I-710 Missing Link Truck Study

Traffic Analysis for the Arroyo Verdugo Subregion With and Without the I-710 Gap Closure

Preliminary Draft Final Report

Submitted to

Southern California Association of Governments

SOUTHERN CALIFORNIA ASSOCIATION of GOVERNMENTS

Submitted by

ITERIS® Innovation for better mobility

In Association with the **KOA Corporation**

May 2009

Table of Contents

List of Figures

List of Tables

1.0 INTRODUCTION

1.1 Project Background and Description

The I-710 Freeway serves as a major north-south link in the Southern California transportation network. This freeway, which was originally planned by Caltrans as part of the outer loop to the Los Angeles metropolitan area, was never completed as originally planned through the cities of Alhambra, Los Angeles, South Pasadena, and Pasadena and has a 4.5 mile unfinished "Missing Link". The I-710 Freeway begins at the Port of Long Beach and extends to Valley Boulevard in the City of Alhambra. The freeway resumes 4.5 miles to the north at Del Mar Boulevard in the City of Pasadena where it extends 0.6 miles to its junction with the I-210 freeway. For forty years, various proposals and concepts to close the I-710 gap have been studied. Most of these were proposals for a surface freeway that were unable to satisfy both regional mobility needs and community and environmental concern of the local jurisdictions and their constituents.

Recognizing the significance of closing the I-710 gap from a regional connectivity and mobility perspective, SCAG has included this project in its Regional Transportation Plan (RTP) since 1989 and in its Regional Transportation Improvement Program (RTIP) since 1991.

The concept of using a deep vehicular tunnel to close the freeway gap was one of the latest compromises put forward to address the concerns of the communities affected by the corridor. The recently completed Route 710 Tunnel Technical Feasibility Assessment Report, which was commissioned by the Los Angeles Metropolitan Transportation Authority (Metro), demonstrated the physical, environmental, and financial viability of constructing a tunnel to close the I-710 gap, but did not extensively review the effect the I-710 gap closure would have on the roadway system of the communities surrounding the project.

The study used the SCAG Year 2030 Transportation Model to forecast volumes associated with project alternatives. This study indicated that, while traffic would decrease on most nearby parallel freeway segments, traffic volumes on the I-210 north of the gap closure would increase by 2,500 passenger car equivalents (PCE) per hour in the peak direction, a seven percent increase over the base conditions.

While the planned I-710 gap closure and truck lanes are intended to facilitate eastbound connections at the SR-91 and SR-60, south of the study area, the I-710 gap closure would allow trucks to bypass the congested downtown Los Angeles area for trips to and from the Central Valley and Northern California areas. These and other dynamics of the I-710 gap closure as it relates to effects on vehicular and especially truck traffic volumes within the influence area of the I-710 gap will be studied in greater detail in this project. This area of influence encompasses the various cities in the Arroyo Verdugo Subregion including, Pasadena, South Pasadena, Glendale, Burbank La Canada Flintridge and the western portions of San Gabriel Valley. A key aspect of this project will be a comparative evaluation of expected conditions with and without the "missing link", the traffic impacts to the influence area's circulation network and investigation of possible improvements and mitigation measures to alleviate these potential impacts.

1.2 Study Area

The study area of this project is bounded by Foothill Freeway (I-210) to the north, I-10 Freeway to the south, Golden State Freeway (I-5) to the west and Rosemead Boulevard (SR-19) to the east. **Figure 1** shows a map of the study area.

Major freeways in the study area include:

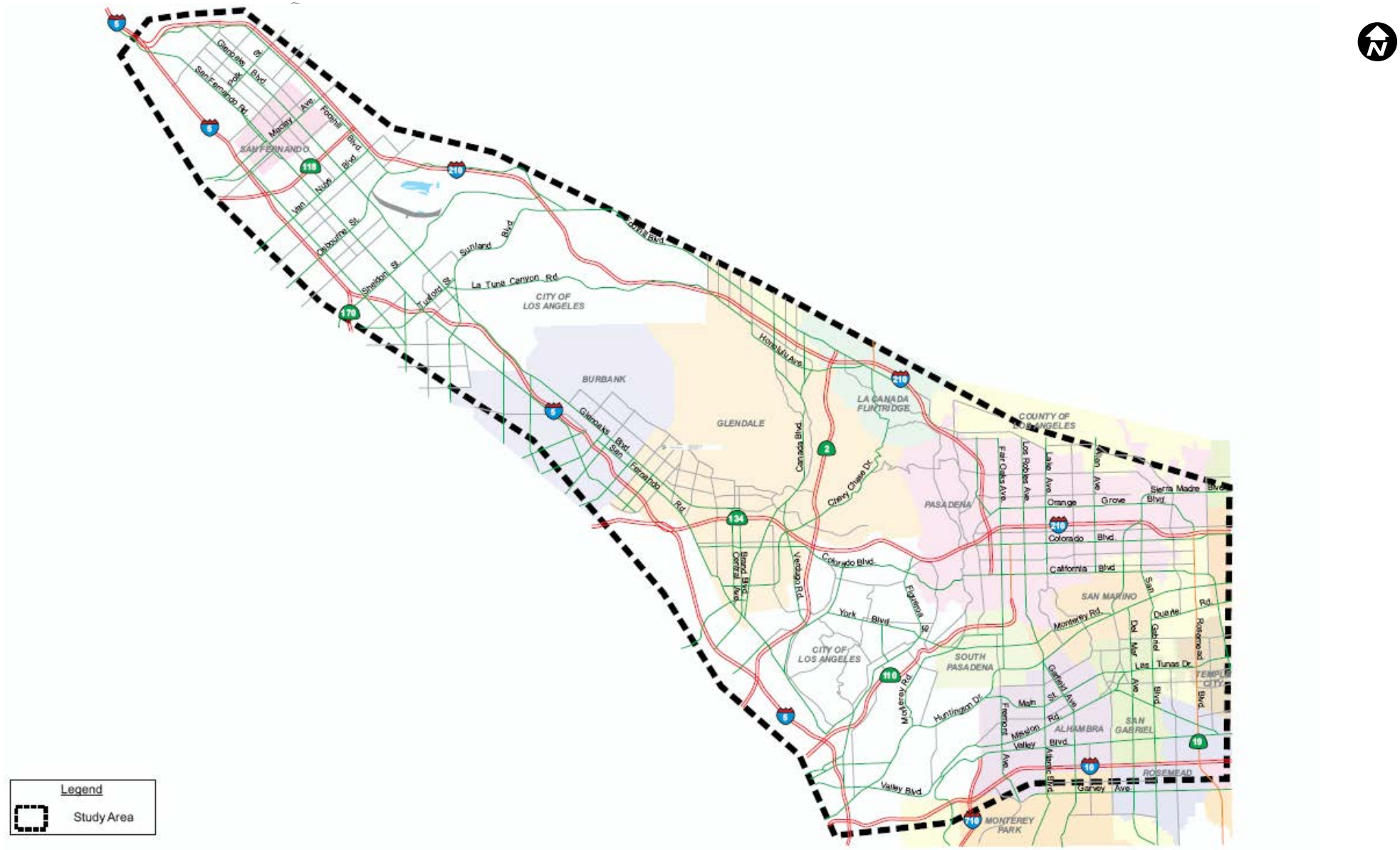
- Foothill Freeway (I-210)
- Golden State Freeway (I-5)
- San Bernardino Freeway (I-10)
- Long Beach Freeway (I-710)
- Ventura Freeway (SR-134)
- Glendale Freeway (SR-2)
- Pasadena Freeway (SR-110)
- Simi-Valley/San Fernando Freeway (SR-118)
- State Route 19

A list of major arterials was identified in the study area for analysis. The identification process was based on the following considerations:

- To include designated key facilities on the recently completed Countywide Significant Arterial Network (CSAN);
- To include facilities that carry significant truck traffic;

The major arterials identified for analysis include:

- Rosemead Blvd
- San Gabriel Blvd
- Del Mar Ave
- San Marino Ave
- Garfield Ave
- Atlantic Blvd
- Fremont Ave
- Pasadena Ave
- Arroyo Blvd
- Figueroa St
- La Crescenta Ave
- San Fernando Rd
- Glenoaks Blvd
- Valley Blvd
- Mission Rd
- Huntington Dr
- Del Mar Blvd
- Colorado Blvd
- Foothill Blvd
- Orange Grove Blvd
- Sierra Madre Blvd



ITERIS

I-710 Missing Link, Truck Study Project

Study Area

Figure 1

2.0 EXISTING CONDITIONS

This section describes the existing conditions within the study area, in terms of roadway facilities, traffic volumes, accident data, land use data, truck routes and truck trip generators. For this study, the existing conditions year was set as 2005. The following section gives a brief description of the study area freeways and arterials.

2.1 Roadway Descriptions

2.1.1 Freeways

Interstate 5 - Golden State Freeway (I-5) provides regional access for the study area. Generally, this freeway facility consists of six to eight lanes. The freeway traverses through the State of California in a northwest and southeast direction. I-5 originates at the border with Mexico and continues north to its terminus at the border with Canada. Within the study area, I-5 is a four to six-lane freeway between I-210 and I-10. The primary truck access to major industrial and commercial uses within study area is provided via I-5 freeway.

Interstate 10 - Santa Monica Freeway/San Bernardino Freeway/Christopher Columbus Transcontinental Highway (I-10): is primarily an east/west oriented freeway that stretches from the Pacific Ocean at State Route 1(Pacific Coast Highway) in Santa Monica, California to Interstate 95 in Jacksonville, Florida. Freeway is a major east-west freeway in the greater Los Angeles Metropolitan area providing residents and businesses with excellent access to Los Angeles and San Bernardino counties. Within the study area, the I-10 freeway is a six-lane freeway with Heavy Occupancy Vehicle (HOV) lanes in both directions between I-5 and SR-19 (Rosemead Boulevard). I-10 provides a full interchange with I-5 and I-710. It travels through the central portion of the City and provides residents and businesses with excellent access to Los Angeles and San Bernardino counties.

Interstate 210 - Foothill Freeway (I-210) is primarily an east/west oriented freeway that extends from the I-5 Freeway in Sylmar to the north to State Route 57 in Pomona to the east. The central portion of the I-210 freeway was completed and opened to traffic in July of 2007. Within the study area, I-210 is a four to six-lane freeway between I-5 and SR-19 (Rosemead Boulevard).

Interstate 710 - Long Beach Freeway (I-710) is a major north-south three to four lanes interstate freeway running for 23 miles through Los Angeles County, California. The southern terminus of the freeway presently signed as Interstate 710 is at Ocean Boulevard in Long Beach. From there, the Long Beach Freeway follows the course of the Los Angeles River to Atlantic Boulevard in the city of Bell. I-710 then travels roughly due north, east of Downtown Los Angeles, to its current northern terminus at Valley Boulevard (just north of Interstate 10) in Alhambra, just east of the Los Angeles community of El Sereno. A short portion of the unsigned I-710 does exist in Pasadena, heading south from the interchange of Interstate 210 and State Route 134 to California Boulevard. Within the study area, I-710 is a three-lane freeway between I-10 and Valley Boulevard.

State Route 110 - Harbor Freeway/Pasadena Freeway (SR-110) consists of two segments of State Route 110 (SR 110) joined by Interstate 110 (I-110), is a state highway in the Los Angeles area. SR-110 north from US-101 to Pasadena is the historic Pasadena Freeway, the first freeway in California. At the south end of I-110, SR 110 continues south on Gaffey Street in the Los Angeles neighborhood of San Pedro. Within the study area SR-110 is a three-lane freeway between I-5 and Glenarm Street in the City of Pasadena.

State Route 118 - Ronald Reagan Freeway (SR-118) is primarily an east/west oriented two lane state route that connects between Saticoy in Ventura County and Lake View Terrance in Los Angeles County. Within the study area SR-118 is a four-lane route between I-5 and I-210.

State Route 134 - Ventura Freeway (SR-134) is an east-west oriented freeway that extends from the I-210 Freeway in Pasadena to U.S. Highway 101 in North Hollywood. Four mixed-flow travel lanes and one HOV lane are provided in each direction on SR-134 in the Glendale area. Within the study area SR-134 is a four to five-lane route between I-5 and I-210.

State Route 2 - Glendale Freeway (SR-2) is a north/south freeway that extends from just south of the I-5 Freeway near Echo Park to the south to just north of the I-210 Freeway near La Canada Flintridge to the north. Within the study area SR-2 is a four to five-lane route between I-5 and I-210.

State Route 19 - Lakewood Boulevard/Rosemead Boulevard (SR-19) is a north-south two-three lane state route that runs between Pacific Coast Highway in the city of Long Beach and I-210 freeway in the city of Pasadena. This route is also referred as State Route 164.

2.1.2 Arterials

San Fernando Road - Within the study area, San Fernando Road is a two-lane (each direction) roadway with combination of raised and striped medians running between Sepulveda Boulevard in the north to Figueroa Street in the South. San Fernando Road traverses through the cities of Los Angeles, San Fernando, Burbank and Glendale. Within the City of Los Angeles, San Fernando Road is classified as Major Highway Class II. The general posted speed limit on San Fernando Road is about 35 to 40 miles per hour. On-street parking is restricted along some portions of San Fernando Road. San Fernando Road is generally fronted by commercial and industrials uses within the study area.

Glenoaks Boulevard - Within the study area, Glenoaks Boulevard is a two-lane (each direction) roadway with combination of raised and striped medians running between Foothill Boulevard in the north and Brand Boulevard in the South. Glenoaks Boulevard traverses through the cities of Los Angeles, San Fernando, Burbank and Glendale. Within the City of Los Angeles, Glenoaks Boulevard is classified as Secondary Roadway and Major Highway Class II. The general posted speed limit on Glenoaks Boulevard is about 35 to 40 miles per hour. On-street parking is generally permitted with some restrictions along Glenoaks Boulevard. Glenoaks Boulevard is generally fronted by residential, commercial and industrials uses within the study area.

Laurel Canyon Boulevard - Within the study area, Laurel Canyon Boulevard is a two-lane (each direction) roadway with combination of raised and striped medians running between Hubbard Street in the north and Webb Avenue in the South. Laurel Canyon Boulevard traverses through the cities of Los Angeles and San Fernando. Within the City of Los Angeles, Laurel Canyon Boulevard is classified as Major Highway Class II. The general posted speed limit on Laurel Canyon Boulevard is about 35 to 40 miles per hour. On-street parking is restricted along some portions of Laurel Canyon Boulevard. Laurel Canyon Boulevard is generally fronted by residential and commercial uses within the study area.

Foothill Boulevard - Within the study area, Foothill Boulevard is a two-lane (each direction) roadway with combination of raised and striped medians running between Balboa Boulevard in the west and Rosemead Boulevard in the east. Foothill Boulevard traverses through the cities of Los Angeles, Glendale, La Canada Flintridge and Pasadena. There are some discontinuous portions of Foothill Boulevard in City of Pasadena. Within the City of Los Angeles, Foothill Boulevard is classified as Major Highway Class II. The general posted speed limit on Foothill Boulevard is about 35 to 40 miles per hour. On-street parking is restricted along some portions of Foothill Boulevard.

Roxford Street - Within the study area, Roxford Street is a one-lane (each direction) roadway with a two-way turn lane all along running between Sepulveda Boulevard and Foothill Boulevard within the community of Sylmar in the City of Los Angeles. Roxford Street is classified as Major Highway Class II with a posted speed limit of 35 miles per hour. On-street parking is generally permitted along Roxford Street. Roxford Street is fronted by residential and commercial uses.

Polk Street - Within the study area, Polk Street is a one-lane (each direction) roadway with a two-way turn lane all along running between San Fernando Road and Foothill Boulevard within the community of Sylmar in the City of Los Angeles. Polk Street is classified as Major Highway Class II with a posted speed limit of 35 miles per hour. On-street parking is generally permitted along Polk Street. Polk Street is fronted by residential and commercial uses.

Hubbard Street - Within the study area, Hubbard Street is a two-lane (each direction) roadway with a two-way turn lane all along running between Laurel Canyon Boulevard and Foothill Boulevard within the community of Sylmar in the City of Los Angeles. Hubbard Street is classified as Major Highway Class II with a posted speed limit of 35 miles per hour. On-street parking is generally permitted along Hubbard Street. Hubbard Street is fronted by residential and commercial uses.

Maclay Avenue - Maclay Avenue varies from a one to two-lane (each direction) roadway with a raised median running between San Fernando Road and Foothill Boulevard within the city of San Fernando. The posted speed limit on Maclay Avenue is 35 miles per hour. On-street parking is generally permitted. Maclay Avenue is fronted by residential and commercial uses.

Van Nuys Boulevard - Within the study area, Van Nuys Boulevard is a two-lane (each direction) roadway with a two-way turn lane all along running between I-5 in the west and Foothill Boulevard in the east. Van Nuys Boulevard traverses through the city of Los Angeles and is classified as Major Highway Class II. The general posted speed limit on Van Nuys Boulevard is about 35 miles per hour. On-street parking is generally permitted along Van Nuys Boulevard. Van Nuys Boulevard is generally fronted by residential and commercial uses within the study area.

Sunland Boulevard - Within the study area, Sunland Boulevard is a two-lane (each direction) roadway with a two-way turn lane all along running between Glenoaks Boulevard in the west and Foothill Boulevard in the east. Sunland Boulevard traverses through the city of Los Angeles and is classified as Major Highway Class II. The general posted speed limit on Sunland Boulevard is about 45 miles per hour. On-street parking is generally permitted along Sunland Boulevard. Sunland Boulevard is generally fronted by residential and commercial uses within the study area.

La Tuna Canyon Road - Within the study area, La Tuna Canyon Road is a two-lane (each direction) roadway with striped median all along running between Sunland Boulevard in the west and Foothill Boulevard in the east. La Tuna Canyon Road traverses through the city of Los Angeles and is classified as Secondary Roadway. The general posted speed limit on La Tuna Canyon Road is about 35 miles per hour. On-street parking is generally permitted along La Tuna Canyon Road. La Tuna Canyon Road is generally fronted by residential uses within the study area.

Central Avenue - Within the study area, Central Avenue is a two-lane (each direction) north-south oriented roadway that traverses within the City of Glendale, Central Avenue runs between Glenoaks Boulevard and San Fernando Road. Central Avenue is designated as a Major Arterial within the study area in the City's General Plan Circulation Element. The general posted speed limit is 35 miles per hour. On-street parking is generally permitted along Central Avenue.

Brand Boulevard - Within the study area, Brand Boulevard is a two-lane (each direction) north-south oriented roadway that traverses within the City of Glendale, Brand Boulevard runs between Glenoaks Boulevard and San Fernando Road. Brand Boulevard is designated as a Major Arterial within the study area in the City's General Plan Circulation Element. The general posted speed limit is 35 miles per hour. On-street parking is generally permitted along Brand Boulevard.

Glendale Avenue - Within the study area, Glendale Avenue is a two-lane (each direction) north-south oriented roadway that traverses within the City of Glendale, Glendale Avenue runs between Glenoaks Boulevard and San Fernando Road. Glendale Avenue is designated as a Major Arterial within the study area in the City's General Plan Circulation Element. The general posted speed limit is 35 miles per hour. On-street parking is generally permitted along Glendale Avenue.

Monterey Road - Within the study area, Monterey Road is a two-lane (each direction) east-west oriented roadway within the City of Glendale. In the City's General Plan Circulation Element, Monterey Road is designated as a Minor Arterial between Brand Boulevard and Cordova Avenue, as a Major Arterial between Cordova Avenue and Glendale Avenue, and as an Urban Collector between Glendale Avenue and Verdugo Road.

Colorado Street - Within the study area, Colorado Street is a two-lane (each direction) east-west oriented roadway within the City of Glendale. Colorado Street is designated as a Major Arterial in the Circulation Element of the City of Glendale General Plan. The general posted speed limit along Colorado Street is 35 miles per hour.

Verdugo Road - Within the study area, Verdugo Road is a two-lane (each direction) north-south oriented roadway within the City of Glendale and Los Angeles. Within the study area Verdugo Road runs between Chevy Chase Drive and Eagle Rock Boulevard. Verdugo Road is classified as

a Secondary Roadway within the City of Los Angeles. The general posted speed limit along Verdugo Road is 35 miles per hour. Verdugo Road is fronted by residential and commercial uses.

Honolulu Avenue - Within the study area, Honolulu Ave is a two-lane (each direction) east-west oriented roadway within the City of Glendale. Within the study area Honolulu Ave runs between Pennsylvania Avenue and Verdugo Road. The general posted speed limit along Honolulu Ave is 35 miles per hour. Honolulu Ave is fronted by residential and commercial uses.

Colorado Boulevard - Within the study area, Colorado Boulevard is a two to three-lane (each direction) roadway with combination of raised and striped medians running between Eagle Rock Boulevard in the west and Rosemead Boulevard in the east. Colorado Boulevard traverses through the cities of Los Angeles and Pasadena. Within the City of Los Angeles, Colorado Boulevard is classified as a Major Highway Class II. The general posted speed limit on Colorado Boulevard is about 35 to 40 miles per hour. On-street parking is generally permitted with some restrictions along Colorado Boulevard. Colorado Boulevard is generally fronted by residential and commercial uses within the study area.

York Boulevard - Within the study area, York Boulevard is a one-lane (each direction) roadway with a two-way turn lane all along running between Eagle Rock Boulevard and Figueroa Street within the City of Los Angeles. York Boulevard is classified as Major Highway Class II with a posted speed limit of 35 miles per hour. On-street parking is generally permitted along York Boulevard. York Boulevard is fronted by commercial uses.

Eagle Rock Boulevard - Within the study area, Eagle Rock Boulevard is a two-lane (each direction) roadway with a raised median and a dedicated bike lane all along running between Colorado Boulevard and Division Street within the City of Los Angeles. Eagle Rock Boulevard is classified as Major Highway Class II with a posted speed limit of 35 miles per hour. On-street parking is generally permitted along Eagle Rock Boulevard. Eagle Rock Boulevard is fronted by commercial uses.

Figueroa Street - Within the study area, Figueroa Street is a two-lane (each direction) roadway with a two-way turn lane all along running between San Fernando Road and Colorado Boulevard within the City of Los Angeles. Figueroa Street is classified as Major Highway Class II between San Fernando Road and Colorado Boulevard, north of Colorado Boulevard, Figueroa Street is classified as Secondary Roadway. The posted speed limit on Figueroa Street is 35 miles per hour. On-street parking is generally permitted along Figueroa Street. Figueroa Street is fronted by commercial uses.

Huntington Drive - Within the study area, Huntington Drive is a two to three-lane (each direction) east-west oriented roadway with combination of raised and striped medians running between Mission Road in the west and Rosemead Boulevard in the east. Huntington Drive traverses through the cities of Los Angeles, Alhambra, South Pasadena, San Gabriel and Rosemead. Huntington Drive is classified as a Major Arterial. The general posted speed limit on Huntington Drive is about 35 to 40 miles per hour. On-street parking is generally permitted with some restrictions along Huntington Drive. Huntington Drive is generally fronted by commercial uses within the study area.

Valley Boulevard - Within the study area, Valley Boulevard is a two-lane (each direction) east-west oriented roadway with combination of raised and striped medians running between Mission Road in the west and Rosemead Boulevard in the east. Valley Boulevard traverses through the cities of Los Angeles, Alhambra, San Gabriel and Rosemead. Valley Boulevard is classified as a Major Arterial. The general posted speed limit on Valley Boulevard is about 35 miles per hour. On-street parking is generally permitted with some restrictions along Valley Boulevard. Valley Boulevard is generally fronted by commercial uses within the study area.

Fair Oaks Avenue - Within the study area, Fair Oaks Avenue is a two to three-lane (each direction) north-south oriented roadway with combination of raised and striped medians running between I-210 in the north and Huntington Drive in the south. Fair Oaks Avenue traverses through the cities of Pasadena and South Pasadena. Fair Oaks Avenue is classified as a Major Arterial. The general posted speed limit on Fair Oaks Avenue is about 35 miles per hour. On-street parking is generally permitted with some restrictions along Fair Oaks Avenue. Fair Oaks Avenue is generally fronted by commercial uses within the study area.

Fremont Avenue - Within the study area, Fremont Avenue is a two-lane (each direction) north-south oriented roadway with striped medians running between I-10 in the south and Huntington Drive in the north. Fremont Avenue traverses through the cities of South Pasadena and Alhambra. Fremont Avenue is classified as a Major Arterial. The general posted speed limit on Fremont Avenue is about 35 miles per hour. On-street parking is generally permitted with some restrictions along Fremont Avenue. Fremont Avenue is generally fronted by commercial and residential uses within the study area.

Mission Road - Within the study area, Mission Road is a two-lane (each direction) east-west oriented roadway with two-way turn lane all along running between Fremont Avenue in the west and Ramona Street in the east. Mission Road traverses through the city of Alhambra. Mission Road is classified as a Major Arterial. The general posted speed limit on Mission Road is about 40 miles per hour. On-street parking is generally permitted with some restrictions along Mission Road. Mission Road is generally fronted by residential uses within the study area.

Atlantic Boulevard - Within the study area, Atlantic Boulevard is a two-lane (each direction) north-south oriented roadway with striped median all along running between Huntington Drive in the north and I-10 in the south. Atlantic Boulevard traverses through the city of Alhambra. Atlantic Boulevard is classified as a Major Arterial. The general posted speed limit on Atlantic Boulevard is about 35 miles per hour. On-street parking is generally permitted with some restrictions along Atlantic Boulevard. Atlantic Boulevard is generally fronted by commercial and residential uses within the study area.

Garfield Avenue - Within the study area, Garfield Avenue is a two-lane (each direction) north-south oriented roadway with striped median all along running between Huntington Drive in the north and I-10 in the south. Garfield Avenue traverses through the city of Alhambra. Garfield Avenue is classified as a Major Arterial. The general posted speed limit on Garfield Avenue is about 35 miles per hour. On-street parking is generally permitted with some restrictions along Garfield Avenue. Garfield Avenue is generally fronted by commercial and residential uses within the study area.

Los Robles Avenue - Within the study area, Los Robles Avenue is a one-lane (each direction) north-south oriented roadway with striped medians running between I-210 in the north and Huntington Drive in the south. Los Robles Avenue traverses through the city of Pasadena. Los Robles Avenue is classified as a Principal Arterial. The general posted speed limit on Los Robles Avenue is about 30 miles per hour. On-street parking is generally permitted with some restrictions along Los Robles Avenue. Los Robles Avenue is generally fronted by residential uses within the study area.

Lake Avenue - Within the study area, Lake Avenue is a two-lane (each direction) north-south oriented roadway with striped and raised medians running between I-210 in the north and California Boulevard in the south. Lake Avenue traverses through the city of Pasadena. Lake Avenue is classified as a Major Arterial. The general posted speed limit on Lake Avenue is about 35 miles per hour. On-street parking is generally permitted with some restrictions along Lake Avenue. Lake Avenue is generally fronted by commercial uses within the study area.

Orange Grove Boulevard - Within the study area, Orange Grove Boulevard is a two-lane (each direction) roadway two-way turn lane all along running between Colorado Boulevard in the west and Rosemead Boulevard in the east. Orange Grove Boulevard traverses through the city of Pasadena. Orange Grove Boulevard is classified as a Major Arterial with a posted speed limit of 35 miles per hour. On-street parking is generally permitted with some restrictions along Orange Grove Boulevard. Orange Grove Boulevard is generally fronted by residential uses within the study area.

Sierra Madre Boulevard - Within the study area, Sierra Madre Boulevard is a two-lane (each direction) roadway with raised median all along running between San Marino Avenue in the south and Orange Grove Boulevard in the north. Sierra Madre Boulevard traverses through the city of Pasadena. Sierra Madre Boulevard is classified as a Principal Arterial with a posted speed limit of 35 miles per hour. On-street parking is generally permitted with some restrictions along Sierra Madre Boulevard. Sierra Madre Boulevard is generally fronted by commercial and residential uses within the study area.

San Gabriel Boulevard - Within the study area, San Gabriel Boulevard is a two-lane (each direction) roadway with striped median at some locations and two-way turn lane all along running between I-10 in the south and Sierra Madre Boulevard in the north. San Gabriel Boulevard traverses through the cities of Rosemead, San Gabriel and Pasadena. San Gabriel Boulevard is classified as a Principal Arterial with a posted speed limit of 35 miles per hour. On-street parking is generally permitted with some restrictions along San Gabriel Boulevard. San Gabriel Boulevard is generally fronted by commercial and residential uses within the study area.

California Boulevard - Within the study area, California Boulevard is a one-lane (each direction) roadway with striped median all along running between Arroyo Boulevard in the west and Rosemead Boulevard in the east. California Boulevard traverses through the city of Pasadena. California Boulevard is classified as a Collector and Major Arterial with a posted speed limit of 35 miles per hour. On-street parking is generally permitted with some restrictions along California Boulevard. California Boulevard is generally fronted by residential uses within the study area.

Main Street - Within the study area, Main Street is a two-lane (each direction) roadway with striped and raised median all along running between Huntington Drive in the west and Mission Drive in the

east. Main Street traverses through the city of Alhambra. Main Street is classified as a Secondary Arterial with a posted speed limit of 30 miles per hour. On-street parking is generally permitted with some restrictions along Main Street. Main Street is generally fronted by commercial uses within the study area.

Del Mar Avenue - Within the study area, Del Mar Avenue is a two-lane (each direction) roadway with striped median all along running between Huntington Drive in the north and I-10 in the south. Del Mar Avenue traverses through the cities of San Gabriel and Rosemead. Del Mar Avenue is classified as a Secondary Arterial. The posted speed limit is 35 miles per hour north of Valley Boulevard and 30 miles per hour south of Valley Boulevard. On-street parking is generally permitted with some restrictions along Del Mar Avenue. Del Mar Avenue is generally fronted by commercial and residential uses within the study area.

2.2 Existing Traffic Volumes

The project team conducted an extensive research to identify the available traffic volumes within the study area. The count data collection was targeted between 2002 and 2008. The research included the online traffic volume database search of City of Los Angeles Department of Transportation (LADOT) and coordinating with a traffic count company to check for any counts conducted. In addition, an online search for traffic study reports within the study area was also conducted to obtain traffic counts. The data research showed most counts do not provide truck classification information.

For all the freeways/ramps and state routes within the study area, volumes were obtained from Caltrans' Traffic and Data System Vehicle Unit - 2005 All Volumes on CSHS. This online source publishes the freeway volumes at selected post miles along the freeways and state routes. For this project, the volumes were extracted based on the study area limits and post miles.

2.2.1 Freeways

Based on the 2005 traffic volume data, the following is the summary of all the freeways within the study area:

I-5 - Within the study area, between I-10 junction (post mile 18.452) and I-210 junction (post mile 44.014), the average annual daily traffic was 251,600 vehicles per day which included all vehicular classification. Also, within the study area, I-5 carried an average of 18,550 trucks per day spread under various truck classifications. Out of the total traffic on I-5, about 7.5% was truck related traffic.

I-10 - Within the study area, between I-5 junction (post mile 18.394) and Rosemead Boulevard (post mile 26.857), the average annual daily traffic was 229,750 vehicles per day which included all vehicular classification. Also, within the study area, I-10 carried an average of 11,700 trucks per day spread under various truck classifications. Out of the total traffic on I-10, about 5.0% was truck related traffic.

I-210 - Within the study area, between I-5 junction (post mile 0.000) and Rosemead Boulevard (post mile 29.486), the average annual daily traffic was 176,600 vehicles per day which included all vehicular classification. Also, within the study area, I-10 carried an average of 11,700 trucks per day spread under various truck classifications. Out of the total traffic on I-210, about 7.0% was truck related traffic.

I-710 - Within the study area, at the junction of I-10 in Monterey Park (post mile 26.497), the average annual daily traffic was 44,500 vehicles per day which included all vehicular classification. Also, within the study area, I-710 carried an average of 1,500 trucks per day spread under various truck classifications. Out of the total traffic on I-710, about 4.0% was truck related traffic.

SR-110 - Within the study area, between I-5 junction (post mile 25.751) and Glenarm Street (post mile 31.912), the average annual daily traffic was 119,200 vehicles per day which included all vehicular classification. Also, within the study area, SR-110 carried an average of 1,300 trucks per day spread under various truck classifications. Out of the total traffic on SR-110, about 1.0% was truck related traffic.

SR-118 - Within the study area, between I-5 junction (post mile 11.447) and I-210 junction (post mile 14.080), the average annual daily traffic was 127,000 vehicles per day which included all vehicular classification. Also, within the study area, SR-118 carried an average of 3,800 trucks per day spread under various truck classifications. Out of the total traffic on SR-118, about 3.0% was truck related traffic.

SR-134 - Within the study area, between I-5 junction (post mile 5.47) and I-210 junction (post mile 13.341), the average annual daily traffic was 218,000 vehicles per day which included all vehicular classification. Also, within the study area, SR-134 carried an average of 7,400 trucks per day spread under various truck classifications. Out of the total traffic on SR-134, about 4.0% was truck related traffic.

SR-2 - Within the study area, between I-5 junction (post mile 15.143) and I-210 junction (post mile 22.939), the average annual daily traffic was 122,200 vehicles per day which included all vehicular classification. Also, within the study area, SR-2 carried an average of 3,300 trucks per day spread under various truck classifications. Out of the total traffic on SR-2, about 3.0% was truck related traffic.

SR-19/164 - Within the study area, between I-10 junction (post mile 5.599) and I-210 junction (post mile 10.880), the average annual daily traffic was 52,700 vehicles per day which included all vehicular classification. Also, within the study area, SR-19/164 carried an average of 2,000 trucks per day spread under various truck classifications. Out of the total traffic on SR-19/164, about 4.0% was truck related traffic.

Based on the obtained volumes, **Table 1** shows the average truck percentage on the freeways/state routes. Truck usage on freeways of I-5 and I-210 were higher with 7.5% and 7%, respectively. On SR-110, truck usage was about only 1% out of the total traffic.

Table 1: Truck Percentage - Freeways/State Routes

Freeway/State Routes	Average Truck %
I-5	7.5%
I-10	5.0%
I-210	7.0%
I-710	4.0%
SR-110	1.0%
SR-118	3.0%
SR-134	4.0%
SR-2	3.0%
SR-19/SR-164	4.0%

Source: Caltrans

In addition, traffic reports were also obtained. The relevant count data collected were between 2001 and 2008, these counts were adjusted to reflect the 2005 conditions. An annual growth of 1% per year was used in the adjustment to reflect the 2005 conditions.

Figure 2 shows the locations of available traffic counts within the study area. **Figure 3** illustrates the 2005 average daily traffic volumes on the freeways within the study area. **Figure 4** illustrates the 2005 daily truck traffic on the freeways within the study area.

2.2.2 Arterials

Based on the obtained traffic volume data, the following is the summary of some of the arterials within the study area where the counts were available:

San Fernando Road - Within the study area, north of SR-118, the average annual daily traffic along San Fernando Road ranges between 6,000 and 10,000 vehicles. Within the City of Glendale, the average annual daily traffic ranges between 13,500 and 16,000 vehicles. Within the City of Los Angles and south of SR-2, the average annual daily traffic along San Fernando Road ranges between 25,000 and 28,000 vehicles.

Maclay Avenue - Within the study area, in the City of San Fernando, the average annual daily traffic along Maclay Avenue is about 12,000 vehicles.

Brand Boulevard - Within the study area, in the City of San Fernando, the average annual daily traffic along Brand Boulevard is about 15,500 vehicles.

ITERIS

I-710 Missing Link, Truck Study Project

Available Traffic Count Locations

Figure 2

ITERIS

I-710 Missing Link, Truck Study Project

Average Daily Traffic - Freeway

Figure 3

Legend

200,00 Average Daily Truck Traffic (Freeway)

ITERIS

I-710 Missing Link, Truck Study Project

Average Daily Truck Traffic - Freeway

Figure 4

Verdugo Road - Within the study area, in the City of Glendale, the average annual daily traffic along Verdugo Road ranges between 6,500 and 10,000 vehicles.

Canada Boulevard - Within the study area, in the City of Glendale, the average annual daily traffic along Brand Boulevard is about 15,500 vehicles.

Glendale Avenue - Within the study area, in the City of Glendale, the average annual daily traffic along Glendale Avenue ranges between 14,000 and 20,000 vehicles.

Foothill Boulevard - Within the study area, in the City of Glendale, the average annual daily traffic along Foothill Boulevard ranges between 12,000 and 27,000 vehicles.

Colorado Boulevard - Within the study area, in the City of Glendale, the average annual daily traffic along Colorado Boulevard ranges between 13,000 and 14,000 vehicles. Within the City of Los Angeles, the average annual daily traffic ranges between 29,000 and 33,000 vehicles. Within the City of Pasadena, the average annual daily traffic ranges between 10,000 and 26,000 vehicles.

Figueroa Street - Within the study area in the City of Glendale, the average annual daily traffic along Figueroa Street ranges between 23,000 and 28,000 vehicles.

Huntington Drive - Within the study area, in the City of Los Angeles, the average annual daily traffic along Huntington Drive is about 38,000 vehicles.

Valley Boulevard - Within the study area, in the City of Los Angeles, the average annual daily traffic along Valley Boulevard ranges between 24,000 and 30,000 vehicles. Within the City of Rosemead, the average annual traffic along Valley Boulevard is about 41,000.

Del Mar Avenue - Within the study area, in the City of Rosemead, the average annual daily traffic along Del Mar Avenue is about 25,000 vehicles.

Rosemead Boulevard - Within the study area, the average annual daily traffic along Rosemead Boulevard ranges between 38,000 and 55,000 vehicles.

Fair Oaks Avenue - Within the study area, in the City of Pasadena, the average annual daily traffic along Fair Oaks Avenue ranges between 24,000 and 39,000 vehicles.

California Boulevard - Within the study area, in the City of Pasadena, the average annual daily traffic along California Boulevard ranges between 12,000 and 25,500 vehicles.

Lake Avenue - Within the study area, in the City of Pasadena, the average annual daily traffic along Lake Avenue ranges between 25,000 and 32,500 vehicles.

Allen Avenue - Within the study area, in the City of Pasadena, the average annual daily traffic along Allen Avenue ranges between 8,500 and 20,500 vehicles.

Sierra Madre Boulevard - Within the study area, in the City of Pasadena, the average annual daily traffic along Sierra Madre Boulevard is about 18,500 vehicles.

San Gabriel Boulevard - Within the study area, in the City of Pasadena, the average annual daily traffic along San Gabriel Boulevard is about 25,000 vehicles.

Monterey Road - Within the study area, in the City of South Pasadena, the average annual daily traffic along Monterey Road ranges between 15,000 and 19,500 vehicles.

Mission Street - Within the study area, in the City of South Pasadena, the average annual daily traffic along Mission Street is about 12,000 vehicles.

Figure 5 illustrates the daily traffic volume along some arterials within the study area.

2.3 Existing Accident Data

The project team contacted Caltrans (District 7) and cities within the study area to obtain historical accident data/information.

Table 2 shows the summary of the accident data within the study area that was obtained from various agencies that responded to our request.

Table 2: Accident Data Updates

Agency	Accidents		Comments
	From	To	
Caltrans (SR-118, I-5, SR-134, I-10, I-210, SR-2, I-110 & SR-19)	July 1,2004	June 30,2007	Detailed accident information by %
LADOT	January 1,2004	September 30,2006	Truck related accidents only
City of Glendale	January 1,2004	February 1,2008	All accidents (Autos + Trucks)
City of Pasadena	January 1,2004	March 31,2008	All accidents (Autos + Trucks)
City of Rosemead	January 1,2004	March 31,2008	All accidents (Autos + Trucks)
City of South Pasadena	January 1,2005	April 1,2008	All accidents (Autos + Trucks)

2.3.1 Freeways/State Routes

For I-5, I-10, I-210, I-710, SR-110, SR-118, SR-134, SR-2 and SR-19, Caltrans provided the accident reports from Traffic Accident Surveillance and Analysis System (TASAS) Table B. The TASAS Table B information was generated from various post miles within the study area. In addition, TASAS Selective Accident Retrieval (TSAR) was also obtained for all the freeways within the study area.

To get a better understanding of the truck related accidents that have occurred during the 3-year period, TASAS Selective Accident Retrieval (TSAR) was summarized. Table 3 shows the summary of the accident data for the freeway/state routes within the study area. These accidents occurred within a three year period from July 1, 2004 to June 30, 2007.

Legend

15,000 Average Daily Traffic (Arterials)

ITERIS

I-710 Missing Link, Truck Study Project

Average Daily Traffic - Arterials

Figure 5

Table 3: Accident Data Breakup - Freeways/State Routes

Time Period	Freeway/State Routes	Total Accidents (Autos + Trucks)	Total Accidents (Truck Related)	% Accident Truck Related
July 1,2004 to June 30,2007	I-5 (Post mile 18.450 - 41.601)	5,218	1,051	20.1%
	I-10 (Post mile 18.390 - 27.961)	3,954	356	9.0%
	I-210 (Post mile 11.080 - 29.801)	2,411	495	20.5%
	SR-110 (Post mile 25.750 - 31.911)	1,535	23	1.5%
	SR-118 (Post mile 11.447 - 14.081)	242	19	7.9%
	SR-134 (Post mile 5.470 - 13.341)	1,652	135	8.2%
	SR-2 (Post mile 15.150 - 24.411)	854	44	5.2%
	SR-19/SR-164 (Post mile 5.646 - 8.783)	381	14	3.7%

Source: Caltrans

I-5 - Within the study area, between post mile 18.450 and post mile 41.604, there were 5,218 total accidents within a span of 36 months. Out of which, 1,051 accidents were truck related. Truck related accidents accounted for about 20.1% on I-5 within the study area.

I-10 - Within the study area, between post mile 18.390 and post mile 27.961, there were 3,954 total accidents within a span of 36 months. Out of which, 356 accidents were truck related. Truck related accidents accounted for about 9.0% on I-10 within the study area.

I-210 - Within the study area, between post mile 11.000 and post mile 29.801, there were 2,411 total accidents within a span of 36 months. Out of which, 495 accidents were truck related. Truck related accidents accounted for about 20.5% on I-210 within the study area.

SR-110 - Within the study area, between post mile 25.750 and post mile 31.911, there were 1,535 total accidents within a span of 36 months. Out of which, 23 accidents were truck related. Truck related accidents accounted for about 1.5% on SR-110 within the study area.

SR-118 - Within the study area, between post mile 11.447 and post mile 14.081, there were 242 total accidents within a span of 36 months. Out of which, 19 accidents were truck related. Truck related accidents accounted for about 7.9% on SR-118 within the study area.

SR-134 - Within the study area, between post mile 5.470 and post mile 13.341, there were 1,652 total accidents within a span of 36 months. Out of which, 135 accidents were truck related. Truck related accidents accounted for about 8.2% on SR-134 within the study area.

SR-2 - Within the study area, between post mile 15.150 and post mile 24.411, there were 854 total accidents within a span of 36 months. Out of which, 44 accidents were truck related. Truck related accidents accounted for about 5.2% on SR-2 within the study area.

SR-19/164 - Within the study area, between post mile 5.646 and post mile 8.783, there were 381 total accidents within a span of 36 months, out of which, 14 accidents were truck related. Truck related accidents accounted for about 3.7% on SR-19/164 within the study area. Out of the total traffic on SR-19/164, about 4.0% was truck related traffic.

Based on the accident data collected, the I-5 and I-210 had the highest percentage of truck related accidents at 20.1% and 20.5%, respectively. SR-110 had the least truck related accidents at 1.5%. **Figure 6** summarizes the accident data on all the freeways/state routes within the study area.

2.3.2 Arterials

The project team contacted all the cities within the study area to obtain accident data within the respective jurisdictions. Only the cities of Los Angeles, Glendale, Pasadena, South Pasadena and Rosemead provided accident data. The following summarizes the accident data collection effort by jurisdiction:

City of Los Angeles

The project team requested accident data to City of Los Angeles Department of Transportation. This requested was processed and the data was obtained from Traffic Accident Information and Accident Records division at the LADOT. The available data years ranged from January 1, 2004 to September 30, 2006. LADOT provided only truck related accident information for the entire City of Los Angeles. The truck related accidents included truck only and truck with trailers.

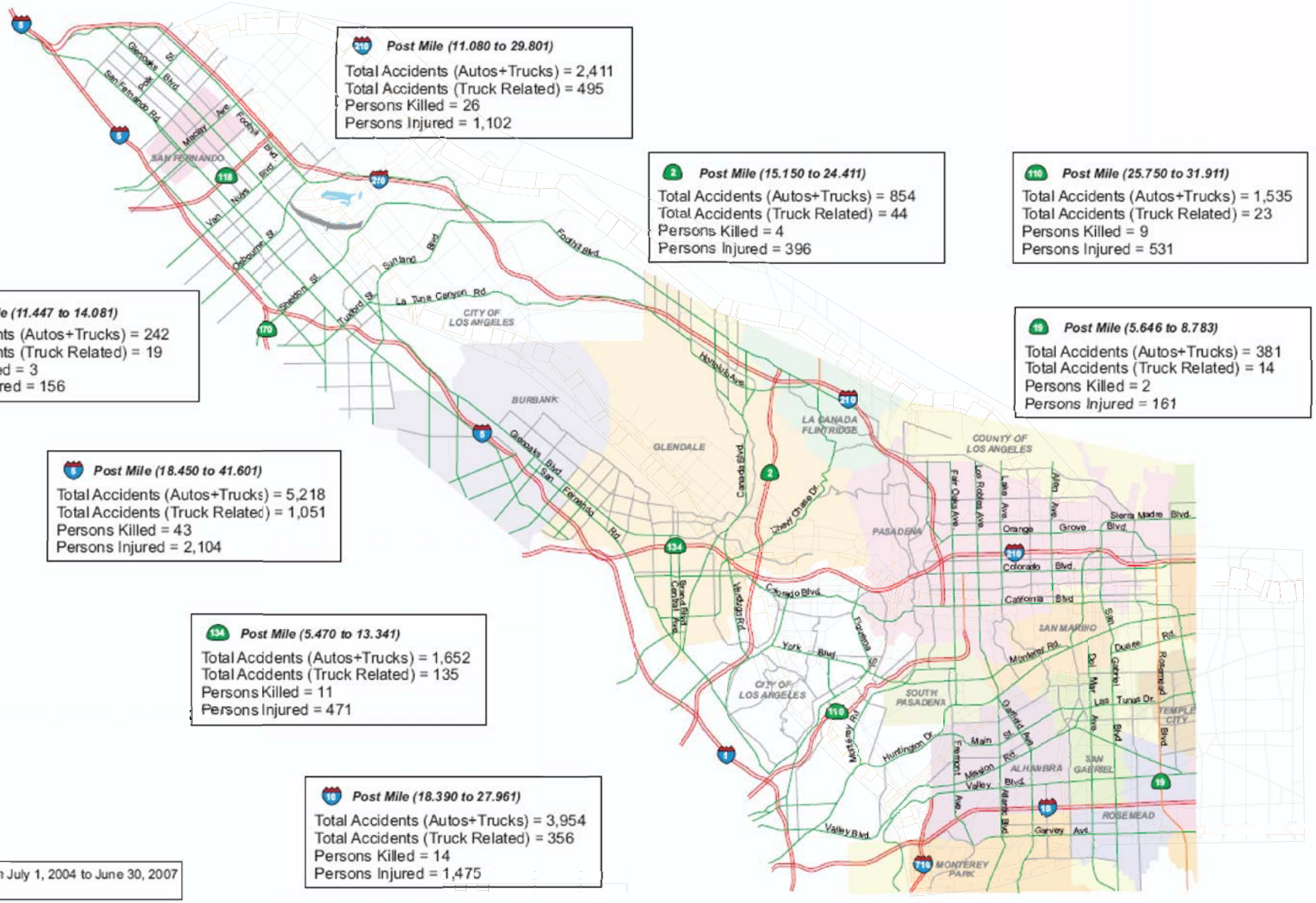
Within the study area in the city of Los Angeles, 168 total truck related accidents were reported between January 1, 2004 and September 30, 2006. The following summarizes accident trend by roadways with five or more truck related accidents.

San Fernando Road - Along San Fernando Road, there were six accidents between I-5 and Hubbard Street. A total of 27 truck related accidents were reported between south of city boundary of San Fernando and Tuxford Street. There were seven accidents between south of city boundary of Glendale and Figueroa Street. With a total of 40 truck related traffic accidents, San Fernando Road topped the truck related accidents within the study are in city of Los Angeles. Further, this can be justified due to the businesses along San Fernando Road which generates a lot of truck trips.

Glenoaks Boulevard - Along Glenoaks Boulevard, there were three accidents between Foothill Boulevard and Hubbard street. A total of 23 truck related accidents were reported between south of city boundary of San Fernando and Tuxford Street. Glenoaks Boulevard accounted for about 27 truck related traffic accidents.

Foothill Boulevard - Along Foothill Boulevard, there were 14 truck related accidents between I-5 and Lowell Avenue.

Laurel Canyon Boulevard - Along Laurel Canyon Boulevard, there were 13 truck related accidents between Hubbard Street and Sheldon Street.



ITERIS

I-710 Missing Link, Truck Study Project

Accident Summary - State Routes

Figure 6

Paxton Street - Along Paxton Street, there were eight truck related accidents between I-5 and I-210.

Broadway - Along Broadway, there were seven truck related accidents between Figueroa Street and Huntington Drive.

Roxford Street - Along Roxford Street, there were five truck related accidents between I-5 and Foothill Boulevard.

Figure 7 summarizes the truck related accident on the arterials within the study area in the city of Los Angeles.

City of Glendale

The project team obtained the accident data from the traffic and transportation section in the public works division in the City of Glendale. The data provided did not specify vehicle type and truck specific accidents are not available. The accident data provided are between January 1, 2004 and February 1, 2008 (49 months). The accidents are summarized by various routes within the City. The following summarizes the accident data trend by major facilities:

San Fernando Road - Along San Fernando Road, within the City of Glendale, a total of 668 accidents were reported.

Glenoaks Boulevard - Along Glenoaks Boulevard, within the City of Glendale, a total of 598 accidents were reported.

Colorado Boulevard - Along Colorado Boulevard, within the City of Glendale, a total of 602 accidents were reported.

Central Avenue - Along Central Avenue, within the City of Glendale, a total of 564 accidents were reported.

Brand Boulevard - Along Brand Boulevard, within the City of Glendale, a total of 646 accidents were reported.

Glendale Avenue - Along Glendale Avenue, within the City of Glendale, a total of 772 accidents were reported.

Verdugo Road - Along Verdugo Road, within the City of Glendale, a total of 508 accidents were reported.

Canada Boulevard - Along Canada Boulevard, within the City of Glendale, a total of 130 accidents were reported.

Chevy Chase Drive - Along Chevy Chase Drive, within the City of Glendale, a total of 9 accidents were reported.

ITERIS

I-710 Missing Link, Truck Study Project

Truck Related Accidents - Los Angeles

Figure 7

Foothill Boulevard - Along Foothill Boulevard, within the City of Glendale, a total of 91 accidents were reported.

Lowell Avenue - Along Lowell Avenue, within the City of Glendale, a total of 46 accidents were reported.

Pennsylvania Avenue - Along Pennsylvania Avenue, within the City of Glendale, a total of 71 accidents were reported.

La Crescenta Avenue - Along La Crescenta Avenue, within the City of Glendale, a total of 53 accidents were reported.

Table 4 summarizes the average accident data within the City of Glendale.

Table 4: Average Annual Accidents - City of Glendale

Jurisdiction (Time Period)	Arterial	Total Accident Within the Time Period	Average Annual Accidents
City of Glendale (01/01/2004 to 02/01/2008)	Glendale Ave	772	193
	San Fernando Rd	668	167
	Brand Blvd	646	162
	Colorado St	602	151
	Glenoaks Blvd	598	150
	Central Ave	546	137
	Verdugo Rd	508	127
	Canada Blvd	130	33
	Harvey Dr	113	28
	Los Feliz Blvd	112	28
	Western Ave	107	27
	Broadway	91	23
	Foothill Blvd	91	23
	Pennsylvania Ave	71	18
	Victory Blvd	55	14
	La Crescenta Ave	53	13
	Mountain St	51	13
	Verdugo Blvd	49	12
	Lowell Ave	46	12
	Wilson Ave	23	6

Based on the average annual accident rates within the City of Glendale, the following roadways accounted for more than 100 accidents in a year:

- Glendale Avenue
- San Fernando Road
- Brand Boulevard
- Colorado Street
- Glenoaks Boulevard
- Central Avenue
- Verdugo Road

Figure 8 summarizes the accident data in the City of Glendale.

City of Pasadena

The project team obtained the accident data from the office of City Attorney in the City of Pasadena. The breakdown of truck related accidents are not available. Within the study area the accident data provided are between January 1, 2004 and March 31, 2008 (approximately a four year period). The data was summarized by various routes within the City. The following summarizes the accident data by route:

Colorado Boulevard - Along Colorado Boulevard, within the city of Pasadena, a total of 1,032 accidents were reported.

Fair Oaks Avenue - Along Fair Oaks Avenue, within the city of Pasadena, a total of 585 accidents were reported.

Los Robles Avenue - Along Los Robles Avenue, within the city of Pasadena, a total of 290 accidents were reported.

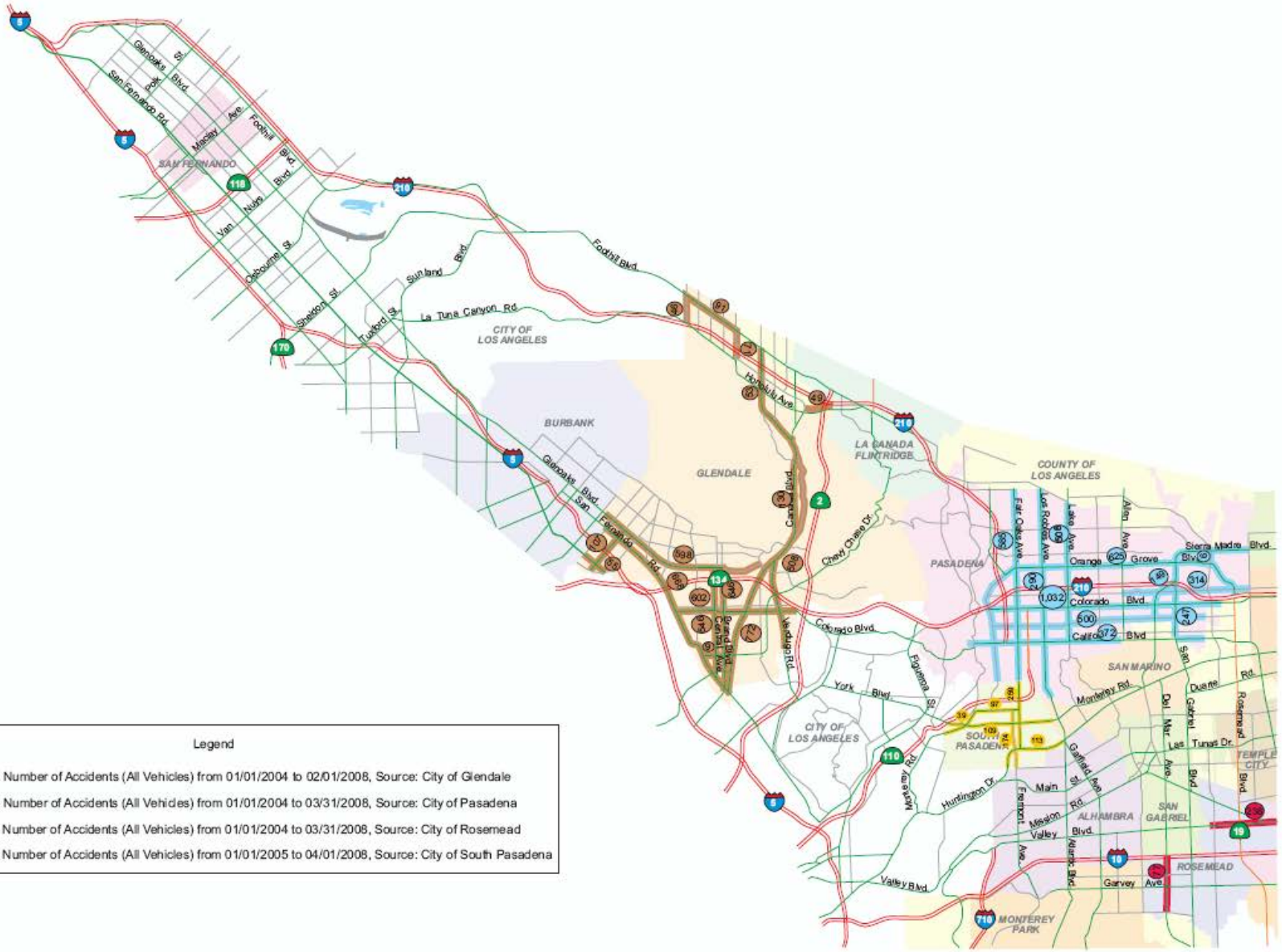
Lake Avenue - Along Lake Avenue, within the city of Pasadena, a total of 508 accidents were reported.

Orange Grove Boulevard - Along Orange Grove Boulevard, within the city of Pasadena, a total of 625 accidents were reported.

Del Mar Boulevard - Along Del Mar Boulevard, within the city of Pasadena, a total of 500 accidents were reported.

California Boulevard - Along California Boulevard, within the city of Pasadena, a total of 372 accidents were reported.

Foothill Boulevard - Along Foothill Boulevard, within the city of Pasadena, a total of 314 accidents were reported.



ITERIS

I-710 Missing Link, Truck Study Project

Accident Summary - Other Cities (Arterials)

Figure 8

Sierra Madre Boulevard - Along Sierra Madre Boulevard, within the city of Pasadena, a total of 149 accidents were reported.

San Gabriel Boulevard - Along San Gabriel Boulevard, within the city of Pasadena, a total of 247 accidents were reported.

Sierra Madre Villa Avenue - Along Sierra Madre Villa Avenue, within the city of Pasadena, a total of 6 accidents were reported.

Table 5 summarizes the average accident data within the City of Pasadena.

Table 5: Average Annual Accidents - City of Pasadena

Jurisdiction (Time Period)	Arterial	Total Accident Within the Time Period	Average Annual Accidents
City of Pasadena (01/01/2004 to 03/31/2008)	Colorado Blvd	1032	258
	Orange Grove Blvd	625	156
	Fair Oaks Ave	585	146
	Lake Ave	508	127
	Del Mar Blvd	500	125
	California Blvd	372	93
	Foothill Blvd	314	79
	Los Robles Ave	290	73
	San Gabriel Blvd	247	62
	Pasadena Ave	182	46
	Sierra Madre Blvd	149	37
	Maple St	38	10
	Arroyo Pkwy	25	6
	Columbia St	17	4
	Altadena Dr	15	4
	Sierra Madre Villa Ave	6	2

Based on the average annual accident rates within the City of Pasadena, the following roadways accounted for more than 100 accidents in a year:

- Colorado Boulevard
- Orange Grove Boulevard
- Fair Oaks Avenue
- Lake Avenue
- Del Mar Boulevard

Figure 8 also summarizes the accident data within the City of Pasadena.

City of South Pasadena

Accident data was obtained through the South Pasadena Police Department. The data provided did not explicitly show truck-only incidents. Within the City of South Pasadena, the accidents were reported between January 1, 2005 and April 1, 2008 (approximately 3-year period). The data was summarized by various routes within the City. The following summarizes the accident trend by routes:

Pasadena Avenue - Along Pasadena Avenue, within the city of South Pasadena, a total of 39 accidents were reported.

Monterey Road - Along Monterey Road, within the city of South Pasadena, a total of 109 accidents were reported.

Mission Street - Along Mission Street, within the city of South Pasadena, a total of 97 accidents were reported.

Fremont Avenue - Along Fremont Avenue, within the city of South Pasadena, a total of 174 accidents were reported.

Fair Oaks Avenue - Along Fair Oaks Avenue, within the city of South Pasadena, a total of 259 accidents were reported.

Huntington Drive - Along Huntington Drive, within the city of South Pasadena, a total of 113 accidents were reported.

Table 6 summarizes the average accident data within the City of South Pasadena.

Table 6: Average Annual Accidents - City of South Pasadena

Jurisdiction (Time Period)	Arterial	Total Accident Within the Time Period	Average Annual Accidents
City of South Pasadena (01/01/2005 to 04/01/2008)	Fair Oaks Ave	259	86
	Fremont Ave	174	58
	Huntington Dr	113	38
	Monterey Rd	109	36
	Mission St	97	32
	Pasadena Ave	39	13

Based on the average annual accident rates within the City of South Pasadena, the following roadways accounted for more than 50 accidents in a year:

- Fair Oaks Avenue
- Fremont Avenue

Figure 8 also summarizes the accident data within the City of South Pasadena.

City of Rosemead

Accident data was provided by the Engineering Department of the City of Rosemead. The accident data did not specify vehicle types. In the City of Rosemead, the data was provided between January 1, 2004 and March 31, 2008 (approximately 4 year period). The accidents were summarized by various routes within the city. The project team sorted and summarized the accident data for all the major street within the study area in the city of Rosemead. The following paragraph describes the roadways with accidents that occurred in the span of 50 months.

Valley Boulevard - Along Valley Boulevard, within the city of Rosemead, a total of 238 accidents were reported.

Del Mar Avenue - Along Del Mar Avenue, within the city of Rosemead, a total of 77 accidents were reported.

Table 7 summarizes the average accident data within the City of Rosemead.

Table 7: Average Annual Accidents - City of Rosemead

Jurisdiction (Time Period)	Arterial	Total Accident Within the Time Period	Average Annual Accidents
City of Rosemead (01/01/2004 to 03/31/2008)	Valley Blvd	238	60
	Del Mar Ave	77	19

Based on the average annual accident rates within the City of Rosemead, Valley Boulevard accounted for more than 50 accidents in a year.

Figure 9 illustrates the average annual accident rates within the Cities of Glendale, Pasadena, South Pasadena and Rosemead.

ITERIS	I-710 Missing Link, Truck Study Project	Accident Summary (Average Per Year) - Other Cities	Figure 9

2.4 Existing Land Use Data

The project team collected current land use designation from the various jurisdictions within the study area. The data obtained were generally from city general plans. Land uses that typically generates significant truck traffic includes commercial, industrial, manufacturing, retail commercial and mixed use. These uses have been highlight and shown in **Figure 10**.

City of Los Angeles - Community of Sylmar

Within the study area, based on general plan land use map obtained from city of Los Angeles, there are a lot of industrial uses clustered along San Fernando Road between I-5 and Polk Street, these uses are also spread to the parts of Roxford Street, Cobalt Street and Bledsoe Street. Also, some industrial uses are clustered along Foothill Boulevard between Maclay Avenue and city limits of San Fernando. There are Clusters of commercial uses along San Fernando Road, Glen Oaks Boulevard, Hubbard Street and Foothill Boulevard.

City of Los Angeles - Community of Arleta - Pacoima

Within the study area, based on general plan land use map obtained from city of Los Angeles, there are a lot of limited, light and heavy manufacturing uses along San Fernando Road. Some light manufacturing uses are also clustered along Branford Street, Pierce Street and Arroyo Avenue. There are some community commercial uses along Van Nuys Boulevard between I-5 and San Fernando Road. But for some the above listed uses, majority of the land uses within the Atleta -Pacoima community are residential and open spaces.

City of Los Angeles - Community of Sun Valley - La Tuna Canyon

Within the study area, based on general plan land use map obtained from city of Los Angeles, there are a lot of industrial uses clustered along San Fernando Road and Glenoaks Boulevard, these uses are also spread to parts of Tujunga Street, Penrose Street, Bradley Avenue and Tuxford Street. There are some commercial uses along Glenoaks Boulevard and Sunland Avenue. There are significant single family residential uses within the community of Sun Valley - La Tuna Canyon.

City of Los Angeles - Community of Sunland - Tujunga - Lakeview Terrace - Shadow Hills - East LA Tuna Canyon

Within the study area, based on general plan land use map obtained from city of Los Angeles, there are a lot of commercial uses clustered along Foothill Boulevard. There are some industrial uses along Wentworth Street near Foothill Boulevard. There are significant single family residential uses and open space within the community of Sunland - Tujunga - Lakeview Terrace - Shadow Hills - East LA Tuna Canyon

ITERIS

I-710 Missing Link, Truck Study Project

General Plan Land Use Elements

Figure 10

City of Los Angeles - North East Los Angeles

Within the study area, based on general plan land use map obtained from city of Los Angeles, there are a lot of industrial uses clustered along San Fernando Road, Main Street, Valley Boulevard, Mission Road and Soto Street. There are clusters of commercial uses along Colorado Boulevard, Broadway, Huntington Drive, Figueroa Street, Eagle Rock Boulevard and York Boulevard.

The residential uses lies within the area and are surrounded by industrial and commercial uses.

City of Burbank

Within the study area, based on general plan land use map obtained from city of Burbank, there are a lot of general manufacturing uses clustered along I-5 and San Fernando Boulevard. Along Glenoaks Boulevard, there are some commercial and mixed-uses. Within the study area and in the City of Burbank, east of I-5 is dominated with residential and public park uses with partial commercial, manufacturing uses and mixed-uses.

City of Glendale

Within the study area, based on general plan land use map obtained from city of Glendale, there are a lot of industrial uses clustered along San Fernando Road between Burbank city limits and SR-134. South of SR-134, along San Fernando Road, there are combination of industrial and mixed-uses. Within the downtown area, along Brand Boulevard, there are a lot of Auto Dealer/Mixed Commercial uses. In addition, there are some commercial and medical uses.

City of La Canada Flintridge

Within the City of La Canada Flintridge and based on general plan land use map, most of the commercial uses are north of I-210 and is not within the study area. Hence, there are no significant land uses that contribute towards truck trip generation.

City of Pasadena

Within the study area, based on general plan land use map obtained from city of Pasadena, there are a lot of commercial uses clustered between the missing link of I-710 freeway and Fair Oaks Avenue. There are also commercial uses along Washington Boulevard, Foothill Boulevard, Walnut Street and Colorado Boulevard.

City of South Pasadena

Within the study area, based on general plan land use map obtained from city of South Pasadena, there are a lot of commercial uses clustered along Fair Oaks Avenue and Huntington Drive. The rest of the city is predominantly residential.

City of San Gabriel

Within the study area, based on general plan land use map obtained from city of San Gabriel, there are a lot of commercial uses clustered along Las Tunas Drive and San Gabriel Boulevard. Commercial/Limited Manufacturing uses are significant along Valley Boulevard, parts of Del Mar Avenue and San Gabriel Boulevard. The rest of the city is predominantly residential.

City of San Marino

Within the study area, based on general plan land use map obtained from city of San Marino, there are some commercial uses clustered along Huntington Drive. The rest of the city is predominantly residential.

City of Alhambra

Within the study area, based on general plan land use map obtained from city of Alhambra, there are a lot industrial uses along Main Street, Mission Road and Fremont Avenue. There are some commercial uses clustered along Valley Boulevard. The rest of the city is predominantly residential.

City of Rosemead

Within the study area, based on general plan land use map obtained from city of Rosemead, there are a lot of mixed-uses (commercial and residential) along Valley Boulevard and Rosemead Boulevard. The rest of the city is south of I-10 and is not within the study limits.

2.5 Existing Truck Routes

As part of the existing data collection effort, the project team identified truck routes within the Arroyo Verdugo sub-region. These truck routes were along major arterials that adjoined commercial, industrial and manufacturing uses.

City of Los Angeles

Truck routes for the city of Los Angeles were obtained from City of Los Angeles' Public Works Department. The major truck routes within the study area were along San Fernando Road, Polk Street, Sunland Boulevard, Foothill Boulevard, York Boulevard, Eagle Rock Boulevard. Figueroa Street, Broadway and Huntington Drive

City of Glendale

Truck routes for the city of Glendale were obtained from city of Glendale's general plan, major truck routes within the city are along San Fernando Road, Verdugo Road and Colorado Boulevard.

City of Pasadena

Truck routes for the city of Pasadena were obtained from city of Pasadena's general plan 2004 mobility element update, major truck routes within the city are along Fair Oaks Avenue, Lake Avenue, Orange Grove Boulevard, Foothill Boulevard and Del Mar Boulevard.

City of South Pasadena

Truck routes for the city of South Pasadena were obtained from city of South Pasadena's general plan, major truck routes within the city are along Fair Oaks Avenue, Pasadena Avenue, Mission Street and Huntington Drive.

City of San Gabriel

Truck routes for the city of San Gabriel were obtained from city of San Gabriel's general plan, major truck routes within the city are along San Gabriel Boulevard, Del Mar Avenue, Mission Road and Valley Boulevard.

City of Alhambra

Truck routes for the city of Alhambra were obtained from city of Alhambra's general plan, major truck routes within the city are along Valley Boulevard and Mission Road.

City of Rosemead

Truck routes for the city of Rosemead were obtained from city of Rosemead's general plan, major truck routes within the city are along Valley Boulevard Walnut Grove Avenue and Rosemead Boulevard.

Figure 11 shows the existing truck routes within the study area.

ITERIS

I-710 Missing Link, Truck Study Project

Major Truck Routes Within the Study Area

Figure 11

2.6 Truck Fleet Operator Survey

The project team conducted an extensive research of trucking-related businesses within the study area. Businesses include trucking companies, industries, manufacturing, warehouses and distribution centers within the study area. The list includes 89 trucking companies, 53 warehouse establishments, 35 industries, 87 manufacturing companies and 65 distribution centers. The list of companies is provided in the appendices. **Figure 12** shows the concentration of identified businesses that were contacted. **Table 8** shows the survey instrument that was used.

Table 8: Survey Questionnaire

SCAG
Missing Link Truck Fleet Operator Survey Guide

Introduction

This is _____, with KOA Corporation. We are working with the Southern California Association of Governments to study trucking activities within the area. We are trying to understand how commercial trucks use the roadway/freeway system and help cities and Caltrans plan improvements. Do you have about ten minutes to help me with a few quick questions? (If not, when is a good time to call back or a different person I should speak to?)

Name_____ Company_____ Location_____ Phone_____

1. Does your company own its own trucks? Yes____ *(continue)* No____ *(verify and end survey)*

2. Does your company operate trucks on the freeways?
   Yes____ What major roadways do you use to get to the freeways_____
   No____ what major roadways do you use? _____

3. Company type.

☐ Commercial trucker ☐ Private fleet ☐ Other_____

4. Scope of company operations ***(Check: Is this one part of a larger company?)***

☐ National ☐ Regional ☐ Local ☐ Other_____

5. Which freeway(s) do your company use…? ***(mark all that apply)*** **I-5____, SR-118____, I-210 ____, SR-134 _____, SR-2____, I-110 ____, I-10____, I-710____**

6. Type of trucks operated on the study routes (check all that apply)

☐ Semi tractor-trailer	☐ Doubles	☐ Straight truck	☐ Auto rack
☐ Dry Van	☐ Flatbed	☐ Dump	☐ Tank/liquid bulk
☐ Livestock	☐ Reefer	☐ Dry bulk	☐ Other_____

7. **Primary commodities hauled** (description, to be coded later)

_____, _____

Table 9: Survey Questionnaire (continued)

8. **How would you describe you company's use of the route(s)?** *(categories plus open-ended narrative as needed)*
   - ☐ Through trips between other areas.
   - ☐ One or fewer weekly inbound trips from other areas to consignees in the area.
   - ☐ Two or more weekly inbound trips from other areas to consignees in the area.
   - ☐ One or fewer weekly outbound trips from shippers in the area to other areas.
   - ☐ Two or more weekly outbound trips from shippers in the area to other areas.
   - ☐ One or fewer weekly between shippers and consignees in the area.
   - ☐ Two or more weekly trips between shippers and consignees in the area.

Comments_____

_____

_____

9. **If the I-710 was to be connected to I-210, would this affect your trucking operations? Yes_____ explain_____ No _____**

10. **Do you have any comments or suggestions on improving conditions in the area?**

_____

_____

_____

Thank you.

The project team contacted all the businesses identified for one-on-one telephone interviews. The objective of the interview is to obtain insight into travel patterns related to trucking within the study area. Of 329 calls made, 18 businesses elected to voluntarily participate in the interview. The participation rate was a mere 5.5%. The following summarizes the results of the survey:

Company Type

Within the study area, and based on the inputs from fleet operator survey, about 50% of the companies operate as commercial, 28% as private fleet and 22% as other which included local delivery company and heavy haul companies.

Scope of the Company

Within the study area, and based on the inputs from fleet operator survey, about 19% operations were national, 11% regional, 47% local and 22% as other which included western region and international operations.

I-710 Freeway User?

Within the study area, and based on the inputs from fleet operator survey, about 50% used I-710 freeway and 50% did not use I-710 for their operations.

Type of Trucks Operated on the Study Routes

Within the study area, and based on the inputs from fleet operator survey, about 31% used semi tractor-trailer, 11% straight trucks, 17% dry van, 22% flatbed, 3% reefer and 16% other for their operations.

If I-710 is connected to I-210 would this affect your trucking operations?

Within the study area, and based on the inputs from fleet operator survey, 50% of the operators would use the I-710 if it connected to I-210, 44% of the operators would not use the I-710 if it is connected to I-210 and 6% of the responses were not sure.

Legend

- Trucking Companies
- Warehouse
- Manufacturing
- Industry
- Distribution

ITERIS

I-710 Missing Link, Truck Study Project

Concentration of Businesses Resulting in Truck Trips

Figure 12

3.0 TRAFFIC MODEL FORECASTS

The travel demand forecasting (TDF) model used for the 710 Missing Link Study is the SCAG RTP (2004) Regional Model. The 2030 Plan network from SCAG was used for the 2030 scenario runs.

Iteris performed the complete model run with 5 feed back loops in consistent with the SCAG's modeling methodology. In brief the 4 step transportation model includes the Trip Generation, Distribution, Mode choice and Highway Assignment. Person trips were generated by Transportation Analysis Zones (TAZ's) using the Socio-economic data, mainly housing and employment. SCAG uses the traditional Gravity model to distribute the trips, a methodology to estimate the trip interchanges from one TAZ to all the TAZ's in the region. The distribution model generates trips by Peak (AM & PM) and Off Peak (Mid Day & Night) time periods. In the next step the zone to zone trips are classified by modes of transportation, mainly non-motorized, transit, drive alone and shared drive. SCAG's Heavy duty Truck Model generates the Truck trip tables (Light, medium and Heavy) by time periods. In the last step the Auto trip tables (Drive alone and Carpool 2 & 3 plus) and Truck Trip Tables are simultaneously assigned to the highway network by time period. The model outputs the loaded network for the four time periods namely AM (6:00 – 9:00 a.m.), MD(9:00 a.m – 3:00 p.m.), PM(3:00-7:00 p.m.), and NT (7:00 p.m. – 6:00 a.m). The modeled highway volumes could be summarized into Autos and Trucks. The Auto volumes include the Drive Alone, Car Pool 2 and Carpool 3 and Truck volumes include light, medium and heavy duty trucks.

In order to evaluate the transportation and circulation effects of closing the freeway gap, a comparative evaluation has been performed using projected 2030 traffic volumes generated by various runs of the SCAG Regional Travel Demand Model. The analyzed future conditions included two scenarios contained in the SCAG 2004 Regional Transportation Plan (RTP). These are the RTP "Baseline" and the RTP "Plan" scenarios. RTP 2030 "Baseline" Scenario generally includes projects with funding commitment and does not include the closure of the I-710 gap. The 2030 RTP "Plan" Scenario on the other hand, includes a wide array of additional multi-modal regional transportation improvement projects that do not currently have complete funding commitments, but their implementation would be necessary to achieve RTP's overall mobility goals. This RTP "Plan" Scenario includes the completion of the I-710 gap among other projects. Therefore, to more clearly isolate the effects of the I-710 gap closure on vehicular and truck traffic, an additional "alternative" scenario of the "Baseline" scenario was developed and analyzed that included only the connection of the I-710 missing link, but no other additional assumed projects from the "Plan" Scenario.

In summary, the three modeling scenarios discussed in this memorandum are as follows:

1. 2030 RTP Baseline (with no I-710 gap closure)
2. 2030 RTP Baseline with I-710 gap closure
3. 2030 RTP Plan (already includes I-710 gap closure)

It should be noted that the intent of this analysis is purely technical and comparative in nature. The analyses are entirely based on the results of the SCAG Regional Model, its socioeconomic input data, transportation network assumptions for each of the scenarios and model run process.

4.0 COMPARATIVE ANALYSIS AND DISCUSSION OF IMPACTS

4.1 2030 RTP "Baseline" Conditions Without the I-710 Gap Closure

The SCAG regional travel demand model (SCAG Model) was used to forecast 2030 traffic volumes and travel patterns. The current transportation network as well as projects identified in the as Baseline in the Regional Transportation Plan (RTP) were assumed to be in the 2030 Baseline network.

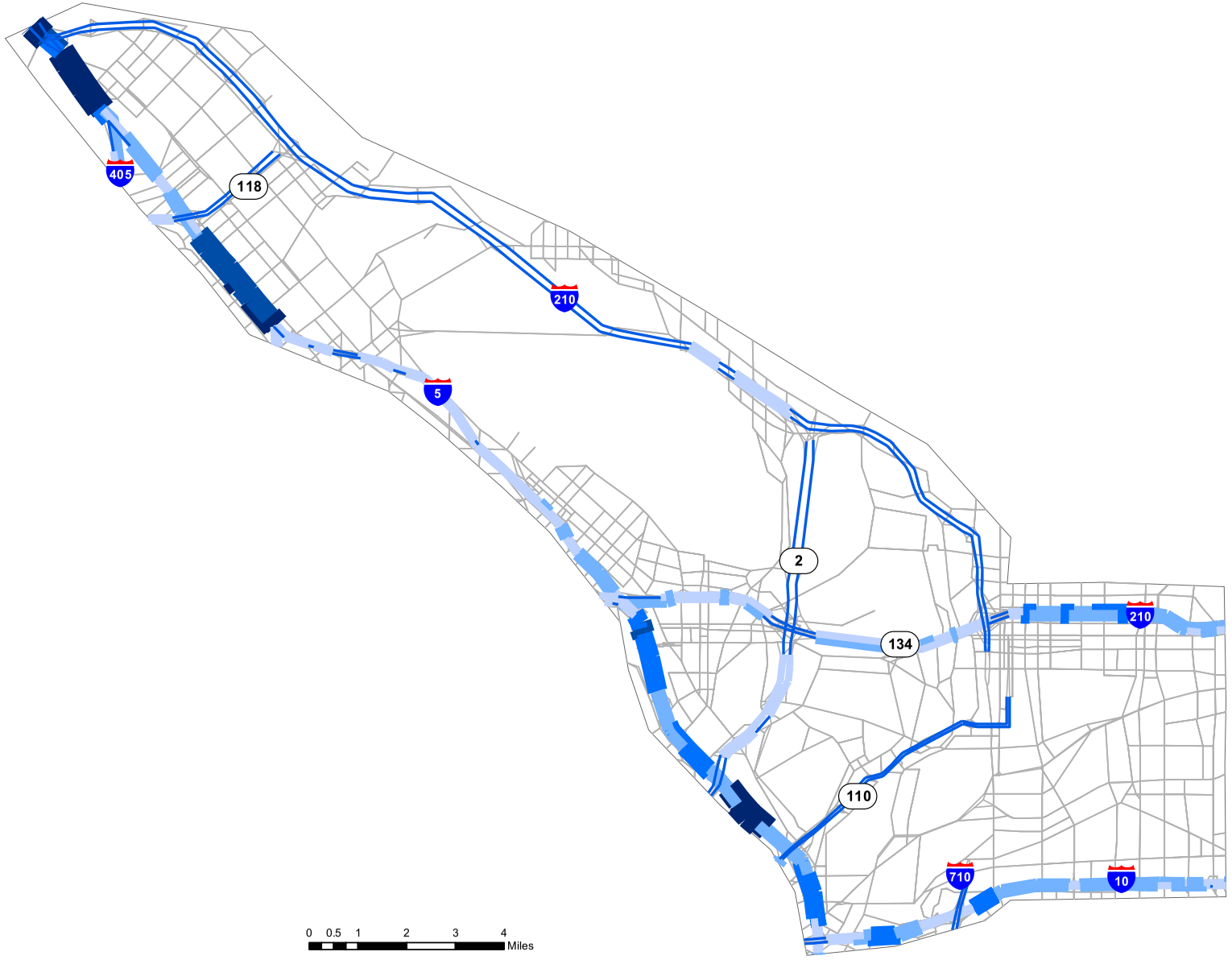
4.1.1 Total Vehicular Traffic

Figure 13 illustrates the total (baseline 2030) Average Daily Traffic (ADT) volume along the major freeways within the study area. As can be seen from the figure Interstate 5 (I-5) carries some of the highest traffic volumes in the study area with some segments of I-5 projected to carry more than 200,000 vehicles per day. In comparison, Interstate 210 (I-210) which is an eight-lane freeway in many segments through the subregion (north of the SR-134 Freeway) is projected to carry less than 100,000 vehicles per day in 2030. **Figure 14** illustrates the projected arterial ADT traffic volumes in the study area. As can be seen from the figure, north-south arterial streets, especially through the western San Gabriel Valley area such as, Huntington Drive, Fremont Avenue, Rosemead Boulevard, San Gabriel Boulevard, Del Mar Avenue, Santa Anita Avenue are projected to carry some of the highest vehicular traffic with some segments carrying more than 25,000 vehicles per day in 2030. The highest projected arterial volumes through the north-western parts of the subregion are forecast on San Fernando Road, Glenoaks Boulevard and Foothill Boulevard.

4.1.2 Projected Truck Volumes/Truck Percentages

Figure 15 illustrates the projected percentage of heavy duty trucks in 2030 on the major freeways within the study area. The truck percentages on I-5 are consistently over 10 percent in all segments, with some segments having almost 20 percent trucks, especially on the segments just north of Interstate 10 (I-10). Other than I-5, segments of I-210, north of SR-134 are also heavily used by trucks. Relatively lower truck percentages are observed on SR-2, SR-134 and SR-110 Freeways.

Figure 16 illustrates the projected percentage of trucks in 2030 on the major arterials within the study area. Similar to the total ADT traffic patterns, the major north-south arterial streets through western San Gabriel Valley area such as, Figueroa Street, Huntington Drive, Fremont Avenue, Rosemead Boulevard, San Gabriel Boulevard, Garfield Avenue, Del Mar Avenue, Santa Anita Avenue, San Fernando Road are heavily used by trucks with some segments of San Fernando Road and Figueroa Street projected to carry as much as 18 percent trucks. Some segments of Fremont Avenue and Garfield Avenue have high truck percentages of almost 8 percent. The higher truck percentages on arterials in the northwestern parts of the sub-region are projected on San Fernando Road in Glendale and northern Burbank as well as Foothill Boulevard north.

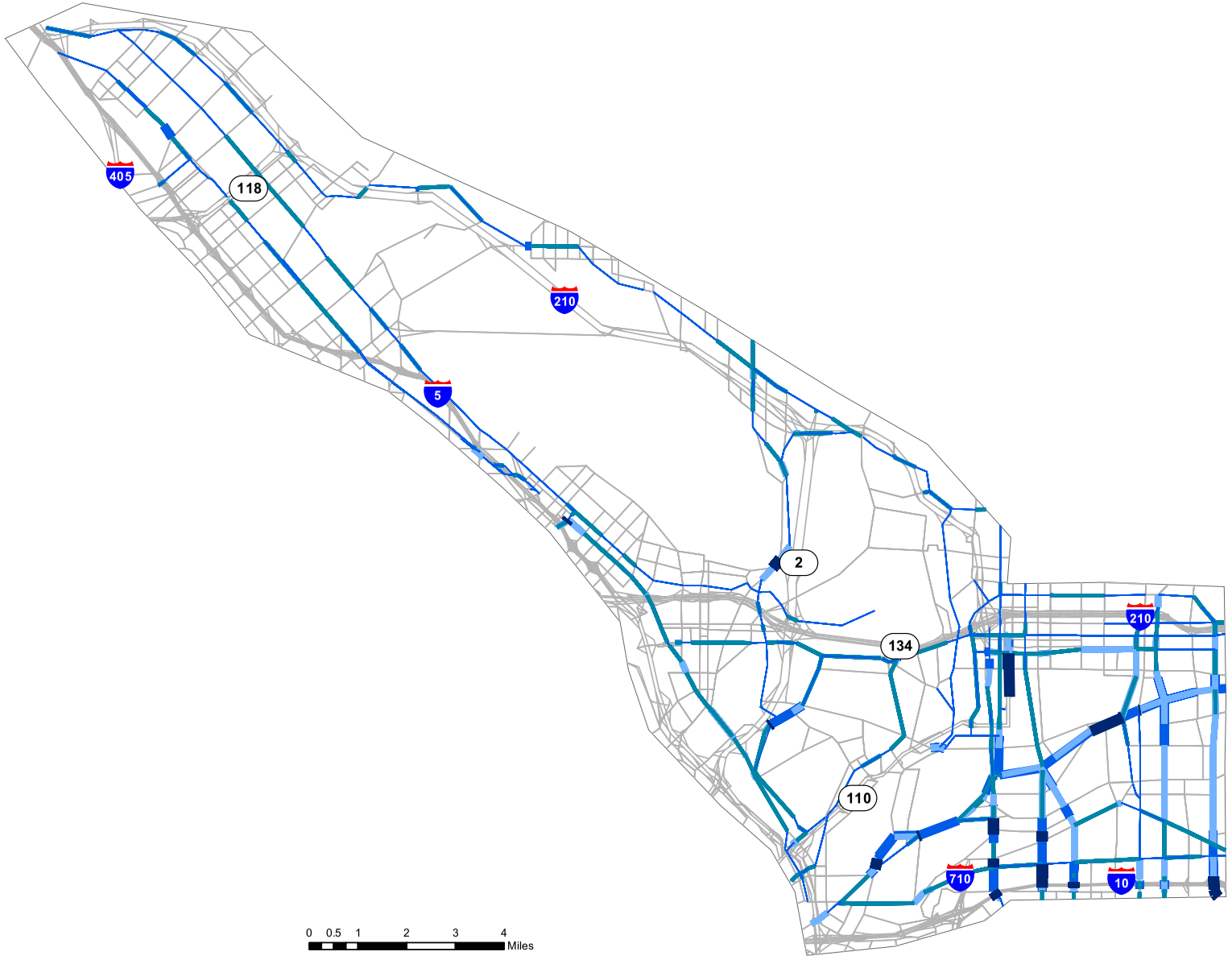


ITERIS

I-710 Missing Link, Truck Study Project

2030 RTP Baseline without I-710 Gap Closure
Range of Freeway ADT Volumes

Figure 13



Legend

- < 8000
- 8001 - 15000
- 15001 - 20000
- 20001 - 25000
- > 25000

ITERIS

I-710 Missing Link, Truck Study Project

2030 RTP Baseline without I-710 Gap Closure
Range of Major Arterial ADT Volumes

Figure 14

ITERIS

I-710 Missing Link, Truck Study Project

2030 RTP Baseline without I-710 Gap Closure
Freeway ADT Percent Trucks

Figure 15

ITERIS

I-710 Missing Link, Truck Study Project

2030 RTP Baseline without I-710 Gap Closure
Major Arterial ADT Percent Trucks

Figure 16

4.1.3 Performance Assessment using Volume/Capacity (V/C) Ratios

Figure 17 illustrates the projected generalized PM peak period 2030 volume/capacity (V/C) ratios along the freeways and major arterials in the study area. AM peak period analysis was also conducted but only the PM peak period, which is generally the highest peak period, is presented in this memorandum as representative conditions. As can be seen in Figure 5, most of the freeway segments are projected to operate at over-capacity (V/C>1) conditions by 2030 in the PM peak. Only some of the freeway segments in and around the I-210/I-134/I-710 interchange, segments of I-210 through northwest Pasadena and northern Glendale, and SR-2 north of SR-134 are projected to remain at V/C's less than 1.0. I-5, from north of I-10 through Burbank, as well as SR-134 Freeway, between I-210 and SR-2, are projected with the worst operating conditions of all freeways in the sub region. SR-110 south of South Pasadena is also projected at very high V/C conditions.

Most of the major arterials in the sub region in Glendale, Burbank and La Cañada Flintridge and are projected to remain at generally acceptable operating conditions in 2030. Arterials north of I-210 Freeway are projected to operate mostly at V/C levels less than 1.0. Consistent with the projected volumes majority of arterial capacity deficiencies appear to be in western San Gabriel Valley area, especially on Fair Oaks, Garfield and Los Robles and north Figueroa Street through Eagle Rock. East-west streets are projected to be relatively uncongested. Again, segments of San Fernando Road in south Glendale and San Fernando Boulevard and Glenoaks Boulevard north of Burbank exhibit sustained over-capacity conditions, as well as some segments of Foothill Boulevard west of Pennsylvania Avenue.

4.2 2030 RTP "Baseline" Conditions with the I-710 Gap Closure

The SCAG regional travel demand model was used to estimate 2030 traffic volumes and travel patterns for this scenario. The current transportation network plus all improvement projects identified in the SCAG RTP Baseline scenario were assumed to be in place in the 2030 network. In addition, the 4.5 mile I-710 "missing link" was added to the network. The I-170 gap closure was assumed to have a total of four lanes in each direction (3 lanes + 1 HOV) consistent with the assumptions in the RTP Plan scenario. Truck traffic was allowed to use the connection.

4.2.1 Total Vehicular Traffic

Figure 18 illustrates the total ADT volume along the major freeways within the study area with the gap closure. As can be seen from the figure the travel patterns and the amount of traffic on I-5 are still very similar to the original Baseline (no gap closure) conditions presented earlier. I-5 Freeway is projected to carry some of the highest traffic volumes in the study area with some segments of I-5 carrying more than 200,000 vehicles per day. However, when compared to baseline condition with no gap closure **(Figure 13)**, it can be seen that the segment I-210 north of SR-134 carries higher traffic volume with the gap closure. This is due to the reason that the traffic is able to use the new link of I-710 to travel to destinations north of SR-134 and ultimately connect to SR-118 and the I-5 in north San Fernando Valley. Relatively higher volumes are also observed on the I-210 Freeway just east of SR-134 in Pasadena. **Figure 19** illustrates the arterial ADT traffic volumes in

the study area with the gap closure. As can be seen from the figure, north-south arterial streets such as, Huntington Drive, Fremont Avenue, Rosemead Boulevard, San Gabriel Boulevard, Del Mar Avenue, Santa Anita Avenue carry very high vehicular traffic with some segments carrying more than 25,000 vehicles per day.

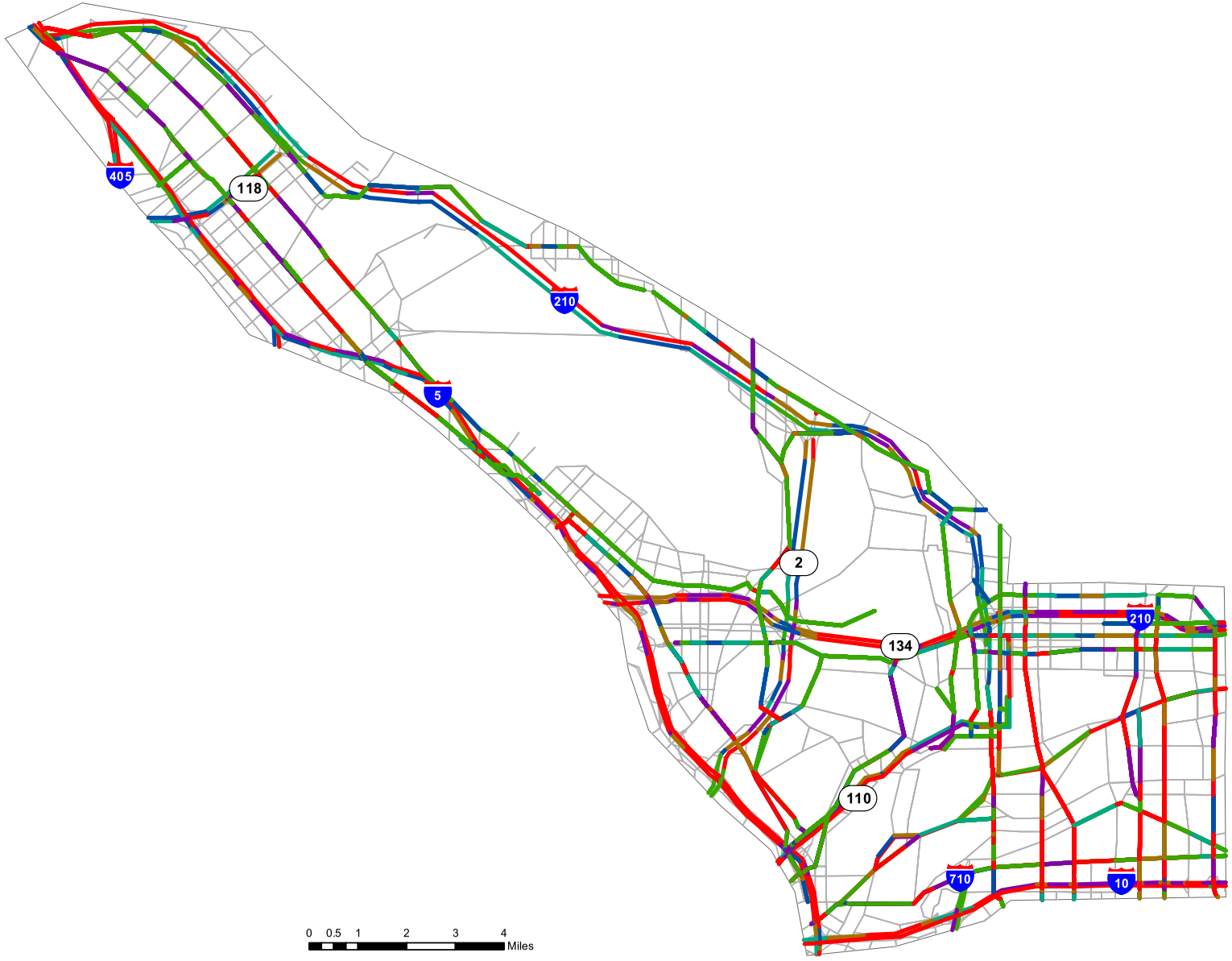
4.2.2 Truck Volumes/Truck Percentages

Figure 20 illustrates the percentage of trucks on the major freeways within the study area under baseline conditions with gap closure. When compared to the baseline condition with no gap closure **(Figure 15)**, it is evident that the percentage of trucks are expected to be reduced around the I-5/I-10 interchange. The truck percentage also reduces along SR-2 through Glendale suggesting that many of the trucks are now using I-710 as a direct route to I-210 instead of using I-5 and SR-2. However, it can also be seen that truck percentages on I-210 through La Cañada Flintridge and north Glendale are expected to increase on most of the segments indicating the fact that I-210 is more heavily used by trucks as compared to baseline conditions with no gap closure.

Figure 21 illustrates the percentage of trucks on the major arterials within the study area. Similar to the total ADT traffic patterns, the major north-south arterial streets such as, Figueroa Street, Huntington Drive, Fremont Avenue, Rosemead Boulevard, San Gabriel Boulevard, Garfield Avenue, Del Mar Avenue, Santa Anita Avenue, San Fernando Road are heavily used by trucks with some segments of San Fernando Road and Figueroa Street having almost 18 percent trucks. When compared to the baseline conditions with no I-710 gap closure, truck percentages appear to reduce generally along all study area arterials, the notable ones being: Figueroa Street, Fremont Avenue, Los Robles Avenue, San Gabriel Boulevard and Foothill Boulevard, as well as Linda Vista Avenue in Pasadena. It can be concluded that the gap closure may help reduce the percentage of trucks on major arterials within the cities of Pasadena, South Pasadena, and Alhambra. A discussion on truck volumes is included later in the memorandum as part of the comparative analysis.

4.2.3 Performance Assessment using Volume/Capacity (V/C) Ratios

Figure 22 illustrates the Volume/Capacity (V/C) ratios along the freeways and major arterials in the study area in the PM peak period with the I-710 gap closure. Majority of the freeways and some of the arterial streets are performing over-capacity (V/C>1). When compared to baseline conditions with no I-710 gap closure **(Figure 17)**, it can be seen that a few arterial segments are projected to perform better with the gap closure. These arterials include Huntington Drive, San Gabriel Boulevard and Fremont Avenue.



Legend

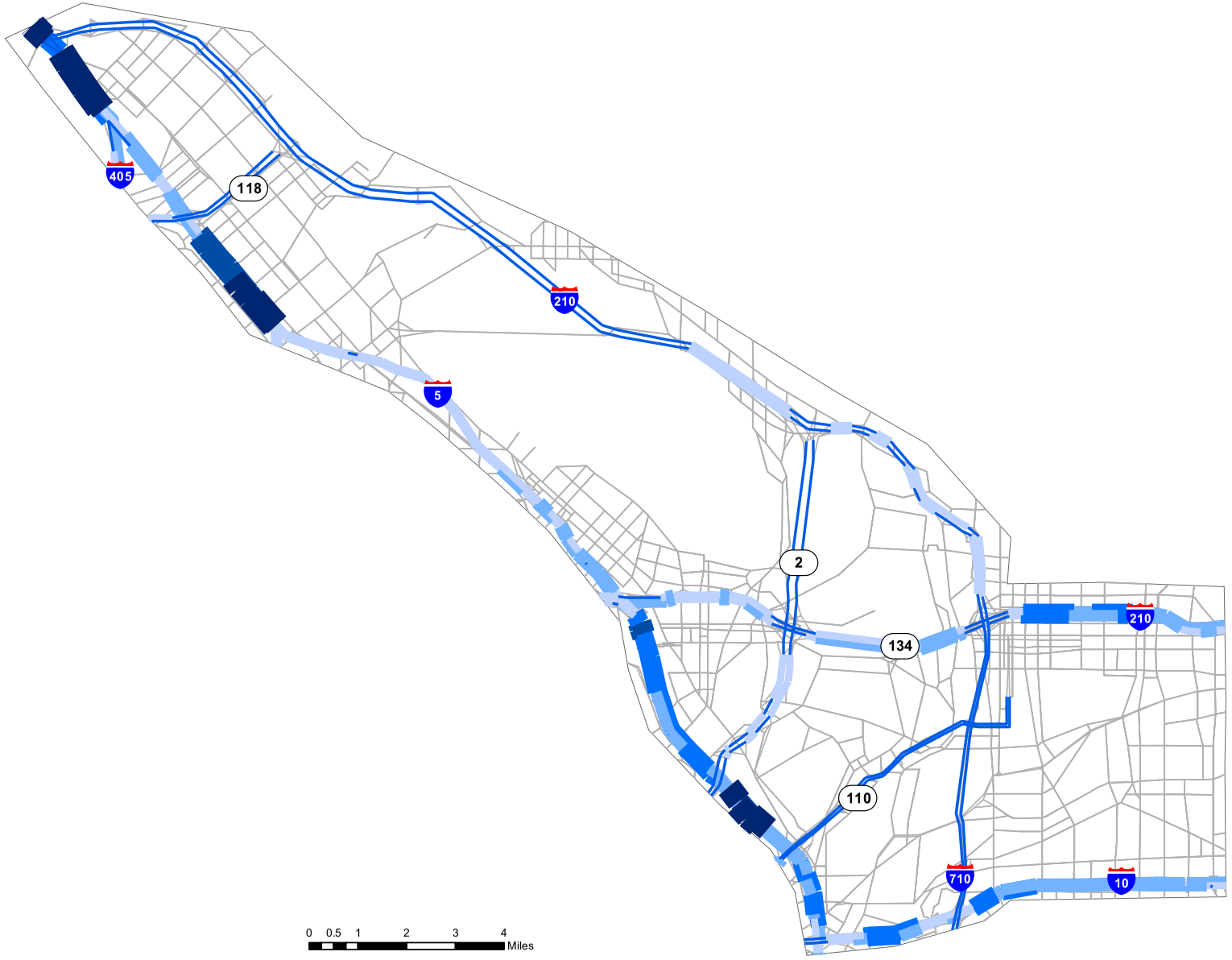
- V/C: < = 0.6
- V/C: 0.6 - 0.7
- V/C: 0.7 - 0.8
- V/C: 0.8 - 0.9
- V/C: 0.9 - 1.0
- V/C: > 1.0

ITERIS

I-710 Missing Link, Truck Study Project

2030 RTP Baseline without I-710 Gap Closure
PM Peak Volume to Capacity Ratios

Figure 17

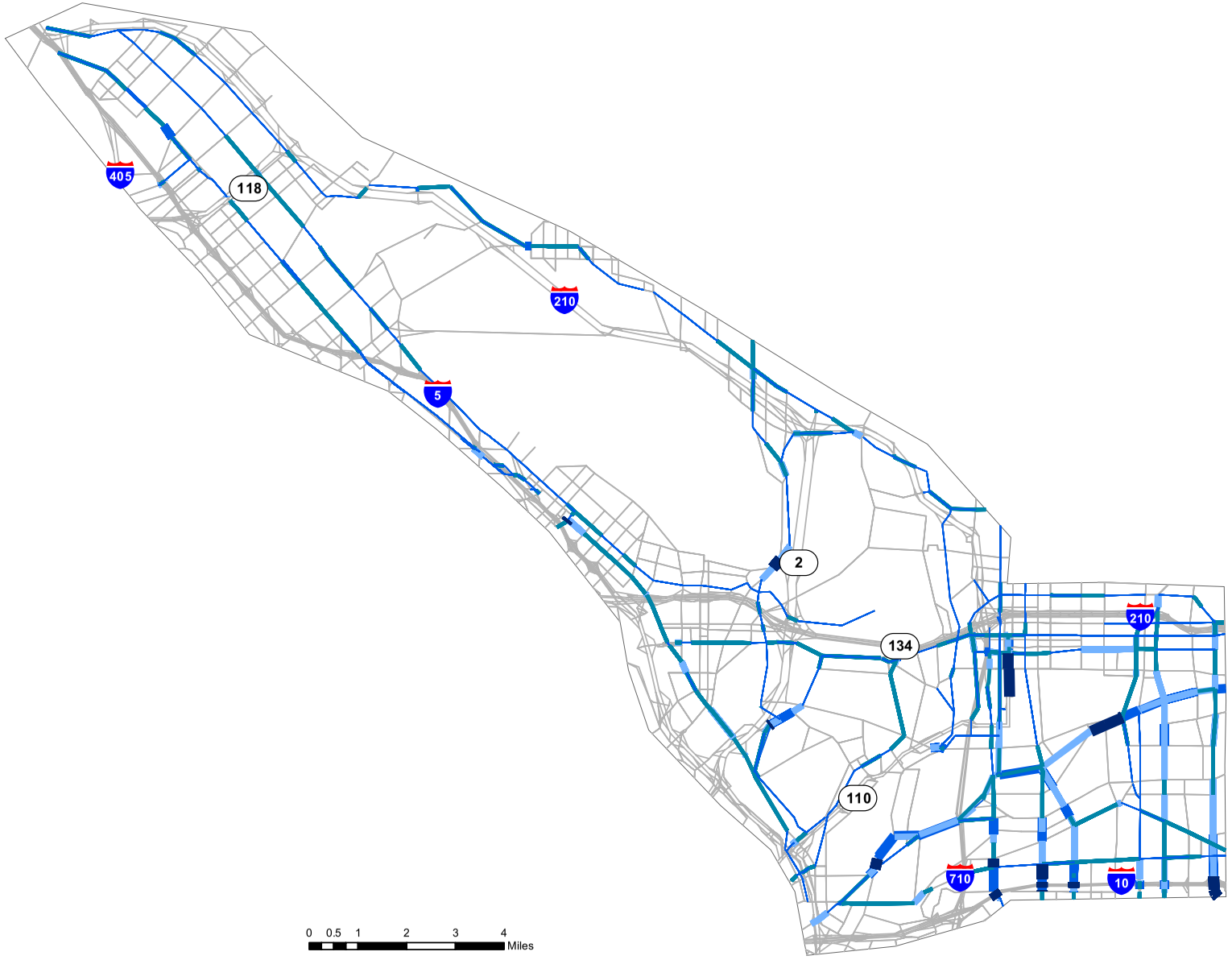


ITERIS

I-710 Missing Link, Truck Study Project

2030 RTP Baseline with I-710 Gap Closure
Range of Freeway ADT Volumes

Figure 18



ITERIS

I-710 Missing Link, Truck Study Project

2030 RTP Baseline with I-710 Gap Closure
Range of Major Arterial ADT Volumes

Figure 19

ITERIS

I-710 Missing Link, Truck Study Project

2030 RTP Baseline with I-710 Gap Closure
Freeway ADT Percent Trucks

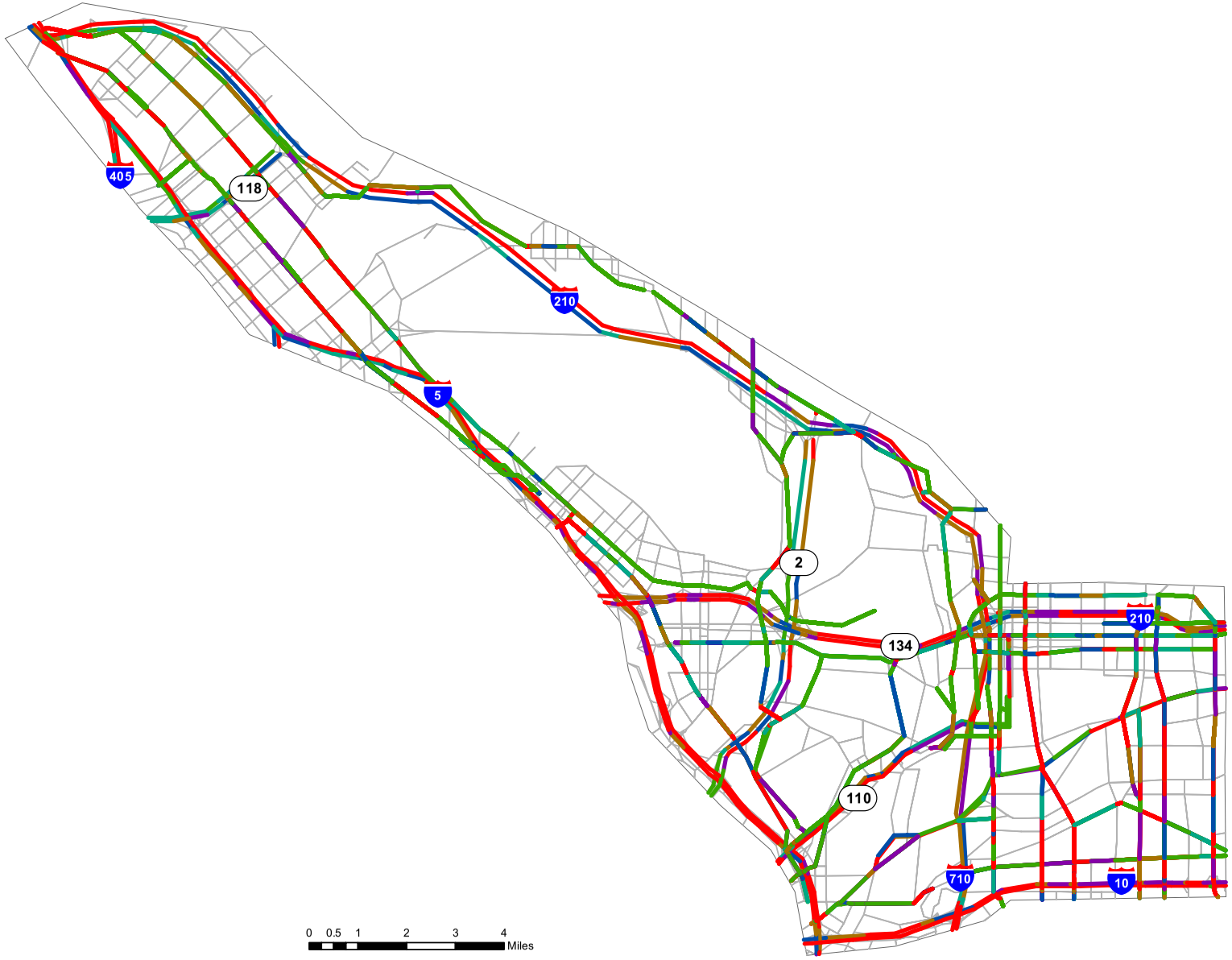
Figure 20

ITERIS

I-710 Missing Link, Truck Study Project

2030 RTP Baseline with I-710 Gap Closure
Major Arterial ADT Percent Trucks

Figure 21



ITERIS

I-710 Missing Link, Truck Study Project

2030 RTP Baseline with I-710 Gap Closure
PM Peak Volume to Capacity Ratios

Figure 22

4.2.4 Comparative Analysis of the Baseline Conditions (With and Without the I-710 Gap Closure)

Figures 23 and **24** illustrate the changes in freeway ADT volume between the two baseline conditions (without and with the I-710 gap closure) for total vehicles and total trucks, respectively. As can be seen from **Figure 23**, the total ADT volume decreases along I-5 (between I-10 and SR-2), SR-110 (east of I-5) and along SR-2 (between I-5 and I-210). This decrease in volume indicates the fact the traffic is using the I-710 missing link instead of traveling on I-5 and SR-2. Intuitively, this change in traffic patterns result in increases in ADT volumes on segments of I-210, just north of SR-134. Similar traffic pattern changes are observed in total truck volume as illustrated in **Figure 24**. A closer look at **Figure 24** also indicates that truck volumes are also decreasing along I-210 segments, east of I-710 suggesting that longer distance truck traffic to/from points east which was previously forced to travel on I-210 to go to/from points north are now using I-10 and then I-710 to travel further north.

Figures 23 and **24** also show an increase in total volume including trucks on segments of I-5 north of SR-2. This can be attributed to the fact that the traffic which is now using the missing link of I-710 helps to reduce traffic on I-5, however, this reduction results in some additional traffic to be diverted to I-5 which were previously not using I-5 due to overcapacity conditions. As a regional indicator, the missing link seems to be is able to affect the mobility in the region, the effects of which extend beyond the project study area. Figure 12 also indicates that truck volumes are also reduced on the I-15 Freeway between SR-170 and I-210.

In summary, the following bullet points illustrate some of the key findings related to change in daily total traffic volumes and peak hour truck volumes on the freeway system in the study area, when comparing the gap closure scenario over the without closure scenario. The presented volumes are two-way and indicate an increase (+) or decrease (-) in projected traffic daily or peak hour traffic:

- **On I-210 Freeway n/o SR-134**
  - ADT + 30,000
  - Peak hour Trucks + 850
- **On I-210 Freeway e/o SR-134**
  - ADT No Major Change
  - Peak hour Trucks - 350
- **On SR-2 Freeway n/o I-5**
  - ADT - 16,000
  - Peak hour Trucks - 450
- **On I-5 Freeway n/o I-10**
  - ADT - 26,000
  - Peak hour Trucks - 600
- **On I-5 Freeway n/o I-110**
  - ADT - 17,000

- Peak hour Trucks - 600

- **On I-5 Freeway n/o SR-2**
  - ADT - 5,000
  - Peak hour Trucks - 180

Figures 25 and **26** illustrates the potential changes in arterial ADT volumes between the two Baseline scenarios (without and with the gap closure) for total vehicles and total trucks, respectively. As is evident from the two figures, the I-710 gap closure results in significant decreases in traffic volumes on almost all arterial streets within the west San Gabriel Valley portion of the study area (especially north-south arterials), both in terms of total vehicles and total truck volumes. The only arterial street which shows a significant increase in traffic volumes along the entire segment is Foothill Boulevard. Also, some increases are evident on Colorado Avenue, Glenoaks Boulevard in Glendale and Linda Vista Avenue and Orange Grove Boulevard in Pasadena. In terms of truck volumes, Foothill Boulevard also shows increase in truck volumes in the City of La Cañada Flintridge and north of the City of Glendale.

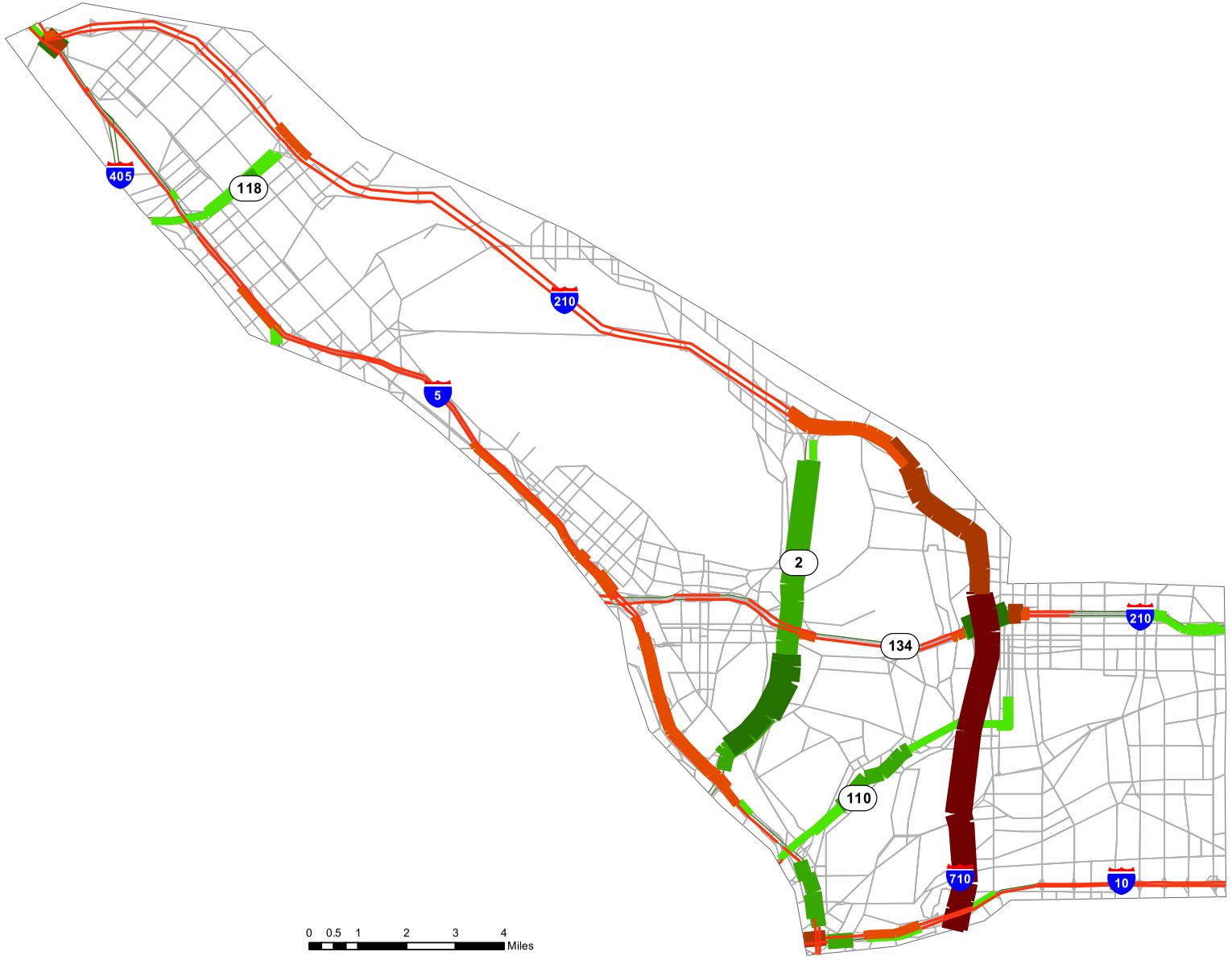
The preceding analysis shows that with the completion of the I-710 gap closure, some freeway segments and arterial segments get significant traffic relief but are still not projected to operate at satisfactory levels of service in 2030 (previously referenced in **Figure 22**). Many of the arterial streets in the cities of Pasadena, South Pasadena, and Alhambra are projected to operate at congested conditions over their entire length. These arterial streets include:

- Los Robles Avenue
- Garfield Avenue
- San Gabriel Boulevard
- Atlantic Boulevard
- Some segments of San Fernando Road, Glenoaks Boulevard in San Fernando Valley.

4.3 2030 RTP "Plan" Conditions

The following analysis discusses the freeway and arterial roadway volumes and operating conditions under the RTP "Plan" scenario.

The SCAG regional travel demand model was used to estimate 2030 traffic volumes and travel patterns. The current transportation network, projects identified in the RTP Baseline scenario as well as all improvement projects assumed in the RTP Plan scenario were assumed to be in the year 2030 Plan network. It should be noted that this SCAG RTP Plan scenario includes the I-710 gap closure as one of its proposed improvement projects.

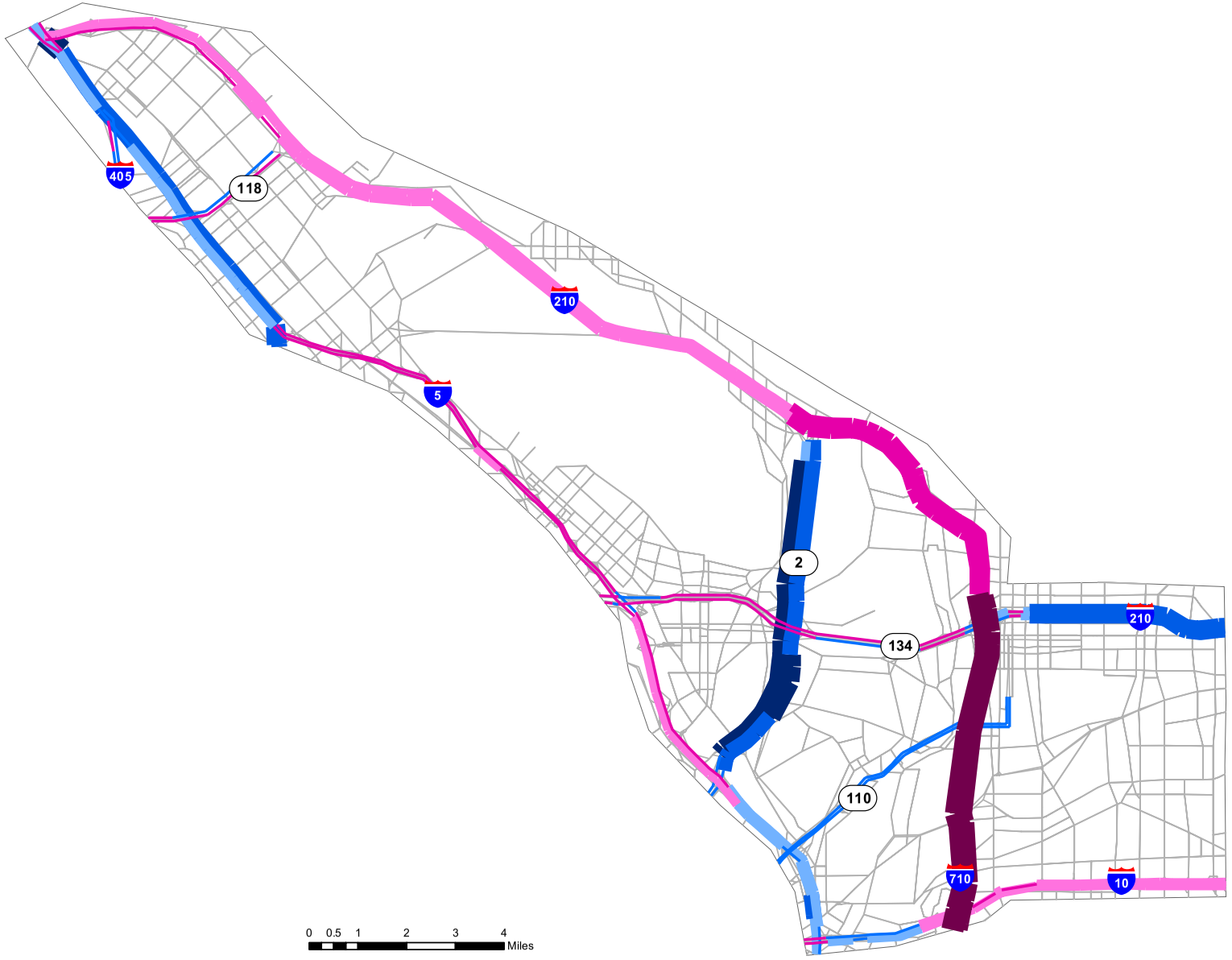


ITERIS

I-710 Missing Link, Truck Study Project

2030 RTP Baseline
Change in Freeway ADT (with closure over without closure)

Figure 23

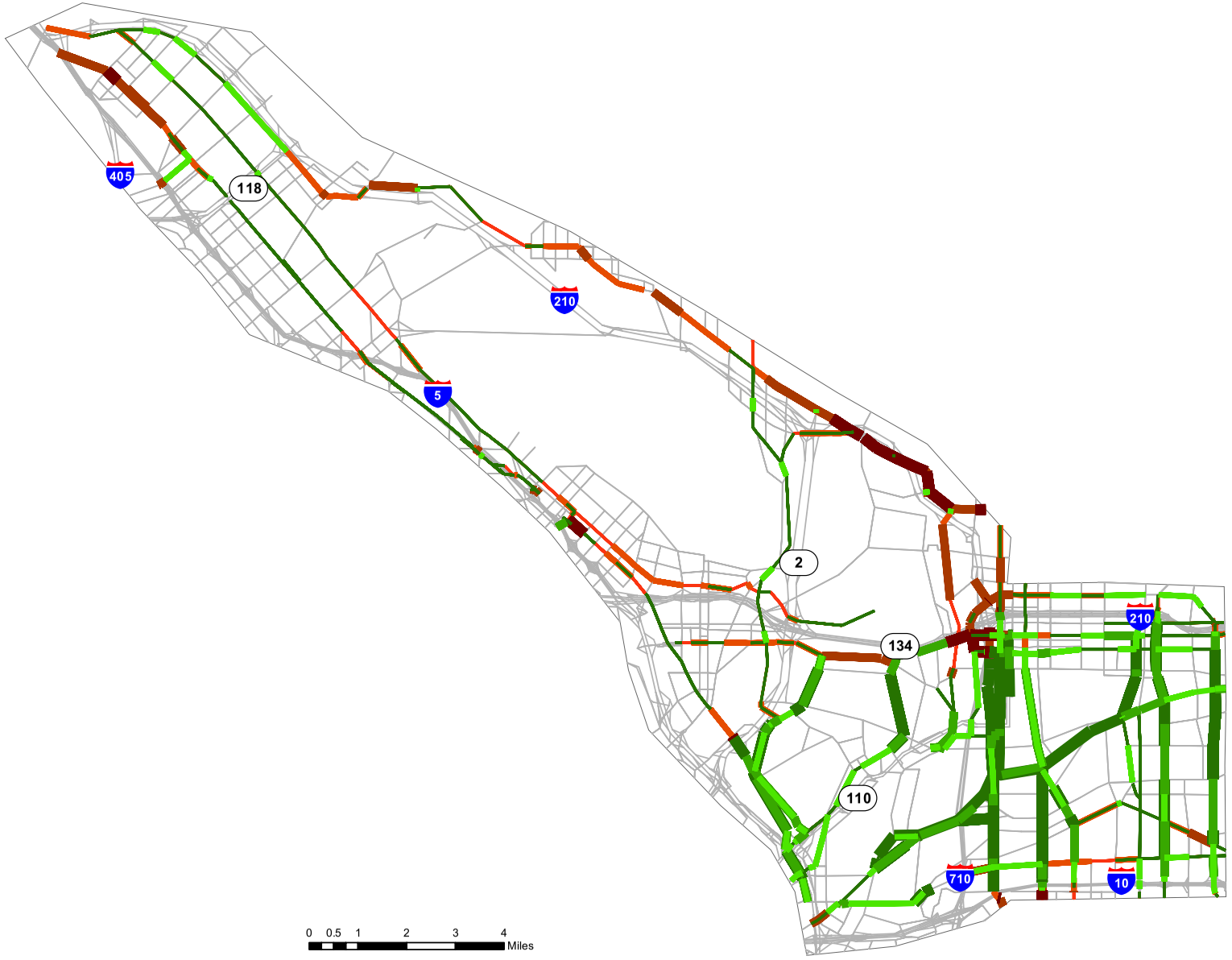


ITERIS

I-710 Missing Link, Truck Study Project

2030 RTP Baseline
Change in Freeway Truck Volumes (with closure over without closure)

Figure 24



Legend

Increase

- < 200
- 201 - 500
- 501 - 1000
- >1000

Decrease

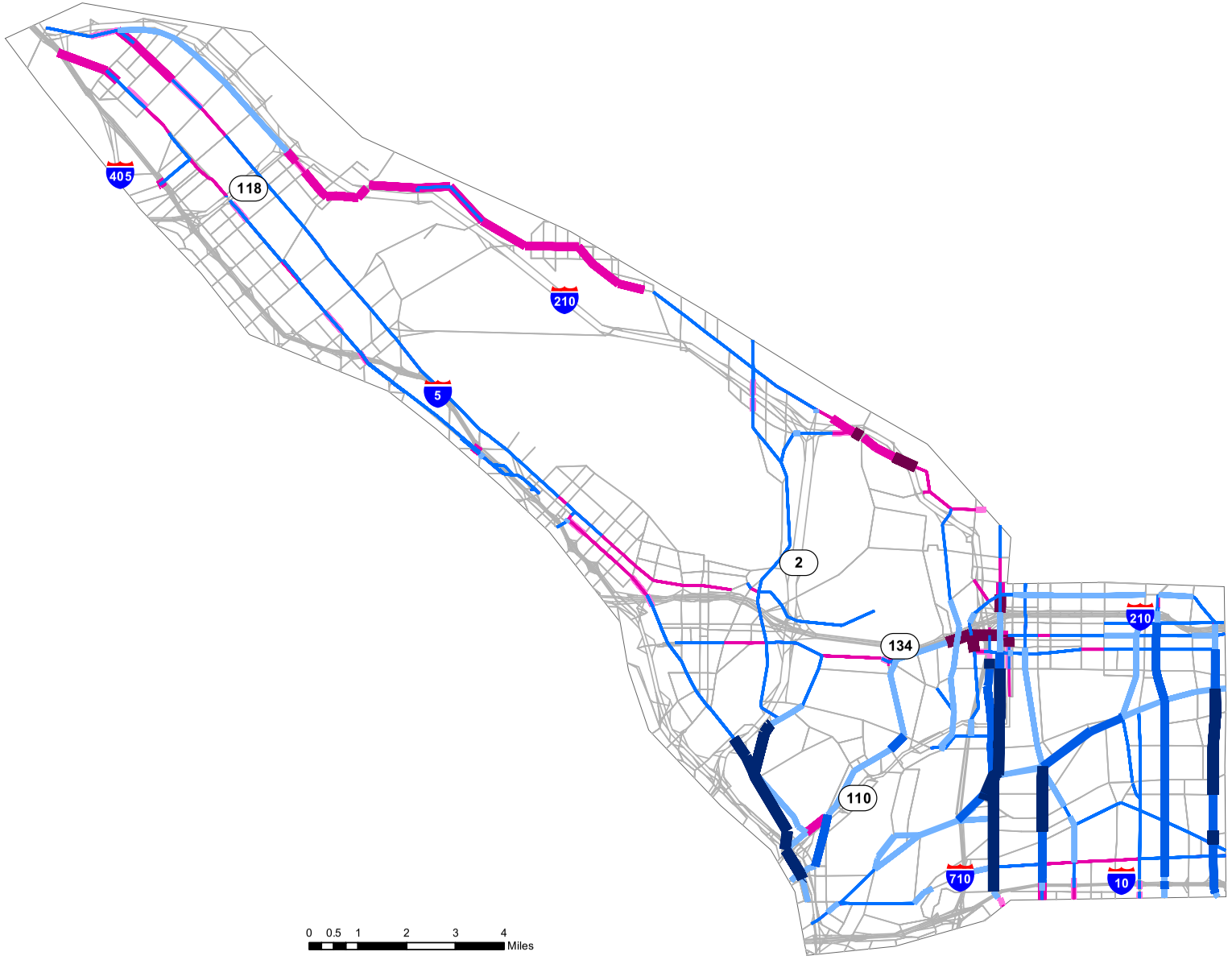
- -500 - 0
- -1000 - -501
- -1500 - -1001
- -12283 - -1501

ITERIS

I-710 Missing Link, Truck Study Project

2030 RTP Baseline
Change in Major Arterial ADT (with closure over without closure)

Figure 25



ITERIS

I-710 Missing Link, Truck Study Project

2030 RTP Baseline
Change in Major Arterial Truck Volumes (with closure over without closure)

Figure 26

4.3.1 Total Vehicular Traffic

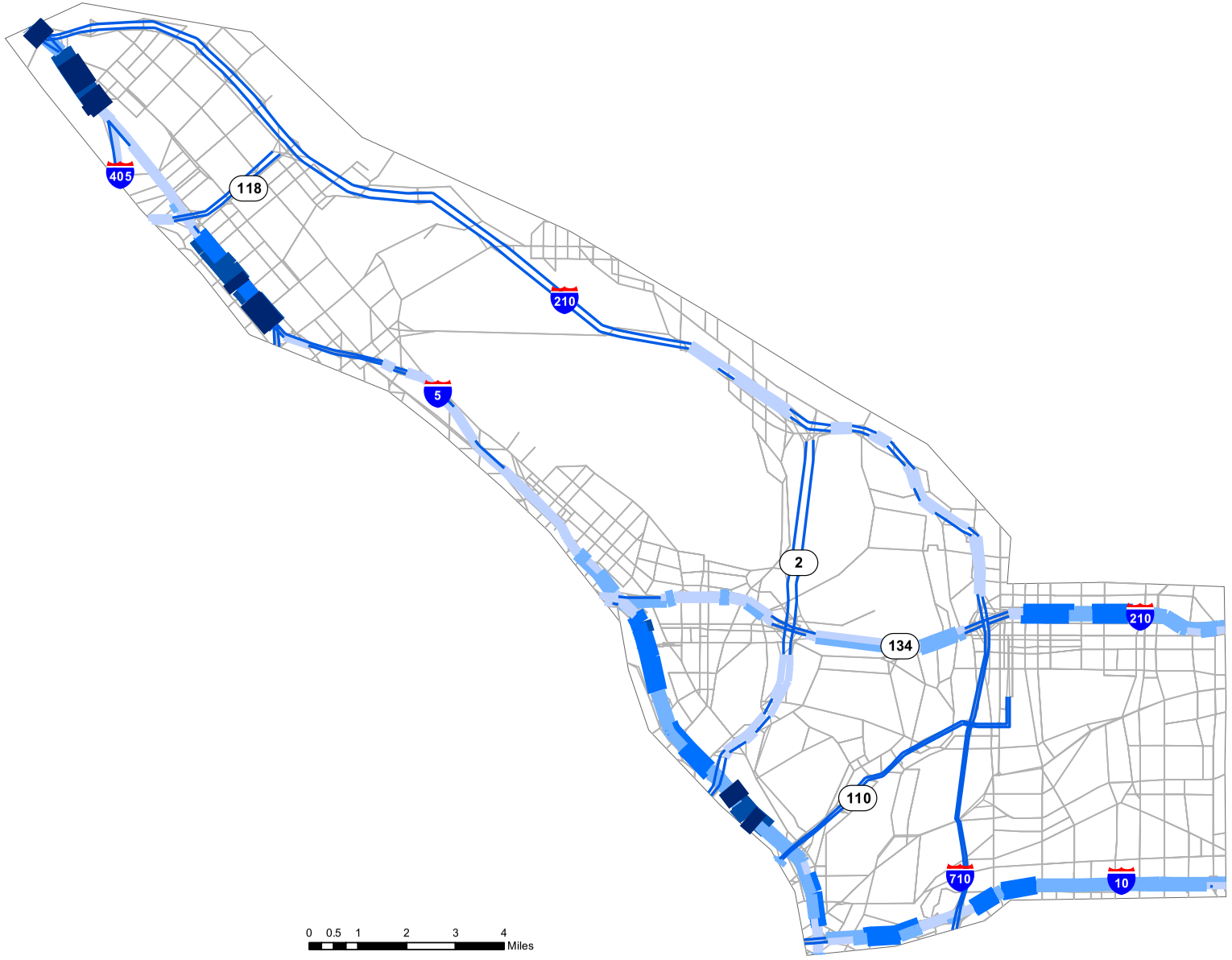
Figure 27 illustrates the total ADT volume along the major freeways within the study area under the RTP Plan conditions. I-5 still carries very high traffic volumes, but when compared to baseline conditions, it can be seen that the majority of the segments on I-5 carry less traffic on a daily basis (**Figure 18**). This can be attributed to the fact that there are several freeway improvements in the vicinity of the study area which help reduce traffic on I-5. The SCAG strategic Plan projects include freeway improvements to I-405, I-110, US-101 in addition to system-system interchange improvements at I-10/I-110, I-10/I-405, US-101/I-110, US-101/I-110, I-5/I-110 and I-10/US-101/I-110.

Figure 28 illustrates the arterial ADT traffic volumes in the study area under the RTP Plan conditions. As can be seen from the figure, north-south arterial streets such as, Huntington Drive, Fremont Avenue, Rosemead Boulevard, San Gabriel Boulevard, Del Mar Avenue, Santa Anita Avenue are projected to carry very high vehicular traffic with some segments carrying more than 25,000 vehicles per day. The ADT traffic volumes on the arterial streets are very similar to baseline conditions.

4.3.2 Truck Volumes/Truck Percentages

Figure 29 illustrates the percentage of trucks on the major freeways within the study area under the RTP Plan conditions. The truck percentages on I-5 are consistently over 10 percent in all segments, with some segments having almost 20 percent trucks. Other than I-5, segments of I-210, north of SR-134 are also heavily used by trucks. When compared to the baseline conditions with gap closure **(Figure 20)**, it is evident that the missing link of I-710 is more heavily used by trucks under the plan conditions. In addition, many segments of I-210 are more heavily used by trucks than under the Baseline condition, with some segments having more than 20 percent trucks.

Figure 30 illustrates the percentage of trucks on the major arterials within the study area under the plan conditions. Similar to the total ADT traffic patterns, the major north-south arterial streets such as, Figueroa Street, Huntington Drive, Fremont Avenue, Rosemead Boulevard, San Gabriel Boulevard, Garfield Avenue, Del Mar Avenue, Santa Anita Avenue, San Fernando Road are heavily used by trucks with some segments of San Fernando Road and Figueroa Street having almost 18 percent trucks. Some segments of Fremont Avenue and Garfield Avenue have high truck percentages of almost 8 percent. There are some minor reductions in truck percentages compared to the Baseline conditions on Foothill Boulevard, Glenoaks Boulevard, Orange Grove Boulevard, and Garfield Avenue.

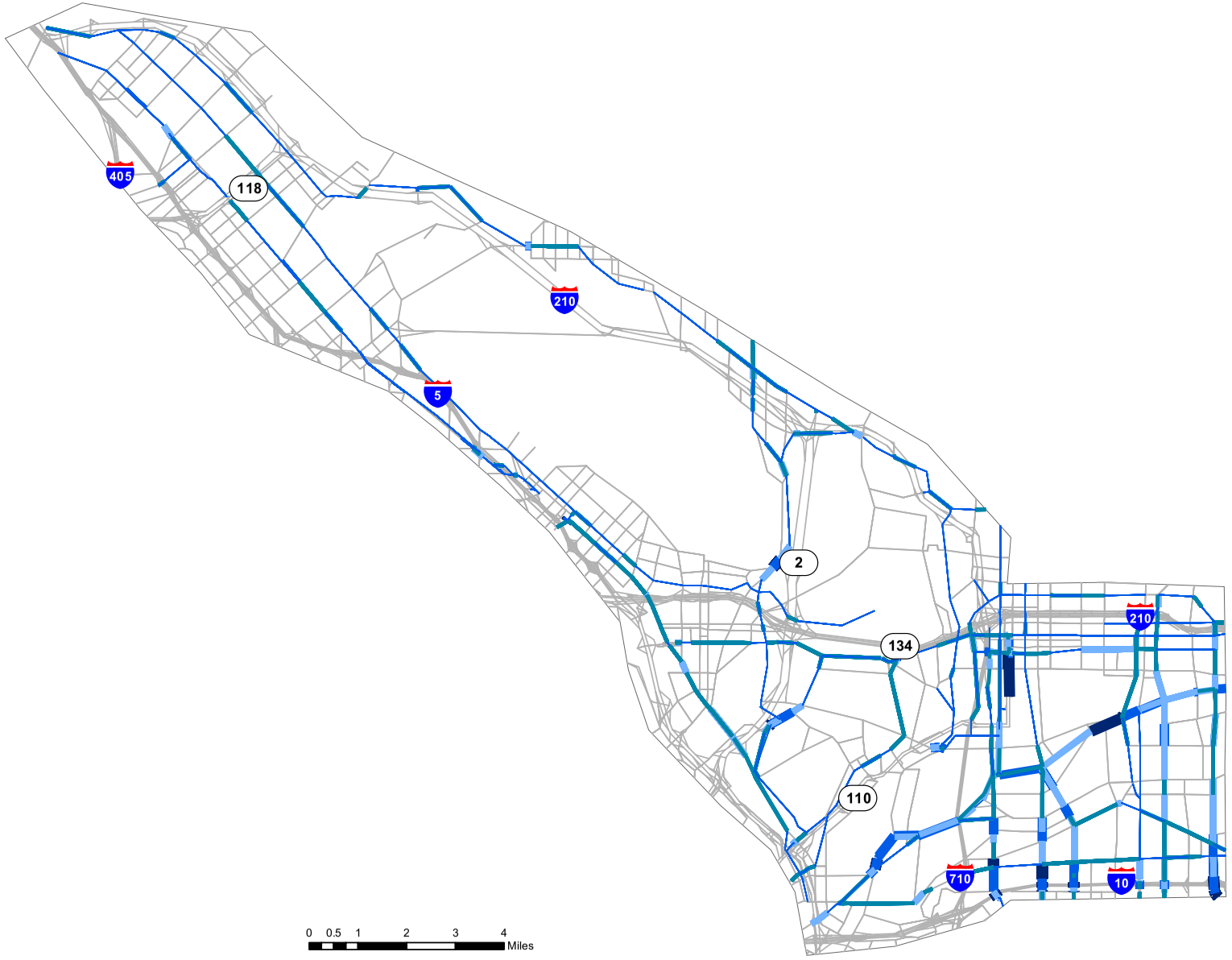


ITERIS

I-710 Missing Link, Truck Study Project

2030 RTP Plan with I-710 Gap Closure
Range of Freeway ADT Volumes

Figure 27



ITERIS

I-710 Missing Link, Truck Study Project

2030 RTP Plan with I-710 Gap Closure
Range of Major Arterial ADT Volumes

Figure 28

ITERIS

I-710 Missing Link, Truck Study Project

2030 RTP Plan with I-710 Gap Closure
Freeway ADT Percent Trucks

Figure 29

ITERIS

I-710 Missing Link, Truck Study Project

2030 RTP Plan with I-710 Gap Closure
Major Arterial ADT Percent Trucks

Figure 30

4.3.3 Performance Assessment using Volume/Capacity (V/C) Ratios

Figure 31 illustrates the volume/capacity (V/C) ratios along the freeways and major arterials in the study area in the PM peak period under the SCAG RTP Plan conditions. When compared to the baseline conditions with the gap closure, it can be seen that some of the arterial segments are performing generally at better levels of service under in the Plan conditions. These arterial segments include:

- Los Robles Avenue, north of Huntington Drive
- Segments of Fremont Avenue south of SR-110
- Segments of Huntington Drive west of Rosemead Boulevard

In addition, certain freeway segments are projected to operate at improved levels of service under the Plan conditions compared to the Baseline. These include:

- The gap segment of I-710
- Segments of I-5 northbound, north of SR-134
- Segments of I-210 westbound, east of I-710

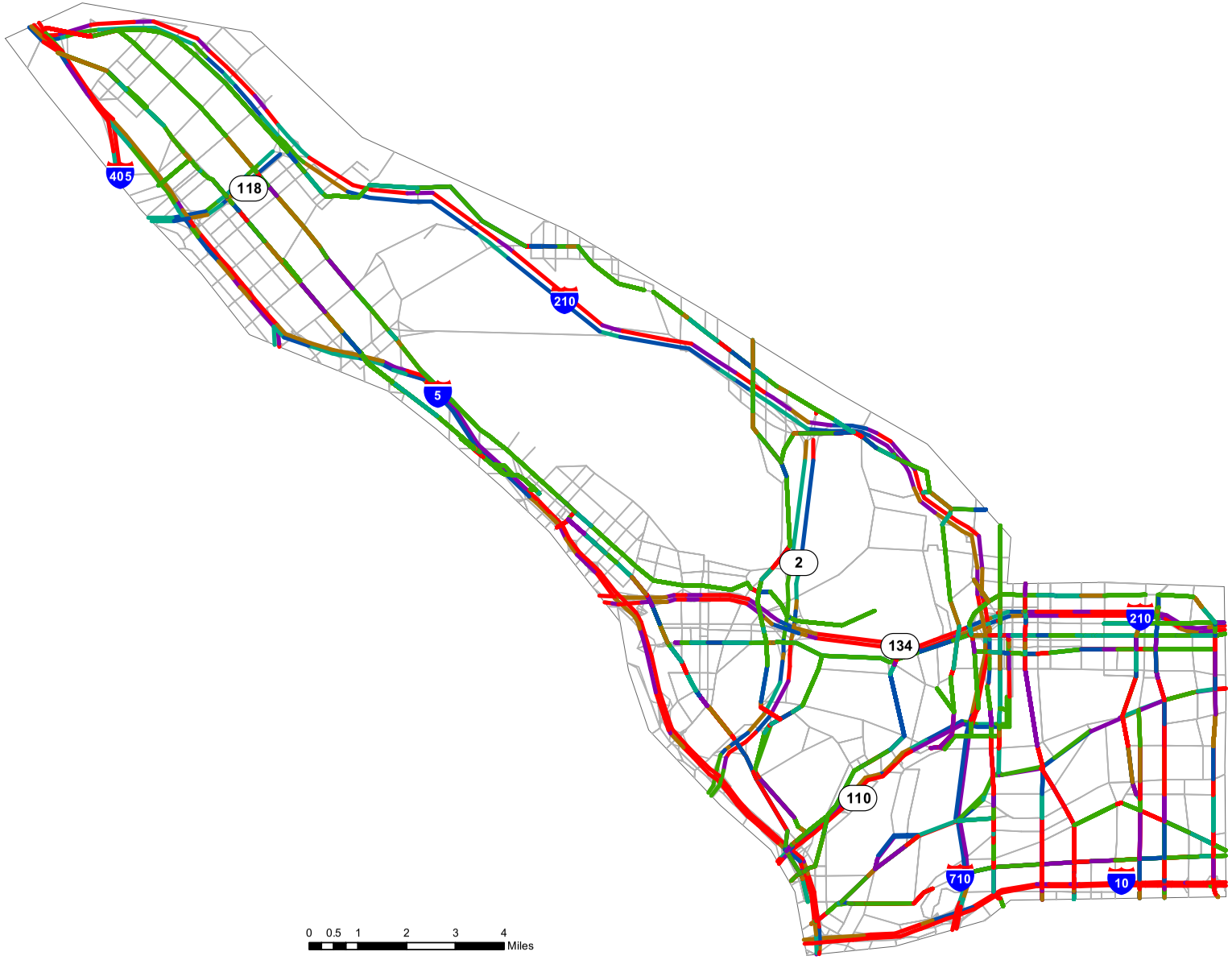
However, even though many freeway and arterial segment are projected to operate at less congested levels under the Plan conditions as compared to the Baseline conditions, there are many segments where deficiencies are expected to remain and are forecast to operate at congested levels (V/C>1). The segments include:

Key freeway segments:

- Segments of I-5 between SR-134 and I-10
- I-10, east of I-5
- Segments of I-210, east of I-710
- Segments of I-210 northbound, north of I-710
- I-110 northbound, east of I-5

Key arterial segments:

- Sierra Madre Boulevard, north of Huntington Drive
- San Gabriel Boulevard, north of Mission Dr
- Atlantic Boulevard, north of Valley Boulevard
- South Arroyo Parkway
- Garfield Avenue, south of Mission Road
- Some segments of Rosemead Boulevard between I-10 and I-210



ITERIS

I-710 Missing Link, Truck Study Project

2030 RTP Plan with I-710 Gap Closure
PM Peak Volume to Capacity Ratios

Figure 31

4.4 Comparison of Area-wide Performance Indicators

To compare operating conditions of the highway system under each of the analyzed scenarios several performance indicators were summarized over the entire study area. These include, total daily vehicle miles of travel (VMT), total daily vehicle hours of travel (VHT) and overall average operating speeds.

Table 9 shows the preliminary results of aggregated daily area-wide VHT, VHT and average speeds for the three different scenarios. As can be seen from **Table 9**, the plan conditions show the best average speeds, least delay in terms of vehicle hours traveled and the lowest vehicle miles traveled. The overall average speeds under the Plan scenario are 13 percent and 11 percent better compared to the Baseline scenario without and with the I-710 gap closure, respectively. It should be noted that, although the baseline condition with the I-710 connection shows higher area-wide VMT and VHT compared to without the gap closure scenario, suggesting higher volumes; the overall average speeds in the study area improve by about 2 percent with the I-710 gap closure.

Table 10: Comparison of Performance Indicators

Parameter	Baseline Scenario - No I-710 Connection	Baseline Scenario – With I-710 Connection	SCAG RTP Plan Scenario
VMT	33,954,200	35,067,400	33,942,000
VHT	1,071,600	1,086,800	948,700
Average Speed (MPH)	31.7	32.3	35.8

.

4.5 Comparison of Impacts across Different Scenarios

A comparison was done across different scenarios to assess the impacts of the I-710 Gap closure and PLAN projects on baseline conditions. **Table 11** summarizes the results of this comparison. The first column indicates the facility or the performance measure. The second column summarizes the impacts of the Gap closure on year 2030 "baseline" conditions. The green shaded cells signify potential positive impacts and the orange shaded cells indicate possible negative impacts. The third column summarizes the potential impacts of the PLAN projects on the "baseline" conditions (with Gap closure). The potential positive and negative impacts are again color coded in green and orange, respectively. The last column summarizes the potential key issues and observed problems. The following section discusses these key issues in further detail and recommends potential strategies to mitigate the impacts.

TABLE 11 Comparison of Scenarios and Impacts

Category	Impacts of GAP Closure on Baseline Conditions	Impacts of Plan Projects on Baseline Conditions (With GAP Closure)	Key Issues
Freeway Volumes	Volume on I-5 decreases between I-10 and SR-2	Generally lesser traffic on I-5 due to various freeway improvements	
	Volume on I-110 decreases in the project study area	Similar to baseline conditions	
	I-210, north of SR-134 carries more traffic due to the direct link of I-710 >10,000	Similar to baseline conditions	Increase in traffic on I-210 due to the direct link of I-710
		Missing link of I-710 more heavily used than baseline conditions	Missing link of I-710 more heavily used in PLAN conditions than Baseline conditions
	North of SR-2, I-210 volume increases <5000	Similar to baseline conditions	
	Higher volume on I-210 just east of SR-134, increase is >5,000	Slightly higher volume than baseline on some segments of I-210 just east of SR-134	Segments of I-210 (east of SR-134) has highest volumes under PLAN conditions
	Higher volume on I-10, east of I-710, increase is <5,000	Slightly higher volume on some segments of I-10 just east of I-710	Segments of I-10 (east of I-710) has highest volumes under PLAN conditions
	Higher volume on I-5, north of SR-2, increase is >5,000 and decreases going north.	Slightly lower volume on I-5, north of SR-2	Volume on I-5 (north of SR-2) increase in Baseline conditions (>5,000). However under PLAN conditions, the increase is slightly reduced.
Arterial Volumes	Volume is decreasing on almost all N-S roadways such as Fair Oaks Ave, Figueroa St, Atlantic Blvd, Los Robles Blvd (north of Huntington Dr) in Pasadena, S. Pasadena, Alhambra	Similar to baseline conditions	
	Increase in volume on Foothill Blvd from SR-134 to SR-118 (around and north of LCF)>1000	Similar to baseline conditions	Increase in volume on Foothill Blvd from SR-134 to SR-118 (around and north of LCF)>1000
	Increase in volume on San Fernando Rd (north of SR-118)	Volumes decrease on San Fernando Rd as compared to baseline conditions	Increase in volume on San Fernando Rd (north of SR-118). However, under PLAN conditions, the increase is slightly reduced.
	Increase in volume in some segments of Mission Blvd and Valley Blvd in San Gabriel	Similar to baseline conditions	Increase in volume in some segments of Mission Blvd and Valley Blvd in San Gabriel
	Some increases on Colorado avenue, Glenoaks blvd, Linda Vista Av, Fair Oaks Av and Orange Grove Blvd in Pasadena	Similar to baseline conditions	Some increases on Colorado avenue, Glenoaks blvd, Linda Vista Av, Fair Oaks Av and Orange Grove Blvd in Pasadena
Trucks - Freeway	Truck % is reduced along I-5/I-10 interchange and along SR-2 suggesting that many trucks are using the direct link of I-710 to I-210 instead of I-5 and SR-2 (I-5 is already operating at congested conditions)	Similar to baseline conditions	
	Hence, I-5 truck volume decreases between I-10 and SR-2	Similar to baseline conditions	
	Truck volume on I-110 also decreases	Similar to baseline conditions	
	Truck volume is decreasing on I-210 east of I-710, suggesting that trucks forced to take I-210 earlier are now traveling on I-10 and then taking I-710	Some segments of I-210 east of SR-134 is decreasing from baseline	
	Truck % along I-210 through LCF and Glendale increase till I-5	Truck % along I-210 through LCF and Glendale increase from baseline till I-5	Truck % along I-210 through LCF and Glendale in highest under PLAN conditions
	Truck %'s/volumes increases on I-5 north of SR-2 to US-101	Similar to baseline conditions	Truck %/volumes increases on I-5 north of SR-2 to US-101
	Truck volume on I-210 increases >2,500 between SR-134 and SR-2	Truck volume increases further on this segment	Truck volume on I-210 (between SR-134 and SR-2) is the highest under PLAN conditions
	Truck volume on I-210 increases <2,500 between SR-2 and I-5	Truck volume increases further on this segment	Truck volume on I-210 (between SR-2 and I-5) is the highest under PLAN conditions
	Higher truck volume on I-10, east of I-710, increase is <2,500	Lower truck volume than baseline in this segment	Increase in truck volume on I-10 under baseline conditions. However, under PLAN conditions, the increase is slightly reduced.

Category	Impacts of GAP Closure on Baseline Conditions	Impacts of Plan Projects on Baseline Conditions (With GAP Closure)	Key Issues
Trucks - Arterials	Generally truck volume is decreasing on all arterials	Truck %'s are generally decreasing, especially along Foothill Blvd, Glenoaks Blvd, Orange Grove Blvd and Garfield Avenue	
	Truck %'s are generally reducing, most notably Figueroa St, Fremont Av, Los Robles Av, San Fernando Rd and Linda Vista Av in Pasadena	Similar to baseline conditions	
	Increase in truck volume on Foothill Blvd in LCF and Glendale	Truck volumes decreasing than the baseline conditions in these segments	Increase in truck volume on Foothill Blvd in LCF and Glendale.
Performance Measurement (V/C's)	Few arterials/arterial segments perform better such as Huntington Dr, San Gabriel Blvd and Fremont Av.	Some freeway segments are projected to perform better: the missing link segment of I-710, Segments of I-5 northbound (north of SR-134), Segments of I-210 westbound (east of I-710)	
	Many arterial segments operate at oversaturated conditions along the entire segment, such as, Los Robles, Garfield, San Gabriel, Atlantic, and some segments of San Fernando Rd, Glenoaks Blvd	Some arterial segments are projected to perform better: Los Robles Avenue (north of Huntington Drive), Segments of Fremont Avenue (south of I-110), Segments of Huntington Drive (west of Rosemead Boulevard)	

5.0 ISSUES, STRATEGIES AND RECOMMENDATIONS

This chapter outlines the observed impacts and potential recommendations and strategies associated with the comparison of the alternatives in the previous chapters. The discussion in each case is organized in accordance with the categories in **Table 11** and the possible positive and negative impacts.

5.1 Key Freeway Issues and Impacts

One of the key observations in case of both Baseline and Plan scenarios is that the construction of the Missing Link will increase traffic volumes and truck volumes along the **I-210 Freeway north of SR-134**. Without the linkage, most segments are operating under capacity, but with the connection of the link, capacity deficiencies are evident especially in the northbound direction. The increase in truck volumes and truck percentage on this freeway is also the highest in this segment, at greater than 2,500 daily trucks.

Recommendation/Strategy: Consider additional capacity on I-210 between SR-134 and SR-2, if the Missing Link is constructed to preserve the operating conditions on this freeway segment. Construction of the fifth lane in each direction may be considered.

If the Missing Link is constructed, the analysis suggested that the **Gap segment** will be more heavily used in the Plan scenario than the Baseline scenario when other regional improvements are not yet constructed.

Recommendation/Strategy: This issue does not seem to pose a problem or warrant improvements since most of the segments on the I-710 Gap will be operating at below design capacity conditions and there does not seem to be a potential for spillover traffic to local transportation networks. No potential improvements are recommended.

The segment of **I-210 Foothill Freeway, east of SR-134** through Pasadena is expected to have higher traffic volumes under the Plan scenario.

Recommendation/Strategy: Since despite this observed increase, volume/capacity ratios will still remain below 1.0, no major infrastructure capacity improvements or strategies are recommended. This segment of the freeway is closely coordinated with the City of Pasadena's ITS infrastructure; therefore, further coordination and monitoring should be done to maintain the efficient operation of the freeway/parallel arterial systems.

The segment of **I-10 Freeway east of I-710 gap closure** is expected to have higher volumes under the Plan scenario.

Recommendation/Strategy: This segment shows over-capacity (V/C>1.0) conditions under all scenarios including existing conditions. The increase will only incrementally worsen the operating conditions. Given the built-out nature of this freeway in this area, major capacity enhancements other than implementation of focused traffic systems management and operations (TSMO) may not be feasible.

Projected traffic volumes on the **I-5 Golden State Freeway, north of the SR-2, Glendale Freeway**, increase as a result of the Gap closure by as much as 5,000 under the Baseline conditions. However, with the introduction of other regional improvements under the Plan scenario, the increase (compared to baseline without the link) is less.

Recommendation/Strategy: This observation suggests that although with the construction of the Missing Link traffic and trucks will divert from the I-5 to the I-710/I-210 route, the available capacity will quickly be filled by regional latent demand. This traffic may be shifted from the local arterials such as San Fernando Road and Glenoaks Boulevard which are parallel to the I-5. The I-5 Freeway is programmed for capacity improvement through the construction of an HOV lane through Glendale and Pasadena. This improvement should help ease this increase in traffic. No other major capacity improvements seem feasible at this point.

5.2 Key Arterial Issues and Impacts

Traffic volumes are expected to increase on **Foothill Boulevard** from SR-134 to SR-118 under both Baseline and Plan conditions with the construction of the I-710 Missing Link. The increase in volumes may be as much as 1,000 vehicles.

Recommendation/Strategy: Consider providing means to directly connect from I-210 to northbound SR-2 so that trucks that have origin/destinations north of SR-2 and along Foothill Boulevard exit from SR-2 at this point and do not have to use the segment of Foothill Boulevard east of SR-2 through La Cañada-Flintridge.

Traffic volumes are expected to increase on **San Fernando Road** north of SR-118 under both Baseline and Plan conditions, however the increase is slightly less with the implementation of other Plan improvements.

Recommendation/Strategy: It appears that the Plan projects will help reduce the potential arterial impacts in this case; however, even with the increase, the

arterial seems to have ample reserve capacity and no improvements are recommended.

Traffic volumes are expected to increase on several segments of **Mission Boulevard** and **Valley Boulevard** in the San Gabriel Valley under both Baseline and Plan conditions.

Recommendation/Strategy: Consider traffic systems management and operational improvements along Mission and Valley including ITS and additional signal system synchronization. Consider conducting corridor studies along both routes to identify potential future bottlenecks and determine possible intersection and roadway segment improvements.

Traffic volumes are expected to increase on several segments of **Colorado Avenue, Glenoaks Boulevard Linda Vista Avenue, Fair Oaks Avenue** and **Orange Grove Boulevard** in northeastern Pasadena and Eagle Rock areas.

Recommendation/Strategy: These roadways and segments are in and around the SR-134/I-210/I-710 system interchange. Most of the roadways are residential streets. Consider a focused study to develop specific strategies to minimize cut-through traffic and find more expedient means of accessing the freeways and possibly prohibit heavy duty trucks from these streets.

5.3 Freeway Truck Issues and Impacts

The percentage of trucks along the **I-210 Freeway** through La Canãda-Flintridge and Glendale is the highest in the Plan scenario.

Recommendation/Strategy: Consider additional capacity on I-210 between SR-134 and SR-2, if the Missing Link is constructed to preserve the operating conditions on this freeway segment. Construction of the fifth lane in each direction may be considered.

The percentage of trucks and truck volumes on **I-5 Freeway** are expected to increase between SR-2 and SR-134.

Recommendation/Strategy: This observation suggests that although with the construction of the Missing Link traffic and trucks will divert from the I-5 to the I-710/I-210 route, the available capacity will quickly be filled by regional latent demand. The I-5 Freeway is programmed for capacity improvement through the construction of an HOV lane through Glendale and Pasadena. This improvement should help ease this increase in traffic. No other major capacity improvements seem feasible at this point.

Truck volumes on **I-210 between SR-134 and SR-2** and also between SR-2 and I-5 are expected to be the highest under the Plan scenario.

Recommendation/Strategy: Consider additional capacity on I-210 between SR-134 and I-5, if the Missing Link is constructed to preserve the operating conditions on this freeway segment. Construction of the fifth lane in each direction may be considered.

Truck volumes are expected to increase on **I-10 Freeway** under Baseline conditions and the increase will be slightly less the Plan scenario.

Recommendation/Strategy: This segment shows over-capacity (V/C>1.0) conditions under all scenarios including existing conditions. The increase will only incrementally worsen the operating conditions. Given the built-out nature of this freeway in this area, major capacity enhancements other than implementation of focused traffic systems management and operations (TSMO) may not be feasible.