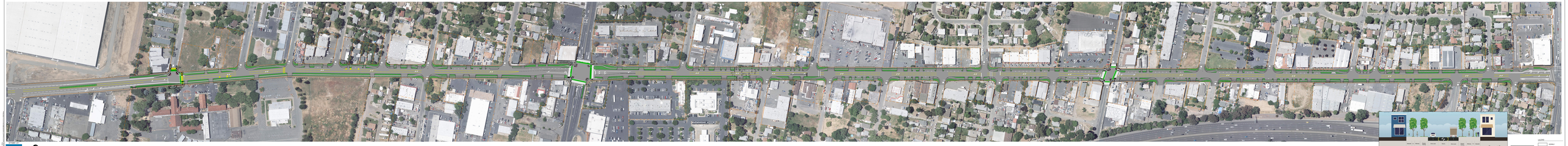


FRANKLIN BOULEVARD COMPLETE STREETS PROJECT
CLASS IV BIKELANES CONCEPTUAL DESIGN

2600 Capitol Avenue
Suite 200
Sacramento, CA 95816
916.564.4500 phone
916.564.4501 fax

www.esassoc.com

Memorandum

Date July 13, 2018

To Thaleena Bhattal
Associate Environmental Planner
Caltrans - District 3 Local Assistance

From Elizabeth Boyd, AICP
Senior Project Manager
Environmental Science Associates

Subject **Scenic Resource Evaluation and Visual Impact Assessment for the Franklin Boulevard Complete Street Project [CML 5002-190]**

Purpose and Need

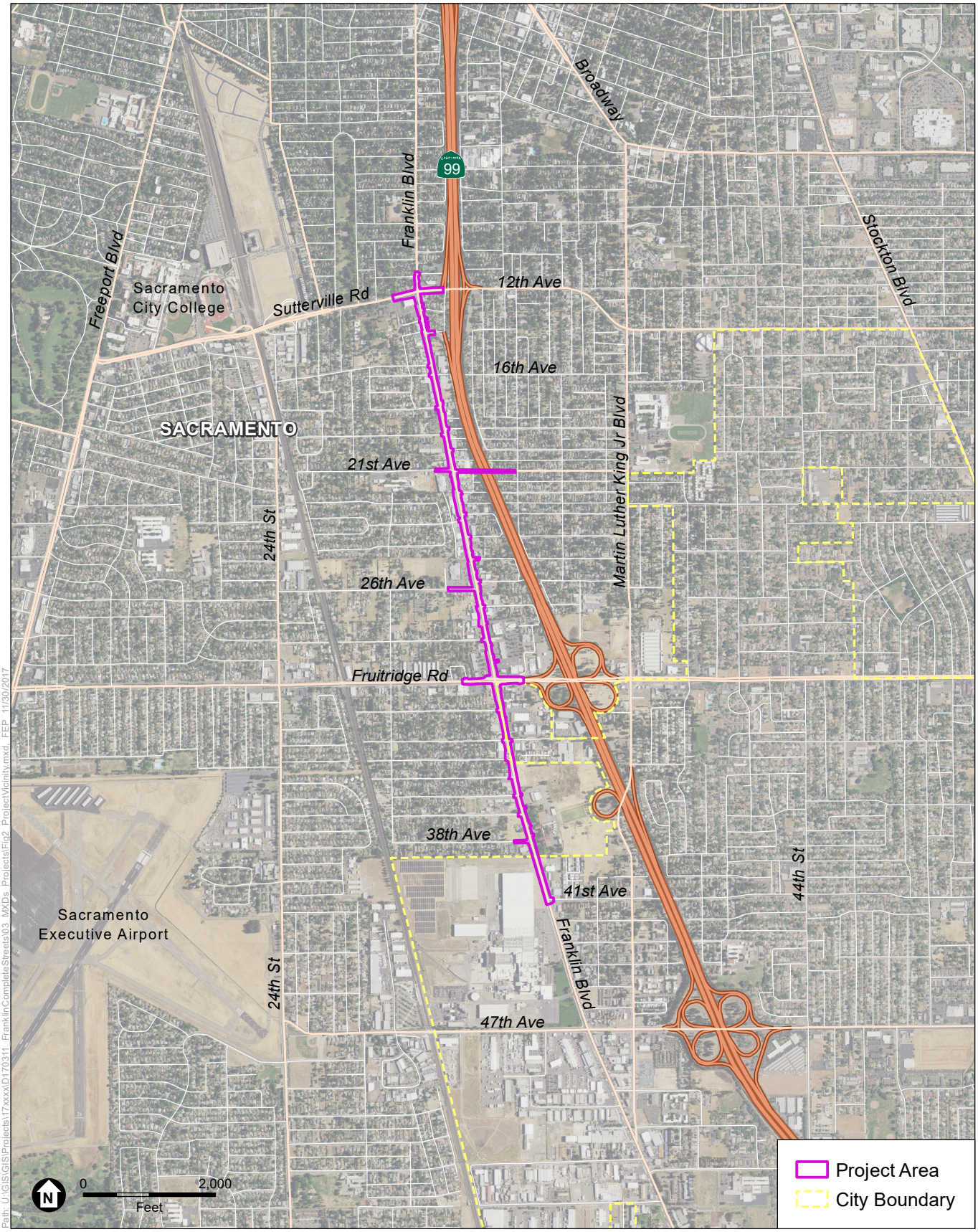
The City of Sacramento (City) is proposing to improve and rehabilitate Franklin Boulevard for approximately 1.6 miles, from Sutterville Road to the City limits at 38th Avenue, into a complete street, with additional changes to striping within Sacramento County to 41st Avenue (Figure 1). Based on the "Questionnaire to Determine Visual Impact Assessment (VIA) Level", the project VIA Level Score is 10 (Attachment 1); therefore, a brief memorandum addressing visual issues has been determined to be sufficient.

Project Description

The Franklin Boulevard Complete Street Project (project) includes improving and rehabilitating Franklin Boulevard for approximately 1.6 miles, from Sutterville Road to the City limits at 38th Avenue, into a complete street. The project would reduce the existing five-lane road to a three-lane road in order to reconfigure the right-of-way to accommodate the multimodal and accessibility needs of the community. The project includes conform striping from 38th Avenue to 41st Avenue in the County and striping for bicycle lanes on 21st Avenue between Franklin Boulevard and 34th Street.

Visual Setting

Within the project area, Franklin Boulevard is a five-lane paved road in a predominantly commercial area (Figure 2). Landscaping is very minimal with trees sparsely planted throughout the corridor. Sidewalks are uneven and discontinuous and no dedicated bicycle lanes are present along Franklin Boulevard (Figure 1). A mix of business properties currently front Franklin Boulevard, as well as public parking lots, and several lots stand vacant. Power and communications cable poles line both sides of the street from Fruitridge Road to 41st Avenue (Figure 1).



SOURCE: USDA, 2016; Bennett Engineering, 2017; ESA, 2017

Franklin Boulevard Complete Streets Project

Figure 1
Project Vicinity

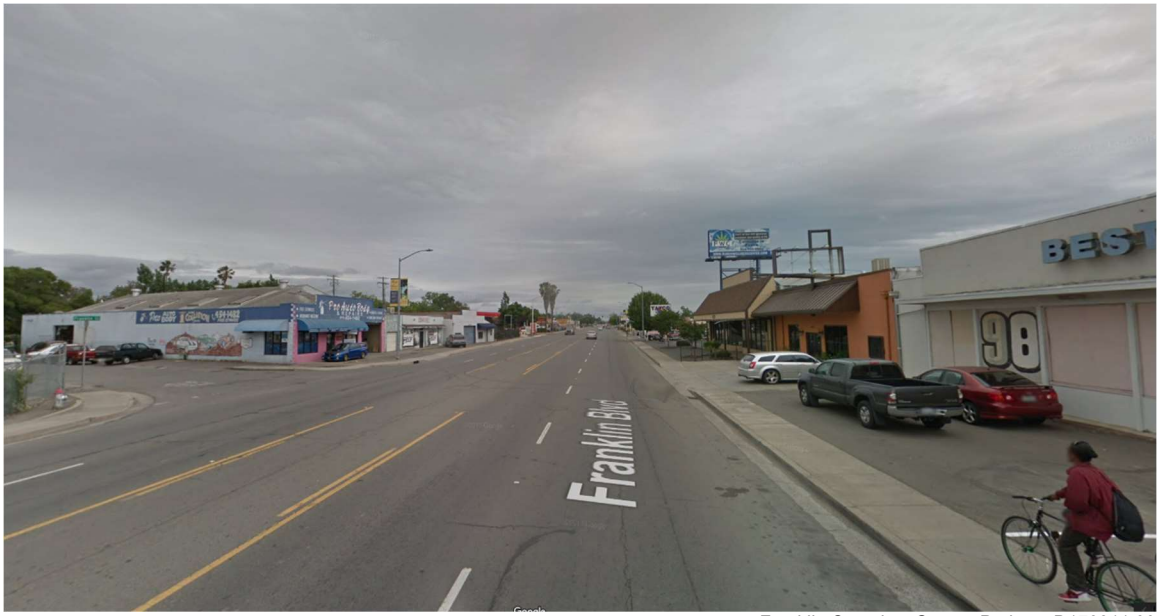
ESA

Franklin Complete Streets Project / D170311.00

SOURCE: Google StreetView 2018

Figure 2
View north from intersection with 33rd Avenue

The views along the corridor vary from empty lots to homes to shopping centers to light industrial uses (Figure 3). The very urban setting includes a variety of power lines and signage breaking up the corridor with very little unity in architecture or landscaping. Some portions of the corridor have some trees, landscaping, and sidewalks while other areas may be completely paved or contain gravel to the side of the road (Figure 2). Foreground views include stretches of asphalt with buildings and parking lots fronting the street with middle and background views of taller trees and street lighting.



Franklin Complete Streets Project / D170311.00

SOURCE: Google StreetView 2018

Figure 3
View south from intersection with 24th Avenue

Viewer Sensitivity

The main viewers of the reconstructed roadway and improvements will be residents, workers at businesses along the corridor, and people traveling along Franklin Boulevard. Residents may be the most sensitive to changes while travelers in vehicles may be least sensitive. Residents, as well as walkers and bikers in the corridor, spend time experiencing the existing context and would be the most affected by the proposed changes to the corridor.

Resource Change

The project would result in improvements, including: road rehabilitation with an approximate depth of 12 inches, curb and gutter replacement, a reduction from four through traffic lanes with a two-way left turn lane to two through traffic lanes with a two-way left turn lane, utility relocations, the addition of Class IV bikeways and sidewalk, ADA compliant curb ramps, stormwater planters, drainage improvements, and the addition of landscaped buffers (including tree planting) for the Class IV bikeways along Franklin Boulevard within the project limits. In addition, the project would replace existing street light and also install new street and pedestrian lights and modify existing traffic signals.

No existing trees would be removed for construction of the project and the proposed project improvements would enhance the aesthetics of the area through the addition of landscaping and placemaking elements throughout the corridor. Bicycle facilities would be designed in accordance with City Standard and Caltrans guidelines.

Aesthetic Impacts

The project area is an existing transportation corridor and is currently lacking in way of landscaping and other aesthetic features that are considered visually pleasing to nearby businesses and passersby. The project proposes to improve the aesthetics of the corridor with a reduced vehicle roadway footprint and additional landscaping to encourage pedestrian and bicyclist use of the new bicycle path and wider sidewalk. While aesthetics are subjective and people may disagree as to which type of view is the most attractive and pleasing to the eye, it is generally accepted that the addition of trees and other landscaping is a positive aesthetic change. They provide shade which can ease glare and reduce strain on the eyes.

The proposed elements of the project are expected to provide an aesthetic improvement as the changes would include trees and other landscaping, pedestrian-scale lighting, and other unifying features. The proposed changes would bring more order and unity to the view and provide some screening/softening to the more industrial/urban elements of the corridor.

Appendix G, Section 1, of the California Environmental Quality Act (CEQA) Guidelines requires that the following is considered when determining if project activities will create a potentially significant impact to aesthetic resources. Will the project:

A). Have a substantial adverse effect on a scenic vista?

A scenic vista is defined as a viewpoint that provides expansive views of a highly valued landscape for the benefit of the general public. In addition, some scenic vistas are officially designated by public agencies, or informally designated by tourists and tourist guides. A substantial adverse effect to such a scenic vista is one that degraded the view from such a designated view spot. The Franklin Boulevard corridor is not considered a scenic corridor or

having views which would be considered a scenic vista. In addition, the project would improve views for travelers and other viewers in the area. As such, the project would not have an adverse impact on a scenic vista.

B) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?

The project would not adversely affect any "Designated Scenic Resource" as defined by CEQA statutes or guidelines, or by Caltrans policy. There are no designated scenic highways or eligible-for-designation scenic highways in the project area.

C) Substantially degrade the existing visual character or quality of the site and its surroundings?

The project would not result in substantial adverse impacts to the visual environment. The proposed improvements would only slightly alter the current visual landscape since Franklin Boulevard is an existing facility. A reduction of vehicle lanes and additional landscaping would make the corridor more visually pleasing for pedestrians and bicyclists, as well as for adjacent businesses and residents. Materials and design of site features are proposed to be appropriate for the visual character of the project surroundings. Goal 5 of the Franklin Boulevard Complete Street Plan is to “support the steady daytime and evening activity in a safe and beautiful manner… [to] promote a memorable street.” The addition of trees, landscaping, and lighting would result in positive changes to the visual character and quality of the site.

D) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?

There is existing security and street lighting along the corridor. The project would add some pedestrian-scale lighting which would increase nighttime visibility for pedestrians/bicyclists traveling through the corridor. The lighting would be appropriately scaled and designed as described in the City’s Design and Procedures Manual. New lighting would be an improvement to the existing urban landscape which would help improve the perception of safety in the corridor. While this would still introduce new sources of light in the area, it would not adversely affect views.

ATTACHMENT 1

Caltrans Visual Impact Assessment Questionnaire

Questionnaire to Determine Visual Impact Assessment (VIA) Level

Use the following questions and subsequent score as a guide to help determine the appropriate level of VIA documentation. This questionnaire assists the VIA preparer (i.e. Landscape Architect) in estimating the probable visual impacts of a proposed project on the environment and in understanding the degree and breadth of the possible visual issues. The goal is to develop a suitable document strategy that is thorough, concise and defensible.

Enter the project name and consider each of the ten questions below. Select the response that most closely applies to the proposed project and corresponding number on the right side of the table. Points are automatically computed at the bottom of the table and the total score should be matched to one of the five groups of scores at the end of the questionnaire that include recommended levels of VIA study and associated annotated outlines (i.e., minor, moderate, advanced/complex).

This scoring system should be used as a preliminary guide and should not be used as a substitute for objective analysis on the part of the preparer. Although the total score may recommend a certain level of VIA document, circumstances associated with any one of the ten question-areas may indicate the need to elevate the VIA to a greater level of detail. For projects done by others on the State Highway System, the District Landscape Architect should be consulted when scoping the VIA level and provide concurrence on the level of analysis used.

Calculate VIA Level Score

PROJECT NAME: Franklin Streetscape	
CHANGE TO VISUAL ENVIRONMENT	
1. Will the project result in a noticeable change in the physical characteristics of the existing environment? *Consider all project components and construction impacts - both permanent and temporary, including landform changes, structures, noise barriers, vegetation removal, railing, signage, and contractor activities.*	Moderate Level of Change (2 points) ▼
2. Will the project complement or contrast with the visual character desired by the community? Evaluate the scale and extent of the project features compared to the surrounding scale of the community. Is the project likely to give an urban appearance to an existing rural or suburban community? Do you anticipate that the change will be viewed by the public as positive or negative? Research planning documents, or talk with local planners and community representatives to understand the type of visual environment local residents envision for their community.	High Compatibility (1 point) ▼
3. What level of local concern is there for the types of project features (e.g., bridge structures, large excavations, sound barriers, or median planting removal) and construction impacts that are proposed? Certain project improvements can be of special interest to local citizens, causing a heightened level of public concern, and requiring a more focused visual analysis.	Negligible Project Features (0 points) ▼
4. Will the project require redesign or realignment to minimize adverse change or will mitigation, such as landscape or architectural treatment, likely be necessary? Consider the type of changes caused by the project, i.e., can undesirable views be screened or will desirable views be permanently obscured so a redesign should be considered?	No Mitigation Likely (0 points) ▼
5. Will this project, when seen collectively with other projects, result in an aggregate adverse change (cumulative impacts) in overall visual quality or character? Identify any projects (both Caltrans and local) in the area that have been constructed in recent years and those currently planned for future construction. The window of time and the extent of area applicable to possible cumulative impacts should be based on a reasonable anticipation of the viewing public's perception.	Cumulative Impacts Unlikely to Occur (1 point) ▼
VIEWER SENSITIVITY	
1. What is the potential that the project proposal will be controversial within the community, or opposed by any organized group? This can be researched initially by talking with Caltrans and local agency management and staff familiar with the affected community's sentiments as evidenced by past projects and/or current information.	Low Potential (1 point) ▼
2. How sensitive are potential viewer-groups likely to be regarding visible changes proposed by the project?	Moderate Sensitivity (2 points) ▼

Consider among other factors the number of viewers within the group, probable viewer expectations, activities, viewing duration, and orientation. The expected viewer sensitivity level may be scoped by applying professional judgment, and by soliciting information from other Caltrans staff, local agencies and community representatives familiar with the affected community's sentiments and demonstrated concerns.	
3. To what degree does the project's aesthetic approach appear to be consistent with applicable laws, ordinances, regulations, policies or standards? Although the State is not always required to comply with local planning ordinances, these documents are critical in understanding the importance that communities place on aesthetic issues. The Caltrans Environmental Planning branch may have copies of the planning documents that pertain to the project. If not, this information can be obtained by contacting the local planning department. Also, many local and state planning documents can be found online at the California Land Use Planning Network.	High Compatibility (1 point) ▼
4. Are permits going to be required by outside regulatory agencies (i.e., Federal, State, or local)? Permit requirements can have an unintended consequence on the visual environment. Anticipated permits, as well as specific permit requirements - which are defined by the permitted, may be determined by talking with the project Environmental Planner and Project Engineer. Note: coordinate with the Caltrans representative responsible for obtaining the permit prior to communicating directly with any permitting agency.	No (1 point) ▼
5. Will the project sponsor or public benefit from a more detailed visual analysis in order to help reach consensus on a course of action to address potential visual impacts? Consider the proposed project features, possible visual impacts, and probable mitigation recommendations.	No (1 point) ▼
Calculate Total It is recommended that you print a copy of these calculations for the project file.	
PROJECT SCORE: 10	

Select An Outline Based Upon Project Score

The total score will indicate the recommended VIA level for the project. In addition to considering circumstances relating to any one of the ten questions-areas that would justify elevating the VIA level, also consider any other project factors that would have an effect on level selection.

SCORE 6-9

No noticeable visual changes to the environment are proposed and no further analysis is required. Print out a copy of this completed questionnaire for your project file or Preliminary Environmental Study (PES).

SCORE 10-14

Negligible visual changes to the environment are proposed. A brief **Memorandum** (see sample) addressing visual issues providing a rationale why a technical study is not required.

SCORE 15-19

Noticeable visual changes to the environment are proposed. An abbreviated VIA is appropriate in this case. The assessment would briefly describe project features, impacts and any avoidance and minimization measures. Visual simulations would be optional. Go to the **Directions** for using and accessing the Minor VIA Annotated Outline.

SCORE 20-24

Noticeable visual changes to the environment are proposed. A fully developed VIA is appropriate. This technical study will likely receive public review. Go to the **Directions** for using and accessing the Moderate VIA Annotated Outline.

SCORE 25-30

Noticeable visual changes to the environment are proposed. A fully developed VIA is appropriate that includes photo simulations. It is appropriate to alert the Project Development Team to the potential for highly adverse impacts and to consider project alternatives to avoid those impacts. Go to the **Directions** for using and accessing the Advanced/Complex VIA Annotated Outline.

Air Quality Report

Franklin Boulevard Complete Street Project

City of Sacramento

Prepared for:

City of Sacramento
Department of Public Works

Prepared by:

Environmental Science Associates
2600 Capitol Avenue, Suite 200, Sacramento, CA 95816

June 2018

Table of Contents

1 Introduction 1
1.1 Project Purpose and Need 1
2 Air Quality 5
2.1 Air Pollutants and Regulatory Framework 5
2.1.1 Air Pollutants of Concern 5
2.1.2 Regulatory Framework 7
2.1.3 Federal and State 7
2.1.4 Regional and Local 9
2.2 Affected Environment 10
2.2.1 Regional Meteorology, Topography, and Climate 10
2.2.2 Existing Air Quality 11
2.2.3 Sensitive Receptors 11
2.3 Project Impact Analysis 13
2.3.1 Construction Impacts 13
2.3.2 Operational Impacts 14
2.4 Potential Avoidance, Minimization, and/or Mitigation Measures 22
2.4.1 Construction 22
3 References 25

Figures

Figure 1-1. Vicinity Map 2
Figure 1-2. Project Area 3
Figure 2-1. Sensitive Receptor Locations 12
Figure 2-2. FHWA Projected National MSAT Emission Trends 2010-2050 for Vehicles Operating on Roadways Using EPA's MOVES2014 Model 20

Tables

Table 2-1. Ambient Air Quality Standards and Attainment Status in Project Vicinity 8
Table 2-2. Existing Air Quality 13
Table 2-3. 2035 Traffic Volumes 15
Table 2-4. Carbon Monoxide Concentrations at Affected Intersections 16

Appendices

Appendix A CALINE4 Model Inputs and Results
Appendix B Interagency Consultation

Acronyms and Abbreviations

Term	Abbreviation
°C	Degrees Celsius
°F	Degrees Fahrenheit
µg/m^3	Micrograms per Cubic Meter
AADT	Annual Average Daily Traffic
CAA	Federal Clean Air Act
CAAQS	California Ambient Air Quality Standards
CALINE4	Dispersion Model for Predicting Air Pollutant Concentrations Near Roadways
Caltrans	California Department of Transportation
CARB	California Air Resources Board
CCAA	California Clean Air Act
CFR	Code of Federal Regulations
CO	Carbon Monoxide
EMFAC2017	Emissions Model to Assess Emissions from Vehicles in California
EPA	United States Environmental Protection Agency
ESA	Environmentally Sensitive Area
FHWA	Federal Highway Administration
IS/MND	Initial Study/Mitigated Negative Declaration
LOS	Level of Service
MOVES2014	Emissions Model to assess Emissions from Vehicles in United States (besides California)
MPO	Metropolitan Planning Organization
MSAT	Mobile Source Air Toxics
MTIP	Metropolitan Transportation Improvement Program
MTP/SCS	Metropolitan Transportation Plan/Sustainable Communities Strategy
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
NO	Nitric Oxide
NO_2	Nitrogen Dioxide
NO_X	Oxides of Nitrogen
O_3	Ozone
Pb	Lead

Acronyms and Abbreviations

Term	Abbreviation
PM_{10}	Particulate Matter Less than 10 Microns in Diameter
$PM_{2.5}$	Particulate Matter less than 2.5 Microns in Diameter
POAQC	Project of Air Quality Concern
ppb	Parts-per-Billion
ppm	Parts-per-Million
ROG	Reactive Organic Gas
RTP	Regional Transportation Plan
SACOG	Sacramento Area Council of Governments
SEIR	Supplemental Environmental Impact Report
SIP	State Implementation Plan
SMAQMD	Sacramento Metropolitan Air Quality Management District
SO_2	Sulfur Dioxide
SR	State Route
SVAB	Sacramento Valley Air Basin
VMT	Vehicle Miles Traveled

This page intentionally left blank.

1 Introduction

The City of Sacramento (City) is proposing to improve and rehabilitate Franklin Boulevard for approximately 1.6 miles, from Sutterville Road to the City limits at 38th Avenue, into a complete street. The Franklin Boulevard Complete Street Project (Project) would reduce the existing five-lane road to a three-lane road in order to reconfigure the right-of-way to accommodate the multimodal and accessibility needs of the community. The Project includes conform striping from 38th Avenue to 41st Avenue in the County of Sacramento (County) and striping for bicycle lanes on 21st Avenue between Franklin Boulevard and 34th Street. The Project regional location and vicinity are show in **Figure 1-1** and **Figure 1-2**, respectively.

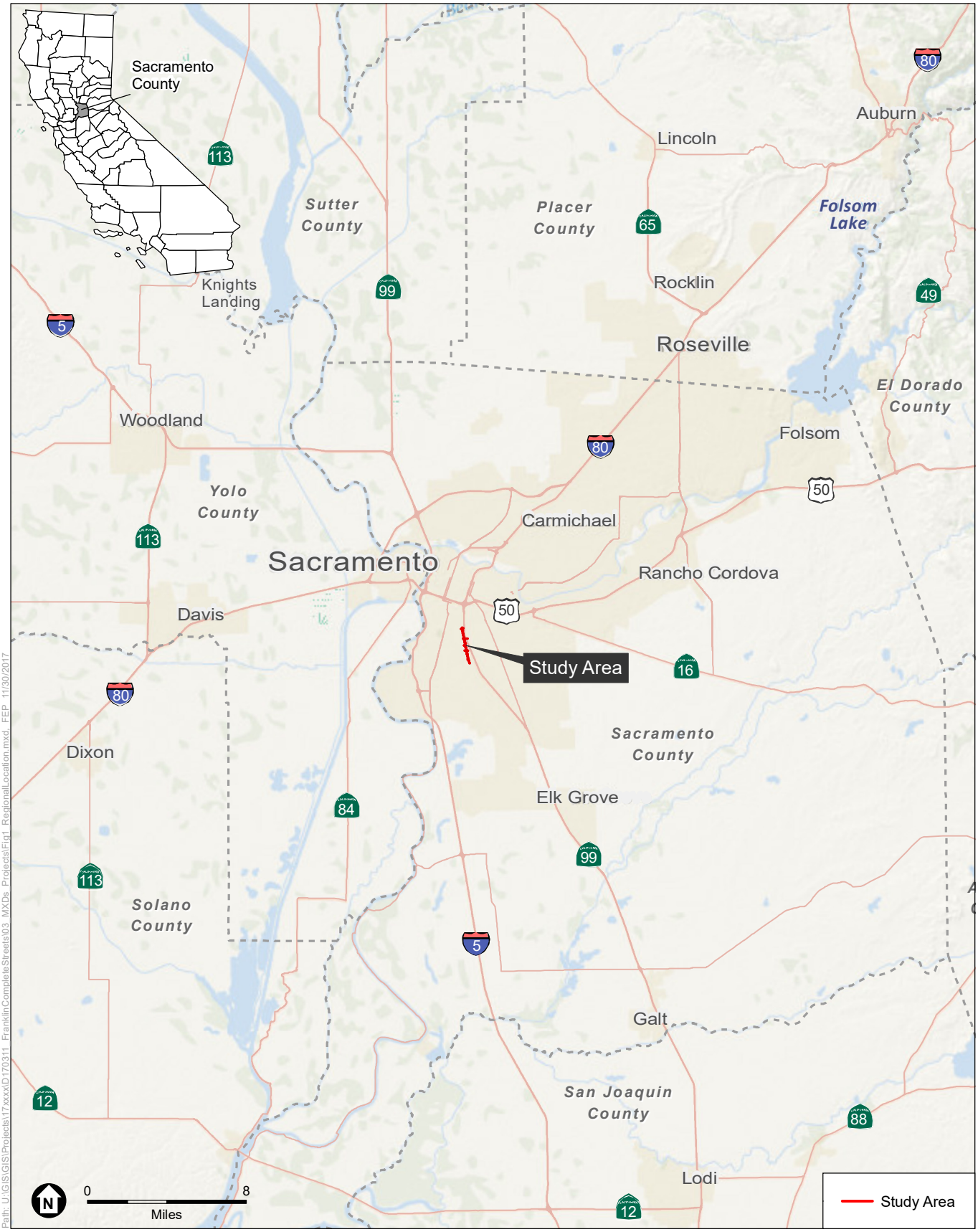
1.1 Project Purpose and Need

The purpose of the Project is to better support the existing and future need of residents, and business and property owners by:

- Transforming the existing and blighted Franklin Boulevard into a "complete street" with a more human-scale that provides a safer, pedestrian, bicycle, and transit friendly environment;
- Promoting mixed and compact urban development and private investment in the Franklin Community by improving the public-private interface to mitigate negative impacts of the existing auto-oriented environment;
- Improving the aesthetics and urban design quality of Franklin Boulevard's public realm; and
- Improving connectivity to and across the corridor for pedestrians and bicyclists, and established neighborhoods on either side of Franklin Boulevard.

In order to meet these goals and objectives, a five-lane to three-lane road diet is being considered in order to create the Right-of-Way (ROW) to accommodate a corridor configuration to serve the multi-modal and accessibility needs of the community.

The Project would result in improvements, including: road rehabilitation with an approximate depth of 12 inches, curb and gutter replacement, a reduction from four through traffic lanes with a two-way left turn lane to two through traffic lanes with a two-way left turn lane, utility relocations, the addition of Class IV bikeways and sidewalk, ADA compliant curb ramps, stormwater planters, drainage improvements, and the addition of landscaped buffers (including tree planting) for the Class IV bikeways along Franklin Boulevard within the Project limits. In addition, the Project would replace existing street light and also install new street and pedestrian lights and modify existing traffic signals.

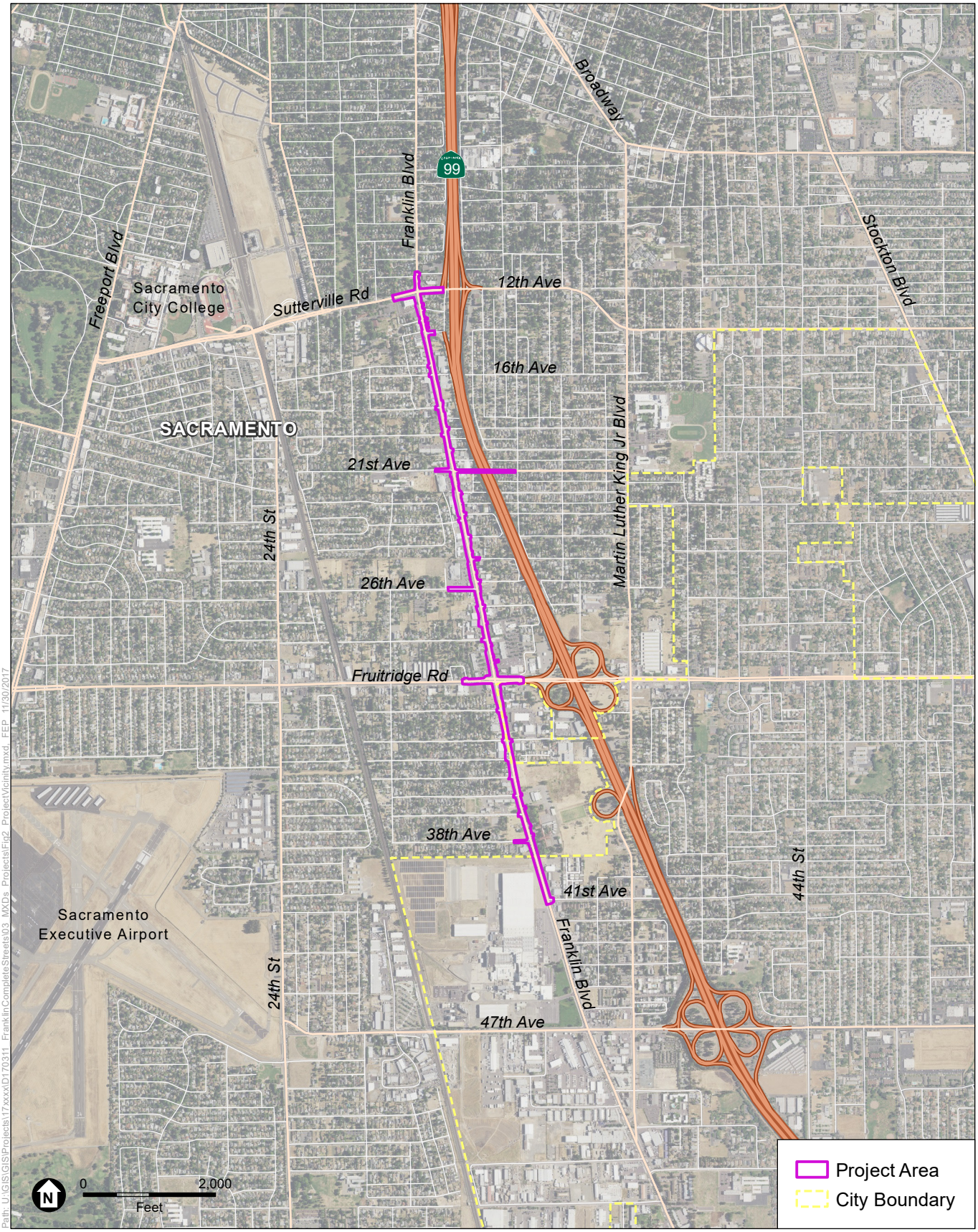


SOURCE: Esri, 2015; ESA, 2017

Franklin Boulevard Complete Streets Project

Figure 1-1
Vicinity Map

ESA



SOURCE: USDA, 2016; Bennett Engineering, 2017; ESA, 2017

Franklin Boulevard Complete Streets Project

Figure 1-2
Project Area

ESA

This page intentionally left blank.

2 Air Quality

2.1 Air Pollutants and Regulatory Framework

2.1.1 Air Pollutants of Concern

Air pollutants of concern with respect to the Project include common air pollutants (called criteria air pollutants), such as ozone, nitrogen dioxide (NO_2), carbon monoxide (CO), particulate matter, sulfur dioxide (SO_2), and lead. Additional air pollutants of concern are toxic air contaminants (TAC), mobile source air toxics (MSAT), and asbestos.

2.1.1.1 Carbon Monoxide

CO is a non-reactive pollutant that is a product of incomplete combustion and is mostly associated with motor vehicle traffic. High CO concentrations develop primarily during winter when periods of light winds combine with ground level temperature inversions (typically from the evening through early morning). These conditions reduce dispersion of vehicle emissions. Motor vehicles also exhibit increased CO emission rates at low air temperatures. When inhaled at high concentrations, CO combines with hemoglobin in the blood and reduces the oxygen-carrying capacity of the blood. This results in reduced oxygen reaching the brain, heart, and other body tissues. This condition is especially critical for people with cardiovascular diseases, chronic lung disease, or anemia.

2.1.1.2 Nitrogen Dioxide

NO_2 is an air quality pollutant of concern because it acts as a respiratory irritant. NO_2 is a major component of gaseous nitrogen compounds commonly referred to as oxides of nitrogen (NO_X). NOx, a precursor to ozone formation, is produced by fuel combustion in motor vehicles, industrial stationary sources (such as industrial activities), ships, aircraft, and rail transit. Typically, NO_X emitted from fuel combustion is in the form of nitric oxide (NO) and NO_2. NO is often converted to NO_2 when it reacts with ozone or undergoes photochemical reactions in the atmosphere.

2.1.1.3 Ozone

Ozone is a respiratory irritant and an oxidant that increases susceptibility to respiratory infections and that can cause substantial damage to vegetation and other materials. Ozone is not emitted directly into the atmosphere, but is a secondary air pollutant produced in the atmosphere through a complex series of photochemical reactions involving reactive organic gases (ROG) and NO_X. Significant ozone production generally requires ozone precursors to be present in a stable atmosphere with strong sunlight and high temperatures.

Ozone is a regional air pollutant because it is not emitted directly by sources, but is formed downwind of sources of ROG and NO_X under the influence of wind and sunlight. Ozone

concentrations tend to be higher when hot, sunny days combine with regional subsidence inversions to create conditions conducive to its formation and accumulation.

2.1.1.4 Particulate Matter

Particulates less than 10 microns in diameter (PM_{10}) and less than 2.5 microns in diameter ($PM_{2.5}$) can be inhaled into air passageways and the lungs and can cause adverse health effects. Particulate matter in the atmosphere results from many kinds of dust- and fume-producing industrial and agricultural operations, fuel combustion, and atmospheric photochemical reactions. Some sources of particulate matter, such as demolition and construction activities, occur locally, while others, such as vehicular traffic, occur regionally. Very small particles of certain substances (e.g., sulfates and nitrates) can cause lung damage directly, or can contain adsorbed gases (e.g., chlorides or ammonium) that may be injurious to health. Particulates can also damage materials and reduce visibility.

2.1.1.5 Other Criteria Air Pollutants

SO_2 is a combustion product of sulfur or sulfur-containing fuels such as coal. SO_2 is also a precursor to the formation of atmospheric sulfate and particulate matter (both PM_{10} and $PM_{2.5}$) and contributes to potential atmospheric sulfuric acid formation that could precipitate downwind as acid rain. Lead has a range of adverse neurotoxic health effects, and was formerly released into the atmosphere primarily via the combustion of leaded gasoline. The use of leaded gasoline ceased in the United States after 1995, resulting in decreasing levels of atmospheric lead.

2.1.1.6 Asbestos

Asbestos is a known carcinogen and inhalation of asbestos may result in the development of lung cancer or mesothelioma. Friable asbestos may be released during a construction project if structural demolition is needed. Serpentine rock, which contains asbestos fibers, is a mineral commonly found in association with ultramafic rocks and along associated faults in seismically active regions of California (California Department of Conservation [CDC] 2000).

2.1.1.7 Toxic Air Contaminants and Mobile Source Air Toxics

The federal Clean Air Act (CAA) identifies 188 toxic air pollutants, also known as hazardous air pollutants. Toxic air contaminants (TACs) are those that are known to cause or suspected of causing cancer or other serious health ailments. The United States Environmental Protection Agency (EPA) has identified 21 of these toxics as MSAT. They have also identified a subset of MSAT that are known as Priority MSAT. These are: 1,3-butadiene, acetaldehyde, acrolein, benzene, diesel particulate matter (diesel PM), ethylbenzene, formaldehyde, naphthalene, and polycyclic organic matter.

2.1.2 Regulatory Framework

The CAA and the California Clean Air Act (CCAA) establish ambient air quality standards and establish regulatory authorities designed to attain those standards. Responsibilities related to air quality exist at the federal, state, and local levels of government.

2.1.3 Federal and State

The EPA is required by the federal CAA to identify and establish National Ambient Air Quality Standards (NAAQS) to protect public health and the environment. The EPA has set NAAQS for six principal pollutants, called criteria air pollutants. These criteria air pollutants include ozone, NO_2, SO_2, CO, particulate matter, and lead. The original indicator for particulate matter was total suspended particulates (TSP); currently the standards are in terms of PM_{10} and $PM_{2.5}$.

The EPA must designate areas as meeting (attainment) or not meeting (nonattainment) the standard. In attainment areas, the states are required to develop a general plan to attain and maintain the NAAQS, or develop a specific plan to attain the standards in nonattainment areas. Currently, portions of the Sacramento Valley Air Basin (SVAB) are designated as nonattainment for the federal 8-hour ozone and the federal 24-hour $PM_{2.5}$ standards. Portions of the SVAB are designated as attainment (maintenance) for the federal 24-hour PM_{10} and federal 8-hour CO standards. For all other pollutants, the Project area is in attainment or unclassified.

States are required to meet the NAAQS or adopt more stringent ambient air quality standards within the state. The CCAA establishes California Ambient Air Quality Standards (CAAQS) which are more stringent than the NAAQS for certain pollutants and averaging periods. Currently, the SVAB is in nonattainment for the state 1-hour and 8-hour O_3 standards, the state 24-hour and annual PM_{10} standards, and the state annual $PM_{2.5}$ standard. In addition to the six criteria air pollutants identified by the EPA, California has also established state ambient air quality standards for visibility reducing particulates, sulfates, hydrogen sulfide, and vinyl chloride. The ambient air quality standards and attainment status of the area in the vicinity of the Project site are presented in Table 2-1.

The California Air Resources Board (CARB) is responsible for establishing and reviewing the state standards, compiling the California State Implementation Plan (SIP) and securing approval of that plan from the EPA, conducting research and planning, and identifying toxic air contaminants. CARB also regulates mobile sources of emissions in California, such as construction equipment, trucks, and automobiles, and oversees the activities of California's air quality management districts, which are organized at the county or regional level. Air quality management districts are primarily responsible for regulating stationary sources at industrial and commercial facilities within their geographic areas and for preparing the air quality plans that are required under the federal CAA and CCAA.

Table 2-1. Ambient Air Quality Standards and Attainment Status in Project Vicinity

Pollutant	Averaging Time	California Standards		National Standards	
		Standard	Attainment Status	Primary Standard	Attainment Status
Carbon Monoxide (CO)	1-Hour 8-Hour	20 ppm 9.0 ppm	Attainment Attainment	35 ppm 9 ppm	Attainment Attainment
Nitrogen Dioxide (NO_2)	1-Hour Annual	0.18 ppm 0.030 ppm	Attainment Attainment	100 ppb 0.053 ppm	Attainment/Unclassified Attainment/Unclassified
Ozone (O_3)	1-Hour 8-Hour	0.09 ppm 0.070 ppm	Nonattainment Nonattainment	– 0.070 ppm	Nonattainment* Nonattainment
Respirable Particulate Matter (PM_{10})	24-Hour Annual	50 µg/m^3 20 µg/m^3	Nonattainment Nonattainment	150 µg/m^3 –	Attainment –
Fine Particulate Matter ($PM_{2.5}$)	24-Hour Annual	– 12 µg/m^3	– Attainment	35 µg/m^3 12.0 µg/m^3	Nonattainment Attainment
Sulfur Dioxide (SO_2)	1-Hour 3-Hour 24-Hour	0.25 ppm – 0.04 ppm	Attainment – Attainment	75 ppb 0.5 ppm** –	Attainment/Unclassified Attainment/Unclassified –
Lead (Pb)	30-Day Quarterly	1.5 µg/m^3 –	Attainment –	– 0.15 µg/m^3	– Attainment/Unclassified
Visibility Reducing Particles	8-Hour	***	Unclassified	–	–
Sulfates	24-hour	25 µg/m^3	Attainment	–	–
Hydrogen Sulfide	1-hour	0.03 ppm	Unclassified	–	–
Vinyl Chloride	24-Hour	0.01 ppm	Unclassified	–	–

NOTES:

ppm = parts per million; ppb = parts per billion; µg/m^3 = micrograms per cubic meter.

– No standard for pollutant and averaging period.

* Air quality meets the Federal 1-hour ozone standard (77 FR 64036). EPA revoked this standard, but some associated requirements still apply. The Sacramento Metropolitan Air Quality Management District attained the standard in 2009. SMAQMD has requested EPA recognize attainment to fulfill the requirements.

** Secondary National Standard.

*** The State standard for visibility reducing particulates for all areas but Lake Tahoe Air Basin is an 8-hour average expressed as an extinction coefficient of 0.23 per kilometer due to particles when relative humidity is less than 70 percent (this is nominally equal to a visibility of 10 miles or more). The visibility reducing particulates standard is not to be exceeded (CARB 2018a).

SOURCE: EPA 2018a; CARB 2018a; SMAQMD 2017

2.1.3.1 Transportation Conformity

Transportation conformity is a process required by the federal CAA to ensure that funding and approvals from the Federal Highway Administration (FHWA) and Federal Transit Administration (FTA) are given to highway and transit activities that are consistent with air quality goals. Transportation conformity applies in all nonattainment and maintenance areas for ozone, PM_{10}, $PM_{2.5}$, NO_2, and CO, and their precursors. Sacramento County is a nonattainment area for federal ozone and $PM_{2.5}$ ambient air quality standards and a maintenance area for the federal CO standards.

The emissions impact of a project on local air quality concentrations is called a hot-spot analysis. Conformity is demonstrated by showing that the project would not cause a local exceedance of

the applicable CO and/or PM ambient air quality standards. Projects located in CO nonattainment or maintenance areas must demonstrate conformity with the federal CAA requirements. A quantitative PM hot-spot analysis is required for projects determined through interagency consultation to be a Project of Air Quality Concern (POAQC). A PM hot-spot analysis is not required for projects determined to not be a POAQC. Interagency consultation is required to confirm that the Project meets project-level conformity and hot-spot analysis requirements (see Appendix B, Interagency Consultation form).

2.1.3.2 Regional Conformity

Regional conformity is demonstrated by showing that a project is included in a conforming Regional Transportation Plan (RTP) and Federal Transportation Improvement Program (FTIP) with substantially the same design concept, scope, and schedule that was included in the applicable plan and program. Regional conformity must be determined at least every four years. In California, it is determined at least every four years when updates to the RTP are done. A new FTIP is required every two years, for which a conformity determination is also required. Amendments to both the RTP and FTIP must have conformity demonstrated as well.

The Sacramento Area Council of Governments (SACOG) is the agency responsible for preparing and updating the RTP and FTIP for the Sacramento region. Within the Sacramento region, the RTP is referred to as the 2016 Metropolitan Transportation Plan/Sustainable Communities Strategy: Building a Sustainable System (2016 MTP/SCS) and the FTIP is referred to as the Metropolitan Transportation Improvement Program (MTIP).

2.1.4 Regional and Local

2.1.4.1 Sacramento Area Council of Governments

SACOG is the Metropolitan Planning Organization (MPO) for the proposed Project site. SACOG's jurisdiction covers six counties in the Sacramento region (El Dorado, Placer, Sacramento, Sutter, Yolo, and Yuba counties). One of the main responsibilities of SACOG is to maintain and develop comprehensive transportation planning for the region through RTPs and FTIPs. These transportation planning documents are intended to improve future transportation networks and options for residents. SACOG is tasked with determining conformity under the federal CAA for projects, plans, and programs.

2.1.4.2 Sacramento Metropolitan Air Quality Management District

The Sacramento Metropolitan Air Quality Management District (SMAQMD) is responsible for monitoring air quality and planning, implementing, and enforcing programs designed to attain and maintain state and federal ambient air quality standards in the district.

All projects within SMAQMD jurisdiction are subject to SMAQMD rules and regulations during construction. Applicable rules that may be applicable during construction of the proposed Project are described below:

- Rule 402 states that a person shall not discharge from any source air contaminants or other materials that cause injury, detriment, nuisance, or annoyance to any considerable number of persons or the public.
- Rule 403 limits fugitive dust from becoming airborne beyond the property line from which the emission originates.
- Rule 453 limits emissions of reactive organic gasses (ROGs) from the use of cutback and emulsified asphalt paving materials, paving, and maintenance operations.

2.2 Affected Environment

2.2.1 Regional Meteorology, Topography, and Climate

Sacramento County is located within the boundaries of the SVAB. The SVAB is bounded by the North Coast Ranges on the west, the Northern Sierra Nevada Mountains on the east, Shasta County to the north, and San Joaquin County to the south. The intervening terrain is flat. Sacramento is often described as a bowl-shaped valley (SMAQMD 2017).

The SVAB has a Mediterranean climate, characterized by hot dry summers and mild rainy winters. During the year the temperature may range from 20 to 115 degrees Fahrenheit with summer highs usually in the 90s and winter lows occasionally below freezing. Average annual rainfall is about 20 inches with snowfall being very rare. The prevailing winds are moderate and vary from moist breezes from the south to dry land flows from the north (SMAQMD 2017).

The mountains surrounding the SVAB create a barrier to airflow, which can trap air pollutants when meteorological conditions are right and a temperature inversion exists. Air stagnation in the autumn and early winter occurs when large high-pressure cells lie over the valley. The lack of surface wind during these periods and the reduced vertical flow caused by less surface heating reduces the influx of outside air and allows pollutants to become concentrated in the air. The surface concentrations of pollutants are highest when these conditions are combined with increased levels of smoke or when temperature inversions trap cool air, fog, and pollutants near the ground (SMAQMD 2017).

The ozone season (May through October) in the SVAB is characterized by stagnant morning air or light winds with the Delta sea breeze arriving in the afternoon out of the southwest. Usually the evening breeze transports the airborne pollutants to the north out of the Sacramento Valley. During about half of the days from July to September, however, a phenomenon called the Schultz Eddy prevents this from occurring. Instead of allowing for the prevailing wind patterns to move north carrying the pollutants out of the valley, the Schultz Eddy causes the wind pattern and pollutants to circle back southward. This phenomenon's effect exacerbates the pollution

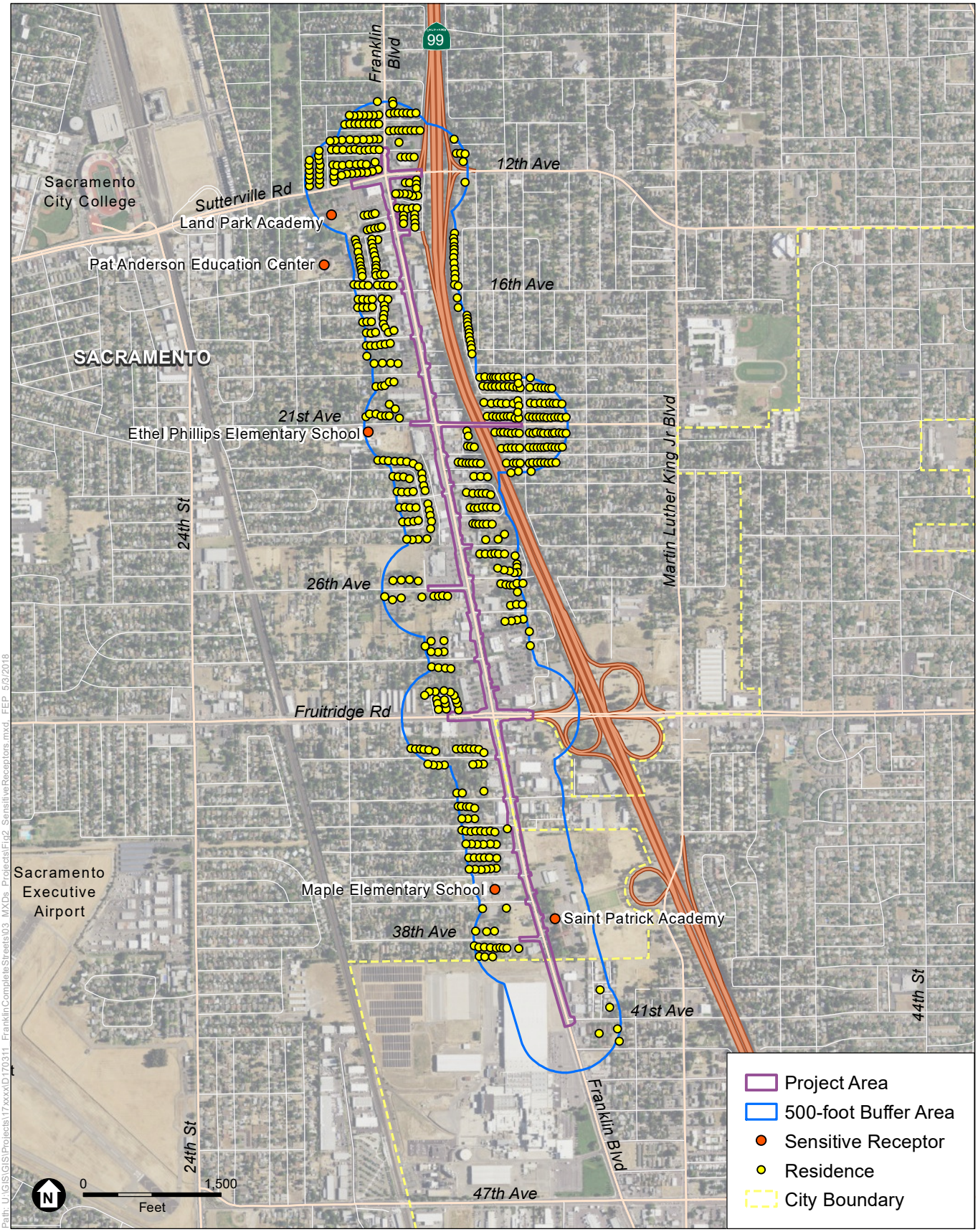
levels in the area and increases the likelihood of violating the federal and state air quality standards (SMAQMD 2017).

2.2.2 Existing Air Quality

Air pollutant concentrations are measured at several monitoring stations in Sacramento County. Ambient air quality monitoring data obtained from the nearest monitoring stations for the last three years of available data (2014 through 2016) are summarized in Table 2-2. CO monitoring data were obtained from the Sacramento-Del Paso Manor monitoring station. NO_2 and O_3, data were obtained from the T Street monitoring station. PM_{10} and $PM_{2.5}$ data were obtained from the Sacramento-Health Stockton Boulevard station. The national $PM_{2.5}$ standard was exceeded on one day for 2015.

2.2.3 Sensitive Receptors

Sensitive receptors are land uses where an actual person may be located for an extended period of time, such as residential dwellings (including apartments, houses, and condominiums), schools, daycares, hospitals, and senior-care facilities. The majority of the existing sensitive receptors are located with 50 feet of Franklin Boulevard between 35th Street and 12th Avenue. Figure 2-1 shows the locations of sensitive receptors near the Project area.



SOURCE: USDA, 2016; Bennett Engineering, 2017; ESA, 2017

Franklin Boulevard Complete Streets Project

Figure 2-1
Sensitive Receptors

ESA

Table 2-2. Existing Air Quality

Pollutant/Parameter	2012	2013	2014	2015	2016
Carbon Monoxide (CO) – Del Paso Monitoring Station					
Maximum 1-hour/8-hour average concentration, ppm	2.3 / 2.0	2.4 / 2.1	1.9 / 1.7	2.2/2.0	2.4 / 2.1
Number of days state/national 1-hour standard exceeded	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0
Number of days state/national 8-hour standard exceeded	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0
Nitrogen Dioxide (NO2) – T Street Monitoring Station					
Maximum 1-hour average concentration, ppb	62	59	65	55	55
Annual average, ppb	12	13	11	11	*
Number of days state/national standard exceeded	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0
Ozone (O3) – T Street Monitoring Station					
Maximum 1-hour/8-hour average concentration, ppm	0.104 / 0.092	0.091 / 0.068	0.085 / 0.072	0.092 / 0.076	0.094 / 0.074
Number of days state 1-hour standard exceeded	1	0	0	0	0
Number of days state/national 8-hour standard exceeded	9 / 9	0 / 0	4 / 3	4 / 4	3 / 3
Respirable Particulate Matter (PM_{10}) – Sacramento-Health Stockton Boulevard					
Maximum state/national 24-hr concentration, µg/m^3	34 / 37	50 / 47	41 / 39	42 / 41	33 / 34
Number of days state/national 24-hr standard exceeded	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0
Fine Particulate Matter ($PM_{2.5}$) - Sacramento-Health Stockton Boulevard					
Maximum state/national 24-hr. concentration, µg/m^3	29 / 29	40 / 40	26.2 / 26.2	38.8 / 38.8	22.9 / 22.9
Annual state/national average	8.2 / 8.2	* / 9.6	8.3 / 8.2	* / 9.6	* / *
Number of days national 24-hr standard exceeded	0	3	0	1	0

NOTES:
ppm = parts per million;
ppb = parts per billion;
µg/m^3 = micrograms per cubic meter.
* = No data or insufficient data.

SOURCE: CARB 2018b, EPA 2018b

2.3 Project Impact Analysis

2.3.1 Construction Impacts

During construction, short-term degradation of air quality may occur due to the release of particulate emissions (airborne dust) generated by excavation, grading, hauling, and other construction-related activities. Emissions from construction equipment also are expected and would include CO, NO_X, ROGs, directly-emitted particulate matter (PM_{10} and $PM_{2.5}$), and toxic air contaminants (TACs) such as diesel exhaust particulate matter. Ozone is a regional pollutant that is derived from NOx and ROG in the presence of sunlight and heat.

Site preparation and roadway construction typically involves clearing, cut-and-fill activities, grading, removing or improving existing roadways, building bridges, and paving roadway surfaces. Construction-related effects on air quality from most highway projects would be greatest during the site preparation phase because most engine emissions are associated with the excavation, handling, and transport of soils to and from the site. These activities could temporarily generate enough PM_{10}, $PM_{2.5}$, and small amounts of CO, SO_2, NO_X, and ROGs to be

of concern. Sources of fugitive dust would include disturbed soils at the construction site and trucks carrying uncovered loads of soils. Unless properly controlled, vehicles leaving the site could deposit mud on local streets, which could be an added source of airborne dust after it dries. PM_{10} emissions would vary from day to day, depending on the nature and magnitude of construction activity and local weather conditions. PM_{10} emissions would depend on soil moisture, silt content of soil, wind speed, and the amount of equipment operating. Larger dust particles would settle near the source, while fine particles would be dispersed over greater distances from the construction site.

In addition to dust-related PM_{10} emissions, heavy-duty trucks and construction equipment powered by gasoline and diesel engines would generate CO, SO_2, NO_X, ROGs and some soot particulates (PM_{10} and $PM_{2.5}$) in exhaust emissions. If construction activities were to increase traffic congestion in the area, CO and other emissions from traffic would increase slightly while vehicles are delayed. These emissions would be temporary and limited to the immediate area surrounding the construction site.

SO_2 is generated by oxidation during combustion of organic sulfur compounds contained in diesel fuel. Under California law and CARB regulations, off-road diesel fuel used in California must meet the same sulfur and other standards as on-road diesel fuel (not more than 15 ppm sulfur), so SO_2-related issues due to diesel exhaust will be minimal.

Construction of the proposed Project would be required to comply with Caltrans' Standard Specifications, Section 14-9 "Air Quality." Caltrans' specifications pertaining to dust control and dust palliative requirements are a required part of construction contracts and should effectively reduce and control emission impacts during construction. These requirements include daily watering of areas disturbed by construction activities. In addition, the State Health and Safety Code requires the contractor to prevent visible dust from leaving the construction site. Most of the construction impacts to air quality are short-term in duration and, therefore, will not result in long-term, adverse conditions. Implementation of these measures will reduce any air quality impacts resulting from construction activities (see Section 2.4.1).

2.3.2 Operational Impacts

2.3.2.1 Regional Plan Consistency

The proposed Project was included in the regional emissions analysis found in SACOG's 2016 MTP/SCS Project ID SAC25009. On December 15, 2014, the FHWA confirmed that the 2016 MTP/SCS is consistent with the SIP(s) for attaining and maintaining the NAAQS as provided in Section 176(c) of the CAA. Since the proposed Project is consistent with the 2016 MTP/SCS, the proposed Project would also be consistent with the SIP for attaining and/or maintaining the NAAQS as provided in Section 176(c) of the federal CAA. The preparation of approval and environmental documentation for the Project is also included in the federal 2017/2020 MTIP as Project ID SAC25009. On December 16, 2016, FHWA approved the 2017/2020 MTIP.

2.3.2.2 Carbon Monoxide Hot-Spot Analysis

The California Project-Level Carbon Monoxide Protocol (CO Protocol) was used to analyze CO impacts for the Project (University of California at Davis 1997). The hot-spot analysis covered representative intersections affected by the Project in 2035. Traffic volumes under the future 2035 with project conditions were obtained from the Chapter 4.12 (Transportation and Circulation) of the City of Sacramento 2035 General Plan EIR (City of Sacramento, 2014) assuming a 15 percent reduction in traffic on Franklin Boulevard over future 2035 conditions, which is based on the assumed decrease in traffic resulting from the reduction in through lanes determined in the project's Traffic Impact Analysis (Fehr and Peers 2018). Growth factors are considered to be consistent with the 2035 General Plan EIR. Peak-hour turning movements used in the CO modeling can be found in **Table 2-3**. Vehicle emission rates were determined using the CARB's EMFAC2017 emission rate program. Receptor heights were set at 5.9 feet (1.8 meters). As stated in the CO Protocol, EPA modeling guidance suggests that receptors should normally be modeled using a standard breathing height (1.8 meters).

Table 2-3. 2035 Traffic Volumes

Intersection	Intersection Leg	Average Daily Traffic Volumes[1]	Peak hour Traffic Volumes[2]
Franklin Boulevard at 12th Avenue	North	10,625	1,063
	South	14,620	1,462
	East	14,280	1,428
	West	26,095	2,610
Franklin Boulevard at Fruitridge Road	North	14,620	1,462
	South	14,620	1,462
	East	30,940	3,094
	West	21,675	2,168

NOTES:

1. Future Build 2035 traffic volumes were obtained from the Chapter 4.12 (Transportation and Circulation) of the City of Sacramento 2035 General Plan EIR (City of Sacramento, 2014) assuming a 15 percent reduction in traffic on Franklin Boulevard over future 2035 conditions, which is based on the assumed decrease in traffic resulting from the reduction in through lanes determined in the project's Traffic Impact Analysis (Fehr and Peers 2018).
2. Assumed peak hour traffic volume to be 10 percent of the average daily traffic volume.

SOURCE: ESA, 2018; City of Sacramento, 2014; Fehr and Peers, 2018

Meteorological inputs to the CALINE4 model use the methodology recommended in the CO Protocol. The meteorological conditions represent a calm winter period. The worst-case wind angles option was used to determine a worst-case concentration for each receptor. The meteorological inputs include:

- 0.5 meters per second wind speed
- G stability class ground-level temperature inversion
- 8.2°C (46.8°F) temperature (based on the mean minimum January temperature during 2014, 2015, and 2016

- 5-degree wind direction standard deviation
- 1,000 meter mixing height

A background concentration of 2.4 parts per million (ppm) was added to the modeled 1-hour values to account for sources of CO not included in the modeling. Eight-hour modeled values were calculated from the 1-hour values using a persistence factor of 0.7. A background concentration of 2.1 ppm was added to the modeled 8-hour values. All background concentration data were taken from the monitoring data provided by CARB (CARB 2018b) for the Sacramento-Del Paso Manor air quality monitoring site. As shown in Table 2-4, no CO ambient air quality standards would be exceeded due to the implementation of the proposed Project in the 2035 design year. CO modeling results are provided in Appendix A.

Table 2-4. Carbon Monoxide Concentrations at Affected Intersections

Intersection	CO Concentrations	
	1-hour (ppm)	8-hour (ppm)
Franklin Boulevard at 12th Avenue	5.9	4.6
Franklin Boulevard at Fruitridge Road	6.1	4.7
Threshold	20	9
Exceed Threshold?	No	No

NOTES:

CO concentrations include a worst case 1-hour CO background concentration of 2.4 ppm and a worst case 8-hour background concentration of 2.1 ppm. The modeled 1-hour concentrations were converted to 8-hour concentrations using a persistence factor of 0.70. CALINE4 modeling results and additional assumptions are included in Appendix A.

SOURCE: ESA, 2018b

2.3.2.3 Particulate Matter Hot-Spot Analysis

The proposed Project is not considered a POAQC for PM_{10} and/or $PM_{2.5}$ because it does not meet the definition of a POAQC as defined in EPA's Transportation Conformity Guidance.

According to the EPA Transportation Conformity Guidance (Final Rule), March 10, 2006, the following types of projects are considered POAQC:

1. New or expanded highway projects that have a significant number of or significant increase in diesel vehicles.

2. Projects affecting intersections that are at a Level of Service D, E, F, with a significant number of diesel vehicles, or that that will change to Level of Service D, E, or F because of increased traffic volumes from a significant number of diesel vehicles related to the project.

3. New bus and rail terminals and transfer points that have a significant number of diesel vehicles congregating at a single location.

4. Expanded bus and rail terminals and transfer points that significantly increase the number of diesel vehicles congregating at a single location.

5. Projects in or affecting locations, areas, or categories of sites which are identified in the $PM_{2.5}$ or PM_{10} implementation plan or implementation plan submission, as appropriate, as sites of possible violation.

As described below the Project is not considered a POAQC because it does not meet the definition of a POAQC.

1. **New or expanded highway projects that have a significant number of or significant increase in diesel vehicles.**
   The Project consists of roadway improvements that would not have a significant increase in diesel vehicles. A significant number is defined as greater than 125,000 annual average daily traffic (AADT) and 8 percent or more of such AADT is diesel truck traffic, or in practice 10,000 truck AADT or more regardless of total AADT. A significant increase is defined in practice as a 10 percent increase in heavy duty truck traffic.

   As presented in the traffic study prepared for the Project, the Project would result in a 15 percent reduction in traffic along Franklin Boulevard, which is the direct result of the reduction in through lanes from four to two (Fehr and Peers 2018). According to Chapter 4.12 (Transportation and Circulation) of the City of Sacramento 2035 General Plan EIR (City of Sacramento, 2014), AADT volumes along Franklin Boulevard is expected to be approximately 17,200 in the year 2035. Since the Project was not included in the traffic impact analysis in the City of Sacramento 2035 General Plan EIR, the 15 percent reduction as a result of the reduction of through lanes was applied to the future 2035 AADT, which equates to an AADT of 14,620. The Project is not expected to have a significant number of or significance increase in diesel vehicles and would result in a decrease in traffic volumes along Franklin Boulevard.

2. **Projects affecting intersections that are at a Level of Service D, E, F, with a significant number of diesel vehicles, or that that will change to Level of Service D, E, or F because of increased traffic volumes from a significant number of diesel vehicles related to the project.**
   As discussed in Chapter 4.12 (Transportation and Circulation) of the City of Sacramento 2035 General Plan EIR, the segment of Franklin Boulevard within the bounds of the proposed Project would result in a LOS between A and D in the year 2035 (City of Sacramento, 2014). Although the Project would decrease the number of lanes along Franklin Boulevard, the proposed Project would not increase traffic volumes or generate additional diesel vehicles. Therefore, there would not be a significant number or increase in diesel vehicles due to the implementation of the Project.

3. **New bus and rail terminals and transfer points that have a significant number of diesel vehicles congregating at a single location.**
   The Project does not include new bus or rail terminal and transfer points.

4. **Expanded bus and rail terminals and transfer points that significantly increase the number of diesel vehicles congregating at a single location.**
   The Project does not include expanded bus or rail terminals and transfer points.

5. **Projects in or affecting locations, areas, or categories of sites which are identified in the $PM_{2.5}$ or PM_{10} implementation plan or implementation plan submission, as appropriate, as sites of possible violation.**
   The Project does not affect locations, areas, or categories of sites that are identified in the PM_{10} and $PM_{2.5}$ applicable implementation plan or implementation plan submission, as appropriate, as sites of violation or possible violation.

Therefore, a quantitative particulate matter hot-spot analysis is not required based on the requirements of the federal CAA and Title 40 of the Code of Federal Regulations (CFR) in Section 93.116.

2.3.2.4 Mobile Source Air Toxics

The following discussion is based on the FHWA: Updated Interim Guidance on Mobile Source Air Toxic Analysis in National Environmental Policy Act (NEPA) Documents, dated October 18, 2016. The purpose of the guidance is to update the December 2012 Interim Guidance and advise when and how to analyze MSATs in the NEPA process for highways. The update was prompted by the updated MOVES2014 emissions model and analyses conducted with the model. This guidance is interim, given that MSAT science is still evolving. As the science progresses, FHWA will update the guidance.

2.3.2.4.1 Background

Controlling air toxic emissions became a national priority with the passage of the federal CAA Amendments of 1990, whereby Congress mandated that the EPA regulate 188 air toxics, also known as hazardous air pollutants. The EPA has assessed this expansive list in their latest rule on the Control of Hazardous Air Pollutants from Mobile Sources (Federal Register, Vol. 72, No. 37, page 8430, February 26, 2007), and identified a group of 93 compounds emitted from mobile sources that are listed in their Integrated Risk Information System (EPA 2016). In addition, the EPA identified nine compounds with significant contributions from mobile sources that are among the national and regional-scale cancer risk drivers from the 2011 National Air Toxics Assessment. These are 1,3-butadiene, acetaldehyde, acrolein, benzene, diesel particulate matter (diesel PM), ethylbenzene, formaldehyde, naphthalene, and polycyclic organic matter. While FHWA considers these the priority mobile source air toxics, the list is subject to change and may be adjusted in consideration of future EPA rules.

2.3.2.4.2 Motor Vehicle Emissions Simulator (MOVES)

According to EPA, MOVES2014 is a major revision to MOVES2010 and improves upon it in many respects. MOVES2014 includes new data, new emissions standards, and new functional improvements and features. It incorporates substantial new data for emissions, fleet, and activity developed since the release of MOVES2010. These new emissions data are for light- and heavy-duty vehicles, exhaust and evaporative emissions, and fuel effects. MOVES2014 also adds updated vehicle sales, population, age distribution, and vehicle miles travelled (VMT) data. MOVES2014 incorporates the effects of three new Federal emissions standard rules not included in MOVES2010. These new standards are all expected to impact MSAT emissions and include Tier 3 emissions and fuel standards starting in 2017 (79 FR 60344), heavy-duty greenhouse gas regulations that phase in during model years 2014-2018 (79 FR 60344), and the second phase of light duty greenhouse gas regulations that phase in during model years 2017-2025 (79 FR 60344). Since the release of MOVES2014, EPA has released MOVES2014a. EPA states that for on-road emissions, MOVES2014a adds new options requested by users for the input of local VMT, includes minor updates to the default fuel tables, and corrects an error in MOVES2014 brake wear emissions. The change in brake wear emissions results in small decreases in PM emissions, while emissions for other criteria pollutants remain essentially the same as MOVES2014.

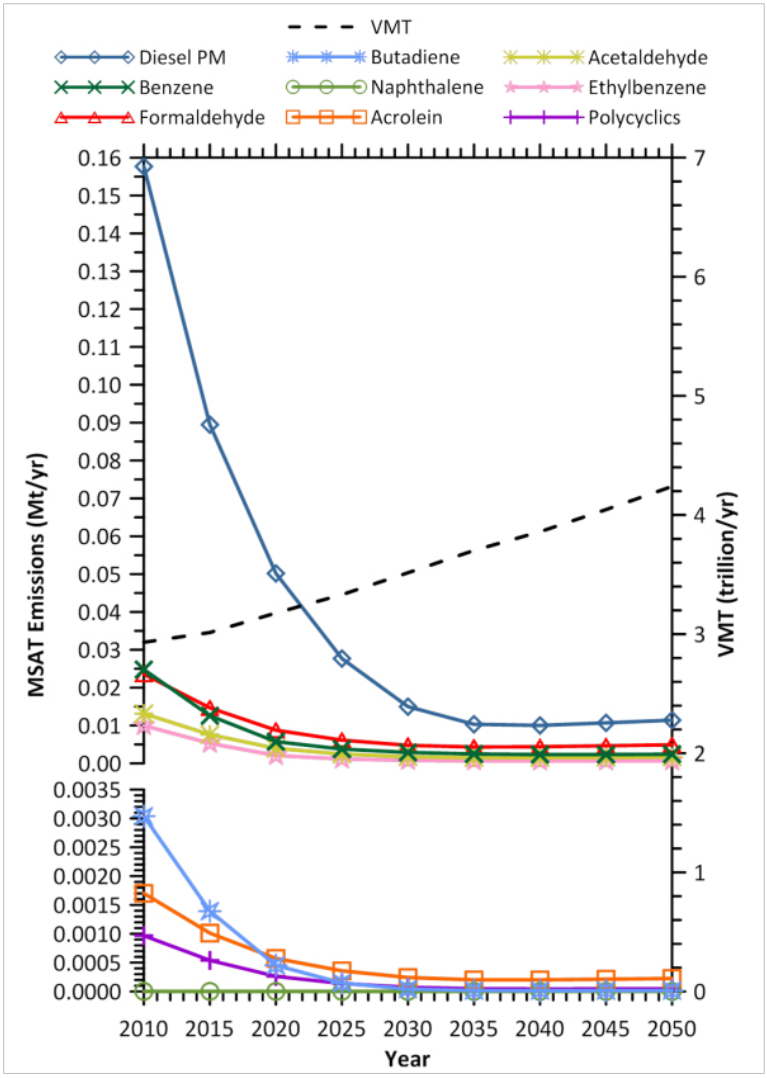
Using EPA's MOVES2014a model, as shown in Figure 2-2, FHWA estimates that even if VMT increases by 45 percent from 2010 to 2050 as forecast, a combined reduction of 91 percent in the total annual emissions for the priority MSAT is projected for the same time period.

Diesel PM is the dominant component of MSAT emissions, making up 50 to 70 percent of all priority MSAT pollutants by mass, depending on calendar year. Users of MOVES2014a will notice some differences in emissions compared with MOVES2010b. MOVES2014a is based on updated data on some emissions and pollutant processes compared to MOVES2010b, and also reflects the latest Federal emissions standards in place at the time of its release. In addition, MOVES2014a emissions forecasts are based on lower VMT projections than MOVES2010b, consistent with recent trends suggesting reduced nationwide VMT growth compared to historical trends.

2.3.2.4.3 MSAT Research

Air toxics analysis is a continuing area of research. While much work has been done to assess the overall health risk of air toxics, many questions remain unanswered. In particular, the tools and techniques for assessing project-specific health outcomes as a result of lifetime MSAT exposure remain limited. These limitations impede the ability to evaluate how potential public health risks posed by MSAT exposure should be factored into project-level decision-making within the context of NEPA.

Figure 2-2. FHWA Projected National MSAT Emission Trends 2010-2050 for Vehicles Operating on Roadways Using EPA's MOVES2014 Model



Source: FHWA 2016.

Nonetheless, air toxics concerns continue to be raised on highway projects during the NEPA process. Even as the science emerges, the public and other agencies expect FHWA to address MSAT impacts in its environmental documents. The FHWA, EPA, the Health Effects Institute, and others have funded and conducted research studies to try to more clearly define potential risks from MSAT emissions associated with highway projects. The FHWA will continue to monitor the developing research in this field.

2.3.2.4.4 Consideration of MSAT Impacts

The FHWA has developed a three-tiered approach for analyzing MSAT in NEPA documents, depending on the specific project circumstances, as follows:

1. No analysis for projects with no potential for meaningful MSAT effects
2. Qualitative analysis for projects with low potential MSAT effects
3. Quantitative analysis to differentiate alternatives for projects with higher potential MSAT effects

For projects warranting MSAT analysis, all nine priority MSAT should be considered, as described below.

- Category 1: No analysis for projects with no potential for meaningful MSAT effects.
  - — Projects qualifying as a categorical exclusion under 23 CFR Section 771.117(c)
  - — Projects exempt under the federal CAA conformity rule under 40 CFR Section 93.126
  - — Other projects with no meaningful impacts on traffic volumes or vehicle mix
- Category 2: Qualitative analysis for projects with low potential MSAT effects.
  - — Projects that serve to improve operations of highway, transit, or freight without adding substantial new capacity or without creating a facility that is likely to meaningfully increase MSAT emissions
  - — Project examples include minor widening projects, new interchanges, replacing a signalized intersection on a surface street, or projects where design year traffic is projected to be less than 140,000 to 150,000 AADT
  - — Any projects not meeting the criteria in Category 1 or Category 3 should be included in this category
- Category 3: Projects with Higher Potential MSAT Effects.
  - — Create or significantly alter a major intermodal freight facility that has the potential to concentrate high levels of diesel particulate matter in a single location, involving a significant number of diesel vehicles for new projects or accommodating with a significant increase in the number of diesel vehicles for expansion projects; or
  - — Create new capacity or add significant capacity to urban highways such as interstates, urban arterials, or urban collector-distributor routes with traffic volumes where the AADT is projected to be in the range of 140,000 to 150,000 or greater by the design year; and
  - — Proposed to be located in proximity to populated areas

2.3.2.4.5 Evaluation of the Proposed Project MSAT Impacts

The Project does not qualify as a categorical exclusion under 23 CFR Section 771.117(c), is not exempt under the federal CAA conformity rule under 40 CFR Section 93.126, and has a

meaningful impact on traffic volumes or vehicle mix. Therefore, the Project is a project with potential MSAT effects and is not a project with no potential for meaningful MSAT effects (Category 1). Additionally, the Project does not create or significantly alter a major intermodal freight facility that has the potential to concentrate high levels of diesel particulate matter in a single location, does not involve a significant number of diesel vehicles for new projects or a significant increase in the number of diesel vehicles for expansion projects, or create new capacity or add significant capacity to urban highways such as interstates, urban arterials, or urban collector-distributor routes with traffic volumes where the AADT is projected to be in the range of 140,000 to 150,000 or greater by the design year; therefore, the Project is not a project with higher potential MSAT effects (Category 3).

Any projects not meeting the criteria in Category 1 or Category 3 are considered projects with low potential MSAT effects. Examples of these types of projects are minor widening projects, new interchanges, replacing a signalized intersection on a surface street, or projects where design year traffic is projected to be less than 140,000 to 150,000 AADT. The Project is a project with low potential MSAT effects. Therefore, a qualitative assessment of emissions is required.

The amount of MSAT emitted would be proportional to the vehicle miles traveled, or VMT, assuming that other variables such as fleet mix remain the same. Since the proposed Project would not increase traffic capacity along Franklin Boulevard, it also would not increase VMT or MSAT emissions. In addition, emissions would likely be lower than present levels in the design year as a result of EPA's national control programs that are projected to reduce annual MSAT emissions by over 90 percent between 2010 and 2050.

2.4 Potential Avoidance, Minimization, and/or Mitigation Measures

2.4.1 Construction

Construction of the proposed Project would be required to comply with Caltrans' Standard Specifications, Section 14-9, Air Quality. Caltrans' specifications pertaining to dust control and dust palliative requirements are a required part of construction contracts and should effectively reduce and control emission impacts during construction. These requirements include daily watering of areas disturbed by construction activities. In addition, the State Health and Safety Code requires the contractor to prevent visible dust from leaving the construction site. Most of the construction impacts to air quality are short-term in duration and, therefore, will not result in long-term adverse conditions. Implementation of the following measures, some of which may also be required for other purposes such as storm water pollution control, will reduce any air quality impacts resulting from construction activities:

1. The construction contractor shall comply with Caltrans' Standard Specifications in Section 14 and, as applicable, Section 18 (2015).

— Section 14-9.01 specifically requires compliance by the contractor with all applicable laws and regulations related to air quality, including air pollution control district and air quality management district regulations and local ordinances.

— If dust palliative materials other than water are to be used, material specifications are contained in Section 18.

2. Apply water or dust palliative to the site and equipment as frequently as necessary to control fugitive dust emissions. Fugitive emissions generally must meet a "no visible dust" criterion either at the point of emission or at the right of way line depending on local regulations.

3. Spread soil binder on any unpaved roads used for construction purposes, and all project construction parking areas.

4. Wash off trucks as they leave the right-of-way as necessary to control fugitive dust emissions.

5. Develop a dust control plan documenting sprinkling, temporary paving, speed limits, and expedited revegetation of disturbed slopes as needed to minimize construction impacts to existing communities.

6. Locate equipment and materials storage sites as far away from residential and park uses as practical. Keep construction areas clean and orderly.

7. Use track-out reduction measures such as gravel pads at project access points to minimize dust and mud deposits on roads affected by construction traffic.

8. Cover all transported loads of soils and wet materials prior to transport, or provide at a minimum of six inches of freeboard (space from the top of the material to the top of the truck) to minimize emission of dust (particulate matter) during transportation.

9. Promptly and regularly remove dust and mud that are deposited on paved, public roads due to construction activity and traffic to decrease particulate matter.

10. Install mulch or plant vegetation as soon as practical after grading to reduce windblown particulate in the area. Be aware that certain methods of mulch placement, such as straw blowing, may themselves cause dust and visible emission issues and may need to use controls such as dampened straw.

11. Properly tune and maintain construction equipment and vehicles. Use low-sulfur fuel in all construction equipment as provided in Title 17 of the California Code of Regulations Section 93114.

12. Establish environmentally sensitive areas (ESAs) or their equivalent near sensitive air receptors within which construction activities involving extended idling of diesel equipment longer than 5 minutes would be prohibited, to the extent feasible.

13. Route and schedule construction traffic to avoid peak travel times as much as possible, to reduce congestion and related air quality impacts caused by idling vehicles along local roads.

3 References

California Department of Conservation (CDC). 2000. *A General Location Guide for Ultramafic Rocks in California – Areas More Likely to Contain Naturally Occurring Asbestos*. Available: ftp://ftp.consrv.ca.gov/pub/dmg/pubs/ofr/ofr_2000-019.pdf. Accessed April 16, 2018.

California Air Resources Board (CARB). 2018a. *Ambient Air Quality Standards*. Available: https://www.arb.ca.gov/research/aaqs/aaqs2.pdf. Accessed April 16, 2018.

California Air Resources Board (CARB). 2018b. *iAdam Select 8 Summary*. Available: https://www.arb.ca.gov/adam/topfour/topfour1.php. Accessed April 16, 2018.

Environmental Science Associates (ESA). 2018. CO Concentration Estimates for Franklin Boulevard Complete Streets Project Using CALINE4 Model. Available: Appendix A.

Federal Highway Administration (FHWA). 2016. Updated Interim Guidance on Mobile Source Air Toxic Analysis in NEPA Documents. Available: http://www.fhwa.dot.gov/environment/air_quality/air_toxics/policy_and_guidance/msat/index.cfm. Accessed April 16, 2018.

Sacramento Area Council of Governments (SACOG). 2016. *2016 Metropolitan Transportation Plan/Sustainable Communities Strategy: Building a Sustainable System* (2016 MTP/SCS). Available: http://www.sacog.org/general-information/2016-mtpscs. Accessed April 16, 2018.

Sacramento Metropolitan Air Quality Management District (SMAQMD). 2017. *Air Quality Pollutants and Standards*. Available: http://www.airquality.org/air-quality-health/air-quality-pollutants-and-standards. Accessed April 16, 2018.

United States Environmental Protection Agency (EPA). 2018a. *NAAQS Table*. Available: https://www.epa.gov/criteria-air-pollutants/naaqs-table. Accessed April 16, 2018.

United States Environmental Protection Agency (EPA). 2018b. *AirData Interactive Map*. Available: https://www3.epa.gov/airdata/ad_maps.html. Accessed April 16, 2018.

University of California at Davis. 1997. Transportation Project-Level Carbon Monoxide Protocol. Revised December, 1997. Available: http://www.dot.ca.gov/hq/env/air/documents/COProtocol_searchable.pdf. Accessed April 16, 2018.

This page intentionally left blank.

Appendix A

Carbon Monoxide Hot-Spot Analysis Results

This page intentionally left blank.

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: Franklin Boulevard at 12th Avenue
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT:

I. SITE VARIABLES

U=	0.5 M/S	Z0=	400. CM	ALT=	0. (M)
BRG=	WORST CASE	VD=	0.0 CM/S		
CLAS=	7 (G)	VS=	0.0 CM/S		
MIXH=	1000. M	AMB=	2.4 PPM		
SIGTH=	5. DEGREES	TEMP=	8.2 DEGREE (C)		

II. LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (M) X1	Y1	X2	Y2	* TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. North Leg	*	0	0	0	222	* AG	1063	5.4	0.0	10.0
B. South Leg	*	0	0	0	-222	* AG	1462	5.4	0.0	10.0
C. East Leg	*	0	0	222	0	* AG	1428	5.4	0.0	10.0
D. West Leg	*	0	0	-222	0	* AG	2610	5.4	0.0	10.0

III. RECEPTOR LOCATIONS

RECEPTOR	*	COORDINATES (M) X	Y	Z
1. R1	*	-15	15	1.8
2. R2	*	15	-15	1.8
3. R3	*	-15	-15	1.8
4. R4	*	15	15	1.8

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	* BRG (DEG)	* PRED CONC (PPM)	* CONC/LINK (PPM) A	B	C	D
1. R1	* 172.	* 3.5	* 0.0	0.6	0.0	0.5

2.	R2	*	280.	*	3.5	*	0.0	0.3	0.0	0.8
3.	R3	*	8.	*	3.4	*	0.4	0.0	0.0	0.5
4.	R4	*	260.	*	3.5	*	0.2	0.0	0.0	0.8

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: Franklin Boulevard at Fruitridge Road
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT:

I. SITE VARIABLES

U=	0.5 M/S	Z0=	400. CM	ALT=	0. (M)
BRG=	WORST CASE	VD=	0.0 CM/S		
CLAS=	7 (G)	VS=	0.0 CM/S		
MIXH=	1000. M	AMB=	2.4 PPM		
SIGTH=	5. DEGREES	TEMP=	8.2 DEGREE (C)		

II. LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (M) X1	Y1	X2	Y2	* TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. North Leg	*	0	0	0	222	* AG	1462	5.4	0.0	10.0
B. South Leg	*	0	0	0	-222	* AG	1462	5.4	0.0	10.0
C. East Leg	*	0	0	222	0	* AG	3094	5.4	0.0	10.0
D. West Leg	*	0	0	-222	0	* AG	2168	5.4	0.0	10.0

III. RECEPTOR LOCATIONS

RECEPTOR	*	COORDINATES (M) X	Y	Z
1. R1	*	-15	15	1.8
2. R2	*	15	-15	1.8
3. R3	*	-15	-15	1.8
4. R4	*	15	15	1.8

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	* BRG (DEG)	* PRED CONC (PPM)	* CONC/LINK (PPM) A	B	C	D
1. R1	* 100.	* 3.7	* 0.3	0.0	1.0	0.0

2.	R2	*	352.	*	3.6	*	0.6	0.0	0.6	0.0
3.	R3	*	80.	*	3.7	*	0.0	0.3	1.0	0.0
4.	R4	*	188.	*	3.6	*	0.0	0.6	0.6	0.0

Appendix B

Interagency Consultation

This page intentionally left blank.

MTIP ID# *(required):* SAC25009

Project Description *(clearly describe project):*

The City of Sacramento (City) is proposing to improve and rehabilitate Franklin Boulevard for approximately 1.6 miles, from Sutterville Road to the City limits at 38th Avenue, into a complete street; project striping continues to 41st Avenue and on 21st Avenue from Franklin Boulevard to 34th Street. The Franklin Boulevard Complete Street Project (Project) is the first phase of a multi-phased streetscape improvement project on Franklin Boulevard.

Project Background

Once known as the *Monterey Trail* between Sutter's Fort and Monterey during Mexico's rule of California)1821-1846), Franklin Boulevard between Sutterville Road and the Sacramento County line has been the subject of three significant urban development plans over the past several years, including the Franklin Boulevard Strategy (1996-2000), the Franklin Boulevard Urban Design Master Plan (2001), and the Franklin Boulevard Redevelopment Area Five-Year Implementation Plan (2009-2014). In 1993, this same stretch of Franklin Boulevard and its immediate surrounding area was designated a redevelopment area due to its significant physical and socio-economic blight.

These plans and past public outreach efforts call for a variety of streetscape enhancements that include more tree canopy and landscaping, bicycle lanes, more pedestrian and bicycle friendly routes, and designated on-street parking.

Objectives

The primary objectives of the Project are to better support the existing and future need of residents, and business and property owners by:

- Transforming the existing and blighted Franklin Boulevard into a "complete street" with a more human-scale that encourages a safer, pedestrian, bicycle, and transit friendly environment and is memorable for all users;
- Promoting mixed and compact urban development and private investment in the Historic Monterey Trail District by improving the public-private interface to mitigate negative impacts of the existing auto-oriented environment;
- Improving the aesthetics and urban design quality of Franklin Boulevard's public realm, which serves as the gateway to the Historic Monterey Trail District and South Sacramento; and
- Improving connectivity to and across the corridor for pedestrians and bicyclists, and established neighborhoods on either side of Franklin Boulevard.

Project Description

In order to meet these goals and objectives, a five-lane to three-lane road diet would need to be considered in order to create the ROW to accommodate a corridor configuration to serve the multi-modal and accessibility needs of the community.

The proposed Project would result in improvements, including: road rehabilitation with an approximate depth of 12 inches, curb and gutter replacement, a reduction from four through traffic lanes with a two-way left turn lanes to two through traffic lanes with a two-way left turn lane, the addition of bicycle facilities and sidewalk, ADA compliant curb ramps, stormwater planters, drainage improvements, and the addition of turn pockets and landscaped medians along Franklin Boulevard within the Project limits. Where feasible, sidewalks consisting of 6 foot sidewalks and 8.5 foot landscaped planters would be constructed. In addition, the Project would replace existing street and pedestrian lighting and also install new street lights and modify existing traffic signals.

Drainage Improvement

Drainage improvements are limited to installing bioswales, constructing new curb and gutter, and adjusting or relocating existing drainage systems components to conform to the proposed improvements. Existing drainage inlets would be relocated or adjusted as necessary. Significant changes to the drainage system are not anticipated in this Project. Construction related Best Management Practices (BMPs) would be implemented.

Pavement

This Project would not require the paving of any currently undeveloped areas. The Project would include two-inch grind and overlay and/or microsurfacing on streets within the Project limits.

Sidewalks

The Project proposes to reconstruct existing sidewalks along Franklin Boulevard within the Project limits so that they meet City Standards and are Americans with Disabilities Act (ADA) compliant. In addition, new sidewalk would be constructed to close an approximately 140-foot gap in existing sidewalk just north of 33rd Street on the east side of Franklin Boulevard. ADA curb ramps would be installed at all intersections.

Median

Landscaped medians would be installed where feasible.

Bike Facilities

Class II or Class IV bicycle facilities would be provided throughout the Project area and would be designed in accordance with City Standard and Caltrans guidelines.

Green-colored pavement would be applied in areas where there is potential conflict or crossing areas between bicyclist and vehicle, such as driveways and intersections. The green-colored pavement is intended to increase awareness of both bicyclist and motorist.

On-Street Parking

A mix of business and other commercial properties are fronting Franklin Boulevard and the Project would maintain existing parking to the extent feasible. Access to existing off-street parking would be maintained. On-street parking would be limited to the available space after clearances to existing driveways, sight distance, existing bus stops and City guidelines are considered.

Street & Pedestrian Lighting

Existing lighting would be replaced and new lighting would be added along the Project area. Improving the lighting would encourage pedestrian and bicyclist activity in the area and foster a community identity for adjacent neighborhoods.

If in conflict with Project improvements, street lighting poles would be relocated at appropriate locations, while still remaining within the existing City ROW.

Utilities

The City would work with utility companies, as necessary, for any utility relocation or adjustment.

Tree and Vegetation Removal

Within the proposed Project limits, Franklin Boulevard is sparsely landscaped. The Project may require the removal of one or two small ornamental trees currently within the City ROW. Existing shrubs and landscaping within the City ROW may require removal in order to accommodate the proposed improvements. Landscaping would be provided throughout the Project limits, where feasible, and could include trees, parklets, shrubs, or other drought-resistant plants.

Right of Way

The Project would be constructed entirely within the existing City right-of-way (ROW) and no acquisitions are anticipated. Temporary Construction Easements (TCEs) may be required in order to conform existing driveways to the reconstructed roadway.

Temporary Project Construction Components

Construction Staging

The project would likely be constructed in multiple construction stages to minimize impacts to traffic operations during construction. Minimizing impacts to adjacent businesses and optimizing traffic flow during peak periods would be evaluated when developing a traffic management plan that would be implemented during construction. Access to and from existing businesses would be maintained throughout construction.

Temporary Construction Easements

Temporary Construction Easements (TCEs) would be required in select locations along Franklin Boulevard in order to conform private driveways to the reconstructed roadway. It is

anticipated that the contractor would coordinate with the property owner/tenant to maintain access during construction, thereby preventing any damage or loss of business goodwill.

Construction Vehicle Access and Staging

Construction vehicle access and staging of construction materials would occur within disturbed or developed areas inside the existing ROW. If a location is chosen outside of the existing ROW, the location would be environmentally-cleared by the construction contractor prior to use.

Type of Project: Roadway realignment	**County:** Sacramento

Narrative Location/Route & Post Miles: Franklin Boulevard from Sutterville Road to the City limits in Sacramento, CA
Caltrans Projects – EA#: n/a

Lead Agency: City of Sacramento, Department of Public Works

Contact Person: Megan Johnson	**Email:** mejohnson@cityofsacramento.org

Phone#: (916) 808-1967

Hot Spot Pollutant of Concern *(check one or both)*
PM2.5 ☒ **PM10** ☐

Is this a 23 USC 326 or a 23 USC 327 federal process under MAP-21 (formerly 6004 and 6005)?
Typically, EA or above is a 23 USC 327 project.

(check one)
23 USC 326 ☒ **23 USC 327** ☐

Federal Action for which Project-Level PM Conformity is Needed *(check appropriate box)*
Categorical Exclusion (NEPA) ☒ **EA or Draft EIS** ☐ **FONSI or Final EIS** ☐

Scheduled Date of Federal Action: December 2018

Current Programming Dates *(as appropriate)*

	PE/Environmental	**ENG**	**ROW**	**CON**
Start	2017	2018	n/a	>2020
End	2018	2019	n/a	>2020

Project Purpose and Need *(Summary):*

(attach additional sheets as necessary)

The purpose of the project is to better support the existing and future need of residents, and business and property owners by:

- Transforming the existing and blighted Franklin Boulevard into a "complete street" with a more human-scale that encourages a safer, pedestrian, bicycle, and transit friendly environment and is memorable for all users;
- Promoting mixed and compact urban development and private investment in the Historic Monterey Trail District by improving the public-private interface to mitigate negative impacts of the existing auto-oriented environment;
- Improving the aesthetics and urban design quality of Franklin Boulevard's public realm, which serves as the gateway to the Historic Monterey Trail District and South Sacramento; and
- Improving connectivity to and across the corridor for pedestrians and bicyclists, and established neighborhoods on either side of Franklin Boulevard.

Surrounding Land Use/Traffic Generators A survey of sensitive receptors within 500 feet of the Project area was conducted, which is presented in Attachment 1. According to the Environmental Protection Agency (EPA), sensitive receptors are not limited to, hospitals, schools, daycare facilities, elderly housing and convalescent facilities. As shown in Attachment 1, sensitive receptors within 500 feet of the Project area include the Land Park Academy, Ethel Phillips Elementary School, Maple Elementary School and Saint Patrick Academy. In addition to sensitive receptors, there are approximately 570 residences located within 500 feet of the Project area.

Opening Year: **Build and No-Build LOS – AM 2-Hr, % and # trucks, truck AM 2-Hr of proposed facility**: The traffic study prepared for the project did not include future traffic volumes with or without project. To estimate the peak hour traffic volumes along Franklin Boulevard after the implementation of the Project, the expected traffic volume reduction as a result of the proposed lane reduction along Franklin Boulevard were applied to the future 2035 traffic volumes found in City of Sacramento 2035 General Plan Environmental Impact Report (EIR). Growth factors in the traffic report prepared for the Project are considered to be consistent with the 2035 General Plan EIR. As presented in the traffic study prepared for the Project, the Project would result in a 15 percent reduction in traffic along Franklin Boulevard over existing conditions (Fehr and Peers 2018). This percent reduction in traffic is a result of traffic shifts to parallel routes, primarily State Route 99 and 24th Street. Estimated Future (2035) plus Project peak-hour turning movements at the intersections of Franklin Boulevard/12th Street and Franklin Boulevard/Fruitridge Road can be found in Table 1. The traffic analysis presented in the City's 2035 General Plan does not report the percentage of trucks along Franklin Boulevard. However, implementation of the Project would not result in any new development or result in any new land uses in the vicinity of the Project area that would contribute to the trucks volumes along Franklin Boulevard or along parallel routes.

Table 1. 2035 Traffic Volumes

Intersection	Intersection Leg	Average Daily Traffic Volumes[1]	Peak hour Traffic Volumes[2]
Franklin Boulevard at 12th Avenue	North	10,625	1,063
	South	14,620	1,462
	East	14,280	1,428
	West	26,095	2,610
Franklin Boulevard at Fruitridge Road	North	14,620	1,462
	South	14,620	1,462
	East	30,940	3,094
	West	21,675	2,168

Notes:

1. Future Build 2035 traffic volumes were obtained from the Chapter 4.12 (Transportation and Circulation) of the City of Sacramento 2035 General Plan EIR (City of Sacramento, 2014) assuming a 15 percent reduction in traffic on Franklin Boulevard over future 2035 conditions, which is based on the assumed decrease in traffic resulting from the reduction in through lanes determined in the project's Traffic Impact Analysis (Fehr and Peers 2018).
2. Assumed peak hour traffic volume to be 10 percent of the average daily traffic volume.

Source: ESA, 2018; City of Sacramento, 2014; Fehr and Peers, 2018

MTP Horizon Year/Design Year: **Build and No-Build LOS, AADT, AM 2-Hr, Truck AADT, and % and # trucks for AM 2-Hr of proposed facility:**

As previously discussed above, the traffic study prepared for the project did not include future traffic volumes with or without project. To estimate the peak hour traffic volumes along Franklin Boulevard after the implementation of the Project, the expected traffic volume reduction as a result of the proposed lane reduction along Franklin Boulevard were applied to the future 2035 traffic volumes found in City of Sacramento 2035 General Plan Environmental Impact Report (EIR). The traffic analysis presented in the City's 2035 General Plan does not report the percentage of trucks along Franklin Boulevard. However, implementation of the Project would not result in any new development or result in any new land uses in the vicinity of the Project area that would contribute to the trucks volumes along Franklin Boulevard or along parallel routes. Future (2035) plus Project peak-hour turning movements at the intersections of Franklin Boulevard/12th Street and Franklin Boulevard/Fruitridge Road can be found in Table 1.

Only if Facility is an Interchange or Intersection: Opening Year *Build and No Build cross-street AADT, % and # trucks, truck AADT)*:

As previously discussed above, the traffic study prepared for the project did not include future traffic volumes with or without project. To estimate the peak hour traffic volumes along Franklin Boulevard after the implementation of the Project, the expected traffic volume reduction as a result of the proposed lane reduction along Franklin Boulevard were applied to the future 2035 traffic volumes found in City of Sacramento 2035 General Plan Environmental Impact Report (EIR). The traffic analysis presented in the City's 2035 General Plan does not report the percentage of trucks along Franklin Boulevard. However, implementation of the Project would not result in any new development or result in any new land uses in the vicinity of the Project area that would contribute to the trucks volumes along Franklin Boulevard or along parallel routes. Growth factors are considered to be consistent with the 2035 General Plan EIR. Future (2035) plus Project peak-hour turning movements at the intersections of Franklin Boulevard/12th Street and Franklin Boulevard/Fruitridge Road can be found in Table 1.

Only if Facility is an Interchange or Intersection: MTP Horizon Year / Design Year *Build and No Build cross-street AADT, % and # trucks, truck AADT)*:

As previously discussed above, the traffic study prepared for the project did not include future traffic volumes with or without project. To estimate the peak hour traffic volumes along Franklin Boulevard after the implementation of the Project, the expected traffic volume reduction as a result of the proposed lane reduction along Franklin Boulevard were applied to the future 2035 traffic volumes found in City of Sacramento 2035 General Plan Environmental Impact Report (EIR). The traffic analysis presented in the City's 2035 General Plan does not report the percentage of trucks along Franklin Boulevard. However, implementation of the Project would not result in any new development or result in any new land uses in the vicinity of the Project area that would contribute to the trucks volumes along Franklin Boulevard or along parallel routes. Future (2035) plus Project peak-hour turning movements at the intersections of Franklin Boulevard/12th Street and Franklin Boulevard/Fruitridge Road can be found in Table 1.

Describe potential traffic redistribution effects of congestion relief *(impact on other facilities):*

The Project would improve and rehabilitate Franklin Boulevard for approximately 1.6 miles, from Sutterville Road to the City limits at 38th Avenue, into a complete street. Once the Project is complete, the number of travel lanes on Franklin Boulevard between Sutterville Road and 38th Avenue from four lanes to two lanes. Since the Project would result in a decrease in traffic lanes along Franklin Boulevard, the Project could result in traffic congestion along Franklin Boulevard and parallel routes. As presented in the traffic study prepared for the Project, the Project would result in a 15 percent reduction in traffic along Franklin Boulevard over existing conditions (Fehr and Peers 2018). This percent reduction in traffic is a result of traffic shifts to parallel routes, primarily State Route 99 and 24th Street. Traffic volumes on State Route 99 and 24th Street would increase by approximately 2 and 15 percent, respectively. This percent increase in traffic is not expected to result in a substantial increase in traffic congestion along either State Route 99 and 24th Street. In addition, since the Project would result in a reduction in traffic along Franklin Boulevard and traffic would be redistributed along parallel roadways, it is not expected the Project would result in substantial increase in congestion along Franklin Boulevard without the Project.

Comments/Explanations/Details *(attach additional sheets as necessary):*
EPA's 2006 final transportation conformity rule (40 CFR 51.390 and Part 93) that addresses local air quality impacts in PM10 and PM2.5 nonattainment and maintenance areas specifies in 40 CFR93.123(b)(1) that only "projects of air quality concern" are required to undergo a PM2.5 or PM10 hotspot analysis. EPA defines projects of air quality concern as certain highway and transit projects that involve significant levels of diesel vehicle traffic, or any other project that is identified by thePM10/PM2.5 SIP as a localized concern. A list of projects of air quality concern, as defined by 40 CFR93.123(b)(1), is provided below

1. New highway projects that have a significant number of diesel vehicles, and expanded highway projects that have a significant increase in the number of diesel vehicles.
2. Projects affecting intersections that are at level –of –service (LOS) D, E, or F with a significant number of diesel vehicles or those that will change to LOS D, E, or F because of increased traffic volumes from a significant number of diesel vehicles related to the project.
3. New bus and rail terminals and transfer points that have a significant number of diesel vehicles congregating at a single location.
4. Expanded bus and rail terminals and transfer points that significantly increase the number of diesel vehicles congregating at a single location.
5. Projects in or affecting locations, areas, or categories of sites that are identified in the PM2.5- or PM10-applicable implementation plan or implementation plan submission, as appropriate, as sites of violation or possible violation.

The proposed project is not considered a project of air quality concern for PM10 and/or PM2.5 (POAQC) because it does not meet the definition of a POAQC as defined in EPA's Transportation Conformity Guidance.
As described below the Project is not considered a POAQC because it does not meet the definition of a POAQC.

1. **New or expanded highway projects that have a significant number of or significant increase in diesel vehicles.**
   The Project consists of roadway improvements that would not have a significant increase in diesel vehicles. A significant number is defined as greater than 125,000 annual average daily traffic (AADT) and 8 percent or more of such AADT is diesel truck traffic, or in practice 10,000 truck AADT or more regardless of total AADT. A significant increase is defined in practice as a 10 percent increase in heavy duty truck traffic.

   As presented in the traffic study prepared for the Project, the Project would result in a 15 percent reduction in traffic along Franklin Boulevard, which is the direct result of the reduction in through lanes from four to two (Fehr and Peers 2018). According to Chapter 4.12 (Transportation and Circulation) of the City of Sacramento 2035 General Plan EIR (City of Sacramento, 2014), AADT

volumes along Franklin Boulevard is expected to be approximately 17,200 in the year 2035. Since the Project was not included in the traffic impact analysis in the City of Sacramento 2035 General Plan EIR, the 15 percent reduction as a result of the reduction of through lanes was applied to the future 2035 AADT, which equates to an AADT of 14,620. Other than the 15 percent reduction in through traffic along Franklin Boulevard, implementation of the Project would not result in any new development or result in any new land uses in the vicinity of the Project area. Therefore, the Project is not expected to have a significant number of or significance increase in diesel vehicles and would result in a decrease in traffic volumes along Franklin Boulevard.

2. **Projects affecting intersections that are at a Level of Service D, E, F, with a significant number of diesel vehicles, or that that will change to Level of Service D, E, or F because of increased traffic volumes from a significant number of diesel vehicles related to the project.**
   As discussed in Chapter 4.12 (Transportation and Circulation) of the City of Sacramento 2035 General Plan EIR, the segment of Franklin Boulevard within the bounds of the proposed Project would result in a LOS between A and D in the year 2035 (City of Sacramento, 2014). Although the Project would decrease the number of lanes along Franklin Boulevard, the proposed Project would not increase traffic volumes or generate additional diesel vehicles. Therefore, there would not be a significant number or increase in diesel vehicles due to the implementation of the Project.

3. **New bus and rail terminals and transfer points that have a significant number of diesel vehicles congregating at a single location.**
   The Project does not include new bus or rail terminal and transfer points.

4. **Expanded bus and rail terminals and transfer points that significantly increase the number of diesel vehicles congregating at a single location.**
   The Project does not include expanded bus or rail terminals and transfer points.

5. **Projects in or affecting locations, areas, or categories of sites which are identified in the $PM_{2.5}$ or PM_{10} implementation plan or implementation plan submission, as appropriate, as sites of possible violation.**
   The Project does not affect locations, areas, or categories of sites that are identified in the PM_{10} and $PM_{2.5}$ applicable implementation plan or implementation plan submission, as appropriate, as sites of violation or possible violation.

Franklin Complete Street Project - Construction Emission Only

Sacramento Metropolitan AQMD Air District, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Asphalt Surfaces	15.00	Acre	15.00	653,400.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	3.5	**Precipitation Freq (Days)**	58
Climate Zone	6			**Operational Year**	2021
Utility Company	Sacramento Municipal Utility District				
CO2 Intensity (lb/MWhr)	590.31	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use -

Construction Phase - Assumed construction phasing

Off-road Equipment -

Trips and VMT - Assumed work and haul trips

Grading -

Off-road Equipment - Assumed construction equipment

Off-road Equipment - Assumed Construction Equipment

Off-road Equipment - Assumed construction equipment

Franklin Complete Street Project - Construction Emission Only - Sacramento Metropolitan AQMD Air District, Annual

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	20.00	129.00
tblConstructionPhase	NumDays	20.00	173.00
tblConstructionPhase	NumDays	20.00	130.00
tblOffRoadEquipment	LoadFactor	0.38	0.38
tblOffRoadEquipment	LoadFactor	0.37	0.37
tblOffRoadEquipment	LoadFactor	0.50	0.50
tblOffRoadEquipment	LoadFactor	0.50	0.50
tblOffRoadEquipment	LoadFactor	0.46	0.46
tblOffRoadEquipment	LoadFactor	0.38	0.38
tblOffRoadEquipment	LoadFactor	0.37	0.37
tblOffRoadEquipment	LoadFactor	0.50	0.50
tblOffRoadEquipment	LoadFactor	0.50	0.50
tblOffRoadEquipment	LoadFactor	0.46	0.46
tblOffRoadEquipment	OffRoadEquipmentType		Excavators
tblOffRoadEquipment	OffRoadEquipmentType		Skid Steer Loaders
tblOffRoadEquipment	OffRoadEquipmentType		Cement and Mortar Mixers
tblOffRoadEquipment	OffRoadEquipmentType		Bore/Drill Rigs
tblOffRoadEquipment	OffRoadEquipmentType		Air Compressors
tblOffRoadEquipment	OffRoadEquipmentType		Generator Sets
tblOffRoadEquipment	OffRoadEquipmentType		Pumps
tblOffRoadEquipment	OffRoadEquipmentType		Trenchers
tblOffRoadEquipment	OffRoadEquipmentType		Sweepers/Scrubbers
tblOffRoadEquipment	OffRoadEquipmentType		Excavators
tblOffRoadEquipment	OffRoadEquipmentType		Skid Steer Loaders
tblOffRoadEquipment	OffRoadEquipmentType		Cement and Mortar Mixers
tblOffRoadEquipment	OffRoadEquipmentType		Bore/Drill Rigs

tblOffRoadEquipment	OffRoadEquipmentType		Air Compressors
tblOffRoadEquipment	OffRoadEquipmentType		Generator Sets
tblOffRoadEquipment	OffRoadEquipmentType		Pumps
tblOffRoadEquipment	OffRoadEquipmentType		Trenchers
tblOffRoadEquipment	OffRoadEquipmentType		Sweepers/Scrubbers
tblOffRoadEquipment	OffRoadEquipmentType		Excavators
tblOffRoadEquipment	OffRoadEquipmentType		Skid Steer Loaders
tblOffRoadEquipment	OffRoadEquipmentType		Cement and Mortar Mixers
tblOffRoadEquipment	OffRoadEquipmentType		Bore/Drill Rigs
tblOffRoadEquipment	OffRoadEquipmentType		Air Compressors
tblOffRoadEquipment	OffRoadEquipmentType		Generator Sets
tblOffRoadEquipment	OffRoadEquipmentType		Pumps
tblOffRoadEquipment	OffRoadEquipmentType		Trenchers
tblOffRoadEquipment	OffRoadEquipmentType		Sweepers/Scrubbers
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblTripsAndVMT	HaulingTripNumber	0.00	250.00
tblTripsAndVMT	HaulingTripNumber	0.00	500.00
tblTripsAndVMT	HaulingTripNumber	0.00	250.00
tblTripsAndVMT	WorkerTripNumber	30.00	15.00

tblTripsAndVMT	WorkerTripNumber	30.00	15.00
tblTripsAndVMT	WorkerTripNumber	30.00	15.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2021	0.4210	3.6111	3.8250	7.1500e-003	0.0205	0.1919	0.2124	5.4700e-003	0.1816	0.1871	0.0000	623.8356	623.8356	0.1392	0.0000	627.3157
2022	0.0598	0.5044	0.5977	1.1300e-003	5.6800e-003	0.0260	0.0317	1.4700e-003	0.0246	0.0261	0.0000	98.6871	98.6871	0.0218	0.0000	99.2326
2023	0.1834	1.4601	1.8872	3.5300e-003	9.2700e-003	0.0737	0.0829	2.4800e-003	0.0697	0.0722	0.0000	307.8980	307.8980	0.0685	0.0000	309.6098
Maximum	**0.4210**	**3.6111**	**3.8250**	**7.1500e-003**	**0.0205**	**0.1919**	**0.2124**	**5.4700e-003**	**0.1816**	**0.1871**	**0.0000**	**623.8356**	**623.8356**	**0.1392**	**0.0000**	**627.3157**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2021	0.4210	3.6111	3.8250	7.1500e-003	0.0205	0.1919	0.2124	5.4700e-003	0.1816	0.1871	0.0000	623.8349	623.8349	0.1392	0.0000	627.3150
2022	0.0598	0.5044	0.5977	1.1300e-003	5.6800e-003	0.0260	0.0317	1.4700e-003	0.0246	0.0261	0.0000	98.6870	98.6870	0.0218	0.0000	99.2325
2023	0.1834	1.4601	1.8872	3.5300e-003	9.2700e-003	0.0737	0.0829	2.4800e-003	0.0697	0.0722	0.0000	307.8977	307.8977	0.0685	0.0000	309.6094
Maximum	**0.4210**	**3.6111**	**3.8250**	**7.1500e-003**	**0.0205**	**0.1919**	**0.2124**	**5.4700e-003**	**0.1816**	**0.1871**	**0.0000**	**623.8349**	**623.8349**	**0.1392**	**0.0000**	**627.3150**

Franklin Complete Street Project - Construction Emission Only - Sacramento Metropolitan AQMD Air District, Annual

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
8	**11-4-2020**	**2-3-2021**	0.3741	0.3741
9	**2-4-2021**	**5-3-2021**	0.9789	0.9789
10	**5-4-2021**	**8-3-2021**	1.0138	1.0138
11	**8-4-2021**	**11-3-2021**	1.0182	1.0182
12	**11-4-2021**	**2-3-2022**	0.9766	0.9766
13	**2-4-2022**	**5-3-2022**	0.2458	0.2458
16	**11-4-2022**	**2-3-2023**	0.3071	0.3071
17	**2-4-2023**	**5-3-2023**	0.8037	0.8037
18	**5-4-2023**	**8-3-2023**	0.5236	0.5236
		Highest	1.0182	1.0182

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.0513	0.0000	1.9000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	3.7000e-004	3.7000e-004	0.0000	0.0000	4.0000e-004
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0513**	**0.0000**	**1.9000e-004**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**3.7000e-004**	**3.7000e-004**	**0.0000**	**0.0000**	**4.0000e-004**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.0513	0.0000	1.9000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	3.7000e-004	3.7000e-004	0.0000	0.0000	4.0000e-004
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0513**	**0.0000**	**1.9000e-004**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**3.7000e-004**	**3.7000e-004**	**0.0000**	**0.0000**	**4.0000e-004**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Phase 1	Paving	1/1/2021	6/30/2021	5	129	
2	Phase 2	Paving	7/1/2021	2/28/2022	5	173	
3	Phase 3	Paving	1/1/2023	6/30/2023	5	130	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 15

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Phase 1	Pavers	1	8.00	130	0.42
Phase 1	Paving Equipment	1	8.00	132	0.36
Phase 1	Rollers	1	8.00	80	0.38
Phase 2	Pavers	1	8.00	130	0.42
Phase 2	Paving Equipment	1	8.00	132	0.36
Phase 2	Rollers	1	8.00	80	0.38
Phase 1	Excavators	1	8.00	158	0.38
Phase 1	Skid Steer Loaders	1	8.00	65	0.37
Phase 1	Cement and Mortar Mixers	1	8.00	9	0.56
Phase 1	Bore/Drill Rigs	1	8.00	221	0.50
Phase 1	Air Compressors	1	8.00	78	0.48
Phase 1	Generator Sets	1	8.00	84	0.74
Phase 1	Pumps	1	8.00	84	0.74
Phase 1	Trenchers	1	8.00	78	0.50
Phase 1	Sweepers/Scrubbers	1	8.00	64	0.46
Phase 3	Pavers	1	8.00	130	0.42
Phase 3	Paving Equipment	1	8.00	132	0.36
Phase 3	Rollers	1	8.00	80	0.38

Phase 2	Excavators	1	8.00	158	0.38
Phase 2	Skid Steer Loaders	1	8.00	65	0.37
Phase 2	Cement and Mortar Mixers	1	8.00	9	0.56
Phase 2	Bore/Drill Rigs	1	8.00	221	0.50
Phase 2	Air Compressors	1	8.00	78	0.48
Phase 2	Generator Sets	1	8.00	84	0.74
Phase 2	Pumps	1	8.00	84	0.74
Phase 2	Trenchers	1	8.00	78	0.50
Phase 2	Sweepers/Scrubbers	1	8.00	64	0.46
Phase 3	Excavators	1	8.00	158	0.38
Phase 3	Skid Steer Loaders	1	8.00	65	0.37
Phase 3	Cement and Mortar Mixers	1	8.00	9	0.56
Phase 3	Bore/Drill Rigs	1	8.00	221	0.50
Phase 3	Air Compressors	1	8.00	78	0.48
Phase 3	Generator Sets	1	8.00	84	0.74
Phase 3	Pumps	1	8.00	84	0.74
Phase 3	Trenchers	1	8.00	78	0.50
Phase 3	Sweepers/Scrubbers	1	8.00	64	0.46

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Phase 1	12	15.00	0.00	250.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Phase 2	12	15.00	0.00	500.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Phase 3	12	15.00	0.00	250.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Phase 1 - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1864	1.7408	1.8561	3.3400e-003		0.0946	0.0946		0.0896	0.0896	0.0000	290.2855	290.2855	0.0679	0.0000	291.9832
Paving	0.0197					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.2061**	**1.7408**	**1.8561**	**3.3400e-003**		**0.0946**	**0.0946**		**0.0896**	**0.0896**	**0.0000**	**290.2855**	**290.2855**	**0.0679**	**0.0000**	**291.9832**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	8.9000e-004	0.0330	7.5400e-003	1.0000e-004	2.1100e-003	1.1000e-004	2.2200e-003	5.8000e-004	1.1000e-004	6.9000e-004	0.0000	9.4529	9.4529	5.5000e-004	0.0000	9.4666
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.3500e-003	2.1900e-003	0.0245	7.0000e-005	7.1100e-003	5.0000e-005	7.1600e-003	1.8900e-003	5.0000e-005	1.9400e-003	0.0000	6.0815	6.0815	1.6000e-004	0.0000	6.0855
Total	**4.2400e-003**	**0.0352**	**0.0320**	**1.7000e-004**	**9.2200e-003**	**1.6000e-004**	**9.3800e-003**	**2.4700e-003**	**1.6000e-004**	**2.6300e-003**	**0.0000**	**15.5344**	**15.5344**	**7.1000e-004**	**0.0000**	**15.5521**

3.2 Phase 1 - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1864	1.7408	1.8561	3.3400e-003		0.0946	0.0946		0.0896	0.0896	0.0000	290.2852	290.2852	0.0679	0.0000	291.9829
Paving	0.0197					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.2061**	**1.7408**	**1.8561**	**3.3400e-003**		**0.0946**	**0.0946**		**0.0896**	**0.0896**	**0.0000**	**290.2852**	**290.2852**	**0.0679**	**0.0000**	**291.9829**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	8.9000e-004	0.0330	7.5400e-003	1.0000e-004	2.1100e-003	1.1000e-004	2.2200e-003	5.8000e-004	1.1000e-004	6.9000e-004	0.0000	9.4529	9.4529	5.5000e-004	0.0000	9.4666
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.3500e-003	2.1900e-003	0.0245	7.0000e-005	7.1100e-003	5.0000e-005	7.1600e-003	1.8900e-003	5.0000e-005	1.9400e-003	0.0000	6.0815	6.0815	1.6000e-004	0.0000	6.0855
Total	**4.2400e-003**	**0.0352**	**0.0320**	**1.7000e-004**	**9.2200e-003**	**1.6000e-004**	**9.3800e-003**	**2.4700e-003**	**1.6000e-004**	**2.6300e-003**	**0.0000**	**15.5344**	**15.5344**	**7.1000e-004**	**0.0000**	**15.5521**

3.3 Phase 2 - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1909	1.7826	1.9003	3.4200e-003		0.0969	0.0969		0.0917	0.0917	0.0000	297.3674	297.3674	0.0696	0.0000	299.1073
Paving	0.0150					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.2059**	**1.7826**	**1.9003**	**3.4200e-003**		**0.0969**	**0.0969**		**0.0917**	**0.0917**	**0.0000**	**297.3674**	**297.3674**	**0.0696**	**0.0000**	**299.1073**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.3600e-003	0.0503	0.0115	1.5000e-004	3.9700e-003	1.7000e-004	4.1400e-003	1.0700e-003	1.7000e-004	1.2300e-003	0.0000	14.4253	14.4253	8.3000e-004	0.0000	14.4461
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.4300e-003	2.2400e-003	0.0251	7.0000e-005	7.2700e-003	5.0000e-005	7.3200e-003	1.9300e-003	5.0000e-005	1.9800e-003	0.0000	6.2229	6.2229	1.6000e-004	0.0000	6.2270
Total	**4.7900e-003**	**0.0526**	**0.0366**	**2.2000e-004**	**0.0112**	**2.2000e-004**	**0.0115**	**3.0000e-003**	**2.2000e-004**	**3.2100e-003**	**0.0000**	**20.6482**	**20.6482**	**9.9000e-004**	**0.0000**	**20.6731**

3.3 Phase 2 - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1909	1.7826	1.9003	3.4200e-003		0.0969	0.0969		0.0917	0.0917	0.0000	297.3671	297.3671	0.0696	0.0000	299.1069
Paving	0.0150					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.2059**	**1.7826**	**1.9003**	**3.4200e-003**		**0.0969**	**0.0969**		**0.0917**	**0.0917**	**0.0000**	**297.3671**	**297.3671**	**0.0696**	**0.0000**	**299.1069**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.3600e-003	0.0503	0.0115	1.5000e-004	3.9700e-003	1.7000e-004	4.1400e-003	1.0700e-003	1.7000e-004	1.2300e-003	0.0000	14.4253	14.4253	8.3000e-004	0.0000	14.4461
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.4300e-003	2.2400e-003	0.0251	7.0000e-005	7.2700e-003	5.0000e-005	7.3200e-003	1.9300e-003	5.0000e-005	1.9800e-003	0.0000	6.2229	6.2229	1.6000e-004	0.0000	6.2270
Total	**4.7900e-003**	**0.0526**	**0.0366**	**2.2000e-004**	**0.0112**	**2.2000e-004**	**0.0115**	**3.0000e-003**	**2.2000e-004**	**3.2100e-003**	**0.0000**	**20.6482**	**20.6482**	**9.9000e-004**	**0.0000**	**20.6731**

3.3 Phase 2 - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0537	0.4895	0.5871	1.0600e-003		0.0259	0.0259		0.0245	0.0245	0.0000	92.3971	92.3971	0.0215	0.0000	92.9351
Paving	4.6600e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0584**	**0.4895**	**0.5871**	**1.0600e-003**		**0.0259**	**0.0259**		**0.0245**	**0.0245**	**0.0000**	**92.3971**	**92.3971**	**0.0215**	**0.0000**	**92.9351**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	4.0000e-004	0.0143	3.4200e-003	5.0000e-005	3.4200e-003	5.0000e-005	3.4700e-003	8.7000e-004	4.0000e-005	9.1000e-004	0.0000	4.4264	4.4264	2.5000e-004	0.0000	4.4328
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.0000e-003	6.3000e-004	7.1500e-003	2.0000e-005	2.2600e-003	2.0000e-005	2.2700e-003	6.0000e-004	1.0000e-005	6.1000e-004	0.0000	1.8637	1.8637	5.0000e-005	0.0000	1.8648
Total	**1.4000e-003**	**0.0150**	**0.0106**	**7.0000e-005**	**5.6800e-003**	**7.0000e-005**	**5.7400e-003**	**1.4700e-003**	**5.0000e-005**	**1.5200e-003**	**0.0000**	**6.2901**	**6.2901**	**3.0000e-004**	**0.0000**	**6.2976**

3.3 Phase 2 - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0537	0.4895	0.5871	1.0600e-003		0.0259	0.0259		0.0245	0.0245	0.0000	92.3970	92.3970	0.0215	0.0000	92.9350
Paving	4.6600e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0584**	**0.4895**	**0.5871**	**1.0600e-003**		**0.0259**	**0.0259**		**0.0245**	**0.0245**	**0.0000**	**92.3970**	**92.3970**	**0.0215**	**0.0000**	**92.9350**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	4.0000e-004	0.0143	3.4200e-003	5.0000e-005	3.4200e-003	5.0000e-005	3.4700e-003	8.7000e-004	4.0000e-005	9.1000e-004	0.0000	4.4264	4.4264	2.5000e-004	0.0000	4.4328
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.0000e-003	6.3000e-004	7.1500e-003	2.0000e-005	2.2600e-003	2.0000e-005	2.2700e-003	6.0000e-004	1.0000e-005	6.1000e-004	0.0000	1.8637	1.8637	5.0000e-005	0.0000	1.8648
Total	**1.4000e-003**	**0.0150**	**0.0106**	**7.0000e-005**	**5.6800e-003**	**7.0000e-005**	**5.7400e-003**	**1.4700e-003**	**5.0000e-005**	**1.5200e-003**	**0.0000**	**6.2901**	**6.2901**	**3.0000e-004**	**0.0000**	**6.2976**

3.4 Phase 3 - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1601	1.4349	1.8598	3.3700e-003		0.0736	0.0736		0.0696	0.0696	0.0000	293.0990	293.0990	0.0678	0.0000	294.7950
Paving	0.0197					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.1798**	**1.4349**	**1.8598**	**3.3700e-003**		**0.0736**	**0.0736**		**0.0696**	**0.0696**	**0.0000**	**293.0990**	**293.0990**	**0.0678**	**0.0000**	**294.7950**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	6.4000e-004	0.0234	6.5500e-003	9.0000e-005	2.1100e-003	5.0000e-005	2.1600e-003	5.8000e-004	5.0000e-005	6.3000e-004	0.0000	9.1118	9.1118	5.0000e-004	0.0000	9.1243
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.9500e-003	1.7800e-003	0.0208	6.0000e-005	7.1600e-003	5.0000e-005	7.2100e-003	1.9000e-003	4.0000e-005	1.9500e-003	0.0000	5.6872	5.6872	1.3000e-004	0.0000	5.6905
Total	**3.5900e-003**	**0.0251**	**0.0274**	**1.5000e-004**	**9.2700e-003**	**1.0000e-004**	**9.3700e-003**	**2.4800e-003**	**9.0000e-005**	**2.5800e-003**	**0.0000**	**14.7990**	**14.7990**	**6.3000e-004**	**0.0000**	**14.8148**

3.4 Phase 3 - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1601	1.4349	1.8598	3.3700e-003		0.0736	0.0736		0.0696	0.0696	0.0000	293.0986	293.0986	0.0678	0.0000	294.7947
Paving	0.0197					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.1798**	**1.4349**	**1.8598**	**3.3700e-003**		**0.0736**	**0.0736**		**0.0696**	**0.0696**	**0.0000**	**293.0986**	**293.0986**	**0.0678**	**0.0000**	**294.7947**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	6.4000e-004	0.0234	6.5500e-003	9.0000e-005	2.1100e-003	5.0000e-005	2.1600e-003	5.8000e-004	5.0000e-005	6.3000e-004	0.0000	9.1118	9.1118	5.0000e-004	0.0000	9.1243
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.9500e-003	1.7800e-003	0.0208	6.0000e-005	7.1600e-003	5.0000e-005	7.2100e-003	1.9000e-003	4.0000e-005	1.9500e-003	0.0000	5.6872	5.6872	1.3000e-004	0.0000	5.6905
Total	**3.5900e-003**	**0.0251**	**0.0274**	**1.5000e-004**	**9.2700e-003**	**1.0000e-004**	**9.3700e-003**	**2.4800e-003**	**9.0000e-005**	**2.5800e-003**	**0.0000**	**14.7990**	**14.7990**	**6.3000e-004**	**0.0000**	**14.8148**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Other Asphalt Surfaces	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Other Asphalt Surfaces	10.00	5.00	6.50	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Other Asphalt Surfaces	0.555851	0.039752	0.205040	0.120748	0.020349	0.005402	0.018507	0.022668	0.002052	0.002157	0.005939	0.000618	0.000915

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0513	0.0000	1.9000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	3.7000e-004	3.7000e-004	0.0000	0.0000	4.0000e-004
Unmitigated	0.0513	0.0000	1.9000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	3.7000e-004	3.7000e-004	0.0000	0.0000	4.0000e-004

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	9.0900e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0422					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	2.0000e-005	0.0000	1.9000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	3.7000e-004	3.7000e-004	0.0000	0.0000	4.0000e-004
Total	**0.0514**	**0.0000**	**1.9000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**3.7000e-004**	**3.7000e-004**	**0.0000**	**0.0000**	**4.0000e-004**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	9.0900e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0422					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	2.0000e-005	0.0000	1.9000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	3.7000e-004	3.7000e-004	0.0000	0.0000	4.0000e-004
Total	**0.0514**	**0.0000**	**1.9000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**3.7000e-004**	**3.7000e-004**	**0.0000**	**0.0000**	**4.0000e-004**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Franklin Complete Street Project - Construction Emission Only

Sacramento Metropolitan AQMD Air District, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Asphalt Surfaces	15.00	Acre	15.00	653,400.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	3.5	**Precipitation Freq (Days)**	58
Climate Zone	6			**Operational Year**	2021
Utility Company	Sacramento Municipal Utility District				
CO2 Intensity (lb/MWhr)	590.31	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use -

Construction Phase - Assumed construction phasing

Off-road Equipment -

Trips and VMT - Assumed work and haul trips

Grading -

Off-road Equipment - Assumed construction equipment

Off-road Equipment - Assumed Construction Equipment

Off-road Equipment - Assumed construction equipment

Franklin Complete Street Project - Construction Emission Only - Sacramento Metropolitan AQMD Air District, Summer

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	20.00	129.00
tblConstructionPhase	NumDays	20.00	173.00
tblConstructionPhase	NumDays	20.00	130.00
tblOffRoadEquipment	LoadFactor	0.38	0.38
tblOffRoadEquipment	LoadFactor	0.37	0.37
tblOffRoadEquipment	LoadFactor	0.50	0.50
tblOffRoadEquipment	LoadFactor	0.50	0.50
tblOffRoadEquipment	LoadFactor	0.46	0.46
tblOffRoadEquipment	LoadFactor	0.38	0.38
tblOffRoadEquipment	LoadFactor	0.37	0.37
tblOffRoadEquipment	LoadFactor	0.50	0.50
tblOffRoadEquipment	LoadFactor	0.50	0.50
tblOffRoadEquipment	LoadFactor	0.46	0.46
tblOffRoadEquipment	OffRoadEquipmentType		Excavators
tblOffRoadEquipment	OffRoadEquipmentType		Skid Steer Loaders
tblOffRoadEquipment	OffRoadEquipmentType		Cement and Mortar Mixers
tblOffRoadEquipment	OffRoadEquipmentType		Bore/Drill Rigs
tblOffRoadEquipment	OffRoadEquipmentType		Air Compressors
tblOffRoadEquipment	OffRoadEquipmentType		Generator Sets
tblOffRoadEquipment	OffRoadEquipmentType		Pumps
tblOffRoadEquipment	OffRoadEquipmentType		Trenchers
tblOffRoadEquipment	OffRoadEquipmentType		Sweepers/Scrubbers
tblOffRoadEquipment	OffRoadEquipmentType		Excavators
tblOffRoadEquipment	OffRoadEquipmentType		Skid Steer Loaders
tblOffRoadEquipment	OffRoadEquipmentType		Cement and Mortar Mixers
tblOffRoadEquipment	OffRoadEquipmentType		Bore/Drill Rigs

tblOffRoadEquipment	OffRoadEquipmentType		Air Compressors
tblOffRoadEquipment	OffRoadEquipmentType		Generator Sets
tblOffRoadEquipment	OffRoadEquipmentType		Pumps
tblOffRoadEquipment	OffRoadEquipmentType		Trenchers
tblOffRoadEquipment	OffRoadEquipmentType		Sweepers/Scrubbers
tblOffRoadEquipment	OffRoadEquipmentType		Excavators
tblOffRoadEquipment	OffRoadEquipmentType		Skid Steer Loaders
tblOffRoadEquipment	OffRoadEquipmentType		Cement and Mortar Mixers
tblOffRoadEquipment	OffRoadEquipmentType		Bore/Drill Rigs
tblOffRoadEquipment	OffRoadEquipmentType		Air Compressors
tblOffRoadEquipment	OffRoadEquipmentType		Generator Sets
tblOffRoadEquipment	OffRoadEquipmentType		Pumps
tblOffRoadEquipment	OffRoadEquipmentType		Trenchers
tblOffRoadEquipment	OffRoadEquipmentType		Sweepers/Scrubbers
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblTripsAndVMT	HaulingTripNumber	0.00	250.00
tblTripsAndVMT	HaulingTripNumber	0.00	500.00
tblTripsAndVMT	HaulingTripNumber	0.00	250.00
tblTripsAndVMT	WorkerTripNumber	30.00	15.00

tblTripsAndVMT	WorkerTripNumber	30.00	15.00
tblTripsAndVMT	WorkerTripNumber	30.00	15.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2021	3.2685	27.7767	29.4106	0.0553	0.1762	1.4712	1.6474	0.0469	1.3924	1.4393	0.0000	5,324.0143	5,324.0143	1.1790	0.0000	5,353.4904
2022	2.9223	24.5808	29.2154	0.0552	0.2874	1.2666	1.5540	0.0742	1.1994	1.2736	0.0000	5,318.7445	5,318.7445	1.1734	0.0000	5,348.0786
2023	2.8282	22.4505	29.0909	0.0544	0.1475	1.1333	1.2809	0.0394	1.0725	1.1119	0.0000	5,232.7873	5,232.7873	1.1613	0.0000	5,261.8193
Maximum	**3.2685**	**27.7767**	**29.4106**	**0.0553**	**0.2874**	**1.4712**	**1.6474**	**0.0742**	**1.3924**	**1.4393**	**0.0000**	**5,324.0143**	**5,324.0143**	**1.1790**	**0.0000**	**5,353.4904**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2021	3.2685	27.7767	29.4106	0.0553	0.1762	1.4712	1.6474	0.0469	1.3924	1.4393	0.0000	5,324.0143	5,324.0143	1.1790	0.0000	5,353.4904
2022	2.9223	24.5808	29.2154	0.0552	0.2874	1.2666	1.5540	0.0742	1.1994	1.2736	0.0000	5,318.7445	5,318.7445	1.1734	0.0000	5,348.0786
2023	2.8282	22.4505	29.0909	0.0544	0.1475	1.1333	1.2809	0.0394	1.0725	1.1119	0.0000	5,232.7873	5,232.7873	1.1613	0.0000	5,261.8193
Maximum	**3.2685**	**27.7767**	**29.4106**	**0.0553**	**0.2874**	**1.4712**	**1.6474**	**0.0742**	**1.3924**	**1.4393**	**0.0000**	**5,324.0143**	**5,324.0143**	**1.1790**	**0.0000**	**5,353.4904**

Franklin Complete Street Project - Construction Emission Only - Sacramento Metropolitan AQMD Air District, Summer

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.2814	1.0000e-005	1.5400e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		3.2800e-003	3.2800e-003	1.0000e-005		3.5000e-003
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.2814**	**1.0000e-005**	**1.5400e-003**	**0.0000**	**0.0000**	**1.0000e-005**	**1.0000e-005**	**0.0000**	**1.0000e-005**	**1.0000e-005**		**3.2800e-003**	**3.2800e-003**	**1.0000e-005**	**0.0000**	**3.5000e-003**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.2814	1.0000e-005	1.5400e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		3.2800e-003	3.2800e-003	1.0000e-005		3.5000e-003
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.2814**	**1.0000e-005**	**1.5400e-003**	**0.0000**	**0.0000**	**1.0000e-005**	**1.0000e-005**	**0.0000**	**1.0000e-005**	**1.0000e-005**		**3.2800e-003**	**3.2800e-003**	**1.0000e-005**	**0.0000**	**3.5000e-003**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Phase 1	Paving	1/1/2021	6/30/2021	5	129	
2	Phase 2	Paving	7/1/2021	2/28/2022	5	173	
3	Phase 3	Paving	1/1/2023	6/30/2023	5	130	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 15

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Phase 1	Pavers	1	8.00	130	0.42
Phase 1	Paving Equipment	1	8.00	132	0.36
Phase 1	Rollers	1	8.00	80	0.38
Phase 2	Pavers	1	8.00	130	0.42
Phase 2	Paving Equipment	1	8.00	132	0.36
Phase 2	Rollers	1	8.00	80	0.38
Phase 1	Excavators	1	8.00	158	0.38

Phase 1	Skid Steer Loaders	1	8.00	65	0.37
Phase 1	Cement and Mortar Mixers	1	8.00	9	0.56
Phase 1	Bore/Drill Rigs	1	8.00	221	0.50
Phase 1	Air Compressors	1	8.00	78	0.48
Phase 1	Generator Sets	1	8.00	84	0.74
Phase 1	Pumps	1	8.00	84	0.74
Phase 1	Trenchers	1	8.00	78	0.50
Phase 1	Sweepers/Scrubbers	1	8.00	64	0.46
Phase 3	Pavers	1	8.00	130	0.42
Phase 3	Paving Equipment	1	8.00	132	0.36
Phase 3	Rollers	1	8.00	80	0.38
Phase 2	Excavators	1	8.00	158	0.38
Phase 2	Skid Steer Loaders	1	8.00	65	0.37
Phase 2	Cement and Mortar Mixers	1	8.00	9	0.56
Phase 2	Bore/Drill Rigs	1	8.00	221	0.50
Phase 2	Air Compressors	1	8.00	78	0.48
Phase 2	Generator Sets	1	8.00	84	0.74
Phase 2	Pumps	1	8.00	84	0.74
Phase 2	Trenchers	1	8.00	78	0.50
Phase 2	Sweepers/Scrubbers	1	8.00	64	0.46
Phase 3	Excavators	1	8.00	158	0.38
Phase 3	Skid Steer Loaders	1	8.00	65	0.37
Phase 3	Cement and Mortar Mixers	1	8.00	9	0.56
Phase 3	Bore/Drill Rigs	1	8.00	221	0.50
Phase 3	Air Compressors	1	8.00	78	0.48
Phase 3	Generator Sets	1	8.00	84	0.74
Phase 3	Pumps	1	8.00	84	0.74

Phase 3	Trenchers	1	8.00	78	0.50
Phase 3	Sweepers/Scrubbers	1	8.00	64	0.46

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Phase 1	12	15.00	0.00	250.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Phase 2	12	15.00	0.00	500.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Phase 3	12	15.00	0.00	250.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Phase 1 - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.8901	26.9886	28.7768	0.0518		1.4672	1.4672		1.3886	1.3886		4,961.0077	4,961.0077	1.1606		4,990.0216
Paving	0.3047					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**3.1948**	**26.9886**	**28.7768**	**0.0518**		**1.4672**	**1.4672**		**1.3886**	**1.3886**		**4,961.0077**	**4,961.0077**	**1.1606**		**4,990.0216**

3.2 Phase 1 - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0136	0.4946	0.1138	1.5200e-003	0.0337	1.7300e-003	0.0354	9.2200e-003	1.6500e-003	0.0109		162.6100	162.6100	9.1500e-003		162.8387
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0601	0.0308	0.4487	1.1500e-003	0.1141	7.7000e-004	0.1149	0.0303	7.1000e-004	0.0310		114.9719	114.9719	3.0600e-003		115.0483
Total	**0.0738**	**0.5253**	**0.5625**	**2.6700e-003**	**0.1478**	**2.5000e-003**	**0.1503**	**0.0395**	**2.3600e-003**	**0.0419**		**277.5819**	**277.5819**	**0.0122**		**277.8871**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.8901	26.9886	28.7768	0.0518		1.4672	1.4672		1.3886	1.3886	0.0000	4,961.0077	4,961.0077	1.1606		4,990.0216
Paving	0.3047					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**3.1948**	**26.9886**	**28.7768**	**0.0518**		**1.4672**	**1.4672**		**1.3886**	**1.3886**	**0.0000**	**4,961.0077**	**4,961.0077**	**1.1606**		**4,990.0216**

3.2 Phase 1 - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0136	0.4946	0.1138	1.5200e-003	0.0337	1.7300e-003	0.0354	9.2200e-003	1.6500e-003	0.0109		162.6100	162.6100	9.1500e-003		162.8387
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0601	0.0308	0.4487	1.1500e-003	0.1141	7.7000e-004	0.1149	0.0303	7.1000e-004	0.0310		114.9719	114.9719	3.0600e-003		115.0483
Total	**0.0738**	**0.5253**	**0.5625**	**2.6700e-003**	**0.1478**	**2.5000e-003**	**0.1503**	**0.0395**	**2.3600e-003**	**0.0419**		**277.5819**	**277.5819**	**0.0122**		**277.8871**

3.3 Phase 2 - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.8920	27.0083	28.7922	0.0519		1.4678	1.4678		1.3892	1.3892		4,966.5373	4,966.5373	1.1623		4,995.5959
Paving	0.2272					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**3.1191**	**27.0083**	**28.7922**	**0.0519**		**1.4678**	**1.4678**		**1.3892**	**1.3892**		**4,966.5373**	**4,966.5373**	**1.1623**		**4,995.5959**

3.3 Phase 2 - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0203	0.7376	0.1697	2.2600e-003	0.0621	2.5800e-003	0.0647	0.0167	2.4600e-003	0.0191		242.5052	242.5052	0.0136		242.8462
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0601	0.0308	0.4487	1.1500e-003	0.1141	7.7000e-004	0.1149	0.0303	7.1000e-004	0.0310		114.9719	114.9719	3.0600e-003		115.0483
Total	**0.0805**	**0.7683**	**0.6184**	**3.4100e-003**	**0.1762**	**3.3500e-003**	**0.1796**	**0.0469**	**3.1700e-003**	**0.0501**		**357.4770**	**357.4770**	**0.0167**		**357.8946**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.8920	27.0083	28.7922	0.0519		1.4678	1.4678		1.3892	1.3892	0.0000	4,966.5373	4,966.5373	1.1623		4,995.5959
Paving	0.2272					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**3.1191**	**27.0083**	**28.7922**	**0.0519**		**1.4678**	**1.4678**		**1.3892**	**1.3892**	**0.0000**	**4,966.5373**	**4,966.5373**	**1.1623**		**4,995.5959**

3.3 Phase 2 - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0203	0.7376	0.1697	2.2600e-003	0.0621	2.5800e-003	0.0647	0.0167	2.4600e-003	0.0191		242.5052	242.5052	0.0136		242.8462
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0601	0.0308	0.4487	1.1500e-003	0.1141	7.7000e-004	0.1149	0.0303	7.1000e-004	0.0310		114.9719	114.9719	3.0600e-003		115.0483
Total	**0.0805**	**0.7683**	**0.6184**	**3.4100e-003**	**0.1762**	**3.3500e-003**	**0.1796**	**0.0469**	**3.1700e-003**	**0.0501**		**357.4770**	**357.4770**	**0.0167**		**357.8946**

3.3 Phase 2 - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.6200	23.8763	28.6396	0.0519		1.2636	1.2636		1.1966	1.1966		4,968.3084	4,968.3084	1.1572		4,997.2387
Paving	0.2272					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**2.8471**	**23.8763**	**28.6396**	**0.0519**		**1.2636**	**1.2636**		**1.1966**	**1.1966**		**4,968.3084**	**4,968.3084**	**1.1572**		**4,997.2387**

3.3 Phase 2 - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0191	0.6768	0.1626	2.2300e-003	0.1733	2.2100e-003	0.1755	0.0440	2.1200e-003	0.0461		239.5875	239.5875	0.0134		239.9225
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0561	0.0277	0.4133	1.1100e-003	0.1141	7.5000e-004	0.1149	0.0303	6.9000e-004	0.0310		110.8487	110.8487	2.7500e-003		110.9174
Total	**0.0752**	**0.7045**	**0.5758**	**3.3400e-003**	**0.2874**	**2.9600e-003**	**0.2903**	**0.0742**	**2.8100e-003**	**0.0770**		**350.4362**	**350.4362**	**0.0162**		**350.8399**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.6200	23.8763	28.6396	0.0519		1.2636	1.2636		1.1966	1.1966	0.0000	4,968.3084	4,968.3084	1.1572		4,997.2387
Paving	0.2272					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**2.8471**	**23.8763**	**28.6396**	**0.0519**		**1.2636**	**1.2636**		**1.1966**	**1.1966**	**0.0000**	**4,968.3084**	**4,968.3084**	**1.1572**		**4,997.2387**

3.3 Phase 2 - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0191	0.6768	0.1626	2.2300e-003	0.1733	2.2100e-003	0.1755	0.0440	2.1200e-003	0.0461		239.5875	239.5875	0.0134		239.9225
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0561	0.0277	0.4133	1.1100e-003	0.1141	7.5000e-004	0.1149	0.0303	6.9000e-004	0.0310		110.8487	110.8487	2.7500e-003		110.9174
Total	**0.0752**	**0.7045**	**0.5758**	**3.3400e-003**	**0.2874**	**2.9600e-003**	**0.2903**	**0.0742**	**2.8100e-003**	**0.0770**		**350.4362**	**350.4362**	**0.0162**		**350.8399**

3.4 Phase 3 - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.4637	22.0759	28.6120	0.0519		1.1318	1.1318		1.0710	1.0710		4,970.5590	4,970.5590	1.1505		4,999.3209
Paving	0.3023					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**2.7660**	**22.0759**	**28.6120**	**0.0519**		**1.1318**	**1.1318**		**1.0710**	**1.0710**		**4,970.5590**	**4,970.5590**	**1.1505**		**4,999.3209**

3.4 Phase 3 - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	9.6900e-003	0.3496	0.0985	1.4500e-003	0.0334	7.9000e-004	0.0342	9.1500e-003	7.6000e-004	9.9000e-003		155.5471	155.5471	8.3400e-003		155.7555
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0525	0.0249	0.3804	1.0700e-003	0.1141	7.3000e-004	0.1148	0.0303	6.7000e-004	0.0309		106.6812	106.6812	2.4700e-003		106.7429
Total	**0.0621**	**0.3745**	**0.4789**	**2.5200e-003**	**0.1475**	**1.5200e-003**	**0.1491**	**0.0394**	**1.4300e-003**	**0.0408**		**262.2283**	**262.2283**	**0.0108**		**262.4984**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.4637	22.0759	28.6120	0.0519		1.1318	1.1318		1.0710	1.0710	0.0000	4,970.5590	4,970.5590	1.1505		4,999.3209
Paving	0.3023					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**2.7660**	**22.0759**	**28.6120**	**0.0519**		**1.1318**	**1.1318**		**1.0710**	**1.0710**	**0.0000**	**4,970.5590**	**4,970.5590**	**1.1505**		**4,999.3209**

3.4 Phase 3 - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	9.6900e-003	0.3496	0.0985	1.4500e-003	0.0334	7.9000e-004	0.0342	9.1500e-003	7.6000e-004	9.9000e-003		155.5471	155.5471	8.3400e-003		155.7555
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0525	0.0249	0.3804	1.0700e-003	0.1141	7.3000e-004	0.1148	0.0303	6.7000e-004	0.0309		106.6812	106.6812	2.4700e-003		106.7429
Total	**0.0621**	**0.3745**	**0.4789**	**2.5200e-003**	**0.1475**	**1.5200e-003**	**0.1491**	**0.0394**	**1.4300e-003**	**0.0408**		**262.2283**	**262.2283**	**0.0108**		**262.4984**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Other Asphalt Surfaces	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Other Asphalt Surfaces	10.00	5.00	6.50	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Other Asphalt Surfaces	0.555851	0.039752	0.205040	0.120748	0.020349	0.005402	0.018507	0.022668	0.002052	0.002157	0.005939	0.000618	0.000915

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.2814	1.0000e-005	1.5400e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		3.2800e-003	3.2800e-003	1.0000e-005		3.5000e-003
Unmitigated	0.2814	1.0000e-005	1.5400e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		3.2800e-003	3.2800e-003	1.0000e-005		3.5000e-003

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0498					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.2314					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.4000e-004	1.0000e-005	1.5400e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		3.2800e-003	3.2800e-003	1.0000e-005		3.5000e-003
Total	**0.2814**	**1.0000e-005**	**1.5400e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**		**3.2800e-003**	**3.2800e-003**	**1.0000e-005**		**3.5000e-003**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0498					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.2314					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.4000e-004	1.0000e-005	1.5400e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		3.2800e-003	3.2800e-003	1.0000e-005		3.5000e-003
Total	**0.2814**	**1.0000e-005**	**1.5400e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**		**3.2800e-003**	**3.2800e-003**	**1.0000e-005**		**3.5000e-003**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Franklin Boulevard
Complete Street Project

Initial Site Assessment

Franklin Boulevard Complete Street Project
Sacramento, California
Federal Project No. CML 5002-190

March 2018

City of
SACRAMENTO
Department of Public Works

This page intentionally left blank

TABLE OF CONTENTS

Franklin Boulevard Complete Street Initial Site Assessment

Page

1.0 Executive Summary 1

2.0 Introduction 3
2.1 Purpose, Standards, and Definitions 3
2.2 Scope of Services 5
2.3 Limitations and Exceptions 6

3.0 Site Description 7
3.1 General Setting and Location 7
3.2 Proposed Project 7

4.0 Records Review 11
4.1 Results of Database Search 11
4.2 Other Records Reviewed 14
Historical Aerial Photographs 15
Historical Topographic Maps 16
City Directories 16
4.3 Physical Setting 18
Topography and Flood Zone 18
Geology and Seismicity 19

5.0 21Site Reconnaissance 21

6.0 Findings and Opinions 29
6.1 Findings and Opinions 29
6.2 Data Gaps 29

7.0 Report Authors and Qualifications 31

8.0 References 33

Appendices

A. Preliminary Radius Report
B. Historical Aerial Photographs, Historical Topographic Maps, and City Directories

Figures and Drawings

Figure 1 Regional Location 8
Figure 2 Project Vicinity 9
Figure 3 Hazard Materials Sites 13

This page intentionally left blank

SECTION 1.0
Executive Summary

This Initial Site Assessment (ISA) was conducted on behalf of the City of Sacramento, Caltrans, and Bennett Engineering for the Franklin Boulevard Complete Street Project (project) located in Sacramento, Sacramento County, California. The project is located on Franklin Boulevard and extends from 11th to 41st Avenue. The proposed project would include road rehabilitation with an approximate depth of 12 inches, curb and gutter replacement, a reduction from four through traffic lanes to two through traffic lanes, the addition of bicycle facilities and sidewalks, American Disabilities Act (ADA) compliant curb ramps, stormwater planters, drainage improvements, and the addition of turn pockets along Franklin Boulevard within the project limits. Sidewalks would be constructed throughout and landscaped planters would be included where feasible. In addition, the project would replace existing street lights, install new street lights, and modify existing traffic signals.

This ISA was conducted to identify Recognized Environmental Conditions (RECs) for the project site that may adversely affect construction. This ISA was conducted in general conformance with the scope and limitations of the American Society for Testing and Materials (ASTM) Standard Practice E 1527-13, and includes a summary of the site reconnaissance conducted on February 7, 2018, a review of regulatory agency databases, and a review of historical data sources. The following RECs and Historical Recognized Environmental Conditions (HRECs) were identified:

- At least 19 service stations, 39 auto repair shops, 7 auto body paint shops, 2 printers, 3 refrigeration repair service shops, and 3 dry cleaners/dyers were observed or have records of existence along both sides of Franklin Boulevard within the project footprint. Many of the properties have no records regarding the status of Underground Storage Tank(s) (UST(s)) or historical spills. In addition, a recorded waste oil spill at 23rd Avenue and Franklin Boulevard has no recorded details on the extent or cleanup, if any. Given the long history of commercial and industrial use along most of Franklin Boulevard, especially the service stations and auto repair shops, excavation contractors should be prepared to encounter soil contaminated with fuel and/or oil, and possibly other chemicals, almost anywhere along the project footprint. **This condition is considered a REC**.

- The Cronin Property has regulatory records of the removal of USTs and contaminated soil. Residual levels of fuel or motor oil may be present in soil at concentrations below regulatory cleanup standards. **This condition is considered a HREC**.

No other evidence of materials or equipment suggesting spoils of hazardous materials or waste, discolored soil or water due to chemical spills, stressed vegetation due to chemical spills, pits, ponds, or lagoons were observed within or adjacent to the proposed project footprint during the site reconnaissance.

ESA attempted to obtain reasonably ascertainable information for properties within the project footprint the site and the surrounding environs within the limited scope of work. The following data gap was identified that affects the identification of RECs, HRECs, or Controlled Recognized Environmental Conditions (CRECs):

- Many of the service stations and auto shops have no records regarding the status of the UST(s) or historical spills because they predate the establishment of regulatory oversight in the 1970s. This condition results in uncertainty as to whether excavation contractors will encounter soil contaminated with fuel and/or motor oil

SECTION 2.0
Introduction

2.1 Purpose, Standards, and Definitions

Environmental Science Associates (ESA) conducted this Initial Site Assessment (ISA) for the Franklin Boulevard Complete Street (project) located in the City of Sacramento, Sacramento County, California.

This ISA uses relevant guidance from the Caltrans *Standard Environmental Reference, Volume 1 Guidance for Compliance, Section 3 Topics, Chapter 10 - Hazardous Materials, Hazardous Waste, and Contamination, Initial Site Assessment*, last updated June 21, 2016, and the American Society of Testing and Materials (ASTM) *Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process* (ASTM E1527-13). This ISA is focused on and limited to identifying potential contamination sources or issues at or within 1/8 mile of the project site because of the limited footprint of the proposed project activities.

Recognized environmental conditions include three types and are defined by the ASTM E1527-13, as listed below. The term Recognized Environmental Condition (REC) means:

> "The presence or likely presence of any hazardous substances or petroleum products in, on, or at a property: (1) due to any release to the environment; (2) under conditions indicative of a release to the environment; or (3) under conditions that pose a material threat of a future release to the environment."

In addition, the updated ASTM E1527-13 defined the two additional categories, Historical Recognized Environmental Condition (HREC) and Controlled Recognized Environmental Condition (CREC), as cited below.

A HREC is defined as:

> "A past release of any hazardous substances or petroleum products that has occurred in connection with the property and has been addressed to the satisfaction of the applicable regulatory authority or meeting unrestricted use criteria established by a regulatory authority, without subjecting the property to any required controls (for example, property use restrictions, activity and use limitations, institutional controls, or engineering controls). Before calling the past release a historical recognized environmental condition, the environmental professional must determine whether the past release is a recognized environmental condition at the time the Initial Site Assessment is conducted (for example, if there has been a change in the regulatory criteria). If the EP considers the past release to be a recognized environmental condition at the time the Initial Site Assessment is conducted,

> the condition shall be included in the conclusions section of the report as a recognized environmental condition."

For a past REC to be considered an HREC it must:

- Have already been remediated (or meet current standards without remediation);
- Not require use restrictions or engineering controls (e.g., cap, subslab depressurization system); and
- Meet current standards.

If the REC has use restrictions or engineering controls (e.g., cap, subslab depressurization system), then the REC may be designated as a CREC, as defined below. Unlike HRECs, a CREC will be listed in the conclusions section of the Phase I assessment, along with other RECs. The purpose of this new category is to bring continuing obligations such as use restrictions, maintenance requirements, reporting requirements to the forefront. CREC is defined as:

> "A recognized environmental condition resulting from a past release of hazardous substances or petroleum products that has been addressed to the satisfaction of the applicable regulatory authority (for example, as evidenced by the issuance of a no further action letter or equivalent, or meeting risk-based criteria established by regulatory authority), with hazardous substances or petroleum products allowed to remain in place subject to the implementation of required controls (for example, property use restrictions, activity and use limitations, institutional controls, or engineering controls). A condition considered by the environmental professional to be a controlled recognized environmental condition shall be listed in the findings section of the Initial Site Assessment report, and as a recognized environmental condition in the conclusions section of the Initial Site Assessment report."

RECs, HRECs, and CRECs are not intended to include de minimis conditions that generally do not present a material risk of harm to public health or the environment and that generally would not be the subject of an enforcement action if brought to the attention of appropriate governmental agencies.

In addition, for potential environmental issues that do not rise to the level of a REC, HREC, CREC, or di minimus condition, ASTM 1527-13 defines a "business environmental risk" as:

> "A risk which can have a material environmental or environmentally-driven impact on the business associated with the current or planned use of a parcel of commercial real estate, not necessarily limited to those environmental issues required to be investigated in this practice [ASTM 1527-13]. Consideration of business environmental risk issues may involve addressing one or more non-scope considerations."

2.2 Scope of Services

The following describes the scope of services for this ISA:

Section 2, *Introduction, Standards, and Definitions*, includes a discussion of the purpose for performing the ISA; the standards and definitions used for the ISA; and the significant assumptions and limitations.

Section 3, *Site Description*, compiles information concerning the location, current and proposed use, a description of any structures and improvements at the time of ESA's assessment, and adjoining property uses.

Section 4, *Records Review*, includes ESA's review of the Cortese List databases available from the federal, state, and local regulatory agencies regarding hazardous materials use, storage, or disposal at or adjacent to the site. Applicable information is summarized and copies of relevant documents are included in the appendices of this report. Physical setting sources such as topography, geology, and seismicity are described. Historical aerial photographs and topographic maps are reviewed for indications of historical environmental conditions.

Section 5, *Site Reconnaissance* describes ESA's observations during reconnaissance of the project area. The methodology used and any limiting conditions are described herein.

Section 6, *Findings and Opinions*, presents ESA's findings and professional opinions regarding the information contained in this report. It provides ESA's conclusions regarding the presence of RECs, HRECs, and CRECs connected with the site and data gaps, if any, that could affect the recognition of RECs.

Section 7, *Report Authors and Signatures*, provides the signatures of the qualified personnel that conducted this assessment.

Section 8, *References*, is a summary of the resources used to compile this report that are not already included in the Appendices.

No interviews of site owners were conducted for this assessment because the site is a public road and does not have any operations that would use hazardous materials. Information provided in the Preliminary Environmental Study (PES) form approved October 4, 2017, was used as the interview questionnaire.

2.3 Limitations and Exceptions

No environmental site assessment can wholly eliminate uncertainty regarding the potential for RECs, HRECs, and CRECs in connection with a property. Conformance of this limited ISA with ASTM E1527-13 reduces, but does not eliminate, uncertainty regarding the potential for RECs, HRECs, and CRECs in connection with the subject property. While ESA has made every effort to discover and interpret available information regarding the site within the time available, some potential always remains for undiscovered contamination to be present. ESA's report is a best-efforts collection and interpretation of available information, and cannot be considered wholly conclusive. This report and the associated work were provided in accordance with the principles and practices generally employed by the local environmental consulting profession. This is in lieu of all warranties, expressed or implied. No other warranty is expressed or implied.

This limited ISA is based primarily on a database review and a site reconnaissance of accessible areas. This limited ISA does not include "non-scope issues" as specified by ASTM E1527-13, such as invasive[1] surveys for the presence of the following items on or in the vicinity of the subject property: asbestos-containing materials, poly-chlorinated biphenyls (PCBs), radon, indoor air quality, lead-based paint analysis, lead in drinking water, regulatory compliance, and high voltage lines.

The conclusions presented are professional opinions based solely upon indicated data described in this report, visual site and vicinity observations, and the interpretation of the available historical information and documents reviewed, as described in this report. Unless ESA has actual knowledge to the contrary, information obtained from interviews or provided to ESA is assumed to be correct and complete. ESA does not assume any liability for information that was misrepresented to ESA by others or for items not visible, accessible, or present on or at the site during the time of the site reconnaissance. The conclusions are intended exclusively for the purpose outlined herein and the site location and project indicated. Any use or reuse of this document or the findings, conclusions, or recommendations presented herein is at the sole risk of the user.

Opinions and recommendations presented herein apply to the site conditions existing at the time of this limited ISA and cannot necessarily apply to site changes of which ESA is not aware and has not had the opportunity to evaluate. Changes in the conditions of the site may occur with time due to natural processes or the works of man on the property or adjacent properties. Changes in applicable standards may also occur as a result of legislation or the broadening of knowledge. Accordingly, the findings of this report may be invalidated, wholly or in part, by changes beyond ESA's control. Opinions and judgments expressed herein are based on ESA's understanding and interpretation of current regulatory standards, and should not be construed as legal opinions.

[1] Invasive surveys include sampling of materials.

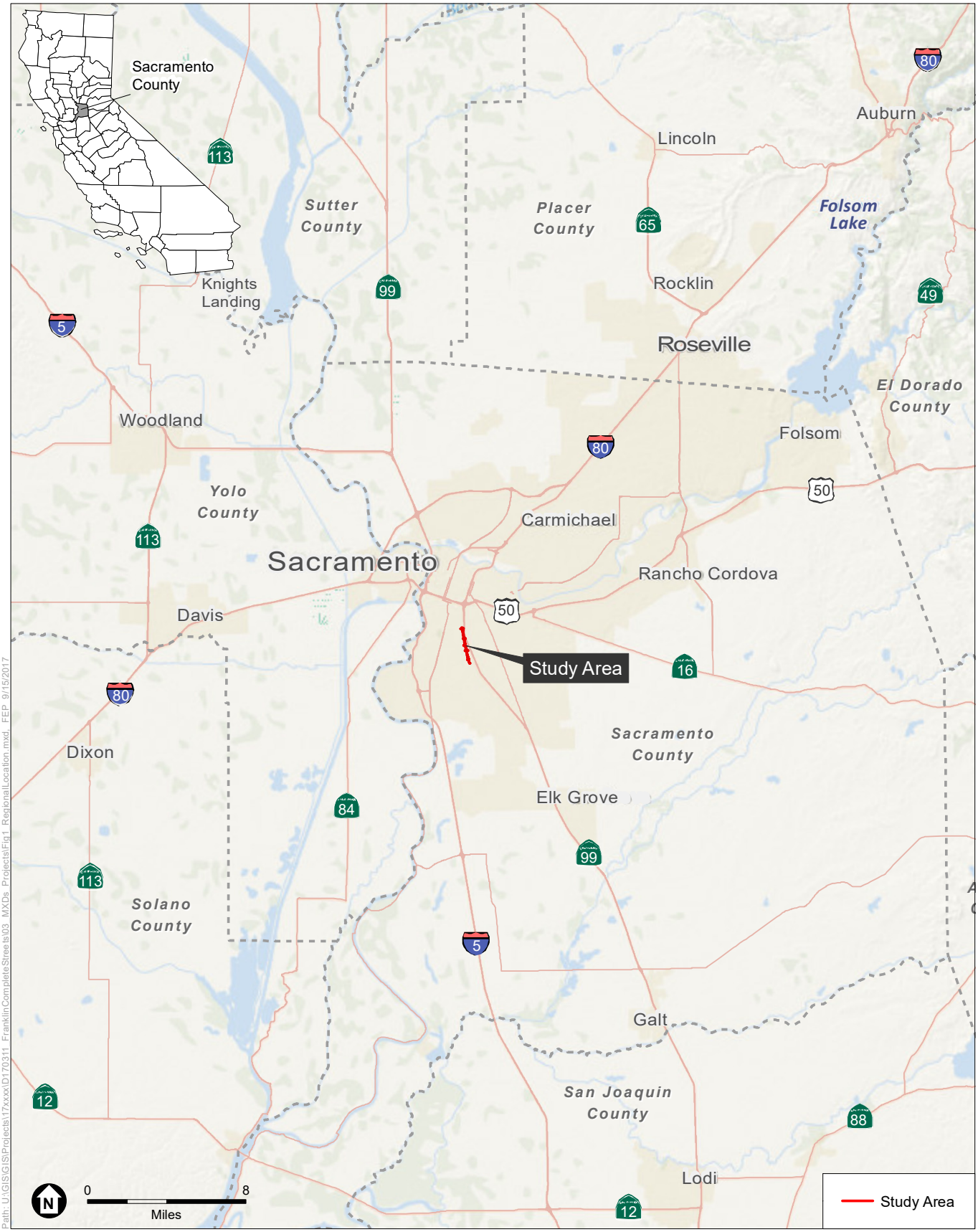
SECTION 3.0
Site Description

3.1 General Setting and Location

Franklin Boulevard is a four-lane paved road in a predominantly commercial area in the City of Sacramento in Sacramento County, California. The proposed project area is shown in **Figures 1 and 2** from the Preliminary Environmental Study (PES; City of Sacramento, 2017).

3.2 Proposed Project

The proposed project would reduce the existing four-lane road to a two-lane road in order to reconfigure the right-of-way to accommodate the multimodal and accessibility needs of the community. The footprint along Franklin Boulevard is shown on Figure 2 and includes some perpendicular improvements on some cross streets. The improvements extend from Coleman Way near 11th Avenue at the north end of the project south to 38th Avenue, with stripping extending to 41st Avenue. The proposed project would include road rehabilitation with an approximate depth of 12 inches, curb and gutter replacement, a reduction from four through traffic lanes to two through traffic lanes, the addition of bicycle facilities and sidewalks, ADA compliant curb ramps, stormwater planters, drainage improvements, and the addition of turn pockets along Franklin Boulevard within the project limits. Sidewalks would be constructed throughout and landscaped planters would be included where feasible. In addition, the project would replace existing street lights, install new street lights, and modify existing traffic signals.



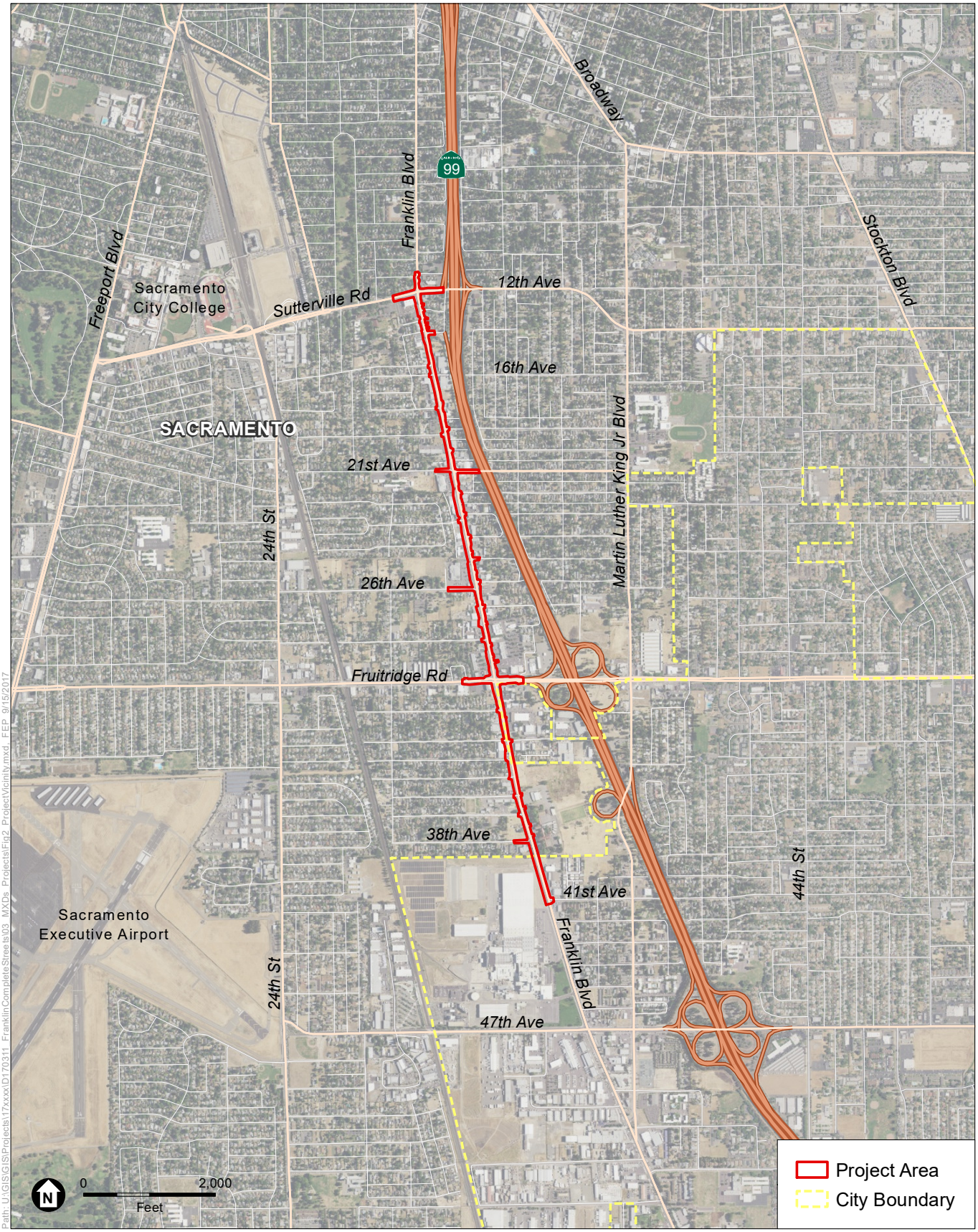
SOURCE: Esri, 2015; ESA, 2017

Franklin Boulevard Complete Street Project

Figure 1

Regional Location

ESA



SOURCE: USDA, 2016; Bennett Engineering, 2017; ESA, 2017

Franklin Boulevard Complete Street Project

Figure 2

Project Vicinity

ESA

This page intentionally left blank

SECTION 4.0
Records Review

The purpose of the records review is to obtain and examine records that could help to evaluate potential RECs, HRECs, and CRECs in connection with the proposed project. This section documents the database records search and evaluation of other records that were conducted, and describes the physical setting of the site and its immediate area.

4.1 Results of Database Search

Federal, state, and local regulatory agencies publish databases of businesses and properties that handle hazardous materials or hazardous waste, including those properties with a known release of hazardous materials to soil and/or groundwater. ESA contracted with a commercial database service to perform the regulatory agency database search for listings within the appropriate ASTM Standard minimum search distance (GeoSearch, 2018). The database search report is provided in Appendix A. In addition, ESA accessed the websites as listed below to search for site listings within 1/8-mile of the project area to update and acquire details in addition to the 2018 database search.

- State Water Resources Control Board (SWRCB) GeoTracker
- Department of Toxic Substances Control EnviroStor
- SWRCB list of active landfills with known releases
- SWRCB list of sites with active Cease and Desist Orders and Cleanup and Abatement Orders

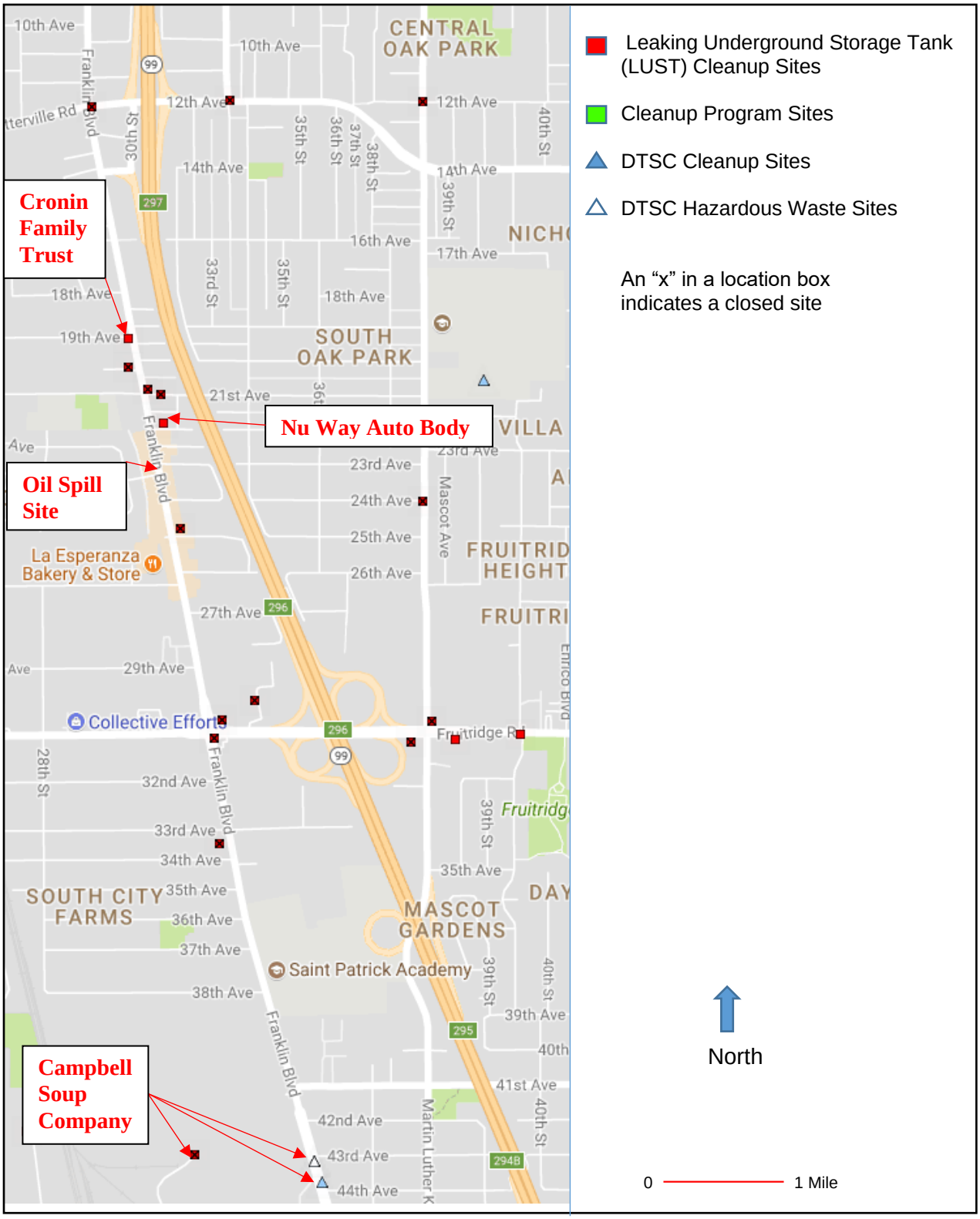
The regulatory database search listed 137 sites that are within the ASTM 1527-13 recommended search distance (see Radius Report in Appendix A). Most of the listings are for facilities that currently or previously used hazardous materials but have no recorded violations. These facilities would not be able to affect the proposed project and are not considered RECs. In addition, given that the footprint of the proposed project is limited to the street and sidewalk areas, only sites that are on or immediately adjacent to the street would have the potential to affect the proposed project. Of the 137 listed sites, the sites more likely to have used and possibly spilled hazardous materials close enough to have the potential to adversely affect the proposed project include 19 service stations, 39 auto repair shops, 7 auto body paint shops, 2 printers, 3 refrigeration repair service shops, and 3 dry cleaners/dyers (see City Directory discussion below).

Active and closed hazardous materials release sites are tracked on the GeoTracker and EnviroStor websites and are shown on **Figure 3**. Note that the tracking of hazardous materials sites began in the 1970s; sites that predate the 1970s have limited to no available information. Within or adjacent to the proposed project footprint, the listings included 3 active leaking underground storage tank (LUST) sites, 10 closed LUST sites, a waste oil spill, and one Department of Toxic Substance Control (DTSC) site just south of the footprint. The 2 active LUST sites were further researched and are recently relisted as closed, as summarized below. Although the DTSC-listed site is a bit south of the proposed project footprint, the size of this now former Campbell Soup site is large enough to be near the footprint and its current status was also researched further. The numbers below are keyed to the site list in the regulatory database search report in Appendix A.

- **1 – Campbell Soup Company** site is located at 6200 Franklin Boulevard, south of the southern end of the project footprint. This site is a former food processing facility that included a hazardous waste drum facility, along with other hazardous materials (DTSC, 1993), and a leaking underground storage tank (LUST) (SacEMD, 1995). Although the EnviroStor website map does not graphically indicate that the non-LUST case has been closed, the DTSC issued a closure certification letter dated 1993. This means that the drum facility has been closed and hazardous materials are no longer stored or used at this site. The LUST site is listed as closed with the USTs and contaminated soil having been removed in 1989, and a no further action letter issued in 1995 (SacEMD, 1995). The case closure summary listed the before and after cleanup concentrations of fuel constituents in soil and groundwater. No fuel constituents were detected above laboratory reporting limits in the after cleanup tests. This site could be considered to be an HREC as defined by ASTM 1527-13. However, because no residual levels of gasoline in soil have been left in place, this site is not considered to be a REC or a HREC.

- **2 – A waste oil spill** occurred on February 23, 1993, at 23rd Avenue and Franklin Boulevard. No details or further information have been reported. The 1993 GoogleEarth aerial photograph indicates that the intersection was in its current configuration with paved streets and concrete sidewalks and gutters. No further information was available. Although the paved nature of the street reduces the potential for oil to have seeped into soil beneath the pavement, this site is still considered a REC given the lack of information.

- **38 – Cronin Family Trust** site is a LUST site at 4414 Franklin Boulevard that was recently issued a closure letter from the State Water Resources Control Board (SWRCB, 2016). This site is currently a parking lot landscaped with cactus, palm trees, and grass, as observed during the site reconnaissance discussed further below. The site was formerly a commercial gasoline service station. Two USTs and approximately 224 cubic yards of contaminated soil were removed from the site. A soil vapor extraction/air sparge (SVE/AS) treatment system removed 22,295 pounds of total petroleum hydrocarbons as gasoline (TPHg). The SWRCB issued a closure review summary report in 2016 recommending site closure and will issue a no further action letter after abandonment of site monitoring and extraction wells. Note that the case closure is based on the state's Low-Threat UST Case Closure Policy. This means that concentrations of gasoline and its constituents below regulatory screening levels have been left in place. These low concentrations are not anticipated to pose a risk to the public or to groundwater and are expected to naturally degrade over time. This also means that excavation near this site may encounter soil with some residual levels of gasoline. The pending closed status indicates that the contamination has been addressed to the satisfaction of the SWRCB and this facility is no longer considered a REC. This site is considered to be an HREC as defined by ASTM 1527-13 because residual levels of gasoline in soil have been left in place.



Franklin Boulevard Complete Street Project. 170311

SOURCE: SWRCB, 2018; DTSC, 2018

Figure 3
Hazard Materials Sites

- **87 – Nu Way Auto Body** site is a LUST site at 3129 22nd Avenue, just east of Franklin Boulevard. This site is a LUST site originally reported in 1997 (SacEMD, 1997). Gasoline was reportedly released from a 1,000 gallon UST and the contents of the UST was removed. Soil samples from the excavation where the UST was removed were collected and analyzed in 2008 (BSK, 2008a, 2008b). No further site investigation or cleanup is known to have been completed. The Sacramento Environmental Management Department (SacEMD) evaluated the site and concluded that this site is not yet ready to be considered for low-threat closure (RWQCB, 2017). The former location of the UST was about 150 feet east of the edge of Franklin Boulevard. At this distance, it is unlikely that contaminated soil would have extended to Franklin Boulevard and this site is not considered a REC or a HREC relative to the proposed project.

As previously discussed, the closure of a site means that that concentrations of chemicals below regulatory screening levels may have been left in place. These low concentrations are not anticipated to pose a risk to the public or to groundwater, and are expected to naturally degrade over time. This also means that excavations near these sites may encounter soil with some residual levels of chemicals, which in the cases of the LUST sites, could be fuel and/or motor oil. Each of the 10 closed sites were visually inspected during the site reconnaissance; the current use is discussed above or listed below. The closed sites are considered to be HRECs as defined by ASTM 1527-13 because residual levels of fuel and/or oil in soil may have been left in place. Site not discussed above are listed below and include the site number in the regulatory agency database search results in Appendix A.

- No. 4 – Exxon #7-0128 at 5601 Franklin Boulevard; currently a Valero Service Station
- No. 19 – Hans Stickel Property at 4517 Franklin Boulevard; replaced by small shops
- No. 25 – House of Signs at 3151 21st Avenue; currently replaced by small shops
- No. 33 – Walter Sickel Body & Frame at 5750 Franklin Boulevard; no change in use
- No. 49 – Unocal #3425 at 5551 Franklin Boulevard; currently a taco shop
- No. 62 – Sam Cologna at 4450 Franklin Boulevard; currently a plumbing store
- No. 68 – Desert Petroleum #019 at 4991 Franklin Boulevard; still a service station

The above-described sites are located in the vicinity of the proposed project footprint and have documented historical releases. All but one of the sites have been closed by the regulatory agencies and the considered HRECs. The site considered to be a REC is a surface street waste oil spill with limited information. Given the number of sites and the extensive commercial land use that has included the use of hazardous materials, residual levels of fuel or oil may be encountered throughout most of the project footprint.

4.2 Other Records Reviewed

The GeoSearch regulatory agency records search also provides historical aerial photographs, historical topographic maps, and city directories for review. Sanborn insurance maps were not requested because fire insurance maps were not prepared for roads. The results of the review of these records are discussed below.

Historical Aerial Photographs

The GeoSearch report includes historical aerial photographs for the years 1937, 1947, 1953, 1954, 1966, 1970, 1975, 1977, 1984, 1987, 1993, 1998, 2003, 2004, 2005, 2006, 2010, 2012, 2014, and 2016, all included in Appendix B.

The **1937 aerial photographs** show Franklin Boulevard in its current alignment with most major cross streets already in existance, including Sutterville Road and Fruitridge Road. The north-south railroad line is present to the west. Highway 99 has not yet been constructed to the east. Most of the land use appears to be in agricultural or open space use. Much of Franklin Boulevard appears to be tree-lined. The church property on the east side of Franklin Boulevard across from 38th Avenue is visible; the building configuration is different from present. Some buildings and structures are visible along Franklin Boulevard. The adjacent row crops indicate predominantly agricultural use. The grouping of structures along the east side of Franklin Boulevard around Fruitridge Road suggests possible commercial or industrial use. The area north of the project footprint is largely developed residential use.

The **1947 aerial photographs** show increased development in the area west and northeast of the project footprint. The similar size of the properties and structures suggests predominantly residential use, although commercial and industrial uses are possible. The Campbell Soup facility is present just south of the project footprint. More structures are present on both sides of Franklin Boulevard, especially in the north. The variable size and configuration of the structures suggests predominantly commercial or industrial use. The structure on the east side of Franklin Boulevard just north of 25th Avenue appears to be the Site No. 68 service station at 4991 Franklin Boulevard, which is still a service station. Other than the large Campbell Soup facility to the south, no large parcels with large industrial uses are present.

The **1953 aerial photograph** is of poor quality with no readily identifiable details.

The **1954 aerial photographs** are of poor quality but do indicate that both sides of Franklin Boulevard have been almost completely developed. As previously noted, the variable size and configuration of the structures suggests predominantly commercial or industrial use.

The **1966 aerial photographs** are of good quality, the earliest aerial photographs showing detail. Highway 99 is present to the east. Franklin Boulevard appears in its current four lane configuration with both sides almost completely developed. The Campbell Soup facility has a stained paved area within the interior of the facility and another possibly stained upaved area along the north side of the facility. However, neither areas are within or adjacent to the project footprint. No other large industrial facilites are visible. Fuel service stations with visible fuel islands are visible just south of the southwest corner at Sutterville Road (not on any regulatory list; currently a restaurant at 3840 Franklin Boulevard) and at the southeast corner of Franklin Boulevard and Fruitridge Road (Site No. 4 – Exxon #7-0128 at 5601 Franklin Boulevard; currently a Valero Service Station).

The **1970 through 2016 aerial photographs** show no significant changes beyond those described above.

Historical Topographic Maps

The GeoSearch report includes historical topographic maps for the years 1891, 1892, 1893, 1902, 1911, 1949, 1954, 1967, 1975, 1980, 1992, and 2012, included in Appendix B.

The **1891, 1892, and 1893 topographic maps** show Franklin Boulevard but with no structures. The railroad tracks currently west of Franklin Boulevard have not yet been constructed. The cross streets of Sutterville and Fruitridges Roads are shown.

The **1902 topographic map** shows Franklin Boulevard and a few structures.

The **1911 topographic map** shows Franklin Boulevard but labeled with its previous name, Lower Stockton Road. More structures are depicted and the railroad tracks have been constructed west of Franklin Boulevard. The northeast area indicates increasing subdivision and development.

The **1949 topographic map** shows increased development with most cross streets present in their current configuration. Franklin Boulevard is labeled with its current name. The Campbell Soup facility is shown just south of the project footprint. The St. Patricks Orphanage is identified along the east side of the southern portion of Franklin Boulevard. The city limits are shown extending to their current southern extent.

The subsequent **1954** thru **2012 topographic maps** show more detail but provide no additional environmental information relevant to this assessment. With the exception of the depiction of the Campbell Soup facility, none of the topographic maps depict specific land use that would indicate the use of hazardous materials.

City Directories

City directories were available thru 2016 for the properties within and around the project footprint and are provided in Appendix B. City directories can provide information about chemical use by the names of the owners or occupants. Many of the listings are for individuals with no indication of land use or commercial uses that would be expected to use only limited quantities of cleaning supplies. The properties whose listing suggests the use of hazardous materials are listed below by address.

- 3671 Franklin Boulevard: service station 1974 and 1980
- 3701 Franklin Boulevard: service station 1955 to 2016
- 3840 Franklin Boulevard: service station 1966 to 1974
- 3924 Franklin Boulevard: auto repair 1994 to 2005
- 3928 Franklin Boulevard: auto repair 1980 to 2016
- 3931 Franklin Boulevard: auto repair in 1945 to 1949; printers from 1941 to 1970
- 3940 Franklin Boulevard: auto repair 1980 to 2016
- 3943 Franklin Boulevard: autp painting 1955 to 1966
- 3950 Franklin Boulevard: auto repair 2001 to 2005

- 4031 Franklin Boulevard: service station 1941 to 1974
- 4100 Franklin Boulevard: service station 1955 to 1966; auto repair 1970 to 1974; tire shop (hydraulic hoists) 2001 to 2016
- 4101 Franklin Boulevard: service station 1955 to 1966; engine repair 1980 to 2005
- 4125 Franklin Boulevard: motorcycle shop 1974 to 2016
- 4129 Franklin Boulevard: brake, body, or muffler repair: 1960 to 2011
- 4190 Franklin Boulevard: auto paint 2011 to 2016
- 4301 Franklin Boulevard: auto machine shop 2001 to 2016
- 4311 Franklin Boulevard: auto repair 1945; printer 1949; batteries 1974; radiator servive 1984 to 1990
- 4313 Franklin Boulevard: auto repair 1949 and 1960
- 4315 Franklin Boulevard: auto repair or body shop 1945 to 2005
- 4400 Franklin Boulevard: service station 1935 to 1966; radiator service 1974 to 1990
- 4444 Franklin Boulevard: auto repair or painting 1935 to 2016
- 4501 Franklin Boulevard: service station 1955 to 1970
- 4517 Franklin Boulevard: service station 1941 to 1955; body shop 1966 to 1980
- 4601 Franklin Boulevard: agricultural feed and fuel 1945 to 1955; auto repair 2011 to 2016
- 4701 Franklin Boulevard: saw & grinding works 1955; cleaners and dyers 1960; refrigeration service 1966 to 1970; Nu-Way Body Shop & Towing 1974 to 1990
- 4703 Franklin Boulevard: cleaners and dyers 1949 to 1966
- 4707 Franklin Boulevard: refrigeration repair 1960 to 1974; auto body 1990 to 1994
- 4715 Franklin Boulevard: agricultural feed and fuel 1955 to 1974
- 4772 Franklin Boulevard: dry cleaners 1945 to 1974
- 4790 Franklin Boulevard: service station 1945 to 1949; auto or muffler repair 1945 to 2016
- 4801 Franklin Boulevard: service station 1949 to 1960
- 4809 Franklin Boulevard: auto repair 1929
- 4901 Franklin Boulevard: auto body repair 2001 to 2016
- 4909 Franklin Boulevard: sheet metal works 1949 to 1994; auto body repair 2005 to 2011
- 4937 Franklin Boulevard: service station & auto repair 1941
- 4945 Franklin Boulevard: auto wrecker 1941
- 4950 Franklin Boulevard: auto repair 1980 to 2016
- 4991 Franklin Boulevard: service station 1966, then from 2005 to 2011
- 5003 Franklin Boulevard: auto repair 1941 to 1945
- 5005 Franklin Boulevard: auto repair and paint 1949 to 1970

- 5033 Franklin Boulevard: auto body shop 1974 to 1980, then 2011
- 5100 Franklin Boulevard: service station 1960 to 1966
- 5101 Franklin Boulevard: service station 1949 to 1955; tire service 1960 to 1974
- 5200 Franklin Boulevard: auto body repair & tiniting 1984 to 2001
- 5201 Franklin Boulevard: auto repair 1945 to 1949
- 5230 Franklin Boulevard: auto body & paint 1980 to 2016
- 5350 Franklin Boulevard: auto repair 1949 to 2016
- 5391 Franklin Boulevard: refrigeration repair 1966 to 1980
- 5551 Franklin Boulevard: service station 1960 to 1990
- 5601 Franklin Boulevard: service station 1949 to 2016
- 5630 Franklin Boulevard: auto repair 1966 to 2016
- 5633 Franklin Boulevard: auto body repair 1990 to 2011
- 5640 Franklin Boulevard: auto repair 1949 to 1960
- 5661 Franklin Boulevard: auto repair 2011 to 2016
- 5681 Franklin Boulevard: auto repair 1984 to 2016
- 5700 Franklin Boulevard: auto body & paint 2016
- 5750 Franklin Boulevard: auto body shop & towing 1980 to 2016
- 6039 Franklin Boulevard: plating 1984; auto repair & painting 1990 to 2016

The list above indicates that the project footprint has a long history of automotive servive station, repair, and painting shops. Many of these shops predate tracking by regulatory agencies. Spills and leaks prior to the 1970's would not have been regulated, USTs may still be present, and spills and leaks may not have been cleaned up. In addition to the automotive-oriented businesses, other businesses that would have used hazardous materials include metal plating shops, refrigeration repair shops, and a dry cleaner. In summary, given the long use of hazardous materials, contaminated soil may be encountered almost anywhere within the project footprint.

4.3 Physical Setting

The following sections provide information about the physical setting of the project site obtained from published reports and maps, as referenced. Geotechnical information is not a required element of ASTM E1527-13 Phase I assessments and is not included in this ISA.

Topography and Flood Zone

The project site is located in the Sacramento East, California, 7.5 Minute Quadrangle at an elevation of approximately 25 feet above mean sea level. The topographic relief is flat with no discernable slope. As shown on Figure 4 in the PES, the project footprint is not within the 100-year flood zone (City of Sacramento, 2017).

Geology and Seismicity

The project site lies within the Great Valley geomorphic province of California, which is an alluvial plain about 50 miles wide and 400 miles long in the central part of California (Muir, 2006). The Great Valley is a trough in which sediments have been deposited almost continuously since the Jurassic Era (about 160 million years ago). The project area is underlain by Pliocene (up to 5.3 million years before present) to Holocene (present) alluvium and mostly non-marine deposits (GeoSearch, 2018). No active faults or Alquist-Priolo fault zones are designated in the area. Faults mapped as an Alquist-Priolo fault are active faults with movement within the last 11,000 years (Bryant and Hart, 2007).

This page intentionally left blank

SECTION 5.0
Site Reconnaissance

Michael Burns, PG, CEG, CHG, from ESA conducted the site reconnaissance on February 7, 2018, to assess present conditions. The site conditions discussed below are limited to the readily apparent environmental conditions observed. Weather at the time of the site inspection was sunny. Franklin Boulevard is a four-lane paved road in a predominantly commercial area in the City of Sacramento in Sacramento County, California. The project site consists of Franklin Boulevard and its sidewalks, where present, from 11th Avenue in the north to 41st Avenue in the south as shown on Figure 2. In addition, short portions of some cross streets are included in the project footprint. As discussed below, sidewalks are not present in all portions of the project footprint.

The photograph below is a typical view of the project footprint where sidewalks exist looking to the north from 38th Avenue. The St. Rose Catholic Church and St. Patrick Academy School are visible on the right (east) side of Franklin Boulevard. This southern portion of Franklin Boulevard has power and communications cable poles on both sides of the street from the southernmost extent of the proposed project at 41st Avenue north to Fruitridge Avenue.

The photograph below shows the east side of Franklin Avenue in front of the Catholic facilities. This area does not have concrete curbs, gutters, or storm drains. The side area is paved up to the landscaping.

The photograph below is at the 33rd Avenue intersection. This area does not have concrete curbs, gutters, or storm drains. The sidewalk area is dirt and a ditch drains surface water runoff into a storm drain. No soil staining was observed.

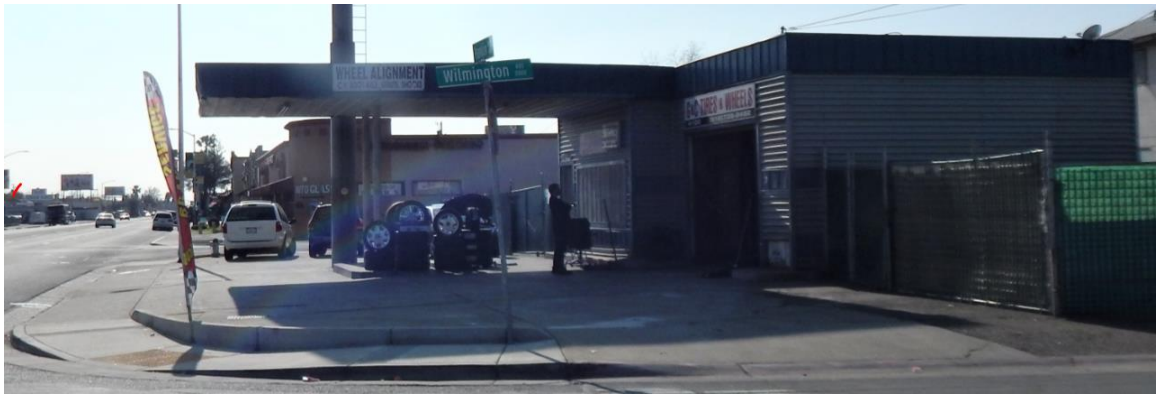
The photograph below is the southeast corner of Franklin Boulevard and Fruitridge Road. The Valero Service Station is on the southeast corner. This area has concrete curbs, gutters, and storm drains. This is the former location of Site No. 4 – Exxon #7-0128, a closed LUST site.

The photograph below is of a power pole transformer, indicating that the transformers within the project area do not contain polychlorinated biphenyls (PCBs).

The photographs below show the closed service station at 4501 Franklin Boulevard between 20th and 21st Avenues. The previously discussed city directories indicate this address had a service station from 1955 to 1970. This service station is not listed on the GeoTracker website and the regulatory database search found no information on the service station. The former dispenser island in one photograph shows the fuel dispensers have been removed. The bottom photograph shows a slightly depressed area on the north side of the station, suggestive of the location of the USTs. It is unknown whether the USTs are still present. Because this station predates the environmental regulatory oversight that mostly started in the 1970s, no information is available regarding the status of the USTs or whether any historical spills may have occurred. Given the close proximity to the project footprint, this condition is considered a REC.

The photograph below shows the previously discussed Cronin Family Trust site at 4414 Franklin Boulevard. This site is a closed LUST site, where the USTs and contaminated soil were removed. The site is currently a parking lot landscaped with cactus and palm trees. This site is considered a HREC.

The photograph below shows a former service station at 4100 Franklin Boulevard. The configuration of the building is typical for a service station, the former fuel dispenser island is under the awning, and the interior of the building has a vehicle hoist. The previously discussed city directories indicate this address was a service station from 1955 to 1966, conducted auto repair from 1970 to 1974 and has been in use as a tire shop since 2001. This property is not listed on the GeoTracker website and the regulatory database search found no information on the service station. It is unknown whether the USTs are still present. Because this station predates the environmental regulatory oversight that mostly started in the 1970s, no information is available regarding the status of the USTs or whether any historical spills may have occurred. Given the close proximity to the project footprint, this condition is considered a REC.



The photograph below shows a dirt area with underground utilities in front of 3940 Franklin Boulevard. Several of these conditions were observed at various places within the project footprint. No stained soil suggestive of spills was observed at any of the dirt areas.

The photograph below shows a former service station at 5350 Franklin Boulevard. The configuration of the building is typical for a service station and the interior of the building has a vehicle hoist. The previously discussed city directories indicate this address has been in use for auto repair since 1949. Although use as a service station is not in the records and no obvious fuel dispenser island was observed, the building configuration indicates use as a service station with fuel dispensers. This property is not listed on the GeoTracker website and the regulatory database search found no information on the service station. It is unknown whether the USTs are still present. Because this station predates the environmental regulatory oversight that mostly started in the 1970s, no information is available regarding the status of the USTs or whether any historical spills may have occurred. Given the close proximity to the project footprint, this condition is considered a REC.

In summary, a number of existing and former fuel service station and auto repair shops were observed along both sides of Franklin Boulevard. Additional former service stations have been replaced with other structures and businesses. Many of the stations have no records regarding the status of the UST(s) or historical spills because they predate the establishment of regulatory oversight in the 1970s. Given the long history of service stations and auto repair shops along most of Franklin Boulevard, excavation contractors should be prepared to encounter soil contaminated with fuel or oil almost anywhere along the project footprint. This condition is considered a REC.

The Cronin Property has regulatory records of the removal of USTs and contaminated soil. This condition is considered a HREC.

No other evidence of materials or equipment suggesting spoils of hazardous materials or waste, discolored soil or water due to chemical spills, stressed vegetation due to chemical spills, pits, ponds, or lagoons were observed within or adjacent to the proposed project footprint during the site reconnaissance.

This page left intentionally blank

SECTION 6.0
Findings and Opinions

6.1 Findings and Opinions

Relevant federal, state, and local regulatory agency lists for sites at or near the project footprint were reviewed. At least 19 service stations, 39 auto repair shops, 7 auto body paint shops, 2 printers, 3 refrigeration repair service shops, and 3 dry cleaners/dyers were observed or have records of existence along both sides of Franklin Boulevard. Many of the properties have no records regarding the status of the UST(s) or historical spills. In addition, a recorded waste oil spill at 23rd Avenue and Franklin Boulevard has no recorded details on the extent or cleanup, if any. Given the long history of commercial and industrial use along most of Franklin Boulevard, especially the service stations and auto repair shops, excavation contractors should be prepared to encounter soil contaminated with fuel and/or oil, and possibly other chemicals, almost anywhere along the project footprint. **This condition is considered a REC**.

The Cronin Property has regulatory records of the removal of USTs and contaminated soil. Residual levels of fuel or motor oil may be present in soil at concentrations below regulatory cleanup standards. **This condition is considered a HREC**.

No other evidence of materials or equipment suggesting spoils of hazardous materials or waste, discolored soil or water due to chemical spills, stressed vegetation due to chemical spills, pits, ponds, or lagoons were observed within or adjacent to the proposed project footprint during the site reconnaissance.

6.2 Data Gaps

ESA attempted to obtain reasonably ascertainable information regarding the site and the surrounding environs within the limited scope of work. The following data gap was identified that affects the identification of RECs, HRECs, or CRECs:

- Many of the service stations and auto shops have no records regarding the status of the UST(s) or historical spills because they predate the establishment of regulatory oversight in the 1970s. This condition results in uncertainty as to whether excavation contractors will encounter soil contaminated with fuel and/or motor oil.

This page intentionally left blank

SECTION 7.0
Report Authors and Qualifications

This section includes qualification statements of the environmental professionals responsible for conducting the Phase I assessment and preparing this report.

Mr. Michael Burns, PG, CEG, CHG, of ESA conducted the data review for the site, conducted the site reconnaissance, and prepared the Initial Site Assessment (ISA) report. Mr. Burns has over 30 years of experience in environmental site investigations, characterizations, and assessments, including Initial Site Assessments.

The work conducted and the report written by Mr. Burns was reviewed by Ms. Karin Bouler. Ms. Bouler has 10 years of experience in environmental site investigations, characterizations, and assessments, including Initial Site Assessments.

Mr. Burns declares that, to the best of his professional knowledge and belief, he meets the definition of Environmental Professional as defined in 40 CFR §312.10. Ms. Bouler declares that, to the best of her professional knowledge and belief, she meets the definition of Environmental Professional as defined in 40 CFR §312.10.

Mr. Burns has the specific qualifications based on education, training, and experience to assess a property of the nature, history, and setting of this property. With the assistance of Ms. Bouler, he has developed and performed all the appropriate inquiries in conformance with the standards and practices set forth in 40 CFR Part 312.

Principal Analyst/Reviewer:

Michael G. Burns, PG #4532	March 2018 Date

Senior Reviewer:

Karin Bouler, Managing Associate	March 2018 Date

This page intentionally left blank

SECTION 8.0
References

Bryant, William A. and Earl W. Hart, 2007, *Fault-Rupture Hazard Zones in California, Alquist-Priolo Earthquake Fault Zoning Act with Index to Earthquake Fault Zones Maps*.

BSK, 1998a, *Letter Report, Hand Auger Soil Sampling, 3129 22nd Avenue, Sacramento, California*, August 4.

BSK, 1998b, *Letter Report, Hand Auger Soil Sampling, 3129 22nd Avenue, Sacramento, California*, August 5.

City of Sacramento, 2017, *Preliminary Environmental Study (PES)*, October 4.

County of Sacramento Environmental Management Department (Sac EMD), 1995, *No Further Action, Local Remediation Program Site No. A289, Campbell Soup Company, 6200 Franklin Boulevard, Sacramento, CA*, August 17.

County of Sacramento Environmental Management Department (Sac EMD), 1997, *Underground Storage Tank Unauthorized Release (Leak)/Contamination Site Report, Nu-Way Auto Body*, August 11.

Department of Toxic Substance Control (DTSC), 1993, *Closure Certification Approval, Campbell Soup Company, Sacramento Facility, Sacramento County*, December 21

GeoSearch, 2018, *Preliminary Radius Report, Santa Fe-Childs Crossing East Childs Avenue, Planada, Merced County, California 95333*, March 27.

Regional Water Quality Control Board (RWQCB), 2017, *Nu-Way Auto Body, Low-Threat Closure Plan Checklist*, June 19.

State Water Resources Control Board (SWRCB), 2016, *Order WQ 2016-0052 – UST, In the Matter of Underground Storage Tank Case Closure, UST Case Closure Review Summary Report, Cronin Family Trust, 4414 Franklin Boulevard, Sacramento, CA*, April 25.

This page intentionally left blank

Appendix A
Preliminary Radius Report

ESA

This page intentionally left blank

Appendix B

Historical Aerial Photographs, Historical Topographic Maps, and City Directories

ESA

This page intentionally left blank

DRAFT TECHNICAL MEMORANDUM

Date: March 12, 2018

To: Leo Rubio, Bennett Engineering Services

From: Adrian Engel & Neil Smolen, Fehr & Peers

Subject: Traffic Impact Analysis to Support the PA/ED Phase of the Franklin Boulevard Complete Street Project

RS17-3553

This memorandum documents our study of potential transportation impacts of the Franklin Boulevard Complete Street project. Our study includes analysis of the existing conditions of the corridor's infrastructure, performance of multiple transportation modes, development and analysis of alternative improvement scenarios, and selection of a preferred alternative. The attached appendices contain all technical calculations.

PROJECT DESCRIPTION

The Franklin Boulevard Complete Street Master Plan will develop a long-term vision for the corridor based on an understanding of the transportation, land use, environmental, economic, and social needs. The project proposes improvements to the Franklin Boulevard corridor that will transform the corridor to provide a pedestrian, bicycle, vehicular, and transit friendly environment through improved roadway and streetscape designs. The proposed project includes the following modifications to the Franklin Boulevard corridor.

- Reduce the number of automobile travel lanes from four to two lanes on Franklin Boulevard between 12th Avenue and 38th Avenue;
- Use the acquired right-of-way from the reduction in automobile travel lanes to improve bicycle and pedestrian facilities. The existing two-way left-turn lane will remain, and much of the on-street parking will be preserved;
- Install flashing yellow northbound and southbound left turns at the Franklin Boulevard/21st Avenue and Franklin Boulevard/26th Avenue intersections, which will allow for protected/permissive operations;

- Replace the northbound and southbound channelized right turns at the Franklin Boulevard/Fruitridge Road intersection with standard permissive right turns; and
- Reduce the number of westbound left turn lanes from two lanes to one lane at the Franklin Boulevard/Fruitridge Road intersection.

ANALYSIS METHODOLOGY

Level of service (LOS) is a qualitative measure of traffic operating conditions, whereby a letter grade from A to F is assigned. These grades represent the perspective of drivers and are an indication of the comfort and convenience associated with driving. In general, LOS A represents free-flow conditions, and LOS F represents severe delay under stop-and-go conditions.

Corridor operations were analyzed using methodologies from the *Highway Capacity Manual* (HCM 2010), Transportation Research Board, 2010. The analysis procedures were applied using the Synchro/SimTraffic 9 software. Traffic simulation analysis was selected as the analysis method so that the queue interactions between adjacent signals and between turn pockets and through lanes could be modeled more accurately. In addition, the software more accurately models the interaction of vehicles and pedestrians to capture the effect on intersection operations. A 15-minute analysis period was selected, and an average of ten simulation model runs are reported.

The simulation model was calibrated to local conditions by adjusting driver and vehicle parameters based on past experience on City of Sacramento projects. The model was validated to observed queues at the study intersections during the peak hours. To be consistent with the City of Sacramento's standard analysis procedures, the analysis results were generated with the peak hour factor set to 1.0 to represent average hourly conditions.

Table 1 summarizes intersection level of service criteria for intersections with traffic signal and stop control.

TABLE 1
INTERSECTION LEVEL OF SERVICE CRITERIA

Level of Service	Description	Average Control Delay (seconds per vehicle)	
		Signalized Intersections[1]	Unsignalized Intersections[2]
A	Represents free flow. Individual users are virtually unaffected by others in the traffic stream.	≤ 10	≤ 10
B	Stable flow, but the presence of other users in the traffic stream begins to be noticeable.	> 10 to 20	> 10 to 15
C	Stable flow, but the operation of individual users becomes significantly affected by interactions with others in the traffic stream.	> 20 to 35	> 15 to 25
D	Represents high-density, but stable flow.	> 35 to 55	> 25 to 35
E	Represents operating conditions at or near the capacity level.	> 55 to 80	> 35 to 50
F	Represents forced or breakdown flow.	> 80	> 50

Sources:
1. *Highway Capacity Manual 2010*, Chapter 18, Signalized Intersections
2. *Highway Capacity Manual 2010*, Chapter 19, Two-Way Stop-Controlled Intersections; Chapter 20, All-Way Stop-Contolled Intersections

Significance Criteria

This analysis uses LOS D as the threshold to determine significant impacts to intersections based on Policy M.1.2.2 of the City of Sacramento's *2035 General Plan*. However, Policy M.1.2.2 also offers the following provision:

> "If maintaining the [above] LOS standards would, in the City's judgment, be infeasible and/or conflict with the achievement of other goals, LOS E or F conditions may be accepted provided that provisions are made to improve the overall system, promote non-vehicular transportation, and/or implement vehicle trip reduction measures as part of a development project or a city-initiated project."

The project proposes to use the acquired right-of-way from reduced travel lanes for improvements to bicycle and pedestrian facilities, and is a likely candidate for the above LOS policy.

EXISTING CONDITIONS

We collected AM (7:00-9:00) and PM (4:00-6:00) peak period vehicle classification counts at the eight study intersections listed below during May 2017. Conditions were generally sunny and dry, and no unusual events affecting traffic were noted.

1. Franklin Boulevard / Sutterville Road
2. SB SR99 / Sutterville Road ramp intersection
3. NB SR99 / Sutterville Road ramp intersection
4. Franklin Boulevard / 14th Avenue (east of Franklin Boulevard)
5. Franklin Boulevard / 21st Avenue
6. Franklin Boulevard / 26th Avenue
7. Franklin Boulevard / Fruitridge Road
8. Franklin Boulevard / 38th Avenue

Figure 1 displays the location of the eight study intersections.

Existing Intersection Operations

Figure 2 displays the existing lane configurations and peak hour turn movement volumes at the eight study intersections. Table 2 displays the existing AM and PM peak hour intersection operations of the eight study intersections.

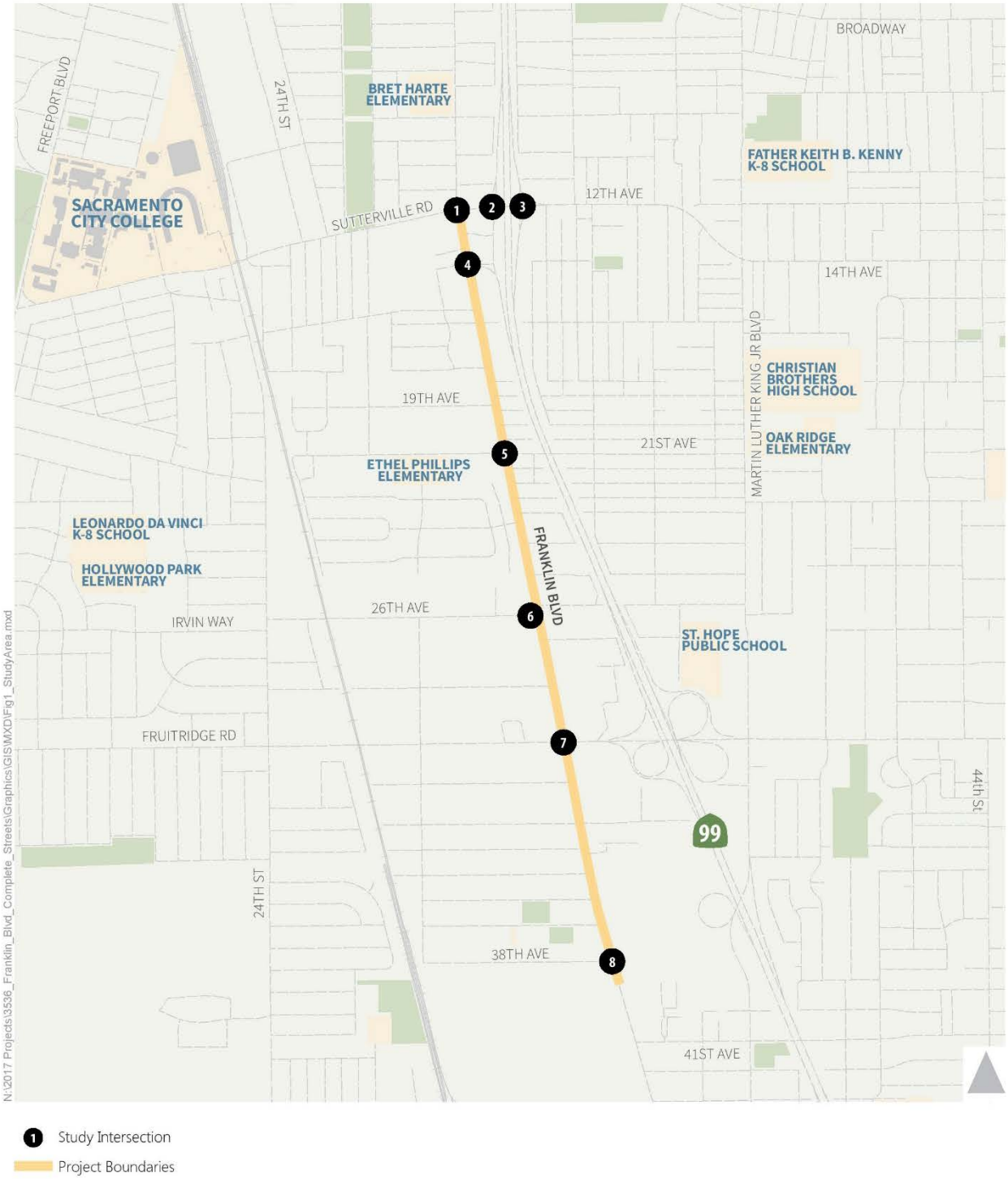


Figure 1

Study Area

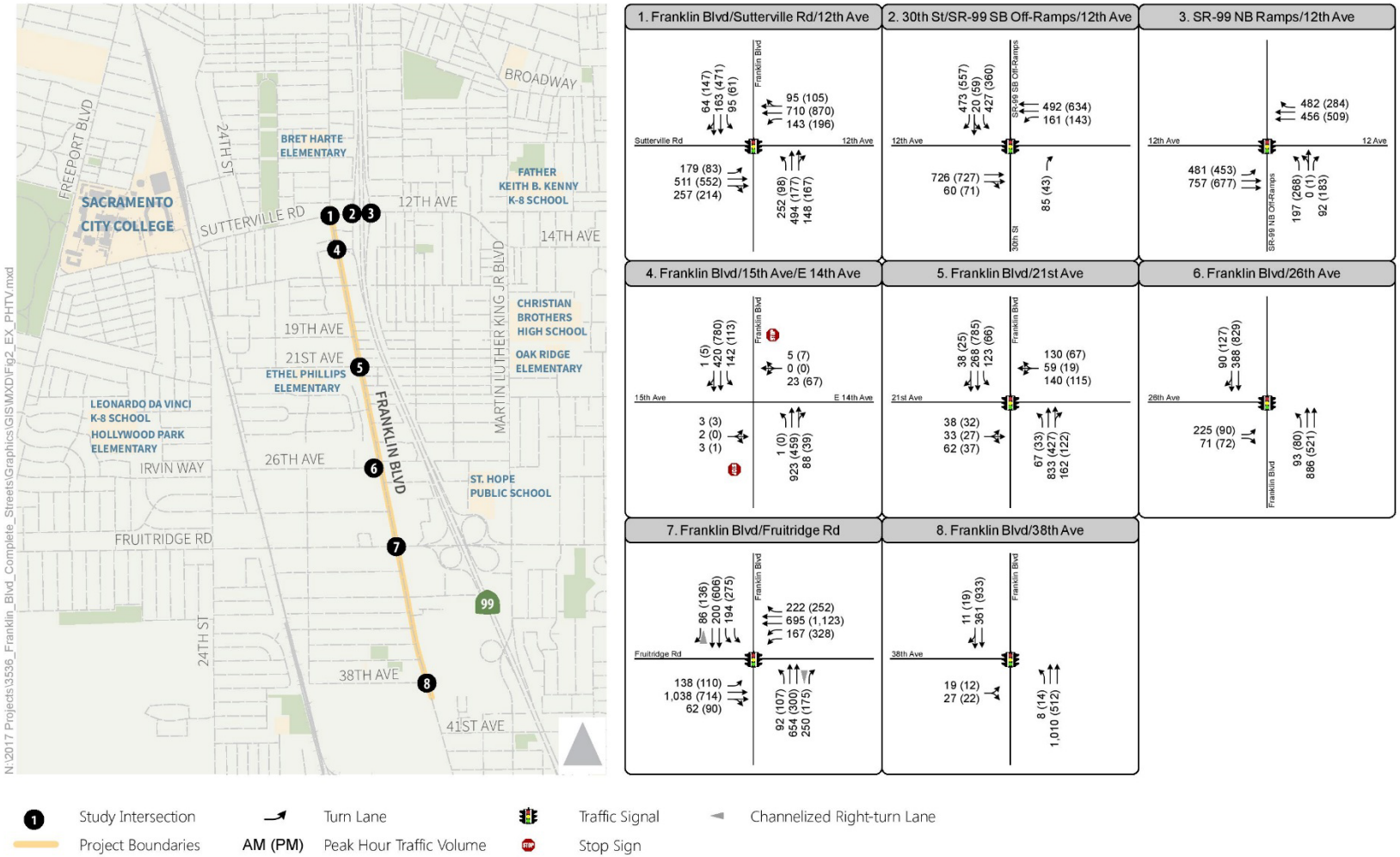


Figure 2

Peak Hour Traffic Volumes and Lane Configurations - Existing Conditions

Table 2
Intersection Operations – Existing Conditions

Intersection	Traffic Control	Peak Hour	Existing Conditions	
			Delay[1]	LOS
1. Franklin Blvd / 12th Avenue / Sutterville Road	Signal	AM PM	42 40	D D
2. SR 99 SB Ramps / 12th Avenue	Signal	AM PM	28 29	C C
3. SR 99 NB Ramps / 12th Avenue	Signal	AM PM	36 36	D D
4. Franklin Blvd / 14th Avenue / 15th Avenue Alley	SSSC	AM PM	5 (27) 3 (17)	A (D) A (C)
5. Franklin Blvd / 21st Avenue	Signal	AM PM	23 15	C B
6. Franklin Blvd / 26th Avenue	Signal	AM PM	13 11	B B
7. Franklin Blvd / Fruitridge Road	Signal	AM PM	36 44	D D
8. Franklin Blvd / 38th Avenue	Signal	AM PM	5 6	A A

Notes: LOS = Level of Service. SSSC = Side-Street Stop Control.
[1] For signalized intersections and all way stop controlled intersections, average intersection delay is reported in seconds per vehicle for all approaches. For SSSC intersections, the LOS and control delay for the worst movement is shown in parentheses next to the average intersection LOS and delay. Intersection LOS and delay is calculated based on the procedures and methodology contained in the HCM 2010 (TRB, 2010). All intersections were analyzed in Synchro. Bold text indicates unacceptable operations.
Source: Fehr & Peers 2017

As displayed in Table 2, all existing study intersections operate acceptably at LOS D or better during both peak hours.

Existing Bicycle and Pedestrian Facilities

Crosswalks are provided on all legs of each study intersection with the exception of Franklin Boulevard/14th Avenue, and the south legs of Franklin Boulevard/38th Avenue and Franklin Boulevard/26th Avenue. The average pedestrian crossing distance for the eight study intersections is 57 feet with an average sidewalk width of 6 feet. There are currently no dedicated bicycle facilities on Franklin Boulevard between 12th Avenue and Fruitridge Road and count data shows low pedestrian/bicycle volumes at all eight study intersections.

Existing Transit Facilities

Public transit service is provided by Sacramento Regional Transit. Regional Transit operates one bus route along Franklin Boulevard from 12th Avenue to 21st Street: Bus Route 67 which offers north-south service connecting Florin Towne Center and the Arden Fair Mall, passing through midtown Sacramento. There are also two light rail station located less than half a mile away from the project site, at Sacramento City College and Fruitridge Road.

TRAVEL DEMAND FORECASTS

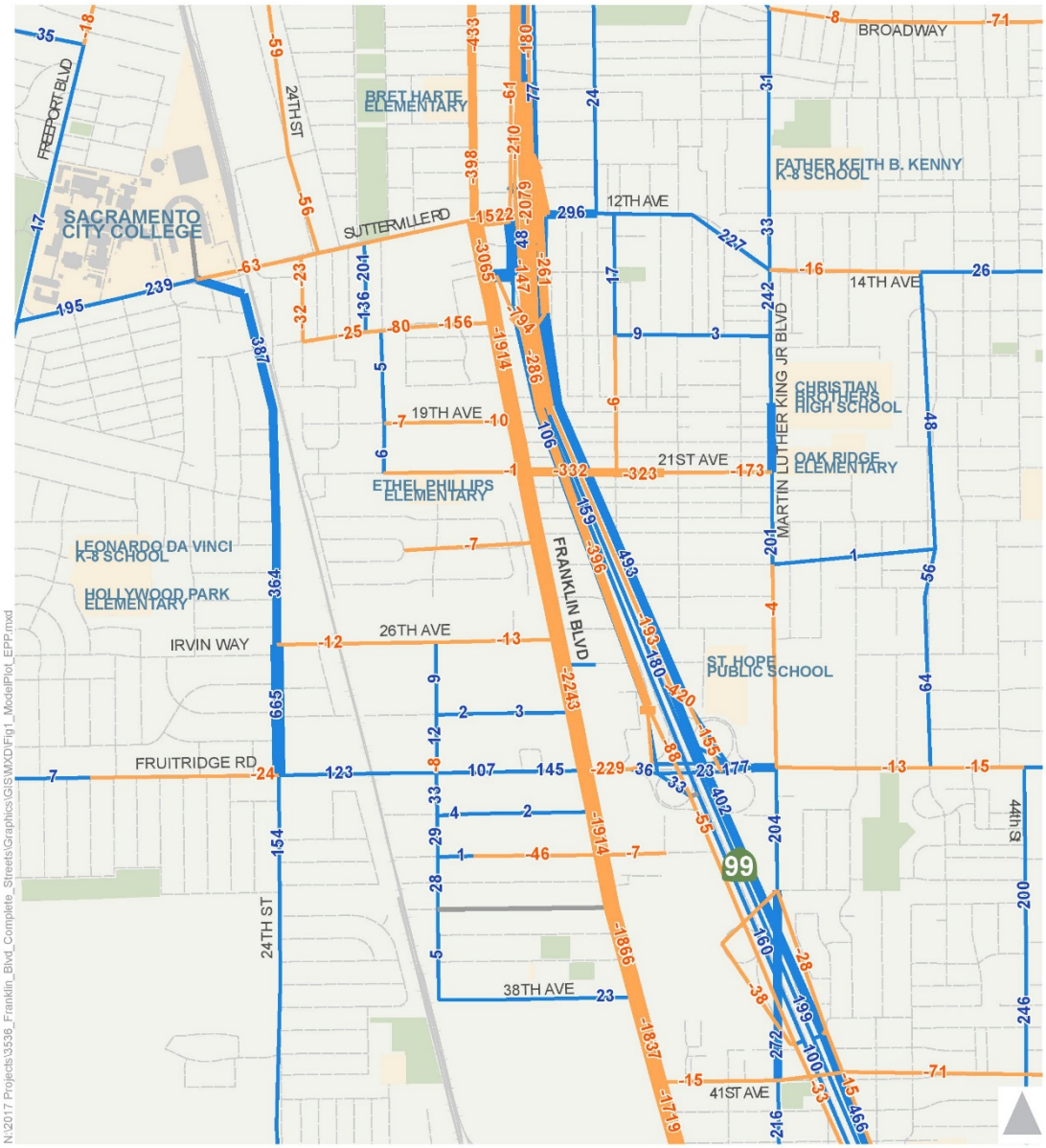
Travel demand forecasts for the proposed project were estimated using the most recent version of the SACMET regional travel demand model, developed and maintained by SACOG. We refined the base year (2012) travel demand model by adding traffic analysis zones and transportation network detail in the study area along Franklin Boulevard to improve accuracy. To ensure that the SACMET model was sensitive and accurate for application, it was tested and validated against benchmarks specified by the modeling guidelines contained in the 2017 Regional Transportation Plan Guidelines for Metropolitan Planning Organizations (California Transportation Commission, 2017).

We incorporated the project into the model by reducing the number of travel lanes on Franklin Boulevard between Sutterville Road and 38th Avenue from four lanes to two lanes. A forecasting procedure known as the "difference method" was used to develop the Existing Plus Project forecasts. This method accounts for potential differences between the base year model and existing traffic counts that could otherwise transfer to the base year model with project and the traffic forecast.

This forecasting procedure is calculated as follows:

> Existing Plus Project Traffic Forecast = Existing Count Volume + (Base Year Plus Project Model Forecast – Base Year No Project Model Forecast)

Figure 3 and Figure 4 display the raw model volume difference and percent change, respectively, with the project implemented under existing conditions. Per the City of Sacramento General Plan, existing Franklin Boulevard as a four-lane arterial with moderate access control has a segment capacity of 32,400 ADT, of which only 40% is being utilized today. With the lane reduction, the new capacity would be reduced to 16,200 ADT and operate closer to 70% utilization. As displayed in Figure 4, the existing plus project traffic forecasts correspond to approximately a 15% reduction in traffic on Franklin Boulevard over existing conditions. The majority of the traffic shifted to parallel routes with the proposed project would occur during peak periods, and thus represents a reduction in more commute trips through the corridor and than local trips throughout the day. This traffic would be shifted primarily to SR 99 and 24th Street, which serve as parallel routes to Franklin Boulevard. Traffic volumes on SR 99 and 24th Street would increase by approximately 2% and 15%, respectively.



Model Volume
-3,065 - -1,000
-999 - -500
-499 - -250
-249 - -1
No Change
1 - 250
251 - 500
501 - 1,000
1,001 - 2,697

Figure 3

Franklin Complete Streets Daily Model Volume Changes - Existing Conditions to Existing With Road Diet

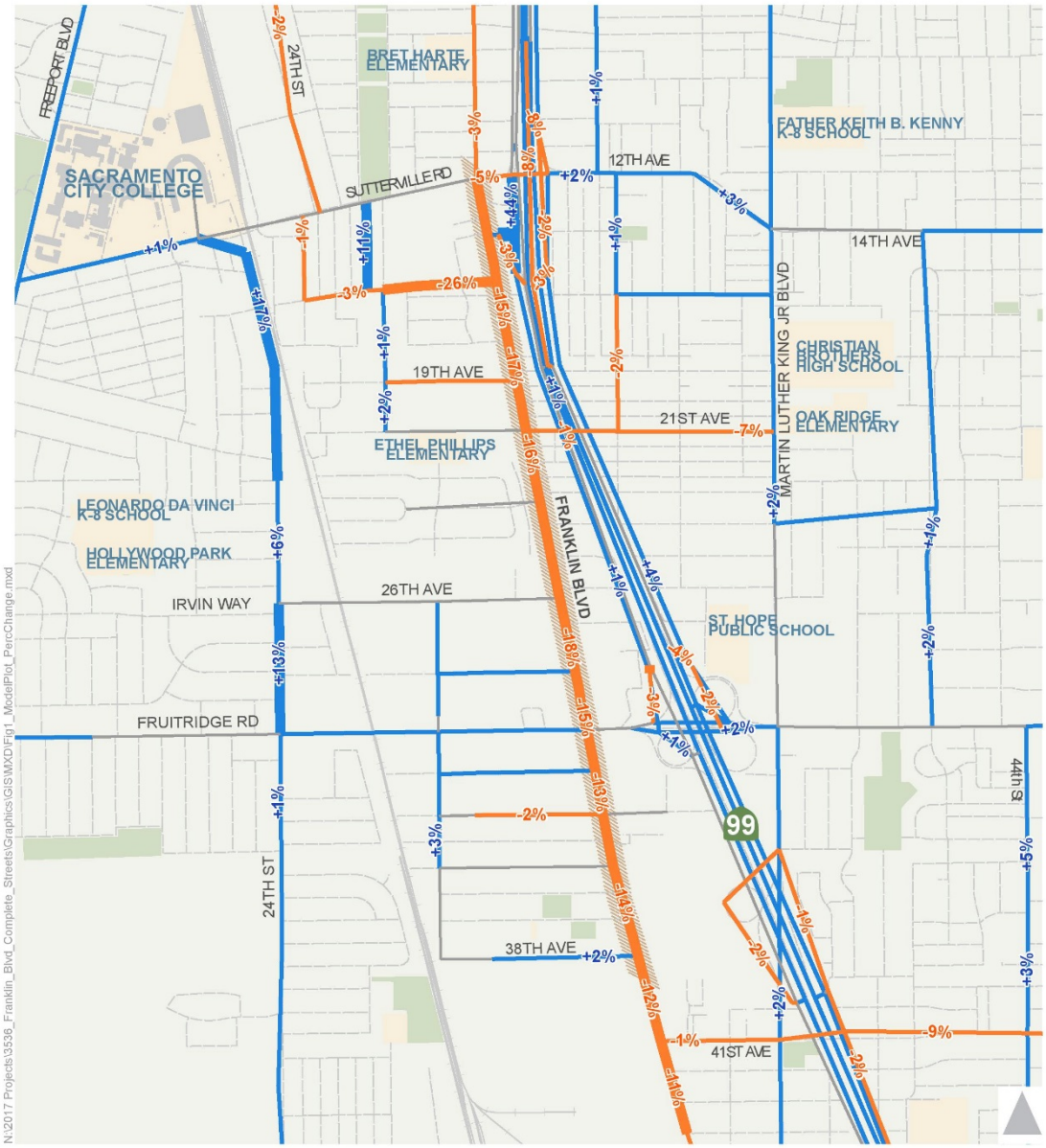


Figure 4

Franklin Complete Streets Daily Model Volume Changes - Basline Conditions to Baseline With Road Diet

EXISTING PLUS PROJECT ANALYSIS

Existing Plus Project Intersection Operations

Figure 5 displays the existing plus project lane configurations and peak hour turn movement volumes at the eight study intersections. Table 3 displays the AM and PM peak hour intersection operations of the eight study intersections under existing plus project conditions.

Table 3
Intersection Operations – Existing Plus Project Conditions

Intersection	Traffic Control	Peak Hour	Existing Conditions		Existing Plus Project Conditions	
			Delay[1]	LOS	Delay[1]	LOS[2]
1. Franklin Blvd / 12th Avenue / Sutterville Road	Signal	AM PM	42 40	D D	37 41	D D
2. SR 99 SB Ramps / 12th Avenue	Signal	AM PM	28 29	C C	25 20	C B
3. SR 99 NB Ramps / 12th Avenue	Signal	AM PM	36 36	D D	31 25	C C
4. Franklin Blvd / 14th Avenue / 15th Avenue Alley	SSSC	AM PM	5 (27) 3 (17)	A (D) A (C)	9 (79) 5 (28)	A (F) A (D)
5. Franklin Blvd / 21st Avenue	Signal	AM PM	23 15	C B	47 17	D B
6. Franklin Blvd / 26th Avenue	Signal	AM PM	13 11	B B	15 22	B C
7. Franklin Blvd / Fruitridge Road	Signal	AM PM	36 44	D D	**57** **66**	**E** **E**
8. Franklin Blvd / 38th Avenue	Signal	AM PM	5 6	A A	6 9	A A

Notes: LOS = Level of Service. SSSC = Side-Street Stop Control.
[1] For signalized intersections and all way stop controlled intersections, average intersection delay is reported in seconds per vehicle for all approaches. For SSSC intersections, the LOS and control delay for the worst movement is shown in parentheses next to the average intersection LOS and delay. Intersection LOS and delay is calculated based on the procedures and methodology contained in the HCM 2010 (TRB, 2010). All intersections were analyzed in Synchro.
[2] Bold text indicates unacceptable operations. Underlined text indicates a significant impact.
Source: Fehr & Peers 2017

As shown in Table 3, all study intersections would continue to operate acceptably at LOS D or better with the proposed project except for the Franklin Boulevard/Fruitridge Road intersection, which would operate at LOS E during the AM and PM peak hour. With the significance criteria identified above, this impact would be **potentially significant**.

Project Alternative

We analyzed an alternative to the proposed project with the following modifications to the project description.

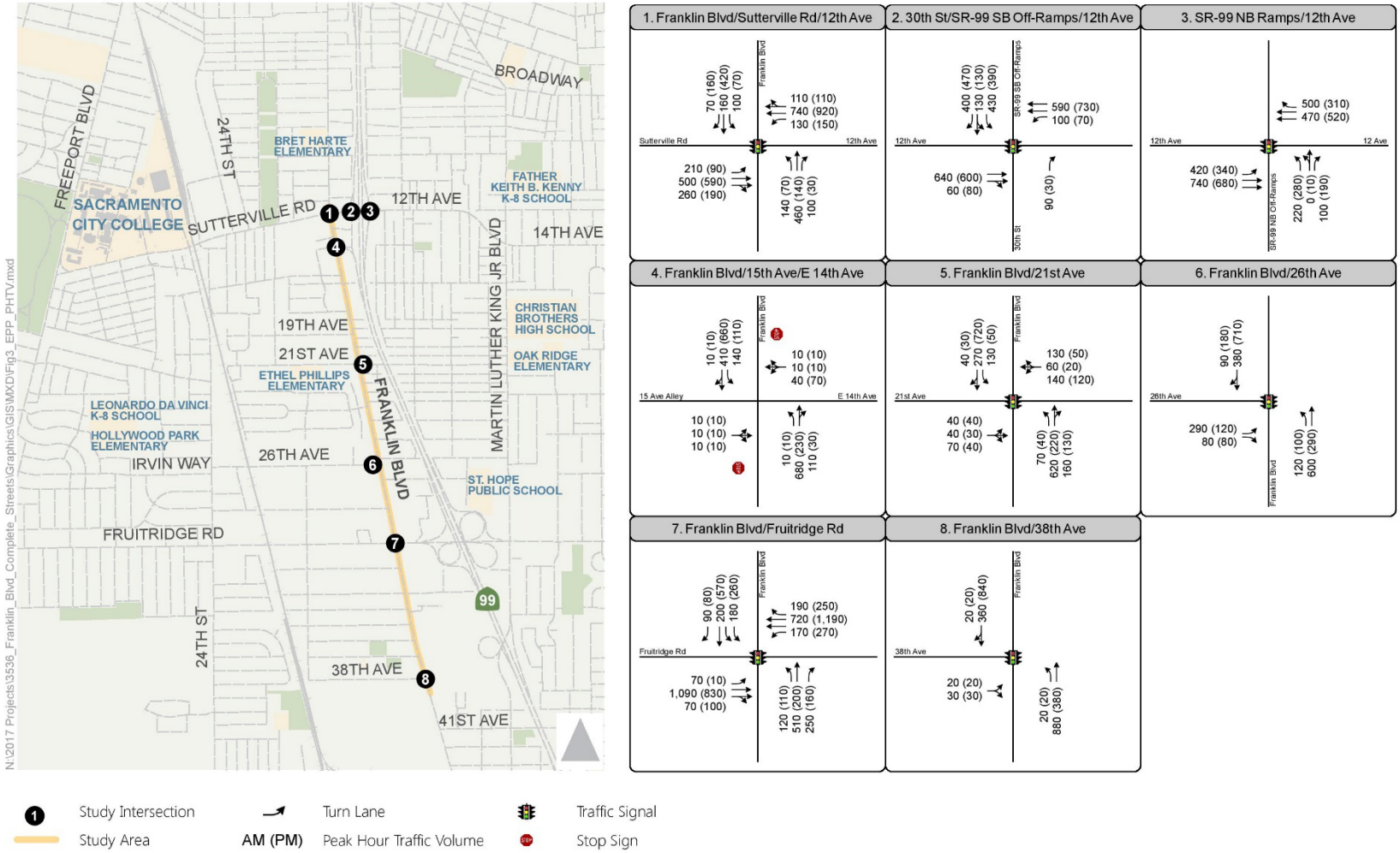


Figure 5

Peak Hour Traffic Volumes and Lane Configurations - Existing Plus Project Conditions

1. Franklin Boulevard/21st Avenue and Franklin Boulevard/26th Avenue: omit the flashing yellow northbound and southbound left turns. The project alternative assumes protected northbound and southbound left turn operation;

2. Franklin Boulevard/Fruitridge Road: omit the removal of the northbound and southbound channelized right turns. The project alternative assumes the existing channelized right turns on the northbound and southbound approaches; and

3. Franklin Boulevard/Fruitridge Road: omit the reduction in the number of westbound left turn lanes from two lanes to one lane. The project alternative assumes two westbound left turn lanes.

Table 4 displays the AM and PM peak hour intersection operations of the three project alternative study intersections listed above.

Table 4
Intersection Operations – Existing Plus Project Alternative

Intersection	Traffic Control	Peak Hour	Existing Plus Project Conditions		Existing Plus Project Alternative	
			Delay[1]	LOS[2]	Delay[1]	LOS[2]
5. Franklin Blvd / 21st Avenue	Signal	AM PM	47 17	D B	**76** 20	**E** C
6. Franklin Blvd / 26th Avenue	Signal	AM PM	15 22	B C	24 20	C B
7. Franklin Blvd / Fruitridge Road	Signal	AM PM	**57** **66**	**E** **E**	**56** 49	**E** D

Notes: LOS = Level of Service. SSSC = Side-Street Stop Control.
[1] For signalized intersections and all way stop controlled intersections, average intersection delay is reported in seconds per vehicle for all approaches. For SSSC intersections, the LOS and control delay for the worst movement is shown in parentheses next to the average intersection LOS and delay. Intersection LOS and delay is calculated based on the procedures and methodology contained in the HCM 2010 (TRB, 2010). All intersections were analyzed in Synchro.
[2] Bold text indicates unacceptable operations. Underlined text indicates a significant impact.
Source: Fehr & Peers 2017

As shown in Table 4, preserving the existing northbound and southbound channelized right turns and the dual westbound left turn lanes at the Franklin Boulevard/Fruitridge Road intersection improves operations to acceptable LOS D during the PM peak hours. This alternative would also require two southbound receiving lanes on the south leg of the intersection, which would expand the intersection footprint, lengthen crossing pedestrian distances, and limit right-of-way for bicycle facilities, all of which are detrimental for bicyclists and pedestrians. Additionally, the removal of the flashing yellow northbound and southbound left turns would worsen traffic operations at the Franklin Boulevard/21st Avenue intersection to unacceptable LOS E during the AM peak hour. This impact would be **potentially significant**.

Appendix A

LOS Calculations

SimTraffic Post-Processor **Franklin Blvd Complete Street**
Average Results from 10 Runs **Existing Conditions**
Volume and Delay by Movement **AM Peak Hour**

Intersection 1 **Franklin Blvd/Sutterville Road-12th Avenue** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	252	232	92.0%	84.6	22.8	F
	Through	494	427	86.5%	56.6	18.7	E
	Right Turn	148	127	86.0%	56.1	20.9	E
	Subtotal	894	786	87.9%	65.0	18.1	E
SB	Left Turn	95	77	81.2%	62.9	39.3	E
	Through	163	144	88.4%	37.9	7.1	D
	Right Turn	64	62	97.4%	16.7	7.3	B
	Subtotal	322	283	88.0%	38.9	11.6	D
EB	Left Turn	179	160	89.4%	52.9	8.3	D
	Through	511	446	87.3%	24.9	3.5	C
	Right Turn	257	225	87.5%	18.7	4.4	B
	Subtotal	947	831	87.8%	28.6	3.3	C
WB	Left Turn	143	133	93.3%	51.0	12.8	D
	Through	710	686	96.7%	32.8	2.9	C
	Right Turn	95	80	84.4%	27.5	4.1	C
	Subtotal	948	900	94.9%	35.1	3.9	D
Total		3,111	2,801	90.0%	41.7	6.4	D

Intersection 2 **SR 99 SB Ramps/12th Avenue** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through						
	Right Turn	85	73	85.8%	64.8	43.8	E
	Subtotal	85	73	85.8%	64.8	43.8	E
SB	Left Turn	427	384	90.0%	41.9	10.0	D
	Through	20	19	96.9%	39.8	13.7	D
	Right Turn	473	462	97.7%	14.1	6.0	B
	Subtotal	920	866	94.1%	27.2	6.7	C
EB	Left Turn						
	Through	726	599	82.5%	45.5	19.9	D
	Right Turn	60	54	89.3%	22.9	9.1	C
	Subtotal	786	652	83.0%	43.7	19.0	D
WB	Left Turn	161	143	88.5%	18.4	6.6	B
	Through	492	466	94.6%	4.9	0.7	A
	Right Turn						
	Subtotal	653	608	93.1%	8.2	2.0	A
Total		2,444	2,199	90.0%	28.0	6.6	C

Intersection 3 **SR 99 NB Ramps/12th Avenue** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	197	189	95.9%	38.6	4.6	D
	Through						
	Right Turn	92	76	82.6%	2.8	0.6	A
	Subtotal	289	265	91.6%	28.5	4.5	C
SB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
EB	Left Turn	481	388	80.6%	39.3	15.7	D
	Through	757	665	87.9%	4.8	1.3	A
	Right Turn						
	Subtotal	1,238	1,053	85.1%	17.4	6.3	B
WB	Left Turn						
	Through	456	420	92.0%	89.4	45.6	F
	Right Turn	482	452	93.8%	31.7	31.7	C
	Subtotal	938	872	92.9%	59.5	38.8	E
Total		2,465	2,190	88.8%	35.5	15.5	D

Intersection 4 **Franklin Blvd/15th Avenue Alley-14th Avenue** **Side-street Stop**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	1	0	38.0%	0.5	1.4	A
	Through	923	871	94.3%	4.2	3.0	A
	Right Turn	88	77	87.2%	4.0	3.0	A
	Subtotal	1,012	948	93.6%	4.2	2.9	A
SB	Left Turn	142	124	87.2%	17.4	4.2	C
	Through	420	369	87.9%	1.8	1.5	A
	Right Turn	1	3	266.0%	1.6	1.4	A
	Subtotal	563	496	88.1%	5.7	2.3	A
EB	Left Turn	3	2	50.7%	8.9	16.0	A
	Through	2	3	133.0%	27.3	29.5	D
	Right Turn	3	3	101.3%	2.5	3.3	A
	Subtotal	8	7	90.3%	21.9	20.7	C
WB	Left Turn	23	20	87.6%	22.9	10.7	C
	Through						
	Right Turn	5	8	159.6%	13.6	12.5	B
	Subtotal	28	28	100.4%	20.7	9.2	C
Total		1,611	1,479	91.8%	5.1	2.6	A

Intersection 5 **Franklin Blvd/21st Avenue** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	67	66	98.7%	42.1	5.1	D
	Through	833	812	97.4%	25.9	4.2	C
	Right Turn	162	161	99.2%	23.6	5.8	C
	Subtotal	1,062	1,039	97.8%	26.6	4.2	C
SB	Left Turn	123	105	85.0%	29.2	2.8	C
	Through	268	245	91.6%	12.4	2.5	B
	Right Turn	38	30	79.0%	9.4	5.1	A
	Subtotal	429	380	88.6%	16.8	1.7	B
EB	Left Turn	38	36	96.0%	16.0	4.7	B
	Through	33	29	87.5%	18.1	7.2	B
	Right Turn	62	57	92.5%	8.5	4.4	A
	Subtotal	133	123	92.3%	13.4	3.9	B
WB	Left Turn	140	130	93.1%	22.1	3.2	C
	Through	59	57	97.3%	21.8	4.0	C
	Right Turn	130	116	89.2%	15.9	3.6	B
	Subtotal	329	304	92.3%	19.8	2.8	B
Total		1,953	1,845	94.5%	22.6	2.5	C

Intersection 6 **Franklin Blvd/26th Avenue** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	93	95	102.2%	30.9	5.2	C
	Through	886	849	95.9%	10.3	1.7	B
	Right Turn						
	Subtotal	979	944	96.5%	12.3	1.7	B
SB	Left Turn						
	Through	388	364	93.9%	10.7	2.2	B
	Right Turn	90	74	82.3%	7.4	3.6	A
	Subtotal	478	439	91.7%	10.2	2.2	B
EB	Left Turn	225	226	100.5%	20.3	1.9	C
	Through						
	Right Turn	71	66	93.1%	9.9	2.1	A
	Subtotal	296	292	98.7%	17.9	1.6	B
WB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
Total		1,753	1,675	95.6%	12.8	0.9	B

Intersection 7 **Franklin Blvd/Fruitridge Rd** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	92	97	104.9%	59.7	7.6	E
	Through	654	649	99.3%	46.0	3.2	D
	Right Turn	250	234	93.6%	15.3	2.5	B
	Subtotal	996	980	98.4%	39.9	2.3	D
SB	Left Turn	194	177	91.5%	58.1	4.9	E
	Through	200	197	98.4%	34.7	5.6	C
	Right Turn	86	81	94.1%	4.5	0.6	A
	Subtotal	480	455	94.8%	38.5	2.9	D
EB	Left Turn	138	132	95.8%	63.4	6.9	E
	Through	1,038	984	94.8%	34.5	4.7	C
	Right Turn	62	62	99.9%	29.2	8.2	C
	Subtotal	1,238	1,178	95.2%	37.4	4.8	D
WB	Left Turn	167	154	92.4%	53.2	6.2	D
	Through	695	654	94.1%	27.5	3.3	C
	Right Turn	222	208	93.6%	11.9	2.8	B
	Subtotal	1,084	1,016	93.7%	28.2	3.0	C
Total		3,798	3,629	95.6%	35.7	2.4	D

Intersection 8 **Franklin Blvd/38th Avenue** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	8	11	142.5%	8.4	4.9	A
	Through	1,010	1,003	99.3%	4.6	0.8	A
	Right Turn						
	Subtotal	1,018	1,014	99.6%	4.6	0.8	A
SB	Left Turn						
	Through	361	350	96.8%	5.1	1.0	A
	Right Turn	11	11	100.2%	4.4	2.8	A
	Subtotal	372	361	96.9%	5.1	1.0	A
EB	Left Turn	19	14	76.0%	8.4	3.4	A
	Through						
	Right Turn	27	28	104.1%	3.8	0.6	A
	Subtotal	46	43	92.5%	5.3	1.3	A
WB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
Total		1,436	1,417	98.7%	4.8	0.6	A

Intersection 1 **Franklin Blvd/Sutterville Road-12th Avenue** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	98	83	84.9%	53.1	19.4	D
	Through	177	159	90.0%	45.4	20.4	D
	Right Turn	167	138	82.4%	44.7	38.0	D
	Subtotal	442	380	86.0%	47.1	24.9	D
SB	Left Turn	61	55	90.3%	81.1	48.9	F
	Through	471	433	92.0%	45.8	20.8	D
	Right Turn	147	135	91.8%	35.3	20.8	D
	Subtotal	679	623	91.8%	46.5	22.4	D
EB	Left Turn	83	77	92.9%	45.7	8.5	D
	Through	552	527	95.6%	27.9	3.4	C
	Right Turn	214	193	90.2%	20.3	4.5	C
	Subtotal	849	798	93.9%	27.6	3.2	C
WB	Left Turn	196	187	95.2%	85.3	18.1	F
	Through	870	796	91.5%	34.5	2.5	C
	Right Turn	105	116	110.0%	31.1	2.7	C
	Subtotal	1,171	1,098	93.8%	42.7	5.1	D
Total		3,141	2,899	92.3%	39.6	6.5	D

Intersection 2 **SR 99 SB Ramps/12th Avenue** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through						
	Right Turn	43	38	89.3%	39.9	10.3	D
	Subtotal	43	38	89.3%	39.9	10.3	D
SB	Left Turn	360	338	93.9%	43.2	10.7	D
	Through	59	49	83.7%	42.4	10.5	D
	Right Turn	557	529	94.9%	23.3	7.3	C
	Subtotal	976	916	93.9%	31.7	6.2	C
EB	Left Turn						
	Through	727	654	90.0%	45.2	17.0	D
	Right Turn	71	68	96.3%	25.7	10.8	C
	Subtotal	798	723	90.6%	43.5	16.3	D
WB	Left Turn	143	137	95.9%	19.8	8.0	B
	Through	634	575	90.7%	6.2	0.6	A
	Right Turn						
	Subtotal	777	713	91.7%	8.8	1.9	A
Total		2,594	2,390	92.1%	28.6	6.2	C

Intersection 3 **SR 99 NB Ramps/12th Avenue** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	268	244	90.9%	42.8	5.7	D
	Through	1	1	114.0%	18.2	31.8	B
	Right Turn	183	174	95.1%	3.0	1.2	A
	Subtotal	452	419	92.6%	26.4	4.4	C
SB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
EB	Left Turn	453	385	85.1%	40.1	15.4	D
	Through	677	631	93.2%	4.5	1.2	A
	Right Turn						
	Subtotal	1,130	1,017	90.0%	17.8	6.4	B
WB	Left Turn						
	Through	509	453	89.0%	93.0	42.2	F
	Right Turn	284	265	93.4%	33.4	24.9	C
	Subtotal	793	718	90.6%	70.5	33.9	E
Total		2,375	2,153	90.7%	36.2	10.5	D

Intersection 4 **Franklin Blvd/15th Avenue Alley-14th Avenue** **Side-street Stop**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through	459	425	92.6%	1.4	0.3	A
	Right Turn	39	40	102.3%	1.5	0.7	A
	Subtotal	498	465	93.4%	1.4	0.3	A
SB	Left Turn	113	105	92.5%	6.7	0.9	A
	Through	780	727	93.2%	1.6	0.1	A
	Right Turn	5	5	98.8%	1.3	0.1	A
	Subtotal	898	837	93.2%	2.3	0.2	A
EB	Left Turn	3	1	38.0%	5.0	11.0	A
	Through						
	Right Turn	1	2	152.0%	2.8	5.5	A
	Subtotal	4	3	66.5%	7.6	11.1	A
WB	Left Turn	67	66	98.1%	17.3	4.7	C
	Through						
	Right Turn	7	7	97.7%	11.1	16.3	B
	Subtotal	74	73	98.1%	16.7	5.1	C
Total		1,474	1,377	93.4%	2.8	0.3	A

SimTraffic Post-Processor **Franklin Blvd Complete Street**
Average Results from 10 Runs **Existing Conditions**
Volume and Delay by Movement **PM Peak Hour**

Intersection 5 **Franklin Blvd/21st Avenue** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	33	33	101.3%	29.3	7.2	C
	Through	427	392	91.8%	13.5	1.7	B
	Right Turn	122	125	102.5%	11.2	2.4	B
	Subtotal	582	551	94.6%	14.0	1.7	B
SB	Left Turn	66	55	83.5%	28.1	3.5	C
	Through	785	739	94.2%	13.9	2.3	B
	Right Turn	25	20	80.6%	12.9	3.5	B
	Subtotal	876	815	93.0%	14.9	2.0	B
EB	Left Turn	32	33	104.5%	13.5	4.5	B
	Through	27	29	108.4%	15.9	4.2	B
	Right Turn	37	41	110.9%	9.5	3.2	A
	Subtotal	96	104	108.1%	12.4	2.3	B
WB	Left Turn	115	116	100.8%	19.8	4.1	B
	Through	19	19	98.0%	20.2	5.1	C
	Right Turn	67	57	84.5%	11.0	4.5	B
	Subtotal	201	191	95.1%	17.3	3.9	B
Total		1,755	1,660	94.6%	14.7	1.0	B

Intersection 6 **Franklin Blvd/26th Avenue** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	80	84	105.5%	23.8	4.4	C
	Through	521	495	95.0%	5.2	1.1	A
	Right Turn						
	Subtotal	601	580	96.4%	7.9	1.4	A
SB	Left Turn						
	Through	829	791	95.4%	11.5	1.6	B
	Right Turn	127	122	96.3%	11.2	1.7	B
	Subtotal	956	914	95.6%	11.4	1.5	B
EB	Left Turn	90	82	91.2%	18.6	3.0	B
	Through						
	Right Turn	72	63	87.6%	8.9	1.6	A
	Subtotal	162	145	89.6%	14.4	2.1	B
WB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
Total		1,719	1,638	95.3%	10.5	0.8	B

Intersection 7 **Franklin Blvd/Fruitridge Rd** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	107	95	88.8%	57.2	4.9	E
	Through	300	278	92.7%	38.7	3.6	D
	Right Turn	175	161	91.9%	5.0	1.2	A
	Subtotal	582	534	91.7%	31.9	2.2	C
SB	Left Turn	275	268	97.6%	59.3	6.5	E
	Through	606	570	94.1%	45.0	4.5	D
	Right Turn	136	135	98.9%	24.8	4.9	C
	Subtotal	1,017	973	95.7%	46.1	3.7	D
EB	Left Turn	110	96	87.4%	54.3	7.1	D
	Through	714	690	96.6%	32.5	2.9	C
	Right Turn	90	92	102.2%	28.5	4.6	C
	Subtotal	914	878	96.0%	34.6	2.9	C
WB	Left Turn	328	294	89.7%	81.8	21.1	F
	Through	1,123	1,062	94.6%	48.8	21.2	D
	Right Turn	252	250	99.4%	28.0	20.5	C
	Subtotal	1,703	1,607	94.3%	51.6	21.1	D
Total		4,216	3,991	94.7%	44.1	8.9	D

Intersection 8 **Franklin Blvd/38th Avenue** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	14	14	97.7%	14.8	5.9	B
	Through	512	473	92.5%	2.6	0.4	A
	Right Turn						
	Subtotal	526	487	92.6%	3.0	0.6	A
SB	Left Turn						
	Through	933	856	91.8%	7.7	1.1	A
	Right Turn	19	17	92.0%	8.4	2.0	A
	Subtotal	952	874	91.8%	7.8	1.1	A
EB	Left Turn	12	10	82.3%	6.2	3.2	A
	Through						
	Right Turn	22	18	81.2%	4.0	0.6	A
	Subtotal	34	28	81.6%	5.0	1.5	A
WB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
Total		1,512	1,389	91.8%	6.0	0.9	A

SimTraffic Post-Processor **Franklin Blvd Complete Street**
Average Results from 10 Runs **Existing Plus Project Conditions (with No Channelized Rights)**
Volume and Delay by Movement **AM Peak Hour**

Intersection 1 **Franklin Blvd/Sutterville Road-12th Avenue** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	140	122	87.4%	71.3	12.8	E
	Through	460	418	90.8%	60.6	17.0	E
	Right Turn	100	84	84.4%	32.8	14.5	C
	Subtotal	700	624	89.2%	59.0	15.9	E
SB	Left Turn	100	88	88.2%	47.3	7.0	D
	Through	160	149	93.1%	29.1	3.4	C
	Right Turn	70	74	106.4%	10.0	2.8	B
	Subtotal	330	312	94.4%	29.8	3.0	C
EB	Left Turn	210	201	95.5%	47.2	7.6	D
	Through	500	480	95.9%	28.6	3.6	C
	Right Turn	260	244	93.8%	23.2	5.9	C
	Subtotal	970	924	95.3%	31.4	3.0	C
WB	Left Turn	130	128	98.8%	61.1	3.8	E
	Through	740	686	92.7%	26.0	4.5	C
	Right Turn	110	108	97.8%	24.6	5.1	C
	Subtotal	980	922	94.1%	30.7	3.9	C
Total		2,980	2,782	93.4%	37.3	3.3	D

Intersection 2 **SR 99 SB Ramps/12th Avenue** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through						
	Right Turn	90	73	80.6%	62.5	26.3	E
	Subtotal	90	73	80.6%	62.5	26.3	E
SB	Left Turn	430	404	94.0%	57.4	22.5	E
	Through	130	115	88.6%	46.1	12.9	D
	Right Turn	400	395	98.7%	14.6	7.8	B
	Subtotal	960	914	95.2%	37.5	14.4	D
EB	Left Turn						
	Through	640	577	90.1%	24.3	10.9	C
	Right Turn	60	52	87.4%	8.5	3.3	A
	Subtotal	700	629	89.9%	23.0	10.0	C
WB	Left Turn	100	103	103.0%	10.7	4.3	B
	Through	590	538	91.3%	5.6	0.6	A
	Right Turn						
	Subtotal	690	641	93.0%	6.5	1.1	A
Total		2,440	2,258	92.5%	25.3	8.1	C

SimTraffic Post-Processor **Franklin Blvd Complete Street**
Average Results from 10 Runs **Existing Plus Project Conditions (with No Channelized Rights)**
Volume and Delay by Movement **AM Peak Hour**

Intersection 3 **SR 99 NB Ramps/12th Avenue** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	220	203	92.4%	44.3	5.0	D
	Through						
	Right Turn	100	89	88.9%	3.0	0.4	A
	Subtotal	320	292	91.3%	31.7	4.4	C
SB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
EB	Left Turn	420	353	84.0%	43.6	17.2	D
	Through	740	704	95.2%	4.3	1.3	A
	Right Turn						
	Subtotal	1,160	1,057	91.1%	17.3	6.2	B
WB	Left Turn						
	Through	470	438	93.1%	70.6	27.2	E
	Right Turn	500	483	96.5%	22.6	17.1	C
	Subtotal	970	920	94.9%	45.4	21.6	D
Total		2,450	2,269	92.6%	30.6	10.8	C

Intersection 4 **Franklin Blvd/15th Avenue Alley-14th Avenue** **Side-street Stop**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	10	9	91.2%	6.2	3.0	A
	Through	680	619	91.0%	6.1	3.8	A
	Right Turn	110	96	87.4%	4.8	4.2	A
	Subtotal	800	724	90.5%	5.9	3.7	A
SB	Left Turn	140	128	91.5%	21.2	8.8	C
	Through	410	390	95.2%	2.5	1.5	A
	Right Turn	10	10	102.6%	1.9	1.6	A
	Subtotal	560	529	94.4%	7.2	2.5	A
EB	Left Turn	10	9	91.2%	52.5	62.9	F
	Through	10	6	64.6%	45.0	33.5	E
	Right Turn	10	10	102.6%	17.8	24.4	C
	Subtotal	30	26	86.1%	40.8	48.0	E
WB	Left Turn	40	32	78.9%	79.2	71.7	F
	Through	10	7	72.2%	42.6	54.5	E
	Right Turn	10	9	91.2%	54.9	90.3	F
	Subtotal	60	48	79.8%	71.0	66.8	F
Total		1,450	1,326	91.5%	8.9	4.3	A

SimTraffic Post-Processor **Franklin Blvd Complete Street**
Average Results from 10 Runs **Existing Plus Project Conditions (with No Channelized Rights)**
Volume and Delay by Movement **AM Peak Hour**

Intersection 5 **Franklin Blvd/21st Avenue** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	70	64	91.2%	53.0	16.0	D
	Through	620	555	89.5%	56.0	15.5	E
	Right Turn	160	153	95.5%	50.0	14.9	D
	Subtotal	850	771	90.8%	54.6	15.4	D
SB	Left Turn	130	120	92.1%	40.9	8.4	D
	Through	270	260	96.3%	14.0	1.9	B
	Right Turn	40	35	87.4%	9.8	3.7	A
	Subtotal	440	415	94.2%	21.7	4.0	C
EB	Left Turn	40	38	96.0%	37.7	12.5	D
	Through	40	43	107.4%	32.1	12.5	C
	Right Turn	70	73	104.8%	16.9	5.0	B
	Subtotal	150	155	103.1%	25.8	5.6	C
WB	Left Turn	140	126	89.8%	72.6	26.4	E
	Through	60	57	95.0%	70.3	33.4	E
	Right Turn	130	120	92.1%	65.7	32.0	E
	Subtotal	330	302	91.7%	69.7	29.7	E
Total		1,770	1,643	92.8%	46.7	9.5	D

Intersection 6 **Franklin Blvd/26th Avenue** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	120	103	85.5%	20.1	3.8	C
	Through	600	545	90.8%	13.9	1.6	B
	Right Turn						
	Subtotal	720	648	89.9%	14.9	1.8	B
SB	Left Turn						
	Through	380	377	99.3%	12.7	2.2	B
	Right Turn	90	82	90.8%	8.9	2.7	A
	Subtotal	470	459	97.7%	12.0	2.2	B
EB	Left Turn	290	264	91.2%	23.3	2.3	C
	Through						
	Right Turn	80	78	97.4%	13.4	2.3	B
	Subtotal	370	342	92.5%	21.1	2.0	C
WB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
Total		1,560	1,449	92.9%	15.4	1.6	B

SimTraffic Post-Processor **Franklin Blvd Complete Street**
Average Results from 10 Runs **Existing Plus Project Conditions (with No Channelized Rights)**
Volume and Delay by Movement **AM Peak Hour**

Intersection 7 **Franklin Blvd/Fruitridge Rd** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	120	101	84.6%	133.9	36.8	F
	Through	510	461	90.5%	103.6	33.0	F
	Right Turn	250	200	80.0%	75.6	32.7	E
	Subtotal	880	763	86.7%	100.4	33.0	F
SB	Left Turn	180	167	92.7%	66.6	7.8	E
	Through	200	200	99.8%	37.5	6.0	D
	Right Turn	90	83	92.5%	16.1	4.1	B
	Subtotal	470	450	95.6%	44.1	5.0	D
EB	Left Turn	70	66	93.9%	73.5	17.2	E
	Through	1,090	1,050	96.3%	49.7	12.1	D
	Right Turn	70	65	93.4%	44.9	13.9	D
	Subtotal	1,230	1,181	96.0%	50.9	11.9	D
WB	Left Turn	170	162	95.2%	85.7	24.7	F
	Through	720	694	96.4%	28.8	2.2	C
	Right Turn	190	171	90.2%	14.8	3.3	B
	Subtotal	1,080	1,027	95.1%	35.9	5.4	D
Total		3,660	3,420	93.4%	56.8	9.1	E

Intersection 8 **Franklin Blvd/38th Avenue** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	20	14	68.4%	5.4	3.7	A
	Through	880	815	92.6%	4.6	1.4	A
	Right Turn						
	Subtotal	900	828	92.0%	4.6	1.4	A
SB	Left Turn						
	Through	360	348	96.7%	7.9	1.7	A
	Right Turn	20	19	96.9%	6.9	2.3	A
	Subtotal	380	367	96.7%	7.9	1.7	A
EB	Left Turn	20	19	95.0%	6.4	2.8	A
	Through						
	Right Turn	30	24	81.1%	4.0	0.5	A
	Subtotal	50	43	86.6%	5.2	1.5	A
WB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
Total		1,330	1,239	93.2%	5.6	1.2	A

SimTraffic Post-Processor **Franklin Blvd Complete Street**
Average Results from 10 Runs **Existing Plus Project Conditions (with No Channelized Rights)**
Volume and Delay by Movement **PM Peak Hour**

Intersection 1 **Franklin Blvd/Sutterville Road-12th Avenue** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	70	66	93.9%	43.1	6.8	D
	Through	140	143	102.3%	29.8	5.1	C
	Right Turn	30	28	92.5%	8.1	2.6	A
	Subtotal	240	237	98.6%	30.9	5.1	C
SB	Left Turn	70	58	82.5%	104.0	46.4	F
	Through	420	391	93.1%	73.7	42.0	E
	Right Turn	160	156	97.4%	58.0	42.3	E
	Subtotal	650	605	93.0%	72.5	42.8	E
EB	Left Turn	90	74	82.3%	45.9	6.2	D
	Through	590	553	93.6%	24.8	2.1	C
	Right Turn	190	180	94.6%	18.5	3.5	B
	Subtotal	870	806	92.7%	25.4	2.1	C
WB	Left Turn	150	139	92.7%	54.1	16.5	D
	Through	920	863	93.8%	34.3	3.9	C
	Right Turn	110	111	101.2%	31.7	5.2	C
	Subtotal	1,180	1,114	94.4%	36.7	4.9	D
Total		2,940	2,761	93.9%	40.6	9.2	D

Intersection 2 **SR 99 SB Ramps/12th Avenue** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through						
	Right Turn	30	28	92.5%	37.2	6.2	D
	Subtotal	30	28	92.5%	37.2	6.2	D
SB	Left Turn	390	365	93.6%	35.1	4.3	D
	Through	130	131	100.6%	36.0	5.5	D
	Right Turn	470	454	96.5%	15.6	4.3	B
	Subtotal	990	950	95.9%	25.9	2.5	C
EB	Left Turn						
	Through	600	572	95.3%	25.5	4.5	C
	Right Turn	80	67	84.1%	19.5	5.0	B
	Subtotal	680	639	93.9%	24.8	4.2	C
WB	Left Turn	70	66	93.9%	17.7	7.5	B
	Through	730	687	94.1%	6.2	0.7	A
	Right Turn						
	Subtotal	800	752	94.1%	7.3	1.3	A
Total		2,500	2,369	94.7%	19.9	2.0	B

Intersection 3 **SR 99 NB Ramps/12th Avenue** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	280	259	92.6%	46.6	5.8	D
	Through	10	7	68.4%	20.0	22.3	B
	Right Turn	190	179	94.4%	4.4	1.0	A
	Subtotal	480	445	92.8%	29.5	4.2	C
SB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
EB	Left Turn	340	313	92.1%	11.5	11.4	B
	Through	680	644	94.8%	2.5	0.7	A
	Right Turn						
	Subtotal	1,020	958	93.9%	5.6	4.5	A
WB	Left Turn						
	Through	520	475	91.3%	63.8	47.9	E
	Right Turn	310	290	93.7%	18.6	31.5	B
	Subtotal	830	765	92.2%	46.1	38.8	D
Total		2,330	2,168	93.1%	24.5	13.5	C

Intersection 4 **Franklin Blvd/15th Avenue Alley-14th Avenue** **Side-street Stop**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	10	9	91.2%	8.9	6.2	A
	Through	230	232	100.9%	1.2	0.5	A
	Right Turn	30	29	96.3%	0.6	0.4	A
	Subtotal	270	270	100.1%	1.3	0.5	A
SB	Left Turn	110	98	89.5%	4.7	1.1	A
	Through	660	627	95.0%	2.6	0.3	A
	Right Turn	10	11	114.0%	1.7	0.3	A
	Subtotal	780	737	94.5%	2.9	0.4	A
EB	Left Turn	10	7	72.2%	20.1	21.8	C
	Through	10	6	57.0%	19.9	18.4	C
	Right Turn	10	11	114.0%	8.8	7.5	A
	Subtotal	30	24	81.1%	18.4	11.2	C
WB	Left Turn	70	69	98.3%	28.1	8.8	D
	Through	10	12	117.8%	17.8	8.0	C
	Right Turn	10	13	125.4%	11.7	10.3	B
	Subtotal	90	93	103.4%	25.1	6.9	D
Total		1,170	1,124	96.1%	4.7	0.8	A

Intersection 5 **Franklin Blvd/21st Avenue** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	40	34	85.5%	22.5	6.3	C
	Through	220	212	96.4%	13.3	3.8	B
	Right Turn	130	120	92.4%	8.4	2.4	A
	Subtotal	390	366	93.9%	12.6	2.8	B
SB	Left Turn	50	48	95.0%	17.7	2.7	B
	Through	720	687	95.5%	19.5	2.0	B
	Right Turn	30	31	103.9%	13.8	3.5	B
	Subtotal	800	766	95.8%	19.2	1.9	B
EB	Left Turn	40	41	102.6%	18.2	4.6	B
	Through	30	24	81.1%	15.4	6.1	B
	Right Turn	40	36	90.3%	14.4	5.7	B
	Subtotal	110	101	92.2%	16.3	4.1	B
WB	Left Turn	120	115	95.6%	22.8	4.0	C
	Through	20	17	85.5%	22.5	7.9	C
	Right Turn	50	53	105.6%	12.9	5.2	B
	Subtotal	190	185	97.2%	20.2	3.1	C
Total		1,490	1,419	95.2%	17.4	1.6	B

Intersection 6 **Franklin Blvd/26th Avenue** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	100	92	91.6%	25.1	6.4	C
	Through	290	280	96.4%	5.9	1.8	A
	Right Turn						
	Subtotal	390	371	95.2%	10.6	2.7	B
SB	Left Turn						
	Through	710	659	92.8%	26.9	14.4	C
	Right Turn	180	169	94.2%	21.7	12.4	C
	Subtotal	890	828	93.1%	25.9	14.1	C
EB	Left Turn	120	109	90.6%	26.9	6.0	C
	Through						
	Right Turn	80	73	91.2%	17.2	4.6	B
	Subtotal	200	182	90.8%	23.3	4.7	C
WB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
Total		1,480	1,381	93.3%	21.6	8.9	C

Intersection 7 **Franklin Blvd/Fruitridge Rd** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	110	96	87.4%	77.6	10.6	E
	Through	200	196	97.9%	34.9	5.1	C
	Right Turn	160	158	98.8%	15.9	5.5	B
	Subtotal	470	450	95.7%	37.6	5.2	D
SB	Left Turn	260	210	80.7%	130.4	23.5	F
	Through	570	499	87.5%	106.6	21.7	F
	Right Turn	80	63	78.4%	94.8	24.5	F
	Subtotal	910	771	84.7%	112.3	21.5	F
EB	Left Turn	10	10	102.6%	72.2	36.1	E
	Through	830	760	91.5%	82.6	30.4	F
	Right Turn	100	91	90.8%	82.0	41.4	F
	Subtotal	940	861	91.6%	82.7	31.2	F
WB	Left Turn	270	247	91.5%	87.1	16.0	F
	Through	1,190	1,169	98.2%	37.7	8.3	D
	Right Turn	250	231	92.3%	16.3	5.9	B
	Subtotal	1,710	1,646	96.3%	42.2	8.5	D
Total		4,030	3,728	92.5%	65.6	9.3	E

Intersection 8 **Franklin Blvd/38th Avenue** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	20	19	93.1%	8.6	5.6	A
	Through	380	375	98.7%	2.5	0.7	A
	Right Turn						
	Subtotal	400	394	98.4%	2.8	0.7	A
SB	Left Turn						
	Through	840	737	87.8%	12.2	1.3	B
	Right Turn	20	19	96.9%	10.4	1.4	B
	Subtotal	860	757	88.0%	12.1	1.3	B
EB	Left Turn	20	17	87.4%	8.5	4.5	A
	Through						
	Right Turn	30	24	78.5%	5.0	2.1	A
	Subtotal	50	41	82.1%	7.0	2.6	A
WB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
Total		1,310	1,191	90.9%	8.9	1.1	A

Intersection 1 **Franklin Blvd/Sutterville Road-12th Avenue** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	140	127	90.9%	65.2	12.7	E
	Through	460	394	85.6%	51.4	13.4	D
	Right Turn	100	75	75.2%	27.8	17.8	C
	Subtotal	700	596	85.2%	51.4	13.8	D
SB	Left Turn	100	100	99.6%	55.0	8.9	E
	Through	160	158	98.8%	33.0	9.9	C
	Right Turn	70	61	87.4%	12.8	5.6	B
	Subtotal	330	319	96.6%	36.1	7.8	D
EB	Left Turn	210	204	97.2%	48.7	8.4	D
	Through	500	464	92.8%	31.5	15.4	C
	Right Turn	260	241	92.5%	21.0	3.8	C
	Subtotal	970	909	93.7%	32.7	10.3	C
WB	Left Turn	130	129	99.1%	63.0	7.7	E
	Through	740	686	92.6%	24.4	3.6	C
	Right Turn	110	115	104.7%	21.7	5.8	C
	Subtotal	980	929	94.8%	29.4	2.5	C
Total		2,980	2,753	92.4%	36.1	7.0	D

Intersection 2 **SR 99 SB Ramps/12th Avenue** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through						
	Right Turn	90	81	90.4%	58.1	33.5	E
	Subtotal	90	81	90.4%	58.1	33.5	E
SB	Left Turn	430	405	94.2%	42.3	17.1	D
	Through	130	114	88.0%	36.9	7.1	D
	Right Turn	400	377	94.1%	11.7	4.5	B
	Subtotal	960	896	93.3%	28.9	10.5	C
EB	Left Turn						
	Through	640	565	88.4%	25.9	26.0	C
	Right Turn	60	63	105.8%	10.5	8.5	B
	Subtotal	700	629	89.8%	24.6	25.0	C
WB	Left Turn	100	84	84.4%	14.0	6.6	B
	Through	590	569	96.5%	5.6	0.6	A
	Right Turn						
	Subtotal	690	654	94.7%	6.6	1.0	A
Total		2,440	2,260	92.6%	22.2	11.9	C

Intersection 3 **SR 99 NB Ramps/12th Avenue** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	220	219	99.3%	42.0	4.8	D
	Through						
	Right Turn	100	98	98.4%	2.1	0.5	A
	Subtotal	320	317	99.0%	29.5	3.6	C
SB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
EB	Left Turn	420	354	84.2%	32.2	23.9	C
	Through	740	692	93.5%	4.0	1.9	A
	Right Turn						
	Subtotal	1,160	1,046	90.2%	13.3	8.8	B
WB	Left Turn						
	Through	470	439	93.4%	76.5	33.2	E
	Right Turn	500	470	94.1%	27.3	20.1	C
	Subtotal	970	909	93.7%	51.1	27.3	D
Total		2,450	2,272	92.7%	30.7	13.2	C

Intersection 4 **Franklin Blvd/15th Avenue Alley-14th Avenue** **Side-street Stop**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	10	11	106.4%	6.7	3.2	A
	Through	680	587	86.3%	5.1	5.0	A
	Right Turn	110	90	81.5%	4.9	8.6	A
	Subtotal	800	687	85.9%	5.1	5.3	A
SB	Left Turn	140	136	97.2%	14.5	4.6	B
	Through	410	383	93.4%	2.3	1.1	A
	Right Turn	10	10	95.0%	1.5	0.8	A
	Subtotal	560	529	94.4%	5.5	1.8	A
EB	Left Turn	10	10	98.8%	27.9	22.0	D
	Through	10	8	83.6%	35.2	23.6	E
	Right Turn	10	11	114.0%	10.9	6.1	B
	Subtotal	30	30	98.8%	24.1	9.2	C
WB	Left Turn	40	29	71.3%	24.2	10.8	C
	Through	10	10	98.8%	19.1	17.0	C
	Right Turn	10	13	125.4%	10.2	10.0	B
	Subtotal	60	51	84.9%	21.5	7.2	C
Total		1,450	1,296	89.4%	6.3	3.6	A

Intersection 5 **Franklin Blvd/21st Avenue** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	70	56	80.3%	156.1	42.9	F
	Through	620	524	84.5%	123.4	41.1	F
	Right Turn	160	145	90.5%	118.1	42.2	F
	Subtotal	850	725	85.3%	124.9	41.0	F
SB	Left Turn	130	124	95.3%	53.6	16.5	D
	Through	270	247	91.6%	18.5	3.0	B
	Right Turn	40	38	96.0%	12.8	4.6	B
	Subtotal	440	410	93.1%	28.9	6.9	C
EB	Left Turn	40	41	101.7%	34.0	14.5	C
	Through	40	27	68.4%	29.6	8.5	C
	Right Turn	70	70	100.4%	14.9	8.2	B
	Subtotal	150	138	92.2%	23.0	8.2	C
WB	Left Turn	140	135	96.6%	47.0	23.5	D
	Through	60	59	97.5%	48.8	18.6	D
	Right Turn	130	118	90.9%	40.9	24.5	D
	Subtotal	330	312	94.5%	44.9	22.6	D
Total		1,770	1,585	89.5%	75.5	21.7	E

Intersection 6 **Franklin Blvd/26th Avenue** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	120	105	87.1%	44.6	5.7	D
	Through	600	569	94.9%	18.9	8.2	B
	Right Turn						
	Subtotal	720	674	93.6%	22.9	7.4	C
SB	Left Turn						
	Through	380	346	91.0%	17.6	3.5	B
	Right Turn	90	93	103.0%	12.3	4.3	B
	Subtotal	470	439	93.3%	16.5	3.4	B
EB	Left Turn	290	263	90.8%	38.2	21.8	D
	Through						
	Right Turn	80	72	89.8%	26.9	20.4	C
	Subtotal	370	335	90.6%	35.6	21.1	D
WB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
Total		1,560	1,447	92.8%	23.9	8.3	C

Intersection 7 **Franklin Blvd/Fruitridge Rd** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	120	114	95.3%	102.4	18.1	F
	Through	510	486	95.2%	72.5	16.8	E
	Right Turn	250	235	94.1%	33.1	15.0	C
	Subtotal	880	835	94.9%	65.5	14.9	E
SB	Left Turn	180	158	87.8%	53.8	5.8	D
	Through	200	168	84.0%	36.2	3.9	D
	Right Turn	90	91	101.3%	6.5	0.7	A
	Subtotal	470	417	88.8%	36.4	2.9	D
EB	Left Turn	70	69	98.8%	102.9	25.1	F
	Through	1,090	1,060	97.2%	75.7	17.8	E
	Right Turn	70	68	96.6%	69.6	20.8	E
	Subtotal	1,230	1,197	97.3%	77.1	18.2	E
WB	Left Turn	170	156	91.9%	55.4	6.0	E
	Through	720	709	98.5%	30.4	3.7	C
	Right Turn	190	182	95.8%	18.0	2.9	B
	Subtotal	1,080	1,047	97.0%	32.1	2.4	C
Total		3,660	3,496	95.5%	56.0	8.2	E

Intersection 8 **Franklin Blvd/38th Avenue** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	20	18	89.3%	7.7	2.4	A
	Through	880	853	96.9%	5.6	1.0	A
	Right Turn						
	Subtotal	900	871	96.7%	5.6	1.0	A
SB	Left Turn						
	Through	360	321	89.3%	6.2	1.1	A
	Right Turn	20	19	95.0%	3.9	1.3	A
	Subtotal	380	340	89.6%	6.0	1.1	A
EB	Left Turn	20	17	83.6%	9.6	6.7	A
	Through						
	Right Turn	30	30	98.8%	4.5	1.0	A
	Subtotal	50	46	92.7%	6.4	3.1	A
WB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
Total		1,330	1,257	94.5%	5.8	0.8	A

SimTraffic Post-Processor **Franklin Blvd Complete Street**
Average Results from 10 Runs **Existing Plus Project Alternative Conditions**
Volume and Delay by Movement **PM Peak Hour**

Intersection 1 **Franklin Blvd/Sutterville Road-12th Avenue** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	70	65	92.3%	41.0	6.2	D
	Through	140	117	83.6%	31.2	5.1	C
	Right Turn	30	29	96.3%	9.2	5.2	A
	Subtotal	240	211	87.7%	31.1	4.2	C
SB	Left Turn	70	61	87.4%	104.3	26.0	F
	Through	420	386	91.9%	76.4	26.8	E
	Right Turn	160	147	91.9%	59.3	27.0	E
	Subtotal	650	594	91.4%	75.0	27.0	E
EB	Left Turn	90	83	92.0%	41.5	8.4	D
	Through	590	563	95.5%	25.4	2.6	C
	Right Turn	190	183	96.4%	20.2	5.4	C
	Subtotal	870	829	95.3%	26.0	2.6	C
WB	Left Turn	150	138	91.7%	52.7	10.4	D
	Through	920	867	94.2%	35.3	3.5	D
	Right Turn	110	111	100.5%	32.7	3.9	C
	Subtotal	1,180	1,115	94.5%	37.2	3.9	D
Total		2,940	2,749	93.5%	41.6	6.9	D

Intersection 2 **SR 99 SB Ramps/12th Avenue** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through						
	Right Turn	30	34	112.7%	44.1	43.3	D
	Subtotal	30	34	112.7%	44.1	43.3	D
SB	Left Turn	390	393	100.7%	33.1	8.3	C
	Through	130	111	85.1%	35.5	4.7	D
	Right Turn	470	452	96.2%	15.0	5.8	B
	Subtotal	990	956	96.5%	24.9	4.6	C
EB	Left Turn						
	Through	600	575	95.8%	26.3	4.5	C
	Right Turn	80	70	87.4%	21.0	3.3	C
	Subtotal	680	644	94.8%	25.8	4.2	C
WB	Left Turn	70	72	102.6%	14.4	7.4	B
	Through	730	681	93.3%	7.0	1.1	A
	Right Turn						
	Subtotal	800	753	94.1%	7.7	1.6	A
Total		2,500	2,387	95.5%	20.1	3.7	C

Intersection 3 **SR 99 NB Ramps/12th Avenue** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	280	252	89.8%	38.5	4.9	D
	Through	10	7	72.2%	28.2	20.4	C
	Right Turn	190	176	92.4%	2.8	1.0	A
	Subtotal	480	434	90.5%	24.0	3.0	C
SB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
EB	Left Turn	340	321	94.6%	8.4	11.4	A
	Through	680	681	100.1%	2.5	0.7	A
	Right Turn						
	Subtotal	1,020	1,002	98.3%	4.5	4.4	A
WB	Left Turn						
	Through	520	493	94.9%	44.4	6.0	D
	Right Turn	310	286	92.2%	11.0	7.6	B
	Subtotal	830	779	93.9%	32.1	6.8	C
Total		2,330	2,216	95.1%	18.1	4.1	B

Intersection 4 **Franklin Blvd/15th Avenue Alley-14th Avenue** **Side-street Stop**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	10	11	110.2%	5.5	4.2	A
	Through	230	208	90.5%	1.2	0.3	A
	Right Turn	30	32	105.1%	0.8	0.4	A
	Subtotal	270	251	92.9%	1.4	0.3	A
SB	Left Turn	110	109	98.8%	5.0	0.8	A
	Through	660	609	92.3%	2.7	0.4	A
	Right Turn	10	8	79.8%	2.0	0.3	A
	Subtotal	780	726	93.1%	3.0	0.4	A
EB	Left Turn	10	9	87.4%	11.4	6.1	B
	Through	10	9	91.2%	18.3	12.9	C
	Right Turn	10	9	87.4%	12.7	6.5	B
	Subtotal	30	27	88.7%	15.8	3.0	C
WB	Left Turn	70	63	89.6%	22.3	8.3	C
	Through	10	11	114.0%	21.0	11.3	C
	Right Turn	10	7	68.4%	5.7	9.0	A
	Subtotal	90	81	89.9%	20.8	7.4	C
Total		1,170	1,084	92.7%	4.3	0.8	A

Intersection 5 **Franklin Blvd/21st Avenue** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	40	30	75.1%	37.4	7.9	D
	Through	220	198	89.8%	13.0	1.4	B
	Right Turn	130	121	93.0%	7.9	1.3	A
	Subtotal	390	348	89.3%	13.3	1.5	B
SB	Left Turn	50	41	82.1%	40.3	7.3	D
	Through	720	683	94.8%	22.5	4.3	C
	Right Turn	30	21	68.4%	16.6	5.8	B
	Subtotal	800	744	93.1%	23.3	3.9	C
EB	Left Turn	40	39	97.9%	21.6	6.3	C
	Through	30	29	95.0%	21.7	5.3	C
	Right Turn	40	38	94.1%	16.3	7.3	B
	Subtotal	110	105	95.7%	20.0	4.3	B
WB	Left Turn	120	124	102.9%	24.7	4.3	C
	Through	20	18	91.2%	28.1	7.6	C
	Right Turn	50	49	98.0%	14.1	4.1	B
	Subtotal	190	191	100.4%	22.1	3.2	C
Total		1,490	1,389	93.2%	20.3	2.3	C

Intersection 6 **Franklin Blvd/26th Avenue** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	100	91	91.2%	34.4	5.5	C
	Through	290	284	97.9%	4.7	1.0	A
	Right Turn						
	Subtotal	390	375	96.2%	12.0	2.2	B
SB	Left Turn						
	Through	710	684	96.3%	23.2	8.1	C
	Right Turn	180	169	93.7%	18.8	7.0	B
	Subtotal	890	853	95.8%	22.3	7.9	C
EB	Left Turn	120	87	72.8%	30.1	3.6	C
	Through						
	Right Turn	80	81	101.2%	18.6	3.7	B
	Subtotal	200	168	84.2%	24.6	2.4	C
WB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
Total		1,480	1,396	94.3%	19.8	5.0	B

Intersection 7 **Franklin Blvd/Fruitridge Rd** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	110	103	94.0%	61.6	6.6	E
	Through	200	187	93.7%	34.5	6.6	C
	Right Turn	160	155	96.9%	6.4	1.3	A
	Subtotal	470	446	94.8%	30.9	3.3	C
SB	Left Turn	260	246	94.7%	98.4	22.9	F
	Through	570	500	87.8%	86.1	22.9	F
	Right Turn	80	77	96.0%	64.5	24.3	E
	Subtotal	910	823	90.5%	87.7	22.6	F
EB	Left Turn	10	11	114.0%	63.3	29.3	E
	Through	830	787	94.8%	43.6	5.4	D
	Right Turn	100	84	84.0%	33.8	5.6	C
	Subtotal	940	882	93.9%	43.0	5.2	D
WB	Left Turn	270	255	94.4%	64.6	7.6	E
	Through	1,190	1,123	94.4%	37.3	12.0	D
	Right Turn	250	238	95.3%	15.4	7.9	B
	Subtotal	1,710	1,616	94.5%	38.4	10.9	D
Total		4,030	3,768	93.5%	49.4	7.0	D

Intersection 8 **Franklin Blvd/38th Avenue** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	20	16	79.8%	11.5	5.3	B
	Through	380	368	96.8%	2.5	0.6	A
	Right Turn						
	Subtotal	400	384	96.0%	2.9	0.8	A
SB	Left Turn						
	Through	840	742	88.3%	11.9	2.0	B
	Right Turn	20	21	106.4%	9.8	2.9	A
	Subtotal	860	763	88.7%	11.8	2.0	B
EB	Left Turn	20	16	81.7%	7.3	3.6	A
	Through						
	Right Turn	30	26	87.4%	4.4	1.3	A
	Subtotal	50	43	85.1%	5.5	1.9	A
WB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
Total		1,310	1,189	90.8%	8.7	1.4	A

Appendix B

Vehicle Queue Post Processor Results

Intersection 1 **Franklin Blvd/Sutterville Road-12th Avenue** **Signal**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	95th Queue (ft) Average	95th Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Block Time Pocket	Block Time Upstream
EB	Left Turn	250	126	25	205	38	223	35	0%	0%
	Through	2,711	160	17	234	24	232	32	0%	0%
	Through/Right	2,711	169	22	257	36	251	45	0%	0%
NB	Left Turn	160	174	10	197	8	184	0	39%	0%
	Through	216	228	30	293	20	275	12	15%	37%
	Through/Right	216	220	9	280	14	260	10	0%	21%
SB	Left Turn	1,090	69	11	116	9	109	6	13%	0%
	Through	186	83	22	154	50	170	49	7%	4%
	Through/Right	186	51	12	100	26	106	26	0%	0%
WB	Left Turn	148	100	23	168	48	168	46	0%	6%
	Through	148	202	17	256	19	240	12	0%	21%
	Through/Right	148	216	16	260	17	242	12	0%	25%

Intersection 2 **SR 99 SB Ramps/12th Avenue** **Signal**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	95th Queue (ft) Average	95th Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Block Time Pocket	Block Time Upstream
EB	Through	141	193	32	240	15	231	17	0%	51%
	Through/Right	141	117	30	188	43	179	35	0%	8%
NB	Right Turn	226	72	33	129	57	127	51	0%	0%
SB	Left Turn	604	167	34	235	73	239	79	0%	0%
	Left/Through	604	170	54	286	135	303	148	5%	0%
	Right Turn	160	132	30	251	45	219	29	10%	0%
WB	Left Turn	85	46	16	98	33	91	28	4%	0%
	Through	215	45	21	133	53	155	71	0%	0%

SimTraffic Post-Processor **Franklin Blvd Complete Street**
Average Results from 10 Runs **Existing Conditions**
Queue Length **AM Peak Hour**
Intersection 3 **SR 99 NB Ramps/12th Avenue** **Signal**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	95th Queue (ft) Average	95th Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Block Time Pocket	Block Time Upstream
EB	Left Turn	100	109	19	144	18	125	0	61%	0%
	Through	215	174	57	281	63	255	20	0%	18%
NB	Left Turn	370	87	8	134	19	131	17	0%	0%
	Left/Through	370	53	15	107	27	105	28	0%	0%
	Right Turn	200	0	0	0	0	0	0	0%	0%
WB	Through	108	159	18	183	17	176	17	0%	58%
	Right Turn	108	5	14	16	52	16	50	0%	0%

Intersection 4 **Franklin Blvd/15th Avenue Alley-14th Avenue** **Side-street Stop**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	95th Queue (ft) Average	95th Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Block Time Pocket	Block Time Upstream
EB	Shared	312	10	6	30	13	30	10	0%	0%
NB	Left Turn	250	0	0	0	0	0	0	0%	0%
	Through	1,088	14	24	50	71	89	87	0%	0%
	Through/Right	1,088	13	30	46	87	99	113	0%	0%
SB	Left Turn	150	47	12	93	22	97	26	0%	0%
	Through	218	0	1	2	5	2	7	0%	0%
	Through/Right	218	0	0	0	0	0	0	0%	0%
WB	Shared	220	20	8	46	16	44	22	0%	0%

SimTraffic Post-Processor **Franklin Blvd Complete Street**
Average Results from 10 Runs **Existing Conditions**
Queue Length **AM Peak Hour**
Intersection 5 **Franklin Blvd/21st Avenue** **Signal**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	95th Queue (ft) Average	95th Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Block Time Pocket	Block Time Upstream
EB	Shared	568	49	5	97	21	105	28	0%	0%
NB	Left Turn	100	64	14	128	25	119	18	1%	0%
	Through	796	224	36	351	50	335	41	24%	0%
	Through/Right	796	233	42	360	64	349	54	0%	0%
SB	Left Turn	200	65	8	116	20	126	29	0%	0%
	Through	900	44	17	82	27	84	31	0%	0%
	Through/Right	900	58	12	105	19	107	27	0%	0%
WB	Shared	670	125	18	196	50	192	50	0%	0%

Intersection 6 **Franklin Blvd/26th Avenue** **Signal**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	95th Queue (ft) Average	95th Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Block Time Pocket	Block Time Upstream
EB	Left Turn	464	124	17	199	29	196	34	48%	0%
	Right Turn	25	39	4	64	9	56	8	5%	0%
NB	Left Turn	100	76	17	131	27	132	27	5%	0%
	Through	438	99	21	187	41	191	51	3%	0%
SB	Through	878	63	14	108	25	108	21	0%	0%
	Through/Right	878	68	15	117	29	115	31	0%	0%

Intersection 7 **Franklin Blvd/Fruitridge Rd** **Signal**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	95th Queue (ft) Average	95th Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Block Time Pocket	Block Time Upstream
EB	Left Turn	185	164	37	287	34	258	20	4%	0%
	Through	2,245	316	56	456	97	456	96	26%	0%
	Through/Right	2,245	321	59	456	95	451	102	0%	0%
NB	Left Turn	120	120	30	225	47	210	32	5%	0%
	Through	1,221	252	35	352	54	360	50	42%	0%
	Right Turn	140	158	52	295	34	240	0	5%	0%
SB	Left Turn	200	88	17	138	24	137	28	0%	0%
	Through	852	73	17	133	32	137	44	5%	0%
	Right Turn	100	9	12	45	58	63	81	0%	0%
WB	Left Turn	200	126	22	221	56	245	65	0%	0%
	Through	1,438	200	25	291	39	290	54	8%	0%
	Right Turn	200	73	15	135	42	145	61	0%	0%

Intersection 8 **Franklin Blvd/38th Avenue** **Signal**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	95th Queue (ft) Average	95th Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Block Time Pocket	Block Time Upstream
EB	Shared	997	23	4	38	8	36	14	0%	0%
NB	Left Turn	250	7	3	27	7	33	8	0%	0%
	Through	2,982	50	18	114	38	120	43	0%	0%
SB	Through	1,100	13	7	44	22	49	26	0%	0%
	Through/Right	1,100	23	10	63	19	64	20	0%	0%

Intersection 1 **Franklin Blvd/Sutterville Road-12th Avenue** **Signal**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	95th Queue (ft) Average	95th Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Block Time Pocket	Block Time Upstream
EB	Left Turn	250	78	30	171	76	190	89	0%	0%
	Through	2,710	188	31	279	60	270	68	2%	0%
	Through/Right	2,710	184	22	294	59	297	58	0%	0%
NB	Left Turn	160	77	23	126	31	132	34	1%	0%
	Through	214	86	35	161	67	175	74	4%	3%
	Through/Right	214	141	43	231	70	228	57	0%	10%
SB	Left Turn	1,090	62	15	119	15	114	1	9%	0%
	Through	164	167	17	224	22	215	13	35%	14%
	Through/Right	164	154	24	204	32	196	23	0%	11%
WB	Left Turn	143	176	29	256	24	232	11	0%	43%
	Through	143	204	18	250	18	230	8	0%	21%
	Through/Right	143	222	6	249	22	240	16	0%	29%

Intersection 2 **SR 99 SB Ramps/12th Avenue** **Signal**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	95th Queue (ft) Average	95th Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Block Time Pocket	Block Time Upstream
EB	Through	145	210	19	248	20	239	17	0%	54%
	Through/Right	145	142	22	217	39	206	23	0%	11%
NB	Right Turn	226	32	6	76	20	86	23	0%	0%
SB	Left Turn	600	151	14	233	36	232	47	0%	0%
	Left/Through	600	234	65	398	120	410	122	5%	0%
	Right Turn	160	165	17	211	24	185	0	24%	0%
WB	Left Turn	85	49	13	107	19	101	17	5%	0%
	Through	211	70	24	168	59	183	62	1%	1%

Intersection 3 **SR 99 NB Ramps/12th Avenue** **Signal**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	95th Queue (ft) Average	95th Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Block Time Pocket	Block Time Upstream
EB	Left Turn	100	110	23	134	15	124	4	60%	0%
	Through	211	175	70	238	92	217	69	1%	18%
NB	Left Turn	356	102	14	143	25	141	24	0%	0%
	Left/Through	356	80	18	143	26	133	26	0%	0%
	Right Turn	200	24	19	73	38	83	36	0%	0%
WB	Through	109	159	14	188	14	174	17	0%	63%
	Right Turn	109	0	0	0	0	0	0	0%	0%

Intersection 4 **Franklin Blvd/15th Avenue Alley-14th Avenue** **Side-street Stop**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	95th Queue (ft) Average	95th Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Block Time Pocket	Block Time Upstream
EB	Shared	285	4	5	15	14	19	16	0%	0%
NB	Left Turn	250	0	0	0	0	0	0	0%	0%
	Through	1,088	0	0	0	0	0	0	0%	0%
	Through/Right	1,088	1	3	6	15	9	21	0%	0%
SB	Left Turn	150	23	12	53	24	58	25	0%	0%
	Through	150	0	0	0	0	0	0	0%	0%
	Through/Right	150	0	0	0	0	0	0	0%	0%
WB	Shared	219	40	11	79	30	86	40	0%	0%

Intersection 5 **Franklin Blvd/21st Avenue** **Signal**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	95th Queue (ft) Average	95th Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Block Time Pocket	Block Time Upstream
EB	Shared	568	47	12	86	24	85	22	0%	0%
NB	Left Turn	100	33	13	76	29	82	39	0%	0%
	Through	796	79	13	152	24	154	22	5%	0%
	Through/Right	796	106	22	172	31	173	26	0%	0%
SB	Left Turn	200	43	18	91	45	100	62	0%	0%
	Through	900	118	26	215	49	218	50	2%	0%
	Through/Right	900	134	19	216	35	218	50	0%	0%
WB	Shared	670	80	20	134	34	136	26	0%	0%

Intersection 6 **Franklin Blvd/26th Avenue** **Signal**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	95th Queue (ft) Average	95th Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Block Time Pocket	Block Time Upstream
EB	Left Turn	464	51	12	92	25	97	29	30%	0%
	Right Turn	25	40	3	61	8	50	0	11%	0%
NB	Left Turn	100	51	9	84	19	85	17	1%	0%
	Through	438	57	17	109	35	108	40	0%	0%
SB	Through	878	102	18	185	34	198	55	0%	0%
	Through/Right	878	127	22	214	45	228	57	0%	0%

Intersection 7 **Franklin Blvd/Fruitridge Rd** **Signal**

SimTraffic Post-Processor **Franklin Blvd Complete Street**
Average Results from 10 Runs **Existing Conditions**
Queue Length **PM Peak Hour**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	95th Queue (ft) Average	95th Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Block Time Pocket	Block Time Upstream
EB	Left Turn	185	125	14	229	23	206	12	1%	0%
	Through	2,245	233	23	336	45	330	45	15%	0%
	Through/Right	2,245	240	21	347	51	339	57	0%	0%
NB	Left Turn	120	90	19	143	21	134	18	7%	0%
	Through	1,221	113	19	181	41	190	55	8%	0%
	Right Turn	140	34	36	105	97	114	79	0%	0%
SB	Left Turn	200	174	24	252	31	225	28	2%	0%
	Through	852	265	29	399	62	425	88	49%	0%
	Right Turn	100	71	22	161	16	125	0	0%	0%
WB	Left Turn	200	199	21	257	30	224	20	6%	0%
	Through	1,438	530	229	744	298	742	281	30%	0%
	Right Turn	200	156	24	292	20	225	0	0%	0%

Intersection 8 **Franklin Blvd/38th Avenue** **Signal**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	95th Queue (ft) Average	95th Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Block Time Pocket	Block Time Upstream
EB	Shared	997	17	7	39	10	37	17	0%	0%
NB	Left Turn	250	8	7	29	20	34	15	0%	0%
	Through	2,982	22	6	67	16	74	26	0%	0%
SB	Through	1,100	43	23	112	45	118	53	0%	0%
	Through/Right	1,100	57	33	142	63	140	64	0%	0%

SimTraffic Post-Processor **Franklin Blvd Complete Street**
Average Results from 10 Runs **Existing Plus Project Conditions (with No Channelized Rights)**
Queue Length **AM Peak Hour**

Intersection 1 **Franklin Blvd/Sutterville Road-12th Avenue** **Signal**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	95th Queue (ft) Average	95th Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Block Time Pocket	Block Time Upstream
EB	Left Turn	250	150	27	238	41	240	39	1%	0%
	Through	2,711	175	28	269	55	272	54	2%	0%
	Through/Right	2,711	187	34	279	56	281	56	0%	0%
NB	Left Turn	160	145	12	221	14	184	0	3%	0%
	Through	216	241	16	277	15	269	8	48%	39%
	Right Turn	160	98	44	201	41	185	0	0%	0%
SB	Left Turn	1,090	75	9	125	11	111	7	8%	0%
	Through	182	105	21	193	33	192	33	10%	1%
	Right Turn	90	44	10	99	28	103	25	0%	0%
WB	Left Turn	152	107	17	156	28	151	20	0%	3%
	Through	152	130	32	225	52	201	46	0%	4%
	Through/Right	152	164	24	252	35	229	21	0%	11%

Intersection 2 **SR 99 SB Ramps/12th Avenue** **Signal**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	95th Queue (ft) Average	95th Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Block Time Pocket	Block Time Upstream
EB	Through	141	130	46	231	57	208	46	0%	24%
	Through/Right	141	57	15	117	35	118	33	0%	0%
NB	Right Turn	226	77	24	136	49	145	54	0%	1%
SB	Left Turn	1,178	222	57	328	108	329	124	0%	0%
	Left/Through	1,178	228	66	369	134	380	162	26%	0%
	Right Turn	160	158	47	269	66	227	40	5%	0%
WB	Left Turn	85	25	15	62	27	74	30	0%	0%
	Through	212	41	15	107	32	109	47	1%	0%

SimTraffic Post-Processor **Franklin Blvd Complete Street**
Average Results from 10 Runs **Existing Plus Project Conditions (with No Channelized Rights)**
Queue Length **AM Peak Hour**

Intersection 3 **SR 99 NB Ramps/12th Avenue** **Signal**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	95th Queue (ft) Average	95th Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Block Time Pocket	Block Time Upstream
EB	Left Turn	100	111	21	134	12	125	0	58%	0%
	Through	212	157	63	254	79	229	58	0%	19%
NB	Left Turn	626	116	15	176	25	176	21	0%	0%
	Left/Through	626	56	20	124	38	126	32	0%	0%
	Right Turn	200	5	6	22	24	29	30	0%	0%
WB	Through	109	154	16	178	14	172	15	0%	44%
	Right Turn	109	0	0	0	0	0	0	0%	0%

Intersection 4 **Franklin Blvd/15th Avenue Alley-14th Avenue** **Side-street Stop**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	95th Queue (ft) Average	95th Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Block Time Pocket	Block Time Upstream
EB	Shared	324	28	9	55	17	51	20	0%	0%
NB	Left Turn	250	6	3	22	9	24	9	0%	0%
	Through/Right	1,092	55	52	134	122	135	122	1%	0%
SB	Left Turn	150	50	19	106	32	114	38	1%	0%
	Through/Right	215	8	18	33	69	40	80	0%	0%
WB	Shared	232	46	25	87	52	83	49	0%	0%

SimTraffic Post-Processor **Franklin Blvd Complete Street**
Average Results from 10 Runs **Existing Plus Project Conditions (with No Channelized Rights)**
Queue Length **AM Peak Hour**
Intersection 5 **Franklin Blvd/21st Avenue** **Signal**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Std. Dev.	95th Queue (ft) Average	Std. Dev.	Maximum Queue (ft) Average	Std. Dev.	Block Time Pocket	Upstream
EB	Shared	580	89	20	153	38	147	37	0%	0%
NB	Left Turn	100	43	12	114	25	119	17	0%	0%
	Through/Right	800	532	109	733	129	694	121	44%	1%
SB	Left Turn	200	80	15	130	30	133	31	0%	0%
	Through/Right	900	92	13	162	38	167	33	0%	0%
WB	Shared	682	289	106	434	178	420	168	0%	0%

Intersection 6 **Franklin Blvd/26th Avenue** **Signal**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Std. Dev.	95th Queue (ft) Average	Std. Dev.	Maximum Queue (ft) Average	Std. Dev.	Block Time Pocket	Upstream
EB	Left Turn	476	152	20	245	22	250	26	55%	0%
	Right Turn	25	41	9	63	6	59	8	8%	0%
NB	Left Turn	100	56	14	109	33	116	35	1%	0%
	Through	437	157	25	299	54	306	49	8%	0%
SB	Through/Right	879	123	20	206	47	215	53	0%	0%

SimTraffic Post-Processor **Franklin Blvd Complete Street**
Average Results from 10 Runs **Existing Plus Project Conditions (with No Channelized Rights)**
Queue Length **AM Peak Hour**
Intersection 7 **Franklin Blvd/Fruitridge Rd** **Signal**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Std. Dev.	95th Queue (ft) Average	Std. Dev.	Maximum Queue (ft) Average	Std. Dev.	Block Time Pocket	Upstream
EB	Left Turn	185	116	39	250	76	264	1	0%	0%
	Through	2,243	418	100	542	131	525	114	40%	0%
	Through/Right	2,243	433	94	552	128	539	116	0%	0%
NB	Left Turn	120	145	40	229	39	219	1	21%	0%
	Through	1,226	789	256	1,065	298	1,036	232	61%	3%
	Right Turn	140	233	63	410	60	340	2	6%	0%
SB	Left Turn	200	116	23	198	69	199	71	0%	0%
	Through	854	158	40	268	87	275	99	22%	0%
	Right Turn	100	68	15	151	37	148	32	0%	0%
WB	Left Turn	200	181	51	251	51	244	43	13%	0%
	Through	1,436	226	39	320	63	313	69	10%	0%
	Right Turn	200	67	21	155	63	179	89	0%	0%

Intersection 8 **Franklin Blvd/38th Avenue** **Signal**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Std. Dev.	95th Queue (ft) Average	Std. Dev.	Maximum Queue (ft) Average	Std. Dev.	Block Time Pocket	Upstream
EB	Shared	1,010	23	5	43	9	35	15	0%	0%
NB	Left Turn	250	6	6	21	16	22	15	0%	0%
	Through	453	85	23	176	42	180	48	0%	0%
SB	Through/Right	1,100	37	14	95	23	99	25	0%	0%

Intersection 1 **Franklin Blvd/Sutterville Road-12th Avenue** **Signal**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	95th Queue (ft) Average	95th Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Block Time Pocket	Block Time Upstream
EB	Left Turn	250	66	16	140	50	155	69	0%	0%
	Through	2,710	173	25	238	35	233	42	1%	0%
	Through/Right	2,710	175	20	257	28	248	33	0%	0%
NB	Left Turn	160	63	25	114	45	123	44	0%	0%
	Through	214	96	21	165	49	165	51	1%	0%
	Right Turn	160	21	8	58	28	62	42	0%	0%
SB	Left Turn	1,090	68	16	122	16	114	0	7%	0%
	Through	166	214	7	233	15	228	14	55%	47%
	Right Turn	90	79	21	137	12	115	0	1%	0%
WB	Left Turn	148	112	39	177	53	170	45	0%	8%
	Through	148	219	11	258	16	238	15	0%	24%
	Through/Right	148	228	5	247	13	242	15	0%	29%

Intersection 2 **SR 99 SB Ramps/12th Avenue** **Signal**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	95th Queue (ft) Average	95th Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Block Time Pocket	Block Time Upstream
EB	Through	150	155	22	219	32	216	32	0%	17%
	Through/Right	150	120	24	193	23	192	26	0%	9%
NB	Right Turn	226	26	10	58	26	57	27	0%	0%
SB	Left Turn	1,048	171	24	245	51	250	69	0%	0%
	Left/Through	1,048	175	38	290	69	300	87	7%	0%
	Right Turn	160	158	24	259	30	233	16	12%	0%
WB	Left Turn	85	24	14	67	34	72	38	1%	0%
	Through	216	72	25	151	53	157	63	1%	0%

SimTraffic Post-Processor **Franklin Blvd Complete Street**
Average Results from 10 Runs **Existing Plus Project Conditions (with No Channelized Rights)**
Queue Length **PM Peak Hour**
Intersection 3 **SR 99 NB Ramps/12th Avenue** **Signal**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	95th Queue (ft) Average	95th Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Block Time Pocket	Block Time Upstream
EB	Left Turn	100	41	36	89	52	81	39	11%	0%
	Through	216	37	51	101	120	94	94	0%	2%
NB	Left Turn	547	139	26	205	40	216	40	0%	0%
	Left/Through	547	87	26	166	43	168	46	0%	0%
	Right Turn	200	19	13	68	35	85	38	0%	0%
WB	Through	110	156	17	177	15	172	15	0%	46%
	Right Turn	110	5	16	19	59	19	61	0%	0%

Intersection 4 **Franklin Blvd/15th Avenue Alley-14th Avenue** **Side-street Stop**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	95th Queue (ft) Average	95th Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Block Time Pocket	Block Time Upstream
EB	Shared	297	21	10	45	11	42	12	0%	0%
NB	Left Turn	250	6	5	21	12	21	11	0%	0%
	Through/Right	1,092	2	5	9	21	11	23	0%	0%
SB	Left Turn	150	11	5	25	10	24	13	0%	0%
	Through/Right	219	0	1	1	4	2	5	0%	0%
WB	Shared	232	55	15	103	35	102	37	0%	0%

Intersection 5 **Franklin Blvd/21st Avenue** **Signal**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	95th Queue (ft) Average	95th Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Block Time Pocket	Block Time Upstream
EB	Shared	580	48	10	82	14	88	24	0%	0%
NB	Left Turn	100	33	11	84	29	96	37	0%	0%
	Through/Right	800	105	33	200	62	211	68	6%	0%
SB	Left Turn	200	39	22	112	79	122	87	0%	0%
	Through/Right	900	230	31	353	64	359	59	10%	0%
WB	Shared	682	97	17	160	31	159	32	0%	0%

Intersection 6 **Franklin Blvd/26th Avenue** **Signal**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	95th Queue (ft) Average	95th Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Block Time Pocket	Block Time Upstream
EB	Left Turn	476	76	20	128	32	123	28	46%	0%
	Right Turn	25	41	6	59	6	50	0	22%	0%
NB	Left Turn	100	57	11	96	21	97	26	2%	0%
	Through	437	54	26	118	59	120	65	1%	0%
SB	Through/Right	879	292	127	485	247	462	221	0%	0%

Intersection 7 **Franklin Blvd/Fruitridge Rd** **Signal**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	95th Queue (ft) Average	95th Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Block Time Pocket	Block Time Upstream
EB	Left Turn	185	24	27	86	97	101	114	0%	0%
	Through	2,243	478	150	611	208	594	186	56%	0%
	Through/Right	2,243	484	155	613	215	600	197	0%	0%
NB	Left Turn	120	101	20	179	27	188	35	13%	0%
	Through	1,226	127	29	201	46	202	55	11%	0%
	Right Turn	140	65	25	111	38	121	35	1%	0%
SB	Left Turn	200	236	37	370	45	300	49	3%	0%
	Through	854	781	59	929	53	865	5	60%	13%
	Right Turn	100	46	26	127	56	135	54	1%	0%
WB	Left Turn	200	265	24	338	18	300	0	37%	0%
	Through	1,436	446	115	612	170	628	167	27%	0%
	Right Turn	200	174	36	378	34	300	0	0%	0%

Intersection 8 **Franklin Blvd/38th Avenue** **Signal**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	95th Queue (ft) Average	95th Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Block Time Pocket	Block Time Upstream
EB	Shared	1,010	21	4	43	6	39	14	0%	0%
NB	Left Turn	250	12	7	33	15	32	16	0%	0%
	Through	436	35	10	89	24	93	33	0%	0%
SB	Through/Right	1,100	64	21	167	47	169	58	0%	0%

Intersection 1 **Franklin Blvd/Sutterville Road-12th Avenue** **Signal**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	95th Queue (ft) Average	95th Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Block Time Pocket	Block Time Upstream
EB	Left Turn	250	157	41	241	48	235	45	1%	0%
	Through	2,711	182	88	288	167	298	188	5%	0%
	Through/Right	2,711	195	44	315	130	327	173	0%	0%
NB	Left Turn	160	139	12	214	14	184	0	6%	0%
	Through	216	238	16	278	14	266	14	38%	29%
	Right Turn	160	89	27	203	36	185	0	0%	0%
SB	Left Turn	1,090	84	8	127	7	112	3	15%	0%
	Through	180	112	23	209	25	221	23	13%	4%
	Right Turn	90	37	19	86	33	91	32	0%	0%
WB	Left Turn	152	112	15	169	26	166	26	0%	3%
	Through	152	126	28	204	44	195	43	0%	3%
	Through/Right	152	175	26	258	36	232	28	0%	11%

Intersection 2 **SR 99 SB Ramps/12th Avenue** **Signal**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	95th Queue (ft) Average	95th Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Block Time Pocket	Block Time Upstream
EB	Through	141	113	68	182	76	175	71	0%	22%
	Through/Right	141	55	19	111	31	113	37	0%	0%
NB	Right Turn	226	75	30	127	54	126	45	0%	0%
SB	Left Turn	601	176	39	244	54	236	64	0%	0%
	Left/Through	601	184	47	262	87	274	107	13%	0%
	Right Turn	160	97	70	215	85	202	54	5%	0%
WB	Left Turn	85	26	9	66	17	74	24	0%	0%
	Through	213	47	8	115	16	116	21	1%	0%

Intersection 3 **SR 99 NB Ramps/12th Avenue** **Signal**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	95th Queue (ft) Average	95th Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Block Time Pocket	Block Time Upstream
EB	Left Turn	100	93	33	128	19	118	15	43%	0%
	Through	213	121	89	215	123	198	102	0%	14%
NB	Left Turn	358	90	10	132	15	136	23	0%	0%
	Left/Through	358	75	15	128	21	123	23	0%	0%
	Right Turn	200	5	9	19	33	21	35	0%	0%
WB	Through	110	152	18	182	15	174	19	0%	43%
	Right Turn	110	20	31	66	88	64	83	0%	0%

Intersection 4 **Franklin Blvd/15th Avenue Alley-14th Avenue** **Side-street Stop**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	95th Queue (ft) Average	95th Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Block Time Pocket	Block Time Upstream
EB	Shared	324	25	5	56	12	55	14	0%	0%
NB	Left Turn	250	5	6	18	14	22	12	0%	0%
	Through/Right	1,092	21	41	76	136	101	153	2%	0%
SB	Left Turn	150	39	12	79	25	92	20	0%	0%
	Through/Right	215	3	9	14	45	20	63	0%	0%
WB	Shared	232	26	7	53	14	51	14	0%	0%

Intersection 5 **Franklin Blvd/21st Avenue** **Signal**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	95th Queue (ft) Average	95th Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Block Time Pocket	Block Time Upstream
EB	Shared	580	71	22	130	42	134	47	0%	0%
NB	Left Turn	100	68	16	126	18	123	3	2%	0%
	Through/Right	800	747	92	822	86	789	70	52%	14%
SB	Left Turn	200	106	27	189	51	180	42	2%	0%
	Through/Right	900	121	27	212	60	215	59	1%	0%
WB	Shared	682	216	81	365	148	365	149	0%	0%

Intersection 6 **Franklin Blvd/26th Avenue** **Signal**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	95th Queue (ft) Average	95th Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Block Time Pocket	Block Time Upstream
EB	Left Turn	476	200	62	315	120	314	114	61%	3%
	Right Turn	25	41	6	62	5	54	7	6%	0%
NB	Left Turn	100	94	20	149	28	142	22	7%	0%
	Through	437	199	49	359	95	339	74	15%	1%
SB	Through/Right	879	152	41	249	74	240	69	0%	0%

Intersection 7 **Franklin Blvd/Fruitridge Rd** **Signal**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	95th Queue (ft) Average	95th Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Block Time Pocket	Block Time Upstream
EB	Left Turn	185	139	32	292	41	264	1	1%	0%
	Through	2,257	587	109	725	129	715	129	57%	0%
	Through/Right	2,257	584	110	729	132	712	123	0%	0%
NB	Left Turn	120	145	26	252	23	219	1	17%	0%
	Through	356	391	21	440	24	421	13	55%	26%
	Right Turn	140	244	53	451	28	340	0	3%	0%
SB	Left Turn	200	80	16	135	40	146	58	0%	0%
	Through	849	116	30	191	42	191	37	20%	0%
	Right Turn	100	27	18	109	62	126	66	0%	0%
WB	Left Turn	200	119	18	197	45	209	63	0%	0%
	Through	1,450	224	30	295	36	291	42	12%	0%
	Right Turn	200	90	37	164	78	176	84	0%	0%

Intersection 8 **Franklin Blvd/38th Avenue** **Signal**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	95th Queue (ft) Average	95th Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Block Time Pocket	Block Time Upstream
EB	Shared	1,010	27	6	52	22	52	33	0%	0%
NB	Left Turn	250	10	4	36	11	39	14	0%	0%
	Through	463	94	18	181	38	171	43	0%	0%
SB	Through/Right	1,100	42	18	97	39	97	44	0%	0%

Intersection 1 **Franklin Blvd/Sutterville Road-12th Avenue** **Signal**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	95th Queue (ft) Average	95th Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Block Time Pocket	Block Time Upstream
EB	Left Turn	250	72	24	140	70	156	83	0%	0%
	Through	2,710	178	23	258	21	257	24	1%	0%
	Through/Right	2,710	189	27	285	47	275	54	0%	0%
NB	Left Turn	160	55	15	96	24	97	19	0%	0%
	Through	214	79	12	138	26	137	32	1%	0%
	Right Turn	160	20	12	55	35	56	47	0%	0%
SB	Left Turn	1,090	70	18	117	17	111	9	5%	0%
	Through	166	218	5	234	10	238	15	56%	51%
	Right Turn	90	77	10	145	10	115	0	3%	0%
WB	Left Turn	148	111	16	184	30	192	21	0%	6%
	Through	148	227	5	239	9	237	12	0%	26%
	Through/Right	148	231	6	240	12	240	14	0%	31%

Intersection 2 **SR 99 SB Ramps/12th Avenue** **Signal**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	95th Queue (ft) Average	95th Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Block Time Pocket	Block Time Upstream
EB	Through	150	158	18	236	24	216	18	0%	20%
	Through/Right	150	126	24	204	35	197	32	0%	9%
NB	Right Turn	226	33	20	70	38	70	34	0%	0%
SB	Left Turn	588	167	22	229	38	229	34	0%	0%
	Left/Through	588	183	46	293	91	290	87	8%	0%
	Right Turn	160	159	37	267	29	236	6	14%	0%
WB	Left Turn	85	30	10	79	21	89	26	1%	0%
	Through	215	84	17	151	38	153	54	2%	0%

Intersection 3 **SR 99 NB Ramps/12th Avenue** **Signal**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	95th Queue (ft) Average	95th Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Block Time Pocket	Block Time Upstream
EB	Left Turn	100	34	30	74	46	75	38	7%	0%
	Through	215	28	48	73	92	72	76	0%	3%
NB	Left Turn	356	92	14	145	26	145	21	0%	0%
	Left/Through	356	85	15	143	21	135	20	0%	0%
	Right Turn	200	17	9	62	28	69	37	0%	0%
WB	Through	110	145	10	182	17	167	17	0%	29%
	Right Turn	110	7	21	20	62	16	50	0%	1%

Intersection 4 **Franklin Blvd/15th Avenue Alley-14th Avenue** **Side-street Stop**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	95th Queue (ft) Average	95th Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Block Time Pocket	Block Time Upstream
EB	Shared	297	23	7	53	10	48	18	0%	0%
NB	Left Turn	250	5	5	17	15	17	14	0%	0%
	Through/Right	1,092	2	3	9	16	13	22	0%	0%
SB	Left Turn	150	10	4	24	7	25	12	0%	0%
	Through/Right	0	0	0	0	0	0	0	0%	0%
WB	Shared	232	44	10	82	25	81	27	0%	0%

Intersection 5 **Franklin Blvd/21st Avenue** **Signal**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	95th Queue (ft) Average	95th Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Block Time Pocket	Block Time Upstream
EB	Shared	580	56	9	99	22	101	27	0%	0%
NB	Left Turn	100	27	11	59	25	70	38	0%	0%
	Through/Right	800	91	18	156	29	162	28	6%	0%
SB	Left Turn	200	53	24	145	64	176	77	0%	0%
	Through/Right	900	247	45	400	85	395	102	13%	0%
WB	Shared	682	94	18	149	38	150	48	0%	0%

Intersection 6 **Franklin Blvd/26th Avenue** **Signal**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	95th Queue (ft) Average	95th Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Block Time Pocket	Block Time Upstream
EB	Left Turn	476	79	11	133	25	141	26	43%	0%
	Right Turn	25	44	6	62	8	53	6	21%	0%
NB	Left Turn	100	67	13	108	21	112	25	3%	0%
	Through	436	42	19	100	35	102	39	0%	0%
SB	Through/Right	879	266	97	419	136	416	113	0%	0%

Intersection 7 **Franklin Blvd/Fruitridge Rd** **Signal**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	95th Queue (ft) Average	95th Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Block Time Pocket	Block Time Upstream
EB	Left Turn	185	19	11	58	50	65	72	0%	0%
	Through	2,257	304	35	389	47	397	60	33%	0%
	Through/Right	2,257	312	40	407	48	407	48	0%	0%
NB	Left Turn	120	97	20	148	33	150	40	7%	0%
	Through	259	121	24	193	42	194	49	12%	0%
	Right Turn	140	9	15	39	67	67	94	0%	0%
SB	Left Turn	200	257	37	357	33	300	35	1%	0%
	Through	850	713	134	890	55	846	31	58%	7%
	Right Turn	100	72	31	190	34	160	0	0%	0%
WB	Left Turn	200	202	37	322	41	300	26	1%	0%
	Through	1,451	386	127	551	184	553	175	28%	0%
	Right Turn	200	148	44	327	48	300	0	0%	0%

Intersection 8 **Franklin Blvd/38th Avenue** **Signal**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	95th Queue (ft) Average	95th Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Block Time Pocket	Block Time Upstream
EB	Shared	1,010	24	6	48	14	49	22	0%	0%
NB	Left Turn	250	13	6	38	10	36	10	0%	0%
	Through	446	30	8	82	20	83	26	0%	0%
SB	Through/Right	1,100	70	31	157	49	149	39	0%	0%

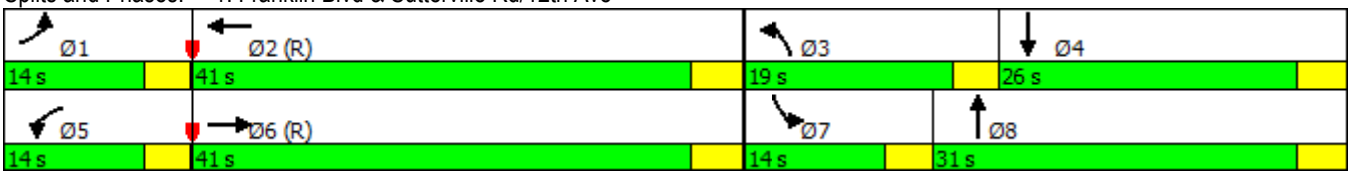
Appendix C

Traffic Signal Reports

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	179	511	143	710	252	494	95	163
Future Volume (vph)	179	511	143	710	252	494	95	163
Turn Type	Prot	NA	Prot	NA	Prot	NA	Prot	NA
Protected Phases	1	6	5	2	3	8	7	4
Permitted Phases								
Detector Phase	1	6	5	2	3	8	7	4
Switch Phase								
Minimum Initial (s)	10.0	9.0	10.0	9.0	9.0	9.0	10.0	10.0
Minimum Split (s)	13.6	26.9	13.6	22.9	12.5	26.9	13.5	25.9
Total Split (s)	14.0	41.0	14.0	41.0	19.0	31.0	14.0	26.0
Total Split (%)	14.0%	41.0%	14.0%	41.0%	19.0%	31.0%	14.0%	26.0%
Yellow Time (s)	3.5	3.9	3.5	3.9	3.5	3.9	3.5	3.9
All-Red Time (s)	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0
Lost Time Adjust (s)	0.4	0.1	0.4	0.1	0.5	0.1	0.5	0.1
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	C-Max	None	None	Min	None
Act Effct Green (s)	13.4	40.7	11.1	38.4	15.0	22.4	9.7	17.1
Actuated g/C Ratio	0.13	0.41	0.11	0.38	0.15	0.22	0.10	0.17
v/c Ratio	0.76	0.55	0.73	0.61	0.96	0.82	0.56	0.37
Control Delay	64.9	21.9	50.2	34.8	90.5	43.6	56.4	28.4
Queue Delay	0.0	0.0	0.0	0.5	0.0	0.0	0.0	0.0
Total Delay	64.9	21.9	50.2	35.4	90.5	43.6	56.4	28.4
LOS	E	C	D	D	F	D	E	C
Approach Delay		30.1		37.6		56.8		36.7
Approach LOS		C		D		E		D

Intersection Summary	
Cycle Length: 100	
Actuated Cycle Length: 100	
Offset: 26 (26%), Referenced to phase 2:WBT and 6:EBT, Start of Green	
Natural Cycle: 85	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.96	
Intersection Signal Delay: 40.7	Intersection LOS: D
Intersection Capacity Utilization 72.8%	ICU Level of Service C
Analysis Period (min) 15	

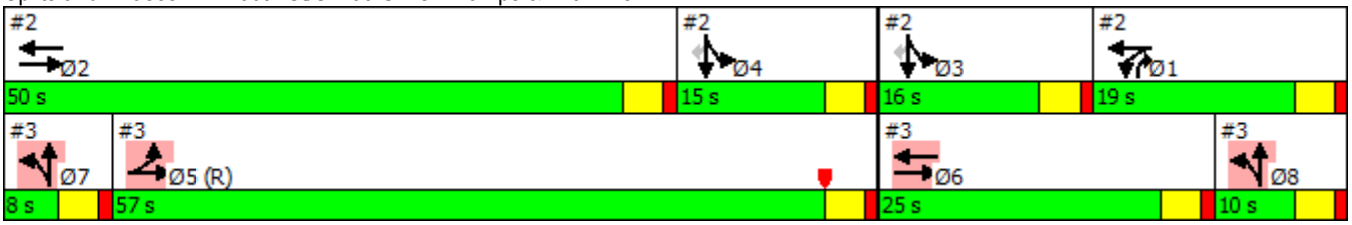
Splits and Phases: 1: Franklin Blvd & Sutterville Rd/12th Ave



Lane Group	EBT	WBL	WBT	NBR	SBL	SBT	SBR	Ø3	Ø4	Ø5	Ø6	Ø7
Lane Configurations												
Traffic Volume (vph)	726	161	492	85	427	20	473					
Future Volume (vph)	726	161	492	85	427	20	473					
Turn Type	NA	Prot	NA	Over	Split	NA	Perm					
Protected Phases	2	1	1 2	1	3 4	3 4		3	4	5	6	7
Permitted Phases							3 4					
Detector Phase	2	1	1 2	1	3 4	3 4	3 4					
Switch Phase												
Minimum Initial (s)	3.0	3.0		3.0				3.0	10.0	25.0	7.0	3.0
Minimum Split (s)	16.0	19.0		19.0				16.0	15.0	29.0	16.0	8.0
Total Split (s)	50.0	19.0		19.0				16.0	15.0	57.0	25.0	8.0
Total Split (%)	50.0%	19.0%		19.0%				16%	15%	57%	25%	8%
Yellow Time (s)	3.0	3.0		3.0				3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	1.0	1.0		1.0				1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0		0.0								
Total Lost Time (s)	4.0	4.0		4.0								
Lead/Lag	Lead	Lag		Lag				Lead	Lag	Lag	Lead	Lead
Lead-Lag Optimize?	Yes	Yes		Yes				Yes	Yes	Yes	Yes	Yes
Recall Mode	Max	None		None				Min	Min	C-Max	Max	None
Act Effct Green (s)	46.0	17.8	67.8	17.8	24.2	24.2	24.2					
Actuated g/C Ratio	0.46	0.18	0.68	0.18	0.24	0.24	0.24					
v/c Ratio	0.49	0.52	0.21	0.21	0.55	0.56	0.69					
Control Delay	18.9	11.8	3.8	2.4	38.5	38.5	11.8					
Queue Delay	0.2	1.0	0.7	0.0	0.0	0.0	0.0					
Total Delay	19.1	12.8	4.5	2.4	38.5	38.5	11.8					
LOS	B	B	A	A	D	D	B					
Approach Delay	19.1		6.5			24.8						
Approach LOS	B		A			C						

Intersection Summary	
Cycle Length: 100	
Actuated Cycle Length: 100	
Offset: 64 (64%), Referenced to phase 5:EBTL, Start of Yellow	
Natural Cycle: 75	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.69	
Intersection Signal Delay: 17.3	Intersection LOS: B
Intersection Capacity Utilization 60.0%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 2: 30th St/SR-99 SB Off-Ramps & 12th Ave



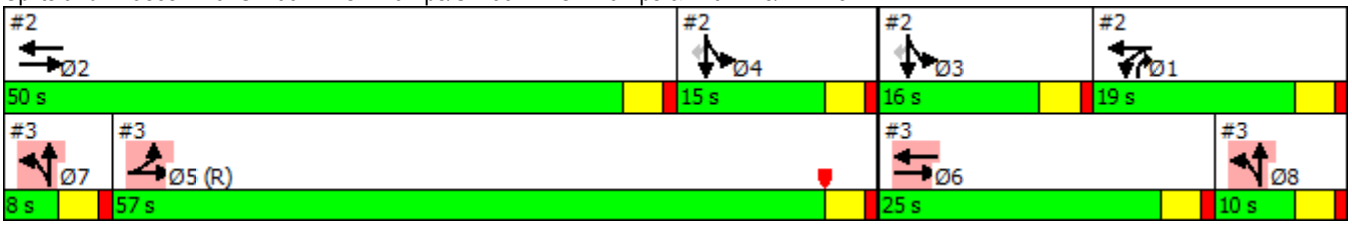
Lane Group	Ø8
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Turn Type	
Protected Phases	8
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	3.0
Minimum Split (s)	10.0
Total Split (s)	10.0
Total Split (%)	10%
Yellow Time (s)	3.0
All-Red Time (s)	1.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	Lag
Lead-Lag Optimize?	Yes
Recall Mode	None
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	

Intersection Summary

Lane Group	EBL	EBT	WBT	WBR	NBL	NBT	NBR	Ø1	Ø2	Ø3	Ø4	Ø7
Lane Configurations												
Traffic Volume (vph)	481	757	456	482	197	0	92					
Future Volume (vph)	481	757	456	482	197	0	92					
Turn Type	Prot	NA	NA	Free	Split	NA	Free					
Protected Phases	5	5 6	6		7 8	7 8		1	2	3	4	7
Permitted Phases				Free			Free					
Detector Phase	5	5 6	6		7 8	7 8						
Switch Phase												
Minimum Initial (s)	25.0		7.0					3.0	3.0	3.0	10.0	3.0
Minimum Split (s)	29.0		16.0					19.0	16.0	16.0	15.0	8.0
Total Split (s)	57.0		25.0					19.0	50.0	16.0	15.0	8.0
Total Split (%)	57.0%		25.0%					19%	50%	16%	15%	8%
Yellow Time (s)	3.0		3.0					3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	1.0		1.0					1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0		0.0									
Total Lost Time (s)	4.0		4.0									
Lead/Lag	Lag		Lead					Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?	Yes		Yes					Yes	Yes	Yes	Yes	Yes
Recall Mode	C-Max		Max					None	Max	Min	Min	None
Act Effct Green (s)	53.0	78.0	21.0	100.0	14.0	14.0	100.0					
Actuated g/C Ratio	0.53	0.78	0.21	1.00	0.14	0.14	1.00					
v/c Ratio	0.52	0.28	0.62	0.31	0.42	0.42	0.06					
Control Delay	6.1	0.6	40.1	0.5	45.5	45.6	0.1					
Queue Delay	0.6	0.2	0.1	0.0	0.0	0.0	0.0					
Total Delay	6.7	0.8	40.2	0.5	45.5	45.6	0.1					
LOS	A	A	D	A	D	D	A					
Approach Delay		3.1	19.8			31.1						
Approach LOS		A	B			C						

Intersection Summary	
Cycle Length: 100	
Actuated Cycle Length: 100	
Offset: 64 (64%), Referenced to phase 5:EBTL, Start of Yellow	
Natural Cycle: 75	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.69	
Intersection Signal Delay: 12.7	Intersection LOS: B
Intersection Capacity Utilization 54.7%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 3: SR-99 NB Off-Ramps/SR-99 NB On-Ramps & 12th Ave/12 Ave



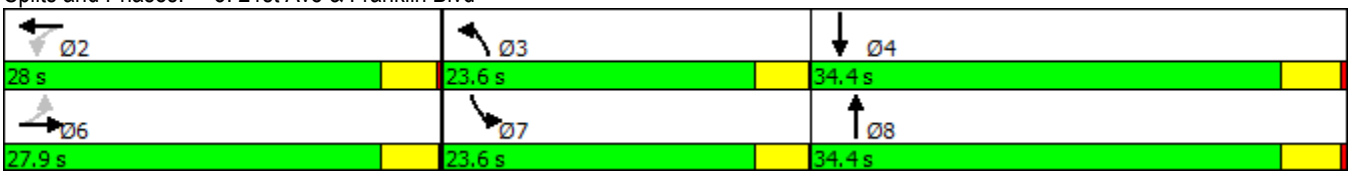
Lane Group	Ø8
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Turn Type	
Protected Phases	8
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	3.0
Minimum Split (s)	10.0
Total Split (s)	10.0
Total Split (%)	10%
Yellow Time (s)	3.0
All-Red Time (s)	1.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	Lag
Lead-Lag Optimize?	Yes
Recall Mode	None
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	

Intersection Summary

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	38	33	140	59	67	833	123	268
Future Volume (vph)	38	33	140	59	67	833	123	268
Turn Type	Perm	NA	Perm	NA	Prot	NA	Prot	NA
Protected Phases		6		2	3	8	7	4
Permitted Phases	6		2					
Detector Phase	6	6	2	2	3	8	7	4
Switch Phase								
Minimum Initial (s)	11.0	11.0	11.0	11.0	10.0	16.0	10.0	16.0
Minimum Split (s)	31.9	31.9	32.0	32.0	13.6	23.4	13.6	23.4
Total Split (s)	27.9	27.9	28.0	28.0	23.6	34.4	23.6	34.4
Total Split (%)	32.4%	32.4%	32.6%	32.6%	27.4%	40.0%	27.4%	40.0%
Yellow Time (s)	3.7	3.7	3.7	3.7	3.5	3.9	3.5	3.9
All-Red Time (s)	0.2	0.2	0.3	0.3	0.1	0.5	0.1	0.5
Lost Time Adjust (s)		0.1		0.0	0.4	-0.4	0.4	-0.4
Total Lost Time (s)		4.0		4.0	4.0	4.0	4.0	4.0
Lead/Lag					Lead	Lag	Lead	Lag
Lead-Lag Optimize?					Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	Min	None	Min
Act Effct Green (s)		20.1		20.1	10.7	25.7	11.5	29.5
Actuated g/C Ratio		0.31		0.31	0.16	0.39	0.18	0.45
v/c Ratio		0.27		0.72	0.24	0.73	0.40	0.20
Control Delay		14.7		29.7	33.0	22.5	34.0	12.9
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0
Total Delay		14.7		29.7	33.0	22.5	34.0	12.9
LOS		B		C	C	C	C	B
Approach Delay		14.7		29.7		23.1		18.9
Approach LOS		B		C		C		B

Intersection Summary	
Cycle Length: 86	
Actuated Cycle Length: 65.5	
Natural Cycle: 70	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.73	
Intersection Signal Delay: 22.8	Intersection LOS: C
Intersection Capacity Utilization 72.3%	ICU Level of Service C
Analysis Period (min) 15	

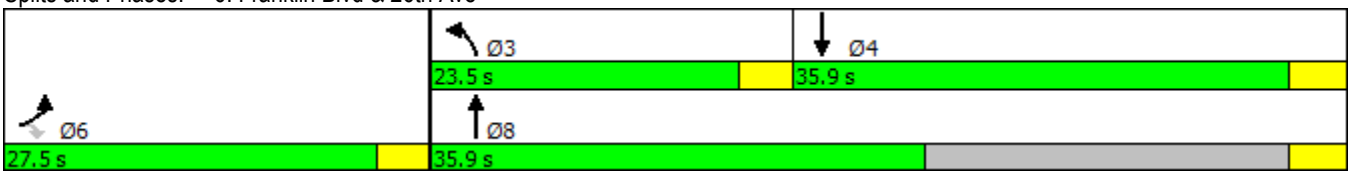
Splits and Phases: 5: 21st Ave & Franklin Blvd



Lane Group	EBL	EBR	NBL	NBT	SBT
Lane Configurations					
Traffic Volume (vph)	225	71	93	886	388
Future Volume (vph)	225	71	93	886	388
Turn Type	Prot	Perm	Prot	NA	NA
Protected Phases	6		3	8	4
Permitted Phases		6			
Detector Phase	6	6	3	8	4
Switch Phase					
Minimum Initial (s)	9.0	9.0	8.0	24.0	24.0
Minimum Split (s)	26.5	26.5	11.5	27.9	27.9
Total Split (s)	27.5	27.5	23.5	35.9	35.9
Total Split (%)	31.6%	31.6%	27.0%	41.3%	41.3%
Yellow Time (s)	3.5	3.5	3.5	3.9	3.9
All-Red Time (s)	0.0	0.0	0.0	0.0	0.0
Lost Time Adjust (s)	0.5	0.5	0.5	0.1	0.1
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0
Lead/Lag			Lead		Lag
Lead-Lag Optimize?			Yes		Yes
Recall Mode	None	None	None	Min	Min
Act Effct Green (s)	12.3	12.3	8.3	33.9	24.6
Actuated g/C Ratio	0.23	0.23	0.15	0.62	0.45
v/c Ratio	0.57	0.19	0.35	0.41	0.31
Control Delay	25.5	11.6	27.5	6.5	11.6
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	25.5	11.6	27.5	6.5	11.6
LOS	C	B	C	A	B
Approach Delay	22.2			8.5	11.6
Approach LOS	C			A	B

Intersection Summary	
Cycle Length: 86.9	
Actuated Cycle Length: 54.5	
Natural Cycle: 70	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.57	
Intersection Signal Delay: 11.6	Intersection LOS: B
Intersection Capacity Utilization 49.1%	ICU Level of Service A
Analysis Period (min) 15	

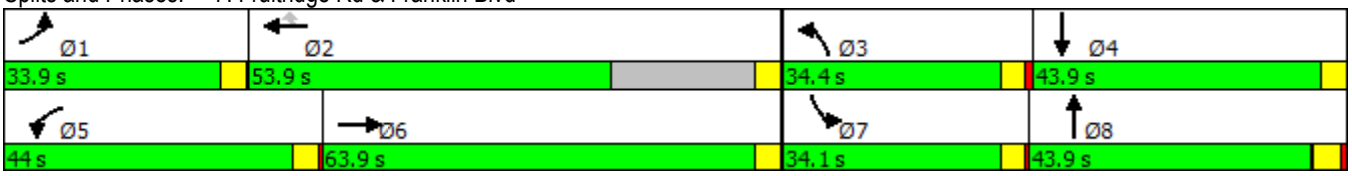
Splits and Phases: 6: Franklin Blvd & 26th Ave



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	138	1038	167	695	222	92	654	250	194	200	86
Future Volume (vph)	138	1038	167	695	222	92	654	250	194	200	86
Turn Type	Prot	NA	Prot	NA	Perm	Prot	NA	Free	Prot	NA	Free
Protected Phases	1	6	5	2		3	8		7	4	
Permitted Phases					2			Free			Free
Detector Phase	1	6	5	2	2	3	8		7	4	
Switch Phase											
Minimum Initial (s)	11.0	10.0	11.0	10.0	10.0	12.0	10.0		11.0	9.0	
Minimum Split (s)	14.9	26.9	15.0	28.9	28.9	16.4	30.9		15.1	26.9	
Total Split (s)	33.9	63.9	44.0	53.9	53.9	34.4	43.9		34.1	43.9	
Total Split (%)	18.2%	34.3%	23.6%	28.9%	28.9%	18.5%	23.6%		18.3%	23.6%	
Yellow Time (s)	3.5	3.9	3.5	3.9	3.9	3.5	3.9		3.5	3.9	
All-Red Time (s)	0.4	0.0	0.5	0.0	0.0	0.9	1.0		0.6	0.0	
Lost Time Adjust (s)	0.1	0.1	0.0	0.1	0.1	-0.4	-0.9		-0.1	0.1	
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	
Recall Mode	None	Min	None	Min	Min	None	None		None	None	
Act Effct Green (s)	15.3	53.0	12.2	49.9	49.9	13.7	30.8	125.1	12.9	30.0	125.1
Actuated g/C Ratio	0.12	0.42	0.10	0.40	0.40	0.11	0.25	1.00	0.10	0.24	1.00
v/c Ratio	0.65	0.75	0.50	0.50	0.31	0.48	0.76	0.16	0.55	0.24	0.06
Control Delay	69.2	35.0	62.0	31.0	9.2	65.0	50.8	0.2	62.1	40.0	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	69.2	35.0	62.0	31.0	9.2	65.0	50.8	0.2	62.1	40.0	0.1
LOS	E	C	E	C	A	E	D	A	E	D	A
Approach Delay		38.8		31.3			39.4			41.8	
Approach LOS		D		C			D			D	

Intersection Summary	
Cycle Length: 186.2	
Actuated Cycle Length: 125.1	
Natural Cycle: 90	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.76	
Intersection Signal Delay: 37.2	Intersection LOS: D
Intersection Capacity Utilization 79.1%	ICU Level of Service D
Analysis Period (min) 15	

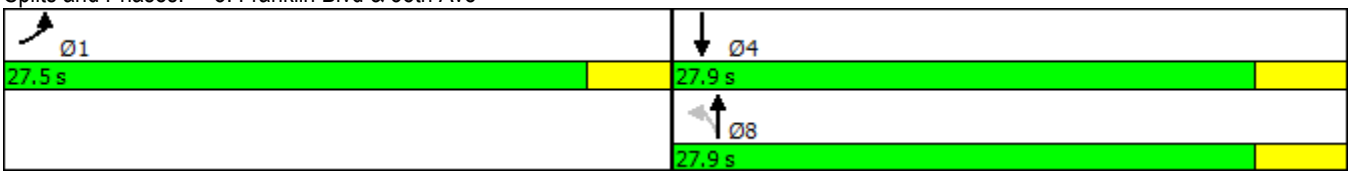
Splits and Phases: 7: Fruitridge Rd & Franklin Blvd



Lane Group	EBL	NBL	NBT	SBT
Lane Configurations				
Traffic Volume (vph)	19	8	1010	361
Future Volume (vph)	19	8	1010	361
Turn Type	Prot	Perm	NA	NA
Protected Phases	1		8	4
Permitted Phases		8		
Detector Phase	1	8	8	4
Switch Phase				
Minimum Initial (s)	9.0	24.0	24.0	24.0
Minimum Split (s)	29.5	27.9	27.9	27.9
Total Split (s)	27.5	27.9	27.9	27.9
Total Split (%)	49.6%	50.4%	50.4%	50.4%
Yellow Time (s)	3.5	3.9	3.9	3.9
All-Red Time (s)	0.0	0.0	0.0	0.0
Lost Time Adjust (s)	0.5	0.1	0.1	0.1
Total Lost Time (s)	4.0	4.0	4.0	4.0
Lead/Lag				
Lead-Lag Optimize?				
Recall Mode	None	Max	Max	Max
Act Effct Green (s)	11.4	39.7	39.7	39.7
Actuated g/C Ratio	0.24	0.82	0.82	0.82
v/c Ratio	0.11	0.01	0.35	0.13
Control Delay	8.9	6.4	5.3	4.3
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	8.9	6.4	5.3	4.3
LOS	A	A	A	A
Approach Delay	8.9		5.3	4.3
Approach LOS	A		A	A

Intersection Summary	
Cycle Length: 55.4	
Actuated Cycle Length: 48.2	
Natural Cycle: 60	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.35	
Intersection Signal Delay: 5.2	Intersection LOS: A
Intersection Capacity Utilization 42.1%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 8: Franklin Blvd & 38th Ave



Lane Group	NBT	Ø8
Lane Configurations		
Traffic Volume (vph)	963	
Future Volume (vph)	963	
Turn Type	NA	
Protected Phases	2	8
Permitted Phases		
Detector Phase	2	
Switch Phase		
Minimum Initial (s)	1.0	1.0
Minimum Split (s)	3.0	5.1
Total Split (s)	3.0	5.1
Total Split (%)	37.0%	63%
Yellow Time (s)	2.0	2.0
All-Red Time (s)	0.0	0.0
Lost Time Adjust (s)	2.0	
Total Lost Time (s)	4.0	
Lead/Lag		
Lead-Lag Optimize?		
Recall Mode	Max	Max
Act Effct Green (s)	0.0	
Actuated g/C Ratio	0.00	
v/c Ratio	no cap	
Control Delay		
Queue Delay		
Total Delay	Error	
LOS	F	
Approach Delay	Err	
Approach LOS	F	

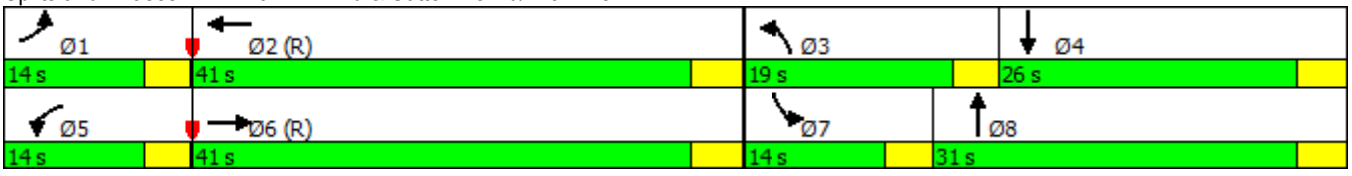
Intersection Summary	
Cycle Length: 8.1	
Actuated Cycle Length: 8.1	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:, Start of Green	
Natural Cycle: 40	
Control Type: Pretimed	
Maximum v/c Ratio: Err	
Intersection Signal Delay: Err	Intersection LOS: F
Intersection Capacity Utilization 44.0%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 18:

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	83	552	196	870	98	177	61	471
Future Volume (vph)	83	552	196	870	98	177	61	471
Turn Type	Prot	NA	Prot	NA	Prot	NA	Prot	NA
Protected Phases	1	6	5	2	3	8	7	4
Permitted Phases								
Detector Phase	1	6	5	2	3	8	7	4
Switch Phase								
Minimum Initial (s)	10.0	9.0	10.0	9.0	9.0	9.0	10.0	10.0
Minimum Split (s)	13.6	26.9	13.6	22.9	12.5	26.9	13.5	25.9
Total Split (s)	14.0	41.0	14.0	41.0	19.0	31.0	14.0	26.0
Total Split (%)	14.0%	41.0%	14.0%	41.0%	19.0%	31.0%	14.0%	26.0%
Yellow Time (s)	3.5	3.9	3.5	3.9	3.5	3.9	3.5	3.9
All-Red Time (s)	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0
Lost Time Adjust (s)	0.4	0.1	0.4	0.1	0.5	0.1	0.5	0.1
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	C-Max	None	None	Min	None
Act Effct Green (s)	9.8	38.8	15.1	46.8	10.3	20.5	9.6	22.4
Actuated g/C Ratio	0.10	0.39	0.15	0.47	0.10	0.20	0.10	0.22
v/c Ratio	0.48	0.57	0.75	0.60	0.54	0.43	0.36	0.79
Control Delay	52.7	24.4	44.8	33.7	53.8	17.8	48.9	42.6
Queue Delay	0.0	0.0	0.0	0.5	0.0	0.0	0.0	0.0
Total Delay	52.7	24.4	44.8	34.2	53.8	17.8	48.9	42.6
LOS	D	C	D	C	D	B	D	D
Approach Delay		27.2		36.0		25.8		43.1
Approach LOS		C		D		C		D

Intersection Summary	
Cycle Length: 100	
Actuated Cycle Length: 100	
Offset: 26 (26%), Referenced to phase 2:WBT and 6:EBT, Start of Green	
Natural Cycle: 85	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.79	
Intersection Signal Delay: 33.7	Intersection LOS: C
Intersection Capacity Utilization 74.6%	ICU Level of Service D
Analysis Period (min) 15	

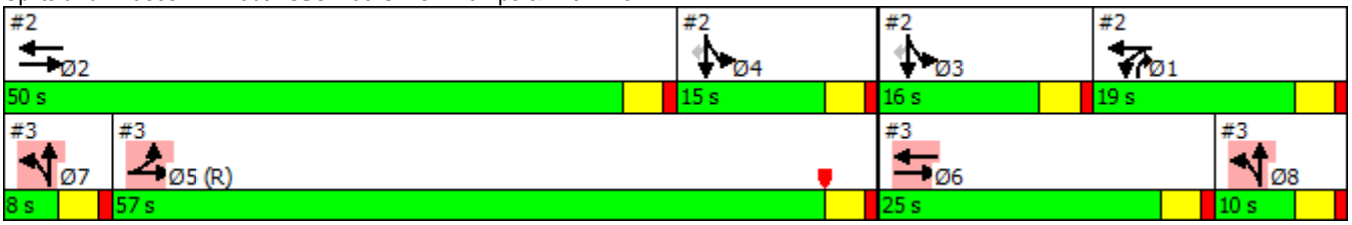
Splits and Phases: 1: Franklin Blvd & Sutterville Rd/12th Ave



Lane Group	EBT	WBL	WBT	NBR	SBL	SBT	SBR	Ø3	Ø4	Ø5	Ø6	Ø7
Lane Configurations												
Traffic Volume (vph)	727	143	634	43	360	59	557					
Future Volume (vph)	727	143	634	43	360	59	557					
Turn Type	NA	Prot	NA	Over	Split	NA	Perm					
Protected Phases	2	1	1 2	1	3 4	3 4		3	4	5	6	7
Permitted Phases							3 4					
Detector Phase	2	1	1 2	1	3 4	3 4	3 4					
Switch Phase												
Minimum Initial (s)	3.0	3.0		3.0				3.0	10.0	25.0	7.0	3.0
Minimum Split (s)	16.0	19.0		19.0				16.0	15.0	29.0	16.0	8.0
Total Split (s)	50.0	19.0		19.0				16.0	15.0	57.0	25.0	8.0
Total Split (%)	50.0%	19.0%		19.0%				16%	15%	57%	25%	8%
Yellow Time (s)	3.0	3.0		3.0				3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	1.0	1.0		1.0				1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0		0.0								
Total Lost Time (s)	4.0	4.0		4.0								
Lead/Lag	Lead	Lag		Lag				Lead	Lag	Lag	Lead	Lead
Lead-Lag Optimize?	Yes	Yes		Yes				Yes	Yes	Yes	Yes	Yes
Recall Mode	Max	None		None				Min	Min	C-Max	Max	None
Act Effct Green (s)	46.0	15.8	65.8	15.8	26.2	26.2	26.2					
Actuated g/C Ratio	0.46	0.16	0.66	0.16	0.26	0.26	0.26					
v/c Ratio	0.50	0.52	0.27	0.11	0.48	0.47	0.88					
Control Delay	19.6	12.1	4.9	0.6	35.2	35.0	33.5					
Queue Delay	0.2	0.3	1.0	0.0	0.0	0.0	2.0					
Total Delay	19.8	12.4	5.9	0.6	35.2	35.0	35.5					
LOS	B	B	A	A	D	C	D					
Approach Delay	19.8		7.1			35.3						
Approach LOS	B		A			D						

Intersection Summary	
Cycle Length: 100	
Actuated Cycle Length: 100	
Offset: 64 (64%), Referenced to phase 5:EBTL, Start of Yellow	
Natural Cycle: 75	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.88	
Intersection Signal Delay: 21.5	Intersection LOS: C
Intersection Capacity Utilization 58.7%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 2: 30th St/SR-99 SB Off-Ramps & 12th Ave



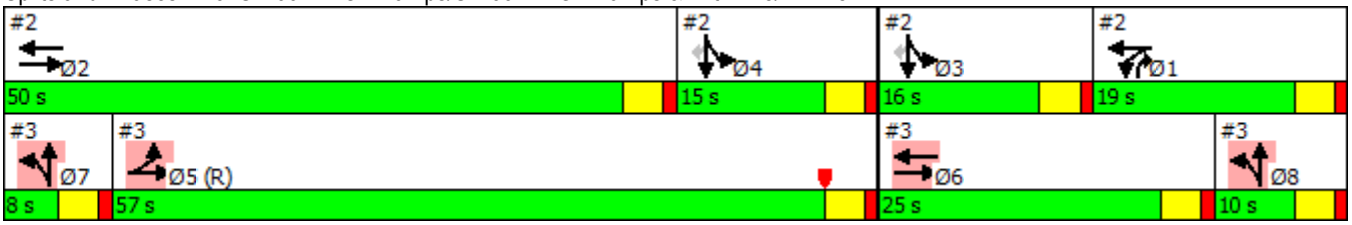
Lane Group	Ø8
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Turn Type	
Protected Phases	8
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	3.0
Minimum Split (s)	10.0
Total Split (s)	10.0
Total Split (%)	10%
Yellow Time (s)	3.0
All-Red Time (s)	1.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	Lag
Lead-Lag Optimize?	Yes
Recall Mode	None
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	

Intersection Summary

Lane Group	EBL	EBT	WBT	WBR	NBL	NBT	NBR	Ø1	Ø2	Ø3	Ø4	Ø7
Lane Configurations												
Traffic Volume (vph)	453	677	509	284	268	1	183					
Future Volume (vph)	453	677	509	284	268	1	183					
Turn Type	Prot	NA	NA	Free	Split	NA	Free					
Protected Phases	5	5 6	6		7 8	7 8		1	2	3	4	7
Permitted Phases				Free			Free					
Detector Phase	5	5 6	6		7 8	7 8						
Switch Phase												
Minimum Initial (s)	25.0		7.0					3.0	3.0	3.0	10.0	3.0
Minimum Split (s)	29.0		16.0					19.0	16.0	16.0	15.0	8.0
Total Split (s)	57.0		25.0					19.0	50.0	16.0	15.0	8.0
Total Split (%)	57.0%		25.0%					19%	50%	16%	15%	8%
Yellow Time (s)	3.0		3.0					3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	1.0		1.0					1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0		0.0									
Total Lost Time (s)	4.0		4.0									
Lead/Lag	Lag		Lead					Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?	Yes		Yes					Yes	Yes	Yes	Yes	Yes
Recall Mode	C-Max		Max					None	Max	Min	Min	None
Act Effct Green (s)	53.0	78.0	21.0	100.0	14.0	14.0	100.0					
Actuated g/C Ratio	0.53	0.78	0.21	1.00	0.14	0.14	1.00					
v/c Ratio	0.49	0.25	0.69	0.18	0.58	0.58	0.12					
Control Delay	4.7	0.4	42.2	0.3	50.9	51.1	0.2					
Queue Delay	0.5	0.2	0.0	0.0	0.0	0.0	0.0					
Total Delay	5.2	0.6	42.2	0.3	50.9	51.1	0.2					
LOS	A	A	D	A	D	D	A					
Approach Delay		2.5	27.2			30.4						
Approach LOS		A	C			C						

Intersection Summary	
Cycle Length: 100	
Actuated Cycle Length: 100	
Offset: 64 (64%), Referenced to phase 5:EBTL, Start of Yellow	
Natural Cycle: 75	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.88	
Intersection Signal Delay: 16.0	Intersection LOS: B
Intersection Capacity Utilization 56.6%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 3: SR-99 NB Off-Ramps/SR-99 NB On-Ramps & 12th Ave/12 Ave



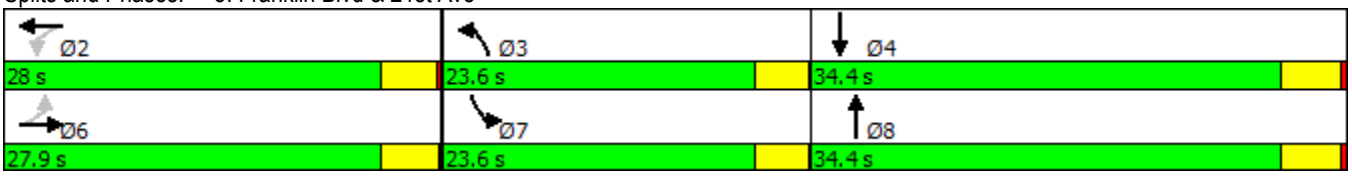
Lane Group	Ø8
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Turn Type	
Protected Phases	8
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	3.0
Minimum Split (s)	10.0
Total Split (s)	10.0
Total Split (%)	10%
Yellow Time (s)	3.0
All-Red Time (s)	1.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	Lag
Lead-Lag Optimize?	Yes
Recall Mode	None
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	

Intersection Summary

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	32	27	115	19	33	427	66	785
Future Volume (vph)	32	27	115	19	33	427	66	785
Turn Type	Perm	NA	Perm	NA	Prot	NA	Prot	NA
Protected Phases		6		2	3	8	7	4
Permitted Phases	6		2					
Detector Phase	6	6	2	2	3	8	7	4
Switch Phase								
Minimum Initial (s)	11.0	11.0	11.0	11.0	10.0	16.0	10.0	16.0
Minimum Split (s)	31.9	31.9	32.0	32.0	13.6	23.4	13.6	23.4
Total Split (s)	27.9	27.9	28.0	28.0	23.6	34.4	23.6	34.4
Total Split (%)	32.4%	32.4%	32.6%	32.6%	27.4%	40.0%	27.4%	40.0%
Yellow Time (s)	3.7	3.7	3.7	3.7	3.5	3.9	3.5	3.9
All-Red Time (s)	0.2	0.2	0.3	0.3	0.1	0.5	0.1	0.5
Lost Time Adjust (s)		0.1		0.0	0.4	-0.4	0.4	-0.4
Total Lost Time (s)		4.0		4.0	4.0	4.0	4.0	4.0
Lead/Lag					Lead	Lag	Lead	Lag
Lead-Lag Optimize?					Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	Min	None	Min
Act Effct Green (s)		15.3		15.3	11.0	25.3	11.1	28.2
Actuated g/C Ratio		0.31		0.31	0.22	0.51	0.22	0.57
v/c Ratio		0.19		0.44	0.09	0.32	0.17	0.41
Control Delay		12.7		18.4	25.4	12.1	25.2	12.2
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0
Total Delay		12.7		18.4	25.4	12.1	25.2	12.2
LOS		B		B	C	B	C	B
Approach Delay		12.7		18.4		12.9		13.2
Approach LOS		B		B		B		B

Intersection Summary	
Cycle Length: 86	
Actuated Cycle Length: 49.8	
Natural Cycle: 70	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.44	
Intersection Signal Delay: 13.7	Intersection LOS: B
Intersection Capacity Utilization 60.7%	ICU Level of Service B
Analysis Period (min) 15	

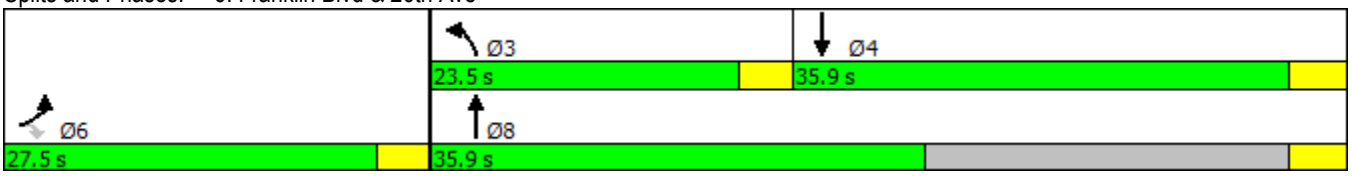
Splits and Phases: 5: Franklin Blvd & 21st Ave



Lane Group	EBL	EBR	NBL	NBT	SBT
Lane Configurations					
Traffic Volume (vph)	90	72	80	521	829
Future Volume (vph)	90	72	80	521	829
Turn Type	Prot	Perm	Prot	NA	NA
Protected Phases	6		3	8	4
Permitted Phases		6			
Detector Phase	6	6	3	8	4
Switch Phase					
Minimum Initial (s)	9.0	9.0	8.0	24.0	24.0
Minimum Split (s)	26.5	26.5	11.5	27.9	27.9
Total Split (s)	27.5	27.5	23.5	35.9	35.9
Total Split (%)	31.6%	31.6%	27.0%	41.3%	41.3%
Yellow Time (s)	3.5	3.5	3.5	3.9	3.9
All-Red Time (s)	0.0	0.0	0.0	0.0	0.0
Lost Time Adjust (s)	0.5	0.5	0.5	0.1	0.1
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0
Lead/Lag			Lead		Lag
Lead-Lag Optimize?			Yes		Yes
Recall Mode	None	None	None	Min	Min
Act Effct Green (s)	10.9	10.9	8.3	37.6	30.9
Actuated g/C Ratio	0.21	0.21	0.16	0.71	0.59
v/c Ratio	0.25	0.19	0.29	0.21	0.48
Control Delay	21.2	7.3	26.8	4.4	11.4
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	21.2	7.3	26.8	4.4	11.4
LOS	C	A	C	A	B
Approach Delay	15.0			7.4	11.4
Approach LOS	B			A	B

Intersection Summary	
Cycle Length: 86.9	
Actuated Cycle Length: 52.8	
Natural Cycle: 70	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.48	
Intersection Signal Delay: 10.3	Intersection LOS: B
Intersection Capacity Utilization 51.6%	ICU Level of Service A
Analysis Period (min) 15	

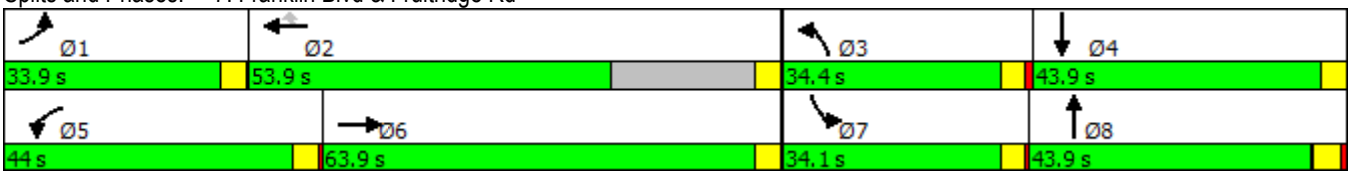
Splits and Phases: 6: Franklin Blvd & 26th Ave



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	110	714	328	1123	252	107	300	175	275	606	136
Future Volume (vph)	110	714	328	1123	252	107	300	175	275	606	136
Turn Type	Prot	NA	Prot	NA	Perm	Prot	NA	Free	Prot	NA	Free
Protected Phases	1	6	5	2		3	8		7	4	
Permitted Phases					2			Free			Free
Detector Phase	1	6	5	2	2	3	8		7	4	
Switch Phase											
Minimum Initial (s)	11.0	10.0	11.0	10.0	10.0	12.0	10.0		11.0	9.0	
Minimum Split (s)	14.9	26.9	15.0	28.9	28.9	16.4	30.9		15.1	26.9	
Total Split (s)	33.9	63.9	44.0	53.9	53.9	34.4	43.9		34.1	43.9	
Total Split (%)	18.2%	34.3%	23.6%	28.9%	28.9%	18.5%	23.6%		18.3%	23.6%	
Yellow Time (s)	3.5	3.9	3.5	3.9	3.9	3.5	3.9		3.5	3.9	
All-Red Time (s)	0.4	0.0	0.5	0.0	0.0	0.9	1.0		0.6	0.0	
Lost Time Adjust (s)	0.1	0.1	0.0	0.1	0.1	-0.4	-0.9		-0.1	0.1	
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	
Recall Mode	None	Min	None	Min	Min	None	None		None	None	
Act Effct Green (s)	13.7	41.1	17.2	44.6	44.6	14.6	25.9	116.2	15.4	26.8	116.2
Actuated g/C Ratio	0.12	0.35	0.15	0.38	0.38	0.13	0.22	1.00	0.13	0.23	1.00
v/c Ratio	0.53	0.66	0.65	0.83	0.38	0.49	0.38	0.11	0.61	0.75	0.09
Control Delay	62.4	35.8	55.3	40.1	16.1	60.0	41.6	0.1	56.2	49.1	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	62.4	35.8	55.3	40.1	16.1	60.0	41.6	0.1	56.2	49.1	0.1
LOS	E	D	E	D	B	E	D	A	E	D	A
Approach Delay		39.0		39.5			32.5			44.5	
Approach LOS		D		D			C			D	

Intersection Summary	
Cycle Length: 186.2	
Actuated Cycle Length: 116.2	
Natural Cycle: 90	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.83	
Intersection Signal Delay: 39.6	Intersection LOS: D
Intersection Capacity Utilization 81.0%	ICU Level of Service D
Analysis Period (min) 15	

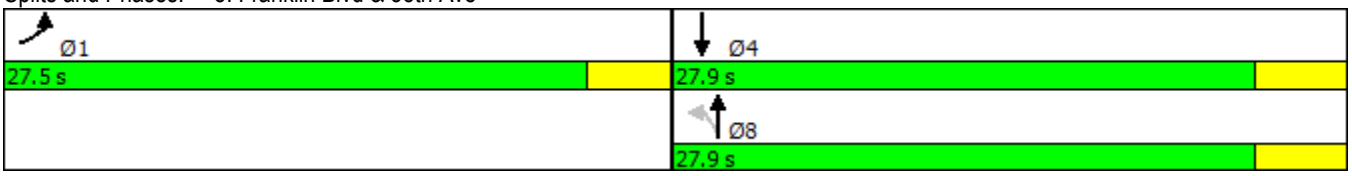
Splits and Phases: 7: Franklin Blvd & Fruitridge Rd



Lane Group	EBL	NBL	NBT	SBT
Lane Configurations				
Traffic Volume (vph)	12	14	512	933
Future Volume (vph)	12	14	512	933
Turn Type	Prot	Perm	NA	NA
Protected Phases	1		8	4
Permitted Phases		8		
Detector Phase	1	8	8	4
Switch Phase				
Minimum Initial (s)	9.0	24.0	24.0	24.0
Minimum Split (s)	29.5	27.9	27.9	27.9
Total Split (s)	27.5	27.9	27.9	27.9
Total Split (%)	49.6%	50.4%	50.4%	50.4%
Yellow Time (s)	3.5	3.9	3.9	3.9
All-Red Time (s)	0.0	0.0	0.0	0.0
Lost Time Adjust (s)	0.5	0.1	0.1	0.1
Total Lost Time (s)	4.0	4.0	4.0	4.0
Lead/Lag				
Lead-Lag Optimize?				
Recall Mode	None	Max	Max	Max
Act Effct Green (s)	11.2	42.2	42.2	42.2
Actuated g/C Ratio	0.24	0.90	0.90	0.90
v/c Ratio	0.08	0.03	0.16	0.30
Control Delay	8.4	5.1	3.3	3.9
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	8.4	5.1	3.3	3.9
LOS	A	A	A	A
Approach Delay	8.4		3.4	3.9
Approach LOS	A		A	A

Intersection Summary	
Cycle Length: 55.4	
Actuated Cycle Length: 47.1	
Natural Cycle: 60	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.30	
Intersection Signal Delay: 3.8	Intersection LOS: A
Intersection Capacity Utilization 40.6%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 8: Franklin Blvd & 38th Ave



Lane Group	NBT	Ø8
Lane Configurations		
Traffic Volume (vph)	738	
Future Volume (vph)	738	
Turn Type	NA	
Protected Phases	2	8
Permitted Phases		
Detector Phase	2	
Switch Phase		
Minimum Initial (s)	1.0	1.0
Minimum Split (s)	3.0	7.5
Total Split (s)	3.0	7.5
Total Split (%)	28.6%	71%
Yellow Time (s)	2.0	2.0
All-Red Time (s)	0.0	0.0
Lost Time Adjust (s)	2.0	
Total Lost Time (s)	4.0	
Lead/Lag		
Lead-Lag Optimize?		
Recall Mode	Max	Max
Act Effct Green (s)	0.0	
Actuated g/C Ratio	0.00	
v/c Ratio	no cap	
Control Delay		
Queue Delay		
Total Delay	Error	
LOS	F	
Approach Delay	Err	
Approach LOS	F	

Intersection Summary	
Cycle Length: 10.5	
Actuated Cycle Length: 10.5	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:, Start of Green	
Natural Cycle: 40	
Control Type: Pretimed	
Maximum v/c Ratio: Err	
Intersection Signal Delay: Err	Intersection LOS: F
Intersection Capacity Utilization 37.7%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 18:

Timings
1: Franklin Blvd & Sutterville Rd/12th Ave

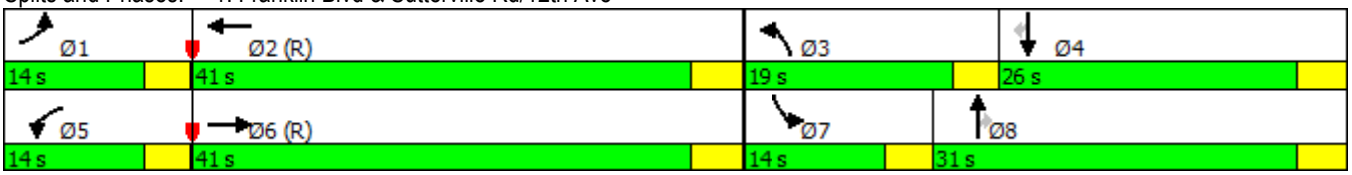
03/01/2018

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	90	590	150	920	70	140	30	70	420	160
Future Volume (vph)	90	590	150	920	70	140	30	70	420	160
Turn Type	Prot	NA	Prot	NA	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	1	6	5	2	3	8		7	4	
Permitted Phases							8			4
Detector Phase	1	6	5	2	3	8	8	7	4	4
Switch Phase										
Minimum Initial (s)	10.0	9.0	10.0	9.0	9.0	9.0	9.0	10.0	10.0	10.0
Minimum Split (s)	13.6	26.9	13.6	22.9	12.5	26.9	26.9	13.5	25.9	25.9
Total Split (s)	14.0	41.0	14.0	41.0	19.0	31.0	31.0	14.0	26.0	26.0
Total Split (%)	14.0%	41.0%	14.0%	41.0%	19.0%	31.0%	31.0%	14.0%	26.0%	26.0%
Yellow Time (s)	3.5	3.9	3.5	3.9	3.5	3.9	3.9	3.5	3.9	3.9
All-Red Time (s)	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lost Time Adjust (s)	0.4	0.1	0.4	0.1	0.5	0.1	0.1	0.5	0.1	0.1
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	C-Max	None	None	None	Min	None	None
Act Effct Green (s)	9.8	39.3	9.9	42.2	9.3	25.2	25.2	9.6	28.0	28.0
Actuated g/C Ratio	0.10	0.39	0.10	0.42	0.09	0.25	0.25	0.10	0.28	0.28
v/c Ratio	0.53	0.58	0.86	0.71	0.43	0.30	0.07	0.42	0.81	0.31
Control Delay	54.7	25.0	65.5	39.0	51.3	31.3	0.3	50.6	48.3	10.3
Queue Delay	0.0	0.0	0.0	0.9	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	54.7	25.0	65.5	40.0	51.3	31.3	0.3	50.6	48.3	10.3
LOS	D	C	E	D	D	C	A	D	D	B
Approach Delay		28.1		43.2		33.3			39.2	
Approach LOS		C		D		C			D	

Intersection Summary

Cycle Length: 100
Actuated Cycle Length: 100
Offset: 26 (26%), Referenced to phase 2:WBT and 6:EBT, Start of Green
Natural Cycle: 85
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.86
Intersection Signal Delay: 37.0 — Intersection LOS: D
Intersection Capacity Utilization 80.3% — ICU Level of Service D
Analysis Period (min) 15

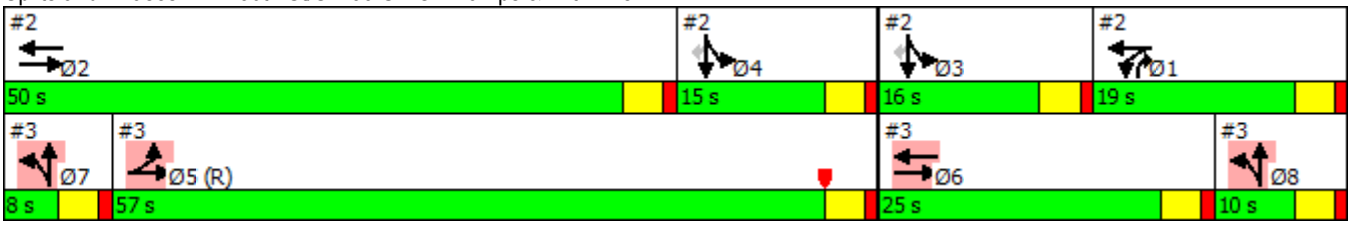
Splits and Phases: 1: Franklin Blvd & Sutterville Rd/12th Ave



Lane Group	EBT	WBL	WBT	NBR	SBL	SBT	SBR	Ø3	Ø4	Ø5	Ø6	Ø7
Lane Configurations												
Traffic Volume (vph)	600	70	730	30	390	130	470					
Future Volume (vph)	600	70	730	30	390	130	470					
Turn Type	NA	Prot	NA	Over	Split	NA	Perm					
Protected Phases	2	1	1 2	1	3 4	3 4		3	4	5	6	7
Permitted Phases							3 4					
Detector Phase	2	1	1 2	1	3 4	3 4	3 4					
Switch Phase												
Minimum Initial (s)	3.0	3.0		3.0				3.0	10.0	25.0	7.0	3.0
Minimum Split (s)	16.0	19.0		19.0				16.0	15.0	29.0	16.0	8.0
Total Split (s)	50.0	19.0		19.0				16.0	15.0	57.0	25.0	8.0
Total Split (%)	50.0%	19.0%		19.0%				16%	15%	57%	25%	8%
Yellow Time (s)	3.0	3.0		3.0				3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	1.0	1.0		1.0				1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0		0.0								
Total Lost Time (s)	4.0	4.0		4.0								
Lead/Lag	Lead	Lag		Lag				Lead	Lag	Lag	Lead	Lead
Lead-Lag Optimize?	Yes	Yes		Yes				Yes	Yes	Yes	Yes	Yes
Recall Mode	Max	None		None				Min	Min	C-Max	Max	None
Act Effct Green (s)	46.0	17.0	67.0	17.0	25.0	25.0	25.0					
Actuated g/C Ratio	0.46	0.17	0.67	0.17	0.25	0.25	0.25					
v/c Ratio	0.43	0.24	0.31	0.07	0.62	0.62	0.82					
Control Delay	20.0	5.9	5.3	0.3	40.1	39.8	29.0					
Queue Delay	0.0	0.0	1.4	0.0	0.0	0.0	0.7					
Total Delay	20.0	5.9	6.8	0.3	40.1	39.8	29.7					
LOS	C	A	A	A	D	D	C					
Approach Delay	20.0		6.7			35.1						
Approach LOS	C		A			D						

Intersection Summary	
Cycle Length: 100	
Actuated Cycle Length: 100	
Offset: 64 (64%), Referenced to phase 5:EBTL, Start of Yellow	
Natural Cycle: 75	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.82	
Intersection Signal Delay: 21.5	Intersection LOS: C
Intersection Capacity Utilization 55.9%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 2: 30th St/SR-99 SB Off-Ramps & 12th Ave



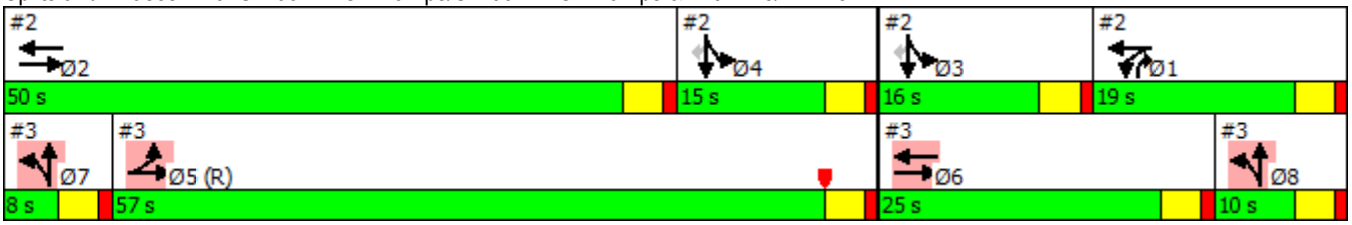
Lane Group	Ø8
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Turn Type	
Protected Phases	8
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	3.0
Minimum Split (s)	10.0
Total Split (s)	10.0
Total Split (%)	10%
Yellow Time (s)	3.0
All-Red Time (s)	1.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	Lag
Lead-Lag Optimize?	Yes
Recall Mode	None
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	

Intersection Summary

Lane Group	EBL	EBT	WBT	WBR	NBL	NBT	NBR	Ø1	Ø2	Ø3	Ø4	Ø7
Lane Configurations												
Traffic Volume (vph)	340	680	520	310	280	10	190					
Future Volume (vph)	340	680	520	310	280	10	190					
Turn Type	Prot	NA	NA	Free	Split	NA	Free					
Protected Phases	5	5 6	6		7 8	7 8		1	2	3	4	7
Permitted Phases				Free			Free					
Detector Phase	5	5 6	6		7 8	7 8						
Switch Phase												
Minimum Initial (s)	25.0		7.0					3.0	3.0	3.0	10.0	3.0
Minimum Split (s)	29.0		16.0					19.0	16.0	16.0	15.0	8.0
Total Split (s)	57.0		25.0					19.0	50.0	16.0	15.0	8.0
Total Split (%)	57.0%		25.0%					19%	50%	16%	15%	8%
Yellow Time (s)	3.0		3.0					3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	1.0		1.0					1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0		0.0									
Total Lost Time (s)	4.0		4.0									
Lead/Lag	Lag		Lead					Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?	Yes		Yes					Yes	Yes	Yes	Yes	Yes
Recall Mode	C-Max		Max					None	Max	Min	Min	None
Act Effct Green (s)	53.0	78.0	21.0	100.0	14.0	14.0	100.0					
Actuated g/C Ratio	0.53	0.78	0.21	1.00	0.14	0.14	1.00					
v/c Ratio	0.37	0.25	0.71	0.20	0.63	0.62	0.12					
Control Delay	3.3	0.4	42.7	0.3	53.5	52.8	0.2					
Queue Delay	0.5	0.2	0.6	0.0	0.1	0.1	0.0					
Total Delay	3.8	0.6	43.2	0.3	53.5	52.8	0.2					
LOS	A	A	D	A	D	D	A					
Approach Delay		1.7	27.2			32.2						
Approach LOS		A	C			C						

Intersection Summary	
Cycle Length: 100	
Actuated Cycle Length: 100	
Offset: 64 (64%), Referenced to phase 5:EBTL, Start of Yellow	
Natural Cycle: 75	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.82	
Intersection Signal Delay: 17.1	Intersection LOS: B
Intersection Capacity Utilization 53.2%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 3: SR-99 NB Off-Ramps/SR-99 NB On-Ramps & 12th Ave/12 Ave



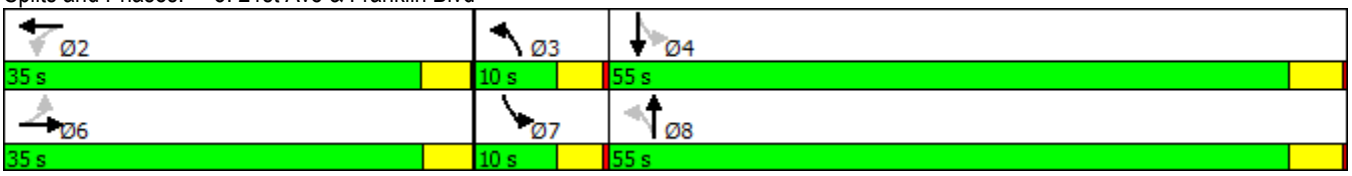
Lane Group	Ø8
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Turn Type	
Protected Phases	8
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	3.0
Minimum Split (s)	10.0
Total Split (s)	10.0
Total Split (%)	10%
Yellow Time (s)	3.0
All-Red Time (s)	1.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	Lag
Lead-Lag Optimize?	Yes
Recall Mode	None
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	

Intersection Summary

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	40	30	120	20	40	220	50	720
Future Volume (vph)	40	30	120	20	40	220	50	720
Turn Type	Perm	NA	Perm	NA	pm+pt	NA	pm+pt	NA
Protected Phases		6		2	3	8	7	4
Permitted Phases	6		2		8		4	
Detector Phase	6	6	2	2	3	8	7	4
Switch Phase								
Minimum Initial (s)	11.0	11.0	11.0	11.0	5.0	16.0	5.0	16.0
Minimum Split (s)	31.9	31.9	32.0	32.0	9.5	23.4	9.5	23.4
Total Split (s)	35.0	35.0	35.0	35.0	10.0	55.0	10.0	55.0
Total Split (%)	35.0%	35.0%	35.0%	35.0%	10.0%	55.0%	10.0%	55.0%
Yellow Time (s)	3.7	3.7	3.7	3.7	3.5	3.9	3.5	3.9
All-Red Time (s)	0.2	0.2	0.3	0.3	0.5	0.5	0.5	0.5
Lost Time Adjust (s)		0.1		0.0	0.0	-0.4	0.0	-0.4
Total Lost Time (s)		4.0		4.0	4.0	4.0	4.0	4.0
Lead/Lag					Lead	Lag	Lead	Lag
Lead-Lag Optimize?					Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	Min	None	Min
Act Effct Green (s)		16.6		16.6	44.6	41.6	44.6	41.6
Actuated g/C Ratio		0.23		0.23	0.62	0.58	0.62	0.58
v/c Ratio		0.30		0.59	0.11	0.41	0.08	0.83
Control Delay		22.9		33.9	6.0	10.5	5.5	24.7
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0
Total Delay		22.9		33.9	6.0	10.5	5.5	24.7
LOS		C		C	A	B	A	C
Approach Delay		22.9		33.9		10.0		23.5
Approach LOS		C		C		B		C

Intersection Summary	
Cycle Length: 100	
Actuated Cycle Length: 72	
Natural Cycle: 90	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.83	
Intersection Signal Delay: 21.3	Intersection LOS: C
Intersection Capacity Utilization 67.5%	ICU Level of Service C
Analysis Period (min) 15	

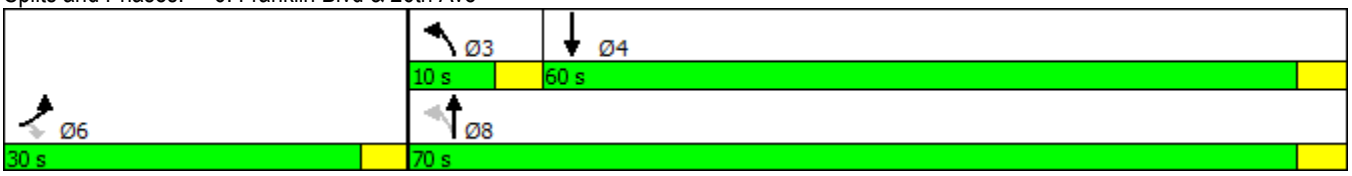
Splits and Phases: 5: 21st Ave & Franklin Blvd



Lane Group	EBL	EBR	NBL	NBT	SBT
Lane Configurations					
Traffic Volume (vph)	120	80	100	290	710
Future Volume (vph)	120	80	100	290	710
Turn Type	Prot	Perm	pm+pt	NA	NA
Protected Phases	6		3	8	4
Permitted Phases		6	8		
Detector Phase	6	6	3	8	4
Switch Phase					
Minimum Initial (s)	9.0	9.0	5.0	24.0	24.0
Minimum Split (s)	26.5	26.5	9.5	27.9	27.9
Total Split (s)	30.0	30.0	10.0	70.0	60.0
Total Split (%)	30.0%	30.0%	10.0%	70.0%	60.0%
Yellow Time (s)	3.5	3.5	3.5	3.9	3.9
All-Red Time (s)	0.0	0.0	0.0	0.0	0.0
Lost Time Adjust (s)	0.5	0.5	0.5	0.1	0.1
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0
Lead/Lag			Lead		Lag
Lead-Lag Optimize?			Yes		Yes
Recall Mode	None	None	None	Min	Min
Act Effct Green (s)	12.0	12.0	50.9	52.3	44.8
Actuated g/C Ratio	0.18	0.18	0.76	0.78	0.67
v/c Ratio	0.39	0.25	0.28	0.20	0.75
Control Delay	32.7	12.9	5.6	4.0	17.1
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	32.7	12.9	5.6	4.0	17.1
LOS	C	B	A	A	B
Approach Delay	24.8			4.4	17.1
Approach LOS	C			A	B

Intersection Summary	
Cycle Length: 100	
Actuated Cycle Length: 67.3	
Natural Cycle: 90	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.75	
Intersection Signal Delay: 14.8	Intersection LOS: B
Intersection Capacity Utilization 71.8%	ICU Level of Service C
Analysis Period (min) 15	

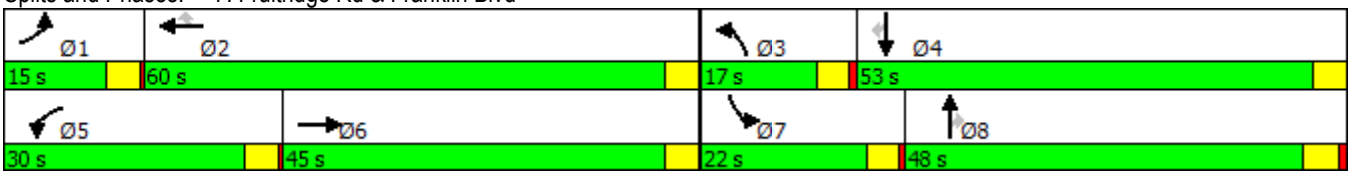
Splits and Phases: 6: Franklin Blvd & 26th Ave



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	10	830	270	1190	250	110	200	160	260	570	80
Future Volume (vph)	10	830	270	1190	250	110	200	160	260	570	80
Turn Type	Prot	NA	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	1	6	5	2		3	8		7	4	
Permitted Phases					2			8			4
Detector Phase	1	6	5	2	2	3	8	8	7	4	4
Switch Phase											
Minimum Initial (s)	11.0	10.0	11.0	10.0	10.0	12.0	10.0	10.0	11.0	9.0	9.0
Minimum Split (s)	14.9	26.9	15.0	28.9	28.9	16.4	30.9	30.9	15.1	26.9	26.9
Total Split (s)	15.0	45.0	30.0	60.0	60.0	17.0	48.0	48.0	22.0	53.0	53.0
Total Split (%)	10.3%	31.0%	20.7%	41.4%	41.4%	11.7%	33.1%	33.1%	15.2%	36.6%	36.6%
Yellow Time (s)	3.5	3.9	3.5	3.9	3.9	3.5	3.9	3.9	3.5	3.9	3.9
All-Red Time (s)	0.4	0.0	0.5	0.0	0.0	0.9	1.0	1.0	0.6	0.0	0.0
Lost Time Adjust (s)	0.1	0.1	0.0	0.1	0.1	-0.4	-0.9	-0.9	-0.1	0.1	0.1
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	Min	None	Min	Min	None	None	None	None	None	None
Act Effct Green (s)	11.0	39.7	23.7	64.6	64.6	12.8	42.9	42.9	15.0	45.0	45.0
Actuated g/C Ratio	0.08	0.29	0.17	0.47	0.47	0.09	0.31	0.31	0.11	0.33	0.33
v/c Ratio	0.07	0.93	0.89	0.72	0.32	0.67	0.35	0.27	0.70	0.94	0.14
Control Delay	63.6	63.9	87.0	33.6	11.6	82.9	39.7	6.5	71.0	70.7	4.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	63.6	63.9	87.0	33.6	11.6	82.9	39.7	6.5	71.0	70.7	4.0
LOS	E	E	F	C	B	F	D	A	E	E	A
Approach Delay		63.9		38.8			38.5			64.9	
Approach LOS		E		D			D			E	

Intersection Summary	
Cycle Length: 145	
Actuated Cycle Length: 137.4	
Natural Cycle: 110	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.94	
Intersection Signal Delay: 50.5	Intersection LOS: D
Intersection Capacity Utilization 95.4%	ICU Level of Service F
Analysis Period (min) 15	

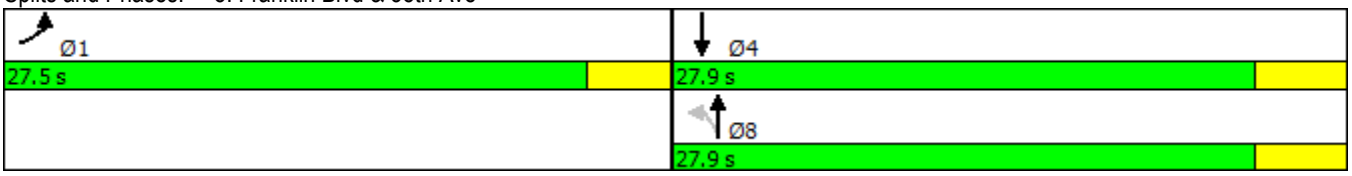
Splits and Phases: 7: Fruitridge Rd & Franklin Blvd



Lane Group	EBL	NBL	NBT	SBT
Lane Configurations				
Traffic Volume (vph)	20	20	380	840
Future Volume (vph)	20	20	380	840
Turn Type	Prot	Perm	NA	NA
Protected Phases	1		8	4
Permitted Phases		8		
Detector Phase	1	8	8	4
Switch Phase				
Minimum Initial (s)	9.0	24.0	24.0	24.0
Minimum Split (s)	29.5	27.9	27.9	27.9
Total Split (s)	27.5	27.9	27.9	27.9
Total Split (%)	49.6%	50.4%	50.4%	50.4%
Yellow Time (s)	3.5	3.9	3.9	3.9
All-Red Time (s)	0.0	0.0	0.0	0.0
Lost Time Adjust (s)	0.5	0.1	0.1	0.1
Total Lost Time (s)	4.0	4.0	4.0	4.0
Lead/Lag				
Lead-Lag Optimize?				
Recall Mode	None	Max	Max	Max
Act Effct Green (s)	11.4	38.9	38.9	38.9
Actuated g/C Ratio	0.24	0.82	0.82	0.82
v/c Ratio	0.12	0.05	0.25	0.57
Control Delay	8.3	7.0	5.7	11.4
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	8.3	7.0	5.7	11.4
LOS	A	A	A	B
Approach Delay	8.3		5.8	11.4
Approach LOS	A		A	B

Intersection Summary	
Cycle Length: 55.4	
Actuated Cycle Length: 47.5	
Natural Cycle: 70	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.57	
Intersection Signal Delay: 9.6	Intersection LOS: A
Intersection Capacity Utilization 59.6%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 8: Franklin Blvd & 38th Ave



Lane Group	NBT	Ø8
Lane Configurations		
Traffic Volume (vph)	660	
Future Volume (vph)	660	
Turn Type	NA	
Protected Phases	2	8
Permitted Phases		
Detector Phase	2	
Switch Phase		
Minimum Initial (s)	1.0	1.0
Minimum Split (s)	3.0	7.5
Total Split (s)	3.0	7.5
Total Split (%)	28.6%	71%
Yellow Time (s)	2.0	2.0
All-Red Time (s)	0.0	0.0
Lost Time Adjust (s)	2.0	
Total Lost Time (s)	4.0	
Lead/Lag		
Lead-Lag Optimize?		
Recall Mode	Max	Max
Act Effct Green (s)	0.0	
Actuated g/C Ratio	0.00	
v/c Ratio	no cap	
Control Delay		
Queue Delay		
Total Delay	Error	
LOS	F	
Approach Delay	Err	
Approach LOS	F	

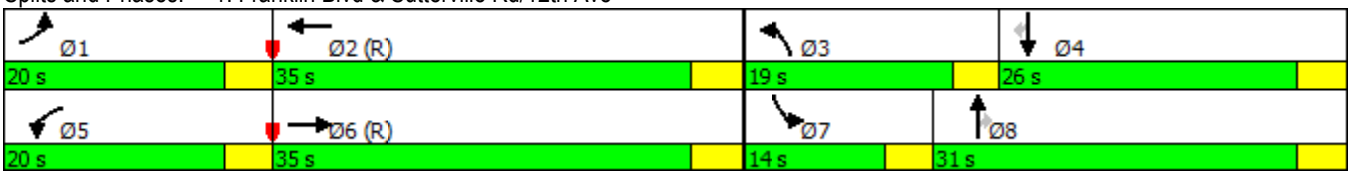
Intersection Summary	
Cycle Length: 10.5	
Actuated Cycle Length: 10.5	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:, Start of Green	
Natural Cycle: 40	
Control Type: Pretimed	
Maximum v/c Ratio: Err	
Intersection Signal Delay: Err	Intersection LOS: F
Intersection Capacity Utilization 36.9%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 27:

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	210	500	130	740	140	460	100	100	160	70
Future Volume (vph)	210	500	130	740	140	460	100	100	160	70
Turn Type	Prot	NA	Prot	NA	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	1	6	5	2	3	8		7	4	
Permitted Phases							8			4
Detector Phase	1	6	5	2	3	8	8	7	4	4
Switch Phase										
Minimum Initial (s)	10.0	9.0	10.0	9.0	9.0	9.0	9.0	10.0	10.0	10.0
Minimum Split (s)	13.6	26.9	13.6	22.9	12.5	26.9	26.9	13.5	25.9	25.9
Total Split (s)	20.0	35.0	20.0	35.0	19.0	31.0	31.0	14.0	26.0	26.0
Total Split (%)	20.0%	35.0%	20.0%	35.0%	19.0%	31.0%	31.0%	14.0%	26.0%	26.0%
Yellow Time (s)	3.5	3.9	3.5	3.9	3.5	3.9	3.9	3.5	3.9	3.9
All-Red Time (s)	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lost Time Adjust (s)	0.4	0.1	0.4	0.1	0.5	0.1	0.1	0.5	0.1	0.1
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	C-Max	None	None	None	Min	None	None
Act Effct Green (s)	14.4	35.8	12.0	33.4	11.8	26.5	26.5	9.7	24.4	24.4
Actuated g/C Ratio	0.14	0.36	0.12	0.33	0.12	0.26	0.26	0.10	0.24	0.24
v/c Ratio	0.83	0.61	0.62	0.74	0.68	0.94	0.21	0.59	0.36	0.15
Control Delay	68.5	26.0	71.6	22.1	58.7	65.8	9.3	57.9	34.5	1.5
Queue Delay	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	68.5	26.0	71.6	22.2	58.7	65.8	9.3	57.9	34.5	1.5
LOS	E	C	E	C	E	E	A	E	C	A
Approach Delay		35.2		28.8		56.3			34.6	
Approach LOS		D		C		E			C	

Intersection Summary	
Cycle Length: 100	
Actuated Cycle Length: 100	
Offset: 0 (0%), Referenced to phase 2:WBT and 6:EBT, Start of Green	
Natural Cycle: 85	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.94	
Intersection Signal Delay: 38.0	Intersection LOS: D
Intersection Capacity Utilization 81.5%	ICU Level of Service D
Analysis Period (min) 15	

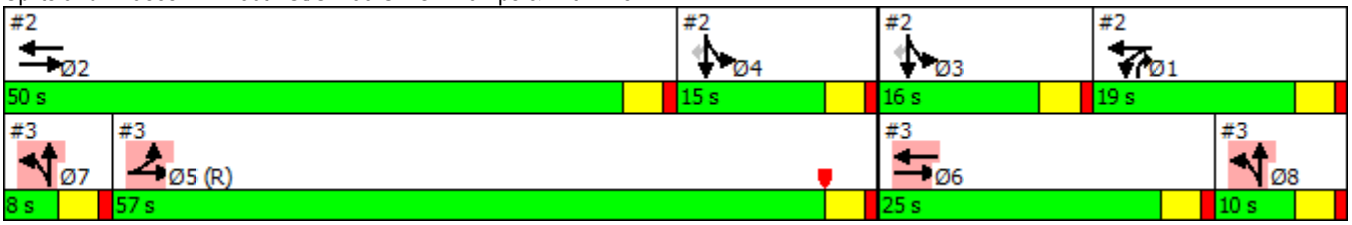
Splits and Phases: 1: Franklin Blvd & Sutterville Rd/12th Ave



Lane Group	EBT	WBL	WBT	NBR	SBL	SBT	SBR	Ø3	Ø4	Ø5	Ø6	Ø7
Lane Configurations												
Traffic Volume (vph)	640	100	590	90	430	130	400					
Future Volume (vph)	640	100	590	90	430	130	400					
Turn Type	NA	Prot	NA	Over	Split	NA	Perm					
Protected Phases	2	1	1 2	1	3 4	3 4		3	4	5	6	7
Permitted Phases							3 4					
Detector Phase	2	1	1 2	1	3 4	3 4	3 4					
Switch Phase												
Minimum Initial (s)	3.0	3.0		3.0				3.0	10.0	25.0	7.0	3.0
Minimum Split (s)	16.0	19.0		19.0				16.0	15.0	29.0	16.0	8.0
Total Split (s)	50.0	19.0		19.0				16.0	15.0	57.0	25.0	8.0
Total Split (%)	50.0%	19.0%		19.0%				16%	15%	57%	25%	8%
Yellow Time (s)	3.0	3.0		3.0				3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	1.0	1.0		1.0				1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0		0.0								
Total Lost Time (s)	4.0	4.0		4.0								
Lead/Lag	Lead	Lag		Lag				Lead	Lag	Lag	Lead	Lead
Lead-Lag Optimize?	Yes	Yes		Yes				Yes	Yes	Yes	Yes	Yes
Recall Mode	Max	None		None				Min	Min	C-Max	Max	None
Act Effct Green (s)	46.0	17.0	67.0	17.0	25.0	25.0	25.0					
Actuated g/C Ratio	0.46	0.17	0.67	0.17	0.25	0.25	0.25					
v/c Ratio	0.44	0.34	0.25	0.23	0.66	0.67	0.63					
Control Delay	7.0	8.3	5.0	2.0	41.9	42.0	11.4					
Queue Delay	0.0	0.0	0.8	0.0	0.0	0.0	0.1					
Total Delay	7.0	8.3	5.8	2.0	41.9	42.0	11.5					
LOS	A	A	A	A	D	D	B					
Approach Delay	7.0		6.2			29.2						
Approach LOS	A		A			C						

Intersection Summary	
Cycle Length: 100	
Actuated Cycle Length: 100	
Offset: 64 (64%), Referenced to phase 5:EBTL, Start of Yellow	
Natural Cycle: 75	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.67	
Intersection Signal Delay: 15.3	Intersection LOS: B
Intersection Capacity Utilization 57.2%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 2: 30th St/SR-99 SB Off-Ramps & 12th Ave



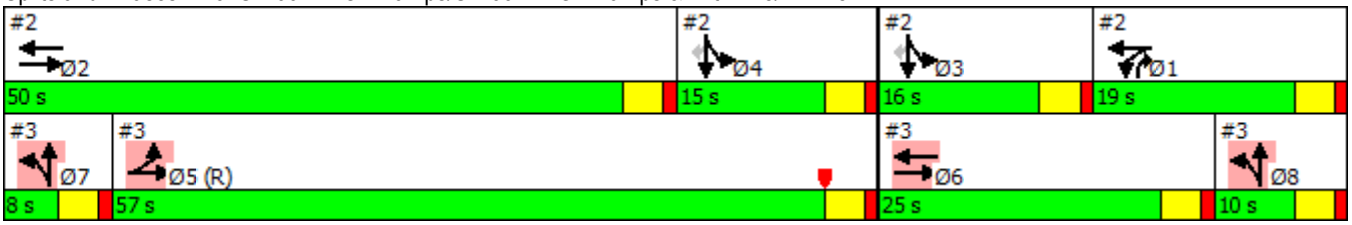
Lane Group	Ø8
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Turn Type	
Protected Phases	8
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	3.0
Minimum Split (s)	10.0
Total Split (s)	10.0
Total Split (%)	10%
Yellow Time (s)	3.0
All-Red Time (s)	1.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	Lag
Lead-Lag Optimize?	Yes
Recall Mode	None
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	

Intersection Summary

Lane Group	EBL	EBT	WBT	WBR	NBL	NBT	NBR	Ø1	Ø2	Ø3	Ø4	Ø7
Lane Configurations												
Traffic Volume (vph)	420	740	470	500	220	0	100					
Future Volume (vph)	420	740	470	500	220	0	100					
Turn Type	Prot	NA	NA	Free	Split	NA	Free					
Protected Phases	5	5 6	6		7 8	7 8		1	2	3	4	7
Permitted Phases				Free			Free					
Detector Phase	5	5 6	6		7 8	7 8						
Switch Phase												
Minimum Initial (s)	25.0		7.0					3.0	3.0	3.0	10.0	3.0
Minimum Split (s)	29.0		16.0					19.0	16.0	16.0	15.0	8.0
Total Split (s)	57.0		25.0					19.0	50.0	16.0	15.0	8.0
Total Split (%)	57.0%		25.0%					19%	50%	16%	15%	8%
Yellow Time (s)	3.0		3.0					3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	1.0		1.0					1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0		0.0									
Total Lost Time (s)	4.0		4.0									
Lead/Lag	Lag		Lead					Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?	Yes		Yes					Yes	Yes	Yes	Yes	Yes
Recall Mode	C-Max		Max					None	Max	Min	Min	None
Act Effct Green (s)	53.0	78.0	21.0	100.0	14.0	14.0	100.0					
Actuated g/C Ratio	0.53	0.78	0.21	1.00	0.14	0.14	1.00					
v/c Ratio	0.45	0.27	0.64	0.32	0.47	0.47	0.06					
Control Delay	5.4	0.5	40.6	0.6	47.0	47.0	0.1					
Queue Delay	0.5	0.3	0.0	0.0	0.0	0.0	0.0					
Total Delay	5.9	0.8	40.6	0.6	47.0	47.0	0.1					
LOS	A	A	D	A	D	D	A					
Approach Delay		2.6	20.0			32.4						
Approach LOS		A	B			C						

Intersection Summary	
Cycle Length: 100	
Actuated Cycle Length: 100	
Offset: 64 (64%), Referenced to phase 5:EBTL, Start of Yellow	
Natural Cycle: 75	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.67	
Intersection Signal Delay: 13.4	Intersection LOS: B
Intersection Capacity Utilization 52.4%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 3: SR-99 NB Off-Ramps/SR-99 NB On-Ramps & 12th Ave/12 Ave



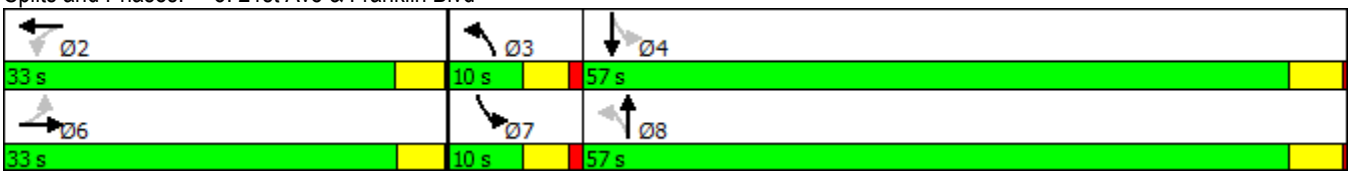
Lane Group	Ø8
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Turn Type	
Protected Phases	8
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	3.0
Minimum Split (s)	10.0
Total Split (s)	10.0
Total Split (%)	10%
Yellow Time (s)	3.0
All-Red Time (s)	1.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	Lag
Lead-Lag Optimize?	Yes
Recall Mode	None
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	

Intersection Summary

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	40	40	140	60	70	620	130	270
Future Volume (vph)	40	40	140	60	70	620	130	270
Turn Type	Perm	NA	Perm	NA	pm+pt	NA	pm+pt	NA
Protected Phases		6		2	3	8	7	4
Permitted Phases	6		2		8		4	
Detector Phase	6	6	2	2	3	8	7	4
Switch Phase								
Minimum Initial (s)	11.0	11.0	11.0	11.0	5.0	16.0	5.0	16.0
Minimum Split (s)	31.9	31.9	32.0	32.0	9.5	23.4	9.5	23.4
Total Split (s)	33.0	33.0	33.0	33.0	10.0	57.0	10.0	57.0
Total Split (%)	33.0%	33.0%	33.0%	33.0%	10.0%	57.0%	10.0%	57.0%
Yellow Time (s)	3.7	3.7	3.7	3.7	3.5	3.9	3.5	3.9
All-Red Time (s)	0.2	0.2	0.3	0.3	1.0	0.5	1.0	0.5
Lost Time Adjust (s)		0.1		0.0	-0.5	-0.4	-0.5	-0.4
Total Lost Time (s)		4.0		4.0	4.0	4.0	4.0	4.0
Lead/Lag					Lead	Lag	Lead	Lag
Lead-Lag Optimize?					Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	Min	None	Min
Act Effct Green (s)		24.9		24.9	56.1	50.0	57.2	52.6
Actuated g/C Ratio		0.27		0.27	0.60	0.54	0.61	0.56
v/c Ratio		0.36		0.89	0.11	0.95	0.48	0.36
Control Delay		22.6		57.7	7.5	44.3	13.2	13.7
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0
Total Delay		22.6		57.7	7.5	44.3	13.2	13.7
LOS		C		E	A	D	B	B
Approach Delay		22.6		57.7		41.3		13.5
Approach LOS		C		E		D		B

Intersection Summary	
Cycle Length: 100	
Actuated Cycle Length: 93.2	
Natural Cycle: 90	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.95	
Intersection Signal Delay: 35.9	Intersection LOS: D
Intersection Capacity Utilization 85.5%	ICU Level of Service E
Analysis Period (min) 15	

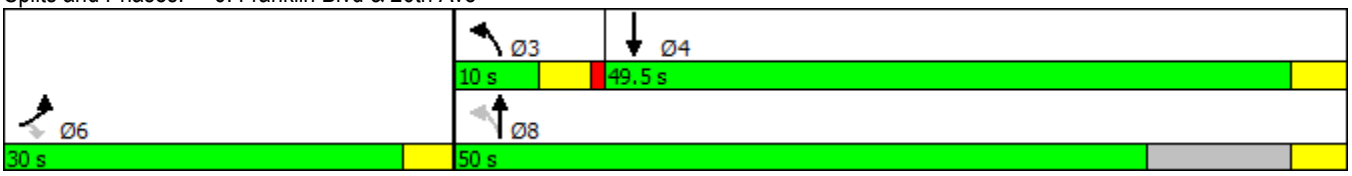
Splits and Phases: 5: 21st Ave & Franklin Blvd



Lane Group	EBL	EBR	NBL	NBT	SBT
Lane Configurations					
Traffic Volume (vph)	290	80	120	600	380
Future Volume (vph)	290	80	120	600	380
Turn Type	Prot	Perm	pm+pt	NA	NA
Protected Phases	6		3	8	4
Permitted Phases		6	8		
Detector Phase	6	6	3	8	4
Switch Phase					
Minimum Initial (s)	9.0	9.0	5.0	24.0	24.0
Minimum Split (s)	26.5	26.5	9.5	27.9	27.9
Total Split (s)	30.0	30.0	10.0	50.0	49.5
Total Split (%)	33.5%	33.5%	11.2%	55.9%	55.3%
Yellow Time (s)	3.5	3.5	3.5	3.9	3.9
All-Red Time (s)	0.0	0.0	1.0	0.0	0.0
Lost Time Adjust (s)	0.5	0.5	-0.5	0.1	0.1
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0
Lead/Lag			Lead		Lag
Lead-Lag Optimize?			Yes		Yes
Recall Mode	None	None	None	Min	Min
Act Effct Green (s)	13.5	13.5	33.3	33.3	25.7
Actuated g/C Ratio	0.25	0.25	0.61	0.61	0.47
v/c Ratio	0.68	0.20	0.25	0.54	0.56
Control Delay	28.1	13.0	6.8	9.3	15.2
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	28.1	13.0	6.8	9.3	15.2
LOS	C	B	A	A	B
Approach Delay	24.9			8.9	15.2
Approach LOS	C			A	B

Intersection Summary	
Cycle Length: 89.5	
Actuated Cycle Length: 55	
Natural Cycle: 65	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.68	
Intersection Signal Delay: 14.6	Intersection LOS: B
Intersection Capacity Utilization 58.3%	ICU Level of Service B
Analysis Period (min) 15	

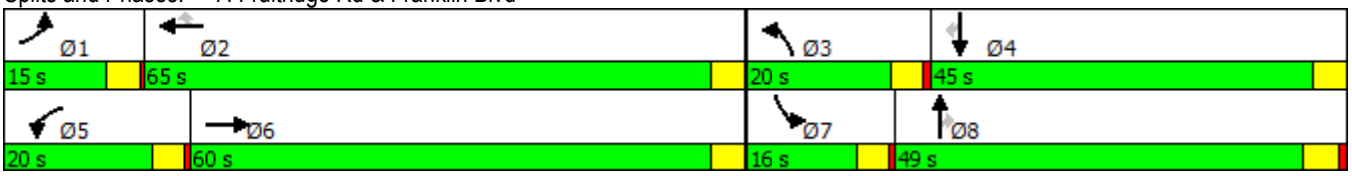
Splits and Phases: 6: Franklin Blvd & 26th Ave



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	70	1090	170	720	190	120	510	250	180	200	90
Future Volume (vph)	70	1090	170	720	190	120	510	250	180	200	90
Turn Type	Prot	NA	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	1	6	5	2		3	8		7	4	
Permitted Phases					2			8			4
Detector Phase	1	6	5	2	2	3	8	8	7	4	4
Switch Phase											
Minimum Initial (s)	11.0	10.0	11.0	10.0	10.0	12.0	10.0	10.0	11.0	9.0	9.0
Minimum Split (s)	14.9	26.9	15.0	28.9	28.9	16.4	30.9	30.9	15.1	26.9	26.9
Total Split (s)	15.0	60.0	20.0	65.0	65.0	20.0	49.0	49.0	16.0	45.0	45.0
Total Split (%)	10.3%	41.4%	13.8%	44.8%	44.8%	13.8%	33.8%	33.8%	11.0%	31.0%	31.0%
Yellow Time (s)	3.5	3.9	3.5	3.9	3.9	3.5	3.9	3.9	3.5	3.9	3.9
All-Red Time (s)	0.4	0.0	0.5	0.0	0.0	0.9	1.0	1.0	0.6	0.0	0.0
Lost Time Adjust (s)	0.1	0.1	0.0	0.1	0.1	-0.4	-0.9	-0.9	-0.1	0.1	0.1
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	Min	None	Min	Min	None	None	None	None	None	None
Act Effct Green (s)	11.1	50.6	15.3	58.5	58.5	14.3	40.6	40.6	11.8	38.0	38.0
Actuated g/C Ratio	0.08	0.38	0.11	0.44	0.44	0.11	0.30	0.30	0.09	0.28	0.28
v/c Ratio	0.49	0.89	0.86	0.47	0.25	0.64	0.92	0.46	0.61	0.38	0.18
Control Delay	75.2	48.9	95.6	29.6	4.2	76.8	68.5	23.3	70.9	42.6	7.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	75.2	48.9	95.6	29.6	4.2	76.8	68.5	23.3	70.9	42.6	7.1
LOS	E	D	F	C	A	E	E	C	E	D	A
Approach Delay		50.4		35.5			56.8			46.6	
Approach LOS		D		D			E			D	

Intersection Summary	
Cycle Length: 145	
Actuated Cycle Length: 134.4	
Natural Cycle: 100	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.92	
Intersection Signal Delay: 47.1	Intersection LOS: D
Intersection Capacity Utilization 91.1%	ICU Level of Service F
Analysis Period (min) 15	

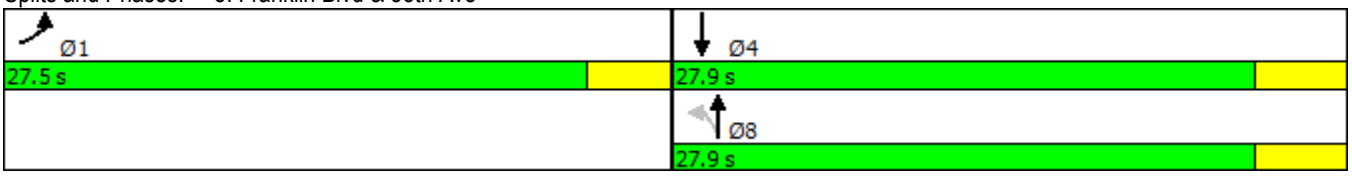
Splits and Phases: 7: Fruitridge Rd & Franklin Blvd



Lane Group	EBL	NBL	NBT	SBT
Lane Configurations				
Traffic Volume (vph)	20	20	880	360
Future Volume (vph)	20	20	880	360
Turn Type	Prot	Perm	NA	NA
Protected Phases	1		8	4
Permitted Phases		8		
Detector Phase	1	8	8	4
Switch Phase				
Minimum Initial (s)	9.0	24.0	24.0	24.0
Minimum Split (s)	29.5	27.9	27.9	27.9
Total Split (s)	27.5	27.9	27.9	27.9
Total Split (%)	49.6%	50.4%	50.4%	50.4%
Yellow Time (s)	3.5	3.9	3.9	3.9
All-Red Time (s)	0.0	0.0	0.0	0.0
Lost Time Adjust (s)	0.5	0.1	0.1	0.1
Total Lost Time (s)	4.0	4.0	4.0	4.0
Lead/Lag				
Lead-Lag Optimize?				
Recall Mode	None	Max	Max	Max
Act Effct Green (s)	11.4	38.9	38.9	38.9
Actuated g/C Ratio	0.24	0.82	0.82	0.82
v/c Ratio	0.12	0.02	0.58	0.25
Control Delay	8.4	6.3	11.7	5.7
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	8.4	6.3	11.7	5.7
LOS	A	A	B	A
Approach Delay	8.4		11.5	5.7
Approach LOS	A		B	A

Intersection Summary	
Cycle Length: 55.4	
Actuated Cycle Length: 47.5	
Natural Cycle: 75	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.58	
Intersection Signal Delay: 9.7	Intersection LOS: A
Intersection Capacity Utilization 60.5%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 8: Franklin Blvd & 38th Ave



Lane Group	NBT	Ø8
Lane Configurations		
Traffic Volume (vph)	920	
Future Volume (vph)	920	
Turn Type	NA	
Protected Phases	2	8
Permitted Phases		
Detector Phase	2	
Switch Phase		
Minimum Initial (s)	1.0	2.0
Minimum Split (s)	3.0	5.1
Total Split (s)	3.0	5.1
Total Split (%)	37.0%	63%
Yellow Time (s)	2.0	2.0
All-Red Time (s)	0.0	0.0
Lost Time Adjust (s)	2.0	
Total Lost Time (s)	4.0	
Lead/Lag		
Lead-Lag Optimize?		
Recall Mode	Max	Max
Act Effct Green (s)	0.0	
Actuated g/C Ratio	0.00	
v/c Ratio	no cap	
Control Delay		
Queue Delay		
Total Delay	Error	
LOS	F	
Approach Delay	Err	
Approach LOS	F	

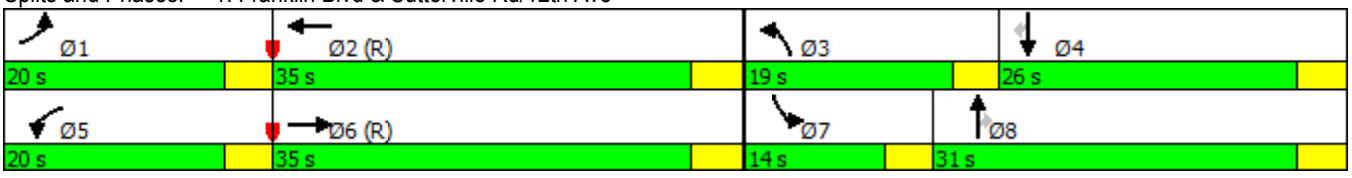
Intersection Summary	
Cycle Length: 8.1	
Actuated Cycle Length: 8.1	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:, Start of Green	
Natural Cycle: 40	
Control Type: Pretimed	
Maximum v/c Ratio: Err	
Intersection Signal Delay: Err	Intersection LOS: F
Intersection Capacity Utilization 44.8%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 27:

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	210	500	130	740	140	460	100	100	160	70
Future Volume (vph)	210	500	130	740	140	460	100	100	160	70
Turn Type	Prot	NA	Prot	NA	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	1	6	5	2	3	8		7	4	
Permitted Phases							8			4
Detector Phase	1	6	5	2	3	8	8	7	4	4
Switch Phase										
Minimum Initial (s)	10.0	9.0	10.0	9.0	9.0	9.0	9.0	10.0	10.0	10.0
Minimum Split (s)	13.6	26.9	13.6	22.9	12.5	26.9	26.9	13.5	25.9	25.9
Total Split (s)	20.0	35.0	20.0	35.0	19.0	31.0	31.0	14.0	26.0	26.0
Total Split (%)	20.0%	35.0%	20.0%	35.0%	19.0%	31.0%	31.0%	14.0%	26.0%	26.0%
Yellow Time (s)	3.5	3.9	3.5	3.9	3.5	3.9	3.9	3.5	3.9	3.9
All-Red Time (s)	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lost Time Adjust (s)	0.4	0.1	0.4	0.1	0.5	0.1	0.1	0.5	0.1	0.1
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	C-Max	None	None	None	Min	None	None
Act Effct Green (s)	14.4	35.8	12.0	33.4	11.8	26.5	26.5	9.7	24.4	24.4
Actuated g/C Ratio	0.14	0.36	0.12	0.33	0.12	0.26	0.26	0.10	0.24	0.24
v/c Ratio	0.83	0.61	0.62	0.74	0.68	0.94	0.21	0.59	0.36	0.15
Control Delay	68.5	26.0	71.6	22.1	58.7	65.8	9.3	57.9	34.5	1.5
Queue Delay	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	68.5	26.0	71.6	22.2	58.7	65.8	9.3	57.9	34.5	1.5
LOS	E	C	E	C	E	E	A	E	C	A
Approach Delay		35.2		28.8		56.3			34.6	
Approach LOS		D		C		E			C	

Intersection Summary	
Cycle Length: 100	
Actuated Cycle Length: 100	
Offset: 0 (0%), Referenced to phase 2:WBT and 6:EBT, Start of Green	
Natural Cycle: 85	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.94	
Intersection Signal Delay: 38.0	Intersection LOS: D
Intersection Capacity Utilization 81.5%	ICU Level of Service D
Analysis Period (min) 15	

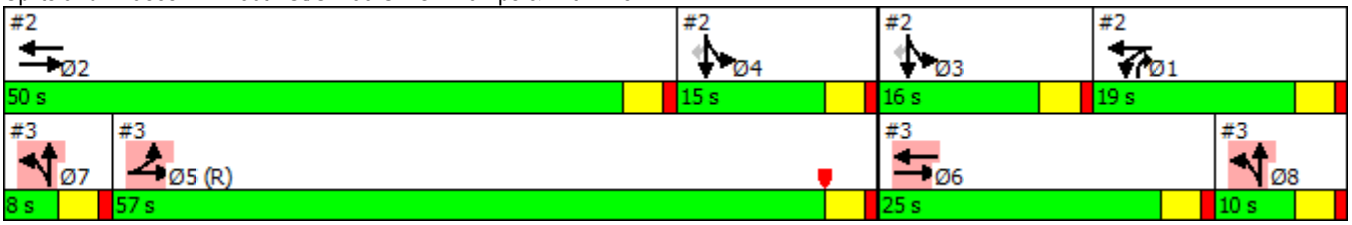
Splits and Phases: 1: Franklin Blvd & Sutterville Rd/12th Ave



Lane Group	EBT	WBL	WBT	NBR	SBL	SBT	SBR	Ø3	Ø4	Ø5	Ø6	Ø7
Lane Configurations												
Traffic Volume (vph)	640	100	590	90	430	130	400					
Future Volume (vph)	640	100	590	90	430	130	400					
Turn Type	NA	Prot	NA	Over	Split	NA	Perm					
Protected Phases	2	1	1 2	1	3 4	3 4		3	4	5	6	7
Permitted Phases							3 4					
Detector Phase	2	1	1 2	1	3 4	3 4	3 4					
Switch Phase												
Minimum Initial (s)	3.0	3.0		3.0				3.0	10.0	25.0	7.0	3.0
Minimum Split (s)	16.0	19.0		19.0				16.0	15.0	29.0	16.0	8.0
Total Split (s)	50.0	19.0		19.0				16.0	15.0	57.0	25.0	8.0
Total Split (%)	50.0%	19.0%		19.0%				16%	15%	57%	25%	8%
Yellow Time (s)	3.0	3.0		3.0				3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	1.0	1.0		1.0				1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0		0.0								
Total Lost Time (s)	4.0	4.0		4.0								
Lead/Lag	Lead	Lag		Lag				Lead	Lag	Lag	Lead	Lead
Lead-Lag Optimize?	Yes	Yes		Yes				Yes	Yes	Yes	Yes	Yes
Recall Mode	Max	None		None				Min	Min	C-Max	Max	None
Act Effct Green (s)	46.0	17.0	67.0	17.0	25.0	25.0	25.0					
Actuated g/C Ratio	0.46	0.17	0.67	0.17	0.25	0.25	0.25					
v/c Ratio	0.44	0.34	0.25	0.23	0.66	0.67	0.63					
Control Delay	7.0	8.3	5.0	2.0	41.9	42.0	11.4					
Queue Delay	0.0	0.0	0.8	0.0	0.0	0.0	0.1					
Total Delay	7.0	8.3	5.8	2.0	41.9	42.0	11.5					
LOS	A	A	A	A	D	D	B					
Approach Delay	7.0		6.2			29.2						
Approach LOS	A		A			C						

Intersection Summary	
Cycle Length: 100	
Actuated Cycle Length: 100	
Offset: 64 (64%), Referenced to phase 5:EBTL, Start of Yellow	
Natural Cycle: 75	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.67	
Intersection Signal Delay: 15.3	Intersection LOS: B
Intersection Capacity Utilization 57.2%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 2: 30th St/SR-99 SB Off-Ramps & 12th Ave



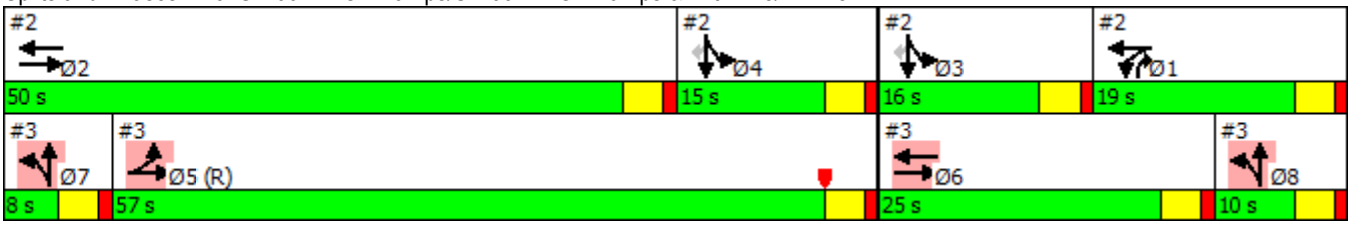
Lane Group	Ø8
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Turn Type	
Protected Phases	8
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	3.0
Minimum Split (s)	10.0
Total Split (s)	10.0
Total Split (%)	10%
Yellow Time (s)	3.0
All-Red Time (s)	1.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	Lag
Lead-Lag Optimize?	Yes
Recall Mode	None
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	

Intersection Summary

Lane Group	EBL	EBT	WBT	WBR	NBL	NBT	NBR	Ø1	Ø2	Ø3	Ø4	Ø7
Lane Configurations												
Traffic Volume (vph)	420	740	470	500	220	0	100					
Future Volume (vph)	420	740	470	500	220	0	100					
Turn Type	Prot	NA	NA	Free	Split	NA	Free					
Protected Phases	5	5 6	6		7 8	7 8		1	2	3	4	7
Permitted Phases				Free			Free					
Detector Phase	5	5 6	6		7 8	7 8						
Switch Phase												
Minimum Initial (s)	25.0		7.0					3.0	3.0	3.0	10.0	3.0
Minimum Split (s)	29.0		16.0					19.0	16.0	16.0	15.0	8.0
Total Split (s)	57.0		25.0					19.0	50.0	16.0	15.0	8.0
Total Split (%)	57.0%		25.0%					19%	50%	16%	15%	8%
Yellow Time (s)	3.0		3.0					3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	1.0		1.0					1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0		0.0									
Total Lost Time (s)	4.0		4.0									
Lead/Lag	Lag		Lead					Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?	Yes		Yes					Yes	Yes	Yes	Yes	Yes
Recall Mode	C-Max		Max					None	Max	Min	Min	None
Act Effct Green (s)	53.0	78.0	21.0	100.0	14.0	14.0	100.0					
Actuated g/C Ratio	0.53	0.78	0.21	1.00	0.14	0.14	1.00					
v/c Ratio	0.45	0.27	0.64	0.32	0.47	0.47	0.06					
Control Delay	5.4	0.5	40.6	0.6	47.0	47.0	0.1					
Queue Delay	0.5	0.3	0.0	0.0	0.0	0.0	0.0					
Total Delay	5.9	0.8	40.6	0.6	47.0	47.0	0.1					
LOS	A	A	D	A	D	D	A					
Approach Delay		2.6	20.0			32.4						
Approach LOS		A	B			C						

Intersection Summary	
Cycle Length: 100	
Actuated Cycle Length: 100	
Offset: 64 (64%), Referenced to phase 5:EBTL, Start of Yellow	
Natural Cycle: 75	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.67	
Intersection Signal Delay: 13.4	Intersection LOS: B
Intersection Capacity Utilization 52.4%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 3: SR-99 NB Off-Ramps/SR-99 NB On-Ramps & 12th Ave/12 Ave



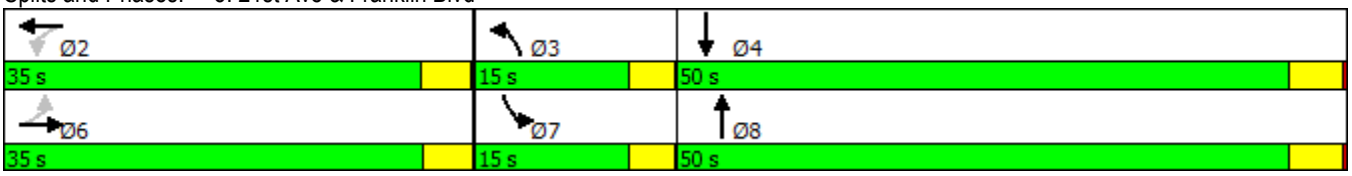
Lane Group	Ø8
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Turn Type	
Protected Phases	8
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	3.0
Minimum Split (s)	10.0
Total Split (s)	10.0
Total Split (%)	10%
Yellow Time (s)	3.0
All-Red Time (s)	1.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	Lag
Lead-Lag Optimize?	Yes
Recall Mode	None
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	

Intersection Summary

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	40	40	140	60	70	620	130	270
Future Volume (vph)	40	40	140	60	70	620	130	270
Turn Type	Perm	NA	Perm	NA	Prot	NA	Prot	NA
Protected Phases		6		2	3	8	7	4
Permitted Phases	6		2					
Detector Phase	6	6	2	2	3	8	7	4
Switch Phase								
Minimum Initial (s)	11.0	11.0	11.0	11.0	10.0	16.0	10.0	16.0
Minimum Split (s)	31.9	31.9	32.0	32.0	13.6	23.4	13.6	23.4
Total Split (s)	35.0	35.0	35.0	35.0	15.0	50.0	15.0	50.0
Total Split (%)	35.0%	35.0%	35.0%	35.0%	15.0%	50.0%	15.0%	50.0%
Yellow Time (s)	3.7	3.7	3.7	3.7	3.5	3.9	3.5	3.9
All-Red Time (s)	0.2	0.2	0.3	0.3	0.1	0.5	0.1	0.5
Lost Time Adjust (s)		0.1		0.0	0.4	-0.4	0.4	-0.4
Total Lost Time (s)		4.0		4.0	4.0	4.0	4.0	4.0
Lead/Lag					Lead	Lag	Lead	Lag
Lead-Lag Optimize?					Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	Min	None	Min
Act Effct Green (s)		24.7		24.7	9.9	46.2	10.4	49.9
Actuated g/C Ratio		0.26		0.26	0.11	0.49	0.11	0.53
v/c Ratio		0.36		0.90	0.38	1.03	0.67	0.38
Control Delay		21.2		57.9	47.4	68.1	59.1	16.6
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0
Total Delay		21.2		57.9	47.4	68.1	59.1	16.6
LOS		C		E	D	E	E	B
Approach Delay		21.2		57.9		66.4		29.2
Approach LOS		C		E		E		C

Intersection Summary	
Cycle Length: 100	
Actuated Cycle Length: 93.5	
Natural Cycle: 100	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.03	
Intersection Signal Delay: 51.7	Intersection LOS: D
Intersection Capacity Utilization 86.7%	ICU Level of Service E
Analysis Period (min) 15	

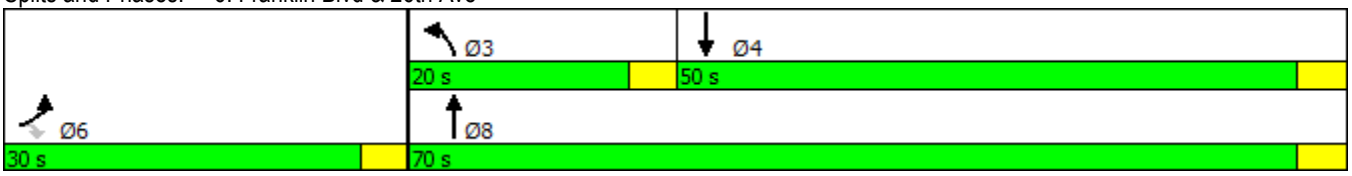
Splits and Phases: 5: 21st Ave & Franklin Blvd



Lane Group	EBL	EBR	NBL	NBT	SBT
Lane Configurations					
Traffic Volume (vph)	290	80	120	600	380
Future Volume (vph)	290	80	120	600	380
Turn Type	Prot	Perm	Prot	NA	NA
Protected Phases	6		3	8	4
Permitted Phases		6			
Detector Phase	6	6	3	8	4
Switch Phase					
Minimum Initial (s)	9.0	9.0	8.0	24.0	24.0
Minimum Split (s)	26.5	26.5	11.5	27.9	27.9
Total Split (s)	30.0	30.0	20.0	70.0	50.0
Total Split (%)	30.0%	30.0%	20.0%	70.0%	50.0%
Yellow Time (s)	3.5	3.5	3.5	3.9	3.9
All-Red Time (s)	0.0	0.0	0.0	0.0	0.0
Lost Time Adjust (s)	0.5	0.5	0.5	0.1	0.1
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0
Lead/Lag			Lead		Lag
Lead-Lag Optimize?			Yes		Yes
Recall Mode	None	None	None	Min	Min
Act Effct Green (s)	14.6	14.6	9.5	37.5	27.2
Actuated g/C Ratio	0.24	0.24	0.16	0.62	0.45
v/c Ratio	0.69	0.20	0.44	0.52	0.58
Control Delay	31.8	16.1	32.5	9.1	18.4
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	31.8	16.1	32.5	9.1	18.4
LOS	C	B	C	A	B
Approach Delay	28.4			13.0	18.4
Approach LOS	C			B	B

Intersection Summary	
Cycle Length: 100	
Actuated Cycle Length: 60.6	
Natural Cycle: 70	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.69	
Intersection Signal Delay: 18.3	Intersection LOS: B
Intersection Capacity Utilization 58.3%	ICU Level of Service B
Analysis Period (min) 15	

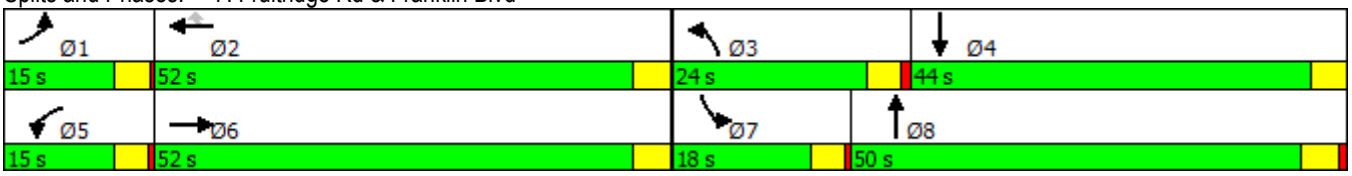
Splits and Phases: 6: Franklin Blvd & 26th Ave



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	70	1090	170	720	190	120	510	250	180	200	90
Future Volume (vph)	70	1090	170	720	190	120	510	250	180	200	90
Turn Type	Prot	NA	Prot	NA	Perm	Prot	NA	Free	Prot	NA	Free
Protected Phases	1	6	5	2		3	8		7	4	
Permitted Phases					2			Free			Free
Detector Phase	1	6	5	2	2	3	8		7	4	
Switch Phase											
Minimum Initial (s)	11.0	10.0	11.0	10.0	10.0	12.0	10.0		11.0	9.0	
Minimum Split (s)	14.9	26.9	15.0	28.9	28.9	16.4	30.9		15.1	26.9	
Total Split (s)	15.0	52.0	15.0	52.0	52.0	24.0	50.0		18.0	44.0	
Total Split (%)	11.1%	38.5%	11.1%	38.5%	38.5%	17.8%	37.0%		13.3%	32.6%	
Yellow Time (s)	3.5	3.9	3.5	3.9	3.9	3.5	3.9		3.5	3.9	
All-Red Time (s)	0.4	0.0	0.5	0.0	0.0	0.9	1.0		0.6	0.0	
Lost Time Adjust (s)	0.1	0.1	0.0	0.1	0.1	-0.4	-0.9		-0.1	0.1	
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	
Recall Mode	None	Min	None	Min	Min	None	None		None	None	
Act Effct Green (s)	11.1	45.4	11.1	49.1	49.1	14.8	38.5	123.3	12.1	35.8	123.3
Actuated g/C Ratio	0.09	0.37	0.09	0.40	0.40	0.12	0.31	1.00	0.10	0.29	1.00
v/c Ratio	0.45	0.91	0.56	0.52	0.26	0.57	0.89	0.16	0.54	0.37	0.06
Control Delay	66.7	48.5	63.6	31.9	5.3	64.7	58.9	0.2	61.4	37.7	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	66.7	48.5	63.6	31.9	5.3	64.7	58.9	0.2	61.4	37.7	0.1
LOS	E	D	E	C	A	E	E	A	E	D	A
Approach Delay		49.6		32.2			43.0			39.6	
Approach LOS		D		C			D			D	

Intersection Summary	
Cycle Length: 135	
Actuated Cycle Length: 123.3	
Natural Cycle: 100	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.91	
Intersection Signal Delay: 41.6	Intersection LOS: D
Intersection Capacity Utilization 90.9%	ICU Level of Service E
Analysis Period (min) 15	

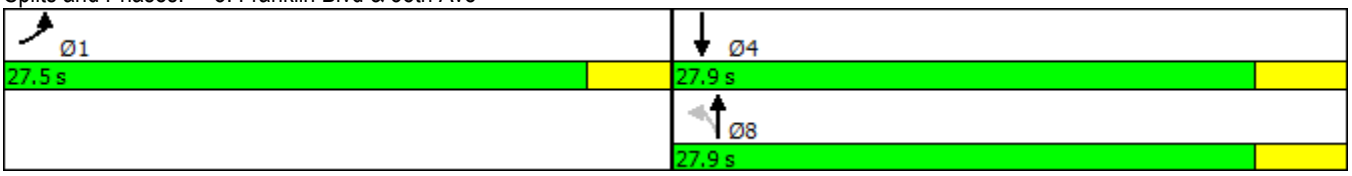
Splits and Phases: 7: Fruitridge Rd & Franklin Blvd



Lane Group	EBL	NBL	NBT	SBT
Lane Configurations				
Traffic Volume (vph)	20	20	880	360
Future Volume (vph)	20	20	880	360
Turn Type	Prot	Perm	NA	NA
Protected Phases	1		8	4
Permitted Phases		8		
Detector Phase	1	8	8	4
Switch Phase				
Minimum Initial (s)	9.0	24.0	24.0	24.0
Minimum Split (s)	29.5	27.9	27.9	27.9
Total Split (s)	27.5	27.9	27.9	27.9
Total Split (%)	49.6%	50.4%	50.4%	50.4%
Yellow Time (s)	3.5	3.9	3.9	3.9
All-Red Time (s)	0.0	0.0	0.0	0.0
Lost Time Adjust (s)	0.5	0.1	0.1	0.1
Total Lost Time (s)	4.0	4.0	4.0	4.0
Lead/Lag				
Lead-Lag Optimize?				
Recall Mode	None	Max	Max	Max
Act Effct Green (s)	11.4	38.9	38.9	38.9
Actuated g/C Ratio	0.24	0.82	0.82	0.82
v/c Ratio	0.12	0.02	0.58	0.25
Control Delay	8.4	6.3	11.7	5.7
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	8.4	6.3	11.7	5.7
LOS	A	A	B	A
Approach Delay	8.4		11.5	5.7
Approach LOS	A		B	A

Intersection Summary	
Cycle Length: 55.4	
Actuated Cycle Length: 47.5	
Natural Cycle: 75	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.58	
Intersection Signal Delay: 9.7	Intersection LOS: A
Intersection Capacity Utilization 60.5%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 8: Franklin Blvd & 38th Ave



Lane Group	NBT	Ø8
Lane Configurations		
Traffic Volume (vph)	920	
Future Volume (vph)	920	
Turn Type	NA	
Protected Phases	2	8
Permitted Phases		
Detector Phase	2	
Switch Phase		
Minimum Initial (s)	1.0	1.0
Minimum Split (s)	3.0	5.1
Total Split (s)	3.0	5.1
Total Split (%)	37.0%	63%
Yellow Time (s)	2.0	2.0
All-Red Time (s)	0.0	0.0
Lost Time Adjust (s)	2.0	
Total Lost Time (s)	4.0	
Lead/Lag		
Lead-Lag Optimize?		
Recall Mode	Max	Max
Act Effct Green (s)	0.0	
Actuated g/C Ratio	0.00	
v/c Ratio	no cap	
Control Delay		
Queue Delay		
Total Delay	Error	
LOS	F	
Approach Delay	Err	
Approach LOS	F	

Intersection Summary	
Cycle Length: 8.1	
Actuated Cycle Length: 8.1	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:, Start of Green	
Natural Cycle: 40	
Control Type: Pretimed	
Maximum v/c Ratio: Err	
Intersection Signal Delay: Err	Intersection LOS: F
Intersection Capacity Utilization 44.8%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 27:

Timings
1: Franklin Blvd & Sutterville Rd/12th Ave

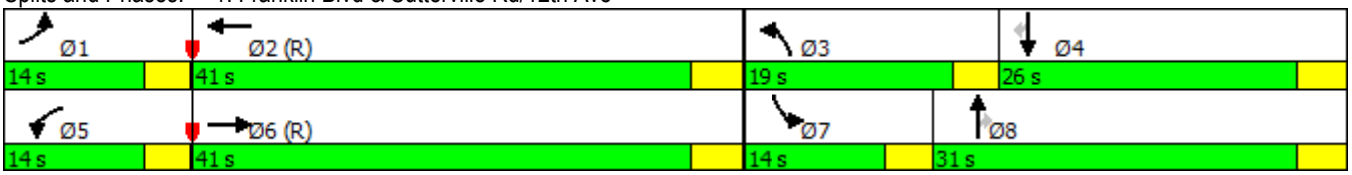
03/01/2018

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	90	590	150	920	70	140	30	70	420	160
Future Volume (vph)	90	590	150	920	70	140	30	70	420	160
Turn Type	Prot	NA	Prot	NA	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	1	6	5	2	3	8		7	4	
Permitted Phases							8			4
Detector Phase	1	6	5	2	3	8	8	7	4	4
Switch Phase										
Minimum Initial (s)	10.0	9.0	10.0	9.0	9.0	9.0	9.0	10.0	10.0	10.0
Minimum Split (s)	13.6	26.9	13.6	22.9	12.5	26.9	26.9	13.5	25.9	25.9
Total Split (s)	14.0	41.0	14.0	41.0	19.0	31.0	31.0	14.0	26.0	26.0
Total Split (%)	14.0%	41.0%	14.0%	41.0%	19.0%	31.0%	31.0%	14.0%	26.0%	26.0%
Yellow Time (s)	3.5	3.9	3.5	3.9	3.5	3.9	3.9	3.5	3.9	3.9
All-Red Time (s)	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lost Time Adjust (s)	0.4	0.1	0.4	0.1	0.5	0.1	0.1	0.5	0.1	0.1
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	C-Max	None	None	None	Min	None	None
Act Effct Green (s)	9.8	39.3	9.9	42.2	9.3	25.2	25.2	9.6	28.0	28.0
Actuated g/C Ratio	0.10	0.39	0.10	0.42	0.09	0.25	0.25	0.10	0.28	0.28
v/c Ratio	0.53	0.58	0.86	0.71	0.43	0.30	0.07	0.42	0.81	0.31
Control Delay	54.7	25.0	65.5	39.0	51.3	31.3	0.3	50.6	48.3	10.3
Queue Delay	0.0	0.0	0.0	0.9	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	54.7	25.0	65.5	40.0	51.3	31.3	0.3	50.6	48.3	10.3
LOS	D	C	E	D	D	C	A	D	D	B
Approach Delay		28.1		43.2		33.3			39.2	
Approach LOS		C		D		C			D	

Intersection Summary

Cycle Length: 100
Actuated Cycle Length: 100
Offset: 26 (26%), Referenced to phase 2:WBT and 6:EBT, Start of Green
Natural Cycle: 85
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.86
Intersection Signal Delay: 37.0 — Intersection LOS: D
Intersection Capacity Utilization 80.3% — ICU Level of Service D
Analysis Period (min) 15

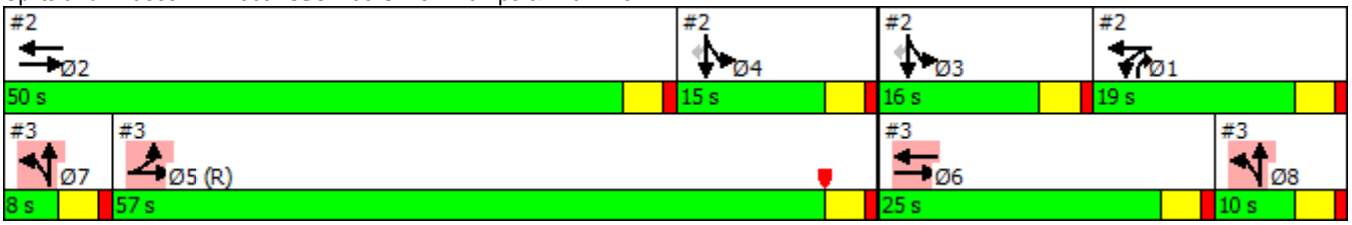
Splits and Phases: 1: Franklin Blvd & Sutterville Rd/12th Ave



Lane Group	EBT	WBL	WBT	NBR	SBL	SBT	SBR	Ø3	Ø4	Ø5	Ø6	Ø7
Lane Configurations												
Traffic Volume (vph)	600	70	730	30	390	130	470					
Future Volume (vph)	600	70	730	30	390	130	470					
Turn Type	NA	Prot	NA	Over	Split	NA	Perm					
Protected Phases	2	1	1 2	1	3 4	3 4		3	4	5	6	7
Permitted Phases							3 4					
Detector Phase	2	1	1 2	1	3 4	3 4	3 4					
Switch Phase												
Minimum Initial (s)	3.0	3.0		3.0				3.0	10.0	25.0	7.0	3.0
Minimum Split (s)	16.0	19.0		19.0				16.0	15.0	29.0	16.0	8.0
Total Split (s)	50.0	19.0		19.0				16.0	15.0	57.0	25.0	8.0
Total Split (%)	50.0%	19.0%		19.0%				16%	15%	57%	25%	8%
Yellow Time (s)	3.0	3.0		3.0				3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	1.0	1.0		1.0				1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0		0.0								
Total Lost Time (s)	4.0	4.0		4.0								
Lead/Lag	Lead	Lag		Lag				Lead	Lag	Lag	Lead	Lead
Lead-Lag Optimize?	Yes	Yes		Yes				Yes	Yes	Yes	Yes	Yes
Recall Mode	Max	None		None				Min	Min	C-Max	Max	None
Act Effct Green (s)	46.0	17.0	67.0	17.0	25.0	25.0	25.0					
Actuated g/C Ratio	0.46	0.17	0.67	0.17	0.25	0.25	0.25					
v/c Ratio	0.43	0.24	0.31	0.07	0.62	0.62	0.82					
Control Delay	20.0	5.9	5.3	0.3	40.1	39.8	29.0					
Queue Delay	0.0	0.0	1.4	0.0	0.0	0.0	0.7					
Total Delay	20.0	5.9	6.8	0.3	40.1	39.8	29.7					
LOS	C	A	A	A	D	D	C					
Approach Delay	20.0		6.7			35.1						
Approach LOS	C		A			D						

Intersection Summary	
Cycle Length: 100	
Actuated Cycle Length: 100	
Offset: 64 (64%), Referenced to phase 5:EBTL, Start of Yellow	
Natural Cycle: 75	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.82	
Intersection Signal Delay: 21.5	Intersection LOS: C
Intersection Capacity Utilization 55.9%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 2: 30th St/SR-99 SB Off-Ramps & 12th Ave



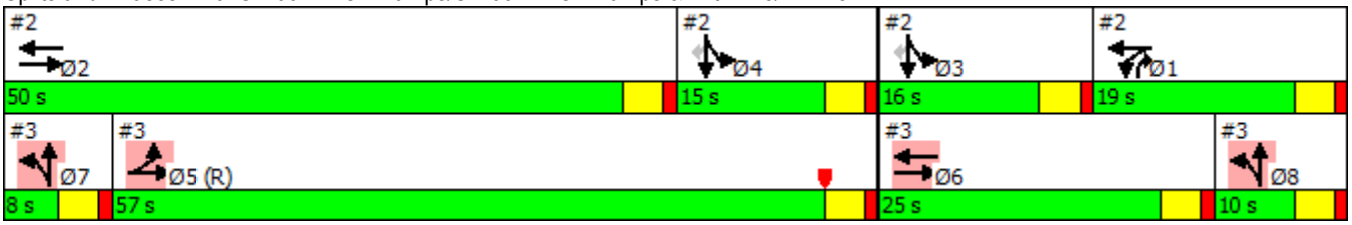
Lane Group	Ø8
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Turn Type	
Protected Phases	8
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	3.0
Minimum Split (s)	10.0
Total Split (s)	10.0
Total Split (%)	10%
Yellow Time (s)	3.0
All-Red Time (s)	1.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	Lag
Lead-Lag Optimize?	Yes
Recall Mode	None
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	

Intersection Summary

Lane Group	EBL	EBT	WBT	WBR	NBL	NBT	NBR	Ø1	Ø2	Ø3	Ø4	Ø7
Lane Configurations												
Traffic Volume (vph)	340	680	520	310	280	10	190					
Future Volume (vph)	340	680	520	310	280	10	190					
Turn Type	Prot	NA	NA	Free	Split	NA	Free					
Protected Phases	5	5 6	6		7 8	7 8		1	2	3	4	7
Permitted Phases				Free			Free					
Detector Phase	5	5 6	6		7 8	7 8						
Switch Phase												
Minimum Initial (s)	25.0		7.0					3.0	3.0	3.0	10.0	3.0
Minimum Split (s)	29.0		16.0					19.0	16.0	16.0	15.0	8.0
Total Split (s)	57.0		25.0					19.0	50.0	16.0	15.0	8.0
Total Split (%)	57.0%		25.0%					19%	50%	16%	15%	8%
Yellow Time (s)	3.0		3.0					3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	1.0		1.0					1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0		0.0									
Total Lost Time (s)	4.0		4.0									
Lead/Lag	Lag		Lead					Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?	Yes		Yes					Yes	Yes	Yes	Yes	Yes
Recall Mode	C-Max		Max					None	Max	Min	Min	None
Act Effct Green (s)	53.0	78.0	21.0	100.0	14.0	14.0	100.0					
Actuated g/C Ratio	0.53	0.78	0.21	1.00	0.14	0.14	1.00					
v/c Ratio	0.37	0.25	0.71	0.20	0.63	0.62	0.12					
Control Delay	3.3	0.4	42.7	0.3	53.5	52.8	0.2					
Queue Delay	0.5	0.2	0.6	0.0	0.1	0.1	0.0					
Total Delay	3.8	0.6	43.2	0.3	53.5	52.8	0.2					
LOS	A	A	D	A	D	D	A					
Approach Delay		1.7	27.2			32.2						
Approach LOS		A	C			C						

Intersection Summary	
Cycle Length: 100	
Actuated Cycle Length: 100	
Offset: 64 (64%), Referenced to phase 5:EBTL, Start of Yellow	
Natural Cycle: 75	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.82	
Intersection Signal Delay: 17.1	Intersection LOS: B
Intersection Capacity Utilization 53.2%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 3: SR-99 NB Off-Ramps/SR-99 NB On-Ramps & 12th Ave/12 Ave



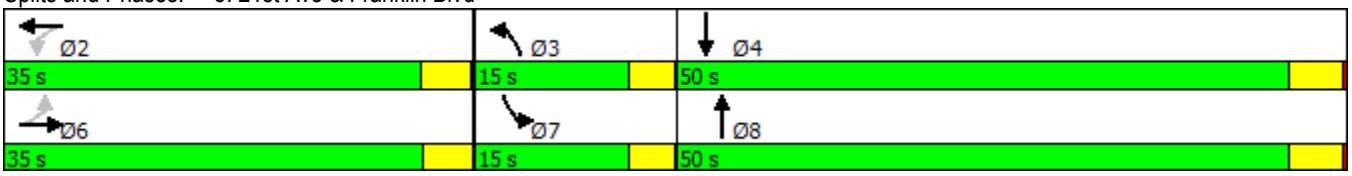
Lane Group	Ø8
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Turn Type	
Protected Phases	8
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	3.0
Minimum Split (s)	10.0
Total Split (s)	10.0
Total Split (%)	10%
Yellow Time (s)	3.0
All-Red Time (s)	1.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	Lag
Lead-Lag Optimize?	Yes
Recall Mode	None
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	

Intersection Summary

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	40	30	120	20	40	220	50	720
Future Volume (vph)	40	30	120	20	40	220	50	720
Turn Type	Perm	NA	Perm	NA	Prot	NA	Prot	NA
Protected Phases		6		2	3	8	7	4
Permitted Phases	6		2					
Detector Phase	6	6	2	2	3	8	7	4
Switch Phase								
Minimum Initial (s)	11.0	11.0	11.0	11.0	10.0	16.0	10.0	16.0
Minimum Split (s)	31.9	31.9	32.0	32.0	13.6	23.4	13.6	23.4
Total Split (s)	35.0	35.0	35.0	35.0	15.0	50.0	15.0	50.0
Total Split (%)	35.0%	35.0%	35.0%	35.0%	15.0%	50.0%	15.0%	50.0%
Yellow Time (s)	3.7	3.7	3.7	3.7	3.5	3.9	3.5	3.9
All-Red Time (s)	0.2	0.2	0.3	0.3	0.1	0.5	0.1	0.5
Lost Time Adjust (s)		0.1		0.0	0.4	-0.4	0.4	-0.4
Total Lost Time (s)		4.0		4.0	4.0	4.0	4.0	4.0
Lead/Lag					Lead	Lag	Lead	Lag
Lead-Lag Optimize?					Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	Min	None	Min
Act Effct Green (s)		16.1		16.1	9.8	47.0	9.8	47.0
Actuated g/C Ratio		0.20		0.20	0.12	0.60	0.12	0.60
v/c Ratio		0.34		0.68	0.18	0.39	0.23	0.81
Control Delay		23.5		39.2	38.1	11.7	38.7	25.0
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0
Total Delay		23.5		39.2	38.1	11.7	38.7	25.0
LOS		C		D	D	B	D	C
Approach Delay		23.5		39.2		14.4		25.9
Approach LOS		C		D		B		C

Intersection Summary	
Cycle Length: 100	
Actuated Cycle Length: 78.6	
Natural Cycle: 90	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.81	
Intersection Signal Delay: 24.4	Intersection LOS: C
Intersection Capacity Utilization 67.5%	ICU Level of Service C
Analysis Period (min) 15	

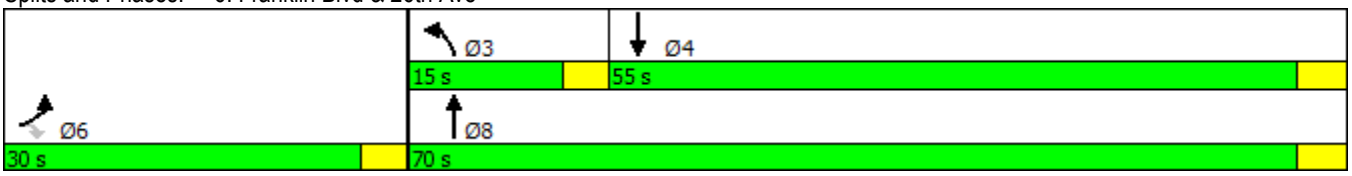
Splits and Phases: 5: 21st Ave & Franklin Blvd



Lane Group	EBL	EBR	NBL	NBT	SBT
Lane Configurations					
Traffic Volume (vph)	120	80	100	290	710
Future Volume (vph)	120	80	100	290	710
Turn Type	Prot	Perm	Prot	NA	NA
Protected Phases	6		3	8	4
Permitted Phases		6			
Detector Phase	6	6	3	8	4
Switch Phase					
Minimum Initial (s)	9.0	9.0	8.0	24.0	24.0
Minimum Split (s)	26.5	26.5	11.5	27.9	27.9
Total Split (s)	30.0	30.0	15.0	70.0	55.0
Total Split (%)	30.0%	30.0%	15.0%	70.0%	55.0%
Yellow Time (s)	3.5	3.5	3.5	3.9	3.9
All-Red Time (s)	0.0	0.0	0.0	0.0	0.0
Lost Time Adjust (s)	0.5	0.5	0.5	0.1	0.1
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0
Lead/Lag			Lead		Lag
Lead-Lag Optimize?			Yes		Yes
Recall Mode	None	None	None	Min	Min
Act Effct Green (s)	11.8	11.8	9.1	56.3	46.4
Actuated g/C Ratio	0.15	0.15	0.12	0.74	0.61
v/c Ratio	0.44	0.27	0.48	0.21	0.82
Control Delay	37.6	14.0	44.5	4.0	21.8
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	37.6	14.0	44.5	4.0	21.8
LOS	D	B	D	A	C
Approach Delay	28.2			14.4	21.8
Approach LOS	C			B	C

Intersection Summary	
Cycle Length: 100	
Actuated Cycle Length: 76.4	
Natural Cycle: 90	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.82	
Intersection Signal Delay: 20.7	Intersection LOS: C
Intersection Capacity Utilization 73.0%	ICU Level of Service C
Analysis Period (min) 15	

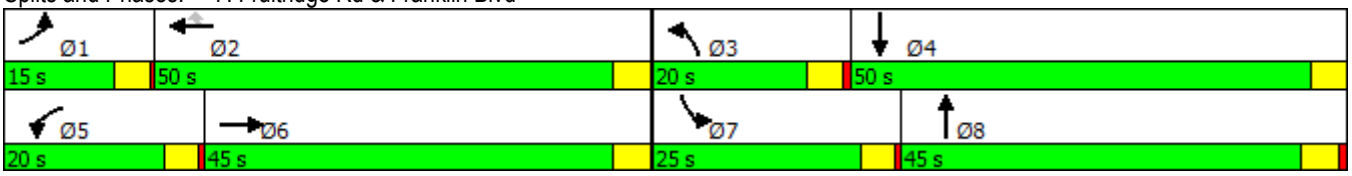
Splits and Phases: 6: Franklin Blvd & 26th Ave



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	10	830	270	1190	250	110	200	160	260	570	80
Future Volume (vph)	10	830	270	1190	250	110	200	160	260	570	80
Turn Type	Prot	NA	Prot	NA	Perm	Prot	NA	Free	Prot	NA	Free
Protected Phases	1	6	5	2		3	8		7	4	
Permitted Phases					2			Free			Free
Detector Phase	1	6	5	2	2	3	8		7	4	
Switch Phase											
Minimum Initial (s)	11.0	10.0	11.0	10.0	10.0	12.0	10.0		11.0	9.0	
Minimum Split (s)	14.9	26.9	15.0	28.9	28.9	16.4	30.9		15.1	26.9	
Total Split (s)	15.0	45.0	20.0	50.0	50.0	20.0	45.0		25.0	50.0	
Total Split (%)	11.1%	33.3%	14.8%	37.0%	37.0%	14.8%	33.3%		18.5%	37.0%	
Yellow Time (s)	3.5	3.9	3.5	3.9	3.9	3.5	3.9		3.5	3.9	
All-Red Time (s)	0.4	0.0	0.5	0.0	0.0	0.9	1.0		0.6	0.0	
Lost Time Adjust (s)	0.1	0.1	0.0	0.1	0.1	-0.4	-0.9		-0.1	0.1	
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	
Recall Mode	None	Min	None	Min	Min	None	None		None	None	
Act Effct Green (s)	11.1	37.5	14.0	52.8	52.8	13.9	40.5	122.7	14.5	41.2	122.7
Actuated g/C Ratio	0.09	0.31	0.11	0.43	0.43	0.11	0.33	1.00	0.12	0.34	1.00
v/c Ratio	0.06	0.88	0.70	0.79	0.34	0.56	0.33	0.10	0.65	0.92	0.05
Control Delay	58.0	51.6	64.4	36.1	12.5	66.0	34.0	0.1	61.3	61.7	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	58.0	51.6	64.4	36.1	12.5	66.0	34.0	0.1	61.3	61.7	0.1
LOS	E	D	E	D	B	E	C	A	E	E	A
Approach Delay		51.6		37.1			30.0			56.2	
Approach LOS		D		D			C			E	

Intersection Summary	
Cycle Length: 135	
Actuated Cycle Length: 122.7	
Natural Cycle: 110	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.92	
Intersection Signal Delay: 44.0	Intersection LOS: D
Intersection Capacity Utilization 95.4%	ICU Level of Service F
Analysis Period (min) 15	

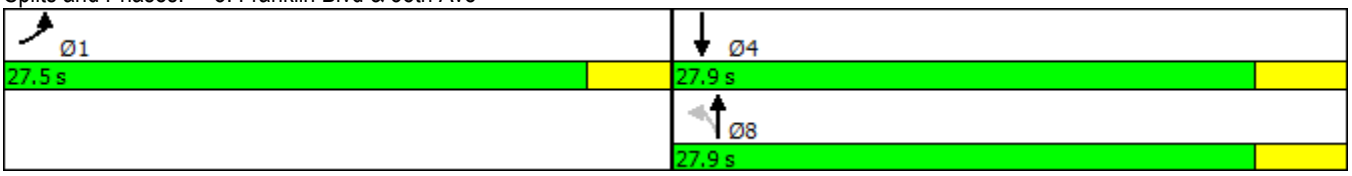
Splits and Phases: 7: Fruitridge Rd & Franklin Blvd



Lane Group	EBL	NBL	NBT	SBT
Lane Configurations				
Traffic Volume (vph)	20	20	380	840
Future Volume (vph)	20	20	380	840
Turn Type	Prot	Perm	NA	NA
Protected Phases	1		8	4
Permitted Phases		8		
Detector Phase	1	8	8	4
Switch Phase				
Minimum Initial (s)	9.0	24.0	24.0	24.0
Minimum Split (s)	29.5	27.9	27.9	27.9
Total Split (s)	27.5	27.9	27.9	27.9
Total Split (%)	49.6%	50.4%	50.4%	50.4%
Yellow Time (s)	3.5	3.9	3.9	3.9
All-Red Time (s)	0.0	0.0	0.0	0.0
Lost Time Adjust (s)	0.5	0.1	0.1	0.1
Total Lost Time (s)	4.0	4.0	4.0	4.0
Lead/Lag				
Lead-Lag Optimize?				
Recall Mode	None	Max	Max	Max
Act Effct Green (s)	11.4	38.9	38.9	38.9
Actuated g/C Ratio	0.24	0.82	0.82	0.82
v/c Ratio	0.12	0.05	0.25	0.57
Control Delay	8.3	7.0	5.7	11.4
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	8.3	7.0	5.7	11.4
LOS	A	A	A	B
Approach Delay	8.3		5.8	11.4
Approach LOS	A		A	B

Intersection Summary	
Cycle Length: 55.4	
Actuated Cycle Length: 47.5	
Natural Cycle: 70	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.57	
Intersection Signal Delay: 9.6	Intersection LOS: A
Intersection Capacity Utilization 59.6%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 8: Franklin Blvd & 38th Ave



Lane Group	NBT	Ø8
Lane Configurations		
Traffic Volume (vph)	660	
Future Volume (vph)	660	
Turn Type	NA	
Protected Phases	2	8
Permitted Phases		
Detector Phase	2	
Switch Phase		
Minimum Initial (s)	1.0	1.0
Minimum Split (s)	3.0	7.5
Total Split (s)	3.0	7.5
Total Split (%)	28.6%	71%
Yellow Time (s)	2.0	2.0
All-Red Time (s)	0.0	0.0
Lost Time Adjust (s)	2.0	
Total Lost Time (s)	4.0	
Lead/Lag		
Lead-Lag Optimize?		
Recall Mode	Max	Max
Act Effct Green (s)	0.0	
Actuated g/C Ratio	0.00	
v/c Ratio	no cap	
Control Delay		
Queue Delay		
Total Delay	Error	
LOS	F	
Approach Delay	Err	
Approach LOS	F	

Intersection Summary	
Cycle Length: 10.5	
Actuated Cycle Length: 10.5	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:, Start of Green	
Natural Cycle: 40	
Control Type: Pretimed	
Maximum v/c Ratio: Err	
Intersection Signal Delay: Err	Intersection LOS: F
Intersection Capacity Utilization 36.9%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 27:

RECEIVED
OCT 09 2017
ENVIRONMENTAL

EXHIBIT 6-A PRELIMINARY ENVIRONMENTAL STUDY (PES)

Federal Project No.: CML 5002-190 *(Federal Program Prefix-Project No., Agreement No.)*

Final Design: April 2018 *(Expected Start Date)*

To: Ferdinand Batatan *(District Local Assistance Engineer)*
District 3 *(District)*
703 B Street, Marysville, CA 95901-5517 *(Address)*
Ferdinand.batatan@dot.ca.gov *(Email Address)*

From: City of Sacramento, Department of Public Works *(Local Agency)*
Megan Johnson; (916) 808-1967 *(Project Manager's Name and Telephone No.)*
915 I Street, 2nd Floor, Sacramento, CA 95814 *(Address)*
mejohnson@cityofsacramento.org *(Email Address)*

Is this Project "ON" the State Highway System? ☐ Yes ☒ No **IF YES, STOP HERE** and contact the District Local Assistance Engineer regarding the completion of other environmental documentation.

Federal State Transportation Improvement Program (FSTIP) http://www.dot.ca.gov/hq/transprog/fedpgm.htm: 9/15/2016 *(Currently Adopted Plan Date)* p. 83 (SAC25009) *(Page No.___ attach to this form)*

http://www.dot.ca.gov/hq/transprog/oftmp.htm

Programming for FSTIP:	Preliminary Engineering		Right of Way		Construction	
	2017 *(Fiscal Year)*	$ 943,000 *(Dollars)*	n/a *(Fiscal Year)*	$ 0 *(Dollars)*	>2020 *(Fiscal Year)*	$ 7,110,000 *(Dollars)*

Project Description as Shown in RTP and FSTIP: In the City of Sacramento, on Franklin Blvd., from Sutterville Rd./12th Ave. to the Sacramento County Line: Reduce travel lanes from four to two lanes, add bicycle lanes, install landscaping and landscaped medians, and provide on-street parking.

Detailed Project Description: *(Describe the following, as applicable: purpose and need, project location and limits, required right of way acquisition, proposed facilities, staging areas, disposal and borrow sites, construction activities, and construction access.)*
The City of Sacramento is proposing to improve and rehabilitate Franklin Boulevard for approximately 1.6 miles, from Sutterville Road to the City limits at 38th Avenue, into a complete street. The proposed Project is the first phase of a multi-phased streetscape improvement project on Franklin Boulevard. (Continued on "Notes" Sheet)
(Continue description on "Notes" sheet, last page of this Exhibit, if necessary)

Preliminary Design Information:
Does the project involve any of the following? Please check the appropriate boxes and delineate on an attached map, plan, or layout including any additional pertinent information.

Yes	No		Yes	No		Yes	No	
☐	☒	Widen existing roadway	☒	☐	Ground disturbance	☒	☐	Easements
☐	☒	Increase number of through lanes	☒	☐	Road cut/fill	☒	☐	Equipment staging
☐	☒	New alignment	☒	☐	Excavation: anticipated maximum depth 5 feet	☐	☒	Temporary access road/detour
☐	☒	Capacity increasing—other (e.g., channelization)				☒	☐	Utility relocation
			☒	☐	Drainage/culverts	☐	☒	Right of way acquisition (if yes, attach map with APN)
☐	☒	Realignment	☐	☒	Flooding protection			
☐	☒	Ramp or street closure	☐	☒	Stream channel work	☐	☒	Disposal/borrow sites
☐	☒	Bridge work	☐	☒	Pile driving	☐	☒	Part of larger adjacent project
☒	☐	Vegetation removal						
☒	☐	Tree removal	☒	☐	Demolition	☐	☒	Railroad

Required Attachments:

☒ Regional map ☒ Project location map ☒ Project footprint map (existing/proposed right of way)
☒ Engineering drawings (existing and proposed cross sections), if available ☐ Borrow/disposal site location map, if applicable
(Note: all maps (except project location map and regional maps) should be consistent with the project description (minimum scale: 1" = 200').)
☒ Notes to support the conclusions of this checklist/project description continuation page (attached)

Examine the project for potential effects on the environment, direct or indirect and answer the following questions. The "construction area," as specified below, includes all areas of ground disturbance associated with the project, including staging and stockpiling areas and temporary access roads.

Each answer must be briefly documented on the "Notes" pages at the end of the PES Form.

A. Potential Environmental Effects	Yes	To Be Determined	No
General			
1. Will the project require future construction to fully utilize the design capabilities included in the proposed project?	☐	☐	☒
2. Will the project generate public controversy?	☐	☐	☒
Noise			
3. Is the project a Type I project as defined in 23 CFR 772.5(h); "construction on new location or the physical alteration of an existing highway, which significantly changes either the horizontal or vertical alignment or increases the number of through-traffic lanes"?	☐	☐	☒
4. Does the project have the potential for adverse construction-related noise impact (such as related to pile driving)?	☐	☒	☐
Air Quality			
5. Is the project in a NAAQS non-attainment or maintenance area?	☒	☐	☐
6. Is the project exempt from the requirement that a conformity determination be made? (If "Yes," state which conformity exemption in 40 CFR 93.126, Table 2 applies):	☐	☐	☒
7. Is the project exempt from regional conformity? (If "Yes," state which conformity exemption in 40 CFR 93.127, Table 3 applies):	☐	☐	☒
8. If project is not exempt from regional conformity, (If "No" on Question #7)			
Is project in a metropolitan non-attainment/maintenance area?	☒	☐	☐
Is project in an isolated rural non-attainment area?	☐	☐	☒
Is project in a CO, PM10 and/or PM2.5 non-attainment/maintenance area?	☒	☐	☐
Hazardous Materials/Hazardous Waste			
9. Is there potential for hazardous materials (including underground or aboveground tanks, etc.) or hazardous waste (including oil/water separators, waste oil, asbestos-containing material, lead-based paint, ADL, etc.) within or immediately adjacent to the construction area?	☐	☒	☐
Water Quality/Resources			
10. Does the project have the potential to impact water resources (rivers, streams, bays, inlets, lakes, drainage sloughs) within or immediately adjacent to the project area?	☐	☐	☒
11. Is the project within a designated sole-source aquifer?	☐	☐	☒
Coastal Zone			
12. Is the project within the State Coastal Zone, San Francisco Bay, or Suisun Marsh?	☐	☐	☒
Floodplain			
13. Is the construction area located within a regulatory floodway or within the base floodplain (100-year) elevation of a watercourse or lake?	☐	☐	☒
Wild and Scenic Rivers			
14. Is the project within or immediately adjacent to a Wild and Scenic River System?	☐	☐	☒
Biological Resources			
15. Is there a potential for federally listed threatened or endangered species, or their critical habitat or essential fish habitat to occur within or adjacent to the construction area?	☐	☐	☒

16. Does the project have the potential to directly or indirectly affect migratory birds, or their nests or eggs (such as vegetation removal, box culvert replacement/repair, bridge work, etc.)?	☐	☐	☒
17. Is there a potential for wetlands to occur within or adjacent to the construction area?	☐	☐	☒
18. Is there a potential for agricultural wetlands to occur within or adjacent to the construction area?	☐	☐	☒
19. Is there a potential for the introduction or spread of invasive plant species?	☐	☐	☒
Sections 4(f) and 6(f)			
20. Are there any historic sites or publicly owned public parks, recreation areas, wildlife or waterfowl refuges (Section 4[f]) within or immediately adjacent to the construction area?	☐	☐	☒
21. Does the project have the potential to affect properties acquired or improved with Land and Water Conservation Fund Act (Section 6[f]) funds?	☐	☐	☒
Visual Resources			
22. Does the project have the potential to affect any visual or scenic resources?	☐	☐	☒
Relocation Impacts			
23. Will the project require the relocation of residential or business properties?	☐	☐	☒
Land Use, Community, and Farmland Impacts			
24. Will the project require any right of way, including partial or full takes? Consider construction easements and utility relocations.	☐	☐	☒
25. Is the project inconsistent with plans and goals adopted by the community?	☐	☐	☒
26. Does the project have the potential to divide or disrupt neighborhoods/communities?	☐	☐	☒
27. Does the project have the potential to disproportionately affect low-income and minority populations?	☐	☐	☒
28. Will the project require the relocation of public utilities?	☒	☐	☐
29. Will the project affect access to properties or roadways?	☐	☐	☒
30. Will the project involve changes in access control to the State Highway System (SHS)?	☐	☐	☒
31. Will the project involve the use of a temporary road, detour, or ramp closure?	☐	☐	☒
32. Will the project reduce available parking?	☐	☐	☒
33. Will the project construction encroach on state or federal lands?	☐	☐	☒
34. Will the project convert any farmland to a different use or impact any farmlands?	☐	☐	☒
Cultural Resources			
35. Is there National Register listed, or potentially eligible historic properties, or archaeological resources within or immediately adjacent to the construction area? *(Note: Caltrans PQS answers question #35)*	☐	☐	☒
36. Is the project adjacent to, or would it encroach on Tribal land?	☐	☐	☒

For Sections B, C, and D, check appropriate box to indicate required technical studies, coordination, permits, or approvals.

B. Required Technical Studies and Analyses	C. Coordination	D. Anticipated Actions/Permits/Approvals
☒ **Traffic**		
Check one:		
☐ Traffic Study	☐ Caltrans	☐ Approval
☒ Technical Memorandum	☒ Caltrans	☒ Approval
☐ Discussion in ED Only	☐ Caltrans	☐ Approval
☐ **Noise**		
Check as applicable:		
☐ Traffic Related		
☐ Construction Related		

	Check one:		
	☐ Noise Study Report	☐ Caltrans	☐ Approval
	☐ NADR	☐ Caltrans	☐ Approval
	☐ Technical Memorandum	☐ Caltrans	☐ Approval
	☐ Discussion in ED Only	☐ Caltrans	☐ Approval
☒	**Air Quality**		
	Check as applicable:		
	☒ Traffic Related		
	☐ Construction Related		
	Check one:		
	☒ Air Quality Report	☒ Caltrans	☒ Approval
	☐ Technical Memorandum	☐ Caltrans	☐ Approval
	☐ Discussion in ED Only	☐ Caltrans	☐ Approval
		☐ FHWA	☐ Conformity Finding (23 USC 327 CEs, EAs, EISs)
		☒ Caltrans	☒ Conformity Finding (23 USC 326 CEs)
		☒ Regional Agency	☒ PM10/PM2.5 Interagency Consultation
☒	**Hazardous Materials/ Hazardous Waste**		
	Check as applicable:		
	☒ Initial Site Assessment (Phase 1)	☒ Caltrans	☒ Approval
	☒ Preliminary Site Assessment (Phase 2)	☒ Caltrans	☒ Approval
	☐ Discussion in ED Only	☐ Caltrans	☐ Approval
		☐ Cal EPA DTSC	☐ Review Database
		☐ Local Agency	☐ Review Database
☐	**Water Quality/Resources**		
	Check as applicable:		
	☐ Water Quality Assess. Report	☐ Caltrans	☐ Approval
	☐ Technical Memorandum	☐ Caltrans	☐ Approval
	☐ Discussion in ED Only	☐ Caltrans	☐ Approval
☐	**Sole-Source Aquifer (Districts 5, 6 and 11)**	☐ EPA (S.F. Regional Office)	☐ Approval of Analysis in ED
☐	**Coastal Zone**	☐ CCC	☐ Coastal Zone Consistency Determination

B. Required Technical Studies and Analyses	C. Coordination	D. Anticipated Actions/Permits/Approvals
☐ **Floodplain**		
Check as applicable:		
☐ Location Hydraulic Study	☐ Caltrans	☐ Approval
☐ Floodplain Evaluation Report	☐ Caltrans	☐ Approval
☐ Summary Floodplain Encroachment Report	☐ Caltrans	☐ Approval
	☐ Caltrans	☐ Only Practicable Alternative Finding
	☐ FHWA	☐ Approves significant encroachments and concurs in Only Practicable Alternative Findings
☐ **Wild and Scenic Rivers**	☐ River Managing Agency	☐ Wild and Scenic Rivers Determination
☒ **Biological Resources**		
Check as applicable:		
☐ NES, Minimal Impact	☐ Caltrans	☐ Approval
☐ NES		
☐ BA	☐ Caltrans	☐ Approves for Consultation
	☐ USFWS ☐ NOAA Fisheries	☐ Section 7 Informal/Formal Consultation
☐ EFH Evaluation	☐ NOAA Fisheries	☐ MSA Consultation
☐ Bio-Acoustic Evaluation	☐ NOAA Fisheries	☐ Approval
☒ Technical Memorandum	☒ Caltrans	☒ Approval
☐ **Wetlands**		
Check as applicable:		
☐ WD and Assessment	☐ Caltrans	☐ Approval
	☐ ACOE	☐ Wetland Verification
	☐ NRCS	☐ Agricultural Wetland Verification
	☐ Caltrans	☐ Wetlands Only Practicable Alternative Finding
☐ **Invasive Plants**		
☐ Discussion in ED Only	☐ Caltrans	☐ Approval
☐ **Section 4(f)**		
Check as applicable:	☐ Caltrans	☐ Determine Temporary Occupancy
☐ De minimis	☐ Caltrans	☐ De minimis finding
☐ Programmatic 4(f) Evaluation Type: _____	☐ Caltrans	☐ Approval
☐ Individual 4(f) Evaluation	☐ Caltrans	☐ Approval
	☐ Agency with Jurisdiction ☐ SHPO ☐ DOI ☐ HUD ☐ USDA	

B. Required Technical Studies and Analyses	C. Coordination	D. Anticipated Actions/Permits/Approvals
☐ **Section 6(f)**	☐ Agency with Jurisdiction ☐ NPS	☐ Determines Consistency with Long-Term Management Plan
	☐ NPS	☐ Approves Conversion
☒ **Visual Resources**		
☒ Technical Memorandum	☒ Caltrans	☒ Approval
☐ Minor VIA	☐ Caltrans	☐ Approval
☐ Moderate VIA	☐ Caltrans	☐ Approval
☐ Advance/Complex VIA	☐ Caltrans	☐ Approval
☐ **Relocation Impacts**		
Check one:		
☐ Relocation Impact Memo	☐ Caltrans	☐ Approval
☐ Relocation Impact Study	☐ Caltrans	☐ Approval
☐ Relocation Impact Report	☐ Caltrans	☐ Approval
☐ **Land Use and Community Impacts**		
Check one:		
☐ CIA	☐ Caltrans	☐ Approval
☐ Technical Memorandum	☐ Caltrans	☐ Approval
☐ Discussion in ED Only	☐ Caltrans	☐ Approval
☐ **Construction/Encroachment on State Lands**		
Check as applicable:		
☐ SLC Jurisdiction	☐ SLC	☐ SLC Lease
☐ Caltrans Jurisdiction	☐ Caltrans	☐ Encroachment Permit
☐ SP Jurisdiction	☐ SP	☐ Encroachment Permit
☐ **Construction/Encroachment on Federal Lands**	☐ Federal Agency with Jurisdiction	☐ Encroachment Permit
☐ **Construction/Encroachment On Indian Trust Lands**	☐ Bureau of Indian Affairs	☐ Right of Way Permit
☐ **Farmlands**		
Check one:		
☐ CIA	☐ Caltrans	☐ Approval
☐ Technical Memorandum	☐ Caltrans	☐ Approval
☐ Discussion in ED Only	☐ Caltrans	☐ Approval
Check as applicable:		
☐ Form AD 1006	☐ NRCS	☐ Approves Conversion
	☐ CDOC	☐ Approves Conversion
☐ Conversion to Non-Agri Use	☐ ACOE	

B. Required Technical Studies and Analyses	C. Coordination	D. Anticipated Actions/Permits/ Approvals
☒ **Cultural Resources** (PQS completes this section) *Check as applicable:*	☒ Caltrans PQS	☒ Screened Undertaking
☐ APE Map	☐ Caltrans PQS and DLAE	☐ Approves APE Map
	☐ Local Preservation Groups and/or Native American Tribes	☐ Provides Comments Regarding Concerns with Project
☐ HPSR ☐ ASR ☐ HRER	☐ Caltrans	☐ Approves for Consultation
☐ Finding of Effect Report	☐ Caltrans	☐ Concurs on No Effect, No Adverse Effect with Standard Conditions
	☐ SHPO	☐ Letter of Concurrence on Eligibility, No Adverse Effect without Standard
☐ MOA	☐ Caltrans	☐ Approves MOA
	☐ SHPO	☐ Approves MOA
	☐ ACHP (if requested)	☐ Approves MOA
☐ **Permits** Copies of permits and a list of mitigation commitments are mandatory submittals following NEPA approval.	☐ ACOE	☐ Section 404 Nationwide Permit
	☐ ACOE	☐ Section 404 Individual Permit
	☐ Caltrans/ACOE/EPA ☐ USFWS ☐ NOAA Fisheries	☐ NEPA/404 Integration MOU
	☐ ACOE	☐ Rivers and Harbors Act Section 10 Permit
	☐ USCG	☐ USCG Bridge Permit
	☐ RWQCB	☐ Section 401 Water Quality Certification
	☐ CDFG	☐ Section 1602 Streambed Alteration Agreement
	☐ RWQCB	☐ NPDES Permit
	☐ CCC ☐ Local Agency	☐ Coastal Zone Permit
	☐ BCDC	☐ BCDC Permit

Notes: Additional studies may be required for other federal agencies.

ACHP = Advisory Council on Historic Preservation
ACOE = U.S. Army Corps of Engineers
ADL = Aerially Deposited Lead
APE = Area of Potential Effect
APN = Assessor Parcel Number
ASR = Archaeological Survey Report
BA = Biological Assessment
BCDC = Bay Conservation and Development Commission
BE = Biological Evaluation
BO = Biological Opinion
Cal EPA = California Environmental Protection Agency
CCC = California Coastal Commission
CDFG = California Department of Fish and Game
CDOC = California Department of Conservation
CE = Categorical Exclusion
CIA = Community Impact Assessment
CWA = Clean Water Act
DLAE = District Local Assistance Engineer
DOI = U.S. Department of Interior
DTSC = Department of Toxic Substances Control
EA = Environmental Assessment
ED = Environmental Document
EFH = Essential Fish Habitat
EIS = Environmental Impact Statement
EPA = U.S. Environmental Protection Agency
FEMA = Federal Emergency Management Agency
FHWA = Federal Highway Administration
FONSI = Finding of No Significant Impacted
FTIP = Federal Transportation Improvement Program
HPSR = Historic Property Survey Report
HRER = Historical Resources Evaluation Report
HUD = U.S. Housing and Urban Development
MOA = Memorandum of Agreement
MSA = Magnuson-Stevens Fishery Conservation and Management Act
NEPA = National Environmental Policy Act
NADR = Noise Abatement Decision Report
NES = Natural Environment Study
NHPA = National Historic Preservation Act
NOAA = National Oceanic and Atmospheric Administration
NMFS National Marine Fisheries Service
NPDES = National Pollutant Discharge Elimination System
NPS = National Park Service
NRCS = Natural Resources Conservation Service
PM10 = Particulate Matter 10 Microns in Diameter or Less
PM2.5 = Particulate Matter 2.5 Microns in Diameter or Less
PMP = Project Management Plan
PQS = Professionally Qualified Staff
ROD = Record of Decision
RTIP = Regional Transportation Improvement Program
RTP = Regional Transportation Plan
RWQCB = Regional Water Quality Control Board
SER = Standard Environmental Reference
SEP = Senior Environmental Planner
SHPO = State Historic Preservation Officer
SLC = State Lands Commission
SP = State Parks
TIP = Transportation Improvement Program
USCG = U.S. Coast Guard
USDA = U.S. Department of Agriculture
USFWS = U.S. Fish and Wildlife Service
WD = Wetland Delineation

E. Preliminary Environmental Document Classification (NEPA)

Based on the evaluation of the project, the environmental document to be developed should be:

Check one:

- ☐ Environmental Impact Statement (*Note: Engagement with participating agencies in accordance with 23 USC 139 required)*
  - ☐ Compliance with 23 USC 139 regarding Participating Agencies required
- ☐ Complex Environmental Assessment
- ☐ Routine Environmental Assessment
- ☐ Categorical Exclusion without required technical studies.
- ☒ Categorical Exclusion with required technical studies

(if Categorical Exclusion is selected, check one of the following):

- ☒ Section 23 USC 326
  - ☒ 23 CFR 771 activity (c)(3) Construction of bicycle and pedestrian lands, paths, and facilities
  - ☐ 23 CFR 771 activity (d) (_____)
  - ☐ Activity _____ listed in the Section 23 USC 326
- ☐ Section 23 USC 327

F. Public Availability and Public Hearing

Check as applicable:

- ☒ Not Required
- ☐ Notice of Availability of Environmental Document
- ☐ Public Meeting
- ☐ Notice of Opportunity for a Public Hearing
- ☐ Public Hearing Required

G. Signatures

Local Agency Staff and/or Consultant Signature

Kari Bouler — *(Signature of Preparer)*

10/4/17 — *(Date)*

415-962-8304 — *(Telephone No.)*

Karin Bouler — *(Name)*

Local Agency Project Engineer Signature

This document was prepared under my supervision, according to the *Local Assistance Procedures Manual,* Exhibit 6-B, "Instructions for Completing the Preliminary Environmental Study Form."

[signature] — *(Signature of Local Agency)*

10/4/17 — *(Date)*

(916) 808-1967 — *(Telephone No.)*

Caltrans District Professionally Qualified Staff (PQS) Signature

☐ Project does not meet definition of an "undertaking"; no further review is necessary under Section 106 ("No" Section A, #35).

☒ Project is limited to the type of activity listed in Attachment 2 of the Section 106 PA and based on the information provided in the PES Form, the project does not have the potential to affect historic properties ("No" Section A, #35).

☐ Project is limited to the type of activity listed in Attachment 2 of the Section 106 PA, but the following additional procedures or information is needed to determine the potential for effect ("To Be Determined" Section A, #35):

☐ Records Search ☐ _____ ☐ _____ ☐ _____

☐ Project meets the definition of an "undertaking"; all properties in the project area are exempt from evaluation per Attachment 4 of the Section 106 PA ("No" Section A, #35).

☐ The proposed undertaking is considered to have the potential to affect historic properties; further studies for 106 compliance are indicated in Sections B, C, and D of this PES Form ("Yes" Section A, #35).

(Signature of Professionally Qualified Staff)	11-2-2017 *(Date)*	916-274-0601 *(Telephone No.)*

The following signatures are required for all CEs, routine and complex EAs, and EISs:

Caltrans District Senior Environmental Planner (or Designee) and DLAE Signatures

I have reviewed this Preliminary Environmental Study (PES) Form and determined that the submittal is complete and sufficient. I concur with the studies to be performed and the recommended NEPA Class of Action.

(Signature of Senior Environmental Planner or Designee)	11/2/17 *(Date)*	(530) 741-4592 *(Telephone No.)*

Laura Loeffler
(Name)

(Signature of District Local Assistance Engineer or Designee)	10/06/17 *(Date)*	530-741-5704 *(Telephone No.)*

FERDINAND BATATAN
(Name)

☐ HQ DEA Environmental Coordinator concurrence _____. Email concurrence attached.
(*date*)

Preliminary Environmental Investigation
Notes to Support the Conclusions of the PES Form
(May Also Include Continuation of Detailed Project Description)

The City of Sacramento (City) is proposing to improve and rehabilitate Franklin Boulevard for approximately 1.6 miles, from Sutterville Road to the City limits at 38th Avenue, into a complete street. The Franklin Boulevard Complete Street Project (Project) is the first phase of a multi-phased streetscape improvement project on Franklin Boulevard.

Refer to Attachment C, Figures 1 and 2 for Project location.

Project Background

Once known as the *Monterey Trail* between Sutter's Fort and Monterey during Mexico's rule of California)1821-1846), Franklin Boulevard between Sutterville Road and the Sacramento County line has been the subject of three significant urban development plans over the past several years, including the Franklin Boulevard Strategy (1996-2000), the Franklin Boulevard Urban Design Master Plan (2001), and the Franklin Boulevard Redevelopment Area Five-Year Implementation Plan (2009-2014). In 1993, this same stretch of Franklin Boulevard and its immediate surrounding area was designated a redevelopment area due to its significant physical and socio-economic blight.

These plans and past public outreach efforts call for a variety of streetscape enhancements that include more tree canopy and landscaping, bicycle lanes, more pedestrian and bicycle friendly routes, and designated on-street parking.

Objectives

The primary objectives of the Project are to better support the existing and future need of residents, and business and property owners by:

- Transforming the existing and blighted Franklin Boulevard into a "complete street" with a more human-scale that encourages a safer, pedestrian, bicycle, and transit friendly environment and is memorable for all users;
- Promoting mixed and compact urban development and private investment in the Historic Monterey Trail District by improving the public-private interface to mitigate negative impacts of the existing auto-oriented environment;
- Improving the aesthetics and urban design quality of Franklin Boulevard's public realm, which serves as the gateway to the Historic Monterey Trail District and South Sacramento; and
- Improving connectivity to and across the corridor for pedestrians and bicyclists, and established neighborhoods on either side of Franklin Boulevard.

Project Description

In order to meet these goals and objectives, a four-lane to two-lane road diet would need to be considered in order to create the ROW to accommodate a corridor configuration to serve the multi-modal and accessibility needs of the community.

The proposed Project would result in improvements, including: road rehabilitation with an approximate depth of 12 inches, curb and gutter replacement, a reduction from four through traffic lanes to two through traffic lanes, the addition of bicycle facilities and sidewalk, ADA compliant curb ramps, stormwater planters, drainage improvements, and the addition of turn pockets and landscaped medians

along Franklin Boulevard within the Project limits. Where feasible, sidewalks consisting of 6 foot sidewalks and 8.5 foot landscaped planters would be constructed. In addition, the Project would replace existing street light and also install new street lights and modify existing traffic signals.

Refer to Attachment B for a layout of the Project.

Drainage Improvement
Drainage improvements are limited to installing bioswales, constructing new curb and gutter, and adjusting or relocating existing drainage systems components to conform to the proposed improvements. Existing drainage inlets would be relocated or adjusted as necessary. Significant changes to the drainage system are not anticipated in this Project. Construction related Best Management Practices (BMPs) would be implemented.

Pavement

This Project would not require the paving of any currently undeveloped areas. The Project would include two-inch grind and overlay and/or microsurfacing on streets within the Project limits.

Sidewalks
The Project proposes to reconstruct existing sidewalks along Franklin Boulevard within the Project limits so that they meet City Standards and are Americans with Disabilities Act (ADA) compliant. In addition, new sidewalk would be constructed to close an approximately 140-foot gap in existing sidewalk just north of 33rd Street on the east side of Franklin Boulevard. ADA curb ramps would be installed at all intersections.

Median
Landscaped medians would be installed where feasible.

Bike Facilities
Class II or Class IV bicycle facilities would be provided throughout the Project area and would be designed in accordance with City Standard and Caltrans guidelines.
Green-colored pavement would be applied in areas where there is potential conflict or crossing areas between bicyclist and vehicle, such as driveways and intersections. The green-colored pavement is intended to increase awareness of both bicyclist and motorist.

On-Street Parking
A mix of business and other commercial properties are fronting Franklin Boulevard and the Project would maintain existing parking to the extent feasible. Access to existing off-street parking would be maintained. On-street parking would be limited to the available space after clearances to existing driveways, sight distance, existing bus stops and City guidelines are considered.

Street & Pedestrian Lighting
Existing lighting would be replaced and new lighting would be added along the Project area. Improving the lighting would encourage pedestrian and bicyclist activity in the area and foster a community identity for adjacent neighborhoods.
If in conflict with Project improvements, street lighting poles would be relocated at appropriate locations, while still remaining within the existing City ROW.

Utilities
The City would work with utility companies, as necessary, for any utility relocation or adjustment.

Tree and Vegetation Removal
Within the proposed Project limits, Franklin Boulevard is sparsely landscaped. The Project may require the removal of one or two small ornamental trees currently within the City ROW. Existing shrubs and landscaping within the City ROW may require removal in order to accommodate the proposed improvements. Landscaping would be provided throughout the Project limits, where feasible, and could include trees, parklets, shrubs, or other drought-resistant plants.

Right of Way
The Project would be constructed entirely within the existing City right-of-way (ROW) and no acquisitions are anticipated. Temporary Construction Easements (TCEs) may be required in order to conform existing driveways to the reconstructed roadway.

Temporary Project Construction Components
Construction Staging
The project would likely be constructed in multiple construction stages to minimize impacts to traffic operations during construction. Minimizing impacts to adjacent businesses and optimizing traffic flow during peak periods would be evaluated when developing a traffic management plan that would be implemented during construction. Access to and from existing businesses would be maintained throughout construction.

Temporary Construction Easements
Temporary Construction Easements (TCEs) would be required in select locations along Franklin Boulevard in order to conform private driveways to the reconstructed roadway. It is anticipated that the contractor would coordinate with the property owner/tenant to maintain access during construction, thereby preventing any damage or loss of business goodwill.

Construction Vehicle Access and Staging
Construction vehicle access and staging of construction materials would occur within disturbed or developed areas inside the existing ROW. If a location is chosen outside of the existing ROW, the location would be environmentally-cleared by the construction contractor prior to use.

Brief Explanation of How Project Complies, or Will Comply with Applicable Federal Mandate (Part A):

1. The Project would not require future construction to fully utilize the design capabilities included in the proposed Project.
2. The Project is not anticipated to generate public controversy.
3. The Project is not a Type 1 project as defined in 23 CFR 772.5(h); "construction on new location or the physical alteration of an existing highway, which significantly changes the horizontal or vertical or increases the number of through-traffic lanes." There will be no changes to the horizontal or vertical alignment because the Project does not halve the distance between the roadway and the closest noise receptor and does not remove shielding; it also does not add through through-traffic lanes.
4. This Project is not anticipated to generate adverse construction related noise, such as pile driving. Construction would be limited to the hours between 7:00am and 10:00pm, per City of Sacramento Municipal Code regarding noise. Large equipment used may include excavators, compactors, grinding machines, backhoes, and bobcats.

5. Based on a search within the EPA's Green Book on January 9, 2017, the Project is located in a NAAQS nonattainment or maintenance area for the following pollutants: 1-Hr. Ozone (1979), 8-Hr. Ozone (1997), 8-Hr. Ozone (2008), PM-2.5 (2006), PM-10 (1987), and CO (1971).

6. Based on the 2017-2010 SACOG MTIP, the Project is listed as a non-exempt project.

7. Based on the 2017-2010 SACOG MTIP, the Project is listed as a non-exempt project.

8. The Project is located in a metropolitan NAAQS nonattainment or maintenance area for the following pollutants: 1-Hr. Ozone (1979), 8-Hr. Ozone (1997), 8-Hr. Ozone (2008), PM-2.5 (2006), PM-10 (1987), and CO (1971).

9. The Project location was checked on Geotracker on September 13, 2017. Within 1,000 feet of the Project area there are: eight closed LUST cleanup sites, two open LUST cleanup sites, and three permitted underground storage tanks. When the paint on the road is removed, there is a risk of thermoplastic residue. However, if the contractor is required to follow a measure similar to Caltrans 2015 Standard Specification 14-11.12 regarding the removal of traffic stripes and pavement markings that contain lead, any potential impact would be minimized (See Attachment C , Figure 3 "Geotracker Results").

10. There are no water resources within or adjacent to the Project area. The nearest water resource is the Sacramento River, which is approximately 2 miles to the west of the Project.

11. Based on a search for sole source aquifers in California on September 13, 2017, a U.S. EPA Region 9 map of the sole source aquifers shows that there are none located in the Project area.

12. The Project is not located within the State Coastal Zone, San Francisco Bay, or Suisun Marsh.

13. Based on a FEMA Floodplain Map of the Project area, there are no 100-year floodplains located within the proposed Project area. (See Attachment C, Figure 4 "Floodplain"). The nearest floodplain is located within the Sacramento River, which is approximately2 miles west of the Project site and the surrounding areas are protected by a system of levees.

14. No rivers are within or adjacent to the Project site. As shown on the National Wild and Scenic Rivers System website, the closest Wild and Scenic River System is the portion of the American River, which is approximately 3.5 miles north of the Project.

15. Based on a search of the California Natural Diversity Data Base (CNDDB) on September 15, 2017, it was shown there are federally listed threatened or endangered species are within 5 miles of the Project area (See Attachment C, Figure 5 "Special-status Species Occurrences within a 5-mile Search Radius of the Project Site"). There would be minimal tree and vegetation disturbance. No "take" of species is anticipated.

16. Given the presence of mature trees and several migratory bird habitats within the 5 mile radius, it is possible there are migratory birds present adjacent to the Project area. The Project would not require the removal of any trees or structures, so it is not likely that the Project would affect migratory birds, or their nests of eggs with the removal of

17. Based on the map of habitats in the Project area that has been created, there are no wetlands in the Project area. Because the Project is taking place on an existing road, there is no potential for wetlands to occur (See Attachment C, Figure 6 "Habitats").

18. Based on the map of habitats in the Project area that has been created, there are no agricultural wetlands in the Project area. Because the Project is taking place on an existing road, there is no potential for agricultural wetlands to occur (See Attachment C, Figure 6 "Habitats").

19. The Project would not introduce invasive species to the area. The Project would comply with the Executive Order on Invasive Species, EO 13112. In areas of particular sensitivity, extra precautions will be taken if invasive species are found in or adjacent to the construction areas. These include the inspection and cleaning of construction equipment and eradication strategies to be implemented should an invasion occur.

20. Curtis Park is located approximately 845 feet to the northwest of the northern Project limits. Phillips School Park is located approximately 375 feet west of the Project site at 21st Avenue. Maple School Park is located approximately 545 feet west of the Project site between 36th and 37th Avenues. Curtis Park and Maple School Park are maintained by the City's Department of Parks and Recreation. Phillips School Park is gated for use by Ethel Phillips Elementary School and is within Sacramento County, but not within the City boundaries The parks are not within or adjacent to the Project area. The Project would not encroach on or impact the parks.

21. The Project does not have the potential to affect properties acquired or improved with the Land and Water Conservation Fund Act (Section 6[f]) funds.

22. The Project would not result in the removal of trees and would ultimately result in beneficial visual effects within the Project area with the addition of landscaping. The "Questionnaire to Determine Visual Impact Assessment Level" was completed and the VIA Level Score for the proposed Project is 10, indicating a memorandum addressing visual issues providing rationale why a technical study is not required must be prepared (see Attachment D, "Questionnaire to Determine VIA Level").

23. The Project would take place within existing City ROW. No residential or business relocations would be required.

24. No ROW acquisitions are anticipated to be required. Temporary Construction Easements (TCEs) would be required in select locations along Franklin Boulevard in order to conform private driveways to the reconstructed roadway. All ROW activities would be carried out in accordance with the Caltrans Local Assistance Procedures Manual.

25. The Project is consistent with plans and goals established by the community. The Project is included in the 2017/2020 MTIP (see Attachment A, "MTIP") and is consistent with the Franklin Boulevard Strategy (1996-2000), the Franklin Boulevard Urban Design Master Plan (2001), and the Franklin Boulevard Redevelopment Area Five-Year Implementation Plan (2009-2014).

26. This Project does not have the potential to divide or disrupt neighborhoods/communities because the Project proposes pedestrian and bicycle improvements along an existing roadway.

27. Based on the Environmental Justice Screen Report and ACS Summary Report estimates for the Project area and a half-mile buffer area, approximately 79 percent of residents are a part of a minority population and approximately 62 percent of households make less than $50,000 per year (See Attachment E, "EJSCREEN and ACS Summary Report"). The Project is not anticipated to disproportionately affect low-income and minority populations because the Project activities would occur within existing roadway and would not create or remove roads. The bicycle lanes and pedestrian facilities would be available to all and benefit all income levels. The Project's overall effects to air quality and visual are anticipated to be beneficial.

28. If in conflict with Project improvements, street lighting poles would be relocated at appropriate locations within the existing City ROW. The City would work with utility companies, as necessary, for any utility relocation or adjustment.

29. During construction, minor impacts to access may occur, including lane closures. Detours are not anticipated to be necessary. Access would not be impacted during Project operation.

30. The Project improvements include implementing traffic calming measures with a transition from four-to-two vehicle lanes. State Route (SR 99) runs parallel to the Project to the east; the Project would not cut off or alter access to the highway.

31. The Project would likely be constructed in multiple construction stages to minimize impacts to traffic operations during construction. Minimizing impacts to adjacent businesses and optimizing traffic flow during peak periods would be evaluated when developing a traffic management plan that would be implemented during construction. Access to and from existing businesses would be maintained throughout construction.

32. A mix of business and residential properties are fronting Franklin Boulevard and lots are typically available for parking. The Project does not propose any alterations to existing parking. On-street parking would be limited to the available space after clearances to existing driveways, sight distance, existing bus stops and City guidelines are considered.

33. Based on the Project plan and search on the Bureau of Land Management website, the Project construction will not encroach on state or federal lands.

34. The Project would not convert any farmland to any different use or impact any farmlands, as there are none in the Project area (See Attachment C, Figure 6 "Habitats").

35. Caltrans to complete.

36. Based on a search of federally recognized tribes in the area on September 13, 2017, on the Bureau of Indian Affairs website, there are no tribal lands in the Project area.

Distribution 1) Original - DLAE, 2) Local Agency Project Manager, 3) DLA Environmental Coordinator 4) Senior Environmental Planner (or designee), 5) District PQS