, state, or federal regulations.
- Construction and operation could result in motor vehicle accident rates that would be greater than current motor vehicle accident rates.
- Operation would introduce a new hazard without adequate safety measures designed to prevent accidents.
- Operation would introduce a hazardous situation, such as providing a circuitous route for pedestrians.
- Operation would create conditions with a moderate to high likelihood of criminal activity.

Safety and security elements and corresponding potential for adverse effects, if any, from the Build Alternatives are discussed in the following safety and security sub-topics in Section 5 of this report:

- Transit system safety
- Freight safety
- Pedestrian and bicyclist safety
- Motorist safety
- Emergency response services
- Seismic safety
- Security and prevention of crime and terrorism

In accordance with Appendix G of the CEQA Guidelines (2016), the Project would have a significant impact related to safety and security if the Project would:

- Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan
- Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for fire and police protection services, schools, parks, or other public facilities
- Substantially increase hazards due to a design feature or incompatible uses

In determining the level of significance, the analysis assumed that construction and operation of the Project would comply with all applicable federal, state, and local laws and regulations.

1.5 Methodology

To satisfy NEPA requirements, the Affected Area for safety and security is defined as the area within 100 feet of the Project and its components (e.g., TPSSs). For emergency response, the Affected Area is expanded to be the Project Study Area to capture the service areas of local hospital, fire, and police services. The Affected Area for emergency service was determined based on the service area of hospital, fire, and police services. The 100-foot distance was used based on project understanding and to capture potential impacts related to pedestrians, bicyclists, and motor vehicles. This distance captures the safety and security evaluations of the light rail vehicles (LRVs), stations, substations, parking facilities, and MSFs, including all proposed stations, facility building footprints, at-grade intersections, and crossing locations between intersections.

The analysis in this report focuses on the safety and security impacts to transit system safety, pedestrian and bicyclist safety, motorist safety, emergency service provider safety, seismic safety, and security and prevention of crime and terrorism resulting from the construction and operation of the Project in the 12 jurisdictions in the Affected Area for safety and security. Safety and security resources were identified through field visits to the Project corridor, desktop reviews, and online database searches.

Appendix G of the CEQA Guidelines does not have specific thresholds for safety and security impacts; however, impacts regarding safety and security is addressed through the following CEQA thresholds:

- Would the Project impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?
- Would the Project result in substantial adverse physical impacts associated with the provisions of new or physically altered government facilities, need for new or physically altered government facilities, the construction of which could cause significant environmental impacts, to maintain response times or other performance objectives for fire and police protection services?
- Would the Project substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?

2 PROJECT DESCRIPTION

This section describes the No Build Alternative and the four Build Alternatives studied in the WSAB Transit Corridor Draft EIS/EIR, including design options, station locations, and maintenance and storage facility (MSF) site options. The Build Alternatives were developed through a comprehensive alternatives analysis process and meet the purpose and need of the Project.

The No Build Alternative and four Build Alternatives are generally defined as follows:

- **No Build Alternative** - Reflects the transportation network in the 2042 horizon year without the proposed Build Alternatives. The No Build Alternative includes the existing transportation network along with planned transportation improvements that have been committed to and identified in the constrained Metro 2009 Long Range Transportation Plan (2009 LRTP) (Metro 2009) and SCAG's 2016-2040 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS) (SCAG 2016), as well as additional projects funded by Measure M that would be completed by 2042.
- **Build Alternatives**: The Build Alternatives consist of a new LRT line that would extend from different termini in the north to the same terminus in the City of Artesia in the south. The Build Alternatives are referred to as:
  - Alternative 1: Los Angeles Union Station to Pioneer Station; the northern terminus would be located underground at Los Angeles Union Station (LAUS) Forecourt
  - Alternative 2: 7th Street/Metro Center to Pioneer Station; the northern terminus would be located underground at 8th Street between Figueroa Street and Flower Street near 7th Street/Metro Center Station
  - Alternative 3: Slauson/A (Blue) Line to Pioneer Station; the northern terminus would be located just north of the intersection of Long Beach Avenue and Slauson Avenue in the City of Los Angeles, connecting to the current A (Blue) Line Slauson Station
  - Alternative 4: I-105/C (Green) Line to Pioneer Station; the northern terminus would be located at I-105 in the city of South Gate, connecting to the C (Green) Line along the I-105

Two design options are under consideration for Alternative 1. Design Option 1 would locate the northern terminus station box at the LAUS Metropolitan Water District (MWD) east of LAUS and the MWD building, below the baggage area parking facility. Design Option 2 would add the Little Tokyo Station along the WSAB alignment. The Design Options are further discussed in Section 2.3.6.

Figure 2-1 presents the four Build Alternatives and the design options. In the north, Alternative 1 would terminate at LAUS and primarily follow Alameda Avenue south underground to the proposed Arts/Industrial District Station. Alternative 2 would terminate near the existing 7th Street/Metro Center Station in the Downtown Transit Core and would primarily follow 8th Street east underground to the proposed Arts/Industrial District Station.

Figure 2-1. Project Alternatives

Source: Metro, 2020

From the Arts/Industrial District Station to the southern terminus at Pioneer Station, Alternatives 1 and 2 share a common alignment. South of Olympic Boulevard, the Alternatives 1 and 2 would transition from an underground configuration to an aerial configuration, cross over the Interstate (I-) 10 freeway and then parallel the existing Metro A (Blue) Line along the Wilmington Branch ROW as it proceeds south. South of Slauson Avenue, which would serve as the northern terminus for Alternative 3, Alternatives 1, 2, and 3 would turn east and transition to an at-grade configuration to follow the La Habra Branch ROW along Randolph Street. At the San Pedro Subdivision ROW, Alternatives 1, 2, and 3 would turn southeast to follow the San Pedro Subdivision ROW and then transition to the Pacific Electric Right-of-Way (PEROW), south of the I-105 freeway. The northern terminus for Alternative 4 would be located at the I-105/C Line Station. Alternatives 1, 2, 3, and 4 would then follow the PEROW to the southern terminus at the proposed Pioneer Station in Artesia. The Build Alternatives would be grade-separated where warranted, as indicated on Figure 2-2.

Figure 2-2. Project Alignment by Alignment Type

Source: Metro, 2020

2.1 Geographic Sections

The approximately 19-mile corridor is divided into two geographic sections—the Northern and Southern Sections. The boundary between the Northern and Southern Sections occurs at Florence Avenue in the City of Huntington Park.

2.1.1 Northern Section

The Northern Section includes approximately 8 miles of Alternatives 1 and 2 and 3.8 miles of Alternative 3. Alternative 4 is not within the Northern Section. The Northern Section covers the geographic area from downtown Los Angeles to Florence Avenue in the City of Huntington Park and would generally traverse the Cities of Los Angeles, Vernon, Huntington Park, and Bell, and the unincorporated Florence-Firestone community of LA County (Figure 2-3). Alternatives 1 and 2 would traverse portions of the Wilmington Branch (between approximately Martin Luther King Jr Boulevard along Long Beach Avenue to Slauson Avenue). Alternatives 1, 2, and 3 would traverse portions of the La Habra Branch ROW (between Slauson Avenue along Randolph Street to Salt Lake Avenue) and San Pedro Subdivision ROW (between Randolph Street to approximately Paramount Boulevard).

Figure 2-3. Northern Section

Source: Metro, 2020

2.1.2 Southern Section

The Southern Section includes approximately 11 miles of Alternatives 1, 2, and 3 and includes all 6.6 miles of Alternative 4. The Southern Section covers the geographic area from south of Florence Avenue in the City of Huntington Park to the City of Artesia and would generally traverse the Cities of Huntington Park, Cudahy, South Gate, Downey, Paramount, Bellflower, Cerritos, and Artesia (Figure 2-4). In the Southern Section, all four Build Alternatives would utilize portions of the San Pedro Subdivision and the Metro-owned PEROW (between approximately Paramount Boulevard to South Street).

Figure 2-4. Southern Section

Source: Metro, 2020

2.2 No Build Alternative

For the NEPA evaluation, the No Build Alternative is evaluated in the context of the existing transportation facilities in the Transit Corridor (the Transit Corridor extends approximately 2 miles from either side of the proposed alignment) and other capital transportation improvements and/or transit and highway operational enhancements that are reasonably foreseeable. Because the No Build Alternative provides the background transportation

network, against which the Build Alternatives' impacts are identified and evaluated, the No Build Alternative does not include the Project.

The No Build Alternative reflects the transportation network in 2042 and includes the existing transportation network along with planned transportation improvements that have been committed to and identified in the constrained Metro 2009 LRTP and the SCAG 2016 RTP/SCS, as well as additional projects funded by Measure M, a sales tax initiative approved by voters in November 2016. The No Build Alternative includes Measure M projects that are scheduled to be completed by 2042.

Table 2.1 lists the existing transportation network and planned improvements included as part of the No Build Alternative.

Table 2.1. No Build Alternative – Existing Transportation Network and Planned Improvements

Project	To / From	Location Relative to Transit Corridor
Rail (Existing)		
Metro Rail System (LRT and Heavy Rail Transit)	Various locations	Within Transit Corridor
Metrolink (Southern California Regional Rail Authority) System	Various locations	Within Transit Corridor
Rail (Under Construction/Planned)[1]		
Metro Westside D (Purple) Line Extension	Wilshire/Western to Westwood/VA Hospital	Outside Transit Corridor
Metro C (Green) Line Extension[2] to Torrance	96th Street Station to Torrance	Outside Transit Corridor
Metro C (Green) Line Extension	Norwalk to Expo/Crenshaw[3]	Outside Transit Corridor
Metro East-West Line/Regional Connector/Eastside Phase 2	Santa Monica to Lambert Santa Monica to Peck Road	Within Transit Corridor
Metro North-South Line/Regional Connector/Foothill Extension to Claremont Phase 2B	Long Beach to Claremont	Within Transit Corridor
Metro Sepulveda Transit Corridor	Metro G (Orange) Line to Metro E (Expo) Line	Outside Transit Corridor
Metro East San Fernando Valley Transit Corridor	Sylmar to Metro G (Orange) Line	Outside Transit Corridor
Los Angeles World Airport Automated People Mover	96th Street Station to LAX Terminals	Outside Transit Corridor
Metrolink Capital Improvement Projects	Various projects	Within Transit Corridor
California High-Speed Rail	Burbank to LA LA to Anaheim	Within Transit Corridor
Link US	LAUS	Within Transit Corridor

Project	To / From	Location Relative to Transit Corridor
Bus (Existing)		
Metro Bus System (including BRT, Express, and local)	Various locations	Within Transit Corridor
Municipality Bus System[4]	Various locations	Within Transit Corridor
Bus (Under Construction/Planned)		
Metro G (Orange) Line (BRT)	Del Mar (Pasadena) to Chatsworth Del Mar (Pasadena) to Canoga Canoga to Chatsworth	Outside Transit Corridor
Vermont Transit Corridor (BRT)	120th Street to Sunset Boulevard	Outside Transit Corridor
North San Fernando Valley BRT	Chatsworth to North Hollywood	Outside Transit Corridor
North Hollywood to Pasadena	North Hollywood to Pasadena	Outside Transit Corridor
Highway (Existing)		
Highway System	Various locations	Within Transit Corridor
Highway (Under Construction/Planned)		
High Desert Multi-Purpose Corridor	SR-14 to SR-18	Outside Transit Corridor
I-5 North Capacity Enhancements	SR-14 to Lake Hughes Rd	Outside Transit Corridor
SR-71 Gap Closure	I-10 to Rio Rancho Rd	Outside Transit Corridor
Sepulveda Pass Express Lane	I-10 to US-101	Outside Transit Corridor
SR-57/SR-60 Interchange Improvements	SR-70/SR-60	Outside Transit Corridor
I-710 South Corridor Project (Phase 1 & 2)	Ports of Long Beach and LA to SR-60	Within Transit Corridor
I-105 Express Lane	I-405 to I-605	Within Transit Corridor
I-5 Corridor Improvements	I-605 to I-710	Outside Transit Corridor

Source: Metro 2018, WSP 2019
Notes: [1] Where extensions are proposed for existing Metro rail lines, the origin/destination is defined for the operating scheme of the entire rail line following completion of the proposed extensions and not just the extension itself.
[2] Metro C (Green) Line extension to Torrance includes new construction from Redondo Beach to Torrance; however, the line will operate from Torrance to 96th Street.
[3] The currently under construction Metro Crenshaw/LAX Line will operate as the Metro C (Green) Line.
The municipality bus network system is based on service patterns for Bellflower Bus, Cerritos on Wheels, Cudahy Area Rapid Transit, Get Around Town Express, Huntington Park Express, La Campana, Long Beach Transit, Los Angeles Department of Transportation, Norwalk Transit System and the Orange County Transportation Authority.
BRT = Bus Rapid Transit; LAUS = Los Angeles Union Station; LAX = Los Angeles International Airport; VA = Veterans Affairs

2.3 Build Alternatives

2.3.1 Proposed Alignment Configuration for the Build Alternatives

This section describes the alignment for each of the Build Alternatives. The general characteristics of the four Build Alternatives are summarized in Table 2.2. Figure 2-5 illustrates the freeway crossings along the alignment. Additionally, the Build Alternatives would require relocation of existing freight rail tracks within the ROW to maintain existing operations where there would be overlap with the proposed light rail tracks. Figure 2-6 depicts the alignment sections that would share operation with freight and the corresponding ownership.

Table 2.2. Summary of Build Alternative Components

Component	Quantity			
Alternatives	**Alternative 1**	**Alternative 2**	**Alternative 3**	**Alternative 4**
Alignment Length	19.3 miles	19.3 miles	14.8 miles	6.6 miles
Stations Configurations	11 3 aerial; 6 at-grade; 2 underground[3]	12 3 aerial; 6 at-grade; 3 underground	9 3 aerial; 6 at-grade	4 1 aerial; 3 at-grade
Parking Facilities	5 (approximately 2,780 spaces)	5 (approximately 2,780 spaces)	5 (approximately 2,780 spaces)	4 (approximately 2,180 spaces)
Length of underground, at-grade, and aerial	2.3 miles underground; 12.3 miles at-grade; 4.7 miles aerial[1]	2.3 miles underground; 12.3 miles at-grade; 4.7 miles aerial[1]	12.2 miles at-grade; 2.6 miles aerial[1]	5.6 miles at-grade; 1.0 miles aerial[1]
At-grade crossings	31	31	31	11
Freight crossings	10	10	9	2
Freeway Crossings	6 (3 freeway undercrossings[2] at I-710; I-605, SR-91)	6 (3 freeway undercrossings[2] at I-710; I-605, SR-91)	4 (3 freeway undercrossings[2] at I-710; I-605, SR-91)	3 (2 freeway undercrossings[2] at I-605, SR-91)
Elevated Street Crossings	25	25	15	7
River Crossings	3	3	3	1
TPSS Facilities	22[3]	23	17	7
Maintenance and Storage Facility site options	2	2	2	2

Source: WSP, 2020

Notes: [1] Alignment configuration measurements count retained fill embankments as at-grade.

[2] The light rail tracks crossing beneath freeway structures.

[3] Under Design Option 2 – Add Little Tokyo Station, an additional underground station and TPSS site would be added under Alternative 1

Figure 2-5. Freeway Crossings

Source: WSP, 2020

Figure 2-6. Existing Rail Right-of-Way Ownership and Relocation

Source: WSP, 2020

2.3.2 Alternative 1: Los Angeles Union Station to Pioneer Station

The total alignment length of Alternative 1 would be approximately 19.3 miles, consisting of approximately 2.3 miles of underground, 12.3 miles of at-grade, and 4.7 miles of aerial alignment. Alternative 1 would include 11 new LRT stations, 2 of which would be underground, 6 would be at-grade, and 3 would be aerial. Under Design Option 2, Alternative 1 would have 12 new LRT stations, and the Little Tokyo Station would be an additional underground station. Five of the stations would include parking facilities, providing a total of up to 2,780 new parking spaces. The alignment would include 31 at-grade crossings, 3 freeway undercrossings, 2 aerial freeway crossings, 1 underground freeway crossing, 3 river crossings, 25 aerial road crossings, and 10 freight crossings.

In the north, Alternative 1 would begin at a proposed underground station at/near LAUS either beneath the LAUS Forecourt or, under Design Option 1, east of the MWD building beneath the baggage area parking facility (Section 2.3.6). Crossovers would be located on the north and south ends of the station box with tail tracks extending approximately 1,200 feet north of the station box. A tunnel extraction portal would be located within the tail tracks for both Alternative 1 terminus station options.

From LAUS, the alignment would continue underground crossing under the US-101 freeway and the existing Metro L (Gold) Line aerial structure and continue south beneath Alameda Street to the optional Little Tokyo Station between 1st Street and 2nd Street (note: under Design Option 2, Little Tokyo Station would be constructed). From the optional Little Tokyo Station, the alignment would continue underground beneath Alameda Street to the proposed Arts/Industrial District Station under Alameda Street between 6th Street and Industrial Street. (Note, Alternative 2 would have the same alignment as Alternative 1 from this point south. Refer to Section 2.3.3 for additional information on Alternative 2.)

The underground alignment would continue south under Alameda Street to 8th Street, where the alignment would curve to the west and transition to an aerial alignment south of Olympic Boulevard. The alignment would cross over the I-10 freeway in an aerial viaduct structure and continue south, parallel to the existing Metro A (Blue) Line at Washington Boulevard. The alignment would continue in an aerial configuration along the eastern half of Long Beach Avenue within the UPRR-owned Wilmington Branch ROW, east of the existing Metro A (Blue) Line and continue south to the proposed Slauson/A Line Station. The aerial alignment would pass over the existing pedestrian bridge at E. 53rd Street. The Slauson/A Line Station would serve as a transfer point to the Metro A (Blue) Line via a pedestrian bridge. The vertical circulation would be connected at street level on the north side of the station via stairs, escalators, and elevators. (The Slauson/A Line Station would serve as the northern terminus for Alternative 3; refer to Section 2.3.4 for additional information on Alternative 3.)

South of the Slauson/A Line Station, the alignment would turn east along the existing La Habra Branch ROW (also owned by UPRR) in the median of Randolph Street. The alignment would be on the north side of the La Habra Branch ROW and would require the relocation of existing freight tracks to the southern portion of the ROW. The alignment would transition to an at-grade configuration at Alameda Street and would proceed east along the Randolph Street median. Wilmington Avenue, Regent Street, Albany Street, and Rugby Avenue would be closed to traffic crossing the ROW, altering

the intersection design to a right-in, right-out configuration. The proposed Pacific/Randolph Station would be located just east of Pacific Boulevard.

From the Pacific/Randolph Station, the alignment would continue east at-grade. Rita Avenue would be closed to traffic crossing the ROW, altering the intersection design to a right-in, right-out configuration. At the San Pedro Subdivision ROW, the alignment would transition to an aerial configuration and turn south to cross over Randolph Street and the freight tracks, returning to an at-grade configuration north of Gage Avenue. The alignment would be located on the east side of the existing San Pedro Subdivision ROW freight tracks, and the existing tracks would be relocated to the west side of the ROW. The alignment would continue at-grade within the San Pedro Subdivision ROW to the proposed at-grade Florence/Salt Lake Station south of the Salt Lake Avenue/Florence Avenue intersection.

South of Florence Avenue, the alignment would extend from the proposed Florence/Salt Lake Station in the City of Huntington Park to the proposed Pioneer Station in the City of Artesia, as shown in Figure 2-4. The alignment would continue southeast from the proposed at-grade Florence/Salt Lake Station within the San Pedro Subdivision ROW, crossing Otis Avenue, Santa Ana Street, and Ardine Street at-grade. The alignment would be located on the east side of the existing San Pedro Subdivision freight tracks and the existing tracks would be relocated to the west side of the ROW. South of Ardine Street, the alignment would transition to an aerial structure to cross over the existing UPRR tracks and Atlantic Avenue. The proposed Firestone Station would be located on an aerial structure between Atlantic Avenue and Firestone Boulevard.

The alignment would then cross over Firestone Boulevard and transition back to an at-grade configuration prior to crossing Rayo Avenue at-grade. The alignment would continue south along the San Pedro Subdivision ROW, crossing Southern Avenue at-grade and continuing at-grade until it transitions to an aerial configuration to cross over the LA River. The proposed LRT bridge would be constructed next to the existing freight bridge. South of the LA River, the alignment would transition to an at-grade configuration crossing Frontage Road at-grade, then passing under the I-710 freeway through the existing box tunnel structure and then crossing Miller Way. The alignment would then return to an aerial structure to cross the Rio Hondo Channel. South of the Rio Hondo Channel, the alignment would briefly transition back to an at-grade configuration and then return to an aerial structure to cross over Imperial Highway and Garfield Avenue. South of Garfield Avenue, the alignment would transition to an at-grade configuration and serve the proposed Gardendale Station north of Gardendale Street.

From the Gardendale Station, the alignment would continue south in an at-grade configuration, crossing Gardendale Street and Main Street to connect to the proposed I-105/C Line Station, which would be located at-grade north of Century Boulevard. This station would be connected to the new infill C (Green) Line Station in the middle of the freeway via a pedestrian walkway on the new LRT bridge. The alignment would continue at-grade, crossing Century Boulevard and then over the I-105 freeway in an aerial configuration within the existing San Pedro Subdivision ROW bridge footprint. A new Metro C (Green) Line Station would be constructed in the median of the I-105 freeway. Vertical pedestrian access would be provided from the LRT bridge to the proposed I-105/C Line Station platform via stairs and elevators. To accommodate the construction of the new station platform, the existing Metro C (Green) Line tracks would be widened and, as part of the I-105 Express Lanes Project, the I-105 lanes would be reconfigured. (The I-105/C Line Station would serve

as the northern terminus for Alternative 4; refer to Section 2.3.5 for additional information on this alternative.)

South of the I-105 freeway, the alignment would continue at-grade within the San Pedro Subdivision ROW. In order to maintain freight operations and allow for freight train crossings, the alignment would transition to an aerial configuration as it turns southeast and enter the PEROW. The existing freight track would cross beneath the aerial alignment and align on the north side of the PEROW east of the San Pedro Subdivision ROW. The proposed Paramount/Rosecrans Station would be located in an aerial configuration west of Paramount Boulevard and north of Rosecrans Avenue. The existing freight track would be relocated to the east side of the alignment beneath the station viaduct.

The alignment would continue southeast in an aerial configuration over the Paramount Boulevard/Rosecrans Avenue intersection and descend to an at-grade configuration. The alignment would return to an aerial configuration to cross over Downey Avenue descending back to an at-grade configuration north of Somerset Boulevard. One of the adjacent freight storage tracks at Paramount Refinery Yard would be relocated to accommodate the new LRT tracks and maintain storage capacity. There are no active freight tracks south of the World Energy facility.

The alignment would cross Somerset Boulevard at-grade. South of Somerset Boulevard, the at-grade alignment would parallel the existing Bellflower Bike Trail that is currently aligned on the south side of the PEROW. The alignment would continue at-grade crossing Lakewood Boulevard, Clark Avenue, and Alondra Boulevard. The proposed at-grade Bellflower Station would be located west of Bellflower Boulevard.

East of Bellflower Boulevard, the Bellflower Bike Trail would be realigned to the north side of the PEROW to accommodate an existing historic building located near the southeast corner of Bellflower Boulevard and the PEROW. It would then cross back over the LRT tracks at-grade to the south side of the ROW. The LRT alignment would continue southeast within the PEROW and transition to an aerial configuration at Cornuta Avenue, crossing over Flower Street and Woodruff Avenue. The alignment would return to an at-grade configuration at Walnut Street. South of Woodruff Avenue, the Bellflower Bike Trail would be relocated to the north side of the PEROW. Continuing southeast, the LRT alignment would cross under the SR-91 freeway in an existing underpass. The alignment would cross over the San Gabriel River on a new bridge, replacing the existing abandoned freight bridge. South of the San Gabriel River, the alignment would transition back to an at-grade configuration before crossing Artesia Boulevard at-grade.

East of Artesia Boulevard the alignment would cross beneath the I-605 freeway in an existing underpass. Southeast of the underpass, the alignment would continue at-grade, crossing Studebaker Road. North of Gridley Road, the alignment would transition to an aerial configuration to cross over 183rd Street and Gridley Road. The alignment would return to an at-grade configuration at 185th Street, crossing 186th Street and 187th Street at-grade. The alignment would then pass through the proposed Pioneer Station on the north side of Pioneer Boulevard at-grade. Tail tracks accommodating layover storage for a three-car train would extend approximately 1,000 feet south from the station, crossing Pioneer Boulevard and terminating west of South Street.

2.3.3 Alternative 2: 7th Street/Metro Center to Pioneer Station

The total alignment length of Alternative 2 would be approximately 19.3 miles, consisting of approximately 2.3 miles of underground, 12.3 miles of at-grade, and 4.7 miles of aerial alignment. Alternative 2 would include 12 new LRT stations, 3 of which would be underground, 6 would be at-grade, and 3 would be aerial. Five of the stations would include parking facilities, providing a total of approximately 2,780 new parking spaces. The alignment would include 31 at-grade crossings, 3 freeway undercrossings, 2 aerial freeway crossings, 1 underground freeway crossing, 3 river crossings, 25 aerial road crossings, and 10 freight crossings.

In the north, Alternative 2 would begin at the proposed WSAB 7th Street/Metro Center Station, which would be located underground beneath 8th Street between Figueroa Street and Flower Street. A pedestrian tunnel would provide connection to the existing 7th Street/Metro Center Station. Tail tracks, including a double crossover, would extend approximately 900 feet beyond the station, ending east of the I-110 freeway. From the 7th Street/Metro Center Station, the underground alignment would proceed southeast beneath 8th Street to the South Park/Fashion District Station, which would be located west of Main Street beneath 8th Street.

From the South Park/Fashion District Station, the underground alignment would continue under 8th Street to San Pedro Street, where the alignment would turn east toward 7th Street, crossing under privately owned properties. The tunnel alignment would cross under 7th Street and then turn south at Alameda Street. The alignment would continue south beneath Alameda Street to the Arts/Industrial District Station located under Alameda Street between 7th Street and Center Street. A double crossover would be located south of the station box, south of Center Street. From this point, the alignment of Alternative 2 would follow the same alignment as Alternative 1, which is described further in Section 2.3.2.

2.3.4 Alternative 3: Slauson/A (Blue) Line to Pioneer Station

The total alignment length of Alternative 3 would be approximately 14.8 miles, consisting of approximately 12.2 miles of at-grade, and 2.6 miles of aerial alignment. Alternative 3 would include 9 new LRT stations, 6 would be at-grade and 3 would be aerial. Five of the stations would include parking facilities, providing a total of approximately 2,780 new parking spaces. The alignment would include 31 at-grade crossings, 3 freeway undercrossings, 1 aerial freeway crossing, 3 river crossings, 15 aerial road crossings, and 9 freight crossings. In the north, Alternative 3 would begin at the Slauson/A Line Station and follow the same alignment as Alternatives 1 and 2, described in Section 2.3.2.

2.3.5 Alternative 4: I-105/C (Green) Line to Pioneer Station

The total alignment length of Alternative 4 would be approximately 6.6 miles, consisting of approximately 5.6 miles of at-grade and 1.0 mile of aerial alignment. Alternative 3 would include 4 new LRT stations, 3 would be at-grade, and 1 would be aerial. Four of the stations would include parking facilities, providing a total of approximately 2,180 new parking spaces. The alignment would include 11 at-grade crossings, 2 freeway undercrossings, 1 aerial freeway crossing, 1 river crossing, 7 aerial road crossings, and 2 freight crossings. In the north, Alternative 4 would begin at the I-105/C Line Station and follow the same alignment as Alternatives 1, 2, and 3, described in Section 2.3.2.

2.3.6 Design Options

Alternative 1 includes two design options:

- **Design Option 1:** LAUS at the Metropolitan Water District (MWD) – The LAUS station box would be located east of LAUS and the MWD building, below the baggage area parking facility instead of beneath the LAUS Forecourt. Crossovers would be located on the north and south ends of the station box with tail tracks extending approximately 1,200 feet north of the station box. From LAUS, the underground alignment would cross under the US-101 freeway and the existing Metro L (Gold) Line aerial structure and continue south beneath Alameda Street to the optional Little Tokyo Station between Traction Avenue and 1st Street. The underground alignment between LAUS and the Little Tokyo Station would be located to the east of the base alignment.
- **Design Option 2:** Add the Little Tokyo Station – Under this design option, the Little Tokyo Station would be constructed as an underground station and there would be a direct connection to the Regional Connector Station in the Little Tokyo community. The alignment would proceed underground directly from LAUS to the Arts/Industrial District Station primarily beneath Alameda Street.

2.3.7 Maintenance and Storage Facility

MSFs accommodate daily servicing and cleaning, inspection and repairs, and storage of light rail vehicles (LRV). Activities may take place in the MSF throughout the day and night depending upon train schedules, workload, and the maintenance requirements.

Two MSF options are evaluated; however, only one MSF would be constructed as part of the Project. The MSF would have storage tracks, each with sufficient length to store three-car train sets and a maintenance-of-way vehicle storage. The facility would include a main shop building with administrative offices, a cleaning platform, a traction power substation (TPSS), employee parking, a vehicle wash facility, a paint and body shop, and other facilities as needed. The east and west yard leads (i.e., the tracks leading from the mainline to the facility) would have sufficient length for a three-car train set. In total, the MSF would need to accommodate approximately 80 LRVs to serve the Project's operations plan.

Two potential locations for the MSF have been identified—one in the City of Bellflower and one in the City of Paramount. These options are described further in the following sections.

2.3.8 Bellflower MSF Option

The Bellflower MSF site option is bounded by industrial facilities to the west, Somerset Boulevard and apartment complexes to the north, residential homes to the east, and the PEROW and Bellflower Bike Trail to the south. The site is approximately 21 acres in area and can accommodate up to 80 vehicles (Figure 2-7).

2.3.9 Paramount MSF Option

The Paramount MSF site option is bounded by the San Pedro Subdivision ROW on the west, Somerset Boulevard to the south, industrial and commercial uses on the east, and All American City Way to the north. The site is 22 acres and could accommodate up to 80 vehicles (Figure 2-7).

Figure 2-7. Maintenance and Storage Facility Options

Source: WSP, 2020

3 REGULATORY FRAMEWORK

The following describes the regulatory context under which safety and security of the Project are managed at the federal and state levels. In addition, a summary is provided of applicable regional agencies and local plans, ordinances, and codes applicable to safety and security of the Project.

Federal:

- Design Criteria (ADA and U.S. Department of Transportation [USDOT] Subway Environmental Design Handbook)
- Safety Management System (Public Transportation Agency Safety Plan)

State:

- California Public Utilities Commission
- California Code of Regulations
- California Building Code
- California Department of Transportation

Regional:

- Los Angeles County Metropolitan Transportation Authority
- Los Angeles County

Local:

- City of Los Angeles
- City of Vernon
- City of Huntington Park
- City of Bell
- City of Cudahy
- City of South Gate
- City of Downey
- City of Paramount
- City of Bellflower
- City of Artesia
- City of Cerritos

Other:

- Fire Services (Uniform Fire Code and National Fire Protection Association)

3.1 Federal

3.1.1 Design Criteria

3.1.1.1 28 CFR 36, Americans with Disabilities Act

28 CFR 36 implements the Americans with Disabilities Act of 1990 (ADA). It sets guidelines for accessibility to places of public accommodation and commercial facilities by individuals with disabilities. These guidelines are to be applied during the design, construction, and

alteration of such buildings and facilities to the extent required by regulations issued by federal agencies, including the Department of Justice, under the ADA.

3.1.1.2 USDOT Subway Environmental Design Handbook

USDOT Subway Environmental Design Handbook (USDOT 1975) is a guide and reference for the planning, design, construction, and operation of environmental control systems for underground rapid transit. The handbook follows the engineering sequence from criteria through load analysis, and from system conceptual design to selection of equipment. It covers a broad range of parameters, including temperature, humidity, air quality and rapid pressure change, and, to a limited extent, noise and vibration as related to environmental control equipment.

3.1.2 Safety Management System

3.1.2.1 Public Transportation Agency Safety Plan

In 2018, the final rule regarding the Public Transportation Agency Safety Plan (PTASP) was published by the FTA. This final rule requires transit agencies that receive federal funds under FTA's Urbanized Area Formula Grants to develop safety plans. The safety plan must include the processes and procedures to implement Safety Management Systems (SMS) safety performance targets. The safety plan must be updated and certified on an annual basis.

3.2 State

3.2.1 California Public Utilities Commission

Federal law (49 CFR 659) requires every state to identify a state safety oversight agency to oversee safety requirements for fixed-guideway systems. In California, the California Public Utilities Commission (CPUC) has been identified as the state safety oversight agency. The CPUC has adopted General Order (GO) 164-E as its safety program standard, the Safety Rules and Regulations Governing Rail Transit State Safety Oversight in California. GO 164-E identifies the safety and security planning requirements for operating light rail, including preparing safety and security plans, establishing a hazard management program, and implementing a safety certification process.

The CPUC has also adopted GO 143-B, the Safety Rules and Regulations Governing Light Rail Transit in California. The order describes the general requirements for LRT, including braking, lighting, operating speeds, ROW standards, and maintenance of LRVs. In accordance with GO 143-B, LRV equipment shall be maintained in safe and proper working condition. Once an LRT carrier/operator establishes operating rules and procedures, including grade crossings, the CPUC has final review and approval of the operating plan. The following are the major rules set forth in GO 143-B (CPUC 1991) applicable to the Build Alternatives:

- Title 5, Section 01 – Headlights. Every LRV that operates on separate ROW shall be equipped with a headlight or headlights that are capable of revealing a person or motor vehicle in clear weather at a distance of 600 feet. Every LRV that operates on a public street or road shall be equipped with a headlight or headlights that are capable of revealing a person or motor vehicle in clear weather at a distance of 350 feet and shall be designed and adjusted so as not to interfere with the vision of drivers of motor vehicles. Headlights may be dimmed or extinguished under conditions where their use could pose a safety hazard to motorists in adjacent traffic lanes.

- Title 7, Section 01 – Basic Speed Rule. The operator of an LRV shall at all times operate at a safe speed that is consistent with weather, visibility, track conditions, traffic signal indications, and the indication of Automatic Train Protection systems where used.
- Title 7, Section 08 – Crossing of Street and Highways at Grade. LRT systems that cross streets, roads, and highways at-grade shall install and maintain automatic gate crossing signals to control motor vehicle traffic and automatic warning signals to control pedestrian traffic. When LRV operation is on a street or highway that permits motor vehicle traffic, all intersections shall be controlled by traffic control devices.
- Title 7, Section 09 – Audible Warning. The LRV operator shall sound an audible warning:
  - When approaching at-grade crossings protected by automatic crossing signals conforming to the requirements of GO 75-C to control vehicle and pedestrian traffic
  - At other locations specifically identified in the LRT system's operating rules
  - Whenever the operator believes it is necessary and in accordance with the LRT system's operating rules and regulations
- Title 9, Section 03 – Installation of Curbs, Fences, and Barriers. Concrete curbs, fences, or barriers shall be installed along sections of the separate ROW of an LRT system when there is likelihood that motor vehicles or pedestrians may leave the traveled way of any nearby street or highway and encroach on a mainline track.
- Title 9, Section 04 – Alignment Classification. Classifications are as follows:
  - **Exclusive:** A ROW without at-grade crossings that is grade-separated or protected by a fence or substantial barrier, as appropriate to the location (includes subways and aerial structures).
  - **Semi-Exclusive**: (1) Fully exclusive ROW with at-grade crossings, protected between crossings by a fence or substantial barrier, if appropriate to the location; and (2) within the street right-of-way, but protected by 6-inch-high curbs and safety fences between crossings (the safety fences should be located outside the tracks).
- Title 9, Section 05 – Emergency Walkways. An unobstructed emergency walkway at least 30 inches wide and accessible to persons getting off disabled trains shall be provided along all tracks in subways and tunnels, on bridges, and on alignment Classifications 9.04a, 9.04b(1), and 9.04b(2). Walkways shall have a reasonably regular surface and shall not have a slope exceeding 1 foot vertical to 6 feet horizontal. A single walkway may serve more than one track.
- Title 11, Section 01 – Fire Protection Requirements. All LRT systems shall establish fire protection requirements to control potential fire hazards. The minimum requirements for underground segments of the LRT system shall be as specified in the Standards for Fixed Guideway Transit Systems published by the National Fire Protection Association (NFPA) (NFPA 2017). The minimum requirements for all other segments shall be established by the LRT system based on a documented engineering analysis of the factors affecting fire hazards and fire risks using NFPA 130 as a guide.

In addition to GO 164-E and 143-B, the following GOs shall apply:

- GO 26-D—Clearances on Railroads and Street Railroads as to Side and Overhead Structures, Parallel Tracks, and Crossings
- GO 33-B—Construction, Reconstruction, Maintenance, and Operation of Interlocking Plants of Railroads
- GO 52—Construction and Operation of Power and Communication Lines for the Prevention or Mitigation of Inductive Interference
- GO 72-B—Standard Types of Pavement Construction at Railroad Grade Crossings
- GO 75-D—Regulations Governing Standards for Warning Devices for At-Grade Highway-Rail Crossing
- GO 88-B—Rules for Altering Public Highway-Rail Crossings
- GO 95—Overhead Electric Line Construction
- GO 108—Filing of Railroad Operating Department Rules
- GO 110—Radio Communications in Railroad Operations
- GO 118—Construction, Reconstruction, and Maintenance of Walkways and Control of Vegetation Adjacent to Railroad Tracks
- GO 128—Construction of Underground Electric Supply and Communication Systems
- GO 131-D—Planning and Construction of Facilities for the Generation of Electricity and Certain Electric Transmission Facilities
- GO 135—The Occupancy of Public Grade Crossings by Railroads

3.2.2 California Code of Regulations

Safety orders established by Title 8 of the California Code of Regulations are discussed in the following subsections.

3.2.2.1 Subchapter 4, Construction Safety Orders

Subchapter 4, Construction Safety Orders, establishes minimum safety standards whenever employment exists in connection with the construction, alteration, painting, repairing, construction maintenance, renovation, removal, or wrecking of any fixed structure or its parts. These orders also apply to all excavations not covered by other safety orders for a specific industry or operation.

3.2.2.2 Subchapter 5, Electrical Safety Orders

The purpose of the Electrical Safety Orders is to provide minimum safety requirements and to assist in the elimination of accidents that may result from the operation, installation, removal, use, and maintenance of electrical equipment and tools.

3.2.2.3 Subchapter 20, Tunnel Safety Orders

Tunnel Safety Orders establish minimum safety standards in places of employment at tunnels, shafts, raises, inclines, underground chambers, and premises appurtenant thereto during excavation, construction, alteration, repairing, renovation, or demolishing, and the following:

- Cut-and-cover operations, such as subway stations, which are both physically connected to ongoing underground construction operations and are covered in such a manner as to create conditions characteristic of underground construction

- Boring and pipe jacking operations 30 inches in diameter or greater in size (exceptions: these safety orders do not apply to natural gas pipelines subject to the jurisdiction of the CPUC)
- Pipelines that are connected to or are an integral part of a tunnel where persons are working inside, and the conditions are similar to a lined tunnel construction or repair project
- All shaft excavations intended to exceed 20 feet in depth where employees may enter the shaft or approach the shaft area

3.2.3 California Building Code

California Code of Regulations Title 24, the California Building Code, provides a compilation of building standards. State fire regulations are set forth in Section 13,000 et seq. of the California Health and Safety Code and include regulations for building standards (as also set forth in the California Building Code), fire protection and notification systems, fire protection devices such as extinguishers and smoke alarms, and fire suppression training. This code, in particular Chapter 4, Section 443-Fixed Guideway Transit and Passenger Rail Systems, applies to the design criteria for the safety of the Project.

3.2.4 California Department of Transportation

The Caltrans Highway Design Manual (Caltrans 2016) applies to the Build Alternatives. It establishes uniform policies and procedures to carry out the State highway design functions. The *California Manual of Uniform Traffic Control Devices Revision 2* (MUTCD) (Caltrans 2014) applies to the Build Alternatives to provide uniform standards and specifications for all official traffic control devices in California.

3.3 Regional

3.3.1 Los Angeles County Metropolitan Transportation Authority

Metro is responsible for compliance with all FTA and CPUC regulations governing the safe operation of its transit systems, both for patrons and employees. In operating LRT, subways and bus transit throughout LA County, Metro has established departments to address specific issues.

Metro Emergency Response Policies are incorporated into Metro's standard operating procedures and were established to address the potential for emergencies to occur and the ways in which Metro employees are to respond. Excerpts from both of these policies are provided in the following sections.

3.3.1.1 Metro Grade Crossing Policy for Light Rail Transit

The Metro *Grade Crossing Policy for Light Rail Transit* (Metro 2010c) provides a structured process for evaluating potential grade separations versus at-grade operation along light rail lines. The policy describes a three-step process:

- **Step 1: Initial Screening**. A preliminary planning-level assessment of roadway crossings based upon readily available, planning-level data for roadway volumes and proposed train frequencies leading to an initial categorization of roadway crossings into three groups: "At-Grade Should be Feasible," "Possible At-Grade Operation," and "Grade Separation Usually Required."
- **Step 2: Detailed Analysis**. This milestone is a detailed evaluation of operations, considering peak-period movement-by-movement analysis of roadway traffic in

conjunction with an assessment of potential impacts to rail operations due to priority control. It provides a more refined assessment of feasibility of at-grade operation and identifies operational trade-offs between roadway traffic conditions and rail operations. This review includes an initial assessment of safety issues based on site-specific evaluation of geometric conditions and observed and/or projected use of proposed crossings. It results in a preliminary determination of locations that may be operated at-grade versus grade-separated.

- **Step 3: Verification**. This step includes the process of developing consensus regarding the proposed design solution with local constituencies, including other involved agencies and the community as appropriate. This step may include preliminary engineering studies and cost estimates for alternative treatments. It may also include refinement of projected traffic volumes and validation of traffic and rail operations using simulation modeling. Finally, it may include additional analysis of safety issues and countermeasures. At the conclusion of this milestone, it is expected that all technical studies will have been completed leading to a final recommendation by Metro for the crossing configuration.

3.3.1.2 Metro Rail Emergency Response Policy

The *Metro Emergency Response Plan Policy* (Metro 2010b) establishes guidelines for standard operating policies and procedures for the mobilization of Metro employees and resources during an emergency situation. The policy is shared with other public safety resources and agencies to provide a fast, controlled, and coordinated response to the various emergencies that may occur on the Metro rail system. The goal of this policy is to establish guidelines that would impact the fewest number of responders, allowing the emergency situation to be mitigated with as little impact to the system as practicable and with service restored as quickly as possible. To this end, only the personnel who are essential to respond to a particular emergency situation should be called. As an incident grows, the list of responders may also grow to conduct investigations and provide recovery efforts necessary to restore service.

Certain objectives must be met to implement guidelines in the Emergency Response Policy such as:

- Minimizing potential danger to passengers, employees and others during emergency incidents
- Maximizing the effectiveness of Metro during an emergency incident
- Ensuring there is proper investigation into the cause of the incident
- Restoring service or provide alternative service at the earliest possible time

3.3.1.3 Metro Rail Design Criteria

Section 12 of the *Metro Rail Design Criteria* (Metro 2020b) identifies the methods by which Metro will construct, maintain, and monitor the safety of its transit facilities. It provides specific direction regarding the categorization of potential hazards and the actions, including suspension of LRT operations, if a potential safety and security risk should arise. The MRDC require the preparation of a Functional Hazard Analysis that analyzes the potential for a loss or malfunction of each and every LRT operational function and categorizes its effect on the equipment, personnel, patrons, and general public to determine the associated hazard level (Category I, II, III or IV) as defined in the American Public Transit Association *Manual for the Development of Rail Transit System Safety Program Plans* (1999). The MRDC also outline four basic methods of resolving or addressing any potential safety and security concerns:

- Elimination through design/redesign
- Minimization through the provision of additional safety features
- Installation of warning devices to detect the condition and to generate an adequate warning signal to correct the hazard or to provide for operating personnel/public reaction
- Specialized procedures and training

It should be noted that, to resolve a potential safety risk, a combination of any of the four methods may be used, as determined by the results of the Functional Hazards Analysis. In addition, the MRDC follow the principles of Crime Prevention through Environmental Design (CPTED).

3.3.1.4 Fire/Life Safety Design Criteria

Metro's Fire/Life Safety Design Criteria (Metro 2010a) are designed to address specific fire protection requirements for design and construction of the Metro transit systems and equipment. The criteria establish minimum requirements to provide a reasonable degree of safety from fire and its related hazards. Fire safety on an LRT system is achieved by integrating facility design, operating equipment, hardware, procedures, and software subsystems to provide protection of life and property from the effects of fire. The criteria identify and discuss fire safety as they relate 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
- Inspection, maintenance, and training

In addition to the Fire/Life Safety Design Criteria, Metro has adopted the most current version of the NFPA standards (NFPA 130) as its standard for all rail projects.

3.3.1.5 Homeless Task Force

The homelessness crisis is pervasive in all corners of LA County, including the Metro system. Los Angeles Homeless Services Agency counts as many as 58,000 individuals in LA County who are homeless, two-thirds of whom are unsheltered. Some of these unsheltered people use Metro's system and properties as temporary shelter.

In February 2016, both the County and City of Los Angeles adopted homeless strategies. In both plans, increasing comprehensive and coordinated outreach services was prioritized. The outreach efforts involve "County-City-Community" (C3) teams consisting of a nurse, a substance abuse counselor, a mental health clinician, a formerly homeless individual, and an outreach worker. In spring 2016, at the direction of Metro's CEO, Metro created a Homeless Task Force to address the presence of the homeless on Metro's system and properties due to the LA County homeless crisis. In February 2017, Metro finalized its Metro Homeless Action Plan, which focuses on enhancing the customer experience and providing a safe and secure

system, while aligning itself to the resources under Measure H[2] and Measure HHH[3]. Under the action plan, Metro created a pilot program to hire multi-disciplinary homeless outreach teams to engage the homeless and get them into services. The Homeless Action Plan is based on a four-step approach:

- Research
  - Conduct demographic surveys of homeless individuals and families
  - Collect data from outreach teams
  - Conduct a cost-benefit analysis of Metro's current investment in clearing homeless encampments
  - Review and analyze data specific to Metro from the Greater Los Angeles Homeless Count and Metro Customer Surveys
- Education
  - Develop materials and information for Metro staff and passengers on reporting transit homelessness and how they should respond or assist
  - Develop a curriculum and implement formalized training for Metro staff and law enforcement
  - Formalize the "Transit Homelessness" concept and integrate it into implementation plans
- Coordination
  - Work with LA County, City of Los Angeles, and City of Long Beach to align and integrate with adopted homeless strategies
  - Participate in committees and work groups related to the homeless system
  - Partner and collaborate with partners on encampment protocols
  - Partner with the County and City of Los Angeles on critical initiatives related to homelessness
- Outreach
  - Implement and integrate the C3 outreach teams
  - Develop uniform outreach standards
  - Implement specialized outreach teams
  - Lead and coordinate homeless outreach and law enforcement teams
  - Partner with agencies on homeless connect days
  - Work with Veteran outreach teams
  - Align Metro workforce development efforts

[2] Measure H is a sales tax measure authorizing a 0.25 percent county sales tax for 10 years in order to fund homeless services and prevention, approved in March 2017.

[3] Measure HHH is a bond issuing $1.2 billion in bonds to fund housing and services for homeless people for the City of Los Angeles and was approved in November 2016.

Thus far, this pilot program has resulted in roughly 12 percent of the homeless contacted going into permanent housing solutions. Metro is working with LA County to obtain additional outreach services for the homeless and is considering expanding its existing pilot program for homeless engagement.

3.3.2 Los Angeles County

Los Angeles County Department of Public Works (LACDPW) Standard Plans Manual (LACDPW 2000) apply to design improvements within County right-of-way. The Los Angeles County 2035 General Plan (Los Angeles County Department of Regional Planning 2015) includes policies that affect police and fire services in the Affected Area, including:

- Police Services:
  - Policy PS 8.1 promotes phased development, whereby land use proposals are developed in conjunction with approved law enforcement capabilities.
- Fire Services:
  - The LA County Fire Code and the General Plan Safety Element establish the standards, policies and goals for fire suppression facilities within the county. In addition, the General Plan includes policies (such as Policy PS 7.1) that promote phased development, whereby land use proposals are developed in conjunction with approved fire protection capabilities.

3.4 Local

The cities within the Affected Area each have public safety elements in their General Plans and municipal code provisions that address safety, security, and emergency response. Also, the County of Los Angeles has a role in emergency response and evacuation. Local jurisdictions and their applicable regulations and general plan policies are listed in Table 3.1.

Table 3.1. General Plan Goals and Policies Relating to Safety and Security

City	Police Services	Fire Services
City of Los Angeles (1996)	General Plan Safety Element Policy 2.1.5	General Plan Safety Element Policy 2.1.6
City of Los Angeles Silverlake – Echo Park – Elysian Valley Community Plan (2004)	Land Use Policies and Programs III-43 (Police Protection)	Land Use Policies and Programs III-43 (Fire Protection)
City of Los Angeles Northeast Los Angeles Community Plan (1999)	Land Use Policies and Programs III-17 (Police Protection)	Land Use Policies and Programs III-17 (Fire Protection)
City of Los Angeles Westlake Community Plan (1997)	Land Use Plan Policies and Programs III-8 (Police Protection)	Land Use Plan Policies and Programs III-8 (Fire Protection)

City	Police Services	Fire Services
City of Los Angeles Boyle Heights Community Plan (1998)	Land Use Policies and Programs III-9 (Police Protection)	Land Use Policies and Programs III-9 (Fire Protection)
City of Los Angeles Central City North Community Plan (2000a)	Land Use Policies and Programs III-14 (Police Protection)	Land Use Policies and Programs III-15 (Fire Protection)
City of Los Angeles Central City Community Plan (2003)	Land Use Policies and Program III-11 (Police Protection)	Land Use Policies and Program III-12 (Fire Protection)
City of Los Angeles Southeast Los Angeles Community Plan (2000b)	Land Use Policies and Programs III-20 (Police Protection)	Land Use Policies and Programs III-22 (Fire Protection)
City of Vernon (2007)	General Plan Safety Element Goal S-3	General Plan Safety Element Policy S-3.8
City of Huntington Park (1991)	General Plan Safety Element Goal 6.0	General Plan Safety Element Policy 3.2 Safety Element Policy 3.4
City of Bell (Blodgett/Baylosis Associates 2014)	General Plan Safety Element Policy 3	General Plan Safety Element Policy 2 Safety Element Policy 3
City of Cudahy (2010)	General Plan Public Safety Element Policy 1.6 Public Safety Element Policy 2.2 Public Safety Element Policy 3.1	General Plan Public Safety Element Policy 1.4 Public Safety Element Policy 1.6 Public Safety Element Policy 2.2
City of South Gate (Raimi + Associates 2009)	General Plan Public Facilities and Services Element Policy 1.1.1 Public Facilities and Services Element Policy 1.1.3 Public Facilities and Services Element Policy 1.2.1 Public Facilities and Services Element Policy 2	General Plan Public Facilities and Services Element Policy 2.1.1 Public Facilities and Services Element Policy 2.1.2 Public Facilities and Services Element Policy 2.1.3 Public Facilities and Services Element Policy 2.2.4
City of Downey (2005)	General Plan Safety Element Policy 5.4.1 Safety Element Policy 5.4.2	General Plan Safety Element Policy 5.3.1 Safety Element Policy 5.3.2

City	Police Services	Fire Services
City of Paramount (2007)	General Plan Health and Safety Element Policy 24 Health and Safety Element Policy 25 Health and Safety Element Policy 26	General Plan Health and Safety Element Policy 15 Health and Safety Element Policy 16 Health and Safety Element Policy 17
City of Bellflower (1994)	General Plan Safety Element Policy 4.2 Safety Element Policy 4.4	General Plan Safety Element Policy 2.2 Safety Element Policy 2.3
City of Artesia (2010)	General Plan Safety Element Policy 5.1.1 Safety Element Policy 5.1.2	General Plan Safety Element Policy 6.1 Safety Element Policy 6.1.1
City of Cerritos (RBF Consulting 2004)	General Plan Safety Element Policy SAF-6.1 Safety Element Policy SAF-6.4 Safety Element Policy SAF-7.1 Safety Element Policy SAF-7.4	General Plan Policy SAF-8.1 Policy SAF-8.3 Policy SAF-8.4 Policy SAF-8.6

Source: Metro 2021

3.5 Other

Other regulations and guidelines that may be applicable to the Project from the Uniform Fire Code (UFC) and the NFPA.

3.5.1 Fire Services

The UFC contains applicable regulations related to the construction and maintenance of buildings and premise usage. Issues addressed in the UFC and relevant to the Build Alternatives include fire department access, fire hydrants, automatic sprinkler systems, fire alarm systems, fire and explosion hazards safety, hazardous materials storage and use, provisions intended to protect and assist fire responders, and many other general and specialized fire safety requirements for new and existing buildings and their surrounding premises. The UFC contains specialized technical regulations related to fire and human safety that will also be applicable. Regulations relating to fire life safety include NFPA 101 Life Safety Code and NFPA *130: Standard for Fixed Guideway Transit and Passenger Rail Systems* (2017), which have been adopted by Metro, and which are discussed further in Section 3.3.1

4 AFFECTED ENVIRONMENT/EXISTING CONDITIONS

The assessment of existing conditions establishes a baseline for impacts by describing the current safety and security conditions as they relate to pedestrians, bicyclists, LRT passengers and employees; existing emergency services (police, fire, and ambulance); available crime and security statistics; and other relevant data for the Affected Area. The Affected Area is defined as the area within 100 feet of the Project, including the alignments, stations, parking facilities, and MSF site options. The 11 cities in the Affected Area are Los Angeles, Vernon, Huntington Park, Bell, Cudahy, South Gate, Downey, Paramount, Bellflower, Artesia, Cerritos, and the unincorporated Florence-Firestone community of LA County.

In the context of this analysis and as referenced in Section 1.4, safety refers to the prevention of accidents that may occur and involve a suite of user groups present on Metro transit facilities. Security refers to protection of people from intentional acts that could injure or harm them, and protection of property from deliberate acts of vandalism.

4.1 Safety

Metro is the regional agency that serves as transportation planner and coordinator, designer, builder, and regional operator of transit services in LA County. Metro is regulated by the CPUC. In operating LRT, subways, and bus transit (including dedicated bus transit-ways) throughout LA County, Metro has established departments, such as the Transit Education Programs Department, to address specific issues. This department implements programs to educate the public on proper safety practices with respect to LRT.

For the safety of passengers and pedestrians, Metro operates all transit-related vehicles according to the guidelines established by the CPUC. Regulations established by the CPUC for LRVs include requirements for rear view mirrors, audible warning devices, and grab handles for standing passengers. The CPUC also regulates LRV braking, lighting, and operating speeds (GO 143-B). As a result, Metro has a proven track record in safety with only two derailments for over 120 million vehicle revenue miles since 2008, according to the National Transit Database (2017).

Metro is continually working to improve vehicular and pedestrian safety along its current rail lines. Metro has established a variety of programs to inform rail users and nonusers alike about proper safety precautions around operating transit vehicles. For example, the Metro transit safety team offers courses aimed at improving passenger and bystander safety. In addition, photos and video from existing stations and rail crossings along the Metro A (Blue), L (Gold), and E (Expo) Lines are used to illustrate safety around rail alignments and rail crossings.

Additionally, the Rail Safety Orientation Tour Program offers guided tours for students, with safety and system information and limited rides on the Metro L (Gold), B (Red), and A (Blue) Lines. While most of the education and training is geared toward elementary and middle school students, the transit safety team also works with community organizations to educate local residents on the proper safety procedures and precautions around LRT corridors and LRVs.

The efforts described previously have contributed to the latest statistics for accidents between trains/motor vehicles and trains/pedestrians for Metro's rail lines during Fiscal Year 2020, summarized in Table 4.1.

Table 4.1. Metro Rail Line Fiscal Year 2020 Train/Auto and Train/Pedestrian Accidents

Metro Rail Line	FY20 Q1	FY20 Q2	FY20 Q3	FY20 Q4
A (Blue) Line	2	7	0	0
B (Red)/D (Purple) Line	0	0	0	0
C (Green) Line	0	0	0	0
L (Gold) Line	2	1	0	0
E (Expo) Line	4	5	0	0

Source: Metro 2018c

4.1.1 Existing Crossings

Metro has established the Grade Crossing Policy for Light Rail Transit (Metro 2010c) that establishes a three-step analysis, as described in Section 3.3.1.1, to determine the required grade crossing (at-grade or grade-separated) along light rail alignments. Separating the tracks from street level reduces potential for conflict between vehicles and trains; however, full grade separations are not always required or feasible. For reference, Table 4.2 lists the existing grade crossings within the Project corridor. Appendix A list the safety and physical features of the existing street intersections potentially affected by the Build Alternatives. Appendix B provides the available accident data for existing grade crossings. Additional programs, such as the Metro Rail Safety Education Program, inform local residents, specifically children, on safety around existing grade crossings within rail corridors and the interaction with LRVs.

Table 4.2. Summary of Existing Grade Crossings

Grade Crossing	Alternatives	Jurisdiction	Existing Active/Inactive
Randolph Street/ Wilmington Avenue	Alternatives 1, 2, and 3	Huntington Park	Existing – Active Freight
Randolph Street/ Alameda Street	Alternatives 1, 2, and 3	Huntington Park	Existing – Active Freight
Randolph Street/ Regent Street	Alternatives 1, 2, and 3	Huntington Park	Existing – Active Freight
Randolph Street/ Albany Street	Alternatives 1, 2, and 3	Huntington Park	Existing – Active Freight
Randolph Street/ Santa Fe Avenue	Alternatives 1, 2, and 3	Huntington Park	Existing – Active Freight
Randolph Street/ Malabar Street	Alternatives 1, 2, and 3	Huntington Park	Existing – Active Freight

Grade Crossing	Alternatives	Jurisdiction	Existing Active/Inactive
Randolph Street/ Rugby Avenue	Alternatives 1, 2, and 3	Huntington Park	Existing – Active Freight
Pacific Boulevard/ Randolph Street	Alternatives 1, 2, and 3	Huntington Park	Existing – Active Freight
Randolph Street/ Rita Avenue	Alternatives 1, 2, and 3	Huntington Park	Existing – Active Freight
Randolph Street/ Seville Avenue	Alternatives 1, 2, and 3	Huntington Park	Existing – Active Freight
Randolph Street/ Miles Avenue	Alternatives 1, 2, and 3	Huntington Park	Existing – Active Freight
Randolph Street/ Arbutus Avenue	Alternatives 1, 2, and 3	Huntington Park	Existing – Active Freight
Randolph Street/ State Street	Alternatives 1, 2, and 3	Huntington Park	Existing – Active Freight
Gage Avenue/ Salt Lake Avenue	Alternatives 1, 2, and 3	Huntington Park	Existing – Active Freight
Bell Avenue/ Salt Lake Avenue	Alternatives 1, 2, and 3	Bell	Existing – Active Freight
Florence Avenue/ Salt Lake Avenue	Alternatives 1, 2, and 3	Bell	Existing – Active Freight
Otis Avenue/ Salt Lake Avenue	Alternatives 1, 2, and 3	Cudahy	Existing – Active Freight
Santa Ana Street/ Salt Lake Avenue	Alternatives 1, 2, and 3	Cudahy	Existing – Active Freight
Ardine Street/ Salt Lake Avenue	Alternatives 1, 2, and 3	Cudahy	Existing – Active Freight
Atlantic Avenue	Alternatives 1, 2, and 3	South Gate	Existing – Active Freight
Rayo Avenue	Alternatives 1, 2, and 3	South Gate	Existing – Active Freight
Southern Avenue/ Salt Lake Avenue	Alternatives 1, 2, and 3	South Gate	Existing – Active Freight
Gardendale Street/ Dakota Avenue	Alternatives 1, 2, and 3	South Gate	Existing – Active Freight
Main Street/ Dakota Avenue	Alternatives 1, 2, and 3	South Gate	Existing – Active Freight
Century Boulevard/ Industrial Ave	Alternatives 1, 2, 3 and 4	Paramount	Existing – Active Freight
Somerset Boulevard/ Hayter Ave	Alternatives 1, 2, 3, and 4	Paramount	Existing – Inactive
Lakewood Boulevard	Alternatives 1, 2, 3, and 4	Paramount	Existing – Inactive

Grade Crossing	Alternatives	Jurisdiction	Existing Active/Inactive
Clark Avenue	Alternatives 1, 2, 3, and 4	Bellflower	Existing – Inactive
Alondra Boulevard	Alternatives 1, 2, 3, and 4	Bellflower	Existing – Inactive
Bellflower Boulevard	Alternatives 1, 2, 3, and 4	Bellflower	Existing – Inactive
Clark Avenue	Alternatives 1, 2, 3, and 4	Bellflower	Existing – Inactive
Artesia Boulevard	Alternatives 1, 2, 3, and 4	Artesia	Existing – Inactive
Studebaker Road	Alternatives 1, 2, 3, and 4	Artesia	Existing – Inactive
186th Street	Alternatives 1, 2, 3, and 4	Artesia	Existing – Inactive
187th Street	Alternatives 1, 2, 3, and 4	Artesia	Existing – Inactive
Pioneer Boulevard	Alternatives 1, 2, 3, and 4	Artesia	Existing – Inactive
South Street	Alternatives 1, 2, 3, and 4	Artesia	Existing – Inactive

Source: Metro 2021

4.1.2 Existing Pedestrian and Bicycle Facilities

The Affected Area has a mix of pedestrian facilities, including crosswalks, paths, sidewalks, and mid-block crossings. The purpose of this section, is to identify existing pedestrian generators within the Affected Area, and to offer insight into existing conditions that may warrant discussion in Section 5 if affected by the Build Alternatives.

The northern terminus of both Alternative 1 and 2 are major multi-modal transportation hubs in the region with high-density population and employment. Therefore, more pedestrian activity takes place in the Arts District and Downtown Transit Core than the rest of the areas in the study area. Pedestrian infrastructure in this area typically includes sidewalks, crosswalks, and signage. Numerous projects are underway to improve pedestrian circulation in the area, such as the Los Angeles River Bike Path Gap Closure Project, Eastside Access Improvements, and the Rail to Rail/River Active Transportation Corridor.

Salt Lake Park is a recreational destination adjacent to the proposed alignment in Huntington Park; however, driving is the primary mode of access to the park in addition to pedestrians and bicyclists from the nearby neighborhoods. The Los Angeles River Bike Path, which runs in a general north-south direction along the Los Angeles River, is a widely used path by bicyclists and provides a multi-modal alternative to driving or single-occupancy vehicles within this segment. There is an existing Class II bike lane on Southern Avenue in South Gate that terminates at the Los Angeles River Bike Path. The proposed alignment would traverse this bike lane at-grade. The Rio Hondo Bike Path, which runs in a general north-south direction along the Rio Hondo, is another pedestrian and bicyclist generator that influences circulation movement within this segment. The proposed alignment would cross over the bike path and Rio Hondo on an existing bridge structure.

Paramount Park is adjacent to the proposed alignment within the City of Paramount. This park is a significant recreational destination; however, travel to and from the park is primarily by driving, in addition to pedestrians and bicyclists from the nearby neighborhoods. Across from Paramount and also adjacent to the proposed alignment is Paramount High School. The school generates substantial pedestrian traffic along Rosecrans Avenue and Downey

Avenue, and may encourage pedestrians to cross the tracks at-grade to access west Rosecrans Avenue and south Downey Avenue. The Bellflower Bike Trail runs along the proposed alignment for approximately 2.1 miles, from Lakewood Boulevard to Caruthers Park. This bike trail is also a pedestrian and bicyclist generator that influences pedestrian movement within this segment. Caruthers Park is adjacent to the proposed alignment. The park is a significant recreational destination; however, travel to and from the park is also primarily by driving. The San Gabriel River Bike Path, which runs in a general north-south direction along the San Gabriel River, is a pedestrian generator that influences pedestrian movement within this segment. The proposed alignment would cross over the bike path and Los Angeles River on an existing bridge structure.

4.1.3 Freight Railroad

Currently there are several subdivisions and branches of railroad with active freight operations in the Study Area. The Build Alternatives propose to share ROW with the UPRR along Wilmington Branch, La Habra Branch, San Pedro Subdivision, and PEROW. Refer to Figure 4-1 for a map of the Build Alternatives' shared ROW with freight. The FRA defines shared ROW as two or more rail services operating on separate parallel tracks having track centerline separation less than 30 feet. Separation of 30 feet or less triggers the application of certain FRA safety regulations. Accident data at the existing freight grade crossings that are proposed to be shared with the Build Alternatives are provided in Appendix B. Descriptions of each of the proposed shared ROWs are in the following sections.

4.1.3.1 Wilmington Branch

Adjacent to the existing Metro A (Blue) Line there is a parallel UPRR-owned ROW along Long Beach Avenue called the Wilmington Branch. Freight rail operation's use of this track is infrequent (approximately once a day) as freight rail has shifted off the ROW and onto the Alameda Corridor. Refer to Figure 4-1 for a map of the Wilmington Branch.

4.1.3.2 La Habra Branch

The La Habra Branch is owned by UPRR and only used on a limited basis for railroad operations, as well as potentially for emergency/alternate access during a possible disruption in the Alameda Corridor. Refer to Figure 4-1 for the location of the La Habra Branch.

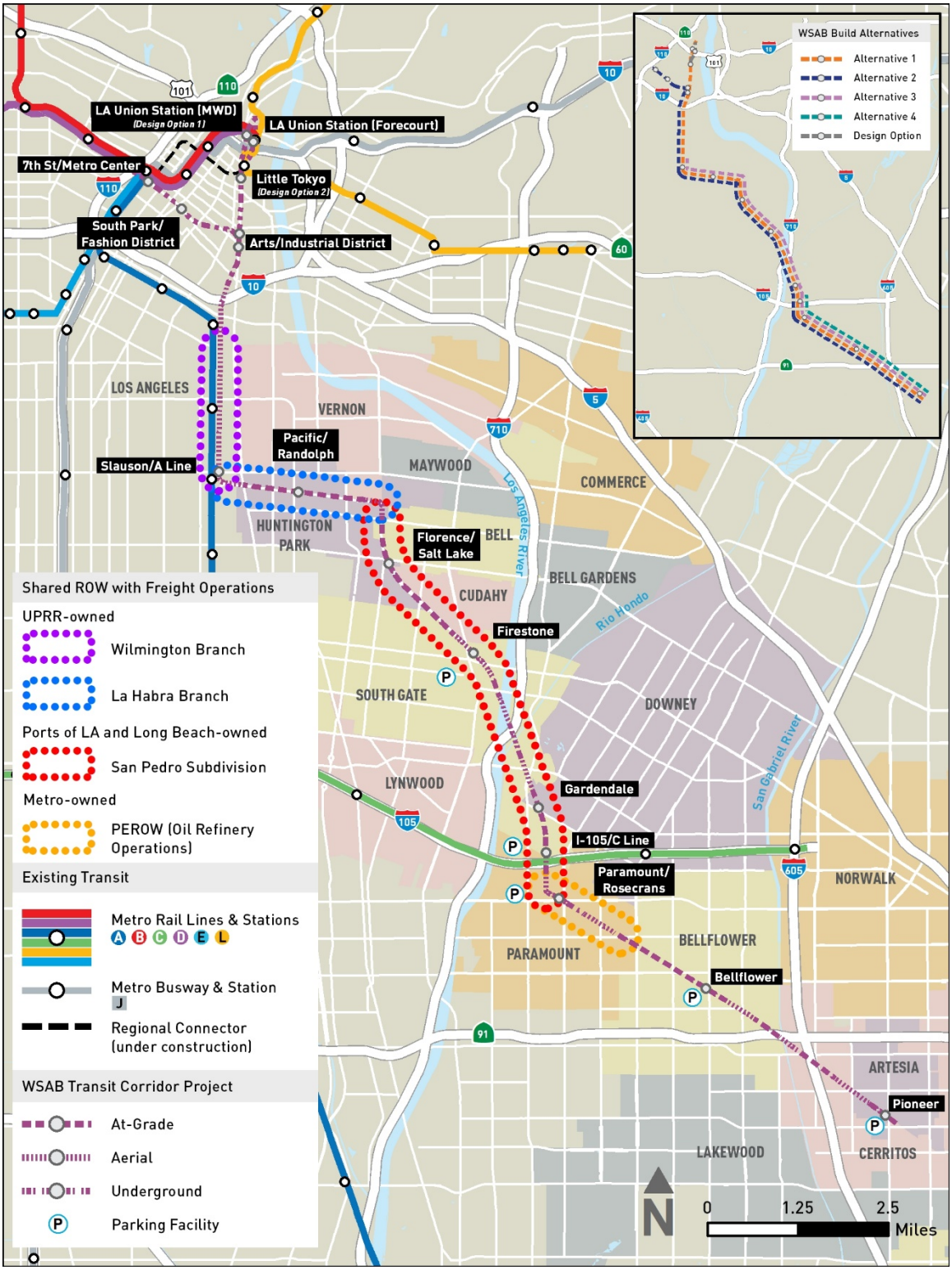
4.1.3.3 San Pedro Subdivision

The San Pedro Subdivision is owned by the Ports of Los Angeles and Long Beach and used on a limited basis by UPRR, and potentially for emergency/alternate access during a possible disruption in the Alameda Corridor. Refer to Figure 4-1 for a map of the location of the San Pedro Subdivision.

4.1.3.4 Pacific Electric Right-of-Way

The PEROW is owned by Metro and used on a limited basis by BNSF Railway to access the Paramount Petroleum Refinery. Refer to Figure 4-1 for a map of the location of the PEROW that is used by BNSF Railway.

Figure 4-1. Map of the Build Alternatives' Proposed Shared Right-of-Way with Freight



Source: Metro 2021

4.2 Security

In addition to the safety programs described in Section 4.1, Metro implements internal security programs for its bus and rail system. Metro also contracts with several law enforcement agencies, described in further detail in Section 4.3.

As part of its existing operations, Metro monitors activities and implements measures to protect security at the stations and within the transit vehicles. Current Metro system passenger security features include closed-circuit television (CCTV) cameras, emergency call boxes, and standard lighting for station stops and parking areas. These features are installed in all trains and buses, as well as rail stations, and are designed to offer a secure and safe environment for passengers.

The CCTV video in trains is recorded to a digital video recorder, which is then available for upload by the contracted law enforcement agencies in the event of an incident. If no incident is reported, the video is erased after 30 days. The CCTV system that monitors rail stops is connected directly to the Metro Control Center, where it is viewed in real time by Metro personnel. If an incident is occurring, Metro transit security is notified. Emergency call boxes in trains connect passengers directly to the train operators, while those in stations connect directly to Metro Central Control.

Additionally, Metro personnel receive Community Emergency Response Training in collaboration with the Los Angeles Fire Department (LAFD). This training includes earthquake awareness, disaster medical procedures, and rescue operations.

4.3 Police Service

The Los Angeles County Sheriff's Department (LACSD) Transit Services Bureau (TSB), the Los Angeles Police Department (LAPD), and the Long Beach Police Department (LBPD) provide contract police services to Metro. Deputies provide police services for the heavy rail, light rail, and bus transportation systems throughout Metro's 1,433-square-mile area. The TSB, LAPD, and LBPD provide security patrols throughout for the Metro LRT system. TSB officers are also deployed for fare compliance and patrolled security for fixed assets. Police departments not contracted with Metro are also available for 9-1-1 responses. The following sections summarize police services along the proposed alignments and at the proposed stations. For the purposes of police services, the Affected Area is defined as the Project Study Area. Figure 4-2 shows the police stations in the Affected Area and addresses are listed in Table 4.3. Metro system-wide crime statistics from the latest *Transit Policing Performance Report* (Metro 2018b) are as follows:

- 150 reported crimes against persons for the month of August 2018. This is a decrease of 7 percent system-wide compared to the same period last year.
- 95 reported crimes against property for the month of August 2018. This is a decrease of 20 percent system-wide compared to the same period last year.
- 37 reported crimes against society for the month of August 2018. This is an increase of 131 percent system-wide when compared to the same period last year.
- Emergency response times averaged 4.58 minutes for the month of August.

Table 4.3. Summary of the Police Department Stations in the Affected Area

Station	Address	Approximate Distance from the Build Alternatives
LAPD – Central Community Police Station	251 E 6th St Los Angeles, CA 90014	Approximately 0.7 mile west of Alternative 1, and 0.3 mile south of Alternative 2 in Los Angeles
LAPD – Newton Community Police Station	3400 S Central Ave Los Angeles, CA 90011	Approximately 1 mile west of Alternatives 1, 2, and 3
Vernon Police Department Station	4305 S Santa Fe Ave Vernon, CA 90058	Approximately 0.8 mile east of Alternatives 1, 2, and 3 in Vernon
Huntington Park Police Department Station	6542 Miles Ave Huntington Park, CA 90255	Approximately 0.4 mile south of Alternatives 1, 2, and 3 in Huntington Park
Bell Police Department Station	6326 Pine Ave Bell, CA 90201	Approximately 1 mile east of Alternatives 1, 2, and 3 in Bell
LACSD – East Los Angeles Station	5019 E 3rd St East Los Angeles, CA 90022	Approximately 5.6 miles north of Alternatives 1, 2, and 3 in Cudahy
South Gate Police Department Station	8620 California Ave South Gate, CA 90280	Approximately 1 mile west of Alternatives 1, 2, and 3 in South Gate
Downey Police Department Station	10911 Brookshire Ave Downey, CA 90241	Approximately 2.5 miles northeast of Alternatives 1, 2, and 3 in Downey
LACSD – Lakewood Station	5130 N Clark Ave Lakewood, CA 90712	Approximately 3.8 miles south of Alternatives 1, 2, 3 and 4 in Paramount Approximately 2.5 miles south of Alternatives 1, 2, 3 and 4 in Bellflower Approximately 2.7 miles southwest of Alternatives 1, 2, 3 and 4 in Artesia
LACSD – Cerritos Station	18135 Bloomfield Ave Cerritos, CA 90703	Approximately 1.3 miles northeast of Alternatives 1, 2, 3 and 4 in Cerritos

Source: Metro 2021

Crimes against persons include homicide, rape, robbery, aggravated assault, battery, and sex offenses. Crimes against property include burglary, larceny, bike theft, motor vehicle theft, arson, and vandalism. Crimes against society include weapons, narcotics, and trespassing.

4.3.1 Los Angeles County Sheriff's Department

The LACSD is a law enforcement agency that serves LA County. It is one of the largest sheriff departments in the world, with approximately 18,000 employees. LACSD provides general law enforcement services to 40 contract cities; 90 unincorporated communities; 216 facilities, hospitals, and clinics located throughout the County; 9 community colleges; Metro; and 47 superior courts.

Metro contracts with the LACSD to provide law enforcement across the entire Metro system. LACSD security personnel and deputies patrol the transit system routes and stations.

In addition to providing patrol and investigative services, the LACSD offers a broad range of support services, including Neighborhood Watch coordination, community education programs, drug prevention education for school children, and homeland security. A key crime-prevention program run by the LACSD is the Community/Law Enforcement Partnership Program. As part of this program, LACSD helps communities mobilize and organize against gangs, drugs, and violence by working through schools, community-based organizations, local businesses, churches, residents, and local governments.

4.3.2 Los Angeles Police Department

The LAPD serves a population of approximately 4 million people with 9,950 sworn police officers. The closest LAPD station to the proposed alignment is the Central Community Police Station, which is approximately 0.7 mile west of Alternative 1 and approximately 0.3 mile south of Alternative 2. The Newton Community Police Station is approximately 1 mile west of Alternatives 1, 2 and 3 (see Figure 4-2). The addresses of these police stations are listed in Table 4.3.

4.3.3 Vernon Police Department

The Vernon Police Department provides a full range of policing services to a community comprised primarily of businesses and industry. The Vernon Police Station currently serves the area of the Build Alternatives within the City of Vernon jurisdictional boundaries.

4.3.4 Huntington Park Police Department

The Huntington Park Police Department is a full-service law enforcement agency serving a population of nearly 60,000 residents. The Department is composed of 117 full-time employees, which includes 72 sworn personnel and 45 civilian employees. The Department also has 25 part-time employees. The Huntington Park Police Department is made up of various divisions and works with the community in addressing crime and quality of life issues. The Huntington Park Police Department currently serves the area where the Build Alternatives would pass through the City of Huntington Park.

4.3.5 Bell Police Department

The Bell Police Department consists of 47 members and is organized into two divisions: support and operations. The Bell Police Department currently serves the area where the Build Alternatives would pass through the City of Bell.

Figure 4-2. Police Stations along the Proposed Alignment and Stations

Source: Metro 2021

4.3.6 City of Cudahy

Police protection services for the City of Cudahy are provided by the LACSD (refer to Section 4.3.1 for LACSD personnel and services information). The LACSD serves the area where the Build Alternatives would pass through the City of Cudahy from the East Los Angeles Station.

4.3.7 South Gate Police Department

The South Gate Police Department provides service for approximately 95,000 residents over 7.4 square miles. The South Gate Police Department is divided into two divisions: patrol operations and support services. The South Gate Police Department currently serves the area where the Build Alternatives would pass through the City of South Gate.

4.3.8 Downey Police Department

The Downey Police Department consists of 124 sworn officers serving over 110,000 residents in a 12.6-square-mile area. For patrol purposes, the City is divided into six beats, with each beat patrolled by an assigned officer. The Downey Police Department currently serves the area where the Build Alternatives would pass through the City of Downey.

4.3.9 City of Paramount

Police protection services for the City of Paramount are provided by the LACSD (refer to Section 4.3.1 for LACSD personnel and services information). The LACSD serves Paramount and the area where the Build Alternatives would be located in the City of Paramount from the LACSD – Lakewood Station located in the City of Lakewood.

4.3.10 City of Bellflower

Police protection services for the City of Bellflower are provided by the LACSD (refer to Section 4.3.1 for detailed LACSD personnel and services information). The LACSD serves the City of Bellflower and the area where the Build Alternatives would be located in the City of Bellflower from the LACSD – Lakewood Station in the City of Lakewood.

4.3.11 City of Artesia

Police protection services for the City of Artesia are provided by the LACSD (refer to Section 4.3.1 for LACSD personnel and services information). The LACSD serves the City of Artesia and the area where the Build Alternatives would be located in the City of Artesia from the LACSD – Lakewood Station in the City of Lakewood.

4.3.12 City of Cerritos

Police protection services for the City of Cerritos are provided by the LACSD (refer to Section 4.3.1 for LACSD personnel and services information). The LACSD – Cerritos Station currently serves the City of Cerritos and the area where the Build Alternatives would be located in Cerritos.

4.3.13 Homeland Security

Metro and LACSD coordinate regularly, at several levels, with the Department of Homeland Security. 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 TSA. Metro is currently in

compliance with all TSA directives as well as 49 CFR 1580, which requires designating a rail security coordinator and reporting significant security concerns to TSA.

The LACSD TSB represents Metro at FTA/TSA-sponsored Security Round Table meetings where transit security chiefs discuss best practices and lessons learned, and coordinate with TSA and FTA leaders from those agencies' headquarters. Metro also follows the FTA's *Transit Agency Security and Emergency Management Protective Measures* (Battelle Total Security 2006), which were developed in consultation with TSA.

4.4 Fire Services

For the purposes of fire services, the Affected Area is defined as the Project Study Area. Figure 4-3 shows the fire stations in the Affected Area. Cities within the Affected Area either have their own fire department or contract with LA County. The Metro Fire/Life Safety Committee focuses on ongoing emergency response services and meets regularly with Los Angeles County Fire Department (LACoFD) along with area ambulance service personnel to discuss past incidents and how to best coordinate future responses. There are also well-established communications systems between Metro operations and fire protection agencies providing response services.

4.4.1 Los Angeles Fire Department

The LAFD provides essential emergency and nonemergency services to the City of Los Angeles with 114 fire stations throughout the city. The LAFD workforce consists of approximately 3,500 sworn and civilian members who are supported by a fleet of five fireboats, six helicopters, numerous ambulances, truck companies, engine companies, and specialized resources (LAFD 2015). LAFD is organized into four bureaus: Central, South, Valley, and West. The Build Alternatives would be located in the jurisdiction of the Central and South Bureaus. The nearest LAFD fire stations that currently serve the area where the Build Alternatives would pass in the City of Los Angeles are shown in Table 4.4.

Figure 4-3. Fire Stations along the Proposed Alignment and Stations

Source: Metro 2021

Table 4.4. Summary of Fire Department Stations in the Affected Area

Station	Address	Approximate Distance from the Build Alternatives
LAFD – Station 4	450 E Temple Street Los Angeles, CA 90012	Approximately 0.1 mile west of Alternative 1 and 1 mile northeast of Alternative 2
LAFD – Station 9	430 E 7th Street Los Angeles, CA 90014	Approximately 0.7 mile west of Alternative 1 and 0.2 mile north of Alternative 2
LAFD – Station 14	3401 S Central Avenue Los Angeles, CA 90011	Approximately 0.8 mile west of Alternatives 1 and 2 in Los Angeles
LAFD – Station 17	1601 S Santa Fe Avenue Los Angeles, CA 90021	Approximately 0.5 mile east of Alternatives 1 and 2 in Los Angeles
LAFD – Station 21	1192 E 51st Street Los Angeles, CA 90011	Approximately 0.7 mile west of Alternatives 1 and 2 in Los Angeles
Vernon Fire Department – Station 2	4301 S Santa Fe Avenue Vernon, CA 90058	Approximately 0.8 mile east of Alternatives 1 and 2 in Vernon
Vernon Fire Department – Station 3	2800 S Soto Street Vernon, CA 90058	Approximately 1.5 miles east of Alternatives 1 and 2 in Vernon
LACoFD Station 164 (Battalion 13)	6301 Santa Fe Avenue Huntington Park, CA 90255	Approximately 0.2 mile south of Alternatives 1, 2, and 3 in Huntington Park
LACoFD Station 165	3255 Saturn Avenue Huntington Park, CA 90255	Approximately 0.25 mile west of Alternatives 1, 2, and 3 in Huntington Park
LACoFD Station 163	6320 Pine Avenue Bell, CA 90201	Approximately 1.2 miles east of Alternatives 1, 2, and 3in Bell
LACoFD – Station 54	4867 Southern Place South Gate, CA 90280	Approximately 0.6 mile south of Alternatives 1, 2, and 3 in Cudahy; Approximately 0.5 mile west of Alternatives 1, 2, and 3 in South Gate
LACoFD – Station 57	5720 Gardendale Street South Gate, CA 90280	Approximately 0.4 mile south of Alternatives 1, 2, and 3 in South Gate
Downey Fire Department – Station 1	12222 Paramount Boulevard Downey, CA 90242	Approximately 1.6 miles northeast of Alternatives 1, 2, and 3 in Downey
Downey Fire Department – Station 2	9556 Imperial Hwy Downey, CA 90242	Approximately 2.9 miles northeast of Alternatives 1, 2, 3 and 4 in Downey
LACoFD – Station 31	7521 Somerset Boulevard Paramount, CA 90723	Approximately 1 mile southwest of Alternatives 1, 2, 3 and 4 in Paramount
LACoFD – Station 23	9548 E Flower Street Bellflower, CA 90706	Approximately 0.5 mile southwest of Alternatives 1, 2, 3 and 4 in Bellflower
LACoFD – Station 98	9814 Maplewood Street Bellflower, CA 90706	Approximately 1 mile southwest of Alternatives 1, 2, 3 and 4 in Bellflower
LACoFD – Station 30 (Battalion 9)	19030 Pioneer Boulevard Cerritos, CA 90703	Approximately 0.2 mile south of Alternatives 1, 2, 3 and 4 in Artesia Approximately 0.25 mile west of Alternatives 1, 2, 3 and 4 in Cerritos

Source: Metro 2021

4.4.2 Vernon Fire Department

The Vernon Fire Department has four fire stations, strategically located throughout the City of Vernon. Each station is staffed with full-time fire personnel working three shifts rotating every 48 hours. Specialized equipment is pre-positioned in each station to meet the needs of the industrial community.

4.4.3 City of Huntington Park

Fire protection services are contracted to the City of Huntington Park by the LACoFD (refer to Section 4.4.12 for LACoFD personnel and service information). The LACoFD has two fire stations in Huntington Park that currently serve the area where the Build Alternatives would be located in the City of Huntington Park.

4.4.4 City of Bell

Fire protection services are contracted to the City of Bell by the LACoFD (refer to Section 4.4.12 for LACoFD personnel and service information). The LACoFD has one fire station in the City of Bell that currently serves the area where the Build Alternatives would be located in the City of Bell.

4.4.5 City of Cudahy

Fire protection services are contracted to the City of Cudahy by the LACoFD (refer to Section 4.4.12 for LACoFD personnel and service information). The nearest LACoFD fire station that serves Cudahy and currently serves the area where the Build Alternatives would pass through the City of Cudahy is in the City of South Gate.

4.4.6 City of South Gate

Fire protection services are contracted to the City of South Gate by the LACoFD (refer to Section 4.4.12 for LACoFD personnel and service information). The LACoFD has two fire stations in South Gate that currently serve the area where the Build Alternatives would be located in the City of South Gate.

4.4.7 Downey Fire Department

The Downey Fire Department consists of approximately 100 employees providing a variety of comprehensive fire and life-safety services. The Downey Fire Department operates out of four fire stations. These fire stations house four engine companies, one truck company, two paramedic squads, two basic life support ambulances, one urban search and rescue unit, and one command vehicle. Two fire stations currently serve the area where the Build Alternatives would be located in the City of Downey.

4.4.8 City of Paramount

Fire protection services for the City of Paramount are contracted by the LACoFD (refer to Section 4.4.12 for LACoFD personnel and service information). The LACoFD has one fire station in Paramount that currently serves the area where the Build Alternatives would be located.

4.4.9 City of Bellflower

Fire protection services are contracted to the City of Bellflower by the LACoFD (refer to Section 4.4.12 for LACoFD personnel and service information). The LACoFD has two fire stations in Bellflower that currently serve the area where the Build Alternatives would be located.

4.4.10 City of Artesia

Fire protection services for the City of Artesia are contracted by the LACoFD (refer to Section 4.4.12 for LACoFD personnel and service information). The nearest LACoFD fire station that serves Artesia and currently serves the area where the Build Alternatives would pass through the City of Artesia is in the City of Cerritos.

4.4.11 City of Cerritos

Fire protection services are contracted to the City of Cerritos by the LACoFD (refer to Section 4.4.12 for LACoFD personnel and service information). The LACoFD has a fire station in Cerritos that currently serves the area where the Build Alternatives would be located in the City of Cerritos.

4.4.12 Los Angeles County Fire Department

The LACoFD provides fire and safety services to the unincorporated areas of LA County, to contracted cities, and to cities that are under an agreement for the cooperative response and management of fires and other emergency incidents. The LACoFD currently has 4,800 personnel, ranging from firefighters and paramedics to lifeguards and pilots. The LACoFD operates 165 fire stations and several fire prevention offices. The fire prevention offices are located in the following Affected Area jurisdictions: Lynwood, East Los Angeles, Cerritos, and Commerce. These offices conduct new construction field inspections, annual business inspections, and minor plan checks for buildings, processes and fire extinguishing systems, and contain certain specialized units such as the petroleum/chemical unit.

4.5 Emergency Medical Services

For the purposes of emergency medical services, the Affected Area is defined as the Project Study Area. A number of hospitals currently serve the Affected Area where the Build Alternatives would be located. These hospitals are available to assist in the event emergency medical response services are needed. The addresses and distances of these hospitals from the Build Alternatives are shown in Table 4.5, and the locations of the hospitals are shown on Figure 4-4.

Table 4.5. Summary of Hospitals in the Affected Area

Hospital	Address	Approximate Distance from the Build Alternatives
LA County and USC Medical Center	2051 Marengo Street Los Angeles, CA 90033	Approximately 1.9 miles east of Alternative 1 – LAUS
Adventist Health White Memorial	1720 E Cesar E Chavez Avenue Los Angeles, CA 90033	Approximately 1.3 miles east of Alternative 1 – LAUS
Good Samaritan Hospital	1225 Wilshire Boulevard Los Angeles, CA 90017	Approximately 0.8 mile west of Alternative 2 – 7th St/Metro Center Station
California Hospital Medical Center	1401 S Grand Avenue Los Angeles, CA 90015	Approximately 1.5 miles west of Alternative 2 – 7th St/Metro Center Station
Los Angeles Community Hospital	4081 E Olympic Boulevard Los Angeles, CA 90023	Approximately 3.4 miles east of Alternatives 1 and 2
Orthopedic Institute for Children	403 W Adams Boulevard Los Angeles, CA 90007	Approximately 2 miles west of Alternatives 1 and 2
Keck Medical Center USC	432 W Exposition Boulevard Los Angeles, CA 90089	Approximately 2.6 miles west of Alternatives 1 and 2
Community Hospital of Huntington Park	2623 E Slauson Avenue Huntington Park, CA 90255	Approximately 0.3 mile north of Alternatives 1, 2, and 3
St. Francis Medical Center	3630 E Imperial Hwy Lynwood, CA 90262	Approximately 1.9 miles west of Alternatives 1, 2, and 3
PIH Health Hospital - Downey	11500 Brookshire Avenue Downey, CA 90241	Approximately 3 miles east of Alternatives 1, 2, and 3
Rancho Los Amigos National Rehabilitation Center	7601 Imperial Hwy Downey, CA 90242	Approximately 0.9 mile east of Alternatives 1, 2, and 3
Kaiser Permanente Downey	9333 Imperial Hwy Downey, CA 90242	Approximately 0.9 mile north of Alternatives 1, 2, 3, and 4
Mercy Medical Center	16444 Paramount Boulevard Paramount, CA 90723	Approximately 1.8 miles west of Alternatives 1, 2, 3, and 4
Promise Hospital	16453 Colorado Avenue Paramount, CA 90723	Approximately 1.8 miles west of Alternatives 1, 2, 3, and 4
Bellflower Medical Center	9542 Artesia Boulevard Bellflower, CA 90706	Approximately 0.8 mile west of Alternatives 1, 2, 3, and 4
College Hospital – Cerritos	10802 College Place Cerritos, CA 90703	Approximately 1.1 miles north of Alternatives 1, 2, 3, and 4
Lakewood Regional Medical Center	3700 E South Street Lakewood, CA 90712	Approximately 3.9 miles west of Alternatives 1, 2, 3, and 4
La Palma Intercommunity Hospital	7901 Walker Street La Palma, CA 90623	Approximately 3.1 miles southeast of Alternatives 1, 2, 3, and 4

Source: Metro 2021

Figure 4-4. Hospitals along the Proposed Alignments and Stations

Source: Metro 2021

5 ENVIRONMENTAL IMPACTS/ENVIRONMENTAL CONSEQUENCES

This section describes the environmental impacts/consequences of the No Build Alternative and Build Alternatives as they relate to safety and security within the Affected Area. NEPA requires that all adverse effects of a proposed project be identified and analyzed. This section identifies potential adverse safety and/or security impacts and analyzes the consequences. The Build Alternatives would have an adverse effect under NEPA if they unduly exposed the public to increased danger from accidents or exposed the public to increased threat of crime resulting from the implementation of the Build Alternatives.

The impacts analysis is organized by alternatives, design options, and MSFs as described in Section 2 and is based on the existing conditions described in Section 4. The following safety and security topics are used to present project features and adverse effects (if any):

- Transit system safety
- Freight safety
- Pedestrian and bicycle safety
- Motorist safety
- Emergency response services
- Seismic safety
- Security and prevention of crime and terrorism

Section 7 describes the potential construction impacts related to safety and security.

5.1 No Build Alternative

The No Build Alternative includes existing transportation networks and transportation improvements that have been committed to and identified in constrained plans of the Metro 2009 LRTP and the SCAG 2016 RTP/SCS. The service features include transit, freeway, and arterial operations within and around the Affected Area. As such, the No Build Alternative includes existing, under-construction, and planned rail, bus, and highway projects. Table 2.1 lists the planned projects anticipated by 2042. Planned projects will be subject to separate environmental analysis to evaluate impacts to safety and security. Implementation of these projects, including operations and maintenance, will be subject to regulatory standards, conditions, and permitting requirements discussed in Section 2. Compliance with these standards will minimize impacts to safety and security. Impacts are expected to be minor. Under NEPA, the No Build Alternative would not result in adverse effects to safety and security and mitigation would not be required.

5.2 Alternative 1

5.2.1 Transit System Safety

As introduced in Section 1.4.1, transit system safety focuses on identifying, eliminating, and controlling safety hazards related to Alternative 1's systems and equipment including signaling, traction power, OCS, stations, alignment, track, and communication. The potential for safety hazards such as collisions, service interruption, property damage, injuries, or

fatalities may occur as a result of the malfunction or misuse of these systems and equipment. The following describes how the Alternative 1 would address transit system safety.

MRDC or equivalent and design standards address system safety and security requirements that are applicable to the design of the facilities and equipment of Alternative 1, such as crossing gates and warning lights. Alternative 1 would be designed and constructed in accordance with the referenced regulations, standards, and policies defined in Section 2. All facilities and equipment would be designed to provide for the safety and security of passengers and employees of Alternative 1.

Transit system safety requirements would be established in accordance with FTA requirements through the development of a Safety and Security Management Plan (reference FTA Circular 5800.1). In addition, safety requirements would be established in accordance with the CPUC Rail Safety Program Standard (CPUC GO 164-D). Implementation of the FTA-required Safety and Security Certification Plan for the Build Alternatives would be initiated during preliminary engineering and would continue through each subsequent phase of Alternative 1, including design, construction, testing, and initiation of revenue services. This certification plan includes the identification of certifiable elements; development of safety and security design criteria, a design criteria conformance checklist, a construction specification checklist, and safety and security test requirements; and validation of operational readiness. Implementation of the plan would ensure that any identified safety issues and security concerns are addressed prior to completion of Alternative 1. A Preliminary Hazard Assessment would also be conducted to identify hazardous conditions, document applicable mitigation measures, and provide a checklist for guiding the design and determining whether more detailed safety analyses and testing are necessary. The CPUC would then approve the project safety certification verification report and certify that Alternative 1 is safe and secure before revenue operations could begin.

Alternative 1 would be operated in accordance with Metro system safety plans, policies, and procedures or equivalent, such as:

- Metro System Safety Program Plan
- Metro System Security Plan
- Metro Standard and Emergency Operating Procedures
- Metro Rail Operating Rulebook

Under NEPA, Alternative 1 would not result in adverse effects to safety and security related to transit system safety and mitigation would not be required.

5.2.2 Freight Safety

Several segments of Alternative 1 would share ROW with active light rail and freight railroad tracks but operate on separate tracks for a total of 11.4 miles. Alternative 1 would use an aerial structure on the UPRR-owned Wilmington Branch along Long Beach Avenue between 25th Street and Slauson Avenue for approximately 1.8 miles. The alignment would continue in an aerial configuration along Long Beach Avenue adjacent to the existing Metro A (Blue) Line with the Slauson/A Line Station providing connection to the Metro A (Blue) Line. Alternative 1 would then use the UPRR-owned La Habra Branch for approximately 2.3 miles, with the western limit at the intersection of Long Beach Avenue/Slauson Avenue and eastern limit at the San Pedro Subdivision crossing. Alternative 1 would then operate along the San Pedro Subdivision, which is currently owned by the Ports of Los Angeles and Long Beach.

The portion of the San Pedro Subdivision that would be used by Alternative 1 is approximately 6.1 miles, with the northern limit located just north of the Gage Avenue/Salt Lake Avenue intersection and the southern limit at the intersection of Paramount Boulevard/Rosecrans Avenue. In addition, UPRR has an easement with both Ports to operate on this same San Pedro Subdivision on a limited basis. Figure 4-1 is a map of the Build Alternatives and shared ROW corridors with freight.

The portion of the PEROW that would be used by Alternative 1 and shares ROW with freight operations is approximately 1.2 miles, with a northern limit at the San Pedro Subdivision intersection and the southern limit at Somerset Boulevard. There is an oil refinery located adjacent to the alignment between Downey Avenue and Somerset Boulevard. Alternative 1 proposes to realign a portion of the spur track for the oil refinery, which may require additional safety features between the Alternative 1 and oil refinery tracks. The LRT alignment would be placed approximately 30 feet away from the closest existing railroad lines serving the oil refinery. This separation would provide sufficient area to erect a physical barrier between the two operations thereby reducing the potential for operational conflicts. Additionally, Alternative 1 would operate entirely in an aerial configuration above the segment of the PEROW associated with the oil refinery tracks, thereby avoiding the potential for derailments and other operational hazards. Any additional safety features would be identified through coordination, and as design of Alternative 1 advances.

With shared ROW there is the potential for a derailment or a collision between the operations that could cause potential service interruptions, equipment damage, or harm to passengers and employees. This situation currently exists on the Metro A (Blue) Line along the Wilmington Branch where it shares ROW with freight operations. To date, there has not been any collisions between the Metro A (Blue) Line and freight operations. A number of design elements would be included in accordance with freight and Metro standards and criteria, or equivalent, to minimize those potential impacts, including:

- Appropriate track spacing distance between freight and Alternative 1
- Protective fencing and barriers installed where appropriate
- Communication protocols established between the freight railroad operators and Metro to quickly respond to derailment emergencies
- Emergency responder training and drills to respond to derailment emergencies

With the incorporation of these elements, the potential for derailments and resulting impacts to equipment, passengers, and employees would be minimized. This is supported by the fact that Metro has had only two derailments over 120 million vehicle revenue miles since 2008, according to the National Transit Database (2017). Also, according to the FRA, there were only 14 freight derailments (unrelated to train/automobile derailments) over a total of 518 million train miles in the country in 2017 (FRA Office of Safety Analysis 2017), with none occurring in the Affected Area.

As part of the project development process and pursuant to FTA Circular 5800.1 – Safety and Security Management Guidance for Major Capital Projects, Metro would conduct a preliminary hazard analysis (PHA), TVA, and create a Fire/Life Safety committee for the Project, which would review Alternative 1 and may identify additional countermeasures to increase safety and reduce the potential of collisions during final design. In addition, Metro's ongoing coordination with freight rail operators for the acquisition of the ROW adjacent to existing freight tracks continues and may result in the incorporation of additional safety

features as determined in the future. These details would be a forthcoming component of the advancing design and the TVA itself.

While these identified safety features and processes would minimize impacts, there would still be the potential for derailment and collision. Under NEPA, Alternative 1 would result in adverse effects related to safety and security prior to the implementation of Mitigation Measure SAF-1 (Encroachment Detection) (see Section 8.2.1), which would detect potential derailments that may occur on Metro ROW. With implementation of this mitigation measure, impacts would be minimized and there would not be an adverse effect to the safety of passengers, employees, and the public from the shared ROW with freight operation. After implementation of Mitigation Measure SAF-1 (Encroachment Detection) (see Section 8.2.1), Alternative 1 would not result in adverse effects related to safety and security.

5.2.3 Pedestrian and Bicycle Safety

The Affected Area includes several high population and employment centers, along with several communities that are transit-dependent. As a result, it is anticipated that a significant number of passengers that would use Alternative 1 would likely walk or bike to and from stations. The pedestrian and bicycle safety evaluation draws from this understanding and is based on the methodology described in Section 1.4.

5.2.3.1 Pedestrian and Bicycle Safety at Stations

The main pedestrian and bicyclist safety issue at the stations is potential contact of people with the active LRT system, including the LRT vehicles and guideway. A contributing factor is the large groups of people who gather on the station platforms and pass through the stations. The large numbers of people create a potential for accidents at each of the proposed stations, in all configurations (aerial, underground, and at-grade). There are several transfer stations (LAUS Forecourt, Slauson/A Line, and I-105/C Line) that would provide pedestrian tunnels or structures to provide direct and safe passage for pedestrians transferring between Metro rail lines.

To address pedestrian and bicycle safety at stations, MRDC or equivalent design standards would be applied to the Project. The design criteria apply to walkways, pedestrian refuge areas, emergency exits, and sidewalks for pedestrian queuing to facilitate pedestrian mobility outside and within the station. The criteria would also apply to the proposed aerial and underground stations that would be accessed via stairways, escalators, and elevators from the ground level to the subway's mezzanine and platform levels.

Metro has an outreach and educational program that promotes safety awareness called Metro Rail Safety Education Program. CCTV monitoring would be provided for surveillance of platforms and access areas around these platforms. Special blue light indicators would be provided at stations with emergency telephone communications to the Rail Operations Center, which would be able to cut traction power in the event of an accident.

Other design features include station platform edges equipped with warning strips between train car barriers and signage to help prevent pedestrians from falling onto the track. Public address systems at the stations would announce when trains are approaching and instruct passengers to stand back as trains arrive.

In concert with the design features, the anticipated passenger loads, and pedestrian counts would be accounted for in Alternative 1's design to control and channel pedestrian

movements as appropriate at or near stations. These anticipated loads and counts, along with future growth in the areas surrounding Alternative 1's stations, would also guide station design features to address the potential for increased passenger demand and increase in use of pedestrian and bicycle facilities. The context of design, location, and scale would also be considered to provide adequate infrastructure to support bicycle activities at station locations and near or adjacent to the guideway, and at-grade crossings. This would include spaces for bikes in elevators, designated bike entries onto trains, bike storage, and bike lanes that approach the station entrance. Figure 5-1 provides an example of Metro's design techniques for access and interactions around stations for pedestrians and bicyclists. The design techniques may include active pedestrian gates, emergency exit swing gates, gating/signal system coordination, curb cuts for ADA access, railroad concrete panels, wider walkways and crossways, LED lights, and improved signage. The specific design techniques for Alternative 1 would be determined during final design.

Figure 5-1. Metro A (Blue) Line Safety Features for Pedestrians and Bicyclists

Source: Metro 2016

Safety hazards at station locations would be minimized for pedestrian and bicyclists with the design features described previously along with adherence to the referenced policies and procedures. Under NEPA, Alternative 1 would not result in adverse effects related to safety and security to pedestrians or bicyclists at stations and mitigation would not be required.

5.2.3.2 Pedestrian and Bicycle Safety at Parking Facilities

The discussion of pedestrian and bicycle safety within and near parking facilities are similar to those at station locations because of the potential for a large congregation of pedestrians during the AM and PM peak travel periods. Table 5.1 provides a summary of the station parking facilities and the potential impacts.

Table 5.1. Safety Summary of Proposed Parking Facilities

Station Parking Facility	Proposed Parking Spaces	Parking Facility Safety Description	Potential Effects	Design Features
Firestone Station (Alternatives 1, 2, and 3)	▪ 600 parking spaces	At-grade crossings (includes freight crossing at each) from parking facility to the Firestone aerial station. Parking facility has direct connection to station.	▪ Pedestrians need to cross freight tracks to access station	▪ Controlled pedestrian crossing gates with warning lights and signs between plaza level and parking facility.
I-105/C Line Station (Alternatives 1, 2, 3, and 4)	▪ 326 parking spaces	Path of travel for passengers transferring between C (Green) Line and Build Alternatives would require pedestrian movement and crossing over Century Boulevard. Total distance of travel is approximately 0.1 mile.	▪ To access the station from parking lot to the west of the station, patrons would have to cross freight track crossings. ▪ Potential for pedestrians and automobile interface accessing the station as pedestrians cross Century Boulevard	▪ Controlled pedestrian crossing gates with warning lights and signs, crosswalks, and signage at the Century Street at-grade crossing separating the two stations for the C (Green) Line and Build Alternatives.
Paramount/ Rosecrans Station (Alternatives 1, 2, 3, and 4)	▪ 490 parking spaces	Path of travel from the parking facility to the station would require movement of pedestrians under transmission towers or via sidewalk along Paramount Boulevard. Parking facility has direct connection to station.	▪ No safety issues	▪ Dedicated pedestrian walkway from parking facility to plaza level.
Bellflower Station (Alternatives 1, 2, 3, and 4)	▪ 263 parking spaces	The path of travel requires crossing tracks to access station. Parking facility has direct connection to station.	▪ No safety issues	▪ Pedestrian crossing with swing gates and warning signage.

Station Parking Facility	Proposed Parking Spaces	Parking Facility Safety Description	Potential Effects	Design Features
Pioneer Station (Alternatives 1, 2, 3, and 4)	▪ 1,100 parking spaces	Path of travel from the southern parking facility requires pedestrian movement along 187th Street or Pioneer Boulevard and crossing of Corby Avenue intersection. Total distance of travel is less than approximately 0.1 mile.	▪ No safety issue	▪ Pedestrian walkway from parking facility to sidewalk along 187th Street and Pioneer Boulevard. Includes pedestrian crossing gates and signage.

Source: Metro 2021

Direct connection between the station parking facility and the station is not possible in all locations because of a lack of available public right-of-way adjacent to the stations. Safe ingress and egress for pedestrians from the parking facilities to the stations would be included in Alternative 1 through the provision of adequate walkway widths and crosswalk locations. Traffic control improvements and wayfinding tools (e.g., signage, pavement markings) would also be implemented to provide safe passage and reduce potential conflicts between vehicles and the pedestrians/bicyclists traveling between the parking facility and the station entrance. LRT users would be prevented from accessing stations from the parking facility illegally via the track ROW by installing barriers and proper signage.

The described design measures would minimize impacts on pedestrian and bicyclist safety at or near parking facilities. Under NEPA, Alternative 1 would not result in adverse effects related to safety and security to pedestrians and bicyclists at parking facilities, and mitigation would not be required.

5.2.3.3 Pedestrian and Bicycle Safety Near the Guideway

Alternative 1 could introduce a potential safety risk to pedestrians and bicyclists. In several areas, the guideway would be adjacent to existing or new sidewalks that potentially would be modified to accommodate the guideway. The proximity concerns addressed in the prior station location discussion are also applicable in the context of the guideway. The potential impacts would be related to both accidents and unauthorized trespassing into the LRT ROW.

Alternative 1 would reconstruct and improve a pedestrian bridge at 53rd Street over the Build Alternative's aerial configuration, Metro A (Blue) Line, freight tracks, and Long Beach Avenue. The reconstructed pedestrian bridge would be well lit and provide a safe way for pedestrians and bicyclists to cross over the tracks and roadway.

Existing features including the pedestrian overcrossing at Paramount High School over the existing Metro owned PEROW tracks, Los Angeles River Bicycle Path, Rio Hondo Bike Path, and San Gabriel River Bike Path would be preserved, and their controlled access/passage maintained by protecting them in place. Necessary clearances between the existing pedestrian overcrossing and bike paths would be maintained with Alternative 1's new bridge structures.

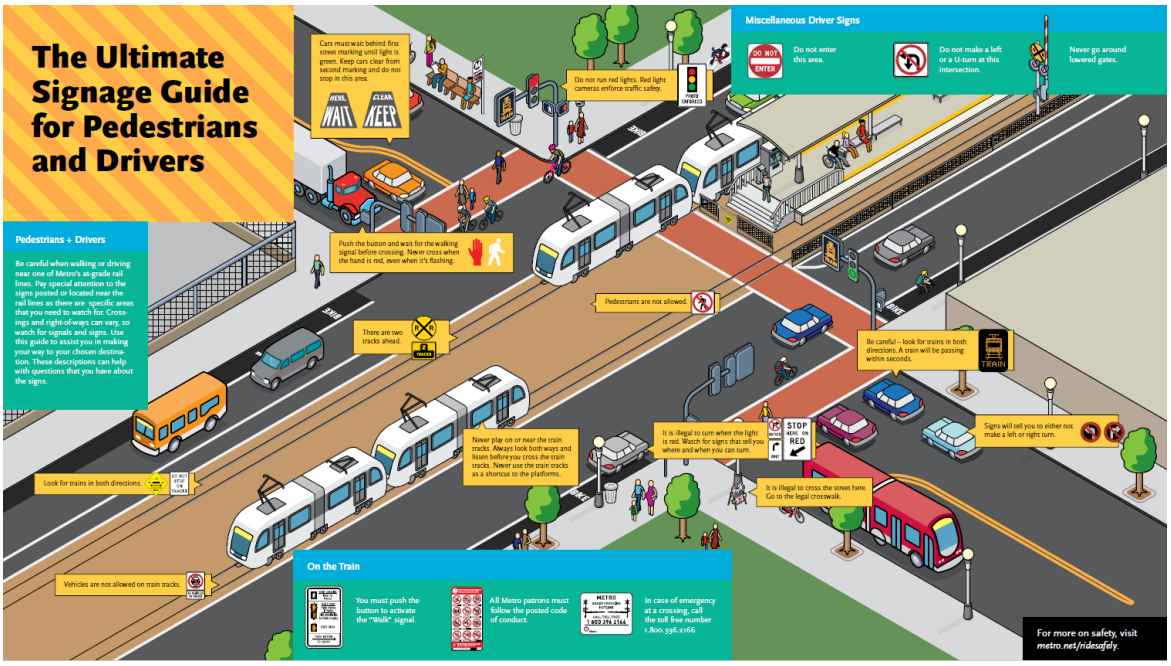
Alternative 1 would also coordinate with Metro's Rail to Rail/River Active Transportation Corridor Project to provide appropriate safety features along Randolph Street, and these features would be incorporated during advanced design stages. Alternative 1 would also coordinate with the City of Bellflower's existing bike path and expansion project to provide appropriate horizontal clearance through the realignment of the paths.

Alternative 1 would not permanently remove or reduce existing sidewalk width to less than standard design geometrics. However, the potential interactions between pedestrians and bicyclists, and the Build Alternative's new guideway, would introduce safety concerns due to proximity and illegal ROW entry. To reduce the risk of accidents and trespassing onto the guideway, Alternative 1 would include access control along the ROW, including barriers and signage. These design features would be used to direct pedestrians to designated crossings and minimize inappropriate crossing behaviors. To address the potential pedestrian and bicycle hazards, the Project would comply with all applicable regulations and MRDC or equivalent. In addition, the PHA and TVA would be prepared during preliminary engineering and final design stages of the Project to verify the identified hazards and features for enhanced pedestrian and bicyclist safety, such as pavements markings and signs. The analysis will also verify illumination levels and sight distance improvements as necessary. This analysis is required by FTA and SAF PM-5. The implementation of these additional safety features would also consider pedestrian and vehicular traffic volume data to determine whether those volumes of vehicles and pedestrians traveling through an intersection warrant these design features during the preliminary engineering stage of Alternative 1.

In addition, Metro promotes safety and security through passenger and public awareness programs. The goals of these programs are to heighten awareness regarding safety, to reduce the potential for injuries, and to demonstrate Metro's ongoing commitment to safety. These awareness programs provide information to the public through transit user aids, bus stop information signs, fact sheets, and the Metro website. Figure 5-2 is an example of the type of safety information Metro provides through its public awareness campaign.

As described previously, existing sidewalks would not be permanently removed or reduced in width to less than standard design geometrics. Additionally, design features related to safety and access control, including fencing and signage, along with the educational program elements, would be used to direct pedestrians and bicyclists to designated crossings and minimize inappropriate crossing behaviors. Under NEPA, Alternative 1 would not result in adverse effects related to safety and security to pedestrians and bicyclists near the guideway and mitigation would not be required.

Figure 5-2. Example of Metro Rail Safety Education Fact Sheet



Source: Metro 2017b

5.2.3.4 Pedestrian and Bicycle Safety at Grade Crossings

Pedestrian safety at designated grade crossings is a key factor to be considered in the design of Alternative 1. This safety consideration is relevant only to the at-grade portions of the alignment, because pedestrians are restricted from crossing aerial or underground tracks. In most cases, there is active freight at the existing at-grade crossings, which also must be considered in the context of at-grade crossings and potential safety impacts. For the new at-grade crossings, the addition of LRVs would introduce a new operational feature and also a potential new safety hazard for pedestrians and bicyclists crossing the proposed alignment. Since the LRVs would be electrically powered, they would be quieter than diesel-powered rail engines and most automobile traffic and may not be easily heard.

The potential hazard and safety impacts would be present at intersections where pedestrians and bicyclists would need to cross over the light rail tracks (refer to Appendix A for a list of at-grade crossings proposed by Alternative 1) and in areas along the ROW with openings to the tracks. Unauthorized access and use of the ROW as a short-cut across the tracks may occur if the distance between designated at-grade crossings is not convenient, and pedestrians and bicyclists are tempted to cross the tracks outside of designated and controlled locations. In addition, potential transit passengers who see their train approaching may attempt to cross streets and tracks illegally in order to avoid missing the train. Departing passengers may also be tempted to take shortcuts from station areas to access nearby destinations instead of crossing at designated crossings.

Those potential impacts will be addressed using Metro's latest Rail Operating Rulebook and CPUC regulations, which allow LRV operators to use audible warning devices to alert unwary pedestrians and bicyclists that an LRV is approaching. Pedestrian and bicycle traffic control and channelization techniques such as crossing gates and right-of-way barriers would be used to direct pedestrian and bicycle movements at grade crossings and encourage the use of

designated crossings. Signage would be posted at these locations to provide safety information and awareness. In addition, in compliance with CPUC regulations (CPUC GO 88-B and 164-D), Metro would prepare and submit grade crossing design applications and conduct grade crossing diagnostics. Based on the CPUC review of grade crossing applications and diagnostics, additional safety and security design features will be incorporated, if necessary.

The standard practices and design features described previously, coupled with the CPUC grade crossing application process and Metro's operating guidelines, would minimize the potential hazards and safety impacts for pedestrians and bicyclists. Therefore, the potential for safety-related impacts would be minimized, there would be no adverse effects related to pedestrian and bicyclist safety at grade crossings, and mitigation measures would not be required. Refer to Table 4.2 for the list of grade crossings.

Several existing grade crossings south of Randolph Street do not have sidewalks or designated crossings for the existing tracks. The Build Alternative's design would implement new sidewalks that would provide safety benefits, so that pedestrians are not forced to walk within the roadway or tempted to cross the existing tracks. Figure 5-3 presents an example of the existing conditions at the intersection of Salt Lake Avenue, Santa Ana Street, and the San Pedro Subdivision railroad tracks where sidewalks and designated crossings do not exist. The Build Alternatives would instead consider incorporating safety features similar to those shown on Figure 5-1. Examples include active pedestrian gates, emergency exit swing gates, gating/signal system coordination, curb cuts for ADA, railroad concrete panels, wider walkways and crossways, LED lights, and improved signage.

The design features, including adding sidewalks where missing, coupled with the CPUC grade crossing application process and Metro's operating guidelines, would reduce the potential hazards for pedestrians and bicyclists at grade crossings. Therefore, there would be no adverse effects related to pedestrian and bicyclist safety at grade crossings, and mitigation measures would not be required. Figure 5-3 is an example of an existing grade crossing with a lack of sidewalks along the San Pedro Subdivision at Salt Lake Avenue and Santa Ana Street. The top image provides a view to the east and the bottom image provides a view to the west of Salt Lake Avenue.

Under NEPA, Alternative 1 would not result in adverse effects related to safety and security to pedestrians and bicyclists at grade crossings and mitigation would not be required.

Figure 5-3. Grade Crossing at Salt Lake Avenue and Santa Ana Street

Source: Metro 2021

5.2.3.5 Summary of Pedestrian and Bicycle Safety

Table 5.2 provides a qualitative evaluation of safety and security conditions for pedestrians and bicyclists. Elements evaluated include traffic safety, access/accessibility, sight visibility, lighting, and urban design, and considers both the existing conditions of the Affected Area and the proposed project features. Each element was given a rating of either "Poor," "Fair," or "Good," and a rating of "N/A" was given for any element not applicable for any of the specific segments evaluated. A "Poor" rating is defined as a higher risk safety and security condition and should consider potential improvements. A "Fair" rating is defined as an adequate for use safety and security condition, where potential improvements could be considered, as needed. A "Good" rating is defined as a low risk safety and security condition, where no improvements are needed for pedestrian and bicyclist safety.

The traffic safety element considers the quality of the pedestrian and bicyclist environment, based on both the existing and proposed infrastructure at grade crossings such as flashing light signals, gates, and traffic control signals for protection from both the LRT and vehicular traffic. Other factors considered include whether sidewalks and (signalized) crosswalks are present or proposed, and if Metro patrons would be able to safely travel to their destinations or make transfers from the station. The access/accessibility element looks at whether patrons would be able to safely and comfortably access and exit the stations and, if applicable, travel between the station and parking facility with ease. The sight visibility element examines the natural surveillance of the surrounding area and the physical environment for any objects, such as buildings and trees, that may obstruct views. The lighting element considers visibility conditions affected due to new structures introduced by the Project and if adequate lighting would be provided in such cases, as well as visibility conditions in and around the proposed stations. The built environment element assesses level of comfort for patrons, pedestrians, bicyclists using the proposed facilities, or for those traveling through based on the existing setting and proposed project components.

The assessment identified station and guideway locations as “Good” and Fair" and would not result in adverse effects. The assessment considered analysis from the *West Santa Ana Branch Transit Corridor Project Transportation Impact Analysis Report* (Metro 2021) and *West Santa Ana Branch Transit Corridor Project Urban Design Report* (Metro 2019).

Under NEPA, Alternative 1 would not result in adverse effects related to safety and security to pedestrians and bicyclists and mitigation would not be required.

5.2.4 Motorist Safety

There is the potential for conflicts between LRVs and motor vehicles at locations with at-grade crossings. A common cause for motor vehicle/light rail accidents at intersections is when motorists turn left in front of an LRV (with the LRV traveling in the median of the street and in the same direction as the motor vehicle). Other accidents between LRVs and motorists stem from motorists disobeying red light signals. As a result, the potential for automobile and LRV collision would represent a potential adverse effect.

To reduce the potential for collisions, system safety analyses would be prepared during the project development phase and as the design advances. The safety analyses would identify hazards specific to the alignment and identify mitigating measures to resolve those hazards. Specifically, the Project would be designed to meet MRDC (or equivalent) and MUTCD standards (Parts 8 and 10). Safety features that would be considered in the system safety analyses include:

- Signs and markings
- Flashing light signals, gates, and traffic control signals
- Pathway grade crossings
- Illumination
- Safety barriers

Table 5.2. Safety and Security Conditions Relative to Pedestrians and Bicyclists for all Alternatives

City	Segment	Type	Configuration	Traffic Safety	Access/ Accessibility	Sight Visibility	Lighting	Urban Design
Alternative 1								
Los Angeles	Union Station (Forecourt)	Station	Underground	**GOOD** No issues; future Los Angeles Union Station Forecourt and Esplanade project will further enhance safety	**GOOD** No issues; future Los Angeles Union Station Forecourt and Esplanade project will further enhance access and accessibility	**GOOD** No issues	**GOOD** Area is well-lit	**GOOD** Historic building with no issues
Los Angeles	Union Station (MWD [Design Option 1])	Station	Underground	**GOOD** No issues; future Los Angeles Union Station Forecourt and Esplanade project will further enhance safety	No issues; future Los Angeles Union Station Forecourt and Esplanade project will further enhance access and accessibility	**GOOD** No issues	**GOOD** Area is well-lit	**GOOD** Historic building with no issues
Los Angeles	Union Station to Little Tokyo	Guideway	Underground	N/A	N/A	N/A	N/A	N/A

City	Segment	Type	Configuration	Traffic Safety	Access/ Accessibility	Sight Visibility	Lighting	Urban Design
Los Angeles	Little Tokyo (Optional, added with Design Option 2)	Station	Underground	**GOOD** Existing signalized intersections with crosswalks; future Eastside Access Improvements project will further enhance safety	**GOOD** No issues; future Eastside Access Improvements project will further enhance access and accessibility	**GOOD** No issues	**GOOD** Area is well-lit	**GOOD** No issues
Los Angeles	Little Tokyo to Arts/Industrial District	Guideway	Underground	N/A	N/A	N/A	N/A	N/A
Alternative 2								
Los Angeles	7th/Metro Center	Station	Underground	**GOOD** Existing signalized intersections with crosswalks	**GOOD** Existing wide sidewalks	**GOOD** No issues	**GOOD** Area is well-lit	**GOOD** No issues
Los Angeles	7th/Metro Center to South Park/Fashion District	Guideway	Underground	N/A	N/A	N/A	N/A	N/A

City	Segment	Type	Configuration	Traffic Safety	Access/ Accessibility	Sight Visibility	Lighting	Urban Design
Los Angeles	South Park/Fashion District	Station	Underground	**GOOD** Existing signalized intersections with crosswalks and protected bikeway	**GOOD** Existing wide sidewalks	**GOOD** No issues	**GOOD** Area is well-lit	**GOOD** No issues
Los Angeles	South Park/Fashion District to Arts/Industrial District	Guideway	Underground	N/A	N/A	N/A	N/A	N/A
Alternatives 1 and 2								
Los Angeles	Arts/Industrial District	Station	Underground	**GOOD** Existing signalized intersections with crosswalks	**GOOD** Existing wide sidewalks	**GOOD** No issues	**GOOD** Area is well-lit	**FAIR** Industrial with no issues
Los Angeles, Unincorporated LA County	Arts/Industrial District to Slauson	Guideway	Underground, Aerial	N/A	N/A	**GOOD** No issues	**FAIR** Area is adequately lit	**GOOD** Residential and commercial with no issues

City	Segment	Type	Configuration	Traffic Safety	Access/ Accessibility	Sight Visibility	Lighting	Urban Design
Alternatives 1, 2, and 3								
Unincorporated LA County	Slauson	Station	Aerial	**FAIR** Future Rail to Rail project will enhance traffic safety	**FAIR** Future Rail to Rail project will enhance traffic safety	**GOOD** No issues	**FAIR** Area is adequately lit	**FAIR** Industrial setting; future Rail to Rail project will enhance urban design
Unincorporated LA County, Huntington Park	Slauson to Pacific/Randolph	Guideway	Aerial, At-Grade	**GOOD** Travel lane reduction and crosswalk improvements	N/A	**GOOD** No issues	**GOOD** Area is well-lit	**GOOD** Residential and commercial with no issues
Huntington Park	Pacific/Randolph	Station	At-Grade	**GOOD** Travel lane reduction and crosswalk improvements	**GOOD** Sidewalk and curb ramp improvement	**GOOD** No issues	**GOOD** Area is well-lit	**GOOD** Residential and commercial with no issues
Huntington Park, Bell	Pacific/Randolph to Florence/Salt Lake	Guideway	At-Grade, Aerial	**GOOD** Travel lane reduction and crosswalk improvement	N/A	**GOOD** No issues	**GOOD** Area is well-lit	**GOOD** Residential and commercial with no issues
Huntington Park	Florence/Salt Lake	Station	At-Grade	**GOOD** Signalized intersection with crosswalk improvements	**GOOD** Sidewalk and curb ramp improvement	**GOOD** No issues	**GOOD** Area is well-lit	**GOOD** Residential and commercial with no issues

City	Segment	Type	Configuration	Traffic Safety	Access/ Accessibility	Sight Visibility	Lighting	Urban Design
Huntington Park, Cudahy, South Gate	Florence/Salt Lake to Firestone	Guideway	At-Grade, Aerial	**GOOD** Crossing gates and existing signalized intersections with crosswalk	N/A	**GOOD** No issues	**GOOD** Area is well-lit	**GOOD** Residential and commercial with no issues
South Gate	Firestone **[P]**	Station	Aerial	**FAIR** Crossing gates and existing signalized intersections with crosswalk with new driveway	**FAIR** Sidewalk and curb ramps at specific locations	**FAIR** Station is located behind several buildings, but sight visibility is adequate from aerial station	**FAIR** Project provides lighting	**FAIR** Industrial with no issues
South Gate, Downey	Firestone to Gardendale	Guideway	Aerial, At-Grade	**GOOD** Crossing gates and existing signalized intersections with crosswalk	N/A	**GOOD** No issues	**GOOD** Area is well-lit	**GOOD** Residential and commercial with no issues
Downey,	Gardendale	Station	At-Grade	**GOOD** Signalized intersection with crosswalk improvements	**GOOD** Sidewalk and curb ramp improvement	**GOOD** No issues	**GOOD** Project provides lighting	**FAIR** Industrial with no issues
Downey, South Gate	Gardendale to I-105/C Line	Guideway	At-Grade	**GOOD** Crossing gates and existing signalized intersections with crosswalk	N/A	**GOOD** No issues	**GOOD** Area is well-lit	**FAIR** Industrial with no issues

City	Segment	Type	Configuration	Traffic Safety	Access/ Accessibility	Sight Visibility	Lighting	Urban Design
Alternatives 1, 2, 3, and 4								
South Gate	I-105/C Line **[P]**	Station	At-Grade	**GOOD** Crossing gates and crosswalk	**GOOD** Curb ramps, pedestrian walkway from C Line station, direct access from parking facility	**GOOD** No issues	**GOOD** Area is well-lit	**GOOD** Residential and industrial with no issues
South Gate, Paramount	I-105/C Line to Paramount/Rosecrans	Guideway	At-Grade, Aerial	N/A	N/A	N/A	N/A	**GOOD** Residential and industrial with no issues
Paramount	Paramount/Rosecrans **[P]**	Station	Aerial	**GOOD** Existing signalized intersections with crosswalks	**GOOD** Direct access from parking facility	**GOOD** No issues	**GOOD** Area is well-lit	**GOOD** Residential and commercial with no issues
Paramount, Bellflower	Paramount/Rosecrans to Bellflower	Guideway	Aerial, At-Grade	**GOOD** Crossing gates and existing signalized intersections with crosswalk	N/A	**GOOD** No issues	**GOOD** Area is well-lit	**GOOD** Residential and commercial with no issues

City	Segment	Type	Configuration	Traffic Safety	Access/ Accessibility	Sight Visibility	Lighting	Urban Design
Bellflower	Bellflower **[P]**	Station	At-Grade	**GOOD** Crossing gates and existing signalized intersections with crosswalks	**GOOD** New curb ramps	**GOOD** No issues	**GOOD** Area is well-lit	**GOOD** Residential and commercial with no issues
Bellflower, Cerritos, Artesia	Bellflower to Pioneer	Guideway	At-Grade, Aerial	**GOOD** Crossing gates and existing signalized intersections with crosswalks	N/A	**GOOD** No issues	**GOOD** Area is well-lit	**GOOD** Residential and commercial with no issues
Artesia	Pioneer **[P]**	Station	At-Grade	**GOOD** Crossing gates and existing signalized intersections with crosswalks	**GOOD** Direct access from parking facility	**GOOD** No issues	**GOOD** Area is well-lit	**GOOD** Residential and commercial with no issues

Source: Metro 2021. Note: [P] = Stations with parking; MWD = Metropolitan Water District

Because Alternative 1 would follow MUTCD standards, would observe all applicable traffic laws, would implement and follow CPUC and local safety requirements, and would incorporate the previously described design features to minimize the potential occurrences of accidents, the potential for impacts would be minimized. Under NEPA, Alternative 1 would not result in adverse effects related to safety and security to motorists would not be required.

5.2.5 Emergency Response Services

Potential impacts on emergency response services would occur if Alternative 1 were to interfere with local jurisdictions' emergency response plans or delay emergency service providers. Delays could occur due to at-grade crossing gate down-times. Other potential impacts could include modifications to emergency preparedness and planning, changes in the ability to provide fast and efficient response to emergencies or disasters, and the broader ability to minimize risk to the safety and health of passengers, employees, and emergency response personnel. Furthermore, Alternative 1 would result in cul-de-sacs at Long Beach Avenue, 14th Street, and Newton Street to prevent pass through traffic in order to accommodate the transition of the alignment from underground to an aerial configuration, in preparation for crossing over I-10 freeway. This may potentially delay emergency vehicles in accessing these streets.

A comprehensive Emergency Preparedness Plan (EPP) that can be integrated with emergency service providers, local jurisdictional emergency response plans, and Metro's existing EPP procedures would be developed for operation of Alternative 1, as required by the FTA. The EPP would establish the roles and responsibilities that would be carried out not only by Metro personnel, but also by various emergency response agencies in the event of a fire, medical, or security emergency.

To address the potential impacts, including demands on the resources of existing community emergency services providers, Metro's policing contract with LACSD, LAPD, and LBPD would include security coverage for Alternative 1. Fire safety would be addressed through design considerations and requirements. Compliance with and utilization of the Metro Fire/Life Safety Design Criteria, which outline specific requirements for fire protection at stations, along the alignment, and within LRVs, would also be required. Specific elements would include providing fire alarm control systems at each enclosed station facility and a public-address system at each station. The stations and the LRVs would also be equipped with CCTV systems monitored by Metro personnel. All Metro LRVs currently in service are equipped with fire extinguishers in case of a fire, and the vehicles are built to specifications that minimize fire hazards, such as using materials with minimum burning rates, smoke generation, and toxicity characteristics. Any new LRVs purchased for Alternative 1 would have similar specifications and equipment.

Additionally, the MRDC, or equivalent, for sprinkler systems and standpipe connections for fire response, as well as adherence to the regulations described in Section 2, would reduce the demand for supplemental emergency services. Traffic signal improvements and adherence to MUTCD would reduce the potential for delay to emergency response services. In addition, numerous local fire stations are located within a 0.5-mile radius of the proposed alignment and stations throughout the corridor. Refer to Figure 4-3 for a map of fire stations and Figure 4-4 for a map of hospitals along Alternative 1.

Metro, in coordination with the local jurisdictions, would develop traffic work plans to reduce delays in emergency service provider response times. Gate operations at grade crossings

would be configured in accordance with CPUC standards as part of Alternative 1, and traffic mitigation measures, in accordance with the *West Santa Ana Branch Transit Corridor Project Transportation Impact Analysis Report* (Metro 2021), would include optimization of traffic signals and lane modifications near Alternative 1 to minimize potential delays in response times. The development of Alternative 1 would include coordination with police and fire services to develop operation plans and provide appropriate public safety and security for the Metro system. The LACSD, LAPD, and LBPD policing contract with Metro would be extended to include Alternative 1. In addition to the Metro policing services, there are several local police stations located within a 1-mile radius of the proposed alignment and stations throughout the corridor that would provide continued and ongoing safety and enforcement services. Refer to Figure 4-2 for a map of police stations along Alternative 1.

The previously described coordination, design features, and operational requirements would minimize the potential for overtaxing emergency service providers and delaying emergency response times. Under NEPA, Alternative 1 would not result in adverse effects related to emergency responses services and mitigation would not be required.

5.2.6 Seismic Safety

Although there are no known active faults capable of ground rupture within the Affected Area, Alternative 1's stations, alignment (particular aerial and tunnel structures), and parking facilities could be susceptible to ground shaking and seismically induced settlement. While these susceptibilities exist, all structures would be designed to meet applicable current seismic design standards, including those of Metro. These standards include provisions for a no-collapse design so that the aerial structures would not collapse during a maximum credible earthquake. A maximum credible earthquake is defined as the largest earthquake that can reasonably be expected to be generated, based on seismological and geological evidence.

Metro has established operating procedures in the case of a seismic event during operation, which includes the following steps:

- Metro Rail Operations Center immediately notifies train operators of an earthquake
- All trains are stopped at the next station (if not already at one)
- Operations staff inspect signaling and electronics to see if the system functions
- Trains are put on restricted speed to allow the train operator to inspect the track for any signs of damage

Alternative 1 would meet the structural design standards and building codes to minimize the potential hazards of a seismic event. Under NEPA, Alternative 1 would not result in adverse effects related to seismic safety and mitigation would not be required.

5.2.7 Security and Prevention of Crime and Terrorism

Security issues that could occur on or near the Build Alternatives include assault, robbery, or other crimes associated with and against patrons congregating and utilizing the LRT system. The Build Alternatives could be vulnerable to public demonstrations, trespassing onto track ROW, and vehicle-borne or other improvised explosive devices. Public demonstrations and large-scale disturbances could introduce an adverse effect.

To help prevent crime and terrorism activity, Metro contracts law enforcement personnel from LACSD, LAPD, and LBPD on the transit system during hours of operation. The multi-agency law enforcement in the Metro system allows local jurisdictions to be positioned for active and

timely response to emergency calls. It also includes delivery of dedicated service and proactive security patrols and provides flexibility to enhance security as the transit system expands to include Alternative 1. According to the Transit Law Enforcement Services Metro Board Report (Metro 2017c), Metro's policing contract provides consistent and reliable staffing of approximately 314 law enforcement officers per 24-hour period.

In addition to these enforcement contracts, every station would have the necessary lighting system to provide visibility around the entire station both during the day and night, as specified by local city requirements and MRDC or equivalent. Lighting would illuminate the stairs, escalators, elevators, and station platforms without causing darkness or shadow areas or light trespass to adjacent properties. The stations and the LRVs would be equipped with CCTV systems to provide surveillance. Cameras would be mounted where a constant and uninterrupted view is provided to allow monitoring by Metro personnel. Additionally, emergency call boxes would be available in all stations for public use in case of emergency, and each LRV would have an operator that could be contacted by passengers via an intercom system. To reduce the risk of trespassing, Alternative 1 would also have access controls along the ROW, including barriers and signing.

The Build Alternatives would require permanent closures at Long Beach Avenue, 14th Street, and Newton Street roadway crossings to accommodate the transition of the alignment from underground to an aerial configuration, in preparation for crossing over I-10 freeway. These closures would result in the creation of dead-end roads, forming cul-de-sacs on both sides. Security issues could arise as a result of these dead ends, increasing the potential for crimes such as assault and robbery. Appropriate illumination would be necessary to minimize low-light conditions and avoid darkness.

The stations would be designed to provide the natural surveillance, natural access control, and territoriality principles associated with the CPTED. An example of natural surveillance is decreasing target opportunities in a space by placing physical features, activities, and people to maximize visibility. Natural access control deters entry along the boundary with the exception of designated entries through the judicial placement of entrances, exits, barriers, landscaping, and lighting. This concept denies access to crime targets and creates a perception of risk for adversaries. The territoriality principle notifies users and nonusers of the boundaries of a space/area or facility by creating a sense that users of the space are being watched and that the community is the space for purposeful activities.

Alternative 1 would include parking facilities at the following stations: Firestone, I-105/C Line, Paramount/Rosecrans, Bellflower, and Pioneer. The parking facilities would be designed to address the potential for criminal activities such as motor vehicle theft and property theft. Current Metro system security features include CCTV, emergency call boxes, and lighted parking facilities.

In concert with the measures described previously and prior to the start of operations, Metro would establish a Fire/Life Safety Committee during the preliminary engineering phase. The committee would be responsible for assessing the Project and recommending any design changes to Alternative 1 and recommended implementation measures, if necessary, to improve crime prevention for Alternative 1. Finally, a complete Threat and Vulnerability Assessment in

compliance with FTA regulations would be conducted for Alternative 1 and include a response and evacuation plan. Key provisions of the TVA that the assessment would verify:

- Various threat scenarios that may be applicable to Alternative 1's assets.
- Consequences and possible effects resulting from credible criminal and terrorist threats.
- Prioritized risk assessment based on potential consequences and probability.

Compliance with FTA regulations, the CPTED, and security patrols would minimize potential security concerns associated with the previously described threats. The Build Alternatives would be designed to address these threats. Under NEPA, Alternative 1 would not result in adverse effects related to security and prevention of crime and terrorism and mitigation would not be required.

5.3 Alternative 2

5.3.1 Transit System Safety

Alternative 2 is substantially similar to Alternative 1, as described in Section 5.2.1, in regard to transit system safety conditions, potential impacts, and effect determinations as both alternatives terminate at underground stations adjacent to major transit hubs. The conclusions and effect determinations provided for Alternative 1 would also be applicable to Alternative 2. Therefore, adverse effects would not occur for Alternative 2. Under NEPA, Alternative 2 would not result in adverse effects to safety and security related to transit system and mitigation would not be required.

5.3.2 Freight Safety

Alternative 2 is substantially similar to Alternative 1 in regard to freight safety, potential impacts, and effect determinations as both alternatives would share freight ROW in the same areas. The conclusions and effect determinations provided for Alternative 1, as described in 5.2.2, would also be applicable to Alternative 2 and, therefore, would be substantially similar to the Alternative 1. Under NEPA, Alternative 2 would result in adverse effects related to safety and security prior to the implementation of Mitigation Measure SAF-1 (Encroachment Detection) (see Section 8.2.1), which would detect potential derailments that may occur on Metro ROW. After implementation of Mitigation Measure SAF-1 (Encroachment Detection) (see Section 8.2.1), Alternative 2 would not result in adverse effects related to safety and security related to freight.

5.3.3 Pedestrian and Bicyclist Safety

Alternative 2 is substantially similar to Alternative 1, as described in Section 5.2.3, in regard to pedestrian and bicycle safety conditions, potential impacts, and effect determinations because both alternatives terminate at underground stations adjacent to major transit hubs. Refer to Table 5.2 for a summary of safety and security conditions relative to pedestrians and bicyclists for Alternative 2. The conclusions and effect determinations provided for Alternative 1 would also be applicable to Alternative 2. Under NEPA, Alternative 2 would not result in adverse effects to safety and security for pedestrians and bicyclists and mitigation would not be required.

Refer to Table 5.2 for a summary of safety and security conditions relative to pedestrians and bicyclists for Alternative 2.

5.3.4 Motorist Safety

Alternative 2 is substantially similar to Alternative 1, as described in Section 5.2.3, in regard to motorist safety conditions, potential impacts, and effect determinations because both alternatives terminate at underground stations adjacent to major transit hubs. The conclusions and effect determinations provided for Alternative 1 would also be applicable to Alternative 2. Under NEPA, Alternative 2 would not result in adverse effects to safety and security for motorists and mitigation would not be required.

5.3.5 Emergency Response Services

Alternative 2 is substantially similar to Alternative 1, as described in Section 5.2.5, in regard to emergency response service conditions, potential impacts, and effect determinations as both alternatives terminate at underground stations adjacent to major transit hubs. The conclusions and effect determinations provided for Alternative 1 would also be applicable to Alternative 2. Under NEPA, Alternative 2 would not result in adverse effects to safety and security for emergency response services and mitigation would not be required.

5.3.6 Seismic Safety

Alternative 2 is substantially similar to Alternative 1, as described in Section 5.2.6, in regard to seismic safety conditions, potential impacts, and effect determinations as both alternatives terminate at underground stations adjacent to major transit hubs. The conclusions and effect determinations provided for Alternative 1 would also be applicable to Alternative 2. Under NEPA, Alternative 2 would not result in adverse effects to seismic safety and mitigation would not be required.

5.3.7 Security and Prevention of Crime and Terrorism

Alternative 2 is substantially similar to Alternative 1, as described in Section 5.2.7, in regard to security and crime conditions, potential impacts, and effect determinations because both alternatives terminate at underground stations adjacent to major transit hubs. The conclusions and effect determinations provided for Alternative 1 would also be applicable to Alternative 2. Under NEPA, Alternative 2 would not result in adverse effects to security and prevention of crime and terrorism and mitigation would not be required.

5.4 Alternative 3

5.4.1 Transit System Safety

While Alternative 3 would result in a shorter alignment and fewer stations than Alternatives 1 and 2, Alternative 3 would be substantially similar to Alternative 1 in regard to transit system safety, as described in Section 5.2.1, potential impacts, and effect determinations. The conclusions and effect determinations provided for Alternative 1 would also be applicable to Alternative 3. Under NEPA, Alternative 3 would not result in adverse effects to safety and security related to transit system and mitigation would not be required.

5.4.2 Freight Safety

Alternative 3 would reduce the length of shared ROW with freight operations from 11.4 miles to 10.1 miles compared to Alternatives 1 and 2. Under Alternative 3, LRVs would share ROW with freight operations along the Wilmington Branch (0.5 mile), the PEROW (1.2 miles), the San Pedro Subdivision (6.1 miles), and the La Habra Branch (2.3 miles). Despite the reduction in miles of shared ROW with freight operations, the same freight operating

conditions, potential impacts, and effect determinations for Alternative 1, as described in Section 5.2.2, would still exist under Alternative 3. Under NEPA, Alternative 3 would result in adverse effects related to safety and security prior to the implementation of Mitigation Measure SAF-1 (see Section 8.2.1), which would detect potential derailments that may occur on Metro ROW. After implementation of Mitigation Measure SAF-1 (Encroachment Detection) (see Section 8.2.1), Alternative 3 would not result in adverse effects related to safety and security related to freight.

5.4.3 Pedestrian and Bicycle Safety

Alternative 3 would be substantially similar to Alternative 1 in regard to pedestrian and bicycle safety, as described in Section 5.2.3, potential impacts, and effect determinations. The conclusions and effect determinations provided for Alternative 1 would also be applicable to Alternative 3.

However, terminus stations generally have increased pedestrian and bicycle demand that could result in higher potential for safety hazards to occur, such as crime and pedestrian safety. Under Alternative 3, Pioneer Station would remain the southern terminus; however, the northern terminus would be located at the Slauson/A Line Station instead. The Slauson/A Line Station would also continue to serve as a transfer point and would be designed to accommodate anticipated pedestrian activity. As a result of the shorter alignment, ridership demand would be approximately 60 percent lower than the other alternatives. While the reduction in ridership would change station patronage, the same safety and security conditions, potential impacts, and effect determinations would still exist at both terminus stations and, therefore, would be substantially similar to those effects identified at the termini of the other alternatives.

Refer to Table 5.2 for a summary of safety and security conditions relative to pedestrians and bicyclists for Alternative 3.

Under NEPA, Alternative 3 would not result in adverse effects to safety and security for pedestrians and bicyclists and mitigation would not be required.

5.4.4 Motorist Safety

While Alternative 3 would result in a shorter alignment and fewer stations than Alternatives 1 and 2, the number of at-grade crossings and service frequencies would not be reduced (train headways would remain the same). Alternative 3 would be substantially similar to Alternative 1 in regard to motorist safety, as described in Section 5.2.4, potential impacts, and effect determinations. Under NEPA, Alternative 3 would not result in adverse effects to safety and security for motorists and mitigation would not be required.

5.4.5 Emergency Response Services

Alternative 3 would result in a shorter alignment and fewer stations, which would slightly reduce the number of affected emergency responders (e.g., police, fire, and medical) relative to Alternatives 1 and 2. However, the conditions for the emergency response services within Alternative 3 would be substantially similar to Alternative 1. The impact conclusions related to emergency response services for Alternative 1, as described in Section 5.2.5, are also applicable to Alternative 3. Under NEPA, Alternative 3 would not result in adverse effects to safety and security for emergency response services and mitigation would not be required.

5.4.6 Seismic Safety

Alternative 3 is substantially similar to Alternative 1, as described in Section 5.2.6, in regard to seismic safety conditions, potential impacts, and effect determinations as both alternatives terminate at underground stations adjacent to major transit hubs. The conclusions and effect determinations provided for Alternative 1 would also be applicable to Alternative 3. Under NEPA, Alternative 3 would not result in adverse effects to safety and security for seismic safety and mitigation would not be required.

5.4.7 Security and Prevention of Crime and Terrorism

Alternative 3 would be substantially similar to Alternative 1 in regard to security and prevention of crime and terrorism, as described in Section 5.2.7, potential impacts, and effect determinations. The conclusions and effect determinations provided for Alternative 1 would also be applicable to Alternative 3. Under NEPA, Alternative 3 would not result in adverse effects to security and prevention of crime and terrorism and mitigation would not be required.

5.5 Alternative 4

5.5.1 Transit System Safety

While Alternative 4 would result in a shorter alignment and fewer stations than Alternatives 1, 2, and 3, Alternative 4 would be substantially similar to Alternative 1 in regard to transit system safety, as described in Section 5.2.1, potential impacts, and effect determinations. The conclusions and effect determinations provided for Alternative 1 would also be applicable to Alternative 4. Under NEPA, Alternative 4 would not result in adverse effects to safety and security related to transit system and mitigation would not be required.

5.5.2 Freight Safety

Alternative 4 would reduce the length of shared ROW with freight operations from 11.4 miles to 2.0 miles compared to Alternatives 1 and 2. Under Alternative 4, LRVs would share ROW with freight operations for a shorter segment (0.8 mile) within the San Pedro Branch and continue to share ROW with freight operations related to the World Energy facility along the PEROW for approximately 1.2 miles. Despite the reduction in miles of shared ROW with freight operations, the same safety and security conditions, potential impacts, and effect determinations for Alternative 1, as described in Section 5.2.2, would still exist under Alternative 4 and, therefore, would be substantially similar to Alternative 1. As a result, the identified impacts would still be substantial and there would be an adverse effect without mitigation because of the potential for derailment and collision as a result of the shared ROW with freight operations under Alternative 4. Under NEPA, Alternative 4 would result in adverse effects related to safety and security prior to the implementation of Mitigation Measure SAF-1 (Encroachment Detection) (see Section 8.2.1), which would detect potential derailments that may occur on Metro ROW. After implementation of Mitigation Measure SAF-1 (Encroachment Detection) (see Section 8.2.1), Alternative 4 would not result in adverse effects related to safety and security related to freight.

5.5.3 Pedestrian and Bicycle Safety

While Alternative 4 would result in a shorter alignment and fewer stations than Alternatives 1, 2, and 3, Alternative 4 would be substantially similar to Alternative 1 in regard to pedestrian and bicycle safety, as described in Section 5.2.3, potential impacts, and effect

determinations. The conclusions and effect determinations provided for Alternative 1 would also be applicable to Alternative 4. Therefore, adverse effects would not occur for Alternative 4.

However, terminus stations generally have increased pedestrian and bicycle demand that may result in greater potential for safety hazards to occur, such as crime and general pedestrian safety. Under Alternative 4, Pioneer Station would remain the southern terminus; however, the northern terminus would be located at I-105/C Line Station instead. The I-105/C Line Station would also continue to serve as a transfer point and would be designed to accommodate anticipated pedestrian activity. As a result of the shorter alignment, ridership demand would be approximately 85 percent lower than the other alternatives. While this reduction in ridership would change station patronage, the same safety and security conditions, potential impacts, and effect determinations would still exist at both terminus stations and would therefore be substantially similar to those effects identified at the termini of the other alternatives described above.

Refer to Table 5.2 for a summary of safety and security conditions relative to pedestrians and bicyclists for Alternative 2.

Under NEPA, Alternative 4 would not result in adverse effects to safety and security for pedestrians and bicyclists and mitigation would not be required.

5.5.4 Motorist Safety

For Alternative 4, the number of at-grade crossings would be reduced to 12 compared to 32 under Alternatives 1, 2, and 3. Service frequencies would not be reduced (train headways would remain the same) at the 12 at-grade crossing locations under Alternative 4. Nonetheless, the impact conclusions for Alternative 1 described in Section 5.2.4 for motorist safety are applicable to Alternative 4. Therefore, Alternative 4 would have the same or slightly reduced impacts. Under NEPA, Alternative 4 would not result in adverse effects to safety and security for motorists and mitigation would not be required.

5.5.5 Emergency Response Services

Alternative 4 would result in a shorter alignment and fewer stations and reduced number of affected emergency responders (e.g., police, fire, and medical). However, the conditions for the emergency response services within Alternative 4 would be substantially similar to the other alternatives. The impact conclusions related to emergency response services for Alternative 1, described in Section 5.2.5, would also be applicable to Alternative 4. Under NEPA, Alternative 4 would not result in adverse effects to safety and security for emergency response services and mitigation would not be required.

5.5.6 Seismic Safety

Alternative 4 is substantially similar to Alternative 1, as described in Section 5.2.6, in regard to seismic safety conditions, potential impacts, and effect determinations as both alternatives terminate at underground stations adjacent to major transit hubs. The conclusions and effect determinations provided for Alternative 1 would also be applicable to Alternative 4. Under NEPA, Alternative 4 would not result in adverse effects to safety and security for seismic safety and mitigation would not be required.

5.5.7 Security and Prevention of Crime and Terrorism

While Alternative 4 would result in a shorter alignment and fewer stations than Alternatives 1, 2, and 3, the number of at-grade crossings and service frequencies would remain the same. Alternative 4 would be substantially similar to Alternative 1 in regard to security and prevention of crime and terrorism, as described in Section 5.2.7, potential impacts, and effect determinations. The conclusions and effect determinations provided for Alternative 1 would also be applicable to Alternative 4. Under NEPA, Alternative 4 would not result in adverse effects to security and prevention of crime and terrorism and mitigation would not be required.

5.6 Design Options

5.6.1 Design Option 1

5.6.1.1 Transit System Safety

Design Option 1 is substantially similar to Alternative 1 in regard to transit system safety conditions, potential impacts, and effect determinations. The conclusions and effect determinations provided for Alternative 1 would also be applicable to Design Option 1. Under NEPA, Design Option 1 would not result in adverse effects to safety and security related to transit system and mitigation would not be required.

5.6.1.2 Freight Safety

No freight operations would occur as part of Design Option 1. Under NEPA, Design Option 1 would not result in adverse effects to safety and security related to freight and mitigation would not be required.

5.6.1.3 Pedestrian and Bicyclist Safety

Design Option 1 is substantially similar to Alternative 1 in regard to pedestrian and bicycle safety conditions, potential impacts, and effect determinations. The conclusions and effect determinations provided for Alternative 1 would also be applicable to Design Option 1. Under NEPA, Design Option 1 would not result in adverse effects to safety and security related to pedestrians and bicyclists and mitigation would not be required.

5.6.1.4 Motorist Safety

Design Option 1 is substantially similar to Alternative 1 in regard to motorist safety conditions, potential impacts, and effect determinations. The conclusions and effect determinations provided for Alternative 1 would also be applicable to Design Option 1. Under NEPA, Design Option 1 would not result in adverse effects to safety and security related to motorists and mitigation would not be required.

5.6.1.5 Emergency Response Services

Design Option 1 is substantially similar Alternative 1 in regard to emergency response service conditions, potential impacts, and effect determinations. The conclusions and effect determinations provided for Alternative 1 would also be applicable to Design Option 1. Under NEPA, Design Option 1 would not result in adverse effects to safety and security related to emergency response services and mitigation would not be required.

5.6.1.6 Seismic Safety

Design Option 1 is substantially similar Alternative 1 in regard to security safety, potential impacts, and effect determinations. The conclusions and effect determinations provided for Alternative 1 would also be applicable to Design Option 1. Under NEPA, Design Option 1 would not result in adverse effects to seismic safety a and mitigation would not be required.

5.6.1.7 Security and Prevention of Crime and Terrorism

Design Option 1 is substantially similar to Alternative 1 in regard to security and crime conditions, potential impacts, and effect determinations. The conclusions and effect determinations provided for Alternative 1 Alternatives would also be applicable to Design Option 1. Under NEPA, Design Option 1 would not result in adverse effects to safety and security related to security and prevention of crime and terrorism and mitigation would not be required.

5.6.2 Design Option 2

5.6.2.1 Transit System Safety

Design Option 2 is substantially similar to Alternative 1 in regard to transit system safety conditions, potential impacts, and effect determinations. The conclusions and effect determinations provided for Alternative 1 would also be applicable to Design Option 2. Under NEPA, Design Option 2 would not result in adverse effects to safety and security related to transit system and mitigation would not be required.

5.6.2.2 Freight Safety

No freight operations would occur as part of Design Option 2. Under NEPA, Design Option 2 would not result in adverse effects to safety and security related to freight and mitigation would not be required.

5.6.2.3 Pedestrian and Bicyclist Safety

Design Option 2 is substantially similar to Alternative 1 in regard to pedestrian and bicycle safety conditions, potential impacts, and effect determinations. The conclusions and effect determinations provided for Alternative 1 would also be applicable to Design Option 2. Under NEPA, Design Option 2 would not result in adverse effects to safety and security related to pedestrians and bicyclists and mitigation would not be required.

5.6.2.4 Motorist Safety

Design Option 2 is substantially similar to Alternative 1 in regard to motorist safety conditions, potential impacts, and effect determinations. The conclusions and effect determinations provided for Alternative 1 would also be applicable to Design Option 2. Under NEPA, Design Option 2 would not result in adverse effects to safety and security related to motorists and mitigation would not be required.

5.6.2.5 Emergency Response Services

Design Option 2 is substantially similar to Alternative 1 in regard to emergency response service conditions, potential impacts, and effect determinations. The conclusions and effect determinations provided Alternative 1 would also be applicable to Design Option 2. Under NEPA, Design Option 2 would not result in adverse effects to safety and security related to emergency response services and mitigation would not be required.

5.6.2.6 Seismic Safety

Design Option 2 is substantially similar to Alternative 1 in regard to security safety, potential impacts, and effect determinations. The conclusions and effect determinations provided for Alternative 1 would also be applicable to Design Option 2. Under NEPA, Design Option 2 would not result in adverse effects to seismic safety a and mitigation would not be required.

5.6.2.7 Security and Prevention of Crime and Terrorism

Design Option 2 is substantially similar to Alternative 1 in regard to security and crime conditions, potential impacts, and effect determinations. The conclusions and effect determinations provided for the Alternative 1 would also be applicable to Design Option 2. Under NEPA, Design Option 2 would not result in adverse effects to safety and security related to security and prevention of crime and terrorism and mitigation would not be required.

5.7 Maintenance and Storage Facility

5.7.1 Paramount Maintenance and Storage Facility Site Option

5.7.1.1 Transit and Freight System Safety

The Paramount MSF site would be closed to the public and only employee-related work would occur. The employee-related work at the MSF site would be completed consistent with Occupational Safety and Health Administration (OSHA) requirements, and employees would follow the procedures in Metro's latest Rail Operating Rulebook for transit system safety. No freight operations would occur within the MSF site. Under NEPA, the Paramount MSF would not result in adverse effects to safety and security related to transit system and mitigation would not be required.

5.7.1.2 Freight Safety

No freight operations would occur within the Paramount MSF site. Under NEPA, Paramount MSF would not result in adverse effects to safety and security related to freight and mitigation would not be required.

5.7.1.3 Pedestrian and Bicyclist Safety

The Paramount MSF site would be closed to the public and only employee-related work would occur at the selected site. Access to the Paramount MSF site would be strictly controlled by an onsite guard and security team, as well as barriers around the perimeter of the maintenance yard to prohibit unauthorized access into the yard. Therefore, no adverse effects related to pedestrian and bicyclist safety would occur. Under NEPA, Paramount MSF would not result in adverse effects to safety and security related to pedestrians and bicyclists and mitigation would not be required.

5.7.1.4 Motorist Safety

The Paramount MSF site would be closed to the public and only employee-related work would occur at the selected site. Access to the Paramount MSF site would be strictly controlled by an onsite guard and security team, as well as barriers around the perimeter of the maintenance yard to prohibit unauthorized access into the yard. Under NEPA, Paramount MSF would not result in adverse effects to safety and security related to motorists and mitigation would not be required.

5.7.1.5 Emergency Response Services

The Paramount MSF site would not interfere with emergency response services because there are no at-grade crossings. Under NEPA, Paramount MSF would not result in adverse effects to safety and security related to emergency response services and mitigation would not be required.

5.7.1.6 Seismic Safety

The Paramount MSF is substantially similar to Alternative 1 in regard to seismic safety. The conclusions and effect determinations provided for Alternative 1 would also be applicable to Design Option 2. Under NEPA, Paramount MSF would not result in adverse effects to seismic safety a and mitigation would not be required.

5.7.1.7 Security and Prevention of Crime and Terrorism

The Paramount MSF site options would be designed in accordance with the MRDC or equivalent. As part of the MRDC, or equivalent" to deter crime and terrorism, the Paramount MSF would include CCTV, emergency call boxes, and the necessary lighting to provide visibility around the entire facility day and night. Access to the MSF site would be strictly controlled by an onsite guard and security team, as well as barriers around the perimeter of the maintenance yard to prohibit unauthorized access into the yard. Under NEPA, Paramount MSF would not result in adverse effects to safety and security related to security and prevention of crime and terrorism and mitigation would not be required.

5.7.2 Bellflower Maintenance and Storage Facility Site Option

5.7.2.1 Transit System Safety

The Bellflower MSF site would be closed to the public, and only employee-related work would occur at the selected site. The employee-related work at the MSF would be completed consistent with OSHA requirements, and employees would follow the procedures in Metro's latest Rail Operating Rulebook for transit system safety. The conclusions and effect determinations provided for the Paramount MSF would also be applicable to the Bellflower MSF site. Under NEPA, the Bellflower MSF would not result in adverse effects to safety and security related to transit system and mitigation would not be required.

5.7.2.2 Freight Safety

No freight operations would occur within the Bellflower MSF site. Under NEPA, Bellflower MSF would not result in adverse effects to safety and security related to freight and mitigation would not be required.

5.7.2.3 Pedestrian and Bicyclist Safety

The Bellflower MSF site would be closed to the public and only employee-related work would occur at the selected site. Access to the Bellflower MSF site would be strictly controlled by an onsite guard and security team, as well as barriers around the perimeter of the maintenance yard to prohibit unauthorized access into the yard. Under NEPA, Bellflower MSF would not result in adverse effects to safety and security related to pedestrians and bicyclists and mitigation would not be required.

5.7.2.4 Motorist Safety

The Bellflower MSF site would be closed to the public and only employee-related work would occur at the selected site. Access to the Bellflower MSF site would be strictly controlled by an onsite guard and security team, as well as barriers around the perimeter of the maintenance yard to prohibit unauthorized access into the yard. Under NEPA, Bellflower MSF would not result in adverse effects to safety and security related to motorists and mitigation would not be required.

5.7.2.5 Emergency Response Services

The Bellflower MSF site would not interfere with emergency response services because there are no at-grade crossings. Under NEPA, Bellflower MSF would not result in adverse effects to safety and security related to emergency response services and mitigation would not be required.

5.7.2.6 Seismic Safety

The Paramount MSF is substantially similar to Alternative 1 in regard to seismic safety. The conclusions and effect determinations provided for Alternative 1 would also be applicable to Design Option 2. Under NEPA, Bellflower MSF would not result in adverse effects to seismic safety a and mitigation would not be required.

5.7.2.7 Security and Prevention of Crime and Terrorism

The Bellflower MSF site would be designed in accordance with the MRDC or equivalent. As part of the MRDC or equivalent to deter crime and terrorism, the Bellflower MSF would include CCTV, emergency call boxes, and the necessary lighting to provide visibility around the entire facility day and night. Access to the MSF site would be strictly controlled by an onsite guard and security team, as well as barriers around the perimeter of the maintenance yard to prohibit unauthorized access into the yard. Under NEPA, Bellflower MSF would not result in adverse effects to safety and security related to security and prevention of crime and terrorism and mitigation would not be required.

6 CEQA DETERMINATION

Appendix G of the CEQA Guidelines does not have specific thresholds for safety and security impacts; however, impacts regarding safety and security is addressed through the following CEQA thresholds.

6.1 Would the Project Impair Implementation of or Physically Interfere with an Adopted Emergency Response Plan or Emergency Evacuation Plan?

6.1.1 No Project Alternative

Under the No Project Alternative, no design features of the Build Alternatives would be introduced that would change the existing conditions within the Affected Area and emergency plans would remain unchanged. No impacts to emergency response services would occur.

6.1.1.1 Mitigation Measures

No mitigation measures required.

6.1.1.2 Impacts Remaining After Mitigation

Less than significant.

6.1.2 Alternative 1

As described in Section 5.2, there would be changes in the Affected Area because Alternative 1 would introduce operation of a new LRT route; however, Alternative 1 would not impair or interfere with adopted emergency response plans or evacuation plans, because evacuation plans would typically avoid crossing active rail corridors (U.S. Department of Health and Human Services 2003), and the at-grade portions of Alternative 1 are located within active rail corridors. The aerial and underground segments of Alternative 1 would not impair or interfere with adopted emergency response plans or emergency evacuation plans.

Alternative 1 would include development of a comprehensive EPP, in accordance with CPUC GO 164-E, that would be integrated with local jurisdictional emergency response plans. The EPP would establish and coordinate the roles and responsibilities that would be carried out by Metro personnel and by various emergency response agencies in the event of a fire, medical, or security emergency. In addition to the EPP, a Fire/Life Safety Report would be developed to explain the safety features in the proposed tunnels and stations, the design specifics related to emergency access and egress, and the security and fire suppression systems.

In accordance with FTA's System Safety Program Plans (49 CFR 659) and CPUC GO 164-E requirements, Metro would be responsible for implementing or conducting the TVA, Safety and Security Certification Plan, System Safety Management Plan provisions, and hazard analyses. Metro's Fire/Life Safety Committee would be responsible for overseeing project compliance with NFPA 130 and Metro's Fire/Life Safety Design Criteria, as well as coordination with fire jurisdictions for design reviews, training, and familiarization. The

operation of Alternative 1 would not impair or interfere with emergency response and evacuation plans. Therefore, impacts for Alternative 1 would be less than significant.

6.1.2.1 Mitigation Measures

No mitigation measures required.

6.1.2.2 Impacts Remaining After Mitigation

Less than significant.

6.1.3 Alternative 2

Alternative 2 is substantially similar to Alternative 1, as described in Section 5.3, in regard to emergency response plans or emergency evacuation plans and potential impacts determinations. The conclusions and impact determinations provided for Alternative 1 would also be applicable to Alternative 2. Therefore, impacts for Alternative 2 would be less than significant.

6.1.3.1 Mitigation Measures

No mitigation measures required.

6.1.3.2 Impacts Remaining After Mitigation

Less than significant.

6.1.4 Alternative 3

As described in Section 5.4, Alternative 3 would result in shorter alignments and fewer stations than the other alternatives, resulting in a reduction of potential impacts to the number of emergency response plans or emergency evacuation plans. Alternative 3 would still be substantially similar to Alternative 1 in regard to emergency response plans or emergency evacuation plans and potential impacts determinations mentioned previously. Therefore, impacts for Alternative 3 would be less than significant, and no mitigation measures would be required.

6.1.4.1 Mitigation Measures

No mitigation measures required.

6.1.4.2 Impacts Remaining After Mitigation

Less than significant.

6.1.5 Alternative 4

As described in Section 5.5, Alternative 4 would result in shorter alignments and fewer stations than the other alternatives, resulting in a reduction of potential impacts to the number of emergency response plans or emergency evacuation plans. Alternative 4 would still be substantially similar to Alternative 1 in regard to emergency response plans or emergency evacuation plans and potential impacts determinations mentioned previously. Therefore, impacts for Alternative 4 would be less than significant, and no mitigation measures would be required.

6.1.5.1 Mitigation Measures

No mitigation measures required.

6.1.5.2 Impacts Remaining After Mitigation

Less than significant.

6.1.6 Design Options

As described in Section 5.6, both Design Options 1 and 2 are underground stations and would not interfere with emergency response plans or emergency evacuation plans. Therefore, no impact would occur.

6.1.6.1 Mitigation Measures

No mitigation measures required.

6.1.6.2 Impacts Remaining After Mitigation

No impact.

6.1.7 Maintenance and Storage Facilities

As describe in Section 5.7, both the Paramount and Bellflower MSF sites would not interfere with emergency response plans or emergency evacuation plans as there are no at-grade crossings. Therefore, no impact would occur.

6.1.7.1 Mitigation Measures

No mitigation measures required.

6.1.7.2 Impacts Remaining After Mitigation

No impact.

6.2 Would the Project Result in Substantial Adverse Physical Impacts Associated with the Provisions of New or Physically Altered Government Facilities, Need for New or Physically Altered Government Facilities, the Construction of which Could Cause Significant Environmental Impacts, in Order to Maintain Response Times or Other Performance Objectives for Fire and Police Protection Services?

6.2.1 No Project Alternative

Under the No Project Alternative, no design features of the Build Alternatives would be introduced that would change the existing conditions within the Affected Area and emergency plans would remain unchanged. No impacts to emergency response services would result.

6.2.2 Alternative 1

As described in Section 5.2, Alternative 1 would not result in substantial adverse physical impacts associated with the provision of new or physically altered government facilities or the need for new or physically altered government facilities to maintain response times or other performance objectives for fire and police protection services. Operation of Alternative 1 would not introduce the need for new or expanded facilities relative to emergency service providers, and there would not be any new buildings required for such services as a result of Alternative 1. Therefore, no impacts would occur under Alternative 1, and no mitigation measures would be required.

6.2.2.1 Mitigation Measures

No mitigation measures required.

6.2.2.2 Impacts Remaining After Mitigation

No impacts.

6.2.3 Alternative 2

Alternative 2 is substantially similar to Alternative 1, as described in Section 5.3, in regard to impacts associated with new or physically altered government facilities to maintain response times or other performance objectives for fire and police protection services. The conclusions and impact determinations provided for Alternative 1 would also be applicable to Alternative 2. Therefore, impacts would not occur under Alternative 2, and no mitigation measures would be required.

6.2.3.1 Mitigation Measures

No mitigation measures required.

6.2.3.2 Impacts Remaining After Mitigation

No impacts.

6.2.4 Alternative 3

As described in Section 5.4, while Alternative 3 would result in shorter alignments and fewer stations than Alternatives 1 and 2, Alternative 3 would be substantially similar to Alternative 1 in regard to impacts associated with new or physically altered government facilities to maintain response times or other performance objectives for fire and police protection services. The conclusions and impact determinations provided for Alternative 1 would also be applicable to Alternative 3. Therefore, no impacts would occur under Alternative 3, and no mitigation measures would be required.

6.2.4.1 Mitigation Measures

No mitigations measures required.

6.2.4.2 Impacts Remaining After Mitigation

No impacts.

6.2.5 Alternative 4

As described in Section 5.5, while Alternative 4 would result in shorter alignments and fewer stations than Alternatives 1, 2, and 3, Alternative 4 would be substantially similar to Alternative 1 in regard to impacts associated with new or physically altered government facilities to maintain response times or other performance objectives for fire and police protection services. The conclusions and impact determinations provided for Alternative 1 would also be applicable to Alternative 4. Therefore, no impacts would occur under Alternative 4, and no mitigation measures would be required.

6.2.5.1 Mitigation Measures

No mitigations measures required.

6.2.5.2 Impacts Remaining After Mitigation

No impact.

6.2.6 Design Options

As described in Section 5.6, both Design Options 1 and 2 are underground stations and would not result in new or physically altered government facilities to maintain response times or other performance objectives for fire and police protection services. Therefore, no impact would occur, and no mitigation measures are required.

6.2.6.1 Mitigation Measures

No mitigation measures required.

6.2.6.2 Impacts Remaining After Mitigation

No impact.

6.2.7 Maintenance and Storage Facilities

As described in Section 5.7, both the Paramount and Bellflower MSF sites would not result in new or physically altered government facilities to maintain response times or other performance objectives for fire and police protection services. Therefore, no impact would occur.

6.2.7.1 Mitigation Measures

No mitigation measures required.

6.2.7.2 Impacts Remaining After Mitigation

No impact.

6.3 Would the Project Substantially Increase Hazards Due to a Geometric Design Feature (e.g., Sharp Curves or Dangerous Intersections) or Incompatible Uses (e.g., Farm Equipment)?

6.3.1 No Project Alternative

Under the No Project Alternative, no design features of the Build Alternatives would be incorporated and would not result in an increase of hazards due to geometric design features or incompatible uses. However, one benefit related to pedestrian safety from the construction and operation of the Build Alternatives' would not be realized. As described and shown in

photos in Section 5.2.3.4, several at-grade crossings along the San Pedro Branch do not have existing sidewalks or pedestrian infrastructure, which the Build Alternatives would have provided to improve pedestrian safety conditions. Even without the benefits being realized, no impact would occur under the No Project Alternative.

6.3.1.1 Mitigation Measures

No mitigation measures required.

6.3.1.2 Impacts Remaining After Mitigation

No impact.

6.3.2 Alternative 1

As discussed in Section 5.2, for locations where Alternative 1 would cross streets at-grade, the addition of LRVs and an increase in the frequency of trains would be the primary new safety hazard for pedestrians, bicyclists, and vehicular traffic in the Affected Area. This impact would be addressed through design features of the LRV, such as audible warning devices to alert pedestrians, bicyclists, and vehicular traffic that an LRV is approaching. In accordance with the MRDC or equivalent, pedestrian and bicycle traffic control and channelization techniques would also be used to control pedestrian and bicycle movements at intersections and encourage the use of designated crossings through pedestrian gates and crosswalks. In addition, Metro would prepare grade crossing applications for approval by the CPUC and in coordination with local public agencies, such as city and county fire departments. Following review of grade crossing applications, additional safety and security design features may be incorporated if necessary. Impacts would be further reduced through the incorporation and application of the MRDC or equivalent, CPUC rail crossing rules and regulations, and MUTCD requirements. In addition, FTA-required hazard analyses would be prepared during preliminary engineering and final design stages of the Project to identify specific hazards and may include features described in Section 5.2.3 for enhanced pedestrian and bicyclist safety. Therefore, impacts related to motorist, pedestrian, and bicycle safety would be less than significant for Alternative 1, and no mitigations measures would be required.

The LRT operations and stations of Alternative 1 would also share ROW with freight operations, which could result in impacts. Safety requirements would be established in accordance with FTA and FRA regulations (49 CFR 659), CPUC GO 164-E and GO 143-B requirements, the MRDC or equivalent, and with additional input from the freight operators for safety elements. The Project would also operate in accordance with Metro system safety plans, policies, and procedures, including the following: Metro System Safety Program Plan, Metro System Security Plan, Metro Standard Emergency Operating Procedures, and the Metro Rail Operating Rulebook or equivalent.

Specifically, these safety plans, policies, and procedures would include the following direction to implement appropriate and required safety features for LRT operations and freight operations within shared ROW:

- Appropriate track spacing distance between freight and Alternative 1
- Protective fencing and barriers installed where appropriate
- An intrusion detection system to detect an unauthorized entry into the ROW
- Communication protocols established between the freight railroad and Metro to quickly respond to derailment emergencies

- Emergency responder training and drills to respond to derailment emergencies

The safety characteristics described previously would reduce the potential for conflicts between freight and LRT service; however, impacts would not be completely avoidable and considered significant. Therefore, Mitigation Measure SAF-1 has been identified to ensure additional safety measures are incorporated to lower impacts from LRT operations and freight operations within shared ROW to less-than-significant levels.

Alternative 1 would provide security features to support the prevention of crime and terrorism as described in Section 5.2.7. Alternative 1 would comply with Metro's MRDC or equivalent and security plans, incorporate CPTED features, and include security patrols to minimize potential security concerns associated with criminal and terrorist activities. Design features, and operational security features and requirements would help prevent crime and terrorism; therefore, impacts would less-than-significant for Alternative 1.

6.3.2.1 Mitigation Measures

No mitigation measures related to motorist, pedestrian, and bicycle safety required.

Mitigation Measure SAF-1, as described in Section 8.2.1, would be implemented to reduce safety and security impacts associated with operation of freight and LRT in shared ROW and reported incidents of criminal activity to reduce operation-related impacts to less than significant for Alternative 1.

No mitigations measures related to security and prevention of crime and terrorism required.

6.3.2.2 Impacts Remaining After Mitigation.

Less than significant.

6.3.3 Alternative 2

Alternative 2 is substantially similar to Alternative 1, as described in Section 5.2 in regard to impacts associated with hazards due to geometric design or incompatible uses mentioned previously. The conclusions and impact determinations provided for Alternative 1 would also be applicable to Alternative 2. Therefore, impacts would be significant under Alternative 2 and Mitigation Measure SAF-1 would be required to reduce impacts, specific to shared ROW with freight operations, to less than significant.

6.3.3.1 Mitigation Measures

No mitigation measures related to motorist, pedestrian, and bicycle safety required.

Mitigation Measure SAF-1, as described in Section 8.2.1, would be implemented to reduce safety and security impacts associated with operation of freight and LRT in shared ROW and reported incidents of criminal activity to reduce operation-related impacts to less than significant for Alternative 2.

No mitigations measures related to security and prevention of crime and terrorism required.

6.3.3.2 Impacts Remaining After Mitigation.

Less than significant.

6.3.4 Alternative 3

As described in Section 5.4, while Alternative 3 would result in shorter alignments and fewer stations than Alternatives 1 and 2, Alternative 3 would be substantially similar to Alternative 1 in regard to impacts associated with hazards due to geometric design or incompatible uses mentioned previously. The conclusions and impact determinations provided for Alternative 1 would also be applicable to Alternative 3. Therefore, impacts would be significant under Alternative 3 and Mitigation Measure SAF-1 would be required to reduce impacts, specific to shared ROW with freight operations, to less than significant.

6.3.4.1 Mitigation Measures

No mitigation measures related to motorist, pedestrian, and bicycle safety required.

Mitigation Measure SAF-1, as described in Section 8.2.1, would be implemented to reduce safety and security impacts associated with operation of freight and LRT in shared ROW and reported incidents of criminal activity to reduce operation-related impacts to less than significant for Alternative 3.

No mitigations measures related to security and prevention of crime and terrorism required.

6.3.4.2 Impacts Remaining After Mitigation

Less than significant.

6.3.5 Alternative 4

As described in Section 5.5, while Alternative 4 would result in shorter alignments and fewer stations than Alternatives 1, 2, and 3, Alternative 4 would be substantially similar to Alternative 1 in regard to impacts associated with hazards due to geometric design or incompatible uses mentioned previously. The conclusions and impact determinations provided for Alternative 1 would also be applicable to Alternative 4. Therefore, impacts would be significant under Alternative 4 and Mitigation Measure SAF-1 would be required to reduce impacts, specific to shared ROW with freight operations, to less than significant.

6.3.5.1 Mitigation Measures

No mitigation measures related to motorist, pedestrian, and bicycle safety required.

Mitigation Measure SAF-1, as described in Section 8.2.1, would be implemented to reduce safety and security impacts associated with operation of freight and LRT in shared ROW and reported incidents of criminal activity to reduce operation-related impacts to less than significant for Alternative 4.

No mitigation measures related to security and prevention of crime and terrorism required.

6.3.5.2 Impacts Remaining After Mitigation.

Less than significant.

6.3.6 Design Options

As described in Section 5.6, both Design Options 1 and 2 would be designed in accordance with the MRDC or equivalent and would not introduce or increase hazards due to geometric design features or incompatible uses. Therefore, no impact would occur, and no mitigation measures would be required.

6.3.6.1 Mitigation Measures

No mitigation measures required.

6.3.6.2 Impacts Remaining After Mitigation

No impact.

6.3.7 Maintenance and Storage Facilities

As described in Section 5.7, both the Paramount and Bellflower MSF sites would be designed in accordance with the MRDC or equivalent and would not introduce or increase hazards due to geometric design features or incompatible uses. Therefore, no impact would occur, and no mitigation measures are required.

6.3.7.1 Mitigation Measures

No mitigation measures required.

6.3.7.2 Impacts Remaining After Mitigation

No impact.

7 CONSTRUCTION IMPACTS

This section describes the construction activities, methodology, and impacts, and describes if the construction of the Build Alternatives could adversely affect safety and security.

7.1 Construction Activities

Construction activities would likely begin simultaneously at several locations along the Project corridor, to accommodate areas of work requiring lengthy construction times and to bring the different segments of the Project to completion on schedule. Many contractors specializing in various methods of construction would be working on the Project during the construction period. Construction of the Project would follow all applicable local, state, and federal laws for building and safety. Working hours would vary to meet special circumstances and restrictions, and efforts would be made to ensure working hours are appropriate for the community. Efforts would be made to keep residents and businesses informed. Standard construction methods would be used for traffic, noise, vibration, and dust control, consistent with all applicable laws, and as described in the following sections.

The Build Alternatives would require extensive infrastructure improvements to construct structures for the aerial portions of the alignments and stations, as well as tunnel and construct underground portions of the alignment and underground stations. Other infrastructure improvements would include OCS, TPSSs, and MSF, which would require utility relocations, road and street work, and power and communications upgrades.

7.2 Methodology

To satisfy NEPA requirements, the analysis of construction effects considered the anticipated construction activities and phasing and identified where construction staging could occur. This assessment assumes all federal, state, regional, and local regulations and guidelines pertinent to the construction of the Project would be followed, compares safety and security conditions between the No Build and Build Alternatives and discusses potential impacts.

Appendix G of the CEQA Guidelines does not have specific thresholds for safety and security impacts; however, impacts regarding safety and security are addressed through the following CEQA thresholds:

- Would the Project impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?
- Would the Project result in substantial adverse physical impacts associated with the provisions of new or physically altered government facilities, need for new or physically altered government facilities, the construction of which could cause significant environmental impacts, in order to maintain response times or other performance objectives for fire and police protection services?
- Would the Project substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?

7.3 Construction Impacts

This section describes the temporary construction safety and security impacts related to pedestrian, bicycle, and motorist safety, as well as security and prevention of crime and terrorism. Construction of the Build Alternatives would require the activities as summarized in Section 4.18.2. Safety and security impacts would be minimized through compliance with OSHA, California OSHA, MUTCD, and Metro safety and security programs, which are designed to reduce potential impacts during construction.

7.3.1 No Build Alternative

The No Build Alternative includes capital transportation improvements and transit and highway operational enhancements in the Affected Area that are reasonably foreseeable. These include Metro service features that currently exist or projects that have been explicitly committed for buildout by the year 2042. Construction of the projects included in the No Build Alternative would be subject to a separate environmental clearance. Under NEPA, the No Build Alternative would not result in adverse effects to safety and security and mitigation would not be required.

7.3.2 Alternative 1

This section describes the potential adverse effects related to construction of the Build Alternatives to pedestrian and bicycle safety, emergency response services, security, and prevention of crime and terrorism. Construction of the Build Alternatives would include transit stations, station parking facilities, pedestrian walkways, TPSS, a maintenance facility, guideway, and pre-revenue operations testing.

The Build Alternatives' construction activities could temporarily affect the pedestrian and bicycle environment, motorist safety, emergency response services, and crime and terrorism activities. Existing conditions identified in Section 4 have been reviewed within the context of constructing the Build Alternatives.

The potential for adverse safety and security impacts would be minimized through compliance with OSHA, California OSHA, MUTCD, and Metro safety and security programs, which are designed to reduce potential impacts during construction. Key potential indirect impacts related to construction on pedestrian, bicycle and motorist safety, emergency response, and crime prevention are discussed further in the following subsections.

7.3.2.1 Pedestrian, Bicyclist, and Motorist Safety

Temporary construction-related activities/conditions that may impact pedestrian, bicyclist, and motorist safety include the following:

- Construction activities along the Build Alternatives related to excavation and construction of tunnels (north of I-10 only) and aerial structures, columns, stations, track, street improvements, and TPSS facilities
- Shallow excavation and construction activity along the centerline of streets along the Build Alternatives' alignments to install columns, utility relocations, and track and power facilities
- Activities at the locations of staging and storage areas for construction equipment and materials

- Movement of construction equipment and materials between staging and storage areas and the areas of construction
- Transport of excavation debris along haul routes within communities
- Construction sites and staging areas where bystanders could suffer falls or other accidents

The construction effects of the Build Alternatives would also include lane closures; traffic detours; designated truck ingress, egress, and haul routes; and potential sidewalk and bike lane closures, which could affect pedestrian, bicyclist, and motorist safety, as well as Safe Routes to School.[4] For example, the construction of the Arts/Industrial District Station could have potential impacts to pedestrian and bicyclist safety as this portion of the alignment is not within an existing rail ROW.

However, most of the LRT corridor would be constructed along an existing rail ROW; therefore, impacts to pedestrian and bicyclist safety are expected to be minimal. Other impacts to pedestrian and bicyclist safety during the construction of the Build Alternatives may potentially occur along the Los Angeles River Bicycle Path, the Rio Hondo Bike Path, the San Gabriel River Bike Path, or the Bellflower-Paramount Bike Trail.

Construction of the Build Alternatives where the LRT tracks would cross over the existing pedestrian overcrossing at the intersection of Long Beach Avenue and East 53rd Street in an aerial configuration may result in temporary closures to the pedestrian bridge. The existing pedestrian overcrossing at Paramount High School over the PEROW would be removed as a result of the construction of the Build Alternatives and replaced with a pedestrian undercrossing. A temporary detour route would be designated to provide safe access between Paramount High School and Paramount Park during construction of the Build Alternatives.

While the Build Alternatives would not permanently remove sidewalks or reduce existing sidewalk widths to less than applicable standard design criteria, there would be temporary impacts (closures, detours, temporary reductions in width/length) to these facilities during construction. The use of an alternate and safe detour route during construction would be coordinated with the local jurisdiction and would meet ADA requirements. Advance notices, signage, barriers, and fencing would be used to direct pedestrian, bicyclist, and motorist travel, thereby reducing the potential for temporary safety impacts.

Metro and the construction contractor would develop a Construction Management Plan during final design and would implement the Program during construction. The Construction Management Plan would guide Metro and its contractor in communicating to the community. This would include communicating traffic control measures, schedules of activities, and durations of operations, and would further minimize potential safety impacts.

The implementation of the aforementioned safety measures during construction of the Build Alternatives would minimize the potential hazards to pedestrian, bicycle, and motorist safety. However, these same construction activities and the corresponding detour routes may interfere with or potentially block Safe Routes to Schools. Under NEPA, Alternative 1 would result in adverse effects related to safety and security prior to the implementation of

[4] Safe Routes to School (https://www.metro.net/projects/srts/) is a program aimed at increasing the number of students who choose active (walking, bicycling, scooter, skateboarding) or shared (public transit, carpooling) modes of transportation to school by making it safer and more accessible to walk, bicycle and/or take transit.

Mitigation Measures SAF-2 (School District Coordination) and SAF-3 (Construction Site Measures) (see Section 8.2.2). After implementation of Mitigation Measures SAF-2 (School District Coordination) and SAF-3 (Construction Site Measures), Alternative 1 would not result in adverse effects related to safety and security.

7.3.2.2 Emergency Response Services

The potential impacts from temporary construction activities on the ability of emergency response services (medical, police, and fire) to provide timely responses would be influenced by the following:

- Street or lane closures
- Roadway detours
- Increased traffic near emergency facilities or along emergency response routes
- Construction staging plans

In response to these potential conditions, fire and emergency medical services personnel have the ability to use onboard live mapping software that alerts drivers of construction activities that may impede travel times to and from the scene of an emergency. Emergency responders are also able to see which roadways are experiencing delays due to construction, accidents or other events, and would be able to take alternate routes accordingly. Metro and the construction contractor would coordinate with police, medical, and fire services in developing construction staging plans and detours to provide appropriate public safety and security for the Metro system, employees, and surrounding communities. Emergency response service is substantially similar for aerial, at-grade, and below-grade construction. Lane closures and detour routes would be identified for emergency response to safely navigate around at-grade construction (including construction entrances and portals to below-ground areas, and columns for aerial construction). Under NEPA, Alternative 1 would not result in adverse effects to safety and security related to construction and mitigation would not be required.

7.3.2.3 Security and Prevention of Crime and Terrorism

The potential for crime and terrorism during construction is related primarily to construction equipment and staging areas being targeted by potential thieves if not adequately secured. To reduce the potential impacts, construction sites would include security features such as CCTV, onsite guards, and security teams, as well as perimeter fencing to prohibit unauthorized individuals from accessing the construction area. However, crime from intentional acts against people and facilities cannot be completely eliminated. Under NEPA, Alternative 1 would result in adverse effects related to safety and security prior to the implementation of Mitigation Measure SAF-3 (Construction Site Measures) (refer to Section 8.2.2). After implementation of Mitigation Measure SAF-3 (Construction Site Measures) (refer to Section 8.2.2), Alternative 1 would not result in adverse effects related to safety and security.

7.3.3 Alternative 2

7.3.3.1 Pedestrian, Bicyclist, and Motorist Safety

Alternative 2 is substantially similar to Alternative 1, as described in Section 7.3.2.1, in regard to pedestrian, bicycle, and motorist safety, potential construction-related impacts, and effect determinations. The conclusions and effect determinations provided for Alternative 1 would also be applicable to Alternative 2. Therefore, there is a potential adverse effect on pedestrian and bicycle safety along Safe Routes to School that would occur during construction. Under NEPA, Alternative 2 would result in adverse effects related to safety and security prior to the implementation of Mitigation Measures SAF-2 (School District Coordination) and SAF-3 (Construction Site Measures) (see Section 8.2.2). After implementation of Mitigation Measure SAF-2 (School District Coordination) and SAF-3 (Construction Site Measures), Alternative 2 would not result in adverse effects related to safety and security.

7.3.3.2 Emergency Response Services

Alternative 2 is substantially similar to Alternative 1, as described in Section 7.3.2.2, in regard to emergency response services, potential impacts, and effect determinations. The conclusions and effect determinations provided for Alternative 1 would also be applicable to Alternative 2. Under NEPA, Alternative 2 would not result in adverse effects to safety and security related to construction and mitigation would not be required.

7.3.3.3 Security and Prevention of Crime

Alternative 2 is substantially similar to Alternative 1, as described in Section 7.3.2.3, in regard to security and prevention of crime, potential impacts, and effect determinations. The conclusions and effect determinations provided for Alternative 1 would also be applicable to Alternative 2. Under NEPA, Alternative 2 would result in adverse effects related to safety and security prior to the implementation of Mitigation Measure SAF-3 (Construction Site Measures) (refer to Section 8.2.2). After implementation of Mitigation Measure SAF-3 (Construction Site Measures) (refer to Section 8.2.2), Alternative 2 would not result in adverse effects related to safety and security.

7.3.4 Alternative 3

7.3.4.1 Pedestrian, Bicyclist, and Motorist Safety

Alternative 3 is substantially similar to Alternative 1, as described in Section 7.3.2.1, in regard to pedestrian, bicycle, and motorist safety, potential construction-related impacts, and effect determinations. The conclusions and effect determinations provided for Alternative 1 would also be applicable to Alternative 3. Under NEPA, Alternative 3 would result in adverse effects related to safety and security prior to the implementation of Mitigation Measures SAF-2 (School District Coordination) and SAF-3 (Construction Site Measures) (see Section 8.2.2). After implementation of Mitigation Measure SAF-2 (School District Coordination) and SAF-3 (Construction Site Measures), Alternative 3 would not result in adverse effects related to safety and security.

7.3.4.2 Emergency Response Services

Alternative 3 is substantially similar to Alternative 1, as described in Section 7.3.2.2, in regard to emergency response services, potential impacts, and effect determinations. The conclusions and effect determinations provided for Alternative 1 would also be applicable to

Alternative 3. Under NEPA, Alternative 3 would not result in adverse effects to safety and security related to construction and mitigation would not be required.

7.3.4.3 Security and Prevention of Crime

Alternative 3 is substantially similar to Alternative 1, as described in Section 7.3.2.3, in regard to security and prevention of crime, potential impacts, and effect determinations. The conclusions and effect determinations provided for Alternative 1 would also be applicable to Alternative 3. Under NEPA, Alternative 3 would result in adverse effects related to safety and security prior to the implementation of Mitigation Measure SAF-3 (Construction Site Measures) (refer to Section 8.2.2). After implementation of Mitigation Measure SAF-3 (Construction Site Measures) (refer to Section 8.2.2), Alternative 3 would not result in adverse effects related to safety and security.

7.3.5 Alternative 4

7.3.5.1 Pedestrian, Bicyclist, and Motorist Safety

Alternative 4 is substantially similar to Alternative 1, as described in Section 7.3.2.1, in regard to pedestrian, bicycle, and motorist safety, potential construction-related impacts, and effect determinations. The conclusions and effect determinations provided for Alternative 1 would also be applicable to Alternative 4. Therefore, there is a potential adverse effect on pedestrian and bicycle safety along Safe Routes to School that would occur during construction. Under NEPA, Alternative 4 would result in adverse effects related to safety and security prior to the implementation of Mitigation Measures SAF-2 (School District Coordination) and SAF-3 (Construction Site Measures) (see Section 8.2.2). After implementation of Mitigation Measure SAF-2 (School District Coordination) and SAF-3 (Construction Site Measures), Alternative 4 would not result in adverse effects related to safety and security.

7.3.5.2 Emergency Response Services

Alternative 4 is substantially similar to Alternative 1, as described in Section 7.3.2.2, in regard to emergency response services, potential impacts, and effect determinations. The conclusions and effect determinations provided for Alternative 1 would also be applicable to Alternative 4. Under NEPA, Alternative 4 would not result in adverse effects to safety and security related to construction and mitigation would not be required.

7.3.5.3 Security and Prevention of Crime

Alternative 4 is substantially similar to Alternative 1, as described in Section 7.3.2.3, in regard to security and prevention of crime, potential impacts, and effect determinations. The conclusions and effect determinations provided for Alternative 1 would also be applicable to Alternative 4. Under NEPA, Alternative 4 would result in adverse effects related to safety and security prior to the implementation of Mitigation Measure SAF-3 (Construction Site Measures) (refer to Section 8.2.2). After implementation of Mitigation Measure SAF-3 (Construction Site Measures) (refer to Section 8.2.2), Alternative 4 would not result in adverse effects related to safety and security.

7.3.6 Design Options

7.3.6.1 Design Option 1

Pedestrian, Bicyclist, and Motorist Safety

Design Option 1 would be specific to underground station locations, and the construction activities would be minimal in regard to construction-related impacts associated with pedestrian, bicyclist, and motorist safety. The construction site for Design Option 1 would be closed to the public, and only construction-related work would occur at the selected site. Access to the sites would be strictly controlled by an onsite guard and security team, as well as barriers around the perimeter of the site to prohibit unauthorized access. Under NEPA, Design Option 1 would not result in adverse effects to safety and security related to construction and mitigation would not be required.

Emergency Response Services

Design Option 1 would be specific to underground station locations, and the construction activities would be minimal in regard to construction-related impacts associated with emergency response service. The construction site for Design Option 1 would be closed to the public and only construction-related work would occur at the selected site. Access to the sites would be strictly controlled by an onsite guard and security team, as well as barriers around the perimeter of the site to prohibit unauthorized access. Under NEPA, Design Option 1 would not result in adverse effects to safety and security related to construction and mitigation would not be required.

Security and Prevention of Crime

Design Option 1 would be specific to underground station locations, and the construction activities would be minimal in regard to construction-related impacts associated with security and prevention of crime. The construction site for Design Option 1 would be closed to the public and only construction-related work would occur at the selected site. Access to the sites would be strictly controlled by an onsite guard and security team, as well as barriers around the perimeter of the site to prohibit unauthorized access. Under NEPA, Alternative 1 would not result in adverse effects to safety and security related to construction and mitigation would not be required.

7.3.6.2 Design Option 2

Pedestrian, Bicyclist, and Motorist Safety

Design Option 2 would be specific to underground station locations, and the construction activities would be minimal in regard to construction-related impacts associated with pedestrian, bicyclist, and motorist safety. The construction site for Design Option 2 would be closed to the public, and only construction-related work would occur at the selected site. Access to the sites would be strictly controlled by an onsite guard and security team, as well as barriers around the perimeter of the site to prohibit unauthorized access. Under NEPA, Design Option 2 would not result in adverse effects to safety and security related to construction and mitigation would not be required.

Emergency Response Services

Design Option 2 would be specific to underground station locations, and the construction activities would be minimal in regard to construction-related impacts associated with

emergency response service. The construction site for Design Option 2 would be closed to the public and only construction-related work would occur at the selected site. Access to the sites would be strictly controlled by an onsite guard and security team, as well as barriers around the perimeter of the site to prohibit unauthorized access. Under NEPA, Design Option 2 would not result in adverse effects to safety and security related to construction and mitigation would not be required.

Security and Prevention of Crime

Design Option 2 would be specific to underground station locations, and the construction activities would be minimal in regard to construction-related impacts associated with security and prevention of crime. The construction site for Design Option 2 would be closed to the public, and only construction-related work would occur at the selected site. Access to the sites would be strictly controlled by an onsite guard and security team, as well as barriers around the perimeter of the site to prohibit unauthorized access. Under NEPA, Design Option 2 would not result in adverse effects to safety and security related to construction and mitigation would not be required.

7.3.7 Maintenance and Storage Facilities

7.3.7.1 Paramount Maintenance and Storage Facility

Pedestrian, Bicyclist, and Motorist Safety

The Paramount MSF site would be closed to the public and only construction-related work would occur at the selected site. Access to the Paramount MSF site would be strictly controlled by an onsite guard and security team, as well as barriers around the perimeter of the maintenance yard to prohibit unauthorized access into the yard. Under NEPA, Paramount MSF would not result in adverse effects to safety and security related to construction and mitigation would not be required.

Emergency Response Services

The Paramount MSF site would not interfere with emergency response services because construction activities would not interfere or block public public-of-way for emergency response vehicles. Under NEPA, Paramount MSF would not result in adverse effects to safety and security related to construction and mitigation would not be required.

Security and Prevention of Crime

The Paramount MSF site would be closed to the public and only construction-related work would occur at the selected site. Access to the Paramount MSF site would be strictly controlled by an onsite guard and security team, as well as barriers around the perimeter of the maintenance yard to prohibit unauthorized access into the yard. Under NEPA, Paramount MSF would not result in adverse effects to safety and security related to construction and mitigation would not be required.

7.3.7.2 Bellflower Maintenance and Storage Facility

Pedestrian, Bicyclist, and Motorist Safety

The Bellflower MSF site would be closed to the public and only construction-related work would occur at the selected site. Access to the Bellflower MSF site would be strictly controlled by an onsite guard and security team, as well as barriers around the perimeter of the maintenance yard to prohibit unauthorized access into the yard. Under NEPA, Bellflower MSF

would not result in adverse effects to safety and security related to construction and mitigation would not be required.

Emergency Response Services

The Bellflower MSF site would not interfere with emergency response services because construction activities would not interfere or block public right-of-way for emergency response vehicles. Under NEPA, Bellflower MSF would not result in adverse effects to safety and security related to construction and mitigation would not be required.

Security and Prevention of Crime

The Bellflower MSF site would be closed to the public and only construction-related work would occur at the selected site. Access to the Bellflower MSF site would be strictly controlled by an onsite guard and security team, as well as barriers around the perimeter of the maintenance yard to prohibit unauthorized access into the yard. Under NEPA, Bellflower MSF would not result in adverse effects to safety and security related to construction and mitigation would not be required.

7.4 California Environmental Quality Act Determination

Appendix G of the CEQA Guidelines does not have specific thresholds for safety and security impacts; however, impacts regarding safety and security are addressed through the following CEQA thresholds:

7.4.1 Would the Project impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?

7.4.1.1 No Project Alternative

Project-related construction activities would not occur under the No Project Alternative. Therefore, no construction-related impacts for the No Project Alternative would occur, and no mitigation measures would be required.

Mitigation Measures

No mitigation measures required.

Impacts Remaining After Mitigation

No impacts.

7.4.1.2 Alternative 1

Construction-related impacts of Alternative 1 on emergency response plans or emergency evacuation plans could be caused by temporary construction activities, such as:

- Street or lane closures
- Roadway detours
- Increased traffic near emergency facilities or along emergency response routes
- Construction staging plans

In response to these potential conditions, fire and emergency medical services personnel have the ability to use onboard live mapping software that alerts drivers of construction activities that may impede travel times to and from the scene of an emergency. Emergency

responders are also able to see which roadways are experiencing delays due to construction, accidents, or other events, and would be able to take alternate routes accordingly. Metro and the contractor would coordinate with involved police, medical, and fire service providers during construction. Therefore, construction-related impacts would be less than significant, and no mitigation measures would be required.

Mitigation Measures

No mitigation measures required.

Impacts Remaining After Mitigation

Less than significant.

7.4.1.3 Alternative 2

Alternative 2 is substantially similar to Alternative 1, as described in Section 7.3.2.2, in regard to emergency response plans or emergency evacuation plans and potential construction-related impacts determinations. The conclusions and impact determinations provided for Alternative 1 would also be applicable to Alternative 2. Therefore, construction-related impacts for Alternative 2 would be less than significant, and no mitigation measures would be required.

Mitigation Measures

No mitigation measures required.

Impacts Remaining After Mitigation

Less than significant.

7.4.1.4 Alternative 3

As described in Section 7.3.4, Alternative 3 would result in shorter alignments and fewer stations than the other alternatives, resulting in a reduction of potential construction-related impacts to the number of emergency response plans or emergency evacuation plans. Alternative 3 would still be substantially similar to Alternative 1 in regard to emergency response plans or emergency evacuation plans and potential impacts determinations mentioned previously. Therefore, construction-related impacts for Alternative 3 would be less than significant, and no mitigation measures would be required.

Mitigation Measures

No mitigation measures required.

Impacts Remaining After Mitigation

Less than significant.

7.4.1.5 Alternative 4

As described in Section 7.3.5, Alternative 4 would result in shorter alignments and fewer stations than the other alternatives, resulting in a reduction of potential construction-related impacts to the number of emergency response plans or emergency evacuation plans. Alternative 4 would still be substantially similar to Alternative 1 in regard to emergency response plans or emergency evacuation plans and potential impacts determinations

mentioned previously. Therefore, construction-related impacts for Alternative 4 would be less than significant, and no mitigation measures would be required.

Mitigation Measures

No mitigation measures required.

Impacts Remaining After Mitigation

Less than significant.

7.4.1.6 Design Options

Design Option 1

The construction activities for Design Option 1 would mostly be underground and outside the public ROW and would not interfere with emergency response plans or emergency evacuation plans. Therefore, no construction-related impact for Design Option 1 would occur beyond what was already discussed for Alternative 1.

Mitigation Measures

No mitigation measures required.

Impacts Remaining After Mitigation

No impact from the Design Option. Less than significant for the overall project including Design Option 1.

Design Option 2

The construction activities for Design Option 2 would mostly be underground and outside the public right-of-way and would not interfere with emergency response plans or emergency evacuation plans. Therefore, no construction-related impact for Design Option 2 would occur beyond what was already discussed for Alternative 1.

Mitigation Measures

No mitigation measures required.

Impacts Remaining After Mitigation

No impact from the Design Option. Less than significant for the overall project including Design Option 2.

7.4.1.7 Maintenance Storage Facilities

Paramount MSF Site Option

The construction activities for the Paramount MSF would occur outside of public right-of-way and would not interfere with emergency response plans or emergency evacuation plans. Therefore, no construction-related impacts for the Paramount MSF would occur.

Mitigation Measures

No mitigation measures required.

Impacts Remaining After Mitigation

No impact from the MSF. Less than significant for the overall project including the Paramount MSF.

Bellflower MSF Site Option

The construction activities for the Bellflower MSF would occur outside of public right-of-way and would not interfere with emergency response plans or emergency evacuation plans. Therefore, no construction-related impacts for Bellflower MSF would occur.

Mitigation Measures

No mitigation measures required.

Impacts Remaining After Mitigation

No impact from the MSF. Less than significant for the overall project including the Bellflower MSF.

7.4.2 Would the Project result in substantial adverse physical impacts associated with the provisions of new or physically altered government facilities, need for new or physically altered government facilities, the construction of which could cause significant environmental impacts, in order to maintain response times or other performance objectives for fire and police protection services?

7.4.2.1 No Project Alternative

Project-related construction activities would not occur under the No Project Alternative. Therefore, no construction-related impacts for the No Project Alternative would occur, and no mitigation measures would be required.

Mitigation Measures

No mitigation measures required.

Impacts Remaining After Mitigation

No impacts.

7.4.2.2 Alternative 1

Under Alternative 1, there would be no construction-related activities associated with new or physically altered government facilities to maintain response times or other performance objectives for fire and police protection services. Therefore, no construction-related impacts for Alternative 1 would occur, and no mitigation measures would be required.

Mitigation Measures

No mitigation measures required.

Impacts Remaining After Mitigation

No impacts.

7.4.2.3 Alternative 2

Alternative 2 is substantially similar to Alternative 1, as described in Section 7.3.2, in regard to construction-related impacts associated with new or physically altered government facilities to maintain response times or other performance objectives for fire and police protection services. The conclusions and impact determinations provided for Alternative 1 would also be applicable to Alternative 2. Therefore, construction-related impacts would not occur under Alternative 2 and no mitigation measures would be required.

Mitigation Measures

No mitigation measures required.

Impacts Remaining After Mitigation

No impacts.

7.4.2.4 Alternative 3

As described in Section 7.3.4, Alternative 3 would result in shorter alignments and fewer stations than the other alternatives, resulting in a reduction of potential construction-related impacts associated with new or physically altered government facilities to maintain response times or other performance objectives for fire and police protection services. Alternative 3 would still be substantially similar to Alternative 1 in regard to the conclusions and construction-related impacts determinations mentioned previously. Therefore, no construction-related impacts for Alternative 3 would occur and no mitigation measures would be required.

Mitigation Measures

No mitigation measures required.

Impacts Remaining After Mitigation

No impacts.

7.4.2.5 Alternative 4

As described in Section 7.3.5, Alternative 4 would result in shorter alignments and fewer stations than the other alternatives, resulting in a reduction of potential construction-related impacts associated with new or physically altered government facilities to maintain response times or other performance objectives for fire and police protection services. Alternative 4 would still be substantially similar to Alternative 1 in regard to the conclusions and construction-related impacts determinations mentioned previously. Therefore, no construction-related impacts for Alternative 4 would occur and no mitigation measures would be required.

Mitigation Measures

No mitigation measures required.

Impacts Remaining After Mitigation

No impacts.

7.4.2.6 Design Options

Design Option 1

The construction activities for Design Option 1 would not result in new or physically altered government facilities to maintain response times or other performance objectives for fire and police protection services. Therefore, no construction-related impact for Design Option 1 would occur.

Mitigation Measures

No mitigation measures required.

Impacts Remaining After Mitigation

No impacts.

Design Option 2

The construction activities for Design Option 2 would not result in new or physically altered government facilities to maintain response times or other performance objectives for fire and police protection services. Therefore, no construction-related impact for Design Option 2 would occur.

Mitigation Measures

No mitigation measures required.

Impacts Remaining After Mitigation

No impacts.

7.4.2.7 Maintenance Storage Facilities

Paramount MSF Site Option

The construction activities for the Paramount MSF would not result in new or physically altered government facilities to maintain response times or other performance objectives for fire and police protection services. Therefore, no construction-related impacts for the Paramount MSF would occur.

Mitigation Measures

No mitigation measures required.

Impacts Remaining After Mitigation

No impacts.

Bellflower MSF Site Option

The construction activities for the Bellflower MSF would not result in new or physically altered government facilities to maintain response times or other performance objectives for fire and police protection services. Therefore, no construction-related impacts for the Bellflower MSF would occur.

Mitigation Measures

No mitigation measures required.

Impacts Remaining After Mitigation

No impacts.

7.4.3 Would the Project substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?

7.4.3.1 No Project Alternative

Project-related construction activities would not occur under the No Project Alternative. Therefore, no construction-related impacts for the No Project Alternative would occur, and no mitigation measures would be required.

Mitigation Measures

No mitigation measures required.

Impacts Remaining After Mitigation

No impacts.

7.4.3.2 Alternative 1

Temporary construction-related activities and conditions that could impact pedestrian, bicyclist, and motorist safety include the following:

- Construction activities along Alternative 1 related to excavation and construction of tunnels (north of I-10 only) and aerial structures, columns, stations, track, street improvements, and TPSS facilities
- Shallow excavation and construction activity along the centerline of streets along Alternative 1 alignment to install columns, utility relocations, and track and power facilities
- Activities at the locations of staging and storage areas for construction equipment and materials
- Movement of construction equipment and materials between staging and storage areas and the areas of construction
- Transport of excavation debris along haul routes within communities
- Construction sites and staging areas where bystanders could suffer falls or other accidents

The construction effects of Alternative 1 would also include lane closures; traffic detours; designated truck ingress, egress, and haul routes; and potential sidewalk and bike lane closures, which could affect pedestrian, bicycle, and motorist safety, as well as Safe Routes to School. For example, the construction of the Arts/Industrial District Station could have potential impacts to pedestrian and bicyclist safety as this portion of the alignment is not within an existing rail ROW. However, most of the LRT corridor would be constructed along an existing rail ROW and, therefore, impacts to pedestrian and bicyclist safety are expected to be minimal.

Lane closures and detour routes would be provided for the public to safely navigate around at-grade construction (including construction entrances and portals to below ground construction and column construction for aerial construction). Fencing and barriers would be provided for all at-grade construction, again including entrances and portals, to prevent

entry into active construction sites for the safety of pedestrians, bicyclists, and motorists. Detailed discussion on construction, including methodologies, staging areas, and traffic detours, is provided in Section 7.

Other impacts to pedestrian and bicyclist safety during construction of Alternative 1 may potentially occur along the Los Angeles River Bike Path, the Rio Hondo Bike Path, the San Gabriel River Bike Path, or the Bellflower-Paramount Bike Trail. Construction of Alternative 1 where the LRT tracks would cross over the existing pedestrian overcrossing at the intersection of Long Beach Avenue and East 53rd Street in an aerial configuration may result in temporary closures to the pedestrian bridge. The existing pedestrian overcrossing at Paramount High School over the PEROW would be removed as a result of construction of Alternative 1 and replaced with a pedestrian undercrossing. A temporary detour route would be designated to provide safe access between Paramount High School and Paramount Park during construction of Alternative 1.

The implementation of the aforementioned safety measures during construction of Alternative 1 would minimize the potential hazards to pedestrians, bicyclists, and motorists. However, these same construction activities and the corresponding detour routes may interfere with or potentially block Safe Routes to School. Therefore, the construction-related impacts to pedestrian and bicyclist safety along Safe Routes to School would be potentially significant during construction. However, with implementation of Mitigation Measure SAF-2 (see Section 8.2.2), as well as COM-1, construction-related impacts will be reduced to a less-than-significant level.

The potential for crime and protection of the public during construction is primarily related to construction equipment and staging areas that are not adequately secured. To reduce potential impacts, construction sites would include security features such as CCTV, onsite guards and security teams, and perimeter fencing to prohibit unauthorized individuals from accessing the area. However, crime from intentional acts against people and facilities cannot be completely eliminated. Therefore, Mitigation Measure SAF-3 (see Section 8.2.2) will be implemented to reduce construction-related impacts to less-than-significant levels.

Mitigation Measures

Mitigation Measures SAF-2 and SAF-3, as described in Section 8.2.2 would be implemented for safe routing and detours during construction, and onsite safety and security within and around construction areas to reduce construction-related impacts to less than significant for Alternative 1.

Impacts Remaining After Mitigation

Less than significant.

7.4.3.3 Alternative 2

Alternative 2 is substantially similar to Alternative 1, as described in Section 7.3.3, in regard to construction-related impacts associated with hazards due to geometric design or incompatible uses mentioned previously. The conclusions and impact determinations provided for Alternative 1 would also be applicable to Alternative 2. Therefore, construction-related impacts would be significant under Alternative 2, and mitigation measures will be required to reduce impacts, specific to construction activities interfering with Safe Routes to

School and potential for crime protection of the public at construction sites, to less than significant.

Mitigation Measures

Mitigation Measures SAF-2 and SAF-3, as described in Section 8.2.2, will be implemented for safe routing and detours during construction, and onsite safety and security within and around construction areas to reduce construction-related impacts to less than significant for Alternative 2.

Impacts Remaining After Mitigation

Less than significant.

7.4.3.4 Alternative 3

As described in Section 7.3.4, while Alternative 3 would result in shorter alignments and fewer stations than Alternatives 1 and 2, Alternative 3 would be substantially similar to Alternative 1 in regard to construction-related impacts associated with hazards due to geometric design or incompatible uses mentioned previously. The conclusions and impact determinations provided for Alternative 1 would also be applicable to Alternative 3. Therefore, construction-related impacts would be significant under Alternative 3, and mitigation measures will be required to reduce impacts, specific to construction activities interfering with Safe Routes to School and potential for crime protection of the public at construction sites, to less than significant.

Mitigation Measures

Mitigation Measures SAF-2 and SAF-3, as described in Section 8.2.2, will be implemented for safe routing and detours during construction, and onsite safety and security within and around construction areas to reduce construction-related impacts to less than significant for Alternative 3.

Impacts Remaining After Mitigation

Less than significant.

7.4.3.5 Alternative 4

As described in Section 7.3.5, while Alternative 4 would result in shorter alignments and fewer stations than other alternatives, Alternative 4 would be substantially similar to Alternative 1 in regard to construction-related impacts associated with hazards due to geometric design or incompatible uses mentioned previously. The conclusions and impact determinations provided for Alternative 1 would also be applicable to Alternative 4. Therefore, construction-related impacts would be significant under Alternative 4, and mitigation measures will be required to reduce impacts, specific to construction activities interfering with Safe Routes to School and potential for crime protection of the public at construction sites, to less than significant.

Mitigation Measures

Mitigation Measures SAF-2 and SAF-3, as described in Section 8.2.2, will be implemented for safe routing and detours during construction, and onsite safety and security within and around construction areas to reduce construction-related impacts to less than significant for Alternative 4.

Impacts Remaining After Mitigation

Less than significant.

7.4.3.6 Design Options

Design Option 1

Design Option 1 would be specific to underground station locations, and the construction activities would be minimal in regard to construction-related impacts associated with hazards due to geometric design or incompatible uses. The construction sites for Design Option 1 would be closed to the public, and only construction-related work would occur at the selected site. Access to the sites would be strictly controlled by an onsite guard and security team, as well as barriers around the perimeter of the site to prohibit unauthorized access. Therefore, no additional impact would occur, and no additional mitigation measures are required.

Mitigation Measures

Mitigation requirements would be the same as for Alternative 1.

Impacts Remaining After Mitigation

Less than significant.

Design Option 2

Design Option 2 would be specific to underground station locations, and the construction activities would be minimal in regard to construction-related impacts associated with hazards due to geometric design or incompatible uses. The construction sites for Design Option 2 would be closed to the public, and only construction-related work would occur at the selected site. Access to the sites would be strictly controlled by an onsite guard and security team, as well as barriers around the perimeter of the site to prohibit unauthorized access. Therefore, no additional impact would occur, and no additional mitigation measures are required.

Mitigation Measures

Mitigation requirements would be the same as for Alternative 1.

Impacts Remaining After Mitigation

Less than significant.

7.4.3.7 Maintenance Storage Facilities

Paramount MSF Site Option

Paramount MSF would be specific to selected site location, and the construction activities would be minimal in regard to construction-related impacts associated with hazards due to geometric design or incompatible uses. The Paramount MSF would be closed to the public and only construction-related work would occur at the selected site. Access to the Paramount MSF would be strictly controlled by an onsite guard and security team, as well as barriers around the perimeter of the maintenance yard to prohibit unauthorized access into the yard. Therefore, no additional impact would occur, and no additional mitigation measures are required.

Mitigation Measures

Mitigation requirements would be the same as for Alternative 1.

Impacts Remaining After Mitigation

Less than significant.

Bellflower MSF Site Option

Bellflower MSF would be specific to selected site location, and the construction activities would be minimal in regard to construction-related impacts associated with hazards due to geometric design or incompatible uses. The Bellflower MSF would be closed to the public and only construction-related work would occur at the selected site. Access to the Bellflower MSF would be strictly controlled by an onsite guard and security team, as well as barriers around the perimeter of the maintenance yard to prohibit unauthorized access into the yard. Therefore, no additional impact would occur, and no additional mitigation measures are required.

Mitigation Measures

Mitigation requirements would be the same as for Alternative 1.

Impacts Remaining After Mitigation

Less than significant.

8 PROJECT MEASURES AND MITIGATION MEASURES

8.1 Project Measures

8.1.1 Operation

The following project measures would be required during project operation and therefore are included as part of the Build Alternatives to avoid, minimize, or reduce the potential for impacts to safety and security:

SAF PM-1 Emergency Access. Metro would coordinate access for emergency responders, locations of fire hydrants, and security features with the applicable fire and police departments in addressing fire, life, safety, and security for the proposed alignment, parking facilities, and station areas within their respective jurisdictions (Alternatives 1, 2, 3, and 4).

SAF PM-2 Security Assessments. Metro would employ an ongoing assessment of security at all WSAB station areas for possible re-deployment of law enforcement and security services (Alternatives 1, 2, 3, and 4).

SAF PM-3 Freight Track Clearance. There would be a minimum 20-foot horizontal clearance between the Build Alternatives and freight track(s) where the Build Alternatives are located at-grade in shared ROW. This occurs primarily from Randolph Street to World Energy (Alternatives 1, 2, 3, and 4).

SAF PM-4 Pedestrian Bridges. Pedestrian bridges would be provided to avoid potential interactions between pedestrians and vehicle traffic at the following locations:

- East 53rd Street. WSAB and northbound A (Blue) Lines go over existing bridge. Existing bridge would be above freight tracks and below WSAB viaduct (Alternatives 1 and 2).
- Paramount High School. Pedestrian tunnel connecting athletic fields to school (Alternatives 1, 2, 3 and 4).

SAF PM-5 Certification and Approval. The Build Alternatives would comply with all FTA and FRA safety and security certification processes and approval prior to the start of revenue operating services. This includes conducting a PHA and a TVA. The PHA would assess the potential hazards introduced by or associated with a design. The TVA would verify critical assets, vulnerability to specific threats, based on the likelihood of occurrence and the severity of occurrence and develop counter-measures for addressing prioritized vulnerabilities (Alternatives 1, 2, 3, and 4).

SAF PM-6 Metro Compliance. The Build Alternatives would be operated in compliance with Metro's policies, standard operating procedures, and rulebook or equivalent as approved by Metro (Alternatives 1, 2, 3, and 4).

SAF PM-7 First/Last Mile. The Build Alternatives would include first/last mile improvements around stations such as pedestrian, bicyclist, bus stop and ADA enhancements that provide safe access routes to and from the stations (Alternatives 1, 2, 3, and 4).

SAF PM-8 Fire/Life Safety Committee. A Fire/Life Safety Committee for the Build Alternatives would be established per the MRDC or equivalent and FTA requirements. The committee would be tasked with addressing fire protection requirements for the operation of the Build Alternatives, along with establishing minimum requirements that would provide for the protection of life and property from the effects of a potential fire. Additional safety and security design recommendations may be identified by the Fire/Life Safety Committee as the Build Alternative's design progresses further during preliminary engineering and final design (Alternatives 1, 2, 3, and 4).

8.1.2 Construction

The following project measures would be required during project construction and therefore are included as part of the Build Alternatives to avoid, minimize, or reduce the potential for impacts to safety and security:

SAF PM-9 Metro would coordinate with police and fire service providers prior to and during construction (Alternatives 1, 2, 3 and 4).

SAF PM-10 The Build Alternatives would be designed and constructed in compliance with the MRDC or equivalent related to safety and security (Alternatives 1, 2, 3 and 4).

SAF PM-12 A Fire/Life Safety Committee for the Build Alternatives would be established per the MRDC or equivalent and FTA requirements. The committee would be tasked with addressing fire protection requirements for the construction of the Build Alternatives (Alternatives 1, 2, 3 and 4).

8.2 Mitigation Measures

8.2.1 Operation

The following mitigation measure would be implemented during project operation to avoid, minimize, or reduce the potential for impacts to safety and security.

SAF-1 (Encroachment Detection) The Project would incorporate a means of encroachment detection along the portion of the corridor that shares right-of-way with freight operations. The encroachment detection system would detect unauthorized entry into Metro right-of-way, such as a freight train derailment. Prior to the start of service, Metro would develop a plan that outlines procedures should the encroachment detection system be triggered. In the event the intrusion detection system detects a possible derailment, all parties operating in the shared right-of-way corridor would be notified and train traffic (freight and light rail transit) would not be permitted to enter the area until the detection is investigated and the intrusion, if any, addressed to avoid possible derailments (Alternatives 1, 2, 3, and 4).

8.2.2 Construction

The following mitigation measures would be implemented during project construction to avoid, minimize, or reduce the potential for impacts to safety and security.

SAF-2 (School District Coordination) Metro would coordinate with and notify the school districts and individual school administrators to maintain or modify safe and convenient pedestrian, bicycle, and bus routes to schools as necessary during and after construction. This also includes the publication and distribution of alternative pedestrian and bicycle route maps (Alternatives 1, 2, 3, and 4).

SAF-3 (Construction Site Measures) Metro's contractor would provide safety and security measures at the construction sites and staging areas. Security measures would include barriers for excavations, installation of temporary barriers around perimeters, security patrols, and appropriate signage and lighting. The contractor would provide a safety and security plan to Metro for review prior to the start of construction (Alternatives 1, 2, 3, and 4).

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APPENDIX A: EXISTING SAFETY FEATURES AT STREET INTERSECTIONS

Table A.1. List of Existing Crossings with Existing Physical Features in the Northern Section (Union Station to Florence Avenue)

Street/ Pedestrian Crossings	Northern Section Alternatives	City	Existing Crossing Type	Traffic Safety	Pedestrian Facility
US-101	Alternative E	Los Angeles	Grade Separated	N/A	N/A
Alameda Street/ Commercial Street	Alternative E	Los Angeles	Grade Separated	Signalized intersection	Crosswalk
Alameda Street/ Temple Street	Alternative E	Los Angeles	Grade Separated	Signalized intersection & railroad warning light	Crosswalk
Alameda Street/ 1st Street	Alternative E	Los Angeles	No existing crossing	Signalized intersection	Crosswalk
Alameda Street/ 2nd Street	Alternative E	Los Angeles	No existing crossing	Signalized intersection	Crosswalk
Alameda Street/ Traction Avenue	Alternative E	Los Angeles	No existing crossing	N/A	Crosswalk
Alameda Street/ 3rd Street	Alternative E	Los Angeles	No existing crossing	Signalized intersection	Crosswalk
Alameda Street/ 4th Street	Alternative E	Los Angeles	No existing crossing	Signalized intersection	Crosswalk
Alameda Street/ 5th Street	Alternative E	Los Angeles	No existing crossing	One-way stop	N/A
Alameda Street/ Palmetto Court	Alternative E	Los Angeles	No existing crossing	One-way stop	N/A
Alameda Street/ Factory Place	Alternative E	Los Angeles	No existing crossing	One-way stop	N/A
Alameda Street/ 6th Street	Alternative E	Los Angeles	No existing crossing	Signalized intersection	Crosswalk
Alameda Street/ Wholesale Street	Alternative E	Los Angeles	No existing crossing	Driveway	Driveway
Alameda Street/ Industrial Street	Alternative E	Los Angeles	No existing crossing	One-way stop	Driveway
Central Avenue	Alternative G	Los Angeles	No existing crossing	N/A	N/A
Kohler Street	Alternative G	Los Angeles	No existing crossing	N/A	N/A
Ceres Street/ 7th Street	Alternative G	Los Angeles	No existing crossing	N/A	N/A
Gladys Avenue	Alternative G	Los Angeles	No existing crossing	N/A	N/A

Street/ Pedestrian Crossings	Northern Section Alternatives	City	Existing Crossing Type	Traffic Safety	Pedestrian Facility
Stanford Avenue	Alternative G	Los Angeles	No existing crossing	N/A	N/A
Towne Avenue	Alternative G	Los Angeles	No existing crossing	N/A	N/A
Agatha Street	Alternative G	Los Angeles	No existing crossing	N/A	N/A
Crocker Street	Alternative G	Los Angeles	No existing crossing	N/A	N/A
San Pedro Street	Alternative G	Los Angeles	No existing crossing	N/A	N/A
San Julian Street	Alternative G	Los Angeles	No existing crossing	N/A	N/A
8th Street/ Wall Street	Alternative G	Los Angeles	No existing crossing	Signalized intersection	Crosswalk
8th Street/ Cecilia Street	Alternative G	Los Angeles	No existing crossing	N/A	N/A
8th Street/ Maple Avenue	Alternative G	Los Angeles	No existing crossing	Signalized intersection	Crosswalk
8th Street/ Santee Street	Alternative G	Los Angeles	No existing crossing	N/A	Crosswalk
8th Street/ Los Angeles Street	Alternative G	Los Angeles	No existing crossing	Signalized intersection	Crosswalk
8th Street/ Main Street	Alternative G	Los Angeles	No existing crossing	Signalized intersection	Crosswalk
8th Street/ Spring Street	Alternative G	Los Angeles	No existing crossing	Signalized intersection	Crosswalk
8th Street/ Broadway	Alternative G	Los Angeles	No existing crossing	Signalized intersection	Crosswalk
8th Street/ Hill Street	Alternative G	Los Angeles	No existing crossing	Signalized intersection	Crosswalk
8th Street/ Olive Street	Alternative G	Los Angeles	No existing crossing	Signalized intersection	Crosswalk
8th Street/ Grand Avenue	Alternative G	Los Angeles	No existing crossing	Signalized intersection	Crosswalk
8th Street/ Hope Street	Alternative G	Los Angeles	No existing crossing	Signalized intersection	Crosswalk
8th Street/ Flower Avenue	Alternative G	Los Angeles	No existing crossing	Signalized intersection	Crosswalk

Street/ Pedestrian Crossings	Northern Section Alternatives	City	Existing Crossing Type	Traffic Safety	Pedestrian Facility
Alameda Street/ 7th Street	Alternative E and G	Los Angeles	No existing crossing	Signalized intersection	Crosswalk
Alameda Street/ Center Street	Alternative E and G	Los Angeles	Abandoned at-grade crossing	Signalized intersection	Crosswalk
Alameda Street/ Bay Street	Alternative E and G	Los Angeles	Abandoned at-grade crossing	Signalized intersection	Crosswalk
Alameda Street/ 8th Street	Alternative E and G	Los Angeles	Abandoned at-grade crossing	Signalized intersection	Crosswalk
Alameda Street/ Hunter Street	Alternative E and G	Los Angeles	Abandoned at-grade crossing	One-way stop	N/A
Alameda Street/ Olympic Boulevard	Alternative E and G	Los Angeles	Abandoned at-grade crossing	Signalized intersection	Crosswalk
Alameda Street/ E 14th Street	Alternative E and G	Los Angeles	No existing crossing	Signalized intersection	Crosswalk
Newton Street	Alternative E and G	Los Angeles	No existing crossing	N/A	N/A
Long Beach Avenue/ E 15th Street	Alternative E and G	Los Angeles	No existing crossing	Four way stop	N/A
I-10 Freeway	Alternative E and G	Los Angeles	No existing crossing	N/A	N/A
Long Beach Avenue/ E 16th Street	Alternative E and G	Los Angeles	No existing crossing	Four-way stop	N/A
Long Beach Avenue/ Washington Boulevard	Alternative E and G	Los Angeles	Existing at-grade	Signalized intersection	Crosswalk
Long Beach Avenue/ 20th Street	Alternative E and G	Los Angeles	Existing at-grade	Signalized intersection railroad gate & warning light	Crosswalk
Long Beach Avenue/ 24th Street	Alternative E and G	Los Angeles	Existing at-grade	Signalized intersection railroad gate & warning light	Crosswalk

Street/ Pedestrian Crossings	Northern Section Alternatives	City	Existing Crossing Type	Traffic Safety	Pedestrian Facility
Long Beach Avenue/ 41st Street	Alternative E and G	Los Angeles	Existing at-grade	Signalized intersection railroad gate & warning light	Crosswalk
Long Beach Avenue/ Vernon Avenue	Alternative E and G	Los Angeles	Existing at-grade	Signalized intersection railroad gate & warning light	Crosswalk
Long Beach Avenue/ 48th Place	Alternative E and G	Los Angeles	Existing at-grade	Signalized intersection railroad gate & warning light	Crosswalk
Long Beach Avenue/ 55th Street	Alternative E and G	Los Angeles	Existing at-grade	Railroad gate & warning light Four-way stop	Crosswalk
Slauson Avenue	Alternative E and G	Los Angeles	Grade Separated	Railroad gate & warning light	N/A
Randolph Street/ Holmes Avenue	Alternative E and G	Florence-Graham	Existing at-grade	Signalized intersection railroad gate & warning light	Sidewalk
Randolph Street/ Wilmington Avenue	Alternative E and G	Florence-Graham	Existing at-grade	Four-way stop railroad gate & warning light	Sidewalk
Randolph Street/ Alameda Street	Alternative E and G	Huntington Park	Existing at-grade	Signalized intersection railroad gate & warning light	Crosswalk
Randolph Street/ Regent Street	Alternative E and G	Huntington Park	Existing at-grade	N/A	N/A
Randolph Street/ Albany Street	Alternative E and G	Huntington Park	Existing at-grade	Railroad gate & warning light	Sidewalk
Randolph Street/ Santa Fe Avenue	Alternative E and G	Huntington Park	Existing at-grade	Signalized intersection railroad gate & warning light	Crosswalk
Randolph Street/ Malabar Street	Alternative E and G	Huntington Park	Existing at-grade	Signalized intersection railroad gate & warning light	Crosswalk
Randolph Street/ Rugby Avenue	Alternative E and G	Huntington Park	Existing at-grade	Railroad gate & warning light	N/A

Street/ Pedestrian Crossings	Northern Section Alternatives	City	Existing Crossing Type	Traffic Safety	Pedestrian Facility
Randolph Street/ Pacific Boulevard	Alternative E and G	Huntington Park	Existing at-grade	Signalized intersection & railroad warning light	Crosswalk
Randolph Street/ Rita Avenue	Alternative E and G	Huntington Park	Existing at-grade	Railroad gate & warning light	N/A
Randolph Street/ Seville Avenue	Alternative E and G	Huntington Park	Existing at-grade	Signalized intersection railroad gate & warning light	Crosswalk
Randolph Street/ Miles Avenue	Alternative E and G	Huntington Park	Existing at-grade	Signalized intersection railroad gate & warning light	Crosswalk
Randolph Street/ Arbutus Avenue	Alternative E and G	Huntington Park	Existing at-grade	Railroad warning light	N/A
North Randolph Street	Alternative E and G	Huntington Park	Existing at-grade	Railroad gate & warning light	N/A
Randolph Street/ State Street	Alternative E and G	Huntington Park	Existing at-grade	Railroad gate & warning light	Sidewalk
Randolph Street	Alternative E and G	Huntington Park	Existing at-grade	Railroad gate & warning light	Sidewalk
Gage Avenue	Alternative E and G	Bell	Existing at-grade	Railroad gate & warning light	Sidewalk
Bell Avenue	Alternative E and G	Bell	Existing at-grade	Railroad gate & warning light	Sidewalk
Florence Avenue	Alternative E and G	Bell	Existing at-grade	Railroad gate & warning light	Sidewalk

Table A.2. Potential Grade Crossings for Southern Section

Street	Design Option	City	Grade Crossing	Traffic Safety	Pedestrian Facility
Otis Avenue	N/A	Cudahy	Existing at-grade	Railroad gate & warning light	Sidewalk
Santa Ana Street	N/A	Cudahy	Existing at-grade	Railroad gate & warning light	N/A
Ardine Street	N/A	Cudahy	Existing at-grade	Railroad warning light	N/A
Atlantic Avenue	N/A	South Gate	Existing at-grade	Railroad gate & warning light	Sidewalk
Firestone Boulevard	N/A	South Gate	Existing at-grade	Signalized crossing railroad gate & warning light	Sidewalk
Rayo Avenue	N/A	South Gate	Existing at-grade	Railroad gate & warning light	Sidewalk
Southern Avenue	N/A	South Gate	Existing at-grade	Railroad gate & warning light	Bike lane
LA River Bike Path	N/A	South Gate	Grade separated	N/A	Bike path
I-710	N/A	South Gate	Grade separated	N/A	N/A
Rio Hondo Bike Path	N/A	South Gate	Grade separated	N/A	Bike path
Imperial Highway	N/A	South Gate	Existing at-grade	Railroad gate & warning light	Sidewalk
Garfield Avenue	N/A	South Gate	Existing at-grade	Railroad gate & warning light	Sidewalk
Gardendale Street	N/A	Downey	Existing at-grade	Railroad gate & warning light	N/A
Main Street	N/A	South Gate	Existing at-grade	Railroad gate & warning light	Sidewalk

Street	Design Option	City	Grade Crossing	Traffic Safety	Pedestrian Facility
Century Boulevard	N/A	South Gate	Existing at-grade	Railroad gate & warning light	Sidewalk
I-105	N/A	Paramount	Grade separated	N/A	N/A
Paramount Boulevard/ Rosecrans Avenue	N/A	Paramount	Existing at-grade	Signalized intersection	Crosswalk/ sidewalk
Paramount Park/ High School	N/A	Paramount	Grade separated	N/A	Pedestrian bridge
Downey Avenue	N/A	Paramount	Existing at-grade	Railroad gate & warning light	Sidewalk
Somerset Boulevard	N/A	Paramount	No existing crossing	N/A	Sidewalk
Lakewood Boulevard	N/A	Paramount	No existing crossing	N/A	Sidewalk
Clark Avenue	N/A	Bellflower	No existing crossing	N/A	Sidewalk
Alondra Boulevard	N/A	Bellflower	No existing crossing	N/A	Sidewalk
Bellflower Boulevard	N/A	Bellflower	No existing crossing	N/A	Sidewalk
Bellflower Bike Trail (1/2)	N/A	Bellflower	No existing crossing	N/A	Bike Path
Bellflower Bike Trail (2/2)	N/A	Bellflower	No existing crossing	N/A	Bike Path
Flower Street	N/A	Bellflower	No existing crossing	N/A	Sidewalk
Woodruff Avenue	N/A	Bellflower	No existing crossing	N/A	Sidewalk
SR-91	N/A	Bellflower	Grade separated	N/A	N/A
San Gabriel River Bike Path	N/A	Cerritos	Grade separated	N/A	Bike path
Driveway off of Artesia Boulevard	N/A	Cerritos	At-grade	Private crossing	Private crossing
Artesia Boulevard	N/A	Cerritos	No existing crossing	N/A	Sidewalk
I-605	N/A	Cerritos	Grade separated	N/A	Freeway

Street	Design Option	City	Grade Crossing	Traffic Safety	Pedestrian Facility
Studebaker Road	N/A	Cerritos	No existing crossing	N/A	Sidewalk
183rd Street/ Gridley Road	N/A	Artesia	No existing crossing	N/A	Crosswalk/ sidewalk
186th Street	N/A	Artesia	No existing crossing	N/A	Sidewalk
187th Street	N/A	Artesia	No existing crossing	N/A	Sidewalk
Pioneer Boulevard	N/A	Artesia	No existing crossing	N/A	Sidewalk

APPENDIX B – ACCIDENT DATA FOR EXISTING GRADE CROSSINGS

Grade Crossing	Jurisdiction	Crossing ID	Accidents Since 1975
Randolph State/Santa Fe Avenue	Huntington Park	761587R	4
Randolph Street/Malabar Street	Huntington Park	761588X	0
Randolph Street/Seville Avenue	Huntington Park	761592M	1
Randolph Street/Miles Avenue	Huntington Park	761593U	0
Randolph Street/Arbutus Avenue	Huntington Park	761594B	0
Randolph Street/Wilmington Avenue	Huntington Park	N/A	N/A
Randolph Street/Regent Street	Huntington Park	761585C	0
Randolph Street/Albany Street	Huntington Park	761586J	0
Randolph Street/Rugby Avenue	Huntington Park	761589E	2
Randolph Street/Rita Avenue	Huntington Park	761591F	5
Pacific Boulevard/Randolph Street	Huntington Park	761590Y	2
Randolph Street/State Street	Huntington Park	N/A	N/A
Salt Lake Avenue/Bell Avenue	Bell	810950F	1
Salt Lake Avenue/Gage Avenue	Huntington Park	810949L	3
Salt Lake Avenue/Otis Avenue	Huntington Park	810952U	17
Salt Lake Avenue/Florence Avenue	Huntington Park	028134F/810951M	6
Salt Lake Avenue/Ardine Street	Cudahy	810955P	3
Salt Lake Avenue/Santa Ana Street	Cudahy	810953B/973818H	3
Salt Lake Avenue/Southern Avenue	South Gate	810961T	0
Firestone Boulevard/Firestone Place	South Gate	810958K	3
Atlantic Avenue/Patata Street	South Gate	810956W	3
Rayo Avenue	South Gate	810961T	0
Garfield Avenue	South Gate	811091X	3
Garfield Place/Imperial Highway	South Gate	811090R	17
Dakota Avenue/Main Street	South Gate	811089W	4
Dakota Avenue/Gardendale Street	South Gate	811092E	3
Paramount Boulevard/Rosecrans Avenue	South Gate	747939K	1
Century Boulevard/Industrial Avenue	Paramount	811087H	2

Source: Federal Railroad Administration. 2017. Office of Safety Analysis Crossing Inventory and Accident Reports, July 2017. http://safetydata.fra.dot.gov/OfficeofSafety/PublicSite/Crossing/Crossing .aspx. Accessed October 2017.