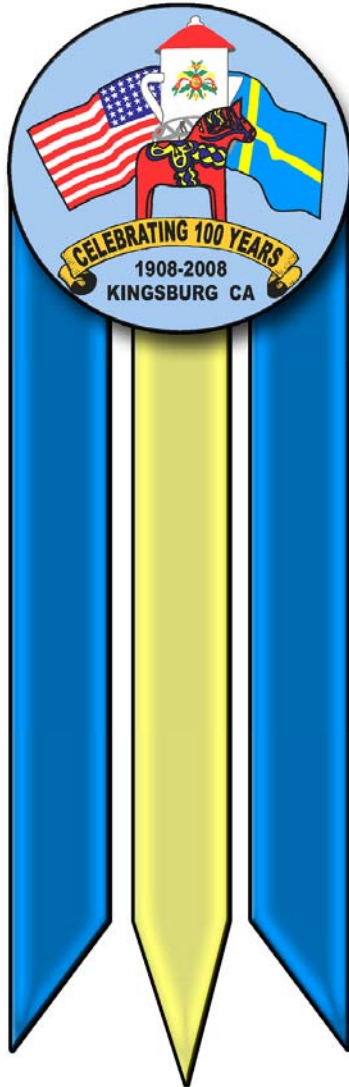


Guardian/Sun-Maid Reorganization Kingsburg, California



Initial Study and Mitigated Negative Declaration

Prepared by:

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APRIL 25, 2012

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1.1 INTRODUCTION AND REGULATORY GUIDANCE

This document is an Initial Study/Mitigated Negative Declaration prepared pursuant to the California Environmental Quality Act (CEQA) for the proposed Guardian/Sun Maid Annexation (Project). An initial study is conducted by a lead agency to determine if a project may have a significant effect on the environment. In accordance with the CEQA Guidelines, Section 15064, an environmental impact report (EIR) must be prepared if the initial study indicates that the proposed project under review may have a potentially significant impact on the environment. A negative declaration may be prepared instead, if the lead agency prepared a written statement describing the reason why a proposed project would not have a significant effect on the environment, and, therefore, why it does not require the preparation of an EIR (CEQA Guidelines Section 15371). According to CEQA Guidelines Section 15070, a negative declaration shall be prepared for a project subject to CEQA when either

- a) The initial study shows there is no substantial evidence, in light of the whole record before the agency, that the proposed project may have a significant effect on the environment, or,
- b) The initial study identified potential significant effect, but:
 - 1) Revisions in the project plans or proposals made by or agreed to by the applicant before the proposed negative declaration is released for public review would avoid the effects or mitigate the effect to a point where clearly no significant effects would occur, and,
 - 2) There is no substantial evidence, in light of the whole record before the agency, that the proposed project as revised may have a significant effect on the environment.

If revisions are adopted into the proposed project in accordance with the CEQA Guidelines Section 15070(b), a mitigated negative declaration is prepared.

1.2 LEAD AGENCY

The lead agency is the public agency with primary responsibility over a proposed project. Where two or more public agencies will be involved with a project, CEQA Guidelines Section 1501 provides criteria for identifying the lead agency. In accordance with CEQA Guidelines Section 15051 (b)(1), “the lead agency will normally be the agency with the general governmental powers, such as a city or county, rather than an agency with a single or limited purpose.” When pre-zoning is proposed as part of an annexation request, the City is deemed the lead agency for CEQA purposes. As the lead agency, The City of Kingsburg will be responsible for preparing the necessary environmental document.

1.3 RESPONSIBLE AGENCY

The proposed annexation will have to be approved by the Fresno County Local Agency Formation Commission (LafCo) as a responsible agency.

Fresno County Local Agency Formation Commission (LafCo)
2607 Fresno Street. Suite B
Fresno CA 93721

1.4 PURPOSE AND DOCUMENT ORGANIZATION

The purpose of this Initial Study/Mitigated Negative Declaration is to evaluate the potential environmental impacts of the proposed project. The document is divided in the following sections:

1.0 Introduction – Provides an introduction and describes the purpose and organization of the document.

2.0 Project Description – Provides a detailed description of the proposed project.

3.0 CEQA Initial Study Checklist – Impacts and mitigation measures. Describes the environmental setting for each of the environment subject areas, evaluates a range of impacts classified as “no impact”, “less than significant impact”, potentially significant unless mitigation incorporated,” or “potentially significant” in response to the CEQA environmental checklist, and provides mitigation measures, where appropriate, to mitigate potentially significant impacts to a level less than significant; a determination follows the analysis concluding the environmental impact of the project.

1.5 DOCUMENTS INCORPORATED BY REFERENCE:

- Kingsburg General Plan and EIR
- North Kingsburg Specific Plan and EIR
- Fresno County General Plan

2.1 PROJECT DESCRIPTION

The proposed project is the annexation of approximately 430 acres to the City of Kingsburg, and portions of that territory to the Selma-Kingsburg-Fowler County Sanitation District (S-K-F). The project also includes the detachment of the same territory from the Fresno County Fire Protection District, Consolidated Irrigation District, and the Kings River Conservation District and the pre-zone of the subject area to Heavy Industrial, Light Industrial and Highway Commercial. The entire project area is located within the City of Kingsburg's existing Sphere of Influence and within the North Kingsburg Specific Plan Area which identified this territory for future annexation consideration.

2.2 PROJECT LOCATION AND SETTING

The proposed annexation area involves approximately 430 acres of primarily developed land located in the County of Fresno, Exhibit 1. The project site is roughly triangular in shape, is located along the north City limits and is generally bounded by Mountain View Avenue on the north, Bethel Avenue on the east, and State Route 99 along the south and west. The project area is also bisected by Golden State Boulevard and Union Pacific Railroad that run parallel to State Route 99, Exhibit 2.

The majority of the project area, 350 acres, is developed with industrial/commercial uses, approximately 52 acres are undeveloped, the remainder consists of street rights-of-way, Exhibit 3. The annexation area is currently within Fresno County's jurisdiction and zoned a mixture of M1 (Light Manufacturing) and M3 (Heavy Manufacturing), and approximately 21 acres are zoned AE-20, Exhibit 4. The two parcels zoned AE-20 are currently developed for industrial use. The annexation area is designated in the Kingsburg General Plan as Heavy Industrial, east of the railroad, excluding a small 2.35 acre parcel that is designated as Highway Commercial. The area between the railroad and State HWY 99 is designated as Highway Commercial and Light Industrial, Exhibit 5.

The environmental setting of the proposed annexation area is dominated by agricultural use north and east, State HWY 99 to the west and a recreational vehicle park and vacant land to the south. The agricultural uses are predominantly vineyards and stone fruit.

2.3 PROJECT PURPOSE

The purpose of the project is to annex lands into the City that have been developed without the full range of urban services in order to comply with Kingsburg General Plan policies and North Kingsburg Specific Plan policies and ensure the public's health and safety. Future development of the area is anticipated, consistent with the Kingsburg General Plan and land uses found elsewhere in the City. Environmental review in accordance with CEQA will be required for those future development projects.

Pre-zoning the annexation area, Exhibit 5 is a requirement for the annexation and the pre-zoning must be consistent with the City's General Plan in order to meet the policies of the Fresno Local Agency Formation Commission (LAFCO). The area east of the railroad has been pre-zoned Heavy Industrial consistent with the Kingsburg General Plan. The proposed project includes the pre-zone of approximately 2.35 acres of Highway Commercial east of the railroad, along Mountain View, and approximately 39.29 acres of Highway Commercial and 87.44 acres of Light Industrial between the Golden State Corridor and State HWY 99 consistent with the Kingsburg General Plan and the North Kingsburg Specific Plan. The North Kingsburg Specific Plan identified the area between the Golden State Corridor and State HWY 99 with a mixed use overlay to allow a range of uses in the future.

The annexation will also include annexation of a portion of the subject property to the Selma-Kingsburg-Fowler County Sanitation District (S-K-F) and detachment from the Fresno County Fire Protection District, Consolidated Irrigation District and Kings River Conservation District.

The Fresno Local Agency Formation Commission (LAFCo), a Responsible Agency, will utilize the document to consider approval of the reorganization.

2.4 PROJECT CHARACTERISTICS

The annexation project does not involve any direct development-related impacts to the land. Annexation of the area involves the change of boundary lines which would transfer governmental jurisdiction to the City of Kingsburg from Fresno County. It is anticipated that the annexation would be followed, at some point in the future, by application for land use entitlements and improvement of the land with commercial and industrial uses and structures consistent with the City of Kingsburg General Plan.



EXHIBIT 1 REGIONAL LOCATION MAP

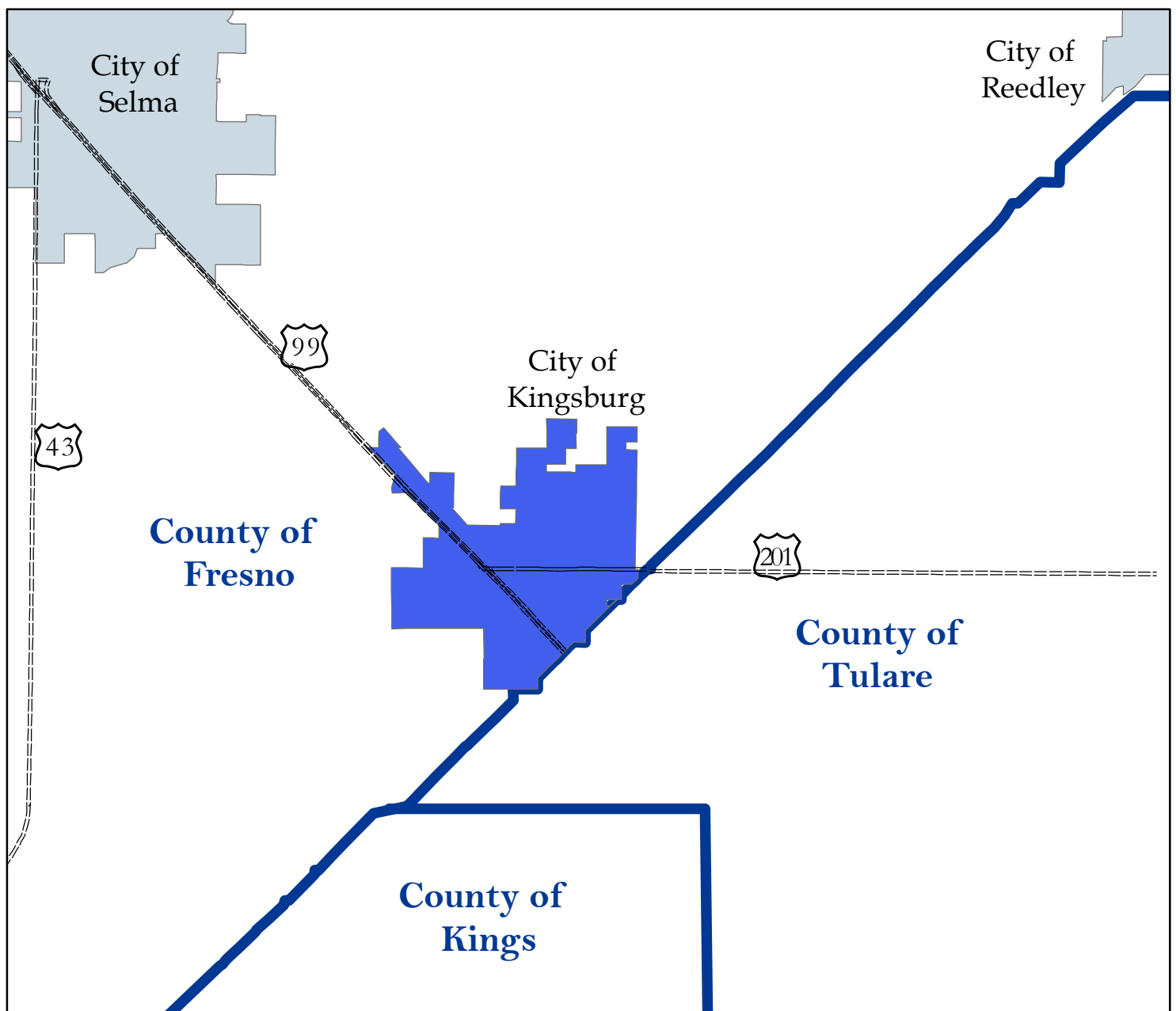







EXHIBIT 2 CITY LIMITS AND PROJECT VICINITY MAP

Project
Area

City of
Kingsburg

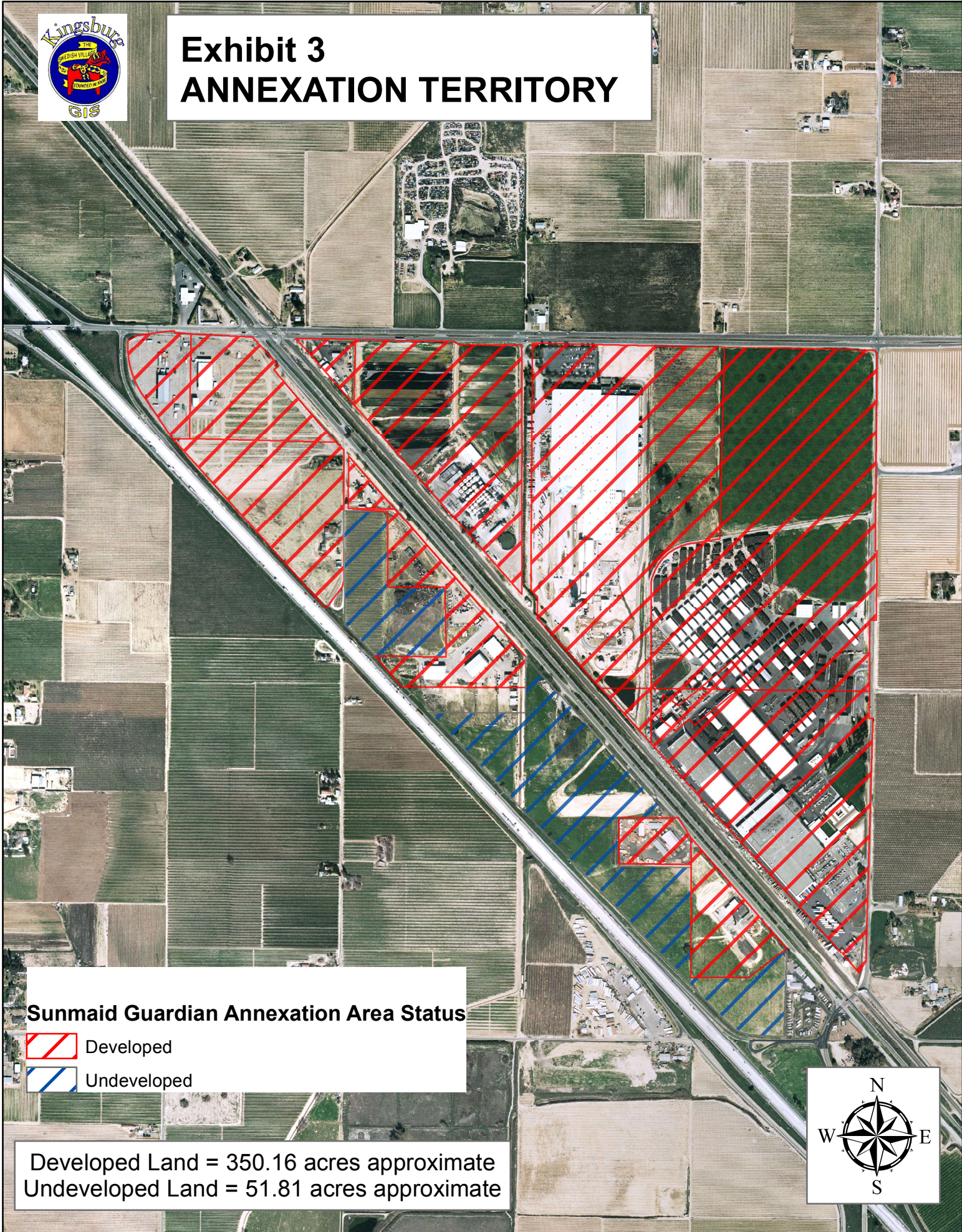
-  Kingsburg City Limits
-  County Line
-  Proposed Reorganization Area

0 0.25 0.5 Miles





Exhibit 3 ANNEXATION TERRITORY



Sunmaid Guardian Annexation Area Status



Developed



Undeveloped

Developed Land = 350.16 acres approximate
Undeveloped Land = 51.81 acres approximate

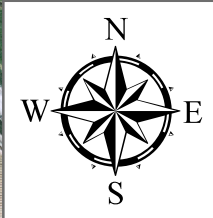




EXHIBIT 4 FRESNO COUNTY ZONING

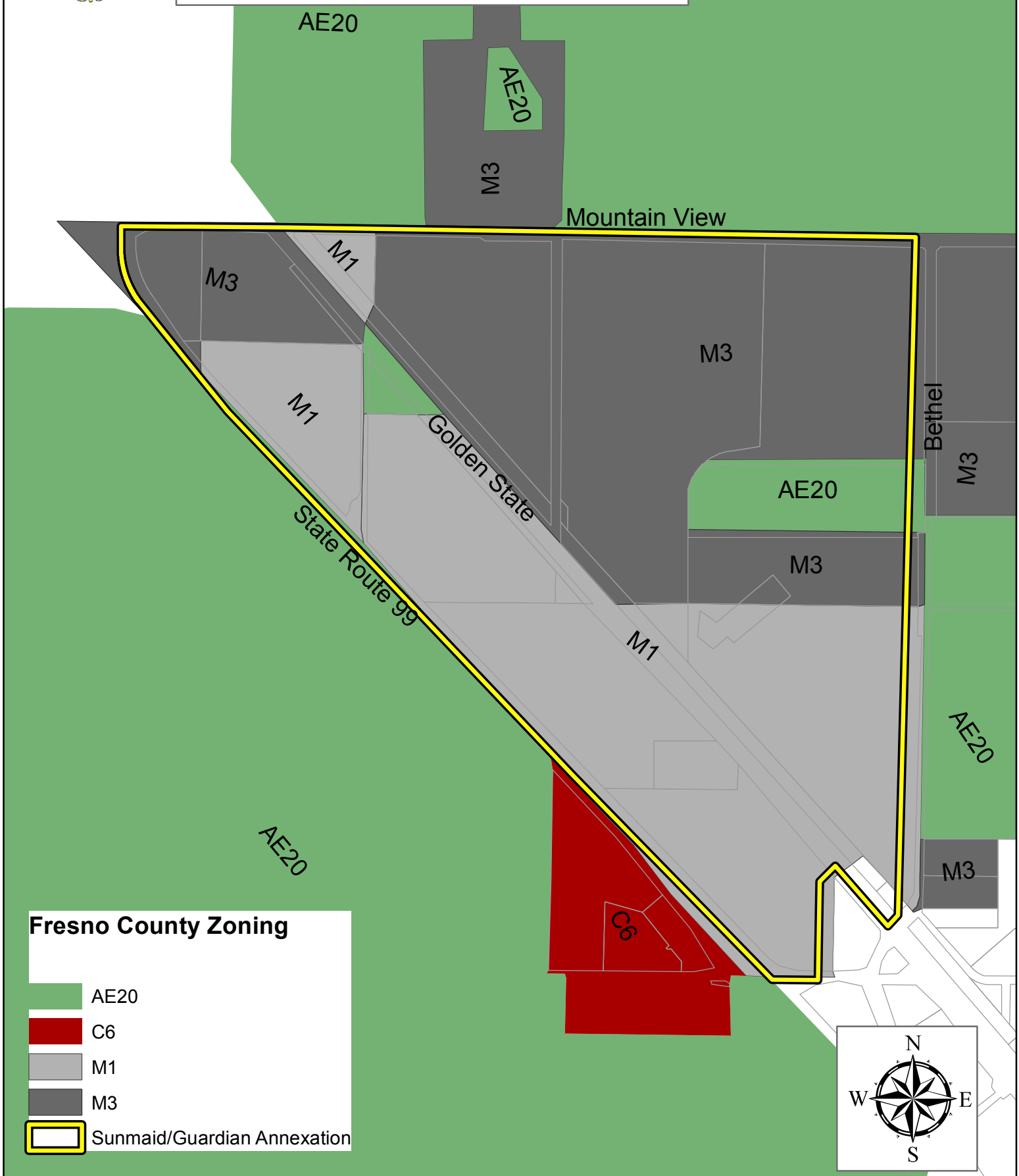
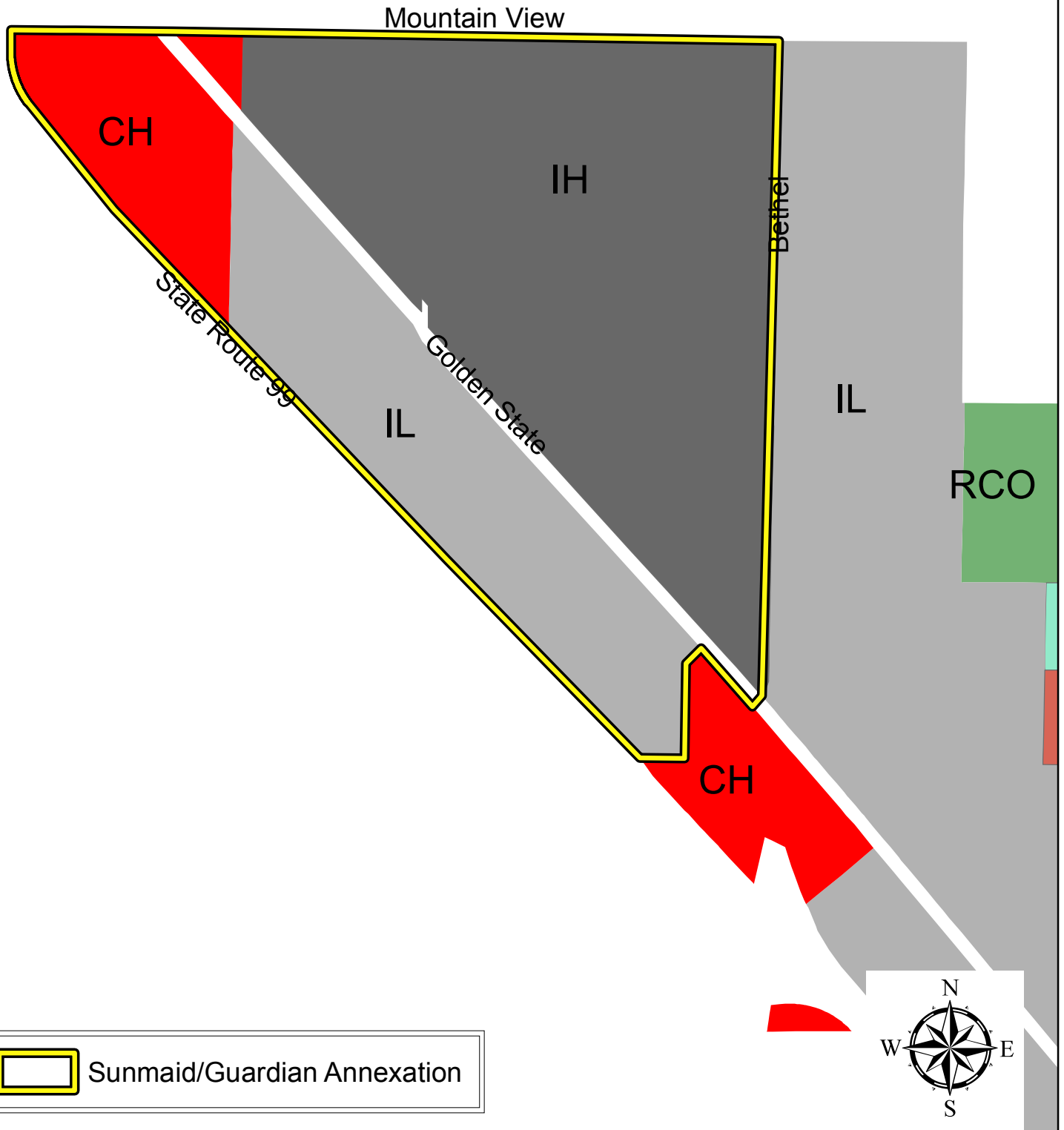




EXHIBIT 5 ANNEXATION TERRITORY LAND USE AND PRE ZONE DESIGNATIONS



3.0 ENVIRONMENTAL DETERMINATION

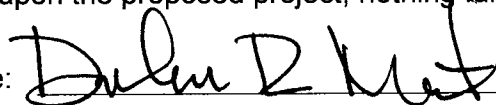
Environmental Factors Potentially Affected		
The environmental factors checked below would be potentially affected by this project. The impact in every case will be less than significant, sometimes as a result of mitigation measures described on the following pages in the narrative within the checklist.		
<input type="checkbox"/> Aesthetics	<input checked="" type="checkbox"/> Agriculture Resources	<input checked="" type="checkbox"/> Air Quality
<input checked="" type="checkbox"/> Biological Resources	<input checked="" type="checkbox"/> Cultural Resources	<input type="checkbox"/> Geology/Soils
<input checked="" type="checkbox"/> Greenhouse Gas Emissions	<input type="checkbox"/> Hazards & Hazardous Materials	<input checked="" type="checkbox"/> Hydrology/Water Quality
<input type="checkbox"/> Land Use/Planning	<input type="checkbox"/> Mineral Resources	<input checked="" type="checkbox"/> Noise
<input checked="" type="checkbox"/> Public Services	<input type="checkbox"/> Recreation	<input checked="" type="checkbox"/> Transportation/Traffic
<input type="checkbox"/> Population/Housing	<input checked="" type="checkbox"/> Utilities/Services Systems	<input type="checkbox"/> Mandatory Findings of Significance

DETERMINATION:

On the basis of this initial evaluation:

- ☐ I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.
- ☒ I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.
- ☐ I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.
- ☐ I find that the proposed project MAY have a “potentially significant impact” or “potentially significant unless mitigated” impact on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measure based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.
- ☐ I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.

Signature:



Dated:

4/24/2012

3.1 INITIAL STUDY CHECKLIST AND DISCUSSION

1. AESTHETICS

Environmental Issues	Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
Aesthetics				
<i>Would the project:</i>				
a) Have a substantial adverse effect on a scenic vista?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic building within a state scenic highway?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Substantially degrade the existing visual character or quality of the site and its surroundings?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Would the project:

a) *Have a substantial adverse effect on a scenic vista?*

No Impact. The Kingsburg General Plan identifies no scenic vistas existing on the project site and none exist on the properties immediately adjacent to the project site. The project site is predominately existing Industrial and Highway Commercial development with a variety of residential and agricultural uses nearby. Therefore, no impacts to scenic vistas will result from the proposed project.

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

No Impact. No scenic resources such as rock outcroppings, trees, or historic buildings will be disturbed by the proposed project. Therefore, no impacts to scenic resources will result from the proposed project.

- c) *Substantially degrade the existing visual character or quality of the site and its surroundings?*

No Impact. The project site is predominately existing Industrial and Highway Commercial development surrounded by limited rural residential and agricultural uses. No development is proposed as a result of the annexation, however, there may be future development of the area as the 49 undeveloped acres are developed. No impacts to visual character of the site or area will result from the proposed project.

- d) *Create a new source of substantial light or glare that would adversely affect day or nighttime views in the area?*

Less than Significant. The project site is predominately existing Industrial and Highway Commercial development. New sources of light and glare may be created as the undeveloped 49 acres is developed. All future development will have to comply with the City of Kingsburg Zoning Ordinance which regulates lighting and requires new light sources to be shielded to protect light and glare on adjacent properties. Impacts resulting from new sources of light or glare will be less than significant as a result of the proposed project.

Sources:

- Kingsburg General Plan and EIR
- North Kingsburg Specific Plan EIR
- Kingsburg Municipal Code
- Site Visit

2. AGRICULTURAL RESOURCES

Environmental Issues	Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
Agriculture Resources In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Department of Conservation as an optional model to use in assessing impacts on agriculture and farmland. <i>Would the project:</i>				
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Would the project:

- a) *Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?*

Less than Significant. The 2008 Important Farmland Mapping and Monitoring Map for eastern Fresno County identifies portions of the project area as prime farmland. However, much of the area identified is currently developed as industrial and commercial uses consisting of buildings or structures and areas used for the application of wastewater by Sun Maid Raisin Growers.

Only a small portion of the project site is currently cultivated and the otherwise undeveloped parcels are small, precluding use for production agriculture. A 15-acre vineyard on the south side of Mountain View Avenue

west of Bethel Avenue is owned by Guardian Industries. It is anticipated it will be used for future expansion. A remnant vineyard of about four acres also exists between Freeway 99 and Golden State Boulevard southeast of Amber Avenue.

In addition, the City of Kingsburg has a right to farm ordinance that will allow the continued operation of agricultural properties upon annexation.

Impacts to agricultural resources resulting from the annexation will therefore be less than significant.

b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?

No Impact. The project site consists of 422 acres and is designated in the City of Kingsburg General Plan as Heavy Industrial and Highway Commercial. There are no Williamson Act contracts on the project area therefore there will be no impact.

c) Involve other changes in the existing environment, which, due to their location or nature, could result in conversion of farmland to non-agricultural use?

No Impact. The Kingsburg General Plan identifies the subject property as Heavy Industrial and Highway Commercial. A portion of the property has been pre-zoned for Heavy Industrial, the remaining property will be pre-zoned a combination of Highway Commercial and Light Industrial. Portions of the area between the State Route 99 freeway and Golden State Boulevard/Simpson Street, from Mountain View Avenue to the existing City limits, will have a mixed use overlay zone in accordance with the North Kingsburg Specific Plan.

The area is primarily developed with industrial/commercial uses and will not result in other changes that would result in the conversion of farmland to non-agricultural use, therefore the impact is less than significant.

Sources:

- Kingsburg General Plan and EIR
- North Kingsburg Specific Plan and EIR
- Kingsburg Municipal Code
- Fresno County Important Farmland Map 2008

3. AIR QUALITY

Environmental Issues	Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
Air Quality				
Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations.				
<i>Would the project:</i>				
a) Conflict with or obstruct implementation of the applicable air quality plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) Expose sensitive receptors to substantial pollutant concentrations?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) Create objectionable odors affecting a substantial number of people?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

The project is located in the San Joaquin Valley air basin, which is defined by the Sierra Nevada in the east, the Coast Ranges in the west, and the Tehachapi mountains in the south. The surrounding topographic features restrict air movement through and out of the basin and, as a result, impede the dispersion of pollutants from the basin. Inversion layers are formed in the San Joaquin Valley air basin throughout the year.

The climate of the project area is typical of the valleys of Central California with hot dry summers and cool, mild winters. Daytime temperatures are often over 100 degrees in the summer months, with lows in the 60's. In the winter months, temperatures range in the 50's with the lows in the 30's. Fog is common in the valley in the winter and may last several days.

Ambient Air Quality Standards

Both the U.S. Environmental Protection Agency (EPA) and the California Air Resources Board (CARB) have established ambient air quality standards for common pollutants. These ambient air quality standards are levels of contaminants that represent safe levels that avoid specific adverse affects associated with each contaminant. The ambient air quality standards cover what are called “criteria” pollutants because the health and other effects of each pollutant are described in criteria documents.

The Federal and California state ambient air quality standards are summarized in Table 3.1 for important pollutants. The federal and state ambient standards were developed independently with differing purposes and methods, although both processes attempted to avoid health related effects. As a result, the federal and state standards differ in some cases. In general, the California state standards are more stringent. This in particularly true for ozone and PM 10.

TABLE 3.1 Federal and State Ambient Air Quality Standards

Pollutant	Averaging Time	Federal Primary Standard	State Standard
Ozone	1-Hour	--	0.09 ppm
	8-Hour	0.075 ppm	0.07 ppm
Carbon Monoxide	8-Hour	9.0 ppm	9.0 ppm
	1-Hour	35.0 ppm	20.0 ppm
Nitrogen Dioxide	Annual	53 ppb	0.03 ppm
	1-Hour	100 ppb	0.18 ppm
Sulfur Dioxide	24-Hour	--	0.04 ppm
	3-Hour	--	--
	1-Hour	75 ppb	0.25 ppm
PM10	Annual	--	20ug/m3
	24-Hour	150 ug/m3	50 ug/m3
PM2.5	Annual	15 g/m3	12 ug/m3
	24-Hour	35 ug/m3	--
Lead	30-Day Average	--	1.5 ug/m3
	3-Month Average	.15 ug/m3	--

Notes: ppm = parts per million; ppb = parts per billion; ug/m3 = micrograms per cubic meter
Source: California Air Resources Board 2012, Ambient Air Quality Standards (09/08/2010);
www.arb.ca.gov/research/aaqs/aaqs2.pdf

Attainment Status

Federal and State air quality laws require identification of areas not meeting the ambient air quality standards. These areas must develop regional air quality plans to eventually attain the standards. The State of California has designated the area as being an area of severe non-attainment for 1-hour ozone, non-attainment area for

8-hour ozone, a non-attainment area for PM10 and MP2.5. The EPA has identified the area as being in serious non-attainment for 8-hour ozone and PM2.5. The San Joaquin Valley Unified Air Pollution Control District (SJVUAPCD) is responsible for establishing and enforcing local air quality rules and regulations that address the requirements of Federal and State air quality laws.

North Kingsburg Specific Plan

Impacts to air quality from development in the project area were evaluated in the North Kingsburg Specific Plan and EIR. The document includes mitigation measures that would reduce impacts to a less than significant level.

San Joaquin Valley Unified Air Pollution Control District Significance Criteria

The SJVUAPCD has established the following standards of significance. A project is considered to have a significant impact on air quality if:

1. A Project results in new direct or indirect emissions of ozone precursors (ROG or NOx) in excess of 10 tons per year.
2. Any Project with the potential to frequently expose members of the public to objectionable odors will be deemed to have a significant impact.
3. Any Project with the potential to expose sensitive receptors or the general public to substantial levels of toxic air contaminants would be deemed to have a potentially significant impact.
4. A Project that produces a PM10 emission of 15 tons per year. (Compliance with SJVAPCD Regulation VIII reduces to less than significant.

The proposed project would not exceed any standards for significance established by the Air District as no development is proposed as part of the project. Any future project in the area would have to comply with all District Rules and Regulations in effect at the time of development.

Discussion of Impacts

a) Would the project conflict with or obstruct implementation of the applicable air quality plan?

No Impact: The project is located within the San Joaquin Valley Air Basin, which is in a non-attainment status for federal and state ambient air quality standards for ozone and PM10. The Federal Clean Air Act and the California Clean Air Act require areas in non-attainment to reduce emissions until the standards are met. The proposed annexation would not obstruct implementation of an air quality plan and, given the project is a change in jurisdictional boundaries of an area that is predominantly developed, would not conflict with any air quality plan. Any

development within the project area would be subject to the SJVUAPCD's Regulation VIII (Fugitive Dust Control) to reduce PM10 emissions and subject to the SJVUAPCD's Rule 9510 (Indirect Source Review) for all development. In addition, the project will be subject to the mitigation measures identified below to reduce any cumulative impacts. The proposed annexation will have no impact to any air quality plan.

b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?

Less than Significant. As previously mentioned in item a, the proposed project is a jurisdictional change and will not violate any air quality standard or contribute substantially to an existing or projected air quality violation. Therefore, this impact is considered less than significant.

c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?

Less than Significant with Mitigation. The project will not significantly increase the production of any criteria pollutant as described in section a). Although development is not proposed as a part of the project, any future development of the vacant lands may contribute to criteria pollutants, but would be subject to the mitigation measure below to reduce impacts to a level less than significant.

MITIGATION MEASURE 3.1

Any future development will comply with appropriate policies or regulations of the San Joaquin Valley Unified Air Pollution Control District (SJVUAPCD), including, but not limited to Regulation VIII (Fugitive Dust Control) and Rule 9510 (Indirect Source Review).

d) Expose sensitive receptors to substantial pollutant concentrations?

Less than Significant. The Project is a change in jurisdictional boundaries and as a result will not result in actual development. The annexation area is predominantly developed with a mixture of heavy industrial uses and light industrial/commercial uses. Any future development, after annexation, will be subject to the appropriate review consistent with the California Environmental Quality Act (CEQA). All future development will be required to comply with Air District Regulation VIII and Rule 9510.

The proposed project will not create or expose sensitive receptors therefore the impact is less than significant.

e) Create objectionable odors affecting a substantial number of people?

Less than Significant. As stated in a) and d) above, the Project is a jurisdictional change and will not result in actual development. Any future development will be subject to the appropriate review consistent with the California Environmental Quality Act (CEQA), therefore impacts are less than significant.

Sources:

- Kingsburg General Plan EIR
- North Kingsburg Specific Plan EIR
- San Joaquin Valley Air Pollution Control District

4. BIOLOGICAL RESOURCES

Environmental Issues	Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
Biological Resources				
<i>Would the project:</i>				
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, and regulations or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of wildlife nursery sites?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

The site is comprised of a variety of commercial developments with the largest being the Guardian glass plant and Sun-Maid raisin processing and shipping plant. Other areas on the project site include a wheat field for waste water disposal, a winery with waste water disposal field, assorted storage buildings, construction yards, offices, warehouses, a swap meet facility, disced fields and fallow, leveled and disced fields, a small vineyard and Golden State Boulevard. Lands in the general vicinity include vineyards, plum orchards, disced or fallow fields, a residence and assorted commercial businesses.

A biological study was completed in 2008, Appendix A. A follow up site visit was completed in 2012 to confirm there was not a change in conditions. No sensitive wildlife, plants, or habitats such as riparian, creeks, streams, or wetlands were observed and do not occur on or adjacent to the project site. Habitats for sensitive species are not present on or adjacent to the project site. A clump of elderberry bushes were observed along the fence of the Guardian plant. The bushes are potential habitat for the Federally threatened Valley Elderberry Longhorn Beetle. However, the bushes do not have beetle emergence holes, occur in a commercial and agricultural area, and occur miles from a river system with other elderberry bushes, they provide no habitat for the beetle, therefore there is no impact to the threatened Valley Elderberry Longhorn Beetle.

Would the project:

- a) *Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?*

No Impact. The Biological Survey did not identify any candidate, sensitive, or special status species or habitat within the project area, therefore there is no impact.

- b) *Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or US Fish and Wildlife Service?*

No Impact. The Kings River is located eight miles south of the site and is the nearest riparian habitat, while Ward Drainage Canal sits two miles south, with the intervening land all under agricultural or commercial uses. The biological survey did not find any riparian habitat or other natural community on the project site or in the immediate area, therefore there is no impact.

- c) *Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?*

No Impact. There are no federally protected wetlands or Waters of the United States on the project site, therefore there is no impact.

- d) *Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?*

No Impact. The site is not located within any wildlife movement corridors and does not function as a wildlife nursery site. No impacts in this regard would occur.

- e) *Conflict with any local applicable policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?*

No Impact. Since the project site is within an area that is predominantly developed with industrial and commercial uses and the absence of any local policies regarding biological resources, the project will not conflict with any local policies or ordinances protecting biological resources, therefore there is no impact.

- f) *Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?*

No Impact. There is no Natural Community Conservation Plan (NCCP) or Habitat Conservation Plans (HCP) underway in the region where this project is located. No impact is anticipated to occur.

Source:

- Biological Survey, Halstead and Associates

5. CULTURAL RESOURCES

Environmental Issue	Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
Cultural Resources				
<i>Would the project:</i>				
a) Cause a substantial adverse change in the significance of a historical resource as defined in §15064.5?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Disturb any human remains, including those interred outside of formal cemeteries?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

A cultural resources records search was completed in 2008, Appendix B. The results of the record search is that there are no recorded resources within the project area. There have been no changes in the area that would require an updated records search. Given that the project area is currently occupied by numerous buildings and has been extensively developed, no cultural resource survey was recommended or required.

Would the project:

- a) *Cause a substantial adverse change in the significance of a historical resource as defined in §15064.5?*

Less than significant with Mitigation. Although the project will not result in development, but is a change in jurisdictional boundaries, should any historical resource be unearthed during any construction activities that may occur, all construction shall cease and a qualified professional archaeologist should be called in to evaluate the find and make the appropriate mitigation recommendations. Impact to historical resources are therefore less than significant with the following mitigation measure:

MITIGATION MEASURE 5.1

Should any historical or cultural resource or remains be unearthed during any construction activity, a qualified professional archaeologist should be called

in to evaluate the find and make any appropriate recommendations for removal or evaluation.

No historical resources have been identified in the project area. The proposed project is located on land that has been used for agricultural purposes and is currently predominantly developed, therefore with the proposed mitigation measure, there is no impact.

- b) *Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?*

Less than Significant. As previously described, no archaeological resources are known to exist within the project site. Inclusion of Mitigation Measure 5.1 reduces possible future impacts to archaeological resources to a level of less than significant.

- c) *Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?*

No Impact. No fossils of plants, animals, and other organisms of any paleontological or cultural significance have been discovered at the project site, nor has the site been identified to be within an area where such discoveries are likely therefore there is no impact.

- d) *Disturb any human remains, including those interred outside of formal cemeteries?*

Less than Significant. Human remains are not known to exist at the project area. Standard protocol in compliance with existing regulations would require such a discovery to be immediately reported to the Fresno County Coroner. If the remains are determined to be Native American in origin, both the Native American Heritage Commission and any identified descendants shall be notified by the coroner and recommendations for treatment solicited (CEQA Section 15064.5; Health and Safety Code Section 7050.5; Public Resources Code Section 5097.98). Compliance with these regulations allow for this impact to be considered less than significant.

Sources:

- Kingsburg General Plan EIR
- North Kingsburg Specific Plan EIR
- Historic Record Survey; California Historical Resources Information System

6. GEOLOGY AND SOILS

Environmental Issue	Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
Geology and Soils				
<i>Would the project:</i>				
a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury or death involving:				
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
ii) Strong seismic ground shaking?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
iii) Seismic-related ground failure, including liquefaction?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
iv) Landslides?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Result in substantial soil erosion or the loss of topsoil?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

e) Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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No known geological hazards or unstable soil conditions exist in the project area. There are several known faults that exist close enough to cause potential damage to structures or individuals. The City of Kingsburg has adopted the California Building Code to govern all construction within the City, further reducing potential impacts by ensuring that development is designed to withstand seismic and other geological hazards.

Would the project:

a) *Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:*

i) *Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.*

No Impact. No known faults with historic activity cut through the project area. The major active faults and fault zones are the Ortigalita Fault Zone and the Bear Mountain Fault Zone, approximately thirty-three miles southwest and twenty-five miles northeast of the project area, respectively. Due to the distance from active faults, the potential for loss of life, property or injury is considered minimal.

ii) *Strong seismic ground shaking?*

No Impact. There is no record of any seismic activity originating in Fresno County or the City of Kingsburg, other than tremors on the west side, close to the Ortigalita Fault. All of California, including the Guardian/ Sun-Maid project area, is subject to earthquake risks. Compliance with California seismic design requirements would ensure that the project area would not expose persons or property to strong seismic ground shaking hazards.

iii) *Seismic-related ground failure, including liquefaction?*

No Impact. Although no specific liquefaction hazard areas have been identified in Fresno County or the City of Kingsburg, the potential for

liquefaction is recognized throughout the San Joaquin Valley where unconsolidated sediments and a high water table coincide. Compliance with California seismic design requirements would ensure the project area would not expose persons or property to liquefaction hazards. Impacts in this regard would be less than significant.

iv) *Landslides?*

No Impact. The project site contains flat relief, which precludes the possibility of landslides onsite. Elevation ranges from 159.5 ft to 160 ft throughout the project area.

b) *Result in substantial soil erosion or the loss of topsoil?*

No Impact. Within the project area excavation, grading, and filling will be minimal. No changes in topography are proposed with this project; therefore, there is no impact.

c) *Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?*

No Impact. The project site is underlain by natural alluvial deposits of Holocene age and there are no unstable geologic units or soils (e.g., artificial fill) present on the project area. Any new construction will be required to comply with California Building Code which will reduce potential risks to life and property from unstable geologic units or soils, therefore there is no impact.

d) *Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?*

No Impact. Onsite soils are classified as Pollasky sandy loam, deep over hardpan, 2 to 9 percent slopes,. Pollasky sandy loam soils are not known to be expansive soils. Clay soils, which are typically expansive, are not located in the area. Development in the project area will adhere to the grading and foundation requirements of the California Building Code. These requirements set forth standards for soil engineering that ensure that building foundations are adequately supported. Adherence to these standards will ensure that persons and structures are not exposed to hazards from shrinking and swelling of soils, therefore there is no impact.

e) *Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?*

No Impact. The Selma-Kingsburg-Fowler County Sanitation District provides a wastewater disposal system to the majority of the project area; therefore, it is anticipated that there will no need for in-ground septic tank systems. If it is determined that there is the need for a septic tank, percolation test and soil analysis must be preformed prior to the issuance of grading or building permits.

Source:

- Rymer and Ellsworth 1990; Fresno County General Plan Background Report/EIR 2000.

7. GREENHOUSE GAS EMISSIONS

Environmental Issues	Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
Greenhouse Gas Emissions				
<i>Would the project:</i>				
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Gases that trap heat in the atmosphere are referred to as greenhouse gases (GHGs) because they trap heat radiated by the sun as it is reflected back into the atmosphere, much like a greenhouse does. The accumulation of GHG's has been implicated as a driving force for global climate change. Definitions of climate change vary amongst regulatory authorities and the scientific community, but in general is described as a change in the earth's climate caused by natural fluctuations and anthropogenic activities which alter the composition of the global atmosphere.

Individual projects contribute to the cumulative effects of climate change by emitting GHG's during construction and operational phases. The proposed project is not a proposal for a change in current operations, it is a jurisdictional boundary change. The large majority of the project area is currently developed and although a future project may occur in the project area, none are proposed at this time. Therefore no additional GHG's will be created as a result of the proposed annexation.

- a) *Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?*

No Impact. As stated above, no development is proposed as part of the proposed project. As development occurs on the undeveloped 52 acres, an analysis of impacts to greenhouse gases will be prepared.

- b) *Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?*

No Impact. The proposed project is a jurisdictional boundary change and as such, will not conflict with any plan, policy or regulation that will reduce emissions of greenhouse gases.

8. HAZARDS AND HAZARDOUS MATERIALS

Environmental Issues	Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
Hazards and Hazardous Materials				
<i>Would the project:</i>				
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the likely release of hazardous materials into the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

e) For a project located within an airport land use plan (or, where such a plan has not been adopted, within two miles of a public airport or public use airport), would the project result in a safety hazard for people residing or working the project area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
g) Impair implementation of, or physically interfere with, an adopted emergency response plan or emergency evacuation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
h) Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas, or where residences are intermixed with wildlands?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Would the project:

- a) *Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?*

No Impact: The proposed annexation would not result in changes that would include routine transport, use or disposal of hazardous material. If future development occurs, any hazardous material uses would be required to comply with all applicable local, state and federal standards associated with the handling and storage of hazardous materials.

- b) *Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?*

No Impact: The annexation project is a change in jurisdictional boundaries and includes no direct construction or site improvements. Future development within the project area may include construction activities that would use fuel and oil. The use and handling of hazardous material during construction activities is required to comply with applicable state and federal laws.

- c) *Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?*

No Impact. No existing or proposed school is within a quarter-mile of the proposed project area, and hazardous emissions will not be emitted and no acutely hazardous materials, substances, or waste will be used onsite.

- d) *Be located on a site which is included on a list of hazardous materials lists compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?*

No Impact: Review of the Department of Toxic Substances Control (DTSC) and Cortese Hazardous Waste and Substances site list, Envirostar, revealed no sites listed within the project area.

- e) *For a project located within an airport land use plan (or, where such a plan has not been adopted, within two miles of a public airport or public use airport), would the project result in a safety hazard for people residing or working in the project area?*

No Impact: The nearest airports to the project area are Fresno-Yosemite International Airport approximately 25 miles to the north, and the City of Visalia Municipal Airport approximately 20 miles to the south, well outside the two mile distance, therefore there will be no safety hazard to people residing or working within the project area.

- f) *For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working the project area?*

No Impact. See (e) above.

- g) *Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?*

No Impact. The project will result in the annexation of 422 acres of mixed-use highway commercial and industrial property meeting all emergency access requirements. The project will not impair the implementation of an adopted emergency response plan as it will not create an obstruction to surrounding roadways or other access routes used by emergency response units.

- h) *Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?*

No Impact. The project area is surrounded by residential and agricultural land uses. These land use types are not associated with wildland fires and preclude the possibility of exposure to wildland fires.

9. HYDROLOGY AND WATER QUALITY

Environmental Issues	Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
Hydrology and Water Quality				
<i>Would the project:</i>				
a) Violate any water quality standards or waste discharge requirements?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Substantially alter the existing drainage pattern of area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Create or contribute runoff water which would exceed the capacity of existing or planned storm water drainage systems or provide substantial additional sources of polluted runoff?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

f) Otherwise substantially degrade water quality?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
g) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
h) Place within a 100-year flood hazard area structures which would impede or redirect flood flows?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
i) Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
j) Inundation by seiche, tsunami, or mudflow?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Would the project:

a) *Violate any water quality standards or waste discharge requirements?*

Less than Significant. The proposed annexation is a jurisdictional boundary change, without any proposed construction project. It can be assumed, however, that portions of the site may develop in the future consistent with current land use designations and City of Kingsburg zoning. Future development projects that consist of more than one acre would be subject to the National Pollutant Discharge Elimination System (NPDES) permit program, which requires the use of Best Management Practices (BMP's) to minimize water quality impacts.

In February of 2010, the City of Kingsburg and Consolidated Irrigation District ("CID") entered into a Cooperative Agreement ("CID Agreement") addressing, among other issues, mitigation of possible negative environmental impacts on groundwater resources and alternatives to continued discharge of storm water into CID facilities. The CID Agreement allows the City to continue to discharge storm water by pumps and gravity into CID facilities located in or adjacent to the City but only through existing connections identified in the CID Agreement. Prior to any discharge of storm water into CID facilities, the City must obtain and comply with all permits and approvals required by local, state or federal agencies or authorities including the California Regional Water Quality Control Board and the California Department of Health Services and comply with all applicable laws, statutes and regulations affecting storm water discharge.

Currently, Kingsburg discharges storm water into CID facilities in only one location, and its Storm Drainage Master Plan calls for that discharge point to eventually be eliminated. In all other locations the City requires on-site or regional storm water drainage basins or systems with adequate storage to prevent discharge into CID facilities..

- b) *Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?*

Less than Significant. The proposed annexation would not contain elements that add to or draw from groundwater. The existing development utilizes two high-producing waters wells that will continue to be operated until such a time as the industries initiate connection to the City's system.

Future development in the project area could affect groundwater recharge and utilize groundwater supplies affecting the local water table. Without detailed knowledge of future projects, it is not possible to assess impacts associated with future projects. Impacts related to future development will have to be evaluated in applicable CEQA review associated with individual projects.

The City's Water System Master Plan and Urban Water Management Plan indicates that the groundwater supply in the area is ample, and a future municipal well is planned near the northwestern end of the annexation (currently planned along the Amber Avenue alignment). A ground water recharge basin is being planned for development less than a mile to the east under the North Kingsburg Specific Plan.

In order to mitigate possible negative environmental impacts on groundwater resources and accordance with the CID Agreement, the City will operate groundwater wells located within the boundaries of the City with meters that accurately measure the instantaneous flow and accumulated volume annually of water extracted by the City wells. Pursuant to the CID Agreement, the City is mitigating groundwater overdraft in the City and CID by instituting a process as identified in the CID Agreement, for the payment of contributions into a groundwater management and replenishment fund for the purpose of implementing groundwater replenishment methodologies which solely benefit the City and CID as more specifically identified in the CID Agreement.

- c) *Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site, or flooding on- or off-site?*

No Impact. See discussion under (b) above. The project will have no direct impacts to the drainage patterns on any site within the project area.

- d) *Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner that would result in flooding on- or –off site?*

No Impact. See discussion under (b) above. The project will have no direct impact to the drainage patterns on any site within the project area. Future projects will be required to plan for future stormwater retention facilities in accordance with City of Kingsburg Storm Drainage Master Plan.

- e) *Create or contribute runoff water which would exceed the capacity of existing or planned storm water drainage systems or provide substantial additional sources of polluted runoff?*

No Impact. See details in (b) through (d) above. The project would cause no direct increase in water runoff. Future development projects could contribute to an increase in runoff due to an increase in impervious surfaces. Any increase would be contained within stormwater basins sized and constructed to City of Kingsburg standards and the City's Storm Drainage Master Plan.

- f) *Otherwise substantially degrade water quality?*

No Impact. See details in (a) through (e) above. The project would cause no direct impacts to the water quality of any site within the project area.

- g) *Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?*

No Impact. According to the Federal Emergency Management Agency (FEMA) National Flood Insurance Program (NFIP) Rate Map (Panel Number 064, Map 19C2675F), the project area is located within Flood Zone X. Zones B, C, and X are the flood insurance rate zones that correspond to areas outside of 100-year floodplains, areas of 100-year sheet flow flooding where average depths are less than 1 foot, areas of 100-year stream flooding where the contributing drainage area is less than 1 square mile, or areas protected from the 100-year flood by levees.

- h) *Place within a 100-year flood hazard area structures, which would impede or redirect flood flows?*

No Impact. See (g) above. The project area is not within a 100-year flood hazard area.

- i) Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?

No Impact: See (g) above.

- j) Inundation by seiche, tsunami, or mudflow?

No Impact. The project area is approximately 78 miles inland from the Pacific Ocean and no large hills are located in the vicinity of the project. Consequently, inundation by tsunami or mudflow is unlikely to occur and should not pose a significant hazard to the site.

10. LAND USE AND PLANNING

Environmental Issues	Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
Land Use and Planning				
<i>Would the project:</i>				
a) Physically divide an established community?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Conflict with any applicable habitat conservation plan or natural communities conservation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Would the project:

- a) *Physically divide an established community?*

No Impact. The proposed annexation is consistent with policies of the adopted Kingsburg General Plan (July 1992) and the North Kingsburg Specific Plan (July 2004). The proposed reorganization will not cause the physical separation or division of any community.

- b) *Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?*

No Impact. The project is consistent with the City's General Plan and North Kingsburg Specific Plan. A majority of the subject territory has also been pre-zoned for consistency with the City's adopted General Plan and Specific Plan. The proposed reorganization area is also located within the City's existing sphere of influence and is a logical and orderly expansion of commercial and industrial growth for the City along the Golden State Highway Corridor, where large industrial uses already exist.

- c) *Conflict with any applicable habitat conservation plan or natural community conservation plan?*

No Impact. Currently no Habitat Conservation Plans or Natural Community Conservation Plans exist for the proposed project area.

11. MINERAL RESOURCES

Environmental Issues	Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
Mineral Resources				
<i>Would the project:</i>				
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Would the project:

- a) *Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?*

No Impact. The proposed project would not use or extract any mineral resources or restrict access to any resource area.

- b) *Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?*

No Impact. No mineral resource site is identified in the project area on any general plan, specific plan or other land use plan.

12. NOISE

Environmental Issues	Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
Noise				
<i>Would the project result in:</i>				
a) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) For a project located within an airport land use plan (or, where such a plan has not been adopted, within two miles of a public airport or public use airport), would the project expose people residing or working in the project area to excessive noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Would the project result in:

- a-d) *Exposure of persons to or generation of noise levels in excess of standards established in any applicable plan or noise ordinance, or applicable standards of other agencies?*

Exposure of persons to, or generation of, excessive groundborne vibration or groundborne noise levels?

A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?

A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?

Less Than Significant. A substantial portion of the project area is currently developed with a mixture of industrial and commercial uses and no residential uses are planned in the project area. Future development subsequent to the annexation may increase noise levels temporarily in the project area. These increases will be temporary and intermittent. Potential noise from construction activities will be regulated by standard mitigation practices, conditions of approval and best management practices that are imposed as part of a building permit.

- e) *For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?*

No Impact. The project is not located within an airport land use plan or within two miles of a public airport or public use airport. The nearest airports to the project are Fresno Yosemite International Airport (approximately 25 miles to the north), and the City of Visalia Municipal Airport (approximately 20 miles to the southeast) therefore there is no impact.

- f) *For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?*

No Impact. There are no private airstrips located within five miles of the project boundary therefore there is no impact.

13. POPULATION AND HOUSING

Environmental Issues	Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
Population and Housing				
<i>Would the project:</i>				
a) Induce substantial population growth in an area, either directly (e.g., by proposing new homes and businesses) or indirectly (e.g., through extension of roads or other infrastructure)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Displace substantial numbers of people necessitating the construction of replacement housing elsewhere?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Would the project:

- a) *Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?*

Less than Significant. The proposed project area is predominately developed and will not create a significant increase in the total population for the City of Kingsburg. The project, consisting of the annexation of 422 acres for primarily commercial and industrial development, is consistent with the current general plan policies and the North Kingsburg Specific Plan. Impacts are considered less than significant.

- b) *Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?*

No Impact. The project will not displace any housing or result in the requirement of replacement housing, therefore there is no impact.

- c) *Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?*

No Impact. The project will not displace any individuals or result in the requirement of replacement housing elsewhere in the community, therefore there is no impact.

14. PUBLIC SERVICES

Environmental Issues	Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
Public Services <i>Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities or the need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:</i>				
a) Fire Protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Police Protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Schools?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Parks?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Other public facilities?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Discussion of Impacts

Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities or the need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:

a) *Fire Protection?*

Less than Significant. The annexed area will be served by the City's fire department. The City of Kingsburg has determined that it has sufficient service capability to meet the fire and emergency response needs of the area. A transition agreement is in place between the City and the Fresno County Fire Protection District that addresses financial impacts resulting from detachment from the District. Impacts on fire protection would be less than significant.

b) *Police Protection?*

Less than Significant. The proposed annexation area will be served by the City of Kingsburg Police Department. City officers have a much more limited service area than the Fresno County Sheriff's Department and as such, the

proposed annexation may result in improved police service to the annexation area, although it will increase the overall service demands on the Police Department.

c) *Schools?*

No Impact. The proposed annexation of the commercial and industrial area would have minimal affect on population growth, therefore there is no impact to school facilities.

d) *Parks?*

No Impact. The proposed annexation of the commercial and industrial area would have minimal impact on City parks and will not result in the need to provide additional park area, therefore there is no impact to parks.

e) *Other public facilities?*

Less than Significant. The City water, sewer, and storm drainage utilities will be expanded in accordance with the City's and Selma-Kingsburg-Fowler County Sanitation District's (S-K-F's) adopted master plans and the CID Agreement. No area of urban development is restricted in growth by existing City utilities and, with expansion, there is remaining capacity for continued expansion. Both the City of Kingsburg and S-K-F adhere closely to the policy that urban expansion should be an extension of existing urban patterns.

15. RECREATION

Environmental Issues	Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
Recreation				
a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

- a) *Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?*

No Impact. The proposed annexation would not include development of any residential components, and no neighborhood or community parks are planned as part of this project, therefore there is no impact.

- b) *Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?*

No Impact. See (a) above.

16. TRANSPORTATION/TRAFFIC

Environmental Issues	Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
Transportation/Traffic				
<i>Would the project:</i>				
a) Cause an increase in traffic which is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in a substantial increase in either the number of vehicle trips, the volume to capacity ratio on roads, or congestion at intersections)?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Exceed, either individually or cumulatively, a level of service standard established by the county congestion management agency for designated roads or highways?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

e) Result in inadequate emergency access?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
f) Result in inadequate parking capacity?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
g) Conflict with adopted policies, plans or programs supporting alternative transportation (e.g. bus turnouts, bicycle racks)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

The transportation system within the project area is currently developed. The major access to the properties within the project area are from Mountain View to the north, Bethel to the east and south and Golden State to the west and east. A Traffic Impact Study was prepared for the proposed project, which indicated that the study intersections and road segments currently operate at acceptable levels of service. For the purpose of addressing future cumulative impacts, the traffic impact study evaluated the future conditions with approximately 42.35 acres of commercial, 15 acres of heavy industrial and 91 acres of light industrial.

DISCUSSION OF IMPACTS

Would the project:

- a-b) *Cause an increase in traffic which is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in a substantial increase in either the number of vehicle trips, the volume to capacity ratio on roads, or congestion at intersections)?*
Exceed, either individually or cumulatively, a level of service standard established by the county congestion management agency for designated roads or highways?

Less Than Significant With Mitigation. The proposed project would not result in a substantial increase in existing vehicle trips on the road system. The annexation of the area may result in the eventual development of the area to uses consistent with City land use designations and zoning in the area. Additional traffic loads will be generated by commercial and industrial development as individual development projects are proposed. Transportation related impacts will be addressed on a project by project basis, with resulting impacts mitigated through design or construction of new facilities and improvements.

The project is not associated with any construction or land use development. Future development in the project area will be subject to approval by the City of Kingsburg Planning Department and City Engineer through the site plan review process. The following mitigation measure will reduce impacts from the proposed annexation to less than significant:

Mitigation Measure 16.1:

Development projects proposed to be constructed in the project area will be required to analyze their project specific traffic impacts on a project by project basis and will be responsible for mitigating the project specific impacts. Any proposed project which generates 100 or more trips per day shall be required to perform a traffic impact study to determine current levels of service and anticipated impacts of the project on adjacent roadways.

Mitigation Measure 16.2:

The City of Kingsburg intends to initiate the preparation of a traffic impact fee study for the purpose of analyzing the impacts of contemplated future development on City-wide traffic facilities along with an analysis of the need for new traffic facilities required by new development in the City, including new development in the project area. The traffic impact fee study will also identify the relationship between new development and the needed traffic facilities and will identify the estimated cost of the needed traffic facilities. Following the preparation of a traffic impact fee study, the City Council will consider the adoption of an ordinance amending the City traffic impact fees.

- c) *Result in change in air traffic patterns, including either an increase in air traffic levels or a change in location that results in substantial safety risks?*

No Impact. Air traffic patterns will not be affected by the development of the project. No impacts in this regard would occur.

- d) *Substantially increase hazards due to a design feature (e.g. sharp curves or dangerous intersections) or incompatible uses (e.g. farm equipment)?*

Less Than Significant. No hazardous design features are included in the project. Any related road improvements will be designed in accordance with standard engineering practices and the City of Kingsburg standards. This will prevent new hazardous conditions from occurring as the area is developed. This impact is less than significant.

- e) *Result in inadequate emergency access?*

Less Than Significant. Changes to the City street system are not proposed as part of the project. Any future streets and/or developments will be designed to provide for safe emergency access. Impact will be less than significant.

f) *Result in inadequate parking capacity?*

Less Than Significant. There is no development associated with the proposed annexation. All future development will be required to meet City parking standards and will be reviewed through the site plan review process. Impacts are therefore less than significant.

g) *Conflict with adopted policies, plans, or programs supporting alternative transportation (e.g. bus turnouts, bicycle racks)?*

No Impact. The proposed annexation does not conflict with adopted policies plans or programs, therefore there is no impact.

17. UTILITIES AND SERVICE SYSTEMS

Environmental Issues	Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
Utilities and Service Systems				
<i>Would the project:</i>				
a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

e) Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
g) Comply with federal, state, and local statutes and regulations related to solid waste?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Would the project:

- a) *Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?*

Less Than Significant with Mitigation. The annexation site is within the planning area of the water and drainage master plans completed in recent years by the City and by the sewer master plan maintained by the Selma-Kingsburg-Fowler County Sanitation District (S-K-F). As noted in the North Kingsburg Specific Plan, no problems are anticipated in providing services as called out in the Master Utility Plans. Several of the parcels to be annexed to the City of Kingsburg are already within the S-K-F district boundaries and receive sewer service.

Mitigation Measure 17.1:

Prior to recordation of any Final Map or approval of any development plan for projects in the annexation area, the developer shall provide the City of Kingsburg with a will serve letter indicating S-K-F has wastewater capacity to service the development.

- b) *Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?*

Less Than Significant. Water supplies within the area between the State Route 99 freeway and Golden State Boulevard will be provided by the City of Kingsburg. A 12-inch water main has already been extended in the western shoulder of Golden State Boulevard from the existing city limits to Amber Avenue capable of serving the entire area between the State Route 99 freeway and the railroad. Each property owner will be responsible for the cost

of new service connections, including infrastructure improvements and the completion of a loop (tie-in) with a minimum eight-inch (8") connection between the water main and a development project.

The industries east of the Union Pacific Railroad already provide for their own water supplies. The Vie-Del grape processing plant, Sun-Maid raisin plant and Guardian Industries glass plant each has two on-site water wells producing adequate supplies of high-quality water. The small triangular parcel fronting on Mountain View Avenue just east of the railroad tracks is also served by an on-site well. Eventually the City may provide water service to these properties at the request of the owners.

Much of the property in the reorganization territory already has sewer service provided by the Selma-Kingsburg-Fowler County Sanitation District, including the Selma Flea Market property and the plants operated by Guardian Industries, Sun-Maid and Vie Del. The North Kingsburg Specific Plan noted that the City, through the Selma-Kingsburg-Fowler Sanitation District, currently has the capacity necessary in order to provide wastewater treatment capacity. The addition of wastewater from the proposed annexation will not require the expansion of treatment plant facilities or the construction of new facilities.

- c) *Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental impacts?*

Less Than Significant With Mitigation. The proposed project area will be designed to utilize the existing ponding sites or master planned new facilities for storm water drainage. Storm water drainage facilities have the potential for becoming significant mosquito breeding sources during the summer when runoff from sources like sprinkler overspray, car washing and swimming pool drainage can collect and form large shallow ponds in drainage basins. Shallow water conditions encourage pond-edge and emergent weed growth such as cattails and tules that both enhance mosquito breeding habitat and complicate basin maintenance efforts. The mosquito species that commonly breed in basins are the most important vectors of West Nile Virus in California.

Although no new basins are proposed as part of the proposed annexation, the following mitigation measures be incorporated to minimize mosquito breeding habitat in any future master planned basins within the project area.

Mitigation Measure 17.2:

The basin or nuisance water retention area should be constructed and/or managed so that water depths are maintained in excess of four feet to preclude invasive emergent vegetation such as cattails.

Mitigation Measure 17.3:

Basins should be constructed with a low-flow area, or sump, if water levels are subject to fluctuation during the summer mosquito breeding season. The sump area should be located at the pond inlet and excavated to a minimum depth of four feet below the pond floor to preclude the growth of emergent vegetation. The basin floor should also be graded, or sloped, so that as the standing water recedes, it will drain into the sump area.

Mitigation Measure 17.4:

Access must be provided for authorized personnel. A free and unencumbered access roadway around the entire basin perimeter for pond maintenance and mosquito abatement activities is essential.

- d) *Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?*

Less Than Significant. The proposed project is a change in jurisdictional boundaries and does not include new development.

- e) *Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?*

Less Than Significant. It is anticipated that S-K-F will provide will serve letters to projects proposed in the annexation territory.

- f) *Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?*

Less Than Significant. Service to the City of Kingsburg is provided under a franchise agreement with Waste Management, which utilizes active Class III landfills within Fresno County. Waste Management will serve the solid waste disposal needs for the proposed annexation area.

- g) *Comply with applicable federal, state, and local statutes and regulations related to solid waste?*

Less Than Significant. Solid waste must be disposed of following the requirements of the contracted waste hauler, which follows federal, state, and local statutes and regulations related to the collection of solid waste. Since the solid waste stream will be typical for commercial development, it is unlikely that statutes or regulations would be violated.

18. MANDATORY FINDINGS OF SIGNIFICANCE

Mandatory Findings of Significance				
Environmental Issues	Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
a) Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal, or eliminate important examples of the major periods of California history or prehistory?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Does the project have environmental effects, which will cause substantial adverse effects on human beings, either directly or indirectly?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

- a. *Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare*

or endangered plant or animal, or eliminate important examples of the major periods of California history or prehistory?

No Impact. The proposed project is a change in jurisdictional boundaries and will not result in impacts to the environment, specifically habitat of fish and wildlife species.

- b. *Does the project have impacts that are individually limited, but cumulatively considerable? (“Cumulatively considerable” means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?*

Cumulative Impacts: Although no development projects are proposed within the project area, it is anticipated that there may be development of the undeveloped sites within the project area, although the undeveloped sites are currently allowed to develop with industrial uses in Fresno County, therefore there are no impacts associated with the annexation of the project area.

In addition, the City of Selma has released a notice of preparation for a proposed project directly adjacent to the annexation area to the north called the Selma Crossings project. The Selma Crossings project includes the following:

Retail	2,092,203 square feet
Office Park	540,000 square feet
Residential	250 dwelling units
Auto Mall	400,000 square feet (10 3.6 acres parcels)
Hotels (2)	155,000 square feet
Water Park	10,000 square feet

The addition of the Selma Crossings project does create impacts that could be cumulatively considerable. An Environmental Impact Report (EIR) is being prepared by the City of Selma. It is anticipated that the EIR will adequately evaluate cumulative impacts as a result of that project, an evaluation for this project is not possible given the EIR has not been released for public review.

- c. *Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?*

Less than significant. Based on the analyses above, findings of “less than significant impacts with mitigation incorporated” were identified. The implementation of mitigation measures is expected to reduce impacts to a level “less than significant”. Application and enforcement of State standards

and/or City ordinances and/or standard conditions of approval will also reduce certain project impacts described above to less than significant.

4.0 MITIGATION MEASURES

MITIGATION MEASURE 3.1

Any future development will comply with appropriate policies or regulations of the San Joaquin Valley Unified Air Pollution Control District (SJVUAPCD), including, but not limited to Regulation VIII (Fugitive Dust Control) and Rule 9510 (Indirect Source Review).

MITIGATION MEASURE 5.1

Should any historical or cultural resource or remains be unearthed during any construction activity, a qualified professional archaeologist should be called in to evaluate the find and make any appropriate recommendations for removal or evaluation.

MITIGATION MEASURE 16.1:

Development projects proposed to be constructed in the project area will be required to analyze their project specific traffic impacts on a project by project basis and will be responsible for mitigating the project specific impacts. Any proposed project which generates 100 or more trips per day shall be required to perform a traffic impact study to determine current levels of service and anticipated impacts of the project on adjacent roadways.

MITIGATION MEASURE 16.2:

The City of Kingsburg intends to initiate the preparation of a traffic impact fee study for the purpose of analyzing the impacts of contemplated future development on City-wide traffic facilities along with an analysis of the need for new traffic facilities required by new development in the City, including new development in the Project Site. The traffic impact fee study will also identify the relationship between new development and the needed traffic facilities and will identify the estimated cost of the needed traffic facilities. Following the preparation of a traffic impact fee study, the City Council will consider the adoption of an ordinance amending the traffic impact fees.

MITIGATION MEASURE 17.1:

Prior to recordation of any Final Map or approval of any development plan for projects in the annexation area, the developer shall provide the City of Kingsburg with a will serve letter indicating S-K-F has wastewater capacity to service the development.

MITIGATION MEASURE 17.2:

The basin or nuisance water retention area should be constructed and/or managed so that water depths are maintained in excess of four feet to preclude invasive emergent vegetation such as cattails.

MITIGATION MEASURE 17.3:

Basins should be constructed with a low-flow area, or sump, if water levels are subject to fluctuation during the summer mosquito breeding season. The sump area should be located at the pond inlet and excavated to a minimum depth of four feet below the pond floor to preclude the growth of emergent vegetation. The basin floor should also be graded, or sloped, so that as the standing water recedes, it will drain into the sump area.

MITIGATION MEASURE 17.4:

Access must be provided for authorized personnel. A free and unencumbered access roadway around the entire basin perimeter for pond maintenance and mosquito abatement activities is essential.

5.0 REFERENCES

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APPENDIX A

BIOLOGICAL RESOURCES ASSESSMENT

APPENDIX B

CULTURAL RECORDS SEARCH

APPENDIX C

TRAFFIC STUDY

BIOLOGICAL RECONNAISSANCE SURVEY
FOR
SENSITIVE SPECIES AND HABITATS
FOR THE 400 - ACRE
GUARDIAN / SUN-MAID REORGANIZATION PROJECT
AND
ITS ANNEXATION TO THE CITY OF KINGSBURG
(KINGSBURG, FRESNO COUNTY, CALIFORNIA)

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- Appendix G. Photographs of the Project Site.

1. Summary

Mr. Gerald James (Planning Consultant) is preparing environmental documents for approximately a 400-acre area for annexation to the City of Kingsburg. The project is known as the Guardian/Sun-Maid Reorganization Project. The project is the annexation of the 400-acre site into the City of Kingsburg. The project site is located just north of the City of Kingsburg (Fresno County, California) along the east side of Highway 99 near Mountain View Avenue. The site occurs between of Mountain View Avenue to the north and Kamm Avenue to the South. The project site is located between Highway 99 to the southwest and Bethel Avenue to the East. Specifically, the site occurs in Sections 16 and 21, Township 16 South, Range 22 East of the Selma 7.5 minute quadrangle map of the U. S. Geological Survey.

Biological reconnaissance surveys were conducted by Halstead & Associates, Environmental/Biological Consultants on January 8 and 11, 2008 to assess sensitive species, habitats, and other biological resource issues which might occur on or adjacent to the project site. The survey included a site visit and a search of the California Department of Fish and Game's (CDFG) California Natural Diversity Data Base (CNDDB) to determine records of sensitive species and habitats in the project vicinity. The site is comprised of a variety of commercial developments with the largest being the Guardian glass plant and Sun-Maid raisin processing and shipping plant. Other areas on the project site include a wheat field for waste water disposal, a winery with waste water disposal field, a RV park, storage buildings, construction and packaging buildings, a lumber yard, a cell phone tower, a recycling center, the Kingsburg Cogeneration Facility, a personal vehicle storage area, a disced field with piles of dead trees, a swap meet facility, a public scale, a where house, leveled and fallow fields, leveled and disced fields, a vineyard, and Golden State Boulevard. Adjacent lands include vineyards, plum orchards, disced fields, fallow fields with weeds, single-family farm residences, an oil and tire store, the Kingsburg Truck Center, an auto wrecking/dismantling yard, and Highway 99. Lands in the general vicinity include agricultural lands such as vineyards, orchards, and row crops, single-family farm residences, commercial developments along Highway 99 and Golden State Boulevard, and the Cities of Selma and Kingsburg.

Sensitive wildlife, plants, or habitats such as riparian, creeks, streams, or wetlands were not observed and do not occur on or adjacent to the project site. Habitats for sensitive species (such as vernal pools, livestock ponds without fishes, alkaline soils, adobe-heavy clay soils, hardpan soils, alkali sink scrub habitat, valley saltbush scrub habitat, caves, rock cliffs, grasslands with rolling hills, large nesting trees, cottonwood-willow forests, riparian habitat, ponds with cattail vegetation, marshes, swamps, creeks, sloughs, or rivers) are not present on or adjacent to the project site, and thus sensitive species do not occur on the project site. A clump of eight elderberry bushes were observed along the fence of the Guardian glass plant (Appendices B and G). The bushes are potential habitat for the Federally threatened Valley Elderberry Longhorn Beetle. However, since the bushes do not have beetle emergence holes, occur in a commercial and agricultural area, and occur miles from a river system with other elderberry bushes, they provide no habitat for the beetle and are not an issue for the project.

Also, the project will not interfere with animal movements or migrations, impede the use of native wildlife nursery sites, conflict with local ordinances or policies protecting biological resources, or conflict with habitat or natural community conservation plans. Thus, negative or adverse significant impacts will not occur to sensitive species, sensitive habitats, or biological resources due to construction and operation of the project. To comply with the California Environmental Quality Act (CEQA), the environmental documents should show that no significant negative or adverse impacts will occur to biological resources.

2. Background

Mr. Gerald James (Planning Consultant, 1579 19th Avenue, Kingsburg, CA 93631, (559) 897-3327) is preparing environmental documents for approximately a 400-acre area for annexation to the City of Kingsburg. The project is known as the Guardian/Sun-Maid Reorganization Project. The project is the annexation of the 400-acre site into the City of Kingsburg. The project site is located just north of the City of Kingsburg (Fresno County, California) along the east side of Highway 99 near Mountain View Avenue.

Halstead & Associates, Environmental/Biological Consultants were hired to conduct a biological reconnaissance survey, prepare a biological resources report, and recommend additional biological surveys and studies, if necessary. The information will be used for planning purposes and to guide future environmental work should it be necessary. The purpose of the biological reconnaissance survey is to determine if sensitive wildlife, plants, or habitats occur on the project site, could be impacted by the project, and could threaten the feasibility of the project. The information will also be used in preparing the environmental documents for CEQA and in permitting the project with resource and regulatory agencies.

3. Project Location

The approximately 400-acre project site is located just north of the City of Kingsburg (Fresno County, California) along the east side of Highway 99 near Mountain View Avenue (Appendix A). The site occurs between of Mountain View Avenue to the north and Kamm Avenue to the South. The project site is located between Highway 99 to the southwest and Bethel Avenue to the East. Specifically, the site occurs in Sections 16 and 21, Township 16 South, Range 22 East of the Selma 7.5 minute quadrangle map of the U. S. Geological Survey (Appendix A).

4. Project Description

Mr. Gerald James (Planning Consultant) is preparing environmental documents for approximately a 400-acre area for annexation to the City of Kingsburg. The project is known as the Guardian/Sun-Maid Reorganization Project. The project is the annexation of the 400-acre site into the City of Kingsburg.

5. Project Site Description

The project site is approximately a 400-acre area just north of the City of Kingsburg. The site is comprised of a variety of commercial developments with the largest being the Guardian glass plant and Sun-Maid raisin processing and shipping plant. Other areas on the project site include a wheat field for waste water disposal, a winery with waste water disposal field, a RV park, storage buildings, construction and packaging buildings, a lumber yard, a cell phone tower, a recycling center, the Kingsburg Cogeneration Facility, a personal vehicle storage area, a disced field with piles of dead trees, a swap meet facility, a public scale, a where house, leveled and fallow fields, leveled and disced fields, a vineyard, and Golden State Boulevard. Adjacent lands include vineyards, plum orchards, disced fields, fallow fields with weeds, single-family farm residences, an oil and tire store, the Kingsburg Truck Center, an auto wrecking/dismantling yard, and Highway 99. Lands in the general vicinity include agricultural lands such as vineyards, orchards, and row crops, single-family farm residences, commercial developments along Highway 99 and Golden State Boulevard, and the Cities of Selma and Kingsburg.

6. Regulatory Overview

To ensure the long-term protection of the environment and natural resources, laws and regulations have been implemented through multiple environmental protection Acts, which include:

Section 404 of the Clean Water Act (33 U.S.C. 1251-1376);
Section 10 of the Rivers and Harbors Act (33 U.S.C. 401 et seq.);
Executive Order 11990, Protection of Wetlands (May 24, 1977);
National Environmental Policy Act (42 U.S.C. 4321 et seq.);
Federal Endangered Species Act (16 U.S.C. 1531-1543);
Fish and Wildlife Coordination Act (16 U.S.C. 661-666);
California Environmental Quality Act (P.R.C. 21000 et seq.);
California Endangered Species Act (California Fish and Game Code 2050 et seq.);
Native Plant Protection Act (California Fish and Game Code 1900-1913);
Fish and Wildlife Protection and Conservation (California Fish and Game Code);
Migratory Bird Treaty Act of 1918 (16 U.S.C. 703-711); and
Bald and Golden Eagle Protection Act (16 USC 668).

Implementation and regulation of these Acts has been delegated to several state and federal agencies. The following section briefly describes the regulation and which, if any, agency governs.

Wetlands and Other Waters of the United States

United States Army Corps of Engineers

Waters of the United States, including wetlands and creek channels are subject to Federal and State agency regulations in the State of California. The U. S. Army Corps of Engineers (Corps) has jurisdiction over Waters of the United States under Section 404 of the Clean Water

Act. Waters of the United States may include interstate lakes, rivers, streams, mudflats, natural ponds, tributaries to Waters of the United States, and adjacent wetlands. Wetlands under Corps' jurisdiction are determined using technical criteria for hydrology, soil, and vegetation described in the Corps' Wetland Delineation Manual (1987).

Areas not considered to be jurisdictional waters include non-tidal drainage and irrigation ditches excavated on dry land, artificially-irrigated areas, artificial lakes or ponds used for irrigation or stock watering, small artificial water bodies such as swimming pools, and water filled depressions (33 CFR, Part 328).

Lands including pasture as defined by the U. S. Natural Resource Conservation Service (NRCS) are subject to regulation under Section 404 if the land use changes from agricultural to some other form, such as commercial or residential. Although regulatory authority under Section 404 rests with the Corps, in the past responsibility for determination of jurisdictional status on agricultural land was shared with NRCS throughout the United States. However, in 2000, the NRCS withdrew from its participation in delineating agricultural wetlands to be converted to some other form of land use than agricultural.

Construction activities within jurisdictional waters are regulated by the Corps. Placement of fill into jurisdictional waters requires issuance of a permit by the Corps as well as state water quality certification pursuant to Section 401 of the Clean Water Act. The Regional Water Quality Control Board is the state agency charged with implementing water quality certification in California.

California Department of Fish and Game Streambed Alteration Agreement

Any project-related activity with the potential to substantially divert or obstruct the natural flow or substantially change the bed, channel or bank of any river, stream or lake designated by the CDFG, or use material from the streambed requires that prior notification be provided to the CDFG and may require issuance of a Streambed Alteration Agreement pursuant to Sections 1600-1616 of the Fish and Game Code.

Special-Status Species

Special-status plant and wildlife species are species that have been afforded special recognition and protection by federal, state, or local resource conservation agencies and organizations. These species are generally considered rare, threatened, or endangered due to declining or limited populations. Special-status species include:

Plants and animals that are legally protected or proposed for protection under the California Endangered Species Act (CESA) or Federal Endangered Species Act (FESA);

Plants and animals defined as endangered or rare under the California Environmental Quality Act (CEQA) (Section 15380);

Animals designated as species of special concern by the U. S. Fish and Wildlife Service (USFWS) or CDFG;

Animals listed as “fully protected” in the Fish and Game Code of California (Sections 3511, 4700, 5050, and 5515); and

Plants listed in the California Native Plant Society’s (CNPS) Inventory of Rare and Endangered Vascular Plants of California.

Federal Endangered Species Act

The Federal Endangered Species Act of 1973 (Act) recognized that many species of fish, wildlife, and plants are in danger of or threatened with extinction and established a national policy that all federal agencies should work toward conservation of these species. The Secretary of the Interior and the Secretary of Commerce are designated in the Act as responsible for identifying endangered and threatened species and their critical habitats, carrying out programs for the conservation of these species, and rendering opinions regarding the impact of proposed federal actions on endangered species and specifies civil and criminal penalties for unlawful activities.

Biological assessments are required under Section 7 of the Act if listed species or critical habitat may be present in the area affected by any major construction activity conducted by, or subject to issuance of a permit from, a federal agency as defined in Part 404.02. Under section 7(a)(3) of the Act, every federal agency is required to consult with the USFWS or U. S. National Marine Fisheries Service on a proposed action if the agency determines that its proposed action may affect an endangered or threatened species.

Section 9 of the Endangered Species Act prohibits the “take” of any fish or wildlife species listed under the FESA as endangered or threatened. Take, as defined by the FESA, means “to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such action.” However, Section 10 allows for the “incidental take” of endangered and threatened species of wildlife by non-Federal entities. Incidental take is defined by the FESA as take that is “incidental to, and not the purpose of, the carrying out of an otherwise lawful activity.” Section 10(a)(2)(A) requires an applicant for an incidental take permit to submit a “conservation plan” that specifies, among other things, the impacts that are likely to result from the taking and the measures the permit applicant will undertake to minimize and mitigate such impacts. Section 10(a)(2)(B) provides statutory criteria that must be satisfied before an incidental take permit can be issued.

Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) of 1918 (16 U.S.C. 703-711) makes it unlawful to take, possess, buy, sell, purchase, or barter any migratory bird listed in 50 CFR Part 10, including feathers or other parts, nests, eggs, or products, except as allowed by implementing regulations (50 CFR 21).

Bald and Golden Eagle Protection Act

Specifically protects Bald and Golden Eagles from harm or trade.

California Endangered Species Act

The California Endangered Species Act (Fish and Game Code Sections 2050-2098) established a State policy to conserve, protect, restore, and enhance any endangered species or any threatened species and its habitat. The Fish and Game Commission is charged with establishing a list of endangered and threatened species. State agencies must consult with the Department of Fish and Game to determine if a proposed project is likely to jeopardize the continued existence of any endangered or threatened species.

Section 2081 of the Fish and Game Code allows the “take” of a species listed as threatened or endangered by the California Endangered Species Act. Take is defined as any act that involves direct mortality or other actions that may result in adverse impacts when attempting to take individuals of a listed species. Under Section 2081, the state Department of Fish and Game may issue a permit to authorize take for scientific, educational or management purposes, or take that is incidental to otherwise lawful activities.

California Fish and Game Code Native Plant Protection Policy

The goals described in Chapter 10 of the California Native Plant Protection Policy are as follows:

The intent of the Legislature and the purpose of this chapter is to preserve, protect, and enhance endangered or rare plants of this state (Section 1900). For purposes of this Chapter, a “native plant” means a plant that grows in a wild uncultivated state that is normally found native to the plant life of this state (Section 1901).

The commission may adopt regulations governing the taking, possession, propagation, transportation, exportation, importation, or sale of any endangered or rare native plants. Such regulations may include, but shall not be limited to, requirements for persons who perform any of the foregoing activities to maintain written records and to obtain permits, which may be issued by the department (Section 1907).

No person shall import into this state, or take, possess, or sell within this state, except as incident to the possession or sale of the real property on which the plant is growing, any native plant, or any part or product thereof, that the commission determines to be an endangered native plant or a rare native plant, except as otherwise provided in this chapter (Section 1908).

All state departments and agencies shall, in consultation with the department, utilize their authority in furtherance of the purposes of this chapter by carrying out programs for the conservation of endangered or rare native plants. Such programs include, but are not limited to, the identification, delineation, and protection of habitat critical to the continued survival of endangered or rare native plants (Section 1911).

California Fish and Game Code

Section 3503. It is unlawful to take, possess, or needlessly destroy the nest or eggs of any bird, except as otherwise provided by this code or any regulation made pursuant thereto.

Section 3503.5. Protects all birds-of-prey and their eggs and nests.

Section 3513. Makes it unlawful to take or possess any migratory non-game bird as designated in the Migratory Bird Treaty Act.

Other Special-Status Species Classifications

Impacts on federal and California species of special concern (FSC and CSC, respectively), and species included on CNPS lists shall be considered significant if one of the following would result: a) direct mortality; b) permanent loss of existing habitat; c) temporary loss of habitat that may result in increased mortality or lowered reproductive success; or d) avoidance of biologically important habitat for substantial periods that could increase mortality or cause lowered reproductive success (Section 15065, CEQA Guidelines and CDFG Code Sections 1900-1913).

Title 14, California Code of Regulations, Sections 670.2 and 670.5

Lists animals designated as threatened or endangered in California. California Species of Concern (CSC) is a category designated by CDFG for species considered to be indicators of regional habitat changes, or candidate species for future state listing. CSC do not have special legal status, but are used by CDFG as a management tool when considering the future use of any land parcel.

Fresno County and City of Selma General Plans

Fresno County and to a lesser extent, the City of Selma region contain important wetland, riverine, and wildlife habitats. These areas support many specialized plant and animal species. Policies in the General Plans seek to protect natural areas and to preserve the diversity of habitat in the county and city. Open Space and Conservation elements of the plans contain policies that pertain to the preservation and protection of biological resources.

Significance Criteria

The CEQA Guidelines in its Appendix G provides guidance for assessing the significance of potential environmental impacts. Relative to biological resources, a project will normally have a significant effect on the environment if it will:

- Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the CDFG or USFWS.
- Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the CDFG or USFWS.
- Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means.

- Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites.
- Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.
- Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.

7. Survey Methods

A search of the CDFG's CNDDDB for the Selma 7.5 quadrangle map and the eight surrounding quadrangle maps (Malaga, Sanger, Wahtoke, Conejo, Reedley, Laton, Burris Park, and Traver) was conducted to review records of sensitive species and habitats in the project area. These sensitive species and habitat records are listed in Appendices C and D, and in report Section 10. A list of potential sensitive wildlife, plants, and habitats was developed and used to focus the biological and habitat surveys. Other sensitive species known to occur in the general region of the project site were reviewed, searched for, and considered in the field surveys. These species are listed in Appendices E and F. Aerial photographs and soil maps of the project site were examined to establish habitats on, adjacent to, and near the project site (Appendix B).

Biological reconnaissance surveys were conducted on January 8 and 11, 2008 to determine if sensitive species, habitats, or other biological resource issues occur on the site. The project site was driven on main and crossroads during the surveys. The surveys included a search for any evidence of suitable habitat for sensitive species, species occurrence such as burrows, tracks, trails, prey remains, diggings, and scat (feces), prey remains, nests, sensitive plants, and sensitive habitats such as creeks, streams, and wetlands. Visual surveys were conducted with high-powered binoculars. Photographs of the project site and adjacent lands were taken to document current conditions (Appendix G).

Detailed or protocol sampling surveys - at the appropriate time of year - to prove the absence or presence of potential sensitive wildlife and plants or a wetland delineation were not conducted for this reconnaissance study. Because no potential habitat for sensitive plants, wildlife, or habitats themselves occur on or adjacent to the project site, no protocol sampling surveys are needed or recommended.

8. Wildlife Resources in the Project Area

Wildlife species that inhabit the project area are typical of the valley floor agricultural lands and commercial developments. Mammals such as Domestic Dog and Cat, Striped Skunk, and Virginia Opossum are the predominant large animals in the area. Species commonly

occurring in the area include animals such as California Ground Squirrel, Audubon Cottontail, Pocket Gopher, Mourning Dove, Red-winged Blackbird, Brewers Blackbird, European Starling, Scrub Jay, American Crow, Northern Mockingbird, Western Kingbird, Rock Dove, American Kestrel, Red-tailed Hawk, American Robin, Killdeer, House Finch, House Sparrow, and a variety of other sparrows and warblers. A variety of other birds use the area during the migration seasons. Reptiles in the area include the Western Fence Lizard, Terrestrial Garter Snake, and Gopher Snake. Amphibians occurring in the area along ditches and water retention basins include Tree Frog, Western Toad, and Bullfrog.

9. Plant Resources in the Project Area

The plant species that inhabit the project area are typical of the valley floor agricultural lands and commercial developments. The agricultural lands on the project site and project vicinity have been leveled, disced, planted, irrigated, and clean farmed in vineyards, disced fields, orchards, and row crops. The edges of the dirt roads, fields, and farmland have a variety of weedy nonnative annual plants and grasses such as puncture vine, telegraph plant, pineapple weed, prickly lettuce, and riggut brome. Lands around the commercial developments and farm residences have been planted with a variety of ornamental and nonnative trees, shrubs, annual plants, and grasses. A clump of eight elderberry bushes were observed along the fence of the Guardian glass plant (Appendices B and G). The bushes are potential habitat for the Federally threatened Valley Elderberry Longhorn Beetle. However, since the bushes do not have beetle emergence holes, occur in a commercial and agricultural area, and occur miles from a river system with other elderberry bushes, they provide no habitat for the beetle and are not an issue for the project. Fallow and disced fields in the area have a variety of weedy plant species.

Habitats or microhabitats for sensitive plant species (such as vernal pools, ponds, alkaline soils, adobe-heavy clay soils, hardpan soils, alkali sink scrub habitat, valley saltbush scrub habitat, grasslands with rolling hills, riparian habitat, marshes, swamps, creeks, sloughs, or rivers) are not present on or adjacent to the project site.

10. Sensitive Species and Habitats in the Project Area

The CDFG's CNDDDB denotes that no sensitive species or habitat records are known from the Selma 7.5 minute quadrangle map (Appendix C). Though no sensitive species or habitats are known, included below on the list are the Swainson's Hawk, American Peregrine Falcon, Burrowing Owl, and Bald Eagle, as they are wide ranging species of concern throughout California. Other species known to inhabit the general region of the project site were also considered and searched for during the surveys (Appendices D thru F). For each of these sensitive species, their legal status, habitat association, and a determination of affects by the project are listed for plants and for wildlife in Appendices E and F, respectively.

Sensitive species in the area of the Selma quadrangle map include:

Birds

Swainson's Hawk
American Peregrine Falcon
Bald Eagle
Burrowing Owl

Additional sensitive species and habitats from the eight surrounding quadrangle maps (Appendix D), though they may occur many miles from the project site, in different habitats, and at different elevations are listed below. General information about these species, their habitat association, and their occurrence record is presented in Appendix D.

Mammals: San Joaquin Kit Fox, Pallid Bat, Pocket Mouse

Birds: Yellow-billed Cuckoo

Reptiles: Western Pond Turtle

Amphibians: California Tiger Salamander, Western Spadefoot Toad

Insects: Valley Elderberry Longhorn Beetle

Crustaceans: Vernal Pool Fairy Shrimp, Vernal Pool Tadpole Shrimp

Plants: Earlimart Orache, Greene's Tuctoria, San Joaquin Valley Orcutt Grass, San Joaquin Adobe Sunburst, Britblescale,

Habitats: Great Valley Mixed Riparian Forest, Northern Claypan Vernal Pool, Valley Sacaton Grassland

11. Survey Results

The site is comprised of a variety of commercial developments with the largest being the Guardian glass plant and Sun-Maid raisin processing and shipping plant. Other areas on the project site include a wheat field for waste water disposal, a winery with waste water disposal field, a RV park, storage buildings, construction and packaging buildings, a lumber yard, a cell phone tower, a recycling center, the Kingsburg Cogeneration Facility, a personal vehicle storage area, a disced field with piles of dead trees, a swap meet facility, a public scale, a where house, leveled and fallow fields, leveled and disced fields, a vineyard, and Golden State Boulevard. Adjacent lands include vineyards, plum orchards, disced fields, fallow fields with weeds, single-family farm residences, an oil and tire store, the Kingsburg Truck Center, an auto wrecking/dismantling yard, and Highway 99. Lands in the general vicinity include agricultural lands such as vineyards, orchards, and row crops, single-family farm residences, commercial developments along Highway 99 and Golden State Boulevard, and the Cities of Selma and Kingsburg.

The search of the CDFG's CNDDDB showed that a variety of sensitive wildlife, plants, and habitats occur in the general region of the project site - see Section 10 and Appendices C thru F. No sensitive species were observed on, adjacent to, or in the vicinity of the project site during our two reconnaissance surveys. Habitats for such sensitive species (such as vernal pools and vernal swales, livestock ponds without fishes, alkaline soils, adobe-heavy clay soils, hardpan soils, alkali sink scrub habitat, valley saltbush scrub habitat, caves, rock cliffs, grasslands with rolling hills, large nesting trees, cottonwood forests, riparian habitat, lakes, ponds with thick and lush cattail vegetation, marshes, swamps, creeks, sloughs, or rivers) were not observed on or adjacent to the project site, and thus those sensitive species do not occur on or adjacent to the project site. A clump of eight elderberry bushes were observed along the fence of the Guardian glass plant (Appendices B and G). The bushes are potential habitat for the Federally threatened Valley Elderberry Longhorn Beetle. However, since the bushes do not have beetle emergence holes, occur in a commercial and agricultural area, and occur miles from a river system with other elderberry bushes, they provide no habitat for the beetle and are not an issue for the project.

Wildlife and plants which were observed on the project site and in the vicinity of the project are typical of the valley floor agricultural lands and commercial developments. No raptor (e.g., Swainsons Hawk, Red-tailed Hawk, American Kestrel) nests were observed on the project site. We found nothing to indicate that there was any significant animal movements or dispersal patterns, corridors, or nursery sites on or through the project site. We did not find or know of any conflicts with local policies or ordinances protecting biological resources such as a tree preservation policy or ordinance. We did not find or know of any conflicts with an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan. No sensitive habitats such as creeks, streams, wetlands, or riparian vegetation were observed on or adjacent to the project site.

12. Conclusions

Sensitive wildlife, plants, or habitats such as riparian vegetation, creeks, streams, or wetlands do not occur on or adjacent to the project site. Habitats for sensitive species (such as vernal pools and vernal swales, livestock ponds without fishes, alkaline soils, adobe-heavy clay soils, hardpan soils, rocky cliffs, alkali sink scrub habitat, valley saltbush scrub habitat, caves, rock cliffs, grasslands with rolling hills, large nesting trees, cottonwood forests, riparian habitat, lakes, ponds with thick and lush cattail vegetation, marshes, swamps, creeks, sloughs, or rivers) do not occur on or adjacent to the project site, and thus the species do not occur on the project site. Thus, negative or adverse significant impacts will not occur to sensitive species, sensitive habitats, or biological resources due to the project. We further conclude that none of the Significance Criteria noted in Section 6 regarding fish, wildlife, or habitats will occur.

Upon preparing the environmental documents for the project, the "no impact" boxes can be checked for biological resources as sensitive wildlife, plants, and habitats including riparian and wetlands will not be negatively affected by the project. Also, the project will not interfere with animal movements or migrations, their movement corridors, or impede the use of native wildlife nursery sites, conflict with local ordinances or policies protecting biological resources, or

conflict with habitat or natural community conservation plans. Thus, no significant negative impacts and none of the Significance Criteria as noted in Section 6 will occur to biological resources by construction of the project.

13. Recommendations

To comply with the California Environmental Quality Act, prepare a Negative Declaration or EIR for the project that shows no significant negative or adverse impacts will occur to biological resources.

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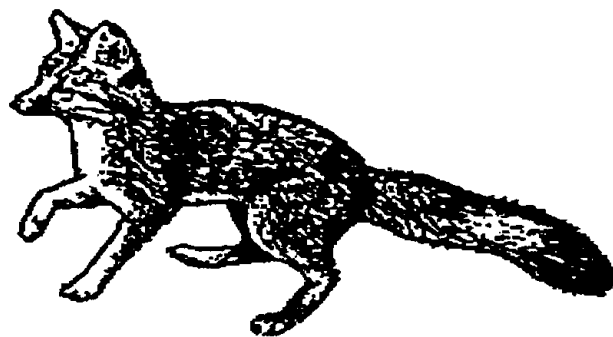
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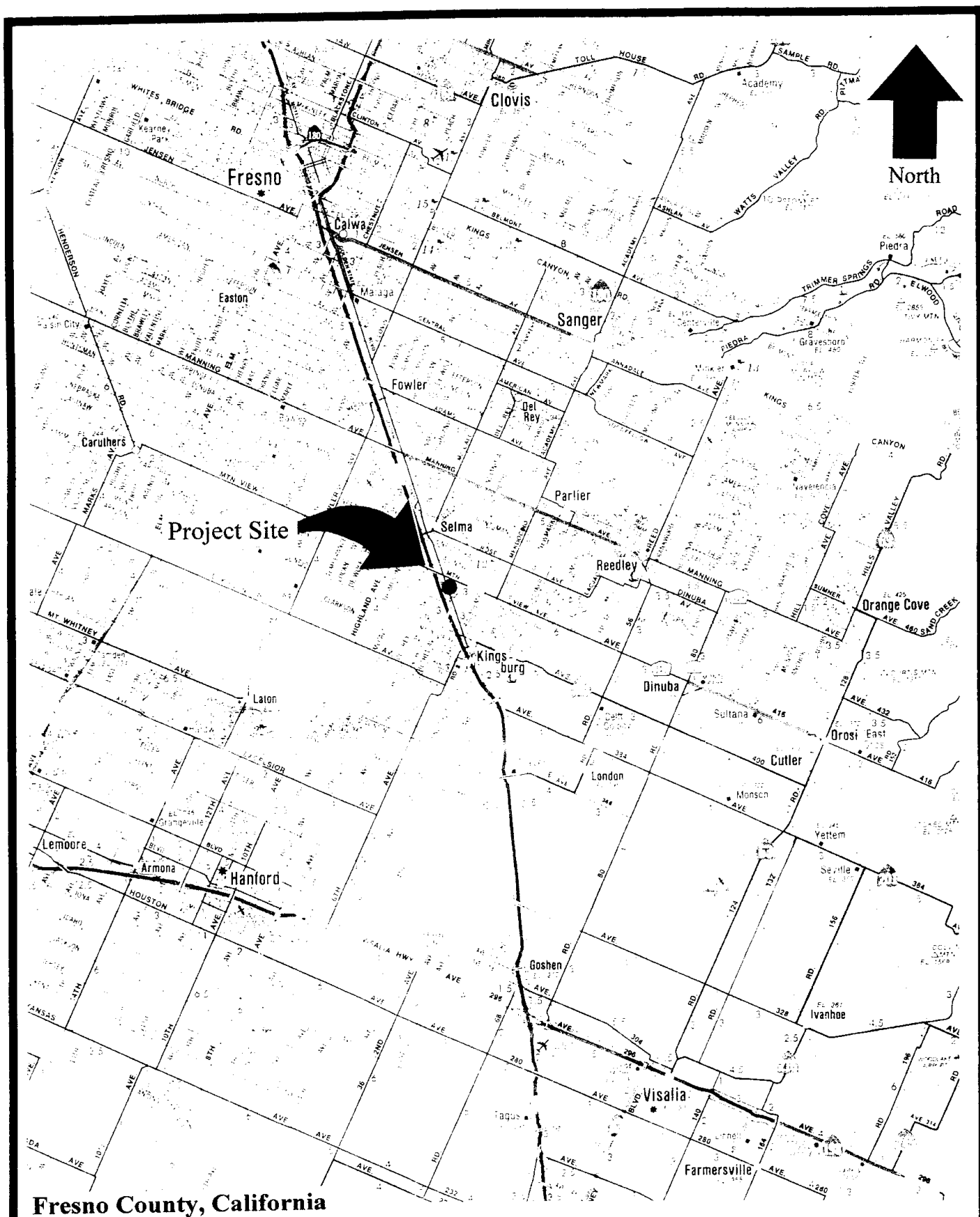
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APPENDIX A

Project Location Maps



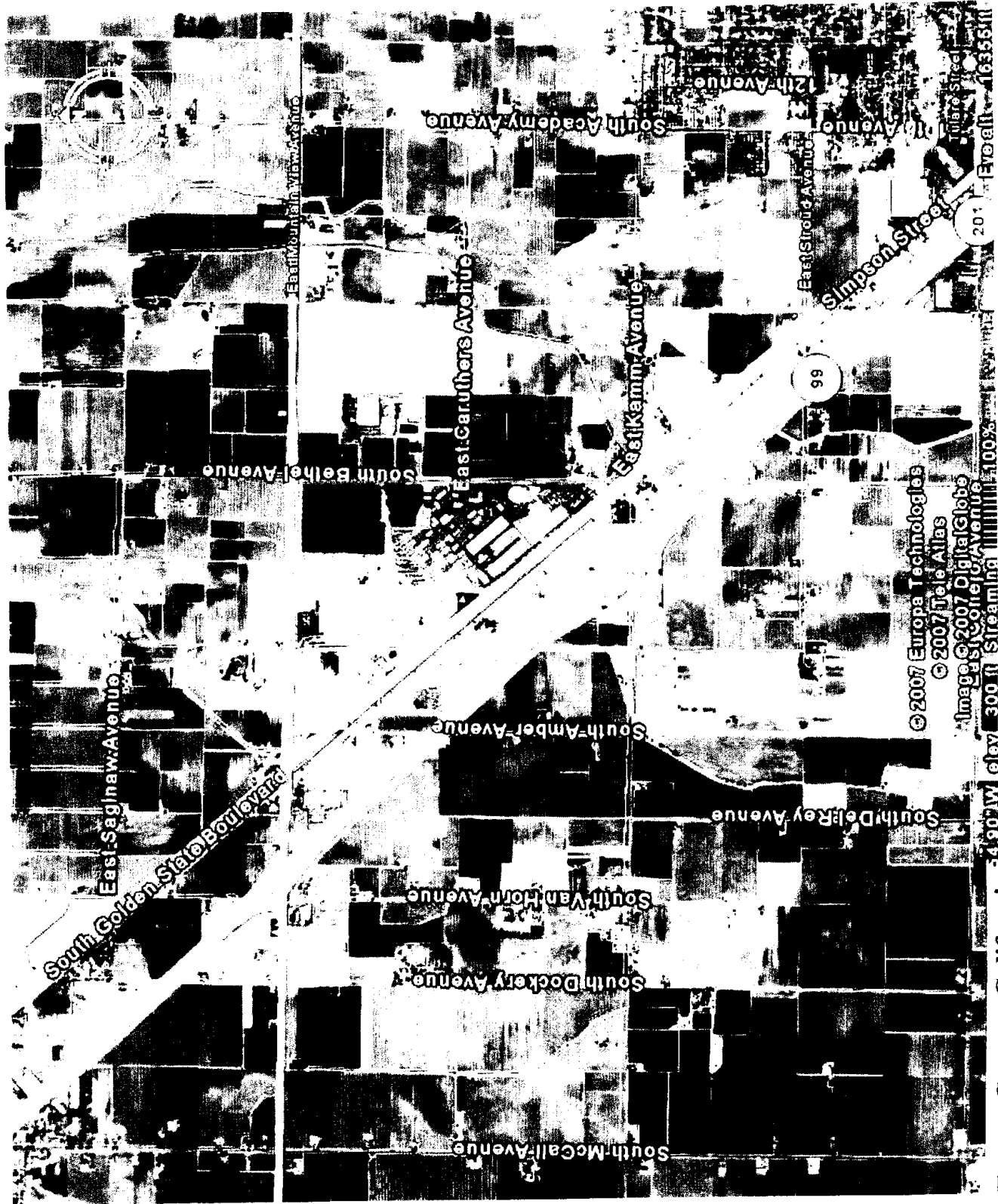


HALSTEAD & ASSOCIATES
 Endangered Species / Environmental Consultants
 296 Burgan Avenue, Clovis, CA 93611



Project Site





Fresno County, California

HALSTEAD & ASSOCIATES
Endangered Species / Environmental Consultants
296 Burgan Avenue, Clovis, CA 93611

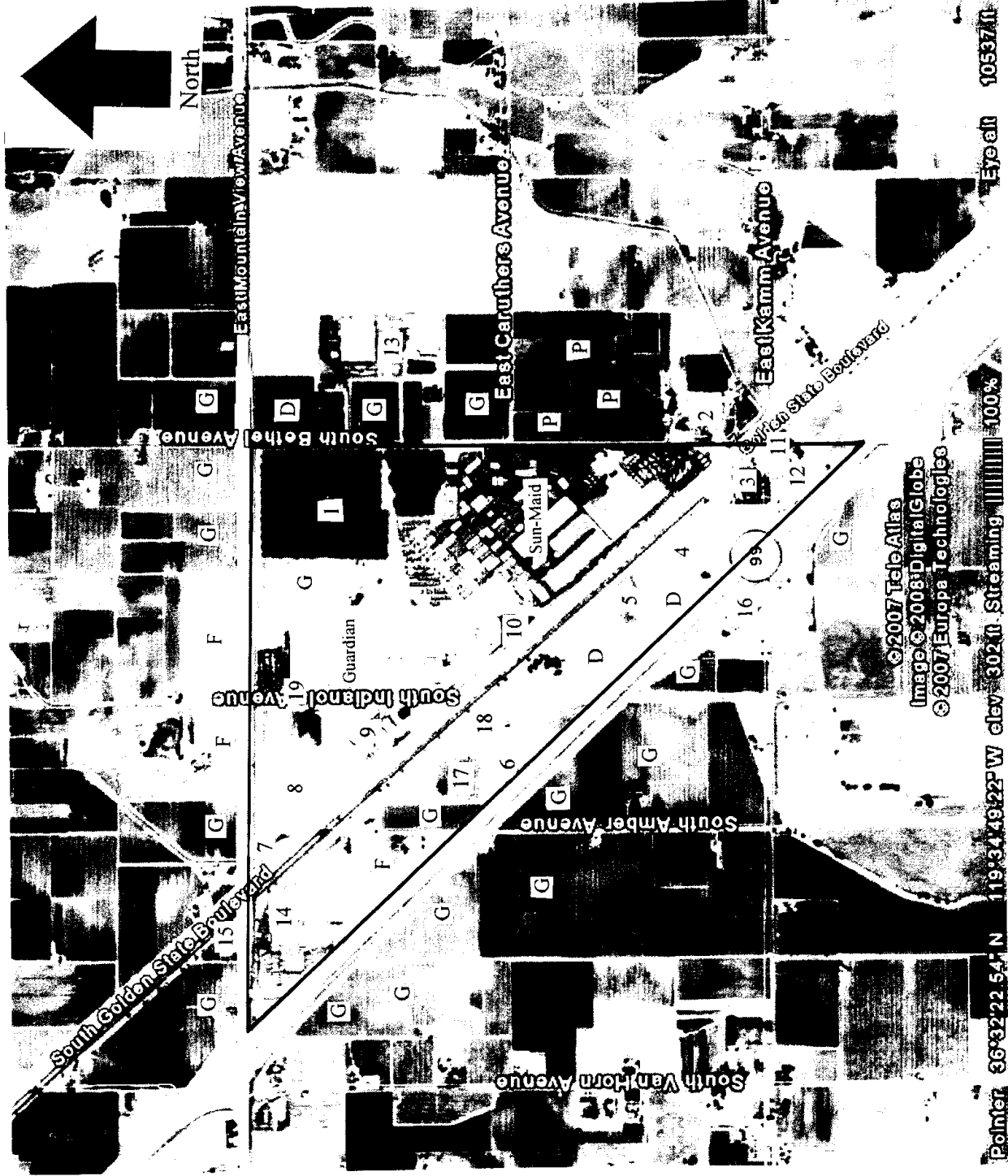


Project Site

APPENDIX B

Habitat and Soil Maps





HALSTEAD & ASSOCIATES
 Endangered Species / Environmental Consultants
 296 Burgan Avenue, Clovis, CA 93611



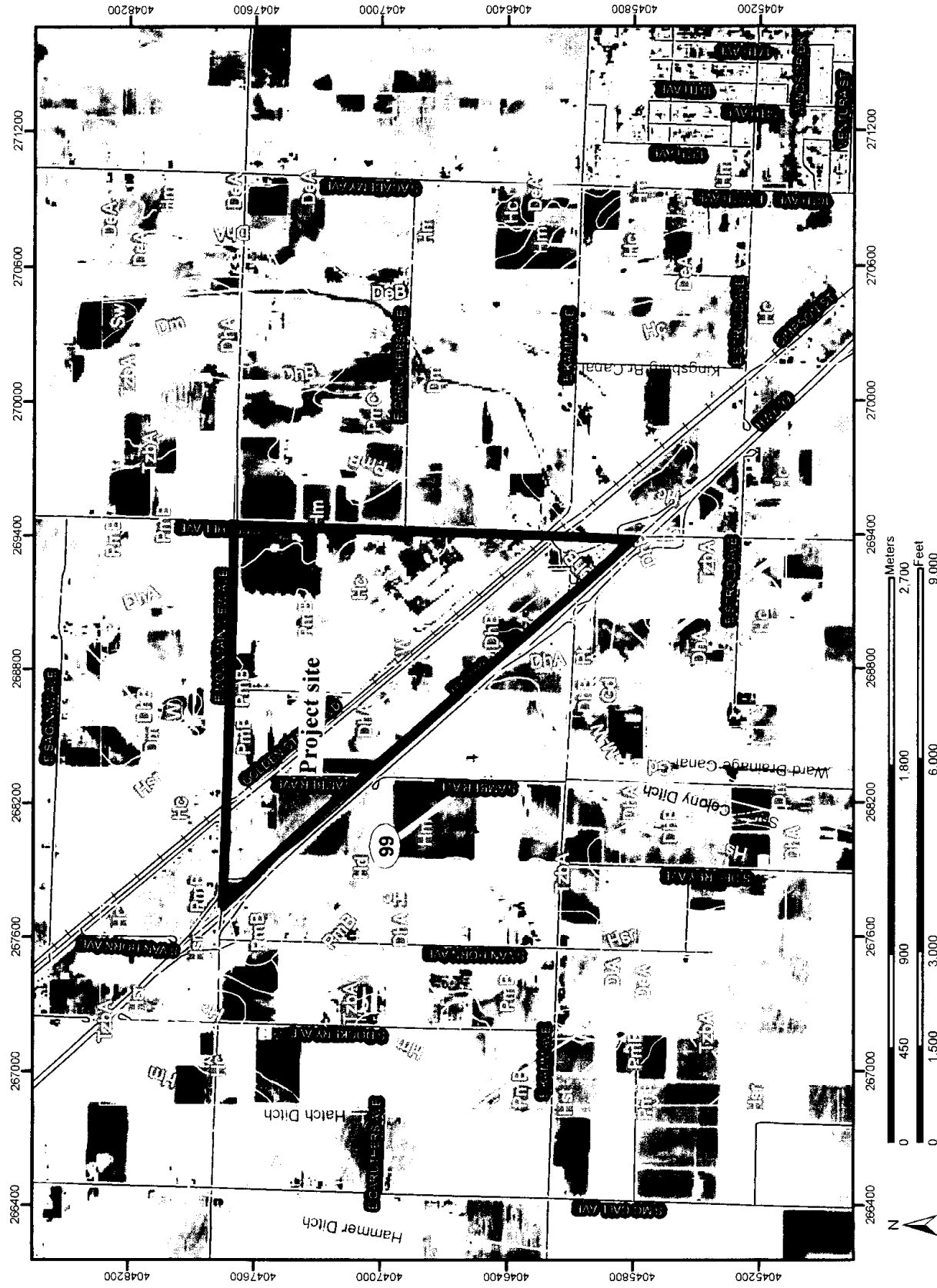
Habitat Map

HABITAT MAP LEGEND

F - Fallow/leveled and previously disced
P - Plum Orchards

G - Grapes
D - Disced

- 1 - Wheat field/water disposal field
- 2 - Vacant field with house and barn
- 3 - RV park
- 4 - Storage buildings
- 5 - Construction building
- 6 - Lumber yard and cell phone tower
- 7 - Recycling center
- 8 - Water disposal field
- 9 - Winery
- 10 - Kingsburg Cogeneration facility/water catch basin
- 11 - Personal vehicle storage area
- 12 - Disced field with piles of dead trees
- 13 - Auto wrecking/dismantling site
- 14 - Swap meet/public scale
- 15 - Bridgestone oil and tire/low income apartments
- 16 - Kingsburg truck center
- 17 - Warehouse
- 18 - Construction/packaging buildings
- 19 - Clump of Elderberry bushes



Map Unit Legend

Eastern Fresno Area, California (CA654)			
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
DeA	Delhi sand, 0 to 3 percent slopes	53.6	1.5%
DeB	Delhi sand, 3 to 9 percent slopes	162.7	4.6%
DhA	Delhi loamy sand, 0 to 3 percent slopes	753.8	21.2%
DhB	Delhi loamy sand, 3 to 9 percent slopes	193.0	5.4%
DIA	Delhi loamy sand, moderately deep, 0 to 3 percent slopes	25.5	0.7%
Dm	Dello loamy sand	226.9	6.4%
Gd	Grangeville sandy loam, saline alkali	32.4	0.9%
Hc	Hanford sandy loam	294.5	8.3%
Hd	Hanford sandy loam, benches	4.1	0.1%
Hm	Hanford fine sandy loam	1,182.6	33.3%
Hsr	Hesperia fine sandy loam	181.0	5.1%
Hst	Hesperia fine sandy loam moderately deep	3.3	0.1%
M-W	Miscellaneous water	33.5	0.9%
Pk	Pits	8.6	0.2%
PmB	Pollasky sandy loam, 2 to 9 percent slopes	269.6	7.6%
PmC	Pollasky sandy loam, 9 to 15 percent slopes	14.1	0.4%
Sw	Swamp	4.9	0.1%
TzbA	Tujunga loamy sand, 0 to 3 percent slopes	103.6	2.9%
W	Water	3.3	0.1%
Totals for Area of Interest (AOI)		3,550.9	100.0%

MAP LEGEND

Area of Interest (AOI)		
Area of Interest (AOI)		
Soils		
Soil Map Units		
Special Point Features		
	Blowout	
	Borrow Pit	
	Clay Spot	
	Closed Depression	
	Gravel Pit	
	Gravelly Spot	
	Landfill	
	Lava Flow	
	Marsh	
	Mine or Quarry	
	Miscellaneous Water	
	Perennial Water	
	Rock Outcrop	
	Saline Spot	
	Sandy Spot	
	Severely Eroded Spot	
	Sinkhole	
	Slide or Slip	
	Sodic Spot	
	Spoil Area	
	Stony Spot	
Special Line Features		
	Gully	
	Short Sleep Slope	
	Other	
Political Features		
Municipalities		
	Cities	
	Urban Areas	
Water Features		
	Oceans	
	Streams and Canals	
Transportation		
	Rails	
Roads		
	Interstate Highways	
	US Routes	
	State Highways	
	Local Roads	
	Other Roads	

MAP INFORMATION

Original soil survey map sheets were prepared at publication scale. Viewing scale and printing scale, however, may vary from the original. Please rely on the bar scale on each map sheet for proper map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: <http://websoilsurvey.nrcs.usda.gov>
Coordinate System: UTM Zone 11N

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Eastern Fresno Area, California
Survey Area Data: Version 3, Jan 10, 2007

Date(s) aerial images were photographed: 8/17/1998

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

APPENDIX C

Natural Diversity Data Base Search

Selma Quadrangle Map



**CNDDDB Records do not Exist
for Sensitive Species or Habitats
in the Selma Quadrangle Map**

APPENDIX D

Natural Diversity Data Base Search

Eight Surrounding Quadrangle Maps



California Department of Fish and Game
Natural Diversity Database
Selected Elements by Common Name - Portrait
8 Surrounding Quads

Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
1 Antioch efferian robberfly <i>Efferia antiochi</i>	IIDIP07010			G1G3	S1S3	
2 California jewel-flower <i>Caulanthus californicus</i>	PDBRA31010	Endangered	Endangered	G1	S1.1	1B.1
3 California satintail <i>Imperata brevifolia</i>	PMPOA3D020			G2	S2.1	2.1
4 California tiger salamander <i>Ambystoma californiense</i>	AAAAA01180	Threatened		G2G3	S2S3	SC
5 Earlimart orache <i>Atriplex erecticaulis</i>	PDCHE042V0			G2	S2.2	1B.2
6 Great Valley Mixed Riparian Forest	CTT61420CA			G2	S2.2	
7 Greene's tuctoria <i>Tuctoria greenei</i>	PMPOA6N010	Endangered	Rare	G2	S2.2	1B.1
8 Hurd's metapogon robberfly <i>Metapogon hurdi</i>	IIDIP08010			G1G3	S1S3	
9 Northern Claypan Vernal Pool	CTT44120CA			G1	S1.1	
10 San Joaquin Valley orcutt grass <i>Orcuttia inaequalis</i>	PMPOA4G060	Threatened	Endangered	G2	S2.1	1B.1
11 San Joaquin adobe sunburst <i>Pseudobahia peirsonii</i>	PDAST7P030	Threatened	Endangered	G2	S2.1	1B.1
12 San Joaquin kit fox <i>Vulpes macrotis mutica</i>	AMAJA03041	Endangered	Threatened	G4T2T3	S2S3	
13 Swainson's hawk <i>Buteo swainsoni</i>	ABNKC19070		Threatened	G5	S2	
14 Valley Sacaton Grassland	CTT42120CA			G1	S1.1	
15 brittlescale <i>Atriplex depressa</i>	PDCHE042L0			G2Q	S2.2	1B.2
16 burrowing owl <i>Athene cunicularia</i>	ABNSB10010			G4	S2	SC
17 caper-fruited tropidocarpum <i>Tropidocarpum capparideum</i>	PDBRA2R010			G1	S1.1	1B.1
18 hoary bat <i>Lasiurus cinereus</i>	AMACC05030			G5	S4?	SC
19 lesser saltscale <i>Atriplex minuscula</i>	PDCHE042M0			G1	S1.1	1B.1
20 molestan blister beetle <i>Lytta molesta</i>	IICOL4C030			G2	S2	
21 pallid bat <i>Antrozous pallidus</i>	AMACC10010			G5	S3	SC
22 valley elderberry longhorn beetle <i>Desmocerus californicus dimorphus</i>	IICOL48011	Threatened		G3T2	S2	
23 vernal pool fairy shrimp <i>Branchinecta lynchi</i>	ICBRA03030	Threatened		G3	S2S3	
24 vernal pool tadpole shrimp <i>Lepidurus packardii</i>	ICBRA10010	Endangered		G3	S2S3	
25 western mastiff bat <i>Eumops perotis californicus</i>	AMACD02011			G5T4	S3?	SC

California Department of Fish and Game
Natural Diversity Database
Selected Elements by Common Name - Portrait
8 Surrounding Quads

Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
26 western pond turtle <i>Actinemys marmorata</i>	ARAAD02030			G3G4	S3	SC
27 western spadefoot <i>Spea hammondi</i>	AAABF02020			G3	S3	SC
28 western yellow-billed cuckoo <i>Coccyzus americanus occidentalis</i>	ABNRB02022	Candidate	Endangered	G5T2	S1	

Actinemys marmorata

western pond turtle

Element Code: ARAAD02030

Status

NDDB Element Ranks

Other Lists

Federal: None

Global: G3G4

CDFG Status: SC

State: None

State: S3

Habitat Associations

General: A THOROUGHLY AQUATIC TURTLE OF PONDS, MARSHES, RIVERS, STREAMS & IRRIGATION DITCHES WITH AQUATIC VEGETATION.

Micro: NEED BASKING SITES AND SUITABLE (SANDY BANKS OR GRASSY OPEN FIELDS) UPLAND HABITAT FOR EGG-LAYING.

Occurrence No. 24

Map Index: 32783

EO Index: 17488

Dates Last Seen

Occ Rank: Unknown

Element: XXXX-XX-XX

Origin: Natural/Native occurrence

Site: XXXX-XX-XX

Presence: Presumed Extant

Record Last Updated: 1996-01-29

Trend: Unknown

Quad Summary: Orange Cove North (3611963/356A), Wahtoke (3611964/356B), Pine Flat Dam (3611973/377D)

County Summary: Fresno

Lat/Long: 36.73507° / -119.37380°

Township: 14S

UTM: Zone-11 N4068110 E288040

Range: 24E

Area: 172.5 acres

Mapping Precision: SPECIFIC

Section: 04

Qtr: XX

Elevation: 500 ft

Symbol Type: POLYGON

Meridian: M

Location: WAHTOKE CREEK, CLARKS VALLEY, NORTH OF HIGHWAY 180; NORTHWEST OF KAKTUS KORNER.

General: COLLECTION MADE BY R.W. HANSEN. DATE AND NUMBER OF SPECIMENS OBSERVED UNKNOWN.

Owner/Manager: UNKNOWN

Ambystoma californiense

California tiger salamander

Element Code: AAAAA01180

Status

Federal: Threatened

State: None

NDDB Element Ranks

Global: G2G3

State: S2S3

Other Lists

CDFG Status: SC

Habitat Associations

General: CENTRAL VALLEY DPS LISTED AS THREATENED. SANTA BARBARA & SONOMA COUNTIES DPS LISTED AS ENDANGERED.

Micro: NEED UNDERGROUND REFUGES, ESPECIALLY GROUND SQUIRREL BURROWS & VERNAL POOLS OR OTHER SEASONAL WATER SOURCES FOR BREEDING

Occurrence No. 221 Map Index: 25586 EO Index: 5485 Dates Last Seen
Occ Rank: Unknown Element: 1991-04-17
Origin: Natural/Native occurrence Site: 1991-04-17
Presence: Presumed Extant
Trend: Unknown Record Last Updated: 1996-01-03

Quad Summary: Wahtoke (3611964/356B)

County Summary: Fresno

Lat/Long: 36.72154° / -119.39646° Township: 14S
UTM: Zone-11 N4066659 E285979 Range: 24E
Radius: 1/5 mile Mapping Precision: NON-SPECIFIC Section: 07 Qtr: SE
Elevation: 500 ft Symbol Type: POINT Meridian: M

Location: ALONG THE NORTH SIDE OF HWY 180, 7.7 MILES WEST HWY 63, AT THE BASE OF JESSE MORROW MOUNTAIN.

Location Detail: CTS FOUND 500 FEET NORTH OF HWY 180.

General: SHAFFER SITE #124. CTS PRESENT ON 17 APRIL 1991; NUMBER AND LIFESTAGE UNKNOWN.

Owner/Manager: UNKNOWN

Occurrence No. 354 Map Index: 32736 EO Index: 17489 Dates Last Seen
Occ Rank: Unknown Element: 1992-02-22
Origin: Natural/Native occurrence Site: 1992-02-22
Presence: Presumed Extant
Trend: Unknown Record Last Updated: 1996-01-29

Quad Summary: Traver (3611944/334B)

County Summary: Tulare

Lat/Long: 36.43500° / -119.39832° Township: 17S
UTM: Zone-11 N4034871 E285019 Range: 24E
Radius: 80 meters Mapping Precision: SPECIFIC Section: 20 Qtr: SW
Elevation: 285 ft Symbol Type: POINT Meridian: M

Location: ESE OF TRAVER; NEAR TULARE COUNTY LANDFILL; 0.4 KM NW OF ROAD 80 X COTTONWOOD CREEK.

Location Detail: HARRELL PROPERTY.

Ecological: POOL ABOUT LEVEL, JUST NORTHWEST OF LARGEST VERNAL POOL ON SITE.

Threat: GRAZING AND PROPOSED LAND CONVERSION.

General: SPECIES OBSERVED AT SITE BY R. HANSEN; BRANCHINECTA LYNCHI ALSO OBSERVED NEAR SITE.

Owner/Manager: PVT-HARRELL

Occurrence No. 522 Map Index: 44980 EO Index: 44980 Dates Last Seen
Occ Rank: Good Element: 1999-03-01
Origin: Natural/Native occurrence Site: 1999-03-01
Presence: Presumed Extant
Trend: Unknown Record Last Updated: 2001-02-28

Quad Summary: Burris Park (3611945/335A)

County Summary: Kings

Lat/Long: 36.37793° / -119.50895° Township: 18S
UTM: Zone-11 N4028791 E274936 Range: 23E
Radius: 80 meters Mapping Precision: SPECIFIC Section: 08 Qtr: W
Elevation: 260 ft Symbol Type: POINT Meridian: M

Location: WEST SIDE OF CROSS CREEK, 1.3 MILES SOUTH OF SETTLERS DITCH, NW OF VISALIA

Ecological: HABITAT CONSISTS OF NON-NATIVE ANNUAL GRASSLAND W/ VERNAL POOLS; GRASSLAND TO THE SOUTH & EAST, FARMLAND TO THE NORTH & WEST. SCAPHIOPUS HAMMONDI, BRANCHINECTA LYNCHI, LEPIDURUS PACKARDI, & ATHENE CUNICULARIA FOUND IN THE VICINITY.

Threat: POSSIBLE THREAT OF DEVELOPMENT ON SURROUNDING FARMLAND.

General: SEVERAL EGG MASSES OBSERVED ON 1 MAR 1999.

Owner/Manager: PVT

Ambystoma californiense

California tiger salamander

Element Code: AAAAA01180

Status

NODB Element Ranks

Other Lists

Federal: Threatened

Global: G2G3

CDFG Status: SC

State: None

State: S2S3

Habitat Associations

General: CENTRAL VALLEY DPS LISTED AS THREATENED. SANTA BARBARA & SONOMA COUNTIES DPS LISTED AS ENDANGERED.

Micro: NEED UNDERGROUND REFUGES, ESPECIALLY GROUND SQUIRREL BURROWS & VERNAL POOLS OR OTHER SEASONAL WATER SOURCES FOR BREEDING

Occurrence No. 583

Map Index: 46277

EO Index: 46277

Dates Last Seen

Occ Rank: None

Element: 1936-05-16

Origin: Natural/Native occurrence

Site: 1936-05-16

Presence: Extirpated

Trend: Unknown

Record Last Updated: 2002-08-20

Quad Summary: Malaga (3611966/357B), Clovis (3611976/378C), Fresno South (3611967/358A), Fresno North (3611977/379D)

County Summary: Fresno

Lat/Long: 36.77388° / -119.77951°

UTM: Zone-11 N4073392 E251931

Radius: 5 mile

Elevation: 300 ft

Township: 13S

Range: 20E

Section: 27

Qtr: XX

Mapping Precision: NON-SPECIFIC

Symbol Type: POINT

Meridian: M

Location: FRESNO

General: 1879 RECORD FROM THE USNM (#11794). NO OTHER INFORMATION GIVEN. CORNELL UNIVERSITY MUSEUM OF VERTEBRATES # 3017 (2 SPECIMENS) COLLECTED 16 MAY 1936 BY L.F. HADSELL. JENNINGS CONSIDERS THIS SITE EXTIRPATED.

Owner/Manager: UNKNOWN

Occurrence No. 612

Map Index: 46426

EO Index: 46426

Dates Last Seen

Occ Rank: None

Element: XXXX-XX-XX

Origin: Natural/Native occurrence

Site: XXXX-XX-XX

Presence: Extirpated

Trend: Unknown

Record Last Updated: 2001-11-07

Quad Summary: Burris Park (3611945/335A)

County Summary: Kings

Lat/Long: 36.47325° / -119.54682°

UTM: Zone-11 N4039456 E271818

Radius: 1 mile

Elevation: 275 ft

Township: 17S

Range: 22E

Section: 11

Qtr: XX

Mapping Precision: NON-SPECIFIC

Symbol Type: POINT

Meridian: M

Location: LOCATION GIVEN ONLY AS KINGS RIVER BELOW KINGSBURG IN KINGS COUNTY.

General: COLLECTION / OBSERVATION SOMETIME BEFORE 1925. JENNINGS CONSIDERS THIS SITE EXTIRPATED.

Owner/Manager: UNKNOWN

Antrozous pallidus

pallid bat

Status		NDDB Element Ranks	Element Code: AMACC10010	Other Lists
Federal: None		Global: G5		
State: None		State: S3		CDFG Status: SC

Habitat Associations

General: DESERTS, GRASSLANDS, SHRUBLANDS, WOODLANDS & FORESTS. MOST COMMON IN OPEN, DRY HABITATS WITH ROCKY AREAS FOR ROOSTING.
Micro: ROOSTS MUST PROTECT BATS FROM HIGH TEMPERATURES. VERY SENSITIVE TO DISTURBANCE OF ROOSTING SITES.

Occurrence No. 75	Map Index: 50366	EO Index: 50366	Dates Last Seen
Occ Rank: Good			Element: 2001-10-17
Origin: Natural/Native occurrence			Site: 2001-10-17
Presence: Presumed Extant			
Trend: Unknown			Record Last Updated: 2003-03-03

Quad Summary: Reedley (3611954/356C)

County Summary: Tulare

Lat/Long: 36.54668° / -119.48725°	Township: 16S
UTM: Zone-11 N4047464 E277366	Range: 23E
Radius: 80 meters	Section: 08
Elevation: 300 ft	Meridian: M
Mapping Precision: SPECIFIC	Qtr: XX
Symbol Type: POINT	

Location: MOUNTAIN VIEW AVENUE CROSSING OVER THE KINGS RIVER, 3.5 MILES SW OF REEDLEY

Ecological: HABITAT CONSISTS OF GREAT VALLEY MIXED RIPARIAN SURROUNDING THE BRIDGE WHICH SERVES AS A ROOST.

Threat: THREATENED BY BRIDGE EXPANSION OR REPLACEMENT.

General: PRE-DISPERSAL MATERNITY ROOST; ~80 ADULTS AND ~40 JUVENILES OBSERVED ON 17 OCT 2001. A LARGE (<1000) TADIRIDA BRASILLIENSIS COLONY IS ALSO PRESNT, ALONG WITH MYOTIS THYSANODES AND MYOTIS YUMANENSIS.

Owner/Manager: TUL COUNTY

Athene cunicularia

burrowing owl

Status _____ Element Code: ABNSB10010
Federal: None NDDB Element Ranks Other Lists
State: None Global: G4 CDFG Status: SC
State: S2

Habitat Associations

General: OPEN, DRY ANNUAL OR PERENIAL GRASSLANDS, DESERTS & SCRUBLANDS CHARACTERIZED BY LOW-GROWING VEGETATION.
Micro: SUBTERRANEAN NESTER, DEPENDENT UPON BURROWING MAMMALS, MOST NOTABLY, THE CALIFORNIA GROUND SQUIRREL.

Occurrence No. 310 Map Index: 40396 EO Index: 35403 Dates Last Seen
Occ Rank: Fair Element: 1998-04-10
Origin: Natural/Native occurrence Site: 1998-04-10
Presence: Presumed Extant
Trend: Unknown Record Last Updated: 1998-12-16

Quad Summary: Traver (3611944/334B)
County Summary: Tulare

Lat/Long: 36.40371° / -119.43657° Township: 17S
UTM: Zone-11 N4031485 E281502 Range: 23E
Area: Mapping Precision: NON-SPECIFIC Section: 99 Qtr: SE
Elevation: 280 ft Symbol Type: POLYGON Meridian: X

Location: SOUTH OF CROSS CREEK, 0.75 MILE NE OF HWY 99, 4.5 MILES SE OF TRAVER.
Ecological: HABITAT CONSISTS OF NON-NATIVE ANNUAL GRASSLAND WITH VERNAL POOLS. LEPIDURUS PACKARDI ALSO OCCURS IN THE VICINITY.
AGRICULTURE TO SOUTH AND EAST.
Threat: THREATENED BY AGRICULTURAL CONVERSION.
General: UNKNOWN NUMBER OF OWLS OBSERVED ON 10 APRIL 1998.
Owner/Manager: PVT

Occurrence No. 396 Map Index: 44977 EO Index: 44977 Dates Last Seen
Occ Rank: Good Element: 2000-02-XX
Origin: Natural/Native occurrence Site: 2000-02-XX
Presence: Presumed Extant
Trend: Unknown Record Last Updated: 2001-02-28

Quad Summary: Traver (3611944/334B)
County Summary: Kings

Lat/Long: 36.39997° / -119.48511° Township: 18S
UTM: Zone-11 N4031181 E277138 Range: 23E
Radius: 80 meters Mapping Precision: SPECIFIC Section: 99 Qtr: NW
Elevation: 266 ft Symbol Type: POINT Meridian: X

Location: BETWEEN CROSS CREEK AND SETTLERS DITCH, 12 MILES NW OF VISALIA
Ecological: HABITAT CONSISTS OF NON-NATIVE ANNUAL GRASSLAND WITH VERNAL POOLS; SURROUNDED BY GRASSLAND TO THE NORTH AND EAST,
FARMLAND TO THE SOUTH AND WEST.
Threat: POSSIBLE THREAT OF DEVELOPMENT ON SURROUNDING FARMLAND.
General: 2 ADULTS OBSERVED AT THE BURROW SITE DURING FEB 2000.
Owner/Manager: PVT

Occurrence No. 397 Map Index: 44978 EO Index: 44978 Dates Last Seen
Occ Rank: Good Element: 1999-03-01
Origin: Natural/Native occurrence Site: 1999-03-01
Presence: Presumed Extant
Trend: Unknown Record Last Updated: 2001-02-28

Quad Summary: Burris Park (3611945/335A)
County Summary: Kings

Lat/Long: 36.38209° / -119.50860° Township: 18S
UTM: Zone-11 N4029252 E274980 Range: 23E
Radius: 80 meters Mapping Precision: SPECIFIC Section: 08 Qtr: W
Elevation: 260 ft Symbol Type: POINT Meridian: M

Location: WEST SIDE OF CROSS CREEK, 1 MILE SOUTH OF SETTLERS DITCH, NW OF VISALIA
Ecological: HABITAT CONSISTS OF NON-NATIVE ANNUAL GRASSLAND WITH VERNAL POOLS; SURROUNDED BY GRASSLAND TO THE SOUTH AND EAST,
FARMLAND TO THE NORTH AND WEST.
Threat: POSSIBLE THREAT OF DEVELOPMENT ON SURROUNDING FARMLAND.
General: 4 ADULTS OBSERVED AT THE BURROW SITE ON 1 MAR 1999.
Owner/Manager: PVT

Athene cunicularia

burrowing owl

Element Code: ABNSB10010

Status	NDDB Element Ranks	Other Lists
Federal: None	Global: G4	CDFG Status: SC
State: None	State: S2	

Habitat Associations

General: OPEN, DRY ANNUAL OR PERENIAL GRASSLANDS, DESERTS & SCRUBLANDS CHARACTERIZED BY LOW-GROWING VEGETATION.
Micro: SUBTERRANEAN NESTER, DEPENDENT UPON BURROWING MAMMALS, MOST NOTABLY, THE CALIFORNIA GROUND SQUIRREL.

Occurrence No. 768	Map Index: 64119	EO Index: 64214	— Dates Last Seen —
Occ Rank: Unknown			Element: 2006-02-02
Origin: Natural/Native occurrence			Site: 2006-02-02
Presence: Presumed Extant			
Trend: Unknown			Record Last Updated: 2006-11-30

Quad Summary: Reedley (3611954/356C)
County Summary: Tulare

Lat/Long: 36.53747° / -119.42102°	Township: 16S
UTM: Zone-11 N4046292 E283269	Range: 23E
Radius: 80 meters	Section: 13 Qtr: SE
Elevation: 325 ft	Meridian: M

Mapping Precision: SPECIFIC
Symbol Type: POINT

Location: 0.1 MILE SOUTH OF AVENUE 412 AND 0.4 MILE EAST OF SAND RIDGE AQUEDUCT, SW OF DINUBA.
Location Detail: MAPPED IN NW1/4 OF SE1/4 SEC 13.
Ecological: HABITAT CONSISTS OF A FALLOW VINEYARD, WHERE THE VINES HAVE BEEN REMOVED WITHIN THE PAST 5 YEARS. SITE CONTAINS MANY GROUND SQUIRREL BURROWS.
Threat: THREATENED BY DISCING, AGRICULTURE, AND URBAN DEVELOPMENT.
General: 2 ADULTS OBSERVED AT A BURROW SITE ON 2 FEB 2006.
Owner/Manager: CITY OF DINUBA

Atriplex depressa

brittlescale

Element Code: PDCHE042L0

Status
Federal: None
State: None

NODB Element Ranks
Global: G2Q
State: S2.2

Other Lists
CNPS List: 1B.2

Habitat Associations

General: CHENOPOD SCRUB, MEADOWS, PLAYAS, VALLEY AND FOOTHILL GRASSLAND, VERNAL POOLS.

Micro: USUALLY IN ALKALI SCALDS OR ALK. CLAY IN MEADOWS OR ANNUAL GRASSLAND; RARELY ASSOC W/RIPARIAN, MARSHES, OR V.P.S. 1-320M.

Occurrence No. 13

Map Index: 24422

EO Index: 7077

Dates Last Seen

Occ Rank: Unknown

Element: XXXX-XX-XX

Origin: Natural/Native occurrence

Site: XXXX-XX-XX

Presence: Presumed Extant

Record Last Updated: 1993-10-21

Trend: Unknown

Quad Summary: Laton (3611946/335B)

County Summary: Kings, Fresno

Lat/Long: 36.43517° / -119.68881°

Township: 17S

UTM: Zone-11 N4035577 E258975

Range: 21E

Radius: 3/5 mile

Mapping Precision: NON-SPECIFIC

Section: 22

Qtr: SW

Elevation: 250 ft

Symbol Type: POINT

Meridian: M

Location: LATON.

General: BASED ON COLLECTION BY T.H. KEARNEY #33 US. NO DATE GIVEN.

Owner/Manager: UNKNOWN

Atriplex erecticaulis			
Earlmarl orache		Element Code: PDCHE042V0	
Status Federal: None State: None		NDDB Element Ranks Global: G2 State: S2.2	Other Lists CNPS List: 1B.2
Habitat Associations General: VALLEY AND FOOTHILL GRASSLAND. Micro: 40-100M.			
Occurrence No. 16	Map Index: 47221	EO Index: 47221	Dates Last Seen Element: 2002-09-12 Site: 2002-09-12
Occ Rank: Fair Origin: Natural/Native occurrence Presence: Presumed Extant Trend: Unknown			Record Last Updated: 2006-10-04
Quad Summary: Traver (3611944/334B) County Summary: Tulare			
Lat/Long: 36.43975° / -119.39421°	UTM: Zone-11 N4035389 E285400	Township: 17S Range: 24E Section: 20 Meridian: M	Qtr: NE
Area: 13.0 acres	Mapping Precision: SPECIFIC	Symbol Type: POLYGON	
Elevation: 285 ft			
Location: 7 MILES NORTH OF GOSHEN ON EAST SIDE OF ROAD 80, N OF COTTONWOOD CREEK. Location Detail: FROM 0.0 TO 0.5 MILES SOUTH OF AVENUE 360. Ecological: IN DRAINAGE CHANNEL; DISTURBED AREAS IN ALKALI GRASSLAND WITH SUAEDA MOQUINII, DISTICHLIS SPICATA, CRESSA TRUXILLENSIS, CENTROMADIA PUNGENS, HELIOTROPIUM CURASSAVICUM, FRANKENIA SALINA, A. SERENANA, CYNODON DACTYLON & ANNUAL GRASSES. Threat: WIDENING OF ROAD 80. General: 1000'S OF PLANTS ESTIMATED IN 2000. 100'S OF PLANTS OBSERVED IN 2002; FEWER PLANTS PROBABLY DUE TO DROUGHT YEAR. ALKALI GRASSLAND IN THE VICINITY OF COTTONWOOD CREEK IS LIKELY SEED SOURCE. THE RARE A. MINUSCULA OBSERVED HERE IN 2000. Owner/Manager: UNKNOWN			

Atriplex minuscule

lesser saltscare

----- Status ----- Element Code: PDCHE042M0
Federal: None NDDDB Element Ranks Other Lists
State: None Global: G1
State: S1.1 CNPS List: 1B.1

Habitat Associations
General: CHENOPOD SCRUB, PLAYAS, VALLEY AND FOOTHILL GRASSLAND.
Micro: IN ALKALI SINK AND GRASSLAND IN SANDY, ALKALINE SOILS. 20-100M.

Occurrence No. 15 Map Index: 56417 EO Index: 56433 Dates Last Seen
Occ Rank: Fair Element: 2002-09-12
Origin: Natural/Native occurrence Site: 2002-09-12
Presence: Presumed Extant
Trend: Unknown Record Last Updated: 2006-11-16

Quad Summary: Traver (3611944/334B)
County Summary: Tulare

Lat/Long: 36.43866° / -119.39420° Township: 17S
UTM: Zone-11 N4035269 E285399 Range: 24E
Area: 4.2 acres Section: 20 Qtr: NE
Elevation: 285 ft Mapping Precision: SPECIFIC
Symbol Type: POLYGON Meridian: M

Location: 7 MILES NORTH OF GOSHEN, ALONG EAST SIDE OF ROAD 80, NORTH OF COTTONWOOD CREEK.
Location Detail: MAPPED WITHIN THE SW 1/4 OF THE NE 1/4 OF SECTION 20.
Ecological: ROADSIDE DRAINAGE.
Threat: PROPOSED ROAD WIDENING.
General: UNKNOWN NUMBER OF PLANTS IN 2000. IN 2002, PRESTON SAW 3 SMALL PATCHES OF A. MINUSCULA, EACH ABOUT 900 SQUARE FEET IN AREA. 1995 STUTZ COLLECTION FROM "5 MILES N OF GOSHEN" ALSO ATTRIBUTED TO THIS OCCURRENCE.
Owner/Manager: UNKNOWN

Occurrence No. 16 Map Index: 56419 EO Index: 56435 Dates Last Seen
Occ Rank: Good Element: 2000-07-10
Origin: Natural/Native occurrence Site: 2000-07-10
Presence: Presumed Extant
Trend: Unknown Record Last Updated: 2004-08-18

Quad Summary: Traver (3611944/334B)
County Summary: Tulare

Lat/Long: 36.45164° / -119.39394° Township: 17S
UTM: Zone-11 N4036708 E285458 Range: 24E
Area: 58.5 acres Section: 17 Qtr: E
Elevation: 290 ft Mapping Precision: SPECIFIC
Symbol Type: POLYGON Meridian: M

Location: ALONG ROAD 80 BETWEEN BANKS DITCH AND BUTTON DITCH, SOUTH OF DINUBA AND NORTH OF VISALIA.
Location Detail: MAPPED AT THE CENTER OF SECTION 17.
Ecological: ANNUAL GRASSLAND COMMUNITY WITH LOLIUM MULTIFLOURM, HORDEUM MARINUM SSP. GUSSONEANUM, HELIOTROPUM CURVASUM, CRESSA TRUXELLIENSIS, AND DISTICHLIS SPICATA. ALSO WITH CAPSELLA BURSA-PASTORIS, XANTHIUM STRUMARIUM, AND RUMEX CRISPUS.
Threat: ROAD WIDENING.
General: 200 PLANTS SEEN IN 2000. THE RARE ATRIPLEX CORDULATA OR A. ERECTICAULIS MAY ALSO OCCUR AT THIS SITE. NEEDS REVISIT.
Owner/Manager: UNKNOWN

Branchinecta lynchi

vernal pool fairy shrimp

Element Code: ICBRA03030

Status
Federal: Threatened
State: None

NDDB Element Ranks
Global: G3
State: S2S3

Other Lists
CDFG Status:

Habitat Associations
General: ENDEMIC TO THE GRASSLANDS OF THE CENTRAL VALLEY, CENTRAL COAST MTNS, AND SOUTH COAST MTNS, IN ASTATIC RAIN-FILLED POOLS.
Micro: INHABIT SMALL, CLEAR-WATER SANDSTONE-DEPRESSION POOLS AND GRASSED SWALE, EARTH SLUMP, OR BASALT-FLOW DEPRESSION POOLS.

Occurrence No. 11 Map Index: 33051 EO Index: 3692 **Dates Last Seen**
Occ Rank: Unknown Element: 1994-03-26
Origin: Natural/Native occurrence Site: 1994-03-26
Presence: Presumed Extant Record Last Updated: 1995-03-20
Trend: Unknown

Quad Summary: Wahtoke (3611964/356B)
County Summary: Fresno

Lat/Long: 36.72106° / -119.39216° Township: 14S
UTM: Zone-11 N4066597 E286362 Range: 24E
Radius: 1/5 mile Mapping Precision: NON-SPECIFIC Section: 08 Qtr: SW
Elevation: 470 ft Symbol Type: POINT Meridian: M

Location: JUST NW OF HWY 180 AND ALTA ROAD, ON THE SOUTH SLOPE OF JESSE MORROW MOUNTAIN, 6 MILES EAST OF CENTERVILLE.
Ecological: COLLECTION SITE WAS A POND.
General: COLLECTION #MW-94-01, DEPOSITED AT DFG-IFD.
Owner/Manager: UNKNOWN

Occurrence No. 110 Map Index: 32735 EO Index: 17486 **Dates Last Seen**
Occ Rank: Unknown Element: 1992-02-22
Origin: Natural/Native occurrence Site: 1992-02-22
Presence: Presumed Extant Record Last Updated: 1995-12-15
Trend: Unknown

Quad Summary: Traver (3611944/334B)
County Summary: Tulare

Lat/Long: 36.43500° / -119.39716° Township: 17S
UTM: Zone-11 N4034868 E285123 Range: 24E
Radius: 80 meters Mapping Precision: SPECIFIC Section: 20 Qtr: SW
Elevation: 285 ft Symbol Type: POINT Meridian: M

Location: ESE OF TRAVER; 0.4 KM NW OF ROAD 80 X COTTONWOOD CREEK.
Location Detail: HARRELL PROPERTY.
Ecological: NATURAL POOL (SALTGRASS); 12 INCHES DEEP AT GREATEST DEPTH, PH=6.5;
Threat: GRAZING (IN MIDST OF PRIME DAIRY DEVELOPMENT AREA); DEVELOPMENT (PROPOSAL FOR MODEL AIRCRAFT FIELD AS OF 1992).
General: 1 FEMALE (APPROX. 16MM IN LENGTH) OBSERVED BY R. HANSEN AND K. KIRKPATRICK; AMBYSTOMA CALIFORNIENSE OBSERVED NEAR SITE.
Owner/Manager: PVT-HARRELL

Occurrence No. 113 Map Index: 32752 EO Index: 18594 **Dates Last Seen**
Occ Rank: Good Element: 1993-01-09
Origin: Natural/Native occurrence Site: 1993-01-09
Presence: Presumed Extant Record Last Updated: 1996-01-29
Trend: Unknown

Quad Summary: Traver (3611944/334B)
County Summary: Tulare

Lat/Long: 36.41425° / -119.45597° Township: 17S
UTM: Zone-11 N4032699 E279792 Range: 23E
Area: 14.6 acres Mapping Precision: SPECIFIC Section: 35 Qtr: NW
Elevation: 270 ft Symbol Type: POLYGON Meridian: M

Location: SSE OF TRAVER; APPROX. 1.0 KM N OF HIGHWAY 99 X CROSS CREEK.
Ecological: POOL A: SLIGHT TURBIDITY, 10 X 30M. POOL B: SLIGHT TURBIDITY, 10 X 50M. POOL C: VERY TURBID, 10 X 50M. ALL POOLS 54 DEGREES FAHRENHEIT.
Threat: CURRENT LAND USE: CATTLE GRAZING; THREATS INCLUDE DEVELOPMENT OR HABITAT CONVERSION.
General: B. LYNCHI OBSERVED BY G. AND K. KIRKPATRICK, AND R. HANSEN.
Owner/Manager: PVT

Branchinecta lynchi

vernal pool fairy shrimp

Status	NDDB Element Ranks	Element Code: ICBRA03030
Federal: Threatened	Global: G3	Other Lists
State: None	State: S2S3	CDFG Status:

Habitat Associations

General: ENDEMIC TO THE GRASSLANDS OF THE CENTRAL VALLEY, CENTRAL COAST MTNS, AND SOUTH COAST MTNS, IN ASTATIC RAIN-FILLED POOLS.
Micro: INHABIT SMALL, CLEAR-WATER SANDSTONE-DEPRESSION POOLS AND GRASSED SWALE, EARTH SLUMP, OR BASALT-FLOW DEPRESSION POOLS.

Occurrence No. 206	Map Index: 41569	EO Index: 41569	Dates Last Seen
Occ Rank: Fair			Element: 1999-03-04
Origin: Natural/Native occurrence			Site: 1999-03-04
Presence: Presumed Extant			
Trend: Unknown			Record Last Updated: 1999-09-08

Quad Summary: Burris Park (3611945/335A)
County Summary: Kings

Lat/Long: 36.38153° / -119.50823°	Township: 18S
UTM: Zone-11 N4029189 E275011	Range: 23E
Radius: 80 meters	Section: 08
Elevation: 260 ft	Meridian: X
Mapping Precision: SPECIFIC	Qtr: NW
Symbol Type: POINT	

Location: 0.2 MILE WEST OF CROSS CREEK, 1.8 MILES SE OF JUNCTION OF 4TH AVENUE AND EXCELSIOR AVENUE, ~6 MILES SW OF BURRIS PARK.
Location Detail: VERNAL POOL(S) IN AREA "B". CURRENT LAND USE IS CATTLE GRAZING
Ecological: VERNAL POOLS IN NON-NATIVE GRASSLAND
Threat: DEVELOPMENT TO FARMLAND
General: 100'S OBSERVED IN COMBINATION OF THIS AND ONE IN AREA "A". COLLECTION DEPOSITED AT CAS.
Owner/Manager: PVT

Occurrence No. 207	Map Index: 41571	EO Index: 41571	Dates Last Seen
Occ Rank: Fair			Element: 1999-03-04
Origin: Natural/Native occurrence			Site: 1999-03-04
Presence: Presumed Extant			
Trend: Unknown			Record Last Updated: 1999-09-08

Quad Summary: Traver (3611944/334B)
County Summary: Kings

Lat/Long: 36.39624° / -119.48463°	Township: 18S
UTM: Zone-11 N4030766 E277171	Range: 23E
Radius: 80 meters	Section: 04
Elevation: 265 ft	Meridian: X
Mapping Precision: SPECIFIC	Qtr: N
Symbol Type: POINT	

Location: 0.2 MILE NORTH OF CROSS CREEK AND 1.65 WSW OF WHERE IT CROSSES HIGHWAY 99, 4 MILES SOUTH OF TRAVER.
Location Detail: VERNAL POOL(S) IN AREA "A". CURRENT LAND USE IS CATTLE GRAZING
Ecological: VERNAL POOLS IN NON-NATIVE GRASSLAND
Threat: CONVERSION TO FARMLAND
General: 100'S OBSERVED IN COMBINATION OF THIS AND ONE IN AREA "B". COLLECTION DEPOSITED AT CAS.
Owner/Manager: PVT

Buteo swainsoni

Swainson's hawk

Element Code: ABNKC19070

Status

NDDB Element Ranks

Other Lists

Federal: None

Global: G5

CDFG Status:

State: Threatened

State: S2

Habitat Associations

General: BREEDS IN GRASSLANDS WITH WITH SCATTERED TREES, JUNIPER-SAGE FLATS, RIPARIAN AREAS, SAVANNAHS, & AGRICULTURAL OR RANCH

Micro: REQUIRES ADJACENT SUITABLE FORAGING AREAS SUCH AS GRASSLANDS, OR ALFALFA OR GRAIN FIELDS SUPPORTING RODENT POPULATIONS.

Occurrence No. 829

Map Index: 43431

EO Index: 43431

Dates Last Seen

Occ Rank: Poor

Element: 2000-07-10

Origin: Natural/Native occurrence

Site: 2000-07-10

Presence: Presumed Extant

Record Last Updated: 2000-08-14

Trend: Unknown

Quad Summary: Conejo (3611956/357C)

County Summary: Fresno

Lat/Long: 36.50472° / -119.62767°

UTM: Zone-11 N4043143 E264668

Radius: 1/10 mile

Mapping Precision: NON-SPECIFIC

Township: 16S

Range: 22E

Section: 30

Qtr: SE

Elevation: 300 ft

Symbol Type: POINT

Meridian: M

Location: NE CORNER OF CLARKSON AVENUE AND HIGHWAY 43 (HIGHLAND AVENUE), SOUTH OF SELMA.

Ecological: HABITAT CONSISTS OF A EUCALYPTUS GROVE, WHICH WAS BEING CLEANED/TRIMMED AT THE TIME OF THE OBSERVATION. SOME ALFALFA FOUND GROWING BETWEEN THE ORCHARD ROWS.

General: NESTING PRESUMED DUE TO THE ACTIONS OF THE ADULTS: THEY BOTH STAYED IN THE IMMEDIATE VICINITY DESPITE THE DISTURBANCE OF TRIMMING/CUTTING IN THE EUCALYPTUS GROVE.

Owner/Manager: PVT

Caulanthus californicus

California jewel-flower

Element Code: PDBRA31010

Status
Federal: Endangered
State: Endangered

NDDB Element Ranks
Global: G1
State: S1.1

Other Lists
CNPS List: 1B.1

Habitat Associations

General: CHENOPOD SCRUB, VALLEY AND FOOTHILL GRASSLAND, PINYON-JUNIPER WOODLAND.

Micro: HISTORICAL FROM VARIOUS VALLEY HABITATS IN BOTH THE CENTRAL VALLEY AND CARRIZO PLAIN. 65-900M.

Occurrence No.: 38

Map Index: 46277

EO Index: 63230

Dates Last Seen

Occ Rank: None

Element: XXXX-XX-XX

Origin: Natural/Native occurrence

Site: 1986-03-XX

Presence: Extirpated

Trend: Unknown

Record Last Updated: 2005-11-09

Quad Summary: Malaga (3611966/357B), Clovis (3611976/378C), Fresno South (3611967/358A), Fresno North (3611977/379D)

County Summary: Fresno

Lat/Long: 36.77388° / -119.77951°

UTM: Zone-11 N4073392 E251931

Radius: 5 mile

Elevation: 300 ft

Township: 13S

Range: 20E

Section: 27

Qtr: XX

Mapping Precision: NON-SPECIFIC

Symbol Type: POINT

Meridian: M

Location: FRESNO.

General: NO HABITAT REMAINS IN VICINITY OF FRESNO. UNKNOWN WHEN ORIGINALLY COLLECTED BY DAVIDSON (SN NO DATE LAN).

Owner/Manager: UNKNOWN

Coccyzus americanus occidentalis

western yellow-billed cuckoo

Element Code: ABNRB02022

Status

NDDDB Element Ranks

Other Lists

Federal: Candidate

Global: G5T2

CDFG Status:

State: Endangered

State: S1

Habitat Associations

General: RIPARIAN FOREST NESTER, ALONG THE BROAD, LOWER FLOOD-BOTTOMS OF LARGER RIVER SYSTEMS.

Micro: NESTS IN RIPARIAN JUNGLES OF WILLOW, OFTEN MIXED WITH COTTONWOODS, W/ LOWER STORY OF BLACKBERRY, NETTLES, OR WILD GRAPE.

Occurrence No. 87

Map Index: 14944

EO Index: 25589

Dates Last Seen

Occ Rank: None

Element: 1902-07-10

Origin: Natural/Native occurrence

Site: 1902-07-10

Presence: Extirpated

Record Last Updated: 1989-08-10

Trend: Unknown

Quad Summary: Sanger (3611965/357A), Malaga (3611966/357B), Round Mountain (3611975/378D), Clovis (3611976/378C)

County Summary: Fresno

Lat/Long: 36.75271° / -119.63986°

Township: 13S

UTM: Zone-11 N4070690 E264333

Range: 21E

Radius: 1 mile

Mapping Precision: NON-SPECIFIC

Section: 36

Qtr: SW

Elevation: 345 ft

Symbol Type: POINT

Meridian: M

Location: FANCHER CREEK, 6 MI NE OF FRESNO.

General: REPORTED AS UNCOMMON BUT NESTING BY TYLER (1913).

Owner/Manager: PVT

Desmocerus californicus dimorphus

valley elderberry longhorn beetle

Element Code: IICOL48011

Status
Federal: Threatened
State: None

NDDB Element Ranks
Global: G3T2
State: S2

Other Lists
CDFG Status:

Habitat Associations
General: OCCURS ONLY IN THE CENTRAL VALLEY OF CALIFORNIA, IN ASSOCIATION WITH BLUE ELDERBERRY (SAMBUCUS MEXICANA).
Micro: PREFERS TO LAY EGGS IN ELDERBERRIES 2-8 INCHES IN DIAMETER; SOME PREFERENCE SHOWN FOR "STRESSED" ELDERBERRIES.

Occurrence No. 68 **Map Index:** 33009 **EO Index:** 4065 **Dates Last Seen**
Occ Rank: Good **Element:** 1991-05-01
Origin: Natural/Native occurrence **Site:** 1991-05-01
Presence: Presumed Extant **Record Last Updated:** 1998-08-11
Trend: Unknown

Quad Summary: Reedley (3611954/356C)

County Summary: Fresno

Lat/Long: 36.59131° / -119.46949° **Township:** 15S
UTM: Zone-11 N4052375 E279084 **Range:** 23E
Radius: 80 meters **Mapping Precision:** SPECIFIC **Section:** 28 **Qtr:** SE
Elevation: 340 ft **Symbol Type:** POINT **Meridian:** M

Location: KINGS RIVER (WEST BANK), ALONG KINGS RIVER ROAD, JUST NORTH OF DINUBA AVENUE, ~1 MILE WEST OF REEDLEY.
Location Detail: REPORT ON: TAXONOMY; DISTRIBUTION; LIFE HISTORY; HABITAT; FIELD TECHNIQUES & OBSERVATIONS; BEETLE RECOVERY.
Ecological: HABITAT CONSISTS OF OPEN RIPARIAN WOODLAND, WITH ELDERBERRIES SCATTERED BETWEEN ROAD AND RIVER (ROAD IS LOCATED ON THE BLUFF ABOVE THE RIVER).
General: ONLY ONE CLUMP (TREE) WITH EXIT HOLES, AND THESE HAD BEEN ENLARGED, PROBABLY BY BIRDS. MANY OTHER CLUMPS WITHOUT HOLES.
Owner/Manager: PVT

Occurrence No. 69 **Map Index:** 33008 **EO Index:** 4064 **Dates Last Seen**
Occ Rank: Fair **Element:** 1998-04-16
Origin: Natural/Native occurrence **Site:** 1998-04-16
Presence: Presumed Extant **Record Last Updated:** 1998-11-23
Trend: Unknown

Quad Summary: Wahtoke (3611964/356B)

County Summary: Fresno

Lat/Long: 36.72957° / -119.47992° **Township:** 14S
UTM: Zone-11 N4067740 E278547 **Range:** 23E
Area: 166.2 acres **Mapping Precision:** SPECIFIC **Section:** 09 **Qtr:** NW
Elevation: 380 ft **Symbol Type:** POLYGON **Meridian:** M

Location: KINGS RIVER, FROM 0.4 AIR MILE NE TO 1.2 AIR MILE SW OF HIGHWAY 180 FROM RIVER CROSSING, ~1 MILE EAST OF CENTERVILLE.
Location Detail: REPORT INCLUDES INFORMATION ON: TAXONOMY; DISTRIBUTION; LIFE HISTORY; HABITAT; FIELD TECHNIQUES & OBSERVATIONS, & BEETLE RECOVERY.
Ecological: HABITAT CONSISTS OF RIPARIAN ALONG THE BANKS OF THE SLOUGH CONNECTED TO, AND SEVERAL LOCATIONS ALONG THE KINGS RIVER.
Threat: TRAILER PARK, PASTURE MAINTENANCE, TRANSMISSION LINE AND ROAD MAINTENANCE.
General: 1998: SEVERAL CLUMPS WITH EXIT HOLES OBSERVED. 1991: TWO LARGE RIPARIAN CLUMPS WERE OBSERVED CONTAINING OLD, CLEAN-CUT EXIT HOLES. APRIL 1989: ADULTS COLLECTED, 2 FEMALES & 1 MALE, FEMALES OBSERVED LAYING EGGS ON ELDERBERRY TREES.
Owner/Manager: PVT

Desmocerus californicus dimorphus

valley elderberry longhorn beetle

Element Code: IICOL48011

Status
Federal: Threatened
State: None

NDDB Element Ranks
Global: G3T2
State: S2

Other Lists
CDFG Status:

Habitat Associations
General: OCCURS ONLY IN THE CENTRAL VALLEY OF CALIFORNIA, IN ASSOCIATION WITH BLUE ELDERBERRY (SAMBUCUS MEXICANA).
Micro: PREFERS TO LAY EGGS IN ELDERBERRIES 2-8 INCHES IN DIAMETER; SOME PREFERENCE SHOWN FOR "STRESSED" ELDERBERRIES.

Occurrence No. 70 **Map Index:** 33007 **EO Index:** 4066 **Dates Last Seen**
Occ Rank: Excellent **Element:** 1991-05-01
Origin: Natural/Native occurrence **Site:** 1991-05-01
Presence: Presumed Extant
Trend: Unknown **Record Last Updated:** 1998-08-11

Quad Summary: Sanger (3611965/357A)
County Summary: Fresno

Lat/Long: 36.67840° / -119.53215° **Township:** 14S
UTM: Zone-11 N4062184 E273732 **Range:** 22E
Radius: 80 meters **Section:** 25 **Qtr:** SW
Elevation: 330 ft **Mapping Precision:** SPECIFIC
Symbol Type: POINT **Meridian:** M

Location: COLLINS CREEK, TRIBUTARY TO KINGS RIVER, IN THE VICINITY OF CHANNEL ROAD, ~2 MILES SE OF SANGER.
Location Detail: REPORT ON: TAXONOMY; DISTRIBUTION; LIFE HISTORY; HABITAT; FIELD TECHNIQUES & OBSERVATIONS; BEETLE RECOVERY.
Ecological: HABITAT CONSISTS OF DENSE RIPARIAN WOODLAND WITH OAKS, COTTONWOODS, AND ELDERBERRIES.
General: BOTH OLD AND RECENT EXIT HOLES FOUND IN SEVERAL LARGE, OLD ELDERBERRIES.
Owner/Manager: PVT

Occurrence No. 165 **Map Index:** 39525 **EO Index:** 34527 **Dates Last Seen**
Occ Rank: Unknown **Element:** 1990-XX-XX
Origin: Natural/Native occurrence **Site:** 1990-XX-XX
Presence: Presumed Extant
Trend: Unknown **Record Last Updated:** 1998-08-25

Quad Summary: Wahtoke (3611964/356B)
County Summary: Fresno

Lat/Long: 36.72101° / -119.46247° **Township:** 14S
UTM: Zone-11 N4066750 E280081 **Range:** 23E
Area: 32.6 acres **Section:** 10 **Qtr:** XX
Elevation: 380 ft **Mapping Precision:** SPECIFIC
Symbol Type: POLYGON **Meridian:** M

Location: BYRD SLOUGH, 0.35 MILE SW OF HIGHWAY 180 AT MINKLER, ~2 MILE ESE OF CENTERVILLE.
Location Detail: PRIVATE PARK (PILIBOS PARK).
Ecological: RIPARIAN, ELDERBERRY HABITAT PRESENT.
Threat: FUTURE HOUSING DEVELOPMENTS, PARK MAINTENANCE.
General: 1 MALE OBSERVED 1987. 1 COLLECTED 1989. EMERGENCE HOLES IN ELDERBERRIES AT SEVERAL LOCATIONS ALONG SLOUGH 1990.
Owner/Manager: PVT

Occurrence No. 166 **Map Index:** 39531 **EO Index:** 34533 **Dates Last Seen**
Occ Rank: Unknown **Element:** 1990-XX-XX
Origin: Natural/Native occurrence **Site:** 1990-XX-XX
Presence: Presumed Extant
Trend: Unknown **Record Last Updated:** 1998-08-25

Quad Summary: Wahtoke (3611964/356B)
County Summary: Fresno

Lat/Long: 36.71948° / -119.43933° **Township:** 14S
UTM: Zone-11 N4066527 E282144 **Range:** 23E
Area: 11.1 acres **Section:** 14 **Qtr:** XX
Elevation: 400 ft **Mapping Precision:** SPECIFIC
Symbol Type: POLYGON **Meridian:** M

Location: BETWEEN HIGHWAY 180 AND ALTA MAIN CANAL, 0.5 MILE E OF JCT OF FRANKWOOD AVE, 1 MILE ESE OF MINKLER.
Location Detail: PASTURE AND CANAL BANK, 1.9 MILES NW OF CAMPBELL MTN.
Ecological: PASTURE WITH ELDERBERRY HABITAT.
Threat: PASTURE AND LEVEE MAINTENANCE. FENCING TO PREVENT GRAZING IMPACTS COULD PROTECT THIS SITE.
General: MANY EMERGENCE HOLES IN MANY ELDERBERRIES, BUT NO ADULTS OBSERVED.
Owner/Manager: UNKNOWN

Desmocerus californicus dimorphus

valley elderberry longhorn beetle

Element Code: IICOL48011

Status
Federal: Threatened
State: None

NDDB Element Ranks
Global: G3T2
State: S2

Other Lists
CDFG Status:

Habitat Associations
General: OCCURS ONLY IN THE CENTRAL VALLEY OF CALIFORNIA, IN ASSOCIATION WITH BLUE ELDERBERRY (SAMBUCUS MEXICANA).
Micro: PREFERS TO LAY EGGS IN ELDERBERRIES 2-8 INCHES IN DIAMETER; SOME PREFERENCE SHOWN FOR "STRESSED" ELDERBERRIES.

Occurrence No. 167 Map Index: 39533 EO Index: 34535 Dates Last Seen
Element: 1989-04-18
Site: 1989-04-18
Record Last Updated: 1998-08-25
Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Quad Summary: Sanger (3611965/357A)
County Summary: Fresno

Lat/Long: 36.70086° / -119.50636° Township: 14S
UTM: Zone-11 N4064616 E276102 Range: 23E
Area: 41.1 acres Mapping Precision: SPECIFIC Section: 19 Qtr: NE
Elevation: 345 ft Symbol Type: POLYGON Meridian: M

Location: KINGS RIVER, 0.25 MILE NE OF ANNADALE AND RIVERBEND AVENUES, 2.8 MILES EAST OF SANGER.
Location Detail: RIPARIAN, GRAVEL MINING PITS/PONDS.
Ecological: RIPARIAN WITH ELDERBERRY HABITAT PRESENT.
Threat: MINING OPERATIONS
General: 1 FEMALE LAYING EGGS OBSERVED BUT NOT COLLECTED. EGGS AND EMERGENCE HOLES ON ONE ELDERBERRY NOTED.
Owner/Manager: UNKNOWN

Occurrence No. 168 Map Index: 39534 EO Index: 34536 Dates Last Seen
Element: 1990-06-01
Site: 1990-06-01
Record Last Updated: 1998-08-25
Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Quad Summary: Sanger (3611965/357A)
County Summary: Fresno

Lat/Long: 36.69427° / -119.52570° Township: 14S
UTM: Zone-11 N4063930 E274355 Range: 22E
Radius: 80 meters Mapping Precision: SPECIFIC Section: 24 Qtr: NE
Elevation: 340 ft Symbol Type: POINT Meridian: M

Location: ALONG CHANNEL ROAD, 0.5 MILE SOUTH OF ANNADALE AVE INTERSECTION, 1.9 MILES SE OF SANGER.
Ecological: ELDERBERRY AND OAK FOREST ALONG ROAD.
General: MANY ELDERBERRIES ALONG ROAD A FEW ELDERBERRY TREES WITH EMERGENCE HOLES. NO ADULTS OBSERVED.
Owner/Manager: UNKNOWN

Occurrence No. 178 Map Index: 40240 EO Index: 35242 Dates Last Seen
Element: 1998-04-16
Site: 1998-04-16
Record Last Updated: 1998-11-24
Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Quad Summary: Sanger (3611965/357A)
County Summary: Fresno

Lat/Long: 36.70507° / -119.51215° Township: 14S
UTM: Zone-11 N4065097 E275597 Range: 23E
Area: 8.6 acres Mapping Precision: SPECIFIC Section: 19 Qtr: NW
Elevation: 256 ft Symbol Type: POLYGON Meridian: M

Location: TRANSMISSION LINES, 0.4 MILE N OF INTERSECTION OF RIVERBEND & ANNADALE AVES & KINGS RIVER, 2.5 MILES E OF SANGER.
Location Detail: EXIT HOLE FOUND IN DEAD WOOD 650 FEET NORTHEAST OF TOWER 33/167. POTENTIAL HABITAT (OTHER AVAILABLE PLANTS) FROM 423 TO 650 FEET NE OF TOWER.
Ecological: RIPARIAN
Threat: ROAD MAINTENANCE, TRANSMISSION LINE MAINTENANCE (INCLUDES: HERBICIDE APPLICATION, VEG CLEARING &/OR REMOVAL, ETC)
General: EXIT HOLES FOUND IN DEAD WOOD.
Owner/Manager: UNKNOWN

Desmocerus californicus dimorphus

valley elderberry longhorn beetle

Element Code: IICOL48011

Status
Federal: Threatened
State: None

NDDB Element Ranks
Global: G3T2
State: S2

Other Lists
CDFG Status:

Habitat Associations
General: OCCURS ONLY IN THE CENTRAL VALLEY OF CALIFORNIA, IN ASSOCIATION WITH BLUE ELDERBERRY (SAMBUCUS MEXICANA).
Micro: PREFERS TO LAY EGGS IN ELDERBERRIES 2-8 INCHES IN DIAMETER; SOME PREFERENCE SHOWN FOR "STRESSED" ELDERBERRIES.

Occurrence No. 179 Map Index: 40241 EO Index: 35243 **Dates Last Seen**
Occ Rank: Unknown Element: 1998-04-16
Origin: Natural/Native occurrence Site: 1998-04-16
Presence: Presumed Extant
Trend: Unknown Record Last Updated: 1998-11-24

Quad Summary: Sanger (3611965/357A)
County Summary: Fresno

Lat/Long: 36.70191° / -119.51709° Township: 14S
UTM: Zone-11 N4064757 E275147 Range: 23E
Area: 19.2 acres Mapping Precision: SPECIFIC Section: 19 Qtr: NW
Elevation: 350 ft Symbol Type: POLYGON Meridian: M

Location: TRANSMISSION LINES, 0.35 MILE NW OF INTERSECTION RIVERBEND & ANNADALE AVES, & KINGS RIVER, 2.5 MILES E OF SANGER.
Location Detail: ELDERBERRIES WITH EXIT HOLES FOUND 289 FT & 180 FT NE; & 112 FT & 52 FT WEST OF TOWER 33/168. POTENTIAL HABITAT (OTHER ELDERBERRY BUSHES) FOUND 102 FT SW, 174, 151 & 52 FT WEST & 30 FT SE OF THE TOWER.
Ecological: AGRICULTURE (ORCHARDS, ROW CROPS, VINEYARD) UNCERTAIN WHICH OF THESE IS AT THIS SITE.
Threat: POTENTIAL THREATS; ROAD MAINTENANCE, TRANSMISSION LINE MAINTENANCE, AGRICULTURAL ACTIVITY.
General: EXIT HOLES FOUND IN BOTH LIVE AND DEAD WOOD.
Owner/Manager: UNKNOWN

Occurrence No. 180 Map Index: 40242 EO Index: 35244 **Dates Last Seen**
Occ Rank: Unknown Element: 1998-04-16
Origin: Natural/Native occurrence Site: 1998-04-16
Presence: Presumed Extant
Trend: Unknown Record Last Updated: 1998-11-24

Quad Summary: Sanger (3611965/357A)
County Summary: Fresno

Lat/Long: 36.68014° / -119.53810° Township: 14S
UTM: Zone-11 N4062392 E273205 Range: 22E
Radius: 80 meters Mapping Precision: SPECIFIC Section: 25 Qtr: SW
Elevation: 332 ft Symbol Type: POINT Meridian: M

Location: ~1 MILE ENE OF JCT CENTRAL & ACADEMY AVES, & 0.4 MILE N OF JCT GOODFELLOW AVE & CHANNEL RD, 2 MILES SE OF SANGER.
Location Detail: 43 FEET NORTHWEST OF TOWER 35/177.
Ecological: AGRICULTURE (ORCHARDS, ROW CROPS, VINEYARD), UNCERTAIN WHICH OF THESE IS AT THIS SITE.
Threat: POTENTIAL THREATS; ROAD MAINTENANCE, TRANSMISSION LINE MAINTENANCE, AGRICULTURAL ACTIVITY.
General: EXIT HOLES FOUND IN LIVE WOOD.
Owner/Manager: UNKNOWN

Efferia antiochi

Antioch efferian robberfly

Element Code: IIDIP07010

_____ Status _____

_____ NDDB Element Ranks _____

_____ Other Lists _____

Federal: None

Global: G1G3

CDFG Status:

State: None

State: S1S3

_____ Habitat Associations _____

General: KNOWN ONLY FROM CONTRA COSTA AND FRESNO COUNTIES.

Micro:

Occurrence No. 2

Map Index: 46277

EO Index: 63436

_____ Dates Last Seen _____

Occ Rank: Unknown

Element: 1954-12-15

Origin: Natural/Native occurrence

Site: 1954-12-15

Presence: Presumed Extant

Record Last Updated: 2005-12-08

Trend: Unknown

Quad Summary: Malaga (3611966/357B), Clovis (3611976/378C), Fresno South (3611967/358A), Fresno North (3611977/379D)

County Summary: Fresno

Lat/Long: 36.77388° / -119.77951°

Township: 13S

UTM: Zone-11 N4073392 E251931

Range: 20E

Radius: 5 mile

Mapping Precision: NON-SPECIFIC

Section: 27

Qtr: XX

Elevation: 300 ft

Symbol Type: POINT

Meridian: M

Location: FRESNO.

General: COLLECTED BY CHRIS THOMPSON; ALSO COLLECTED 24 OCT 1954 BY G. FRYMIRE. IN COLLECTION AT CSU FRESNO. PARATYPES.

Owner/Manager: UNKNOWN

Eumops perotis californicus

western mastiff bat

Element Code: AMACD02011

Status

NDDB Element Ranks

Other Lists

Federal: None

Global: G5T4

CDFG Status: SC

State: None

State: S37

Habitat Associations

General: MANY OPEN, SEMI-ARID TO ARID HABITATS, INCLUDING CONIFER & DECIDUOUS WOODLANDS, COASTAL SCRUB, GRASSLANDS, CHAPARRAL ETC

Micro: ROOSTS IN CREVICES IN CLIFF FACES, HIGH BUILDINGS, TREES & TUNNELS.

Occurrence No. 91

Map Index: 66331

EO Index: 66424

Dates Last Seen

Occ Rank: Unknown

Element: 1899-03-01

Origin: Natural/Native occurrence

Site: 1899-03-01

Presence: Presumed Extant

Record Last Updated: 2006-09-26

Trend: Unknown

Quad Summary: Traver (3611944/334B)

County Summary: Tulare

Lat/Long: 36.45403° / -119.48506°

Township: 17S

UTM: Zone-11 N4037179 E277297

Range: 23E

Radius: 3/5 mile

Mapping Precision: NON-SPECIFIC

Section: 16

Qtr: XX

Elevation:

Symbol Type: POINT

Meridian: M

Location: TRAVER.

Location Detail: EXACT LOCATION UNKNOWN. MAPPED IN THE GENERAL VICINITY OF TRAVER.

General: 1 FEMALE SPECIMEN COLLECTED BY C.H.B. WRIGHT ON 1 MAR 1899, CAS #17445.

Owner/Manager: UNKNOWN

Great Valley Mixed Riparian Forest

Element Code: CTT61420CA

Status	NDDB Element Ranks	Other Lists
Federal: None	Global: G2	
State: None	State: S2.2	
Habitat Associations		
General:		
Micro:		

Occurrence No. 38 Map Index: 15312 EO Index: 15631 Dates Last Seen
Occ Rank: Unknown Element: 1981-08-06
Origin: Natural/Native occurrence Site: 1981-08-06
Presence: Presumed Extant
Trend: Unknown Record Last Updated: 1998-07-21

Quad Summary: Wahtoke (3611964/356B)
County Summary: Fresno

Lat/Long: 36.71595° / -119.47028° Township: 14S
UTM: Zone-11 N4066207 E279369 Range: 23E
Area: 327.9 acres Mapping Precision: SPECIFIC Section: 16 Qtr: XX
Elevation: 380 ft Symbol Type: POLYGON Meridian: M

Location: BYRD SLOUGH BETWEEN MINKLER & ANNADALE RD, EAST OF KINGS RIVER.
Location Detail: BOUNDARY FROM 1981 AERIAL PHOTOS.
Ecological: ALLUVIAL FLOOD PLAIN ASSOCIATION W/QUERCUS LOBATA, PLATANUS RACEMOSA, ALNUS RHOMBIFOLIA & FRAXINUS LATIFOLIA.
Threat: MOST OF RIPARIAN AREA RELATIVELY UNDISTURBED PER CNACC, 1977 BUT IS ADJACENT TO FARMLAND & SOME FLOOD CONTROL HAS OCCUR
General: THIS WAS OCC #038 OF CTT61420CA.
Owner/Manager: PVT

Occurrence No. 39 Map Index: 15293 EO Index: 15630 Dates Last Seen
Occ Rank: Unknown Element: 1981-08-06
Origin: Natural/Native occurrence Site: 1981-08-06
Presence: Presumed Extant
Trend: Unknown Record Last Updated: 1998-07-21

Quad Summary: Wahtoke (3611964/356B)
County Summary: Fresno

Lat/Long: 36.72577° / -119.47530° Township: 14S
UTM: Zone-11 N4067308 E278949 Range: 23E
Area: 106.1 acres Mapping Precision: SPECIFIC Section: 09 Qtr: XX
Elevation: 380 ft Symbol Type: POLYGON Meridian: M

Location: KINGS RIVER, MOSTLY S OF HWY 180, E OF CENTERVILLE.
Location Detail: BOUNDARY FROM 1981 AERIAL PHOTOS.
Ecological: ALLUVIAL FLOODPLAIN ASSOC OF QUERCUS LOBATA, PLATANUS RACEMOSA, ALNUS RHOMBIFOLIA & FRAXINUS LATIFOLIA.
Threat: UNDISTURBED, 1977, BUT ADJ TO FARMLAND AND SOME FLOOD-CONTROL ACTIVITY HAS OCCURED.
General: THIS WAS OCC #039 OF CTT61420CA.
Owner/Manager: PVT

Imperata brevifolia

California satintail

Element Code: PMPOA3D020

Status: Federal: None State: None
NDDB Element Ranks: Global: G2 State: S2.1
Other Lists: CNPS List: 2.1

Habitat Associations:
General: COASTAL SCRUB, CHAPARRAL, RIPARIAN SCRUB, MOJAVEAN SCRUB, MEADOWS AND SEEPS (ALKALI).
Micro: MESIC SITES, ALKALI SEEPS, RIPARIAN AREAS. 0-500M.

Occurrence No. 20 Map Index: 69074 EO Index: 69850
Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Dates Last Seen: Element: 1933-09-05 Site: 1933-09-05
Record Last Updated: 2007-04-25

Quad Summary: Reedley (3611954/356C)
County Summary: Fresno

Lat/Long: 36.59535° / -119.45107°
UTM: Zone-11 N4052782 E280743
Radius: 1 mile
Elevation: 300 ft
Mapping Precision: NON-SPECIFIC
Symbol Type: POINT
Township: 15S
Range: 23E
Section: 27
Meridian: M
Qtr: XX

Location: CANAL BANK NEAR REEDLEY.
Location Detail: EXACT LOCATION UNKNOWN. MAPPED BY CNDDDB AS A BEST GUESS AROUND REEDLEY.
General: ONLY SOURCE OF INFORMATION FOR THIS OCCURRENCE IS A 1933 COLLECTION BY BURG. NEEDS FIELDWORK.
Owner/Manager: UNKNOWN

Occurrence No. 21 Map Index: 69077 EO Index: 69851
Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Dates Last Seen: Element: 1970-12-02 Site: 1970-12-02
Record Last Updated: 2007-04-26

Quad Summary: Wahtoke (3611964/356B), Piedra (3611974/377C)
County Summary: Fresno

Lat/Long: 36.74952° / -119.47075°
UTM: Zone-11 N4069933 E279423
Radius: 4/5 mile
Elevation: 400 ft
Mapping Precision: NON-SPECIFIC
Symbol Type: POINT
Township: 14S
Range: 23E
Section: 04
Meridian: M
Qtr: XX

Location: 1.5 MILES NE OF CENTERVILLE. NEAR THE CORNER OF BELMONT AVE AND TRIMMER SPRING ROAD.
Location Detail: EXACT LOCATION AND FULL EXTENT OF POPULATION UNKNOWN. MAPPED BY CNDDDB AS A CIRCULAR FEATURE SINCE IT IS UNCLEAR WHICH 1.4 MILE STRETCH OF CANAL OR DITCH FULLER WAS REFERRING TO IN HIS COLLECTION SITE DESCRIPTIONS.
General: ONLY SOURCES OF INFORMATION FOR THIS OCCURRENCE ARE TWO FULLER COLLECTIONS FROM 1965 AND 1970. DUPLICATES OF 1965 COLLECTION STATE, "1/4 MI SW OF CORNER OF BELMONT AVE & TRIMMER SPRING RD," AND "ABUNDANT ALONG IRRIGATION DITCH FOR 1.4 MI."
Owner/Manager: UNKNOWN

Occurrence No. 22 Map Index: 46277 EO Index: 69854
Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Dates Last Seen: Element: 1893-07-31 Site: 1893-07-31
Record Last Updated: 2007-04-26

Quad Summary: Melaga (3611966/357B), Clovis (3611976/378C), Fresno South (3611967/358A), Fresno North (3611977/379D)
County Summary: Fresno

Lat/Long: 36.77388° / -119.77951°
UTM: Zone-11 N4073392 E251931
Radius: 5 mile
Elevation: 300 ft
Mapping Precision: NON-SPECIFIC
Symbol Type: POINT
Township: 13S
Range: 20E
Section: 27
Meridian: M
Qtr: XX

Location: FRESNO.
Location Detail: EXACT LOCATION UNKNOWN. MAPPED BY CNDDDB AS A BEST GUESS AROUND FRESNO.
Threat: EXTENSIVE DEVELOPMENT IN THIS VICINITY.
General: ONLY SOURCE OF INFORMATION FOR THIS OCCURRENCE IS AN 1893 COLLECTION BY WILSON, ET AL. NEEDS FIELDWORK.
Owner/Manager: UNKNOWN

Lasiurus cinereus

hoary bat

Element Code: AMACC05030

_____ Status _____	NDDB Element Ranks	_____ Other Lists _____
Federal: None	Global: G5	CDFG Status: SC
State: None	State: S4?	

_____ Habitat Associations _____

General: PREFERS OPEN HABITATS OR HABITAT MOSAICS, WITH ACCESS TO TREES FOR COVER & OPEN AREAS OR HABITAT EDGES FOR FEEDING.
Micro: ROOSTS IN DENSE FOLIAGE OF MEDIUM TO LARGE TREES. FEEDS PRIMARILY ON MOTHS. REQUIRES WATER.

Occurrence No. 130	Map Index: 68823	EO Index: 69375	_____ Dates Last Seen _____
Occ Rank: Unknown			Element: 1943-04-17
Origin: Natural/Native occurrence			Site: 1943-04-17
Presence: Presumed Extant			
Trend: Unknown			Record Last Updated: 2007-04-05

Quad Summary: Reedley (3611954/356C), Orange Cove South (3611953/356D)
County Summary: Tulare

Lat/Long: 36.54365° / -119.38823°	Township: 16S
UTM: Zone-11 N4046903 E286223	Range: 24E
Radius: 1 mile	Section: 17 Qtr: XX
Elevation:	Meridian: M
Mapping Precision: NON-SPECIFIC	
Symbol Type: POINT	

Location: DINUBA.

Location Detail: MAPPED TO INCLUDE LAT/LONG COORDINATES PROVIDED BY MANIS, WITH UNCERTAINTIES OF 402.336M AND 30M.

General: 1 FEMALE SPECIMEN (MVZ #5033) COLLECTED BY A.S. DICKEY ON 1 APR 1909. 1 FEMALE SPECIMEN (MVZ #102195) COLLECTED BY WALTER W. DALQUEST ON 17 APR 1943.

Owner/Manager: UNKNOWN

Lepidurus packardii

vernal pool tadpole shrimp

Element Code: ICBRA10010

Status
Federal: Endangered
State: None

NDDB Element Ranks
Global: G3
State: S2S3

Other Lists
CDFG Status:

Habitat Associations

General: INHABITS VERNAL POOLS AND SWALES IN THE SACRAMENTO VALLEY CONTAINING CLEAR TO HIGHLY TURBID WATER.

Micro: POOLS COMMONLY FOUND IN GRASS BOTTOMED SWALES OF UNPLOWED GRASSLANDS. SOME POOLS ARE MUD-BOTTOMED & HIGHLY TURBID.

Occurrence No. 129	Map Index: 40395	EO Index: 35402	Dates Last Seen	
Occ Rank: Fair			Element: 1998-04-10	
Origin: Natural/Native occurrence			Site: 1998-04-10	
Presence: Presumed Extant				
Trend: Unknown			Record Last Updated: 1998-12-16	

Quad Summary: Traver (3611944/334B)
County Summary: Tulare

Lat/Long: 36.40620° / -119.44165°	Township: 17S
UTM: Zone-11 N4031773 E281054	Range: 23E
Radius: 1/10 mile	Section: 99
Elevation: 280 ft	Meridian: X
Mapping Precision: NON-SPECIFIC	Qtr: SE
Symbol Type: POINT	

Location: SOUTH OF CROSS CREEK, 0.75 MILE NE OF HWY 99, 4.5 MILES SE OF TRAVER.

Ecological: HABITAT CONSISTS OF NON-NATIVE ANNUAL GRASSLAND WITH VERNAL POOLS. BURROWING OWL OBSERVED IN THE VICINITY. AGRICULTURE TO SOUTH AND EAST.

Threat: THREATENED BY AGRICULTURAL CONVERSION.

General: 100'S OF TADPOLE SHRIMP OBSERVED ON 10 APRIL 1998.

Owner/Manager: PVT

Occurrence No. 139	Map Index: 41568	EO Index: 41568	Dates Last Seen	
Occ Rank: Fair			Element: 1999-03-04	
Origin: Natural/Native occurrence			Site: 1999-03-04	
Presence: Presumed Extant				
Trend: Unknown			Record Last Updated: 1999-09-08	

Quad Summary: Burris Park (3611945/335A)
County Summary: Kings

Lat/Long: 36.38078° / -119.50990°	Township: 18S
UTM: Zone-11 N4029109 E274859	Range: 23E
Radius: 80 meters	Section: 08
Elevation: 260 ft	Meridian: X
Mapping Precision: SPECIFIC	Qtr: NW
Symbol Type: POINT	

Location: 0.3 MILE WEST OF CROSS CREEK, 1.8 MILES SE OF JUNCTION OF 4TH AVENUE AND EXCELSIOR AVENUE, ~6 MILES SW OF BURRIS PARK.

Location Detail: VERNAL POOL(S) IN AREA "B". CURRENT LAND USE IS CATTLE GRAZING

Ecological: VERNAL POOLS IN NON-NATIVE GRASSLAND

Threat: CONVERSION TO FARMLAND

General: 100'S OBSERVED IN COMBINATION OF THIS AND ONE IN AREA "A". COLLECTION DEPOSITED AT CAS.

Owner/Manager: PVT

Occurrence No. 140	Map Index: 41572	EO Index: 41572	Dates Last Seen	
Occ Rank: Fair			Element: 1999-03-04	
Origin: Natural/Native occurrence			Site: 1999-03-04	
Presence: Presumed Extant				
Trend: Unknown			Record Last Updated: 1999-09-08	

Quad Summary: Traver (3611944/334B)
County Summary: Kings

Lat/Long: 36.39668° / -119.48353°	Township: 18S
UTM: Zone-11 N4030812 E277271	Range: 23E
Radius: 80 meters	Section: 04
Elevation: 265 ft	Meridian: X
Mapping Precision: SPECIFIC	Qtr: N
Symbol Type: POINT	

Location: 0.2 MILE NORTH OF CROSS CREEK AND 1.6 WSW OF WHERE IT CROSSES HIGHWAY 99, 4 MILES SOUTH OF TRAVER.

Location Detail: VERNAL POOL(S) IN AREA "A". CURRENT LAND USE IS CATTLE GRAZING

Ecological: VERNAL POOLS IN NON-NATIVE GRASSLAND

Threat: CONVERSION TO FARMLAND

General: 100'S OBSERVED IN COMBINATION OF THIS AND ONE IN AREA "B". COLLECTION DEPOSITED AT CAS.

Owner/Manager: PVT

Lytta molesta

molestan blister beetle

Element Code: IICOL4C030

Status

Federal: None

State: None

NDDDB Element Ranks

Global: G2

State: S2

Other Lists

CDFG Status:

Habitat Associations

General: INHABITS THE CENTRAL VALLEY OF CALIFORNIA, FROM CONTRA COSTA TO KERN AND TULARE COUNTIES.

Micro:

Occurrence No. 13

Map Index: 46277

EO Index: 64456

Dates Last Seen

Element: 19XX-XX-XX

Site: 19XX-XX-XX

Occ Rank: Unknown

Origin: Natural/Native occurrence

Presence: Possibly Extirpated

Trend: Unknown

Record Last Updated: 2006-03-30

Quad Summary: Malaga (3611966/357B), Clovis (3611976/378C), Fresno South (3611967/358A), Fresno North (3611977/379D)

County Summary: Fresno

Lat/Long: 36.77388° / -119.77951°

UTM: Zone-11 N4073392 E251931

Radius: 5 mile

Elevation: 300 ft

Mapping Precision: NON-SPECIFIC

Symbol Type: POINT

Township: 13S

Range: 20E

Section: 27

Meridian: M

Qtr: XX

Location: FRESNO.

General: LOCALITY FROM CALIFORNIA BEETLE PROJECT ONLINE DATABASE; COLLECTION INFORMATION NOT GIVEN. HISTORICAL RECORD; EXACT LOCATION UNKNOWN.

Owner/Manager: UNKNOWN

Metapogon hurdi

Hurd's metapogon robberfly

Element Code: IIDIP08010

Status	NDDB Element Ranks	Other Lists
Federal: None	Global: G1G3	CDFG Status:
State: None	State: S1S3	

Habitat Associations

General: KNOWN ONLY FROM ANTIOCH (DUNES?) AND FRESNO.

Micro:

Occurrence No. 2	Map Index: 46277	EO Index: 60267	Dates Last Seen
Occ Rank: Unknown			Element: 1922-11-29
Origin: Natural/Native occurrence			Site: 1922-11-29
Presence: Possibly Extirpated			
Trend: Unknown			Record Last Updated: 2005-02-25

Quad Summary: Malaga (3611966/357B), Clovis (3611976/37BC), Fresno South (3611967/358A), Fresno North (3611977/379D)

County Summary: Fresno

Lat/Long: 36.77388° / -119.77951°	Township: 13S
UTM: Zone-11 N4073392 E251931	Range: 20E
Radius: 5 mile	Section: 27
Elevation: 300 ft	Meridian: M
	Qtr: XX

Mapping Precision: NON-SPECIFIC
 Symbol Type: POINT

Location: FRESNO.

Location Detail: NO OTHER COLLECTION INFORMATION GIVEN.

General: HISTORICAL SPECIMENS. 4 MALE AND 6 FEMALE PARATYPES.

Owner/Manager: UNKNOWN

Northern Claypan Vernal Pool

Element Code: CTT44120CA

_____ Status _____ NDDB Element Ranks _____ Other Lists _____
Federal: None Global: G1
State: None State: S1.1

_____ Habitat Associations _____
General:
Micro:

Occurrence No. 10 Map Index: 15328 EO Index: 26434 Dates Last Seen _____
Occ Rank: Unknown Element: 1983-XX-XX
Origin: Natural/Native occurrence Site: 1983-XX-XX
Presence: Presumed Extant
Trend: Unknown Record Last Updated: 1998-07-15

Quad Summary: Traver (3611944/334B)
County Summary: Tulare

Lat/Long: 36.40439° / -119.45762° Township: 17S
UTM: Zone-11 N4031608 E279616 Range: 23E
Radius: 1 mile Mapping Precision: NON-SPECIFIC Section: 34 Qtr: SE
Elevation: 270 ft Symbol Type: POINT Meridian: M

Location: CROSS CRK VERNAL POOLS. NR HWY 99 & ALONG CROSS CR 4 MI N OF GOSHEN. BOTH SIDES HWY.
Location Detail: CATTLE GRAZING SITE. IRRIGATED BARLEY SURROUNDS.
Ecological: ANASTMOSING POOLS ON CR FLOOD PLAIN. PROFUSE DOWNINGIA BELLA, LASTHENIA FREMONTII. GRASSLAND OF HORDEUM DEPRESSUM & DISTICHLIS. ELYMUS ALONG EPHEMERAL WATER WAYS (1980).
General: UNABLE TO CONVERT TO FLORISTIC CLASSIFICATION. LACKS SPP. INFO.
Owner/Manager: UNKNOWN

Orcuttia inaequalis

San Joaquin Valley orcutt grass

Element Code: PMPOA4G060

Status

NDDB Element Ranks

Other Lists

Federal: Threatened

Global: G2

CNPS List: 1B.1

State: Endangered

State: S2.1

Habitat Associations

General: VERNAL POOLS.

Micro: 30-755M.

Occurrence No. 20

Map Index: 15439

EO Index: 22387

Dates Last Seen

Occ Rank: None

Element: 1936-XX-XX

Origin: Natural/Native occurrence

Site: 1987-06-01

Presence: Extirpated

Record Last Updated: 1995-07-13

Trend: Unknown

Quad Summary: Orange Cove North (3611963/356A), Wahtoke (3611964/356B)

County Summary: Fresno

Lat/Long: 36.62967° / -119.37706°

Township: 15S

UTM: Zone-11 N4056423 E287459

Range: 24E

Radius: 1/5 mile

Mapping Precision: NON-SPECIFIC

Section: 17

Qtr: NE

Elevation: 380 ft

Symbol Type: POINT

Meridian: M

Location: 3 MI W OF ORANGE COVE.

General: STEBBINS SEARCHED THIS AREA FOR SEVERAL MILES BOTH WEST & SOUTHWEST OF ORANGE COVE. CURRENT LAND USE IS ENTIRELY AGRICULTURAL. THE MOST LIKELY SITE FOR HOOVER'S COLLECTION WAS THE LARGE DEPRESSION JUST SW OF THE INTERSECTION OF ADAMS AVE.

Owner/Manager: UNKNOWN

Pseudobahia peirsonii

San Joaquin adobe sunburst

Element Code: PDAST7P030

Status

NDDB Element Ranks

Other Lists

Federal: Threatened

Global: G2

CNPS List: 1B.1

State: Endangered

State: S2.1

Habitat Associations

General: VALLEY AND FOOTHILL GRASSLAND, CISMONTANE WOODLAND

Micro: GRASSY VALLEY FLOORS AND ROLLING FOOTHILLS IN HEAVY CLAY SOIL. 85-800M.

Occurrence No. 13

Map Index: 22865

EO Index: 21673

Dates Last Seen

Occ Rank: None

Element: 1927-04-11

Origin: Natural/Native occurrence

Site: 1990-04-08

Presence: Extirpated

Record Last Updated: 1993-03-05

Trend: Unknown

Quad Summary: Reedley (3611954/356C)

County Summary: Tulare

Lat/Long: 36.53234° / -119.39386°

Township: 16S

UTM: Zone-11 N4045661 E285688

Range: 24E

Radius: 1 mile

Mapping Precision: NON-SPECIFIC

Section: 17

Qtr: XX

Elevation: 330 ft

Symbol Type: POINT

Meridian: M

Location: DINUBA.

Threat: IRRIGATED AGRICULTURAL LANDS COMPLETELY DOMINATE THE REGION.

General: ONLY SOURCE OF LOCATION INFORMATION IS COLLECTION ON 11 APRIL, 1927 (BEVANS SN [CAS]); 1990 RECONNAISSANCE LEVEL SURVEYS BY STEBBINS INDICATE THAT POPULATION IS LIKELY EXTIRPATED DUE TO CONVERSION OF LAND TO AGRICULTURE.

Owner/Manager: PVT

Occurrence No. 14

Map Index: 15367

EO Index: 7979

Dates Last Seen

Occ Rank: Fair

Element: 1990-03-27

Origin: Natural/Native occurrence

Site: 1990-03-27

Presence: Presumed Extant

Record Last Updated: 1993-03-22

Trend: Decreasing

Quad Summary: Wahtoke (3611964/356B)

County Summary: Fresno

Lat/Long: 36.71682° / -119.43162°

Township: 14S

UTM: Zone-11 N4066215 E282825

Range: 23E

Area: 13.9 acres

Mapping Precision: SPECIFIC

Section: 14

Qtr: NE

Elevation: 440 ft

Symbol Type: POLYGON

Meridian: M

Location: HWY 180 AT SADDLE BETW JESSE MORROW MTN & CAMPBELL MTN BETW FRIANT-KERN & ALTA-MAIN CANALS.

Location Detail: WITHIN THE EAST 1/2 OF THE NE 1/4 OF SECTION 14 ON BOTH SIDES OF HWY 180.

Ecological: ON PORTERVILLE CLAY SOILS. HEAVILY DISTURBED NON-NATIVE GRASSLAND IS DOMINATED BY AVENA FATUA, BRASSICA KABER, SILYBUM MARIANUM, AMSINCKIA INTERMEDIA, ERODIUM CICUTARIUM, AND MATRICARIA MATRICARIOIDES.

Threat: N SIDE OF HWY MOWED/DISKED; GRAZING, MOWING, SPRAYING; POTENTIAL AG CONVERSION & ROAD WIDENING ALSO THREATEN.

General: 400 PLANTS SEEN IN 1986, 150 PLANTS SEEN IN 1987, IN 1990 TOTAL OF 650 PLANTS SEEN IN 2 POPULATIONS. AREA OF FORMER VALLEY GRASSLAND, NOW AGRICULTURE AND GRAZING. CLAY REMOVAL FOR CONSTRUCTION MAY ALSO BE A THREAT.

Owner/Manager: PVT

Spea hammondi

western spadefoot

Element Code: AAABF02020

Status	NODB Element Ranks	Other Lists
Federal: None	Global: G3	CDFG Status: SC
State: None	State: S3	

Habitat Associations

General: OCCURS PRIMARILY IN GRASSLAND HABITATS, BUT CAN BE FOUND IN VALLEY-FOOTHILL HARDWOOD WOODLANDS.

Micro: VERNAL POOLS ARE ESSENTIAL FOR BREEDING AND EGG-LAYING.

Occurrence No. 195	Map Index: 44979	EO Index: 44979	Dates Last Seen
Occ Rank: Good			Element: 1999-03-01
Origin: Natural/Native occurrence			Site: 1999-03-01
Presence: Presumed Extant			
Trend: Unknown			Record Last Updated: 2001-02-28

Quad Summary: Burris Park (3611945/335A)

County Summary: Kings

Lat/Long: 36.38111° / -119.50890°	Township: 18S
UTM: Zone-11 N4029144 E274949	Range: 23E
Area: 32.0 acres	Section: 08 Qtr: W
Elevation: 260 ft	Meridian: M

Mapping Precision: SPECIFIC
Symbol Type: POLYGON

Location: WEST SIDE OF CROSS CREEK, ~1 MILE SOUTH OF SETTLERS DITCH, NW OF VISALIA

Ecological: HABITAT CONSISTS OF NON-NATIVE ANNUAL GRASSLAND W/ VERNAL POOLS; GRASSLAND TO THE SOUTH & EAST, FARMLAND TO THE NORTH & WEST. AMBYSTOMA CALIFORNIENSE, BRANCHINETA LYNCHI, LEPIDURUS PACKARDI, & ATHENE CUNICULARIA FOUND IN THE VICINITY.

Threat: POSSIBLE THREAT OF DEVELOPMENT ON SURROUNDING FARMLAND.

General: MANY TADPOLES OBSERVED IN 3 SEPARATE POOLS ON 1 MAR 1999.

Owner/Manager: PVT

Tropidocarpum capparideum

caper-fruited tropidocarpum

Element Code: PDBRA2R010

Status	NDDB Element Ranks	Other Lists
Federal: None	Global: G1	CNPS List: 1B.1
State: None	State: S1.1	

Habitat Associations

General: VALLEY AND FOOTHILL GRASSLAND.
Micro: ALKALINE CLAY. 0-455M.

Occurrence No. 22	Map Index: 46277	EO Index: 64783	Dates Last Seen
Occ Rank: Unknown			Element: 1930-04-12
Origin: Natural/Native occurrence			Site: 1930-04-12
Presence: Presumed Extant			
Trend: Unknown			Record Last Updated: 2006-05-19

Quad Summary: Malaga (3611966/357B), Clovis (3611976/378C), Fresno South (3611967/358A), Fresno North (3611977/379D)
County Summary: Fresno

Lat/Long: 36.77388° / -119.77951°	Township: 13S
UTM: Zone-11 N4073392 E251931	Range: 20E
Radius: 5 mile	Section: 27 Qtr: XX
Elevation: 300 ft	Meridian: M
Mapping Precision: NON-SPECIFIC	
Symbol Type: POINT	

Location: FRESNO.

Location Detail: EXACT LOCATION UNKNOWN. MAPPED BY CNDDDB CENTERED ON THE CITY OF FRESNO, MAKING THE ASSUMPTION THAT THE SITE DESCRIPTION WAS REFERRING TO THE CITY OF FRESNO, NOT TO THE COUNTY OF FRESNO .

General: ONLY SOURCE OF INFORMATION FOR THIS OCCURRENCE IS A 1930 COLLECTION BY DE FOREST. NEEDS FIELDWORK.

Owner/Manager: UNKNOWN

Tuctoria greenei

Greene's tuctoria

Element Code: PMPOA8N010

Status	NDDB Element Ranks	Other Lists
Federal: Endangered	Global: G2	CNPS List: 1B.1
State: Rare	State: S2.2	

Habitat Associations

General: VERNAL POOLS, VALLEY AND FOOTHILL GRASSLAND.

Micro: DRY BOTTOMS OF VERNAL POOLS IN OPEN GRASSLANDS. 30-1065M.

Occurrence No. 17

Map Index: 15131

EO Index: 22351

Dates Last Seen

Occ Rank: None

Element: 1956-XX-XX

Origin: Natural/Native occurrence

Site: 1987-06-01

Presence: Extirpated

Record Last Updated: 1995-07-19

Trend: Unknown

Quad Summary: Sanger (3611965/357A), Round Mountain (3611975/378D)

County Summary: Fresno

Lat/Long: 36.75022° / -119.55597°

Township: 13S

UTM: Zone-11 N4070210 E271816

Range: 22E

Radius: 1/5 mile

Mapping Precision: NON-SPECIFIC

Section: 34

Qtr: SE

Elevation: 385 ft

Symbol Type: POINT

Meridian: M

Location: 3 MILES NORTH OF SANGER.

Location Detail: MAPPED NEAR INTERSECTION OF BELMONT ROAD AND ACADEMY AVENUE.

Ecological: BED OF DRIED POOL.

Threat: AREA IS NOW ORANGE ORCHARDS AND VINEYRDS.

General: SITE ONLY KNOWN FROM 1956 COLLECTION BY HOWELL AND BARNEBY.

Owner/Manager: UNKNOWN

Valley Sacaton Grassland

Element Code: CTT42120CA

Other Lists

Status

Federal: None

State: None

NDDB Element Ranks

Global: G1

State: S1.1

Habitat Associations

General:

Micro:

Dates Last Seen

Element: 1985-03-12

Site: 1985-03-12

Occurrence No. 12

Map index: 15270

EO Index: 8665

Occ Rank: Poor

Origin: Natural/Native occurrence

Presence: Presumed Extant

Trend: Decreasing

Record Last Updated: 1998-07-14

Quad Summary: Remnoy (3611935/335D), Goshen (3611934/334C), Traver (3611944/334B), Burris Park (3611945/335A)

County Summary: Tulare, Kings

Lat/Long: 36.36772° / -119.49151°

UTM: Zone-11 N4027618 E276472

Radius: 1 mile

Elevation: 260 ft

Mapping Precision: NON-SPECIFIC

Symbol Type: POINT

Township: 18S

Range: 23E

Section: 16

Meridian: M

Qtr: NW

Location: CROSS CREEK N OF HWY 198, ABOUT 3 MI W OF HWY 99 VIA AVE 328 & DIRT RD CONNECTING TO 320.

Ecological: HEAVILY GRAZED W/ VERY FEW SPOROBOLUS & SOME DEGRADED VERNAL POOLS, DISTICHLIS, HORDEUM, ERODIUM, ELYMUS DOM. LOW DIVERSITY, LOW NATIVE COVER. POOLS W/ MYOSURUS, LASTHENIA GLABRATA, JUNCUS, LEPIDIUM, PLAGIOBOTHRYS.

Threat: GRAZING HAS DISTURBED THIS SITE.

General: THIS WAS OCC #012 OF CTT42120CA.

Owner/Manager: PVT

Vulpes macrotis mutica

San Joaquin kit fox

Element Code: AMAJA03041

Status

NDDB Element Ranks

Other Lists

Federal: Endangered

Global: G4T2T3

CDFG Status:

State: Threatened

State: S2S3

Habitat Associations

General: ANNUAL GRASSLANDS OR GRASSY OPEN STAGES WITH SCATTERED SHRUBBY VEGETATION

Micro: NEED LOOSE-TEXTURED SANDY SOILS FOR BURROWING, AND SUITABLE PREY BASE.

Occurrence No. 150 Map Index: 55307 EO Index: 55307 Dates Last Seen
Occ Rank: Fair Element: 2003-08-08
Origin: Natural/Native occurrence Site: 2003-08-08
Presence: Presumed Extant Record Last Updated: 2004-05-03
Trend: Unknown

Quad Summary: Traver (3611944/334B)

County Summary: Tulare

Lat/Long: 36.38330° / -119.39653° Township: 18S
UTM: Zone-11 N4029131 E285037 Range: 24E
Radius: 1/5 mile Mapping Precision: NON-SPECIFIC Section: 08 Qtr: SE
Elevation: 300 ft Symbol Type: POINT Meridian: M

Location: NORTHEAST OF GOSHEN, 600 FT SW OF THE INTERSECTION OF J19 (AKA ROAD 80) & J34 (AKA AVE 328).

Location Detail: UTM COORDINATES AND MAP DO NOT INDICATE THE SAME LOCATION. USED THE MAP TO PLOT THE SIGHTING. ALSO LOCATION CONFIRMED BY E-MAIL

Ecological: IRRIGATED ALFALFA, BURROWING OWLS WERE IN THE AREA.

Threat: DOGS & COYOTES

General: 2003: 08/08/2003 ONE ADULT SIGHTED FORAGING IN FRESHLY CUT ALFALFA FIELD AT 22:30, ABOUT 600 FEET SW OF THE INTERSECTION.

Owner/Manager: UNKNOWN

Occurrence No. 619 Map Index: 67378 EO Index: 67546 Dates Last Seen
Occ Rank: Unknown Element: 1971-XX-XX
Origin: Natural/Native occurrence Site: 1971-XX-XX
Presence: Presumed Extant Record Last Updated: 2007-01-17
Trend: Unknown

Quad Summary: Traver (3611944/334B)

County Summary: Tulare

Lat/Long: 36.41594° / -119.39717° Township: 17S
UTM: Zone-11 N4032754 E285070 Range: 24E
Radius: 1/5 mile Mapping Precision: NON-SPECIFIC Section: 29 Qtr: XX
Elevation: 290 ft Symbol Type: POINT Meridian: M

Location: ABOUT 4.7MI NNE OF GOSHEN, JUST N OF ST. JOHNS RIVER.

General: KIT FOX OBSERVATION(S) IN 1971. SIGHTING, ROAD KILL OR DEN PRIOR TO 1972.

Owner/Manager: UNKNOWN

Occurrence No. 924 Map Index: 67807 EO Index: 67957 Dates Last Seen
Occ Rank: Unknown Element: 1975-07-XX
Origin: Natural/Native occurrence Site: 1975-07-XX
Presence: Presumed Extant Record Last Updated: 2007-01-17
Trend: Unknown

Quad Summary: Goshen (3611934/334C), Burris Park (3611945/335A), Traver (3611944/334B), Remnoy (3611935/335D)

County Summary: Kings

Lat/Long: 36.37274° / -119.50189° Township: 18S
UTM: Zone-11 N4028199 E275554 Range: 23E
Radius: 2/5 mile Mapping Precision: NON-SPECIFIC Section: 08 Qtr: XX
Elevation: 260 ft Symbol Type: POINT Meridian: M

Location: ABOUT 8.3MI ENE OF HANFORD & 4.7 MI NW OF GOSHEN, NEAR EAST BRANCH CROSS CREEK.

General: SIGHTING FROM 1972 THROUGH JUL 1975.

Owner/Manager: UNKNOWN

Vulpes macrotis mutica

San Joaquin kit fox

Element Code: AMAJA03041

Status
Federal: Endangered
State: Threatened

NDDB Element Ranks
Global: G4T2T3
State: S2S3

Other Lists
CDFG Status:

Habitat Associations
General: ANNUAL GRASSLANDS OR GRASSY OPEN STAGES WITH SCATTERED SHRUBBY VEGETATION.
Micro: NEED LOOSE-TEXTURED SANDY SOILS FOR BURROWING, AND SUITABLE PREY BASE.

Occurrence No. 925 **Map Index:** 67808
Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

EO Index: 67958

Dates Last Seen
Element: 1975-07-XX
Site: 1975-07-XX

Record Last Updated: 2007-01-17

Quad Summary: Laton (3611946/335B)
County Summary: Kings

Lat/Long: 36.41045° / -119.65323°
UTM: Zone-11 N4032746 E262090
Radius: 2/5 mile
Elevation:

Mapping Precision: NON-SPECIFIC
Symbol Type: POINT

Township: 17S
Range: 21E
Section: 36 **Qtr:** XX
Meridian: M

Location: ABOUT 2.5MI SE OF LATON, 0.6MI N OF INTERSECTION OF 11TH AVE AND EXCELSIOR AVE & S OF THE KINGS RIVER.

General: SIGHTING SOMETIME FROM 1972 THROUGH JUL 1975.

Owner/Manager: UNKNOWN

Occurrence No. 926 **Map Index:** 67809
Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

EO Index: 67959

Dates Last Seen
Element: 1975-07-XX
Site: 1975-07-XX

Record Last Updated: 2007-01-17

Quad Summary: Laton (3611946/335B)
County Summary: Fresno

Lat/Long: 36.48025° / -119.71111°
UTM: Zone-11 N4040635 E257116
Radius: 2/5 mile
Elevation: 260 ft

Mapping Precision: NON-SPECIFIC
Symbol Type: POINT

Township: 17S
Range: 21E
Section: 05 **Qtr:** XX
Meridian: M

Location: ABOUT 3.5MI NNW OF LATON, JUST SW OF INTERSECTION OF CLOVIS AVE & ATCHISON TOPEKA AND SANTA FE RR.

General: SIGHTING SOMETIME FROM 1972 THROUGH JUL 1975.

Owner/Manager: UNKNOWN

APPENDIX E

Special-Status Plants

in the

Vicinity of the Project Site



Special-Status Plant Species

Species	Status			Habitat Description	Bloom Period	Elevational Range	Effects Determination
	Federal	State	CNPS				
Obovate-leaved thormmint <i>Acanthomintha obovata</i>	--	--	4	Chaparral, cismontane woodland, valley and foothill grassland. Heavy clay, alkaline, serpentine soils.	April-July	395-1,500 m	No Effects
Forked fiddleneck <i>Amsinckia vernicosa furcata</i>	FSC	--	4	Cismontane woodland, valley and foothill grassland.	February-May	50-1,000 m	No Effects
Bodie Hills rock cress <i>Arabis bodiensis</i>	FSC	--	1B	Alpine boulder and rock field, Great Basin scrub, pinyon and juniper woodland, and possibly subalpine coniferous forest.	June-August	2,195-3,530 m	No Effects
Kern Plateau milk-vetch <i>Astragalus lentiginosus kernensis</i>	FSC	--	1B	Subalpine coniferous forest. Meadows and seeps.	June-July	2,240-2,750 m	No Effects
Raven's milk-vetch <i>Astragalus monoensis ravenii</i>	FSC	--	1B	Alpine boulder and rock field, upper montane coniferous forest. Gravelly soils.	July-September	3,355-3,460 m	No Effects
Heartscale <i>Atriplex cordulata</i>	FSC	--	1B	Chenopod scrub, meadows and seeps, valley and foothill grassland. Sandy/saline or alkaline soils.	April-October	1-375 m	No Effects
Brittlescale <i>Atriplex depressa</i>	FSC	--	1B	Chenopod scrub, meadows and seeps, playas, valley and foothill grassland, vernal pools. Alkaline or clay soils.	May-October	1-320 m	No Effects
Earlismart orache <i>Atriplex erecticaulis</i>	FSC	--	1B	Valley and foothill grassland in southern San Joaquin valley. Alkaline soils.	August-September	40 -100 m	No Effects
Lesser saltscale <i>Atriplex minuscula</i>	FSC	--	1B	Chenopod scrub, playas, valley and foothill grassland. Alkaline or sandy soils.	May-October	15-200 m	No Effects
Vernal pool saltbush	FSC	--	1B	Vernal pools. Alkaline soils.	June-October	10-115 m	No Effects

Special-Status Plant Species

Species	Status			Habitat Description	Bloom Period	Elevational Range	Effects Determination
	Federal	State	CNPS				
<i>Atriplex persistens</i>							
Subtle orache <i>Atriplex subutilis</i>	FSC	--	1B	Valley and foothill grasslands.	June-October	40-100 m	No Effects
Lost Hills saltbush (=crowscale) <i>Atriplex vallicola</i>	FSC	--	1B	Chenopod scrub, valley and foothill grasslands Vernal pools in alkaline soils.	April-August	50-63 m	No Effects
Scalloped moonwort <i>Botrychium crenulatum</i>	FSC	--	2	Lower montane conifer forest. Meadows, seeps, marshes, and swamps.	June-September	1,500-3,280 m	No Effects
Slender moonwort (=narrowleaf grapefern) <i>Botrychium lineare</i>	FC	--	1B	Upper montane coniferous forest. Known in CA from a single small occurrence near Piute Pass.	Unknown	2,600 m	No Effects
Kaweah brodiaea <i>Brodiaea insignis</i>	FSC	SE	1B	Cismontane woodland, valley and foothill grassland.	April-June	150-1,400 m	No Effects
Alkali Mariposa lily <i>Calochortus striatus</i>	FSC	--	1B	Chaparral, chenopod scrub, Mojavean desert scrub. Meadows and seeps.	April-June	70-1,595 m	No Effects
Shirley Meadows Mariposa lily <i>Calochortus westonii</i>	FSC	--	1B	Lower montane coniferous forest. Meadows and seeps.	May-June	1,500-2,105 m	No Effects
Mariposa pussy-paws <i>Calyptridium pulchellum</i>	FT	--	1B	Chaparral, cismontane woodland. Sandy or gravelly, granitic soils.	April-August	400-1,220 m	No Effects

Special-Status Plant Species

Species	Status			Habitat Description	Bloom Period	Elevational Range	Effects Determination
	Federal	State	CNPS				
South Coast Range morning-glory <i>Calyptegia collina venusta</i>	FSC	--	4	Chaparral, cismontane woodland, valley and foothill grasslands. Serpentine or sedimentary.	April-June	425-1,130 m	No Effects
San Benito evening-primrose <i>Camissonia benitensis</i>	FT	--	1B	Chaparral, cismontane woodland. Serpentine alluvium, clay or gravelly soils.	May-June	600-1,280 m	No Effects
Mono Hot Springs evening-primrose <i>Camissonia sierrae alicola</i>	FSC	--	1B	Lower montane coniferous forest, upper montane coniferous forest. Granitic, gravel and sand pan soils.	May-August	1,340-2,410 m	No Effects
Carpenteria (=tree-anemone) <i>Carpenteria californica</i>	--	ST	1B	Chaparral, cismontane Woodland. Usually granitic soils.	May-July	340-1,340 m	No Effects
Succulent owl's-clover <i>Castilleja campestris succulenta</i>	FT	SE	1B	Vernal pools (often with acidic soils).	April-May	50-750 m	No Effects
Lemmon's jewelflower <i>Caulanthus coulteri lemmonii</i>	FSC	--	1B	Pinyon and juniper woodland, valley and foothill grasslands.	March-May	80-1,220 m	No Effects
California jewelflower <i>Caulanthus californicus</i>	FE	SE	1B	Chenopod scrub, pinyon and juniper woodland, valley and foothill grasslands. Sandy soils.	February-May	70-1,000 m	No Effects

Special-Status Plant Species

Species	Status			Habitat Description	Bloom Period	Elevational Range	Effects Determination
	Federal	State	CNPS				
Hoover's spurge <i>Chamaesyce hooveri</i>	FT	--	1B	Vernal pools.	July-August	25-250 m	No Effects
San Benito spineflower <i>Chorizanthe biloba immemora</i>	FSC	--	1B	Chaparral, cismontane woodland.	May-September	600-800 m	No Effects
Slough thistle <i>Cirsium crassicaule</i>	FSC	--	1B	Chenopod scrub, riparian scrub. Marshes and sloughs.	May – August	3 – 1,000 m	No Effects
Springville clarkia <i>Clarkia springvillensis</i>	FT	SE	1B	Chaparral, cismontane woodland, valley and foothill grasslands. Granitic soils.	May-July	245-1,220 m	No Effects
Palmate-bracted bird's-beak <i>Cordylanthus palmatus</i>	FE	SE	1B	Chenopod scrub, valley and foothill grasslands. Alkaline soils.	May-October	5-155 m	No Effects
Fresno County bird's-beak <i>Cordylanthus tenuis barbatus</i>	FSC	--	4	Lower montane coniferous forest.	July-August	1,300-2,000 m	No Effects
Piute cypress <i>Cupressus arizonica nevadensis</i>	FSC	--	1B	Closed-cone conifer forest, chaparral, cismontane woodland, pinyon and juniper woodland.	March-July	720-1,830 m	No Effects
Ewan's larkspur <i>Delphinium hansenii ewaniamum</i>	FSC	--	4	Cismontane woodland, valley and foothill grasslands. Rocky soils.	March-May	60-600 m	No Effects
Recurved larkspur <i>Delphinium recurvatum</i>	FSC	--	1B	Chenopod scrub, cismontane woodland, valley and foothill grasslands. Alkaline soils.	March-May	3-750 m	No Effects
Pierpoint Springs liveforever <i>Dudleya cymosa costafolia</i>	FSC	--	1B	Chaparral, cismontane woodland. Carbonate soils.	May-July	1,435-1600 m	No Effects
Hoover's eriastrum (=wooly-star) <i>Eriastrum hooveri</i>	FT	--	4	Chenopod scrub, valley and foothill grasslands. Clay soils.	March-September	100-550 m	No Effects

Special-Status Plant Species

Species	Status			Habitat Description	Bloom Period	Elevational Range	Effects Determination
	Federal	State	CNPS				
Kern River daisy <i>Erigeron multiceps</i>	FSC	--	1B	Upper montane coniferous forest (openings). Meadows and seeps.	June-September	1,500-2,500 m	No Effects
Cottony Buckwheat <i>Eriogonum gossypinum</i>	FSC	--	4	Chenopod scrub, valley and foothill grasslands. Clay soils.	March-September	100-550 m	No Effects
Mouse buckwheat <i>Eriogonum nudum murinum</i>	FSC	--	1B	Chaparral, cismontane woodland, valley and foothill grasslands. Sandy soils.	June – November	365-1,130 m	No Effects
Twisselmann's buckwheat <i>Eriogonum twisselmannii</i>	FSC	Rare	1B	Upper montane conifer forest. Granitic soils.	July-September	2,375-2,805 m	No Effects
Spiny-sealed coyote-thistle (=button-celery) <i>Eryngium spinosepalum</i>	FSC	--	1B	Valley and foothill grassland. Vernal pools.	April-May	100-255 m	No Effects
Kaweah Lakes fawn-lily <i>Erythronium grandiflorus pusaterii</i>	FSC	--	1B	Subalpine conifer forest. Meadows and seeps.	May-July	2,100-2,775 m	No Effects
Stinkbells <i>Fritillaria agrestis</i>	FSC	--	4	Chaparral, cismontane woodland, pinyon and juniper woodland, valley and foothill grasslands. Clay, sometimes serpentinite soils.	March-June	10-1,555 m	No Effects
Greenhorn adobe-lily <i>Fritillaria striata</i>	FSC	ST	1B	Cismontane woodland, valley and foothill grasslands. Clay soils.	February-April	135-1,455 m	No Effects
Serpentine bedstraw <i>Galium andrewsii gatense</i>	FSC	--	4	Chaparral, cismontane woodland, lower montane coniferous forest. Serpentine, rocky soils.	April-July	150-1,450 m	No Effects
Boggs Lake hedge-hyssop <i>Gratiola heterosepala</i>	--	SE	1B	Marshes and swamps (lake margins), vernal pools. Clay soils.	April-August	10-2,375 m	No Effects

Special-Status Plant Species

Species	Status			Habitat Description	Bloom Period	Elevational Range	Effects Determination
	Federal	State	CNPS				
Hollisteria <i>Hollisteria lantana</i>	FSC	--	--	Grasslands with clay soils.	Unknown	15-975 m	No Effects
Vernal Barley <i>Hordeum intercedens</i>	--	--	3	Coastal dunes, coastal scrub, valley and foothill grasslands (saline flats and depressions), vernal pools.	March - June	5 - 1000 m	No Effects
Tulare horkelia <i>Horkelia tularensis</i>	FSC	--	1B	Upper montane conifer forest. Rocky soils.	July-August	2,300-2,875 m	No Effects
Short-leaved hulsea <i>Hulsea brevifolia</i>	FSC	--	1B	Montane conifer forest. Granitic or volcanic, gravelly or sandy soils.	May-August	1,500-3,200 m	No Effects
Field ivestia <i>Ivesia campestris</i>	FSC	--	1B	Subalpine conifer forest upper montane conifer forest. Meadows and seeps.	June-August	1,975-3,350 m	No Effects
Delta tule-pea <i>Lathyrus jepsonii jepsonii</i>	FSC	--	1B	Marshes and swamps (freshwater and brackish).	May-September	0-4 m	No Effects
Rayless layia <i>Layia discoidea</i>	FSC	--	1B	Chaparral, cismontane woodland, lower montane coniferous forest. Serpentine soils, talus and alluvial terraces.	May	795-1,585 m	No Effects
Pale-yellow layia <i>Layia heterotricha</i>	FSC	--	1B	Cismontane woodland, pinyon and juniper woodland, valley and foothill grasslands. Alkaline or clay soils.	March-June	300-1,600 m	No Effects
Munz's tidy-tips <i>Layia murzii</i>	FSC	--	1B	Chenopod scrub, valley and foothill grasslands. Alkaline and clay soils.	March-April	150-700 m	No Effects
Madera linanthus <i>Linanthus serrulatus</i>	FSC	--	1B	Cismontane woodland, lower montane conifer forest.	April-May	300-1,300 m	No Effects

Special-Status Plant Species

Species	Status			Habitat Description	Bloom Period	Elevational Range	Effects Determination
	Federal	State	CNPS				
Panoche peppergrass <i>Lepidium jaredii album</i>	FSC	--	1B	Valley and foothill grasslands. Alluvial fans and washes.	February-June	185-275 m	No Effects
Yosemite lewisia <i>Lewisia disepala</i>	FSC	--	1B	Lower montane coniferous forest, pinyon and juniper woodland, upper montane coniferous forest. Granitic, sandy soils.	March-June	1,340-3,500 m	No Effects
Long-petaled lewisia <i>Lewisia longipetala</i>	FSC	--	1B	Alpine boulder and rock field, subalpine coniferous forest. Mesic, rocky, granitic soils.	April-July	2,500-2,925 m	No Effects
Orange lupine <i>Lupinus citrinus citrinus</i>	FSC	--	1B	Chaparral, cismontane woodland, lower montane coniferous forest. Granitic soils.	April-July	380-1,700 m	No Effects
DeDecker's lupine <i>Lupinus padre-crowleyi</i>	FSC	Rare	1B	Great Basin scrub, riparian forest, riparian scrub, upper montane conifer forest. Decomposing granitic soils.	July-August	3,200-4,000 m	No Effects
Showy madia <i>Madia radiata</i>	FSC	--	1B	Cismontane woodland, valley and foothill grasslands.	March-May	25-900 m	No Effects
Kaweah monkeyflower <i>Mimulus norrisii</i>	FSC	--	1B	Chaparral, cismontane woodland. Carbonate, rocky soils.	March-May	365-1,300 m	No Effects
San Joaquin woolly-threads <i>Monolopia (=Lembertia) congdonii</i>	FE	--	1B	Chenopod scrub, valley and foothill grasslands. Sandy soils.	February-May	60-800 m	No Effects
Calico monkeyflower <i>Mimulus pictus</i>	FSC	--	1B	Cismontane woodland. Granitic soils.	March-May	100-1,300 m	No Effects
Flax-like monardella <i>Monardella linoides oblonga</i>	FSC	--	1B	Montane conifer forest, pinyon and juniper woodland.	June-August	900-2,470 m	No Effects

Special-Status Plant Species

Species	Status		Habitat Description	Bloom Period	Elevational Range	Effects Determination
	Federal	State				
Little mousetail <i>Myosurus minimus apus</i>	FSC	--	3	Valley and foothill grasslands. Vernal pools with alkaline soils.	March-June	No Effects
Piute Mountains navarretia <i>Navarretia setiloba</i>	FSC	--	1B	Cismontane woodland, pinyon and juniper woodland, valley and foothill grasslands. Clay or gravelly loam soils.	April-June	No Effects
Twisselmann's nemacladus <i>Nemacladus twisselmannii</i>	FSC	--	1B	Upper montane conifer forest. Sandy or rocky granitic soils.	July	No Effects
San Joaquin Valley Orcutt grass <i>Orcuttia inaequalis</i>	FT	SE	1B	Vernal pools.	April-September	No Effects
Hairy Orcutt grass <i>Orcuttia pilosa</i>	FE	SE	1B	Vernal pools.	May-September	No Effects
Purple mountain-parsley <i>Oreonana purpurascens</i>	FSC	--	1B	Subalpine conifer forest, upper montane conifer forest. Metamorphic soils.	May-June	No Effects
Charlotte's phacelia <i>Phacelia nashiana</i>	FSC	--	1B	Joshua tree woodland, Mojavean desert scrub, pinyon and juniper woodland. Granitic, sandy soils.	March-June	No Effects
Nine Mile Canyon phacelia <i>Phacelia novemmillensis</i>	FSC	--	1B	Cismontane woodland, pinyon and juniper woodland, upper montane conifer forest. Sandy or gravelly soils.	May-June	No Effects
Hartweg's golden sunburst <i>Pseudobahia bahifolia</i>	FE	SE	1B	Cismontane woodland, valley and foothill grasslands. Clay soils.	March-April	No Effects
San Joaquin adobe sunburst <i>Pseudobahia peirsonii</i>	FT	SE	1B	Cismontane woodland, valley and foothill grasslands. Adobe clay soils.	March-April	No Effects
Aromatic canyon gooseberry <i>Ribes menziesii ixoderme</i>	FSC	--	1B	Chaparral, cismontane woodland.	April	No Effects

Special-Status Plant Species

Species	Status			Habitat Description	Bloom Period	Elevational Range	Effects Determination
	Federal	State	CNPS				
Sequoia gooseberry <i>Ribes tularens</i>	FSC	--	1B	Montane conifer forest	May	1,500-2,075 m	No Effects
Sanford's arrowhead <i>Sagittaria sanfordii</i>	--	--	1B	Marshes and swamps (assorted shallow freshwater).	May-October	<610 m	No Effects
Keck's checker-mallow (=checkerbloom) <i>Sidalcea keckii</i>	FE	--	1B	Cismontane woodland, valley and foothill grasslands. Serpentine and clay soils.	April-May	120-425 m	No Effects
Tehipite Valley jewelflower <i>Streptanthus fenestratus</i>	FSC	--	1B	Lower montane coniferous forest, upper montane coniferous forest.	April-July	1,065-1,750 m	No Effects
Alpine streptanthus (=jewel-flower) <i>Streptanthus gracilis</i>	FSC	--	1B	Subalpine coniferous forest, upper montane coniferous forest. Granitic rocky soils.	July-August	2,800-3,500 m	No Effects
Parasol (=Bolander's) clover <i>Trifolium bolanderi</i>	FSC	--	1B	Montane coniferous forest. Meadows and seeps.	June-August	2,075-2,600 m	No Effects
Greene's tuctoria (=Orcutt grass) <i>Tuctoria greenii</i>	FE	Rare	1B	Vernal pools.	May-September	30-1,070 m	No Effects
King's gold <i>Twisselmannia californica</i>	FCS	--	1B	Chaparral scrub. Subalkaline sandy clay soil.	March	65 m	No Effects

Federal status:

FE	Listed as endangered under the Federal Endangered Species Act
FT	Listed as threatened under the Federal Endangered Species Act
PE	Proposed for listing as endangered under the Federal Endangered Species Act
PT	Proposed for listing as threatened under the Federal Endangered Species Act
FC	Candidate species for listing under the Federal Endangered Species Act
FSC	Species of concern as identified by the U.S. Fish and Wildlife Service

State Status:

SE	Listed as endangered under the California Endangered Species Act
ST	Listed as threatened under the California Endangered Species Act
CSC	Species of concern as identified by the California Department of Fish and Game
Rare	Species identified as rare by the California Department of Fish and Game

California Native Plant Society Status (CNPS 2003):

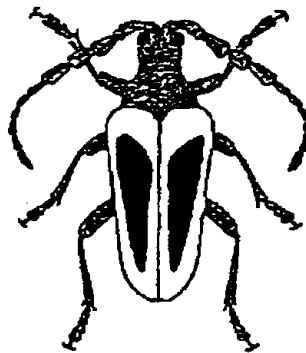
1A	Plant species that are presumed extinct in California
1B	Plant species that are rare, threatened, or endangered in California and elsewhere.
2	Plant species that are rare, threatened, or endangered in California, but are more common elsewhere
3	Plant species that lack the necessary information to assign them to a listing status
4	Plant species that have a limited distribution or that are infrequent throughout a broader area in California

APPENDIX F

Special-Status Wildlife

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Special-Status Wildlife Species

Species	Status		Habitat Association	Effects Determination
	Federal	State		
Invertebrates				
Vernal pool fairy shrimp <i>Branchinecta lynchi</i>	FT	--	Endemic to the grasslands of the Central Valley, Central Coast Mountains, and South Coast Mountains of California, in static rain-filled pools. Inhabits small, clear-water sandstone-depression pools and grassed swales, earth slumps or basalt-flow depression pools.	No Effects
Midvalley fairy shrimp <i>Branchinecta mesovallensis</i>	FSC	--	Midvalley Fairy Shrimp is a newly described species that inhabits pools in only a handful of counties within the Great Central Valley including Sacramento, Solano, Merced, Madera, San Joaquin, Fresno and Contra Costa counties. A small, soft-bodied crustacean that lives in vernal pools (seasonal wetlands that fill with water during fall and winter rains).	No Effects
Vernal pool tadpole shrimp <i>Lepidurus packardii</i>	FE	--	Inhabits seasonal pools in unplowed grasslands with old alluvial soils underlain by hardpan or in sandstone depressions.	No Effects
California linderiella <i>Linderiella occidentalis</i>	FE	--	Seasonal pools in unplowed grasslands with old alluvial soils underlain by hardpan or in sandstone depressions. Water in pools has very low alkalinity, conductivity and total dissolved solids.	No Effects
Conservancy Fairy Shrimp <i>Branchinecta Conservation</i>	FE	--	Endemic to the grasslands of the northern two-thirds of the Central Valley. Found in large, turbid vernal pools and vernal swales.	No Effects
Dry Creek cliff strider bug <i>Oravelia pege</i>	FSC	--	Known only from Dry Creek, an intermittent creek in Fresno County at an elevation of about 1,000 feet. Found in cracks and crevices of sheer rocky cliffs moistened by seeping water.	No Effects
Ciervo aegilian scarab beetle <i>Aegialia concinna</i>	FSC	--	The Ciervo aegilian scarab beetle has been associated with Delta and inland dune systems and sandy substrates; however, plant associations specific to this species have not been reported.	No Effects

Special-Status Wildlife Species

Species	Status		Habitat Association	Effects Determination
	Federal	State		
San Joaquin tiger beetle <i>Cicindela tranquebarica</i> ssp.	FSC	--	Distribution is limited to vernal pools, alkali wetlands and scalds, and nearby open areas from Merced to Fresno County (possibly Kings County).	No Effects
San Joaquin dune beetle <i>Coelus gracilis</i>	FSC	--	Inhabits sites with sandy substrates in fossil dunes along the western edge of the San Joaquin Valley.	No Effects
Valley elderberry longhorn beetle <i>Desmocerus californicus dimorphus</i>	FT	--	Occurs only in the Central Valley of California, in association with blue elderberry (<i>Sambucus mexicana</i>). Prefers to lay eggs in elderberry stems 2 to 8 inches in diameter; some preference shown for "stressed" elderberries.	No Effects
Wooly hydroporus diving beetle <i>Hydroporus hirsutus</i>	FSC	--	Sierra Nevada at 12,600 ft. elevation, aquatic habitat, Mount Goethe (Fresno County).	No Effects
Hopping's blister beetle <i>Lytta hoppingi</i>	FSC	--	Foothills at the southern end of the Central Valley.	No Effects
Molestan blister beetle <i>Lytta molesta</i>	FSC	--	Inhabits the Central Valley of California from Contra Costa to Kern and Tulare counties. Flowers and foliage of various plants in grasslands.	No Effects
Moesta blister beetle <i>Lytta moesta</i>	FSC	--	Grasslands of the Central Valley of California and foothills of the Sierra Nevada in Fresno and Tulare Counties.	No Effects
Morrison's blister beetle <i>Lytta morrisoni</i>	FSC	--	Valley and foothill grasslands of the Central Valley of California.	No Effects

Special-Status Wildlife Species

Species	Status		Habitat Association	Effects Determination
	Federal	State		
Boharts's blue butterfly <i>Philotiella speciosa bohartorum</i>	FSC	--	Known from the foothills of the southern Sierra Nevada near Briceburg, Mariposa County. Associated with pink spineflower (probable food).	No Effects
San Emigdio blue butterfly <i>Plebulina emigdionis</i>	FSC	--	Found in desert canyons and along riverbeds on the southernmost edge of the San Joaquin Valley. Host plant is <i>Atriplex canescens</i> .	No Effects
Denning's cryptic caddisfly <i>Cryptochia denningi</i>	FSC	--	Small, cold springs in the Sierra Nevada at high elevations.	No Effects
Kings Canyon cryptochian caddisfly <i>Cryptochia excella</i>	FSC	--	Small, cold springs in the Sierra Nevada at 6,400 ft. elevation.	No Effects
Doyen's trigonoscuta dune weevil <i>Trigonoscuta doyeri</i>	FSC	--	Inhabits fossil dunes along the western edge of the San Joaquin Valley.	No Effects
Fish				
River lamprey <i>Lampetra ayresi</i>	FSC	CSC	Ranges from the Sacramento-San Joaquin Delta region northward; however, it appears most numerous in the Sacramento and San Joaquin Rivers.	No Effects
Kern brook lamprey <i>Lampetra hubbsi</i>	FSC	CSC	Inhabits waters of the San Joaquin River system and the Kern River. Spawning occurs in gravel-bottomed areas, the ammocoetes utilize muddy-bottomed areas to burrow and feed.	No Effects
Pacific lamprey <i>Lampetra tridentata</i>	FSC	--	Most coastal streams and rivers of California.	No Effects
Green sturgeon <i>Acipenser medirostris</i>	FSC	CSC	Primarily marine, this species seldom migrates inland beyond the estuaries of large rivers.	No Effects

Special-Status Wildlife Species

Species	Status		Habitat Association	Effects Determination
	Federal	State		
Lahontan cutthroat trout <i>Oncorhynchus clarki henshawi</i>	FT	--	Occurs in a wide variety of cold waters, including large alkaline lakes, small mountain lakes, major rivers and small tributaries. Range includes Truckee, Carson, Walker River, Donner Creek and Pyramid, Walker, Donner, Independence and Summit Lakes.	No Effects
Paiute cutthroat trout <i>Oncorhynchus clarki seleniris</i>	FT	--	Inhabits cool, well oxygenated waters; cannot tolerate presence of other salmonids; requires clean gravel for spawning.	No Effects
Central Valley steelhead <i>Oncorhynchus mykiss</i>	FT	--	Critical habitat was designated to include all river reaches accessible to listed steelhead in the Sacramento and San Joaquin Rivers and tributaries in California. The river reaches and estuarine areas of the Sacramento-San Joaquin delta are also included.	No Effects
Little Kern golden trout <i>Oncorhynchus mykiss whitei</i>	FT	--	Native to the Little Kern River in Tulare County. Found in clear, cold mountain streams and lakes at 5,000 to 9,000 feet elevation.	No Effects
Volcano Creek golden trout <i>Oncorhynchus mykiss aquabonita</i>	FSC	CSC	Native to the Kern Plateau in wide, shallow and exposed streams with little riparian vegetation. Water is clear and usually cold, but summer temperatures can vary from 3 to 22 degrees Celsius.	No Effects
Kern River golden trout <i>Oncorhynchus mykiss gilberti</i>	FSC	CSC	Endemic to the upper Kern River and its tributaries. Cool, clear, fast flowing streams where riffles are abundant.	No Effects
Hardhead <i>Mylopharodon conocephalus</i>	--	CSC	Low to mid-elevation streams in the Sacramento – San Joaquin drainage, deep pools with sand -- gravel -- boulder bottoms and slow water velocity.	No Effects

Special-Status Wildlife Species

Species	Status		Habitat Association	Effects Determination
	Federal	State		
Delta smelt <i>Hypomesus transpacificus</i>	FT	ST	This species inhabits the Sacramento-San Joaquin Delta and seasonally inhabits the Suisun Bay, Carquinez Strait and San Pablo Bay. This species is seldom found at salinities above 10 ppt, and is most often found at salinities below 2 ppt. Spawning appears to occur in side channels and sloughs in the middle reaches of the Delta.	No Effects
Longfin smelt <i>Spirinchus thaleichthys</i>	FSC	CSC	This species prefers moderately saline water and may be found in major bays and estuaries from San Francisco Bay northward. It lives in the bay waters throughout the summer moving into the lower reaches of the rivers that flow into these bays in the fall to spawn.	No Effects
Sacramento splittail <i>Pogonichthys macrolepidotus</i>	FT	CSC	Inhabits slow moving river sections and dead end sloughs. Requires flooded vegetation for spawning adults and foraging for young. Endemic to lakes and rivers of the Central Valley, but now confined to the Delta, Suisun Bay and associated marshes.	No Effects
Amphibians				
California tiger salamander <i>Ambystoma californiense</i>	FSC	CSC	Annual grasslands and grassy understory of valley-foothill hardwood habitats in central and northern California. Requires underground refuges, especially ground squirrel burrows, and vernal pools or other seasonal water sources for breeding.	No Effects
Mount Lyell salamander <i>Hydromantes platycephalus</i>	FSC	CSC	Inhabits rock fields in mixed conifer, red fir, lodgepole pine and subalpine communities. Utilizes rock fissures, seeps, shade, and low-growing plants. Elevational range extends from 4,000 to 11,600 feet.	No Effects
Kern Canyon Slender Salamander <i>Batrachoseps simatus</i>	FT	--	Found only in Kern River Canyon, Tulare and Kern Counties. Occurs in blue oak savannah: prefers digger pine-oak types at 1,000-4,000 feet.	No Effects
Western spadefoot toad <i>Spea</i> (= <i>Scaphiopus</i>) <i>hammondi</i>	FSC	CSC	Occurs primarily in grassland environments, but can also be found in valley-foothill hardwood woodlands. Shallow, temporary ponds are used for breeding and egg-laying.	No Effects
Yosemite toad <i>Bufo canorus</i>	FSC	CSC	Inhabits wet meadows in the central Sierra Nevada between elevations of 6,400 and 11,300 feet.	No Effects
California red-legged frog <i>Rana aurora draytonii</i>	FT	CSC	Lowlands and foothills in a variety of aquatic, riparian and upland environments near permanent sources of water.	No Effects

Special-Status Wildlife Species

Species	Status		Habitat Association	Effects Determination
	Federal	State		
Foothill yellow-legged frog <i>Rana boylei</i>	FSC	CSC	Partially shaded, shallow streams with riffles and rocky substrates in a variety of vegetation communities.	No Effects
Mountain yellow-legged frog <i>Rana muscosa</i>	FSC	CSC	Inhabits ponds, lakes and streams associated with montane, riparian, lodgepole pine, subalpine conifer and wet meadow communities.	No Effects
Reptiles				
Western pond turtle <i>Clemmys marmorata</i>	FSC	CSC	Includes both subspecies (<i>C. m. pallida</i> and <i>C. m. marmorata</i>). Aquatic habitat of ponds, marshes, streams, and irrigation ditches that have abundant emergent or riparian vegetation.	No Effects
Blunt-nosed leopard lizard <i>Gambelia sila</i>	FE	--	Associated with <i>Atriplex</i> and other alkali sink shrubs. Densities of the species may be correlated with high number of unused small mammal burrows.	No Effects
California horned lizard <i>Phrynosoma coronatum frontale</i>	FSC	CSC	Found in a variety of habitats including scrubland, grassland, coniferous forest, and broadleaf forests. Common in lowlands along sandy washes where low shrubs provide cover.	No Effects
Silvery legless lizard <i>Anniella pulchra pulchra</i>	FSC	CSC	Typically occurs in sandy or loose loamy soils under sparse vegetation. Soil moisture is essential, with the species showing a preference towards soils with high moisture content.	No Effects
San Joaquin coachwhip (=whipsnake) <i>Masticophis flagellum ruddocki</i>	FSC	CSC	Inhabits open, dry environments with little or no tree cover. Found in valley grassland and saltbrush scrub in the San Joaquin Valley. Mammal burrows are used for refuge and oviposition sites.	No Effects
Giant garter snake <i>Thamnophis gigas</i>	FT	ST	Prefers freshwater marsh and low gradient streams. Has adapted to drainage canals and irrigation ditches.	No Effects

Special-Status Wildlife Species

Species	Status		Habitat Association	Effects Determination
	Federal	State		
Birds				
Common loon <i>Gavia immer</i>	FSC	CSC	Estuarine and subtidal marine habitats along the coast. Uncommon on large deep lakes in valleys and foothills throughout the state.	No Effects
Double crested cormorant <i>Phalacrocorax auritus</i>	None	CSC	Colonial nester on coastal cliffs and offshore islands. Fairly widespread during migration, foraging in fresh emergent wetlands, wet meadows and irrigated or flooded pastures and croplands.	No Effects
American bittern <i>Botaurus lentiginosus</i>	FSC	--	Inhabits fresh or saline emergent wetlands.	No Effects
Western least bittern <i>Ixobrychus exilis hesperis</i>	FSC	CSC	Inhabits large, fresh emergent wetlands with dense emergent vegetation such as cattails and tules.	No Effects
Snowy egret <i>Egretta thula</i>	MB	--	Inhabits fresh and saline emergent wetlands coastal estuaries, ponds, slow-moving rivers, irrigation ditches and wet fields.	No Effects
Great Blue Heron <i>Ardea herodias</i>	--	--	Inhabits fresh and saline emergent wetlands coastal estuaries, ponds, slow-moving rivers, irrigation ditches and wet fields.	No Effects
White faced ibis <i>Plegadis chihi</i>	FSC/MN BMC	CSC	Breeds in dense, fresh emergent wetlands; however, this species has declined in California and no longer breeds regularly. Fairly widespread during migration, foraging in fresh emergent wetlands, wet meadows and irrigated or flooded pastures and croplands.	No Effects
Aleutian Canada goose <i>Branta canadensis leucoparia</i>	FT	--	The Central Valley is the main wintering ground of this subspecies. Typically forages in fields near their roosting areas (lakes and ponds).	No Effects
California condor <i>Gymnogyps californianus</i>	FE	SE/CFP	Requires vast expanses of open savannah, grasslands, and foothill chaparral with cliffs, large trees and snags for roosting and nesting.	No Effects

Special-Status Wildlife Species

Species	Status		Habitat Association	Effects Determination
	Federal	State		
White-tailed kite <i>Elanus leucurus</i>	FSC	FP	Low rolling foothills/valley margins with scattered oaks and river bottomlands or marshes adjacent to deciduous woodland. Open grasslands, meadows or marshes are utilized for foraging. Isolated, dense-topped trees in close proximity to foraging areas are used for nesting and perching.	No Effects
Bald eagle <i>Haliaeetus leucocephalus</i>	FT	SE/CFP	Breeds and roosts in remote coniferous forest in close proximity to a river, stream lake, reservoir, marsh or other large wetland areas.	No Effects
Golden Eagle <i>Aquila chrysaetos</i>	--	CSC	Found in annual grassland to above timberline forest habitats. Favors grass/forb, shrub/sapling, and open-canopied young woodlands of blue oak. Requires cliffs or large live or dead trees for nesting.	No Effects
Northern goshawk <i>Accipiter gentilis</i>	FSC	CSC	Breeds and forages in mature stands of coniferous, mixed and deciduous forest.	No Effects
Swainson's hawk <i>Buteo swainsoni</i> (nesting)	--	ST	Breeds in stands of sparse juniper-sage flats, riparian areas and in oak savannahs. Requires adjacent suitable foraging habit such as grasslands, alfalfa or grain fields supporting rodent populations.	Potential
Cooper's Hawk <i>Accipiter cooperi</i>	--	CSC	Breeds from digger pine-oak up to ponderosa pine and black oak woodland zone; prefers dense stands of live oaks or riparian sites. In winter, found in a variety of wooded habitats.	No Effects
Sharp-shinned Hawk <i>Accipiter striatus</i>	--	CSC	Breeds in pole to mature tree stages of ponderosa pine, black oak, riparian deciduous, mixed-conifer, and Jeffrey pine types. Moves downslope for fall, winter, and spring periods as far as blue oak savannah, occasionally even into annual grasslands for feeding.	No Effects
Ferruginous hawk <i>Buteo regalis</i>	FSC	CSC	A winter migrant that inhabits grasslands, prairies and brushy open country.	No Effects

Special-Status Wildlife Species

Species	Status		Habitat Association	Effects Determination
	Federal	State		
American peregrine falcon <i>Falco peregrinus anatum</i>	D	SE	Inhabits open country, breeding near rivers, wetlands, lakes or other aquatic features, nests on cliffs, banks, dunes, mounds and human-made structures.	No Effects
Prairie falcon <i>Falco mexicanus</i>	--	CSC	Ranges from annual grasslands through alpine meadows. Primarily associated with perennial grasslands, lodgepole pine of varying canopy closures, and alpine meadows. Requires open terrain for foraging and cliffs for nesting	No Effects
Greater sandhill crane <i>Grus canadensis tabida</i>	--	ST	In summer this species is found in wet meadow, shallow lacustrine and fresh emergent wetland habitats. It winters primarily in Sacramento and San Joaquin valleys from Tehama Co. south to Kings Co. where it inhabits annual and perennial grasslands, moist croplands with rice or corn stubble and open emergent wetlands.	No Effects
Mountain plover <i>Charadrius montanus</i>	FPT	CSC	Short grass plains, low rolling grass hills, freshly plowed agricultural fields and newly sprouting grain fields. Often associated with short vegetation and bare ground.	No Effects
Western Snowy Plover <i>Charadrius alexandrinus nivosus</i>	FT	CSC	Beaches and dry mud or salt flats; sand margins of rivers, lakes, and ponds.	No Effects
Long-billed curlew <i>Numenius americanus</i>	FSC	CSC	Uncommon to locally very common as a winter visitant from early July to early April along most of the California coast, and in the Central and Imperial valleys. Preferred winter habitats include large coastal estuaries, upland herbaceous areas and croplands.	No Effects
Black tern <i>Chlidonias niger</i>	FSC	CSC	Commonly inhabits bays, salt ponds, river mouths and pelagic waters during spring and fall migrations. Restricted to freshwater environments while breeding.	No Effects
Western yellow-billed cuckoo <i>Coccyzus americanus occidentalis</i>	FSC	CSC	An inhabitant of riparian forests in broad, lower flood-bottoms of larger river systems. Possibly extirpated from the area.	No Effects

Special-Status Wildlife Species

Species	Status		Habitat Association	Effects Determination
	Federal	State		
Short-eared owl <i>Asio flammeus</i>	FSC	CSC	Open areas, such as annual and perennial grasslands, prairies, meadows, irrigated lands and fresh emergent wetlands.	No Effects
California Spotted Owl <i>Strix occidentalis occidentalis</i>	FSC	CSC	Typically breeds in stands of mixed coniferous forest containing a mixture of tree sizes with usually at least two canopy layers, and a total canopy coverage in excess of seventy percent (may be as low as thirty percent at high elevations). In Southern California, usually associated with oak and oak-conifer communities.	No Effects
Flammulated owl <i>Otus flammeolus</i>	FSC	--	Breeds in conifer habitats of the Sierra Nevada from ponderosa pine type up to red fir forests. Nest in cavities. Special requirements are yellow pine or black oak in nesting habitat	No Effects
Western burrowing owl <i>Athene cunicularia hypugaea</i>	FSC	CSC	Burrow sites occur in open, dry annual or perennial grasslands, deserts, and scrublands characterized by low-growing vegetation. A subterranean nester dependent upon burrowing mammals, most notably, the California ground squirrel.	Potential
Great Gray Owl <i>Strix nebulosa</i>	--	SE	Breeds in mixed-conifer and red fir forests; prefers dense stands bordering meadows.	No Effects
Vaux's swift <i>Chaetura vauxi</i>	FSC	CSC	Prefers redwood and Douglas-fir communities; nests are typically placed in large hollow trees and snags. Forages high in the air over most communities; however, shows an apparent preference for foraging above rivers and lakes.	No Effects

Special-Status Wildlife Species

Species	Status		Habitat Association	Effects Determination
	Federal	State		
Black swift <i>Cypseloides niger</i>	FSC	CSC	Breeds in small colonies on cliffs behind or adjacent to waterfalls in deep canyons and on sea-bluffs above the surf.	No Effects
Costa's hummingbird <i>Calypte costae</i>	FSC	--	Most prevalent in southern California, but does breed locally along the western edge of the San Joaquin Valley up to Santa Clara County. Inhabits primarily arid environments, including coastal scrub, desert scrub, desert wash, lower-elevation chaparral and edges of desert and valley foothill riparian.	No Effects
Rufous hummingbird <i>Selasphorus rufus</i>	FSC	--	Found in a wide variety of habitats with nectar producing flowers. Uses valley foothill hardwood, valley foothill hardwood coniferous, riparian and various chaparral habitats.	No Effects
Lewis' woodpecker <i>Melanerpes lewis</i>	FSC	--	An uncommon, local winter resident, inhabiting oak savannas, and open deciduous and conifer environments. Breeds locally along the eastern slopes of the Coast Ranges.	No Effects
Nuttall's woodpecker <i>Picoides nuttallii</i>	FSC	--	Most often found in riparian vegetation bordered by or mixed with oaks. Prefers oaks for foraging and oaks for nesting. Nests in snags.	No Effects
White-headed woodpecker <i>Picoides albolarvatus</i>	FSC	--	Found in conifer forest in the Sierra Nevada from ponderosa pine type up to rid fir type. Prefers areas with large trees providing 40 to 70 percent canopy coverage. Nests in snags	No Effects
Red-breasted sapsucker <i>Sphyrapicus ruber</i>	FSC MNBMC	--	Breeds in timbered stands of low to intermediate density in ponderosa pine, black oak, riparian deciduous, and mixed-conifer types. Prefers to nest in deciduous trees along water courses.	No Effects
Oak titmouse <i>Baeolophus inornatus</i>	FSC	--	Breeds in wooded sites from blue oak savannah up to ponderosa pine and black oak woodland types. Nests in oak cavities.	No Effects

Special-Status Wildlife Species

Species	Status		Habitat Association	Effects Determination
	Federal	State		
American dipper <i>Cinclus mexicanus</i>	FSC	--	Confined to flowing, rocky streams and rivers, but occasionally forages along alpine lakeshores. Nests in recess or on ledge, usually within 3 to 6 feet of stream surface on inaccessible rock wall, log, or bridge.	No Effects
Olive-sided flycatcher <i>Contopus cooperi</i>	FSC	--	A summer resident that utilizes a wide variety of forest and woodland habitats. Mixed conifer, montane hardwood-conifer, Douglas fir, redwood, red fir and lodgepole pine are preferred nesting habitats.	No Effects
Little willow flycatcher <i>Empidonax traillii brewsteri</i>	--	SE	A spring and fall migrant at lower elevations, primarily in riparian habitats from central/coastal California north. Previously bred throughout much of the lowland and montane portions of its range. Breeding is now primarily limited to the Sierra Nevada and Cascade Ranges.	No Effects
Loggerhead shrike <i>Lanius ludovicianus</i>	FSC	CSC	Inhabits open areas with sparse shrubs, trees and other perches.	No Effects
Bank swallow <i>Riparia riparia</i>	--	ST	A colonial nesting species, nests primarily in riparian and other lowland habitats. Vertical banks/cliffs composed of fine textured/sandy soils near streams, rivers, lakes or the ocean are required to excavate nesting hole.	No Effects
San Joaquin LeConte's thrasher <i>Toxostoma lecontei macmillanorum</i>	FSC	CSC	Primarily inhabits desert scrub, alkali desert scrub, desert succulent shrub and open desert wash communities. Rarely recorded north of Inyo and Kern counties since the 1950's.	No Effects
California thrasher <i>Toxostoma redivivum</i>	FSC	--	A common resident of foothills and lowlands in cismontane California. Occupies moderate to dense chaparral habitats, and to a lesser extent, thickets in young or open valley foothill riparian habitat.	No Effects
Hermit warbler <i>Dendroica occidentalis</i>	FSC	--	A summer visitor and migrant, breeds in mature ponderosa pine, montane hardwood-conifer, mixed conifer, redwood, Douglas fir, red fir and Jeffery pine communities.	No Effects
Grasshopper sparrow <i>Ammodramus savannarum</i>	FSC	--	A summer resident, occurring in dry, dense grasslands, containing a variety of grass, tall forbs and scattered shrubs.	No Effects

Special-Status Wildlife Species

Species	Status		Habitat Association	Effects Determination
	Federal	State		
Brewer's sparrow <i>Spizella breweri</i>	FSC	--	Breeds in extensive shrub stands with moderate canopy coverage. Most commonly associated with sagebrush.	No Effects
Tricolored blackbird <i>Agelaius tricolor</i>	FSC	CSC	Inhabits dense cattail marshes, marshy meadows and rangeland. A highly colonial species, it is most numerous in the Central Valley and the vicinity of California.	No Effects
Lawrence's goldfinch <i>Carduelis lawrencei</i>	FSC	--	Inhabits valley foothill hardwood, valley foothill hardwood-conifer and chaparral communities. Breeds in open oak, or other arid woodland, and chaparral communities in close proximity to water.	No Effects
Bell's sage sparrow <i>Amphispiza belli belli</i>	FSC	CSC	Nests in chaparral dominated by fairly dense stands of chamise. Found in Coastal sage scrub in south of range.	No Effects
Mammals				
Mt. Lyell shrew <i>Sorex lyelli</i>	FSC	CSC	Very little is known about this species: all records are from the vicinity of Mt. Lyell. This species appears to favor riparian areas and other moist situations.	No Effects
Pale Townsend's big eared bat <i>Corynorhinus townsendii pallescens</i>	FSC	CSC/BLM Sensitive	Inhabits a wide variety of environments, but most common in mesic sites. Roosting, maternity and hibernacula sites free from human disturbance are required.	No Effects
Pacific western big-eared bat <i>Corynorhinus townsendii townsendii</i>	FSC	CSC/BLM Sensitive	Occupies the humid, coastal regions of northern and central California in a wide variety of habitats. Roosts in caves, buildings and mine tunnels. This species is highly sensitive to human disturbance at roosting, maternity and hibernacula sites.	No Effects
Spotted bat <i>Euderma maculatum</i>	FSC	CSC/BLM Sensitive	Occurs in a variety of environments, ranging from deserts and grasslands to mixed conifer forests; roosts in rock crevices along cliffs or caves.	No Effects
Small-footed myotis bat <i>Myotis ciliolabrum</i>	FSC	BLM Sensitive	Inhabits relatively arid wooded and brushy uplands in close proximity to water from sea level to about 8,900 feet. Maternity colonies may occur in buildings, caves and mines.	No Effects

Special-Status Wildlife Species

Species	Status		Habitat Association	Effects Determination
	Federal	State		
Long-eared myotis bat <i>Myotis evotis</i>	FSC	BLM Sensitive	May be found in a variety of brush, woodland and forest communities from sea level to about 9,000 feet; shows a preference toward coniferous woodlands and forests. Nursery colonies located in buildings, crevices, spaces under bark and in snags; night roosting in caves.	No Effects
Fringed myotis bat <i>Myotis thysanodes</i>	FSC	BLM Sensitive	May be found in a variety of environments; valley and foothill hardwood, hardwood-conifer and pinyon-juniper woodland provide optimal habitat. Maternity colonies and roosts located in caves, mines, buildings and crevices.	No Effects
Long-legged myotis bat <i>Myotis volans</i>	FSC	BLM Sensitive	This species is most commonly associated with woodland and forest communities above 4,000 feet. However, may also forage in chaparral, coastal scrub, Great Basin shrub habitats and in early successional stages of woodlands and forests. Occurrence records range from sea level to 11,400 feet. Roosts in rock crevices, buildings, under tree bark, in snags, mines and caves.	No Effects
Pallid Bat <i>Antrozous pallidus</i>	--	CSC	Common in arid and semiarid areas at relatively low elevations throughout the western Sierra Nevada. Found from annual grasslands through mixed-conifer forests. Requires caves, crevices, or buildings for roosting and breeding colonies.	No Effects
Yuma myotis bat <i>Myotis yumanensis</i>	FSC	CSC/BLM Sensitive	Optimal environments include open forests and woodlands in proximity to bodies of water used for foraging; maternity colonies in caves, mines, crevices and buildings.	No Effects
Greater western mastiff-bat <i>Eumops perotis californicus</i>	FSC	CSC	This species utilizes a wide range of open habitats including coastal scrub, annual grasslands and conifer woodlands. Roosts in or on buildings, crevices in cliffs, trees and in tunnels.	No Effects
San Joaquin (=Nelson's) antelope squirrel <i>Ammospermophilus nelsoni</i>	FSC	ST	This species inhabits the arid grassland, shrubland and alkali sink habitats of the San Joaquin Valley and adjacent foothills.	No Effects
Giant kangaroo rat <i>Dipodomys ingens</i>	FE	SE	Prefers fine sandy loam with sparse vegetation in native annual grasslands occurring along the southwestern edge of the San Joaquin Valley, to southwestern Kern County and northern Santa Barbara County.	No Effects

Special-Status Wildlife Species

Species	Status		Habitat Association	Effects Determination
	Federal	State		
Short-nosed kangaroo rat <i>Dipodomys nitratoides brevinasis</i>	FSC	--	Inhabits grasslands with scattered shrubs, and desert-shrub associations on powdery soils.	No Effects
Fresno kangaroo rat <i>Dipodomys nitratoides exilis</i>	FE	SE	An inhabitant of alkali-sink open grassland environments in western Fresno County. Bare alkaline clay-based soils subject to seasonal inundation with more friable soil mounds around shrubs and grasses.	No Effects
Tipton kangaroo rat <i>Dipodomys nitratoides nitratoides</i>	FE	SE	Occurs in the arid-land (uncultivated) communities of the Tulare Basin valley floor. They occupy alluvial fan and floodplain soils, ranging from fine sands to clay-sized particles. Woody shrubs are usually sparsely scattered with low to moderate ground cover of grasses and forbs.	No Effects
San Joaquin pocket mouse <i>Perognathus inornatus inornatus</i>	FSC	--	Inhabits grasslands and blue oak savannas. Requires friable soils.	No Effects
Riparian (San Joaquin Valley) woodrat <i>Neotoma fuscipes riparia</i>	FE	CSC	Known from an area along the San Joaquin, Stanislaus and Tuolumne rivers in Stanislaus and San Joaquin Counties. An inhabitant of riparian communities containing a mixture of trees, brush and suitable nesting sites.	No Effects
Southern grasshopper mouse <i>Onychomys torridus ramona</i>	FSC	CSC	Grasshopper mice are mainly found in the prairie and south-western desert areas.	No Effects
Tulare grasshopper mouse <i>Onychomys torridus tularensis</i>	FSC	CSC	An inhabitant of hot, arid valleys and scrub deserts in the southern San Joaquin Valley	No Effects
San Joaquin kit fox <i>Vulpes macrotis mutica</i>	FE	ST	Open, level areas with loose-textured soils are preferred. Inhabits a variety of communities including sagebrush scrub, alkali meadows, creosote bush scrub and valley grasslands.	Potential
Sierra Nevada red fox <i>Vulpes vulpes necator</i>	FSC	ST	Inhabits a variety of communities from wet meadows to forested areas; prefers forests that are interspersed with meadows or alpine fell-fields. Dense vegetation and rocky areas provide cover and den sites.	No Effects
California wolverine <i>Gulo gulo luteus</i>	FSC	ST/CFP	Occurs in a variety of communities, including subalpine conifer, alpine dwarf-shrub, barren, mixed conifer and lodgepole pine forests at or near timberline. Typically associated with areas of low human disturbance.	No Effects

Special-Status Wildlife Species

Species	Status		Habitat Association	Effects Determination
	Federal	State		
American (=Pine) marten <i>Martes americana</i>	FSC	--	Prefers multi-storied, mature mixed coniferous forests with high (>50 percent) canopy coverage, and an abundance of large snags and downed woody debris. Riparian corridors may be used for foraging and as travelways.	No Effects
Pacific fisher <i>Martes pennanti pacifica</i>	FSC	CSC	Prefers multi-storied, mature mixed coniferous forests with high (>50 percent) canopy coverage and an abundance of large snags and downed woody debris. Dense riparian corridors are utilized as dispersal corridors. Foraging often occurs in small (<2 acre) forest openings with significant ground cover.	No Effects
Sierra Nevada bighorn sheep <i>Ovis canadensis californiana</i>	FE	SE/CFP	Found only in the southern and central reaches of California's Sierra Nevada.	No Effects

Federal status:

FE	Listed as endangered under the Federal Endangered Species Act
FT	Listed as threatened under the Federal Endangered Species Act
FPT	Proposed for listing as threatened under the Federal Endangered Species Act
FC	Candidate species for listing under the Federal Endangered Species Act
FSC	Species of concern as identified by the U.S. Fish and Wildlife Service
FD	Delisted in accordance with the Federal Endangered Species Act
MNBMC	Migratory Nongame Birds of Management Concern

State Status:

SE	Listed as endangered under the California Endangered Species Act
ST	Listed as threatened under the California Endangered Species Act
CSC	Species of concern as identified by the California Department of Fish and Game
CFP	Listed as fully protected by the California Fish and Game Code
Rare	Species identified as rare by the California Department of Fish and Game

SENSITIVE PLANT COMMUNITIES:

Southern Interior Cypress Forest
Sycamore Alluvial Woodland
Great Valley Valley Oak Riparian Forest
Northern Claypan Vernal Pool
Northern Hardpan Vernal Pool
Central Valley Drainage Hardhead/Squawfish Stream
Valley Saltbush Scrub
Valley Sink Scrub
Big Tree Forest
Valley Sacaton Grassland

APPENDIX G

Photographs of the Project Site

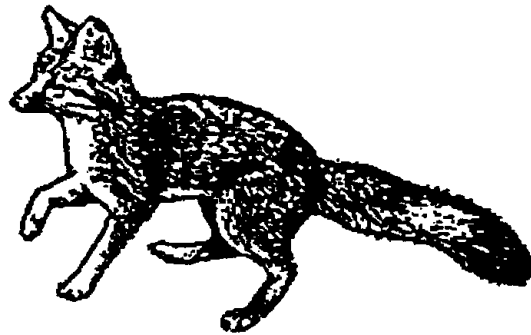




Figure 1. Wheat/Water disposal field on the project site.



Figure 3. Sun-Maid facility on the project area.



Figure 2. Water disposal field on the project site.



Figure 4. Elderberry bushes at Guardian Plant.

Lands on the Sun-Maid/Guardian Reorganization project area. Photos by H&A in January, 2008.

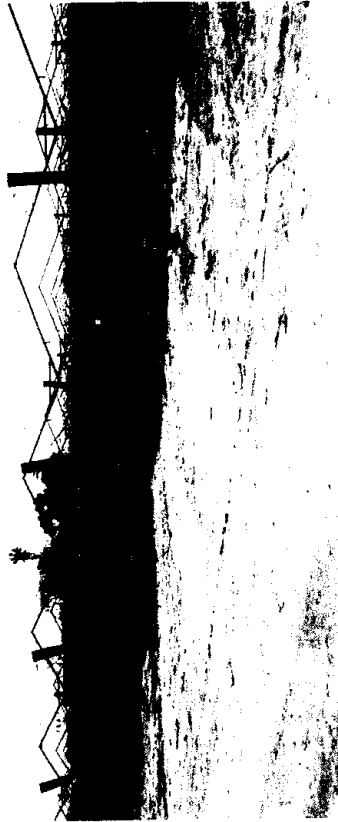


Figure 1. Grape vineyard adjacent to the project site.

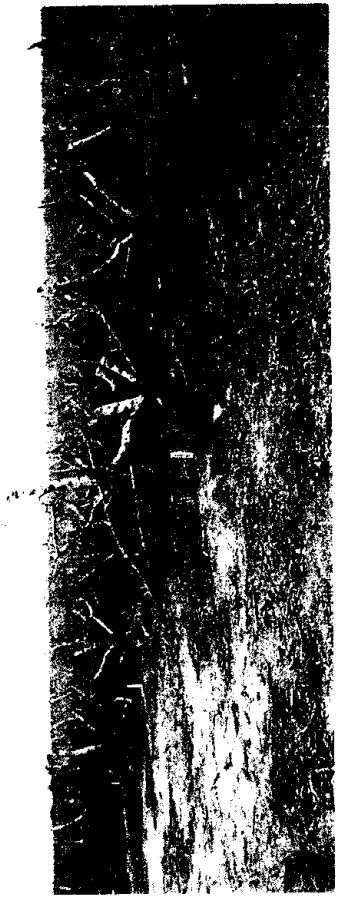


Figure 2. Plum orchard adjacent to the project site.

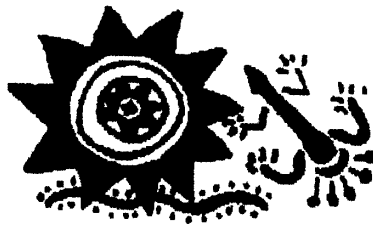


Figure 3. Disced field adjacent to the project site.



Figure 4. Personal vehicle storage area adjacent to project site.

Lands adjacent to the Sun-Maid/Guardian Reorganization project area near Kingsburg. Photos by H&A in January, 2008.

**CALIFORNIA
HISTORICAL
RESOURCES
INFORMATION
SYSTEM****FRESNO
KERN
KINGS
MADERA
TULARE**

Southern San Joaquin Valley
Archaeological Information Center
California State University, Bakersfield
9001 Stockdale Highway
31 MW
Bakersfield, California 93311-1022
(661) 654-2289 FAX (661) 654-2415
E-mail: abaldwin@csu.edu

TO: Mr. Jeff Halstead
Halstead & Associates
296 Burgan Ave.
Clovis, CA 93611

(RS# 07-426)

DATE: April 3, 2008

RE: Guardian/Sun-Maid Reorganization Project

County: Fresno

Map(s): Selma 7.5'

The Southern San Joaquin Valley Information Center is under contract to the State Office of Historic Preservation and is responsible for the local management of the California Historical Resources Inventories. The Center is funded by research fees and a grant from the State Office of Historic Preservation. The Information Center does not conduct fieldwork and is not affiliated with any archaeological consultants who conduct fieldwork. A referral list of individuals who meet the Secretary of the Interior's standards for their profession is available upon request.

CULTURAL RESOURCES RECORDS SEARCH

The IC files include known and recorded archaeological and historic sites, inventory and excavation reports filed with this office, and properties listed in the Historic Property Data File, (3/7/08), in the National Register of Historic Places, the California Register, the California Historical Landmarks, the California Inventory of Historic Resources, and the California Points of Historical Interest. The following summarizes the known historical resources information currently available for this subject property based in part on the sources outlined above.

PRIOR CULTURAL RESOURCE INVENTORIES WITHIN THE PROJECT AREA AND A ½ MILE RADIUS

According to the information in our files, a portion of the project area has been surveyed for cultural resources, report FR-73 and (3) three surveys immediately adjacent, FR135, 2287 & 1711. There have been no additional surveys conducted within a ½ mile radius. Surveys are plotted on the project map.

(RS # 07-426)

**KNOWN AND/OR RECORDED CULTURAL RESOURCES WITHIN THE PROJECT AREA
AND A ½ MILE RADIUS**

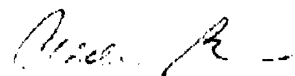
There are no recorded cultural resources within the project area and it is not known if resources exist there. There is one recorded cultural resource within a ½ mile radius, P-10-2966. Resource is plotted on the "confidential" project map.

There are no cultural resources within the project area that are listed in the National Register of Historic Places, the California Register, California Inventory of Historic Resources, California Points of Historical Interest, or the California State Historic Landmarks.

COMMENTS/RECOMMENDATIONS

We understand this 400-acre parcel is currently occupied by numerous buildings and a settling pond. All the buildings are less than 45 years old. Given the extensive development of this project area, no cultural resource survey is recommended at this time. If cultural resources are unearthed during project activities, all work should halt in the area of the find. A qualified professional archaeologist should be called in to evaluate the find and make the appropriate mitigation recommendations. If you have any questions, comments, or need additional information, please don't hesitate to contact me at (661) 654-2289.

By



Adele Baldwin
Assistant Coordinator

Date: April 3, 2008

Fee: \$150.00/hr.

plate # 4740

Invoice # A4751

APPENDIX C
TRAFFIC STUDY

Traffic Impact Study

Proposed Guardian – Sunmaid Annexation

Kingsburg, California

Prepared For:

City of Kingsburg
1401 Draper Street
Kingsburg, California 93636

Date:

October 26, 2011

Job No.:

08-003.10



PETERS ENGINEERING GROUP

A CALIFORNIA CORPORATION

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EXECUTIVE SUMMARY

This report presents the results of a traffic impact study for a proposed annexation of land into the City of Kingsburg, California. The analysis in the report identifies the anticipated effect of vehicle traffic resulting from the annexation. This report replaces previous traffic impact study reports for the annexation dated October 10, 2006 and September 18, 2009.

The Guardian/Sun-Maid Reorganization ("Project") consists of annexation of approximately 430 acres of primarily developed land (collectively "Territory") into the City of Kingsburg, annexation of portions of the Territory into the Selma-Kingsburg-Fowler County Sanitation District ("S-K-F"), and detachment of the Territory from the Fresno County Fire Protection District, Consolidated Irrigation District, and Kings River Conservation District. Portions of the Territory are already within S-K-F boundaries.

The Territory is roughly triangular in shape, is located along the north City limits, and is generally bounded by Mountain View Avenue on the north, Bethel Avenue on the east, and the State Route (SR) 99 freeway along the south and west. The Territory is also bisected by Golden State Boulevard and the Union Pacific Railroad that run parallel to SR 99.

The majority of the Territory, approximately 350 acres, is developed with industrial/commercial uses. Approximately 52 acres are undeveloped and the remainder consists of street rights of way. The Territory is currently within Fresno County's jurisdiction and zoned a mixture of M1 (Light Manufacturing) and M3 (Heavy Manufacturing), and approximately 21 acres are zoned AE-20. The two parcels zone as AE-20 are currently developed as industrial uses. The Territory is designated in the Kingsburg General Plan as Heavy Industrial east of the railroad, excluding a 2.35-acre parcel that is designated as Highway Commercial. The area between the railroad and SR 99 is designated as Highway Commercial and Light Industrial. A Site Vicinity Map is presented in Figure 1 following the text of this report.

The Project does not propose construction of new structures or improvements, but is simply an annexation of land into the City of Kingsburg. The provision of municipal services resulting from annexation, particularly water and sewer services, will allow unimproved or underutilized portions of the Territory to be developed in the manner described in the North Kingsburg Specific Plan, including construction of Academy Parkway. The traffic expected to be generated within the North Kingsburg Specific Plan area has already been planned for, and this traffic study does not propose amendments to any previously adopted land use plans.

EXECUTIVE SUMMARY (Continued)

The year 2035 was selected for this report as the cumulative analysis year in order to analyze the cumulative impacts of development within the Territory in conjunction with implementation of the Selma General Plan Update, which updates the Selma General Plan to the year 2035, and to maintain a minimum 20-year planning horizon. For purposes of the 2035 analyses it is estimated that the following new development may occur within the Territory after annexation:

- approximately 40 acres of commercial land uses southwest of the intersection of Mountain View Avenue and Golden State Boulevard;
- approximately 2.35 acres of commercial land uses southeast of the intersection of Mountain View Avenue and Golden State Boulevard;
- approximately 15 acres of heavy industrial land uses southwest of the intersection of Mountain View Avenue and Bethel Avenue; and
- approximately 91 acres of light industrial land uses between Golden State Boulevard and SR 99, north of Kamm Avenue.

The remainder of the Territory is already developed and it is assumed that the type of development will remain the same through the year 2035.

An Environmental Impact Report was prepared for the City of Kingsburg General Plan Amendment 2004-01, North Kingsburg Specific Plan Pre-Zoning, Sphere of Influence Boundary Changes, and Future Annexations (State Clearinghouse No. 2002001042). The Environmental Impact Report included a study of traffic impacts in the vicinity of the Territory and included analysis of Academy Parkway.

This report includes analysis of the following intersections:

1. Mountain View Avenue / SR 99 southbound off ramp;
2. Mountain View Avenue / SR 99 southbound on ramp;
3. Mountain View Avenue / SR 99 northbound on ramp;
4. Mountain View Avenue / SR 99 northbound off ramp;
5. Mountain View Avenue / Golden State Boulevard;
6. Mountain View Avenue / Academy Avenue;
7. Golden State Boulevard / Amber Avenue;
8. Kamm Avenue / Bethel Avenue;
9. Kamm Avenue / Academy Avenue;
10. Golden State Boulevard / Bethel Avenue;
11. Bethel Avenue / SR 99 northbound on ramp;
12. Bethel Avenue / SR 99 northbound off ramp;
13. Bethel Avenue / Parkway Drive (SR 99 southbound ramps); and
14. Bethel Avenue / Mountain View Avenue.

EXECUTIVE SUMMARY (Continued)

This report also includes analysis of the following road segments:

1. Mountain View Avenue between the SR 99 southbound ramps and SR 99 northbound ramps;
2. Mountain View Avenue between the SR 99 northbound ramps and Golden State Boulevard;
3. Mountain View Avenue between Golden State Boulevard and Bethel Avenue;
4. Mountain View Avenue between Bethel Avenue and Academy Avenue;
5. Golden State Boulevard between Bethel Avenue and Amber Avenue;
6. Golden State Boulevard between Amber Avenue and Mountain View Avenue; and
7. Kamm Avenue between Academy Avenue and Bethel Avenue (Academy Parkway in the future).

The study time periods include the weekday a.m. and p.m. peak hours determined between 7:00 a.m. and 9:00 a.m. and between 4:00 p.m. and 6:00 p.m. The peak hours were analyzed for the following conditions:

- Existing Conditions;
- Cumulative (Year 2035) Conditions Without Project; and
- Cumulative (Year 2035) Conditions With Project.

The most prominent pending project in the vicinity of the Territory is the proposed Selma Crossings project. The Selma Crossings site is comprised of approximately 307 acres located northeast, northwest, and southwest of the Mountain View Avenue / SR 99 interchange. The Selma Crossings project is expected to include the following uses (collectively “Selma Crossings Land Uses”):

- Retail: 2,092,203 square feet
- Office Park: 540,000 square feet
- Residential: 252,000 square feet (250 dwelling units)
- Auto Mall: 400,000 square feet (ten 3.6-acre parcels)
- Hotels (2): 155,000 square feet (three stories)
- Water Park: 10,000 square feet

The City of Selma has adopted a 2035 General Plan Update. The Selma General Plan land use map identifies the Selma Crossings land uses on the approximate 307 acres that make up the Selma Crossings Project.

The City of Kingsburg shall initiate the preparation of a traffic impact fee study for the purpose of analyzing the impacts of contemplated future development on City-wide traffic facilities along with an analysis of the need for new traffic facilities required by new development in the City, including new development in the Territory. The impact fee study will also identify the relationship between new development and the needed traffic facilities and will identify the estimated cost of the needed traffic facilities. The study shall be completed within one year of City approval of the proposed annexation. The traffic impact fee study shall be completed and presented to the Kingsburg City Council along with a recommended change in the traffic impact fee portion of the City’s Capital Facilities Fees. After review and consideration of the traffic impact fee study and recommended change in

EXECUTIVE SUMMARY (Continued)

the traffic impact fee portion of the City's Capital Facilities Fee by the City Council and affected parties, it is anticipated that the City Council will consider the adoption of an ordinance amending the traffic impact fee portion of the City's Capital Facilities Fees (Chapter 15.48 of the Kingsburg Municipal Code) and adoption of a resolution establishing new traffic impact fees as part of the City's Capital Facilities Fees.

Conclusions of this traffic impact study are described below according to the various analysis scenarios.

Existing Conditions

The results of the existing-conditions analyses indicate that the study intersections and road segments are currently operating at acceptable levels of service, with the exception of the intersection of Mountain View Avenue and the SR 99 southbound off ramp. The intersection of Mountain View Avenue and the SR 99 southbound off ramp is currently operating at LOS D during the p.m. peak hour, but peak-hour traffic signal warrants are not satisfied.

Year 2035 Cumulative-Without-Project Conditions

The year 2035 cumulative-without-Project conditions analyses indicate that all of the study intersections and road segments are expected to operate at substandard levels of service, with the exception of the following road segments that are expected to operate at acceptable levels of service:

- Golden State Boulevard between Bethel Avenue and Amber Avenue;
- Golden State Boulevard between Amber Avenue and Mountain View Avenue; and
- Kamm Avenue between Academy Avenue and Bethel Avenue.

Year 2035 Cumulative-With-Project Conditions

The year 2035 cumulative-with-Project conditions analyses indicate that all of the study intersections and road segments are expected to operate at substandard levels of service, with the exception of the following road segments that are expected to operate at acceptable levels of service:

- Golden State Boulevard between Bethel Avenue and Amber Avenue; and
- Golden State Boulevard between Amber Avenue and Mountain View Avenue.

Development projects proposed to be constructed in the Territory will be required to analyze their project-specific traffic impacts on a project-by-project basis and will be responsible for mitigating the project-specific traffic impacts. Such mitigation measures may take the form of construction of the required improvements and/or payment into a traffic impact fee program established to fund future construction of the improvements. Any proposed development project to be located in the Territory which generates 100 or more trips per day (combined total entering and exiting the site) shall be required to perform a traffic impact study to determine the current levels of service and the anticipated impacts of the project on the adjacent roadways and intersections.

Generally-accepted traffic engineering principles and methods were employed to analyze the existing conditions in the Territory and to estimate the traffic conditions expected to occur in

EXECUTIVE SUMMARY (Continued)

the Territory in the future as development occurs in the Territory and in the vicinity of the Territory. The annexation of the Territory does not currently generate new traffic in the Territory or in the vicinity of the Territory and no traffic-generating projects are currently proposed to be developed in the Territory. Future development in the Territory will be subject to the North Kingsburg Specific Plan. Future development projects within the Territory will be required to analyze their project-specific traffic impacts. Depending upon the impacts, each development project may be required to construct or contribute to the construction of improvements as described in this report. Also, future development projects may be required to pay traffic impact fees in order to assist in the funding of construction of improvements described in this report.



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October 26, 2011

Subject: Traffic Impact Study
Proposed North Kingsburg Annexation
Kingsburg, California

INTRODUCTION

This report presents the results of a traffic impact study for a proposed annexation of land into the City of Kingsburg, California. This analysis identifies the anticipated effect of vehicle traffic resulting from the annexation. This report replaces previous traffic impact study reports for the annexation dated October 10, 2006 and September 18, 2009.

PROJECT DESCRIPTION

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underutilized portions of the Territory to be developed in the manner described in the North Kingsburg Specific Plan, including construction of Academy Parkway. The traffic expected to be generated within the North Kingsburg Specific Plan area has already been planned for, and this traffic study does not propose amendments to any previously adopted land use plans.

The year 2035 was selected for this report as the cumulative analysis year in order to analyze the cumulative impacts of development within the Territory in conjunction with implementation of the Selma General Plan Update, which updates the Selma General Plan to the year 2035, and to maintain a minimum 20-year planning horizon. For purposes of the 2035 analyses it is estimated that the following new development may occur within the Territory after annexation:

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The remainder of the Territory is already developed and it is assumed that the type of development will remain the same through the year 2035.

PREVIOUS STUDIES

An Environmental Impact Report was prepared for the City of Kingsburg General Plan Amendment 2004-01, North Kingsburg Specific Plan Pre-Zoning, Sphere of Influence Boundary Changes, and Future Annexations (State Clearinghouse No. 2002001042). The report included a study of traffic impacts in the vicinity of the Territory and included analysis of Academy Parkway.

As described above, Peters Engineering Group previously prepared traffic impact studies for the annexation and presented the results in reports dated October 10, 2006 and September 18, 2009. The age of the reports and subsequent development proposals in the vicinity of the Project site render the previous reports no longer applicable.

STUDY AREA AND TIME PERIOD

This report includes analysis of the following intersections:

1. Mountain View Avenue / SR 99 southbound off ramp;
2. Mountain View Avenue / SR 99 southbound on ramp;
3. Mountain View Avenue / SR 99 northbound on ramp;
4. Mountain View Avenue / SR 99 northbound off ramp;
5. Mountain View Avenue / Golden State Boulevard;
6. Mountain View Avenue / Academy Avenue;
7. Golden State Boulevard / Amber Avenue;
8. Kamm Avenue / Bethel Avenue;
9. Kamm Avenue / Academy Avenue;
10. Golden State Boulevard / Bethel Avenue;
11. Bethel Avenue / SR 99 northbound on ramp;
12. Bethel Avenue / SR 99 northbound off ramp;
13. Bethel Avenue / Parkway Drive (SR 99 southbound ramps); and
14. Bethel Avenue / Mountain View Avenue.

This report also includes analysis of the following road segments:

1. Mountain View Avenue between the SR 99 southbound ramps and SR 99 northbound ramps;
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The study time periods include the weekday a.m. and p.m. peak hours determined between 7:00 a.m. and 9:00 a.m. and between 4:00 p.m. and 6:00 p.m. The peak hours were analyzed for the following conditions:

- Existing Conditions;
- Cumulative (Year 2035) Conditions Without Project; and
- Cumulative (Year 2035) Conditions With Project.

The year 2035 was established as the cumulative analysis year primarily to analyze the cumulative impacts of development within the Territory within a minimum 20-year planning horizon including implementation of the 2035 Selma General Plan Update described later in this report.

LANE CONFIGURATIONS AND TRAFFIC CONTROL

The existing lane configurations and intersection control are presented in Figure 2 of this report. For purposes of this study, it is assumed that the existing lane configurations will be

maintained through the year 2035. This approach is the most conservative and best approach because it does not require speculation as to funding and completion of planned or programmed improvements. However, for purposes of this report it is assumed that Academy Parkway and other roadway alignments within the North Kingsburg Specific Plan area will be constructed by projects that would occur as a result of the proposed annexation by the year 2035.

PENDING PROJECTS

The most prominent pending project in the vicinity of the Territory is the proposed Selma Crossings project. The Selma Crossings site is comprised of approximately 307 acres located northeast, northwest, and southwest of the Mountain View Avenue / SR 99 interchange. The Selma Crossings project is expected to include the following uses (collectively “Selma Crossings Land Uses”):

Retail:	2,092,203 square feet
Office Park:	540,000 square feet
Residential:	252,000 square feet (250 dwelling units)
Auto Mall:	400,000 square feet (ten 3.6-acre parcels)
Hotels (2):	155,000 square feet (three stories)
Water Park:	10,000 square feet

The City of Selma has adopted a 2035 General Plan Update. The Selma General Plan land use map identifies the Selma Crossings land uses on the approximate 307 acres that make up the Selma Crossings Project.

CONCEPTUAL REGIONAL TRANSPORTATION PROJECTS AND STUDIES

Several transportation projects of regional importance are in various stages of conceptual study but have not yet been planned or funded and are therefore not assumed to be in place in the 2035 scenarios analyzed in this study. The following is provided for informational purposes. The Metro Rural Loop is a conceptual idea to link the various cities located within the Fresno-Madera Metropolitan Area by a multi-modal transportation corridor. The Metro Rural Loop considers various highway alternatives providing connectivity in a generally circular pattern around the Fresno metropolitan area. The proposed alignments are not expected to be located within the Project study area.

The California High Speed Rail project includes alternatives that pass through Selma. However, these alternatives have been determined to be incompatible with the selected full-length alignment alternative (www.cahighspeedrail.ca.gov). Therefore, it is not anticipated that the high-speed rail alignment would be located within the Project study area.

The Council of Fresno County Governments (COG) commissioned an engineering study to determine the current and future deficiencies on freeway segments and selected interchanges in the Fresno County and Madera County area and to identify interchange improvements expected to be required to achieve level of service D in the year 2030. The study included the Mountain View Avenue / SR 99 interchange but did not include the Bethel Avenue / SR 99 interchange. The Fresno-Madera Metropolitan Freeway/Interchange Deficiency Study Phase II dated November 24, 2008 by Fehr & Peers (Freeway Deficiency Study) concluded that the

Mountain View Avenue / SR 99 interchange will be deficient by the year 2030 and will require, at a minimum, realignment of the ramps, installation of traffic signals at both the northbound and southbound ramps with permissive left turns, and construction of separate left-turn and right-turn lanes on the southbound off ramp. These interchange improvements are not yet funded or included in a funding program.

MEASURE C

The following is provided for informational purposes. The 2006 Measure C Extension Plan includes a half-cent sales tax throughout Fresno County for a 20-year extension period to fund freeway extensions, improve roads, and enhance public safety. Information related to Measure C can be found on the Measure C web site (www.measurec.com). Funding for the Regional Transportation Program Extension Projects comes from three sources:

- 50 percent from Measure C;
- 20 percent from the State Transportation Improvement Program (STIP); and
- 30 percent from the Regional Transportation Impact Fee Program (RTMF).

The proposed RTMF Program is summarized in a report entitled Fresno Regional Transportation Mitigation Fee Final Report dated August 2008 by PB Americas, Inc.

The projects included in the Measure C Extension within the Project study area are:

- Rural Project F: Golden State Boulevard, American Avenue to Tulare County Line. A Tier 1 Rural Project to study and design improvements to Golden State Boulevard in the short term. The construction phase is to be programmed in the Mid- or Long-Term Program). Studies are underway but designs have not been established.
- Rural Project I: Mountain View Avenue, Bethel Avenue to Tulare County Line. A Tier 1 Rural Project to widen Mountain View Avenue to a four-lane divided highway. The project is funded and is currently in the design phase. Right of way acquisition will be required. The construction phase is currently scheduled to begin in 2013 and end in 2014.

To maintain a conservative analysis and identify all potentially significant impacts, the Measure C projects within the study area are not assumed to be in place in the 2035 scenarios analyzed in this study.

TRIP GENERATION

Data provided in the Institute of Transportation Engineers (ITE) *Trip Generation, 8th Edition*, were used to estimate the number of trips anticipated to be generated by development within the proposed Territory. General development assumptions are based on the land use map in the North Kingsburg Specific Plan. It is noted that these assumptions do not include actual projects, as there are no currently pending development proposals to be located within the Territory. Table 1 below presents the trip generation information. Pass-by, diverted-linked, and captured-trip reductions were not applied to the calculated trips.

Table 1
Trip Generation

Land Use	ITE Code	Units	A.M. Peak Hour Traffic Volumes			P.M. Peak Hour Traffic Volumes			Weekday Traffic Volumes	
			Rate Split	Enter	Exit	Rate Split	Enter	Exit	Rate	Total
Commercial	820	435,602 sq. ft.	1.00 61/39	266	170	3.73 49/51	796	829	42.94	18,705
Commercial	820	25,592 sq. ft.	1.00 61/39	16	10	3.73 49/51	47	49	42.94	1,099
Heavy Industrial	120	15 ac	1.98 83/17	25	5	2.16 22/78	7	25	6.75	101
Light Industrial	110	91 ac	7.51 83/17	568	116	7.26 22/78	146	515	51.80	4,714
Existing Developments	-	250 ac	-	0	0	-	0	0	-	0
Totals		±400 ac	-	875	301	-	996	1,418	-	24,619

Reference: *Trip Generation, 8th Edition*, Institute of Transportation Engineers 2008

ac = acres sq. ft. = square feet

Rates are reported in trips per acre for industrial uses and trips per square foot of building area for commercial uses. Commercial assumes 25 percent floor area ratio within the total number of acres reported.

Splits are reported as Entering/Exiting as a percentage of the total

ITE does not provide splits for Code 120; therefore, the splits were assumed to be the same as Code 110.

The traffic volumes associated with the existing developments in the Territory are included in the existing traffic counts and are not estimated in Table 1.

EXISTING TRAFFIC VOLUMES

Existing peak-hour traffic volumes were determined by performing manual turning-movement counts at the study intersections between 7:00 a.m. and 9:00 a.m. and between 4:00 p.m. and 6:00 p.m. The existing peak-hour turning movement volumes are presented in Figure 3 of this report.

CUMULATIVE YEAR 2035 TRAFFIC VOLUMES

COG maintains a travel model that is typically used to estimate cumulative traffic volumes. COG recently performed traffic modeling for Peters Engineering Group that included the proposed year 2035 Selma General Plan (which identifies the Selma Crossings land uses on the approximate 300 acres that make up the Selma Crossings Project) and the land uses within the Territory. Cumulative traffic volumes for the year 2035 were determined using the COG Increment Method, which is described in a document available from the COG entitled "*Model Steering Committee Recommended Procedures for Using Traffic Projections from the Fresno COG Travel Model dated December 2002*". In general, the Increment Method projects future traffic volumes by determining the growth projected by the model between the base year and the horizon year. This growth is then added to the existing traffic volumes.

Cumulative (year 2035) turning movements were projected based on the methods presented in Chapter 8 of the Transportation Research Board National Cooperative Highway Research Program Report 255 entitled "*Highway Traffic Data for Urbanized Area Project Planning*

and Design.” The cumulative year 2035 traffic volumes without the Project are presented in Figure 4 of this report and assume development of the Territory as County projects with no modification of the road network. Cumulative year 2035 traffic volumes with the Project are presented in Figure 5 of this report and assume development of the Territory in accordance with the North Kingsburg Specific Plan. The COG travel model data output is presented in Appendix A attached to this report.

SIGNIFICANCE CRITERIA

The Transportation Research Board *Highway Capacity Manual*, 2000, (HCM) defines level of service (LOS) as a qualitative measure describing operational characteristics within a traffic stream, based on service measures such as speed and travel time, freedom to maneuver, traffic interruptions, comfort, and convenience. LOS characteristics for both unsignalized and signalized intersections are presented in Tables 2 and 3 below. Level-of-service characteristics for road segments are presented in Table 4 below.

Table 2
Level of Service Characteristics for Unsignalized Intersections

Level of Service	Description	Average Vehicle Delay (seconds)
A	Little or no delay.	0-10
B	Short delays.	>10-15
C	Average delays.	>15-25
D	Long delays.	>25-35
E	Very long delays.	>35-50
F	Extremely long delays.	>50

Reference: *Highway Capacity Manual*, Transportation Research Board

Table 3
Level of Service Characteristics for Signalized Intersections

Level of Service	Description	Average Vehicle Delay (seconds)
A	Extremely favorable progression. Most vehicles arrive during green phase. Many vehicles do not stop.	≤10
B	Good progression.	>10-20
C	Fair progression. Significant number of vehicles stopped. Some queues do not clear.	>20-35
D	Noticeable congestion. Many vehicles stop. Individual cycle failures are noticeable. Queues often do not clear.	>35-55
E	Poor progression. Individual cycle failures are frequent. Queues frequently do not clear.	>55-80
F	Poor progression. Oversaturation. Many individual cycle failures and queues not cleared.	>80

Reference: *Highway Capacity Manual*, Transportation Research Board

Table 4
Level of Service Characteristics for Roadways

Level of Service	Description
A	Primarily free flow operations
B	Reasonably unimpeded operations, ability to maneuver only slightly restricted
C	Stable operations, ability to maneuver and select operating speed affected
D	Unstable flow, speeds and ability to maneuver restricted
E	Significant delays, flow quite unstable
F	Extremely slow speeds

Reference: 1998 *Highway Capacity Manual*, Transportation Research Board

The City of Kingsburg *Traffic Impact Study Report Guidelines* dated April 10, 2007 indicates that intersections and road segments in Kingsburg are required to operate at LOS D or better. The Caltrans *Guide for the Preparation of Traffic Impact Studies* dated December 2002 indicates that Caltrans typically requires that LOS C or better be maintained. A traffic impact is recognized if a proposed project will decrease the LOS below LOS D on City intersections or below LOS C on Caltrans intersections. A traffic impact is also recognized if a project will increase the average delay for a study intersection that is already operating at an unacceptable LOS or increases the volume of traffic on a road segment that is already operating at an unacceptable LOS.

INTERSECTION ANALYSES

The levels of service at the study intersections were determined using the computer program Synchro 7, which is based on the HCM procedures for calculating levels of service. The intersection analysis sheets are presented in Appendix B attached to this report.

Peak-hour factors (PHF) for the existing-conditions analyses were determined based on the existing traffic volumes. The HCM suggests that a PHF of 0.92 in urban areas and 0.88 in rural areas may be used in the absence of field data. For purposes of the cumulative year 2035 analyses performed for this study, in which a significant volume of projected traffic is added and field data is not available, a PHF of 0.92 is used unless the existing PHF is greater than 0.92.

The California Department of Transportation California *Manual on Uniform Traffic Control Devices for Streets and Highways* (CMUTCD) dated January 21, 2010 presents various warrant analyses to assist in evaluating the need for traffic signals at an intersection. Traffic signal warrants are a series of standards that provide guidelines for determining if a traffic signal is appropriate consideration at an intersection that is currently not signalized. If one or more of the signal warrants are met, signalization of the intersection may be an appropriate mitigation. However, a signal likely should not be installed if none or few of the warrants are met since the installation of signals may increase delays on the previously uncontrolled major street and may contribute to an increase in accidents.

The potential need for a traffic signal is considered at each unsignalized intersection operating at a substandard LOS. Since the analyses presented herein are based on peak hour traffic volumes, Figure 4C-4, Warrant 3, Peak Hour (70% Factor) as presented in the CMUTCD was utilized to evaluate the possibility that traffic signals may be warranted at

study intersections not currently signalized. The warrant analysis sheets are presented in Appendix C attached to this report.

For cases in which an intersection operates at a substandard LOS but traffic signal warrants are not met, traffic signals are not considered to be a feasible mitigation.

The results of the intersection operational analyses and peak-hour warrant studies are presented in Tables 5, 6, and 7 below. Substandard levels of service are highlighted in bold type for non-Project scenarios in Tables 5 and 6. Project impacts are highlighted in bold type in Table 7. A key to descriptors in the tables is presented below.

Key to Tables 5, 6, and 7

OWS: One-way stop control
TWS: Two-way stop control
n/a: Not applicable

AWS: All-way stop control
n/r: Analysis not required

Table 5
Intersection Analysis Summary - Existing Conditions

Intersection	Control Type	A.M. Peak Hour			P.M. Peak Hour		
		Delay (sec)	LOS	Peak Hour Warrant	Delay (sec)	LOS	Peak Hour Warrant
Mtn View / SR 99 SB off	TWS	22.3	C	n/r	25.3	D	Not met
Mtn View / SR 99 SB on	Yield	1.4	A	n/r	1.6	A	n/r
Mtn View / SR 99 NB on	Yield	1.2	A	n/r	0.9	A	n/r
Mtn View / SR 99 NB off	OWS	14.7	B	n/r	15.5	C	n/r
Mtn View / Golden State	Signals	12.2	B	n/r	14.7	B	n/r
Mtn View / Academy	TWS	16.7	C	n/r	22.5	C	n/r
Golden State / Amber	OWS	9.8	A	n/r	10.2	B	n/r
Kamm / Bethel	OWS	8.4	A	n/r	7.9	A	n/r
Kamm / Academy	TWS	8.4	A	n/r	8.1	A	n/r
Golden State / Bethel	AWS	9.3	A	n/r	8.4	A	n/r
Bethel / SR 99 NB on	OWS	11.8	B	n/r	10.8	B	n/r
Bethel / SR 99 NB off	OWS	10.8	B	n/r	10.3	B	n/r
Bethel / Parkway	OWS	12.4	B	n/r	11.0	B	n/r
Bethel / Mtn View	TWS	18.6	C	n/r	22.2	C	n/r

Table 6
Intersection Analysis Summary – Cumulative 2035 Without Project Conditions

Intersection	Control Type	A.M. Peak Hour			P.M. Peak Hour		
		Delay (sec)	LOS	Peak Hour Warrant	Delay (sec)	LOS	Peak Hour Warrant
Mtn View / SR 99 SB off	TWS	*	F	Met	*	F	Met
Mtn View / SR 99 SB on	Yield	19.8	C	n/r	504.7	F	Met
Mtn View / SR 99 NB on	Yield	247.8	F	Met	1257.7	F	Met
Mtn View / SR 99 NB off	OWS	*	F	Met	*	F	Met
Mtn View / Golden State	Signals	165.3	F	n/r	711.3	F	n/r
Mtn View / Academy	TWS	*	F	Met	*	F	Met
Golden State / Amber	OWS	17.9	C	n/r	*	F	n/a
Kamm / Bethel	OWS	22.0	C	n/r	134.9	F	Met
Kamm / Academy	TWS	69.1	F	Met	416.5	F	Met
Golden State / Bethel	AWS	48.2	E	Met	305.6	F	Met
Bethel / SR 99 NB on	OWS	17.6	C	Not met	33.4	D	Not met
Bethel / SR 99 NB off	OWS	16.5	C	n/r	187.5	F	Met
Bethel / Parkway	OWS	20.1	C	n/r	*	F	Met
Bethel / Mtn View	TWS	*	F	Met	*	F	Met

* Excessive delays outside of calculable range.

Table 7
Intersection Analysis Summary – Cumulative 2035 With Project Conditions

Intersection	Control Type	A.M. Peak Hour			P.M. Peak Hour		
		Delay (sec)	LOS	Peak Hour Warrant	Delay (sec)	LOS	Peak Hour Warrant
Mtn View / SR 99 SB off	TWS	*	F	Met	*	F	Met
Mtn View / SR 99 SB on	Yield	19.8	C	n/r	504.7	F	Met
Mtn View / SR 99 NB on	Yield	247.8	F	Met	1257.7	F	Met
Mtn View / SR 99 NB off	OWS	*	F	Met	*	F	Met
Mtn View / Golden State	Signals	165.3	F	n/r	711.3	F	n/r
Mtn View / Academy	TWS	*	F	Met	*	F	Met
Golden State / Amber	OWS	17.9	C	n/a	*	F	n/a
Kamm / Bethel	OWS	96.2	F	Met	401.6	F	Met
Kamm / Academy	TWS	119.5	F	Met	444.9	F	Met
Golden State / Bethel	AWS	88.9	F	Met	330.5	F	Met
Bethel / SR 99 NB on	OWS	28.9	D	Not met	45.4	E	Not met
Bethel / SR 99 NB off	OWS	60.1	F	Met	540.3	F	Met
Bethel / Parkway	OWS	228.6	F	Met	*	F	Met
Bethel / Mtn View	TWS	*	F	Met	*	F	Met

* Excessive delays outside of calculable range.

ROAD SEGMENT ANALYSES

Road segment analyses were based on the Florida Department of Transportation Generalized Q/LOS Tables. The Florida road segment tables were developed based on procedures outlined in the HCM and are commonly utilized in the San Joaquin Valley for road segment analyses. The City of Kingsburg *Traffic Impact Study Report Guidelines* dated April 10,

2007 describes the Florida tables as an acceptable tool for road segment analysis. The Florida tables present LOS criteria based on the type of roadway being analyzed and the regional setting (i.e., urban areas or transitioning areas). The appropriate Florida table is dependent upon the setting. Table 4, Generalized Peak Hour Two-Way Volumes for Florida's Urbanized Areas (with adjustments for Non-State Roadways, Major City/County Roadways) was utilized in the analysis. The table is attached in Appendix D. Tables 8 and 9 present the specific volume thresholds used in the analyses. Tables 10 through 12 present the results of the road segment analyses. Substandard levels of service are highlighted in bold type for non-Project scenarios and Project impacts are highlighted in bold type for the with-Project scenario.

Table 8
Volume Thresholds for Road Segment Levels of Service
Less Than 2 Signalized Intersections Per Mile

Lanes	Median	A	B	C	D	E	F
2	Undivided - No LT lanes	-	≤669	670 – 1,080	1,081 – 1,152	>1,152	*
2	Undivided with LT lanes	-	≤837	838 – 1,350	1,351 – 1,440	>1,440	*
2	Divided with LT lanes	-	≤878	879 – 1,417	1,418 – 1,512	>1,512	*
4	Undivided - No LT lanes	-	≤1,917	1,918 – 2,322	2,323 – 2,403	>2,403	*
4	Undivided with LT lanes	-	≤2,428	2,429 – 2,941	2,941 – 3,043	>3,043	*
4	Divided with LT lanes	-	≤2,556	2,557 – 3,096	3,097 – 3,204	>3,204	*
6	Divided with LT lanes	-	≤3,933	3,934 – 4,680	4,680 – 4,824	>4,824	*

Reference: Florida Department of Transportation Table 4, Generalized Peak Hour Two-Way Volumes for Florida's Urbanized Areas

Table 9
Volume Thresholds for Road Segment Levels of Service
2.00 to 4.50 Signalized Intersections Per Mile

Lanes	Median	A	B	C	D	E	F
2	Undivided - No LT lanes	-	-	≤734	735 – 1,065	1,066 – 1,130	>1,130
2	Undivided with LT lanes	-	-	≤918	919 – 1,332	1,333 – 1,413	>1,413
2	Divided with LT lanes	-	-	≤963	964 – 1,398	1,399 – 1,483	>1,483
4	Undivided - No LT lanes	-	-	≤1,633	1,634 – 2,173	2,174 – 2,295	>2,295
4	Undivided with LT lanes	-	-	≤2,069	2,070 – 2,753	2,754 – 2,907	>2,907
4	Divided with LT lanes	-	-	≤2,178	2,179 – 2,898	3,899 – 3,060	>3,060
6	Divided with LT lanes	-	-	≤3,411	3,412 – 4,392	4,393 – 4,635	>4,635

Reference: Florida Department of Transportation Table 4, Generalized Peak Hour Two-Way Volumes for Florida's Urbanized Areas

Key to Tables 10 through 12

L:	Number of Lanes	Vol:	Volume
LOS:	Level of Service	U:	Undivided Road
Dv:	Divided Road	NB:	Northbound
SB:	Southbound	EB:	Eastbound
WB:	Westbound		

Table 10
Road Segment LOS Summary – Existing Conditions

Road Segment	Lanes and Median	A.M. Peak Hour		P.M. Peak Hour	
		Volume	LOS	Volume	LOS
Mountain View Avenue					
SR 99 to Golden State	2U (<2)	758	C	813	C
Golden State to Bethel	4D-LT (<2)	665	B	769	B
Bethel to Academy	2U (<2)	659	B	793	C
Kamm Avenue					
Academy to Bethel	2U (<2)	175	B	169	B
Golden State Boulevard					
Mountain View to Amber	4D-LT (<2)	222	B	342	B
Amber to Bethel	4D-LT (<2)	263	B	335	B

Table 11
Road Segment LOS Summary – Cumulative 2035 Without Project Conditions

Road Segment	Lanes and Median	A.M. Peak Hour		P.M. Peak Hour	
		Volume	LOS	Volume	LOS
Mountain View Avenue					
SR 99 to Golden State	2U (<2)	3,129	E	5,729	E
Golden State to Bethel	4D-LT (<2)	2,345	B	3,908	E
Bethel to Academy	2U (<2)	1,913	E	3,080	E
Kamm Avenue					
Academy to Bethel	2U (<2)	848	C	1,411	D
Golden State Boulevard					
Mountain View to Amber	4D-LT (<2)	1,041	B	2,299	B
Amber to Bethel	4D-LT (<2)	1,026	B	2,169	B

Table 12
Road Segment LOS Summary – Cumulative 2035 With Project Conditions

Road Segment	Lanes and Median	A.M. Peak Hour		P.M. Peak Hour	
		Volume	LOS	Volume	LOS
Mountain View Avenue					
SR 99 to Golden State	2U (<2)	3,129	E	5,729	E
Golden State to Bethel	4D-LT (<2)	2,345	B	3,908	E
Bethel to Academy	2U (<2)	1,913	E	3,080	E
Kamm Avenue					
Academy to Bethel	2U (<2)	1,150	C	1,622	F
Golden State Boulevard					
Mountain View to Amber	4D-LT (<2)	1,041	B	2,299	B
Amber to Bethel	4D-LT (<2)	1,157	B	2,513	B

DISCUSSION

Existing Conditions

The results of the existing-conditions analyses indicate that the study intersections and road segments are operating at acceptable levels of service, with the exception of the intersection of Mountain View Avenue and the SR 99 southbound off ramp. The intersection of Mountain View Avenue and the SR 99 southbound off ramp is currently operating at LOS D during the p.m. peak hour, but peak-hour traffic signal warrants are not satisfied.

Year 2035 Cumulative-Without-Project Conditions

The year 2035 cumulative-without-Project conditions analyses indicate that all of the study intersections and road segments are expected to operate at substandard levels of service, with the exception of the following road segments that are expected to operate at acceptable levels of service:

- Golden State Boulevard between Bethel Avenue and Amber Avenue;
- Golden State Boulevard between Amber Avenue and Mountain View Avenue; and
- Kamm Avenue between Academy Avenue and Bethel Avenue.

Year 2035 Cumulative-With-Project Conditions

The year 2035 cumulative-with-Project conditions analyses indicate that all of the study intersections and road segments are expected to operate at substandard levels of service, with the exception of the following road segments that are expected to operate at acceptable levels of service:

- Golden State Boulevard between Bethel Avenue and Amber Avenue; and
- Golden State Boulevard between Amber Avenue and Mountain View Avenue.

Table 13 presents a summary of mitigated intersection operations and Table 14 presents the mitigated road segment levels of service with the number of lanes expected to be required to achieve the required level of service standard. The intersection analysis sheets for the mitigated conditions are presented in Appendix E attached to this report.

Table 13
Intersection Analysis Summary – Mitigated Cumulative 2035 With Project Conditions

Intersection	Control Type	A.M. Peak Hour		P.M. Peak Hour	
		Delay (sec)	LOS	Delay (sec)	LOS
Mtn View / SR 99 SB	Signals	11.6	B	34.6	C
Mtn View / SR 99 NB	Signals	7.9	A	8.0	A
Mtn View / Golden State	Signals	25.3	C	77.6	E*
Mtn View / Academy	Signals	20.1	C	34.9	C
Golden State / Amber	OWS, Right-Turn Only	10.0	B	23.9	C
Kamm / Bethel	Signals	25.4	C	26.0	C
Kamm / Academy	Signals	19.5	B	26.9	C
Golden State / Bethel	Signals	23.6	C	28.7	C
Bethel / SR 99 NB on	OWS	50.3	F*	54.3	F
Bethel / SR 99 NB off	Signals	8.6	A	15.8	B
Bethel / Parkway	Signals	13.3	B	19.0	B
Bethel / Mtn View	Signals	17.5	B	29.4	C

* Substandard mitigated LOS explained in text below.

Table 14
Road Segment Level of Service Summary – Mitigated Weekday Peak Hour

Road Segment	Lanes and Median	A.M. Peak Hour		P.M. Peak Hour	
		Volume	LOS	Volume	LOS
Mountain View Avenue					
SR 99 to Golden State	6D-LT (>2)	3,129	B	5,729	F*
Golden State to Bethel	6D-LT (<2)	2,345	B	3,908	B
Bethel to Academy	6D-LT (<2)	1,913	B	3,080	B
Kamm Avenue					
Academy to Bethel	4D-LT (>2)	1,150	C	1,622	C
Golden State Boulevard					
Mountain View to Amber	4D-LT (<2)	1,041	B	2,299	B
Amber to Bethel	4D-LT (<2)	1,157	B	2,513	B

* Through volumes include left-turn and right-turn movements approaching intersections. Intersection analyses shall govern on corridors with closely-spaced intersections.

The sections below provide a description of the anticipated improvements that will be required for each study location to operate at acceptable levels of service in the year 2035.

Mountain View Avenue / SR 99 Interchange

The proposed annexation does not exacerbate the substandard condition that is expected to occur if the Territory were to develop without the annexation. The Mountain View Avenue interchange on SR 99 should be reconstructed as a Type L-9 interchange as described in Chapter 500 of the Caltrans *Highway Design Manual* dated September 1, 2006. The Type L-9 interchange eliminates left turns from Mountain View Avenue to the freeway on ramps and replaces them with loop on ramps that are entered from the right lane of Mountain View Avenue. (For reference purposes, the existing interchange on SR 180 at Marks Avenue in Fresno, California is a relatively new and nearby example of a Type L-9 interchange.)

The configuration of the intersection of Mountain View Avenue and the SR 99 southbound on and off ramps would be as follows:

- Eastbound: three through lanes and one right-turn lane or slip ramp to SR 99 southbound direct on ramp
- Westbound: three through lanes and one right-turn lane or slip ramp to SR 99 southbound loop on ramp
- Northbound: none
- Southbound: two left-turn lanes and three right-turn lanes

With implementation of these improvements, the intersection is expected to operate at LOS B during the a.m. peak hour and LOS C during the p.m. peak hour.

The configuration of the intersection of Mountain View Avenue and the SR 99 northbound on and off ramps would be as follows:

- Eastbound: three through lanes and one right-turn lane or slip ramp to SR 99 northbound loop on ramp
- Westbound: three through lanes and one right-turn lane or slip ramp to SR 99 northbound direct on ramp
- Northbound: two left-turn lanes and one right-turn lane
- Southbound: none

With implementation of these improvements, the intersection is expected to operate at LOS A during the worst-case peak hour.

Mountain View Avenue / Golden State Boulevard

The proposed annexation does not exacerbate the substandard condition that is expected to occur if the Territory were to develop without the annexation. The intersection is currently signalized and is adjacent to railroad tracks. The intersection shall be widened to provide the following configuration:

- Eastbound: two left-turn lanes (minimum 825 feet), three through lanes, and two right-turn lanes
- Westbound: two left-turn lanes, three through lanes, and two right-turn lanes
- Northbound: two left-turn lanes (minimum 350 feet), three through lanes, and two right-turn lanes
- Southbound: two left-turn lanes (minimum 450 feet), three through lanes, and two right-turn lanes

Modification of the traffic signal system at the intersection shall include installation of pre-signals at the existing at-grade railroad crossing.

With implementation of these improvements, the intersection is expected to operate at LOS C during the a.m. peak hour and LOS E during the p.m. peak hour. The proposed intersection configuration is considered to be the maximum feasible intersection configuration. Further improvements could be achieved by implementing the ultimate mitigation as described in the following section.

Ultimate Mitigation

To alleviate the severe congestion and long queues associated with the mitigation described above at the intersection of Mountain View Avenue and Golden State Boulevard, especially when trains pass by, an ultimate solution involving a grade separation should be considered. Such a project would require a substantial amount of engineering study to investigate feasible alternatives. A similar process is underway in Fresno, California for the proposed SR 99 interchange at Veterans Boulevard, which is also adjacent to Golden State Boulevard and the UPRR railroad. Potential alternatives for the Veterans Boulevard interchange project are similar to those that may be considered at the Mountain View Avenue / Golden State Boulevard intersection and can be reviewed on the following web site:

www.fresno.gov/Government/DepartmentDirectory/PublicWorks/TrafficEngineering/

Mountain View Avenue / Bethel Avenue

The proposed annexation does not exacerbate the substandard condition that is expected to occur if the Territory were to develop without the annexation. The intersection of Mountain View and Bethel Avenues will eventually require signalization with protected left turns and the following lane configurations:

- Eastbound: one left-turn lane and two through lanes with a shared right turn
- Westbound: one left-turn lane and two through lanes with a shared right turn
- Northbound: one left-turn lane and two through lanes with a shared right turn
- Southbound: one left-turn lane and two through lanes with a shared right turn

With implementation of these improvements, the intersection is expected to operate at LOS C during the worst-case peak hour.

Mountain View Avenue / Academy Avenue

The proposed annexation does not exacerbate the substandard condition that is expected to occur if the Territory were to develop without the annexation. The intersection of Mountain View and Academy Avenues will eventually require signalization with protected left turns and the following lane configurations:

- Eastbound: two left-turn lanes, two through lanes, and one right-turn lane
- Westbound: one left-turn lane, two through lanes, and one right-turn lane
- Northbound: one left-turn lane, one through lane, and one right-turn lane
- Southbound: one left-turn lane, one through lane, and one right-turn lane

With implementation of these improvements, the intersection is expected to operate at LOS C during the worst-case peak hour.

Golden State Boulevard / Amber Avenue

The proposed annexation does not exacerbate the substandard condition that is expected to occur if the Territory were to develop without the annexation. The intersection shall be modified to allow right-in/right-out access only. Left turn movements will not be permitted at the intersection. With implementation of these improvements, the intersection is expected to operate at LOS C during the worst-case peak hour.

Kamm Avenue / Bethel Avenue

The intersection of Kamm and Bethel Avenues will be relocated as described in the North Kingsburg Specific Plan. Bethel Avenue will be realigned to intersect Academy Parkway at a 90-degree angle opposite a similar realignment to Kamm Avenue. The resulting four-legged intersection will be spaced at least 1,000 feet from the at-grade railroad crossing.

The required configuration of the realigned intersection of Kamm/Bethel Avenues with Academy Parkway will include signalization with protected left turns and the following minimum lane configurations (assuming that the Kamm/Bethel Avenue connector is the north-south street and Academy Parkway is the east-west street):

- Eastbound: one left-turn lane, two through lanes, and one right-turn lane;
- Westbound: one left-turn lane, two through lanes, and one right-turn lane;
- Northbound: two left-turn lanes, two through lanes, and one right-turn lane;
- Southbound: one left-turn lane, two through lanes, and one right-turn lane.

With implementation of these improvements, the intersection is expected to operate at LOS C during the worst-case peak hour.

Kamm Avenue / Academy Avenue

The intersection of Kamm and Academy Avenues will eventually require signalization with protected left turns and the following lane configurations:

- Eastbound: one left-turn lane, two through lanes, and one right-turn lane
- Westbound: one left-turn lane, two through lanes, and one right-turn lane
- Northbound: one left-turn lane, two through lanes, and one right-turn lane
- Southbound: one left-turn lane, two through lanes, and one right-turn lane

With implementation of these improvements, the intersection is expected to operate at LOS C during the worst-case peak hour.

Golden State Boulevard / Bethel Avenue

Traffic signal warrants are expected to be met at the intersection. The intersection shall be signalized with protected left-turn phasing and widened to provide the following configuration (assuming Golden State Boulevard is the north-south street):

- Eastbound: two left-turn lanes, two through lanes, and one right-turn lane
- Westbound: one left-turn lane, two through lanes, and one right-turn lane
- Northbound: one left-turn lane, two through lanes, and one right-turn lane
- Southbound: two left-turn lanes, two through lanes, and one right-turn lane

The traffic signal system at the intersection shall include installation of pre-signals at the existing at-grade railroad crossing or should be coordinated with traffic signals at the intersection of Bethel and Kamm Avenues.

With implementation of these improvements, the intersection is expected to operate at LOS C during the worst-case peak hour.

Bethel Avenue / SR 99 Northbound Off Ramp

Traffic signal warrants are expected to be met at the intersection. The intersection shall be signalized with protected left-turn phasing and widened to provide a dedicated right-turn lane on the westbound approach. The configuration of the intersection of Bethel Avenue and the SR 99 northbound off ramp would be as follows:

Eastbound: none
Westbound: one left-turn lane and one right-turn lane
Northbound: one through lane
Southbound: one through lane

With implementation of these improvements, the intersection is expected to operate at LOS B during the worst-case peak hour.

Bethel Avenue / SR 99 Northbound On Ramp

Although the intersection operational analyses indicate that the intersection will experience LOS F, traffic signal warrants are not expected to be met at the intersection. The eastbound approach, which typically serves less than five vehicles per hour, is the only approach expected to experience substandard levels of service. Therefore, the intersection control should be maintained in its existing condition.

Bethel Avenue / Parkway Drive (SR 99 Southbound Ramps)

Traffic signal warrants are expected to be met at the intersection. The intersection shall be signalized with protected left-turn phasing and widened to provide the following configuration:

Eastbound: one left-turn lane, one through lane, and one right-turn lane
Westbound: none
Northbound: one left-turn lane and one through lane with a shared right turn
Southbound: two left-turn lanes and one through lane with a shared right turn

This configuration requires widening of the on ramp to receive traffic from the two southbound left-turn lanes.

With implementation of these improvements, the intersection is expected to operate at LOS B during the worst-case peak hour.

Mountain View Avenue: SR 99 to Golden State Boulevard

Mountain View Avenue between the SR 99 northbound ramps and Golden State Boulevard shall be widened to six lanes with a median. With implementation of these improvements and other required intersection mitigations, the road segment is expected to operate at LOS C during the a.m. peak hour and LOS F during the p.m. peak hour.

The calculated LOS F during the p.m. peak hour is considered to be the best-case mitigation scenario because, with the construction of long eastbound left-turn lanes as required at the intersection of Mountain View Avenue and Golden State Boulevard and a free right turn to the northbound SR 99 on ramp, the road segment will actually have more than six lanes and is likely to function as an eight-lane arterial (which is not represented in the Florida tables).

Since the road segment is relatively short, intersection operations are expected to govern the LOS that is experienced by drivers. Furthermore, additional through lanes would provide only marginal improvements because additional lanes are not typically evenly utilized near site access locations, reduce ease of access for pedestrians by increasing the widths of intersections, and create substantial additional ongoing maintenance costs to the City.

Mountain View Avenue: Golden State Boulevard to Bethel Avenue

Mountain View Avenue between Golden State Boulevard and Bethel Avenue shall be widened to six lanes with a median. With implementation of these improvements, the road segment is expected to operate at LOS B during the a.m. and p.m. peak hours.

Mountain View Avenue: Bethel Avenue to Academy Avenue

Mountain View Avenue between Bethel and Academy Avenues shall be widened to six lanes with a median. With implementation of these improvements, the road segment is expected to operate at LOS B during the worst-case peak hour.

Measure C Rural Project I is currently in the design phase and is funded to widen Mountain View Avenue to four lanes. Therefore, development projects would be responsible for a fair share of only the two outside lanes that are not to be constructed by the Measure C project.

Kamm Avenue: Bethel Avenue to Academy Avenue

Kamm Avenue between Bethel and Academy Avenues shall be widened to four lanes with a median. With implementation of these improvements, the road segment is expected to operate at LOS C during the worst-case peak hour.

Golden State Boulevard: Mountain View Avenue to Bethel Avenue

Golden State Boulevard between Mountain View and Bethel Avenues is expected to operate at acceptable levels of service based on the existing four-lane configuration. Therefore, no additional improvements are recommended.

Funding for Mitigations

The extent of the required mitigations is expected to be beyond the capacity of new development projects to accomplish individually. It is recommended that the City of Kingsburg develop a traffic impact fee program to provide funding for required improvements. A transportation impact fee study shall be prepared to support the traffic impact fee program. The traffic impact fee will allow new development projects to mitigate their fair share of impacts as the City collects the funds necessary to implement the required mitigations.

CONCLUSIONS

The City of Kingsburg shall initiate the preparation of a traffic impact fee study for the purpose of analyzing the impacts of contemplated future development on City-wide traffic facilities along with an analysis of the need for new traffic facilities required by new development in the City, including new development in the Territory. The impact fee study will also identify the relationship between new development and the needed traffic facilities and will identify the estimated cost of the needed traffic facilities. The study shall be

completed within one year of City approval of the proposed annexation. The traffic impact fee study shall be completed and presented to the Kingsburg City Council along with a recommended change in the traffic impact fee portion of the City's Capital Facilities Fees. After review and consideration of the traffic impact fee study and recommended change in the traffic impact fee portion of the City's Capital Facilities Fee by the City Council and affected parties, it is anticipated that the City Council will consider the adoption of an ordinance amending the traffic impact fee portion of the City's Capital Facilities Fees (Chapter 15.48 of the Kingsburg Municipal Code) and adoption of a resolution establishing new traffic impact fees as part of the City's Capital Facilities Fees.

Conclusions of this traffic impact study are described below according to the various analysis scenarios.

Existing Conditions

The results of the existing-conditions analyses indicate that the study intersections and road segments are currently operating at acceptable levels of service, with the exception of the intersection of Mountain View Avenue and the SR 99 southbound off ramp. The intersection of Mountain View Avenue and the SR 99 southbound off ramp is currently operating at LOS D during the p.m. peak hour, but peak-hour traffic signal warrants are not satisfied.

Year 2035 Cumulative-Without-Project Conditions

The year 2035 cumulative-without-Project conditions analyses indicate that all of the study intersections and road segments are expected to operate at substandard levels of service, with the exception of the following road segments that are expected to operate at acceptable levels of service:

- Golden State Boulevard between Bethel Avenue and Amber Avenue;
- Golden State Boulevard between Amber Avenue and Mountain View Avenue; and
- Kamm Avenue between Academy Avenue and Bethel Avenue.

Year 2035 Cumulative-With-Project Conditions

The year 2035 cumulative-with-Project conditions analyses indicate that all of the study intersections and road segments are expected to operate at substandard levels of service, with the exception of the following road segments that are expected to operate at acceptable levels of service:

- Golden State Boulevard between Bethel Avenue and Amber Avenue; and
- Golden State Boulevard between Amber Avenue and Mountain View Avenue.

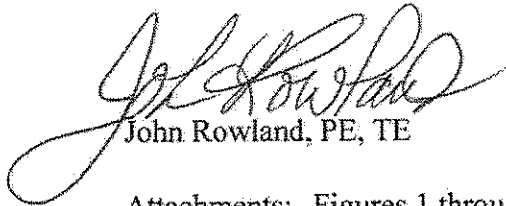
Development projects proposed to be constructed in the Territory will be required to analyze their project-specific traffic impacts on a project-by-project basis and will be responsible for mitigating the project-specific traffic impacts. Such mitigation measures may take the form of construction of the required improvements and/or payment into a traffic impact fee program established to fund future construction of the improvements. Any proposed development project to be located in the Territory that generates 100 or more trips per day (combined total entering and exiting the site) shall be required to perform a traffic impact

study to determine the current levels of service and the anticipated impacts of the project on the adjacent roadways and intersections.

Generally-accepted traffic engineering principles and methods were employed to analyze the existing conditions in the Territory and to estimate the traffic conditions expected to occur in the Territory in the future as development occurs in the Territory and in the vicinity of the Territory. The annexation of the Territory does not currently generate new traffic in the Territory or in the vicinity of the Territory and no traffic-generating projects are currently proposed to be developed in the Territory. Future development in the Territory will be subject to the North Kingsburg Specific Plan. Future development projects within the Territory will be required to analyze their project-specific traffic impacts. Depending upon the impacts, each development project may be required to construct or contribute to the construction of improvements as described in this report. Also, future development projects may be required to pay traffic impact fees in order to assist in the funding of construction of improvements described in this report.

Thank you for the opportunity to perform this traffic impact study. Please feel free to call our office if you have any questions.

PETERS ENGINEERING GROUP



John Rowland, PE, TE



10-26-11

Attachments: Figures 1 through 5

- Appendix A - Fresno County Travel Model Data Output
- Appendix B - Intersection Analysis Sheets
- Appendix C - Peak Hour Traffic Signals Warrants
- Appendix D - Florida Tables for Road Segment Analyses
- Appendix E - Mitigated Intersection Analysis Sheets

FIGURES

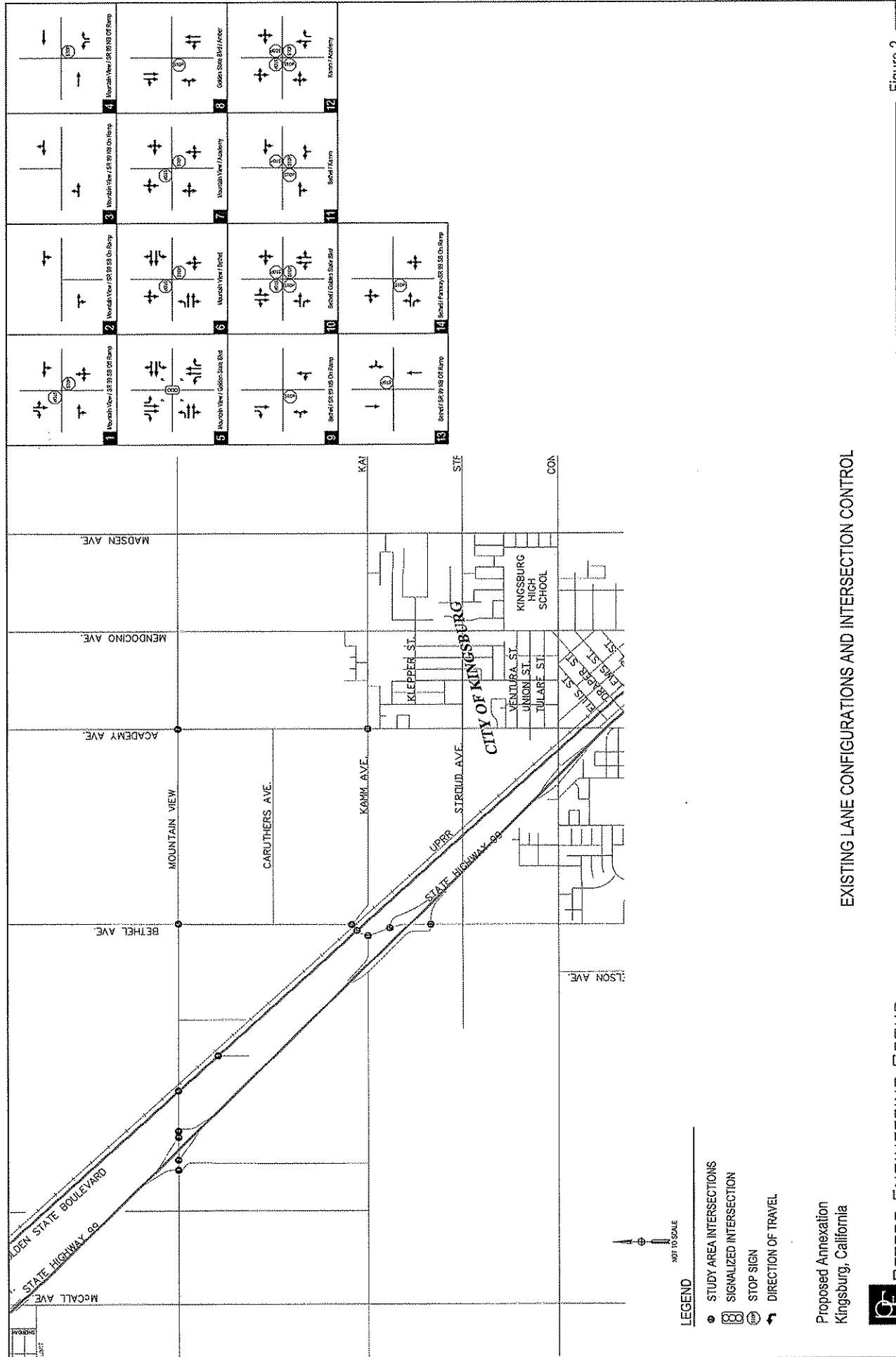
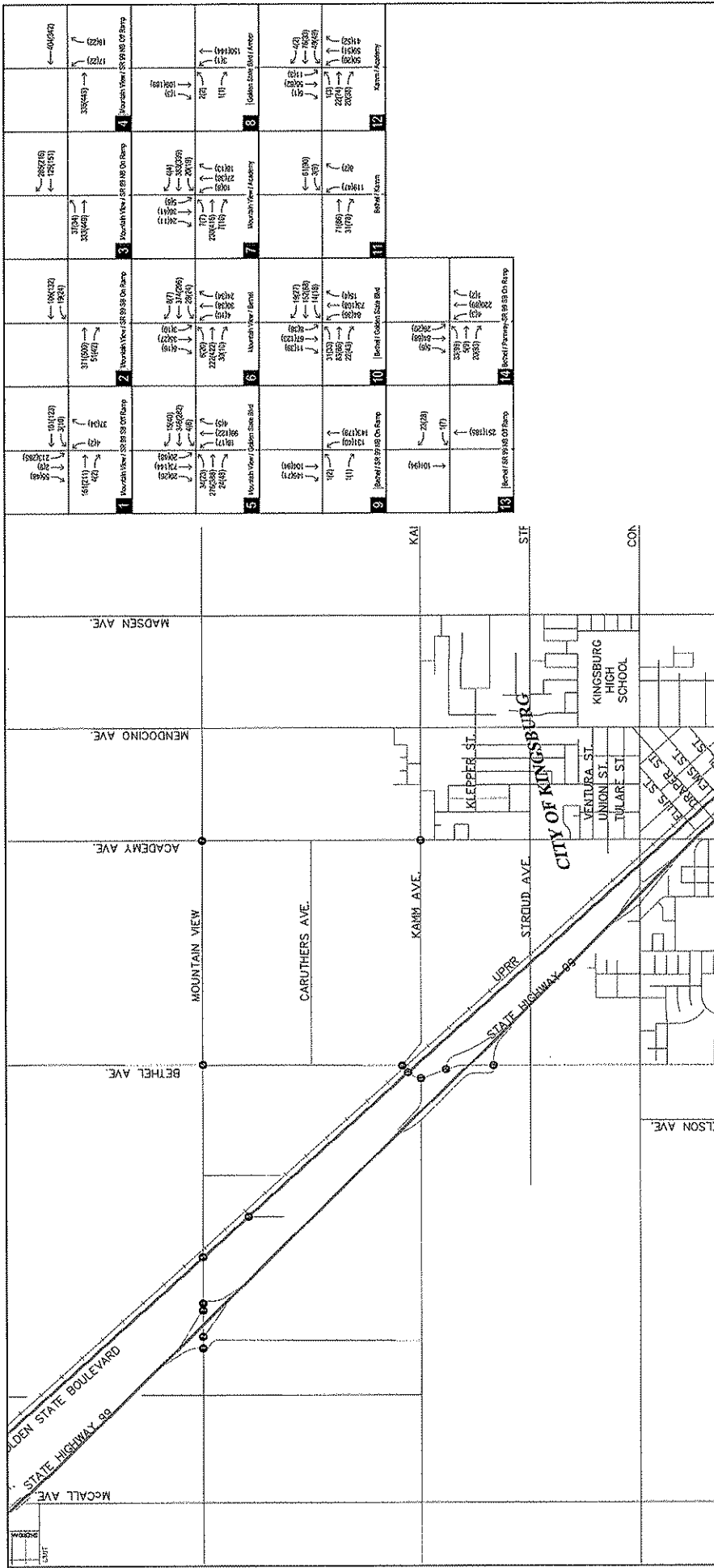


Figure 2

Proposed Annexation
Kingsburg, California

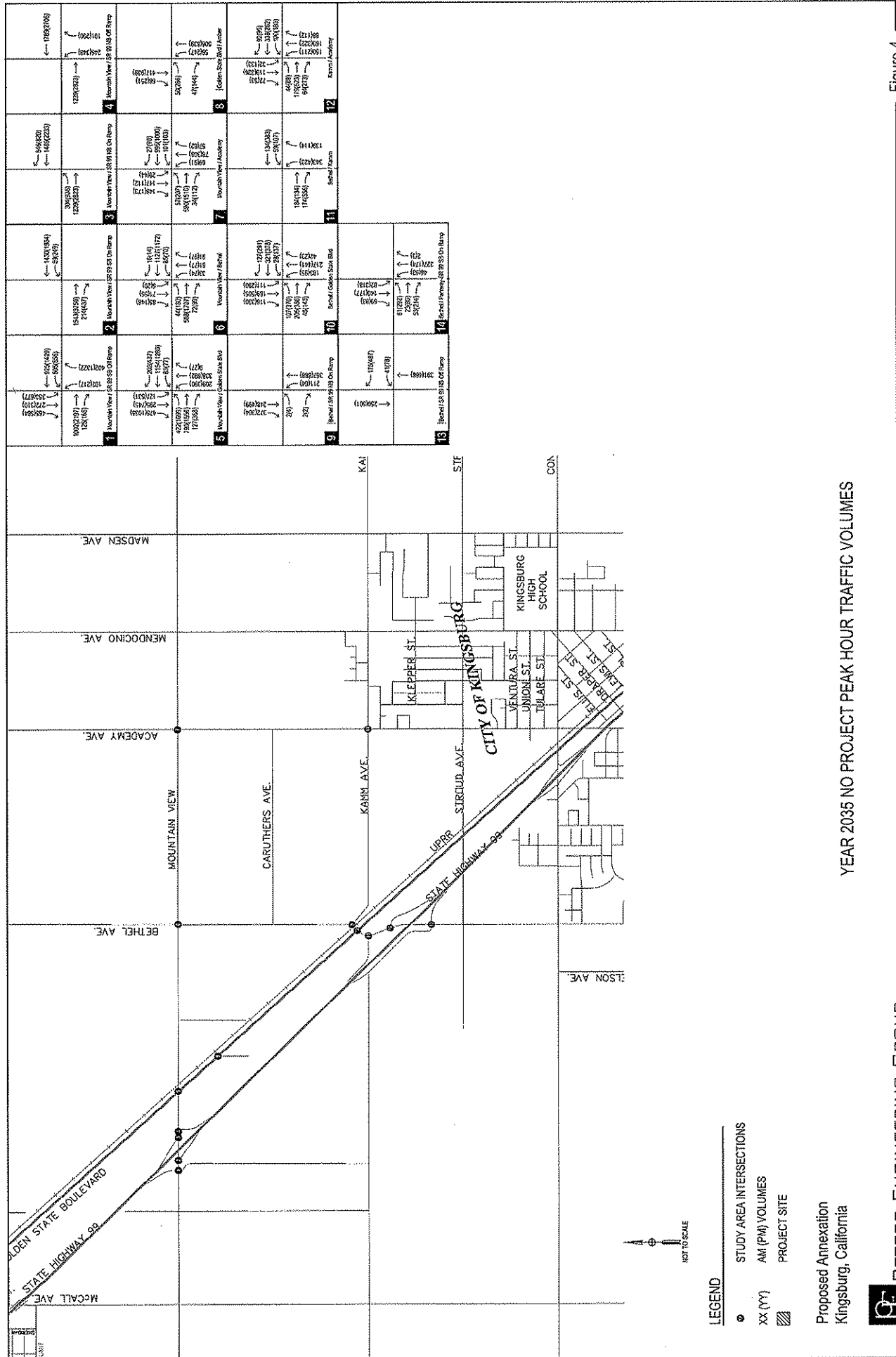


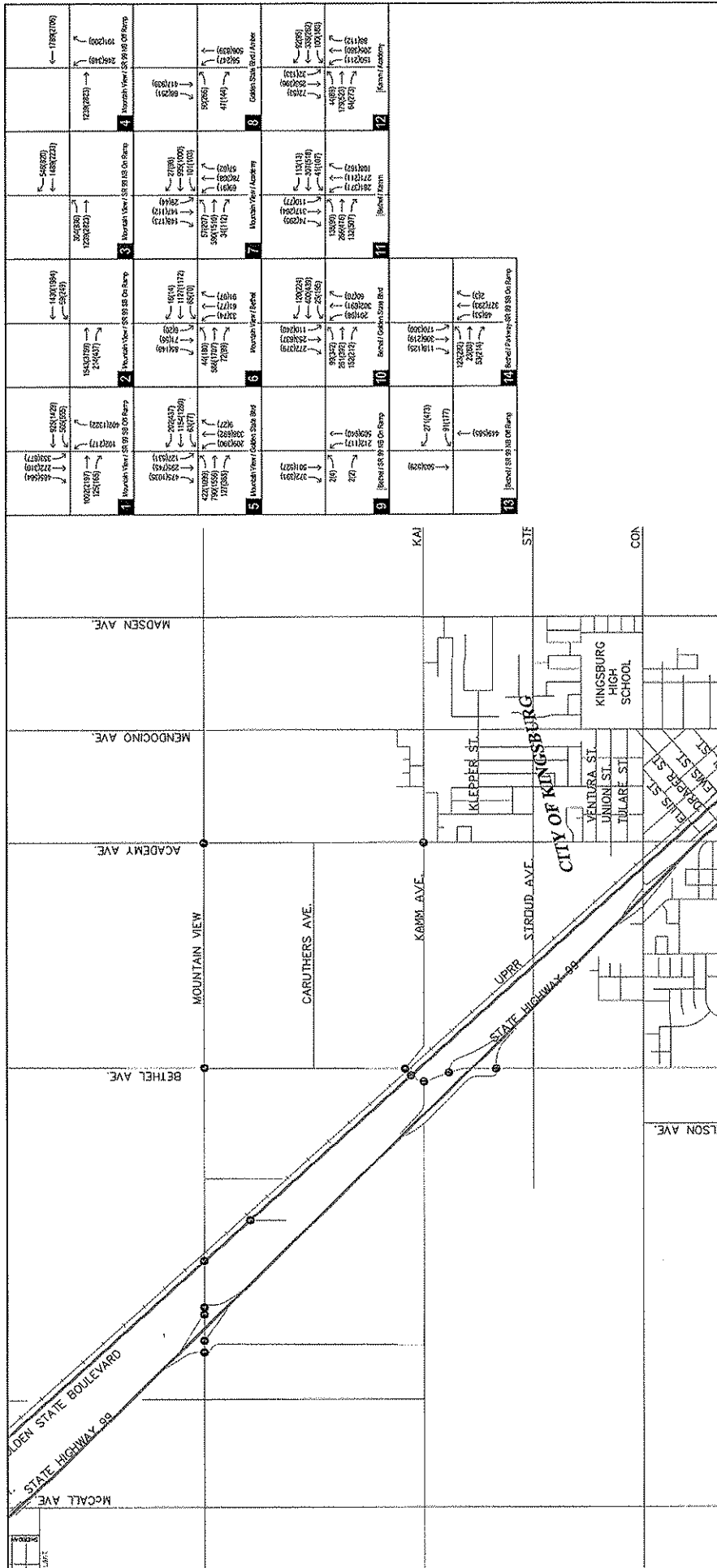
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EXISTING PEAK HOUR TRAFFIC VOLUMES

Proposed Annexation
Kingsburg, California





YEAR 2035 PLUS PROJECT PEAK HOUR TRAFFIC VOLUMES

Proposed Annexation
Kingsburg, California

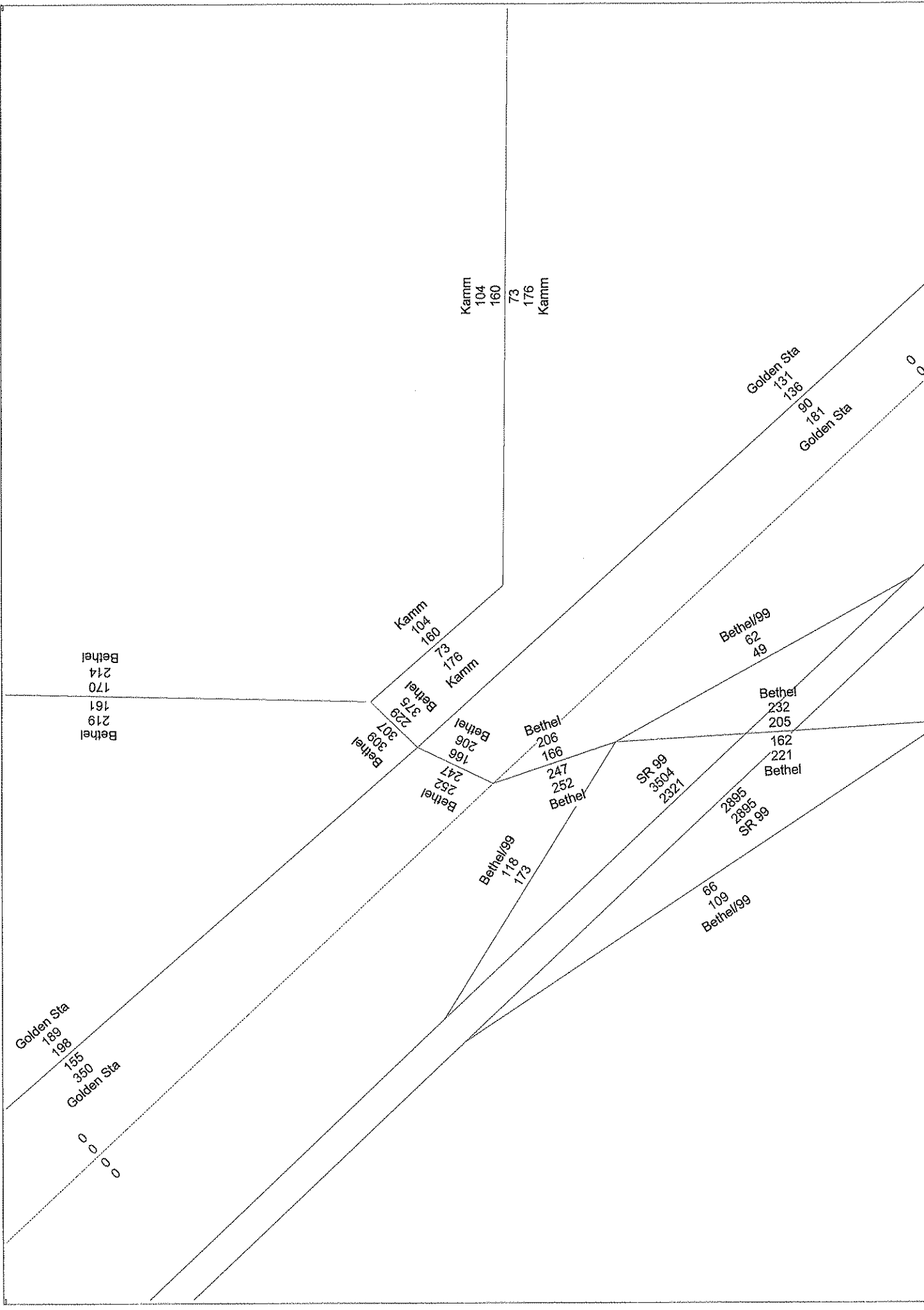


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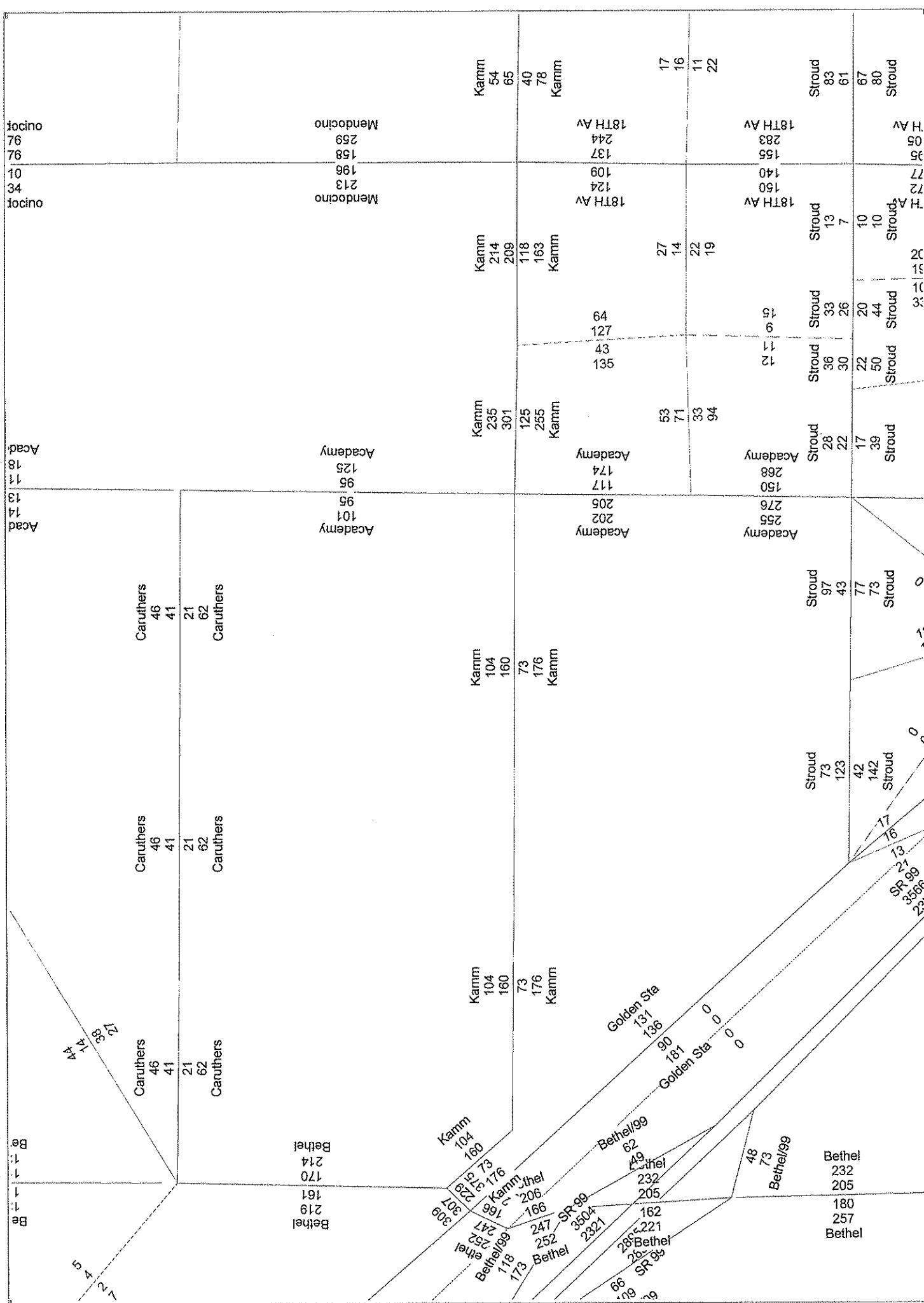
Figure 5

APPENDIX A

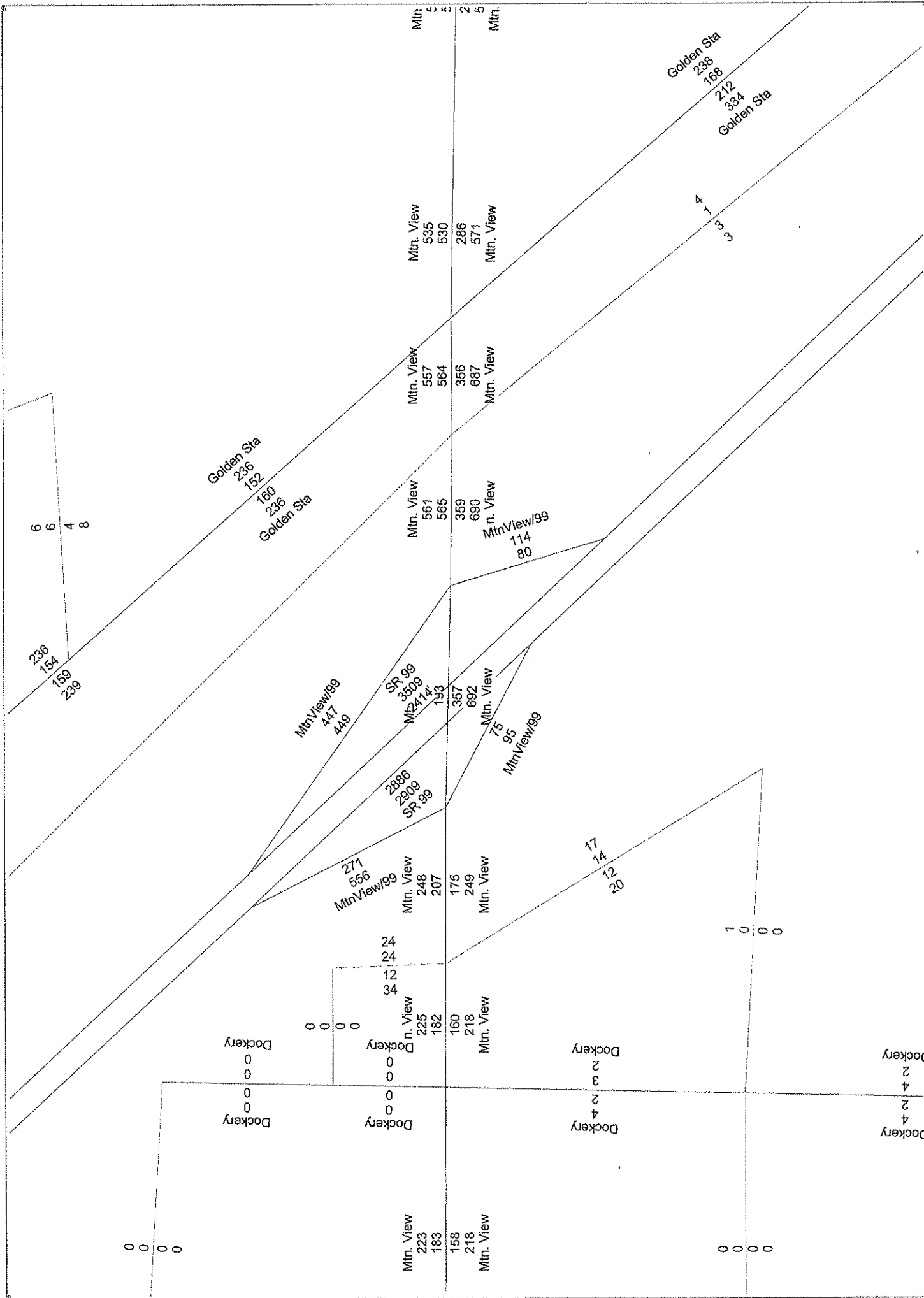
FRESNO COUNTY TRAVEL MODEL DATA OUTPUT



2009 Council of Fresno County Governments Travel Demand Model
AM and PM Peak Hour Volumes



2009 Council of Fresno County Governments Travel Demand Model
AM and PM Peak Hour Volumes



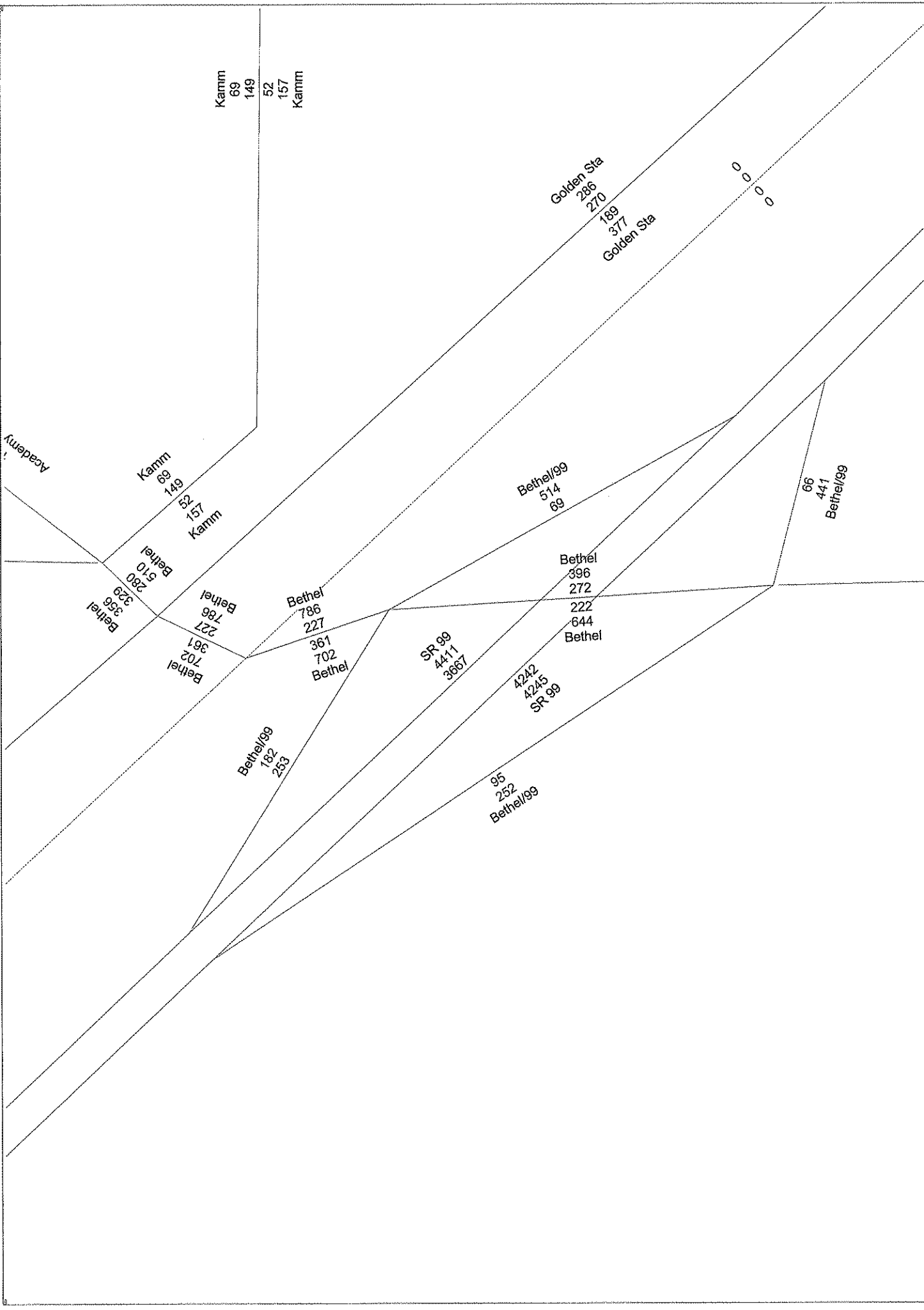
2009 Council of Fresno County Governments Travel Demand Model AM and PM Peak Hour Volumes

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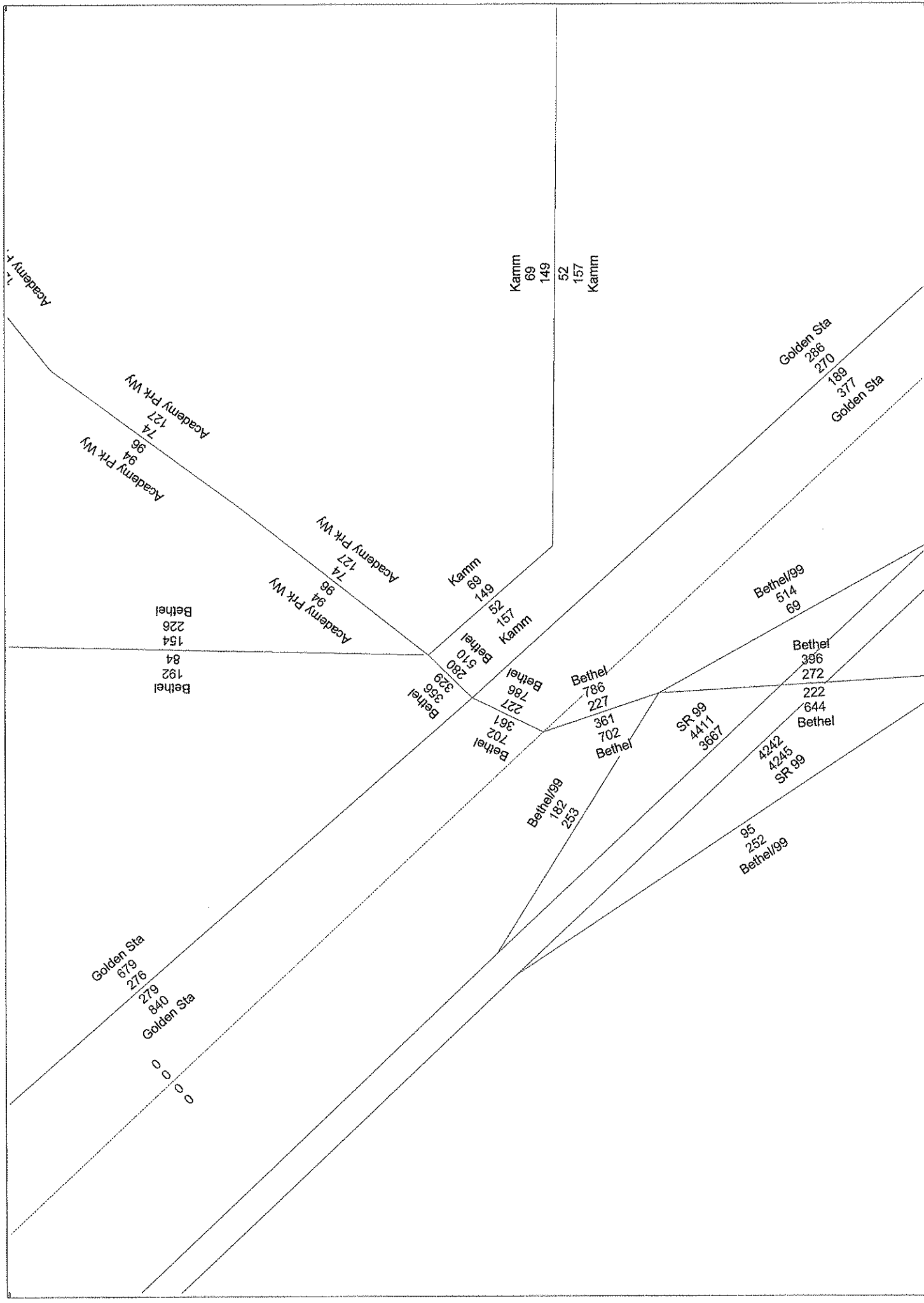
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**2009 Council of Fresno County Governments Travel Demand Model
AM and PM Peak Hour Volumes**

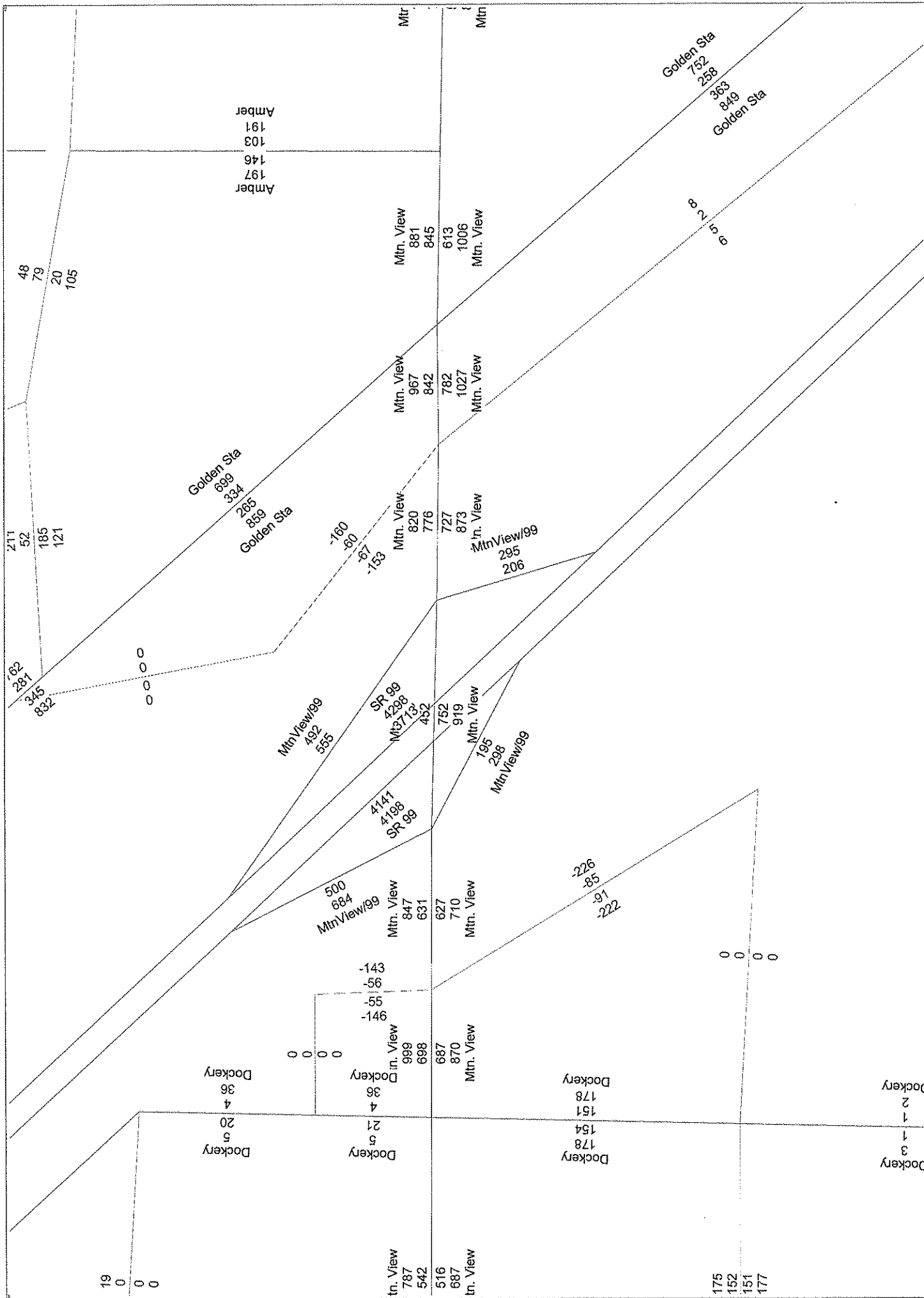
Section	Subsection	Area	Acres	Notes
Saginaw	Saginaw	Bethel	223	164
		Bethel	207	251
		Bethel	197	158
		Bethel	207	233
	Saginaw	Bethel	16	30
		Bethel	25	36
		Bethel	22	30
		Bethel	4	16
	Saginaw	Bethel	4	23
		Bethel	3	11
		Bethel	3	19
		Bethel	4	16
Mendocino	Mendocino	Mtn. View	532	532
		Mtn. View	511	511
		Mtn. View	560	560
		Mtn. View	243	243
	Mendocino	Mtn. View	489	489
		Mtn. View	475	475
		Mtn. View	221	221
		Mtn. View	521	521
	Mendocino	Mtn. View	176	176
		Mtn. View	276	276
		Mtn. View	210	210
		Mtn. View	234	234
Caruthers	Caruthers	Caruthers	41	41
		Caruthers	46	46
		Caruthers	21	21
		Caruthers	62	62
	Caruthers	Caruthers	41	41
		Caruthers	46	46
		Caruthers	21	21
		Caruthers	62	62
	Caruthers	Caruthers	41	41
		Caruthers	46	46
		Caruthers	21	21
		Caruthers	62	62
Bethel	Bethel	Bethel	111	135
		Bethel	111	132
		Bethel	113	113
		Bethel	132	132
	Bethel	Bethel	111	111
		Bethel	111	111
		Bethel	111	111
		Bethel	111	111
	Bethel	Bethel	111	111
		Bethel	111	111
		Bethel	111	111
		Bethel	111	111

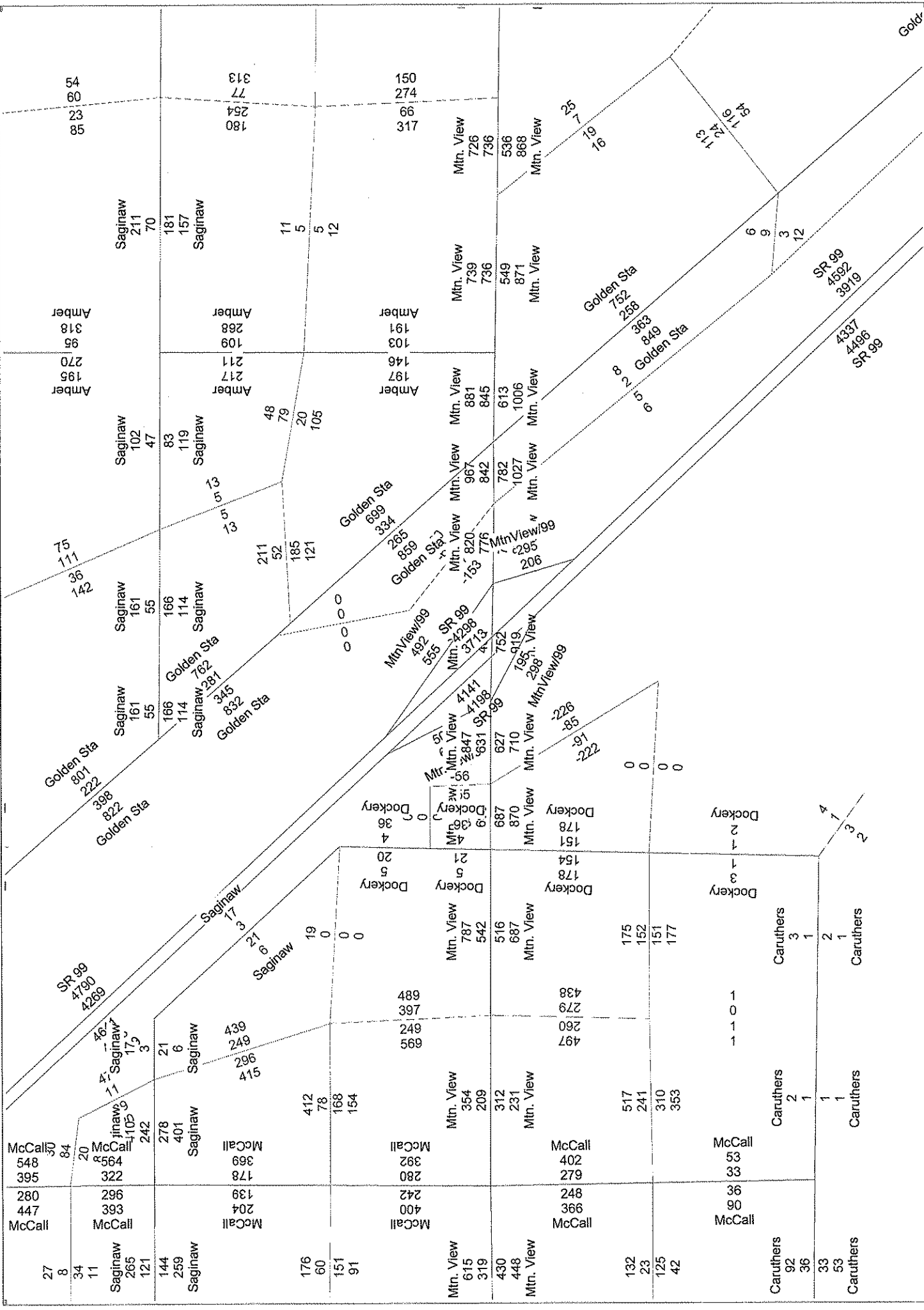


2035 Concil of Fresno County Governments Travel Demand Model
AM and PM Peak Hour Traffic Volumes



2035 Council of Fresno County Governments Travel Demand Model
AM and PM Peak Hour Traffic Volumes

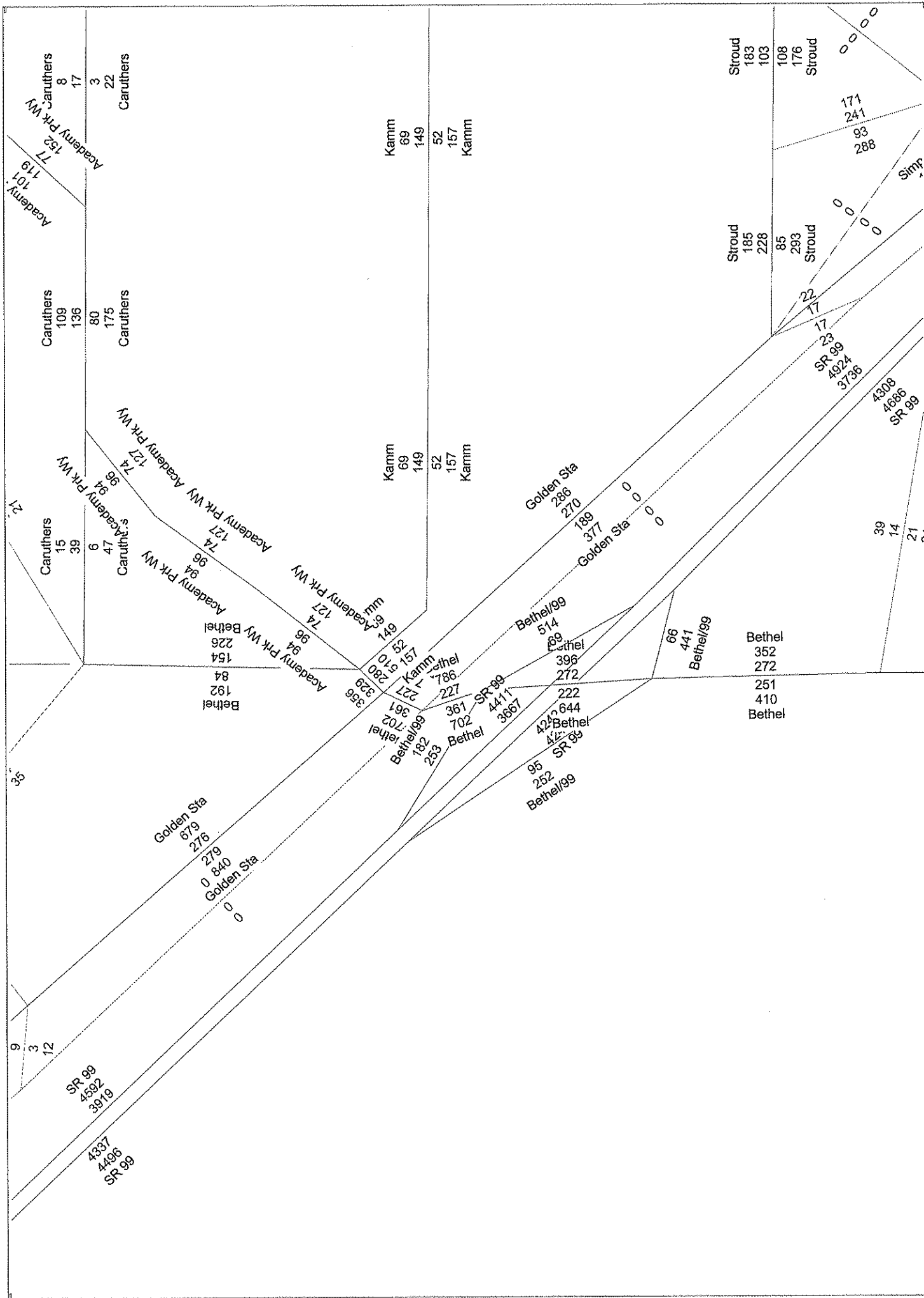




2035 Council of Fresno County Governments Travel Demand Model
AM and PM Peak Hour Traffic Volumes

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2035 Concil of Fresno County Governments Travel Demand Model AM and PM Peak Hour Traffic Volumes

APPENDIX B


















INTERSECTION ANALYSIS SHEETS

Existing Conditions

HCM Unsignalized Intersection Capacity Analysis 16: Mountain View Ave & SR 99 SB Off / Van Horn

Existing-AM

10/26/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	161	4	3	101	0	4	0	37	213	2	55
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.62	0.62	0.62	0.63	0.63	0.63	0.68	0.68	0.68	0.88	0.88	0.88
Hourly flow rate (vph)	0	260	6	5	160	0	6	0	54	242	2	62
Pedestrians		10			10			10			10	
Lane Width (ft)		12.0			12.0			12.0			12.0	
Walking Speed (ft/s)		4.0			4.0			4.0			4.0	
Percent Blockage		1			1			1			1	
Right turn flare (veh)												8
Median type		None			None							
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	170			276			485	453	283	507	456	180
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	170			276			485	453	283	507	456	180
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.2	6.5	6.4
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.6	4.0	3.4
p0 queue free %	100			100			99	100	93	41	100	92
cM capacity (veh/h)	1395			1276			438	493	743	413	490	814
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	266	165	60	307								
Volume Left	0	5	6	242								
Volume Right	6	0	54	62								
cSH	1700	1276	696	520								
Volume to Capacity	0.16	0.00	0.09	0.59								
Queue Length 95th (ft)	0	0	7	95								
Control Delay (s)	0.0	0.3	10.7	22.3								
Lane LOS		A	B	C								
Approach Delay (s)	0.0	0.3	10.7	22.3								
Approach LOS			B	C								
Intersection Summary												
Average Delay			9.4									
Intersection Capacity Utilization			35.3%		ICU Level of Service				A			
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis

17: Mountain View Ave & SR 99 SB On

Existing-AM

10/26/2011

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↗			↖		
Volume (veh/h)	371	51	19	106	0	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.88	0.88	0.82	0.82	0.88	0.88
Hourly flow rate (vph)	422	58	23	129	0	0
Pedestrians	10			10	10	
Lane Width (ft)	12.0			12.0	0.0	
Walking Speed (ft/s)	4.0			4.0	4.0	
Percent Blockage	1			1	0	
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			490		646	471
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			490		646	471
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			98		100	100
cM capacity (veh/h)			1074		423	588
Direction, Lane #	EB 1	WB 1				
Volume Total	480	152				
Volume Left	0	23				
Volume Right	58	0				
cSH	1700	1074				
Volume to Capacity	0.28	0.02				
Queue Length 95th (ft)	0	2				
Control Delay (s)	0.0	1.4				
Lane LOS		A				
Approach Delay (s)	0.0	1.4				
Approach LOS						
Intersection Summary						
Average Delay		0.3				
Intersection Capacity Utilization		35.6%	ICU Level of Service		A	
Analysis Period (min)		15				

HCM Unsignalized Intersection Capacity Analysis 18: Mountain View Ave & SR 99 NB On

Existing-AM
10/26/2011



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↔	↔			
Volume (veh/h)	37	333	125	285	0	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.84	0.84	0.90	0.90	0.88	0.88
Hourly flow rate (vph)	44	396	139	317	0	0
Pedestrians		10	10		10	
Lane Width (ft)		12.0	12.0		0.0	
Walking Speed (ft/s)		4.0	4.0		4.0	
Percent Blockage		1	1		0	
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	466				802	317
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	466				802	317
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	96				100	100
cM capacity (veh/h)	1096				336	717
Direction, Lane #	EB 1	WB 1				
Volume Total	440	456				
Volume Left	44	0				
Volume Right	0	317				
cSH	1096	1700				
Volume to Capacity	0.04	0.27				
Queue Length 95th (ft)	3	0				
Control Delay (s)	1.2	0.0				
Lane LOS	A					
Approach Delay (s)	1.2	0.0				
Approach LOS						
Intersection Summary						
Average Delay		0.6				
Intersection Capacity Utilization		60.5%		ICU Level of Service		B
Analysis Period (min)		15				

HCM Unsignalized Intersection Capacity Analysis

19: Mountain View Ave & SR 99 NB Off

Existing-AM
10/26/2011























	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑			↑	↖	↗
Volume (veh/h)	336	0	0	404	17	18
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.82	0.82	0.87	0.87	0.88	0.88
Hourly flow rate (vph)	410	0	0	464	19	20
Pedestrians	10			10	10	
Lane Width (ft)	12.0			12.0	12.0	
Walking Speed (ft/s)	4.0			4.0	4.0	
Percent Blockage	1			1	1	
Right turn flare (veh)						1
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)				1085		
pX, platoon unblocked					0.92	
vC, conflicting volume			420		894	430
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			420		839	430
tC, single (s)			4.1		6.4	6.6
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.6
p0 queue free %			100		94	96
cM capacity (veh/h)			1130		303	546
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	410	464	40			
Volume Left	0	0	19			
Volume Right	0	0	20			
cSH	1700	1700	623			
Volume to Capacity	0.24	0.27	0.06			
Queue Length 95th (ft)	0	0	5			
Control Delay (s)	0.0	0.0	14.7			
Lane LOS			B			
Approach Delay (s)	0.0	0.0	14.7			
Approach LOS			B			
Intersection Summary						
Average Delay			0.6			
Intersection Capacity Utilization			34.1%	ICU Level of Service		A
Analysis Period (min)			15			

HCM Signalized Intersection Capacity Analysis

20: Mountain View Ave & Golden State Blvd

Existing-AM

10/26/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	34	276	24	4	346	15	18	99	4	20	73	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.9		4.0	4.9		4.0	4.9	4.9	4.0	4.9	4.9
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	0.98	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00		1.00	1.00		0.99	1.00	1.00	0.99	1.00	1.00
Frt	1.00	0.99		1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3400		1763	3356		1760	3539	1554	1760	3539	1554
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1770	3400		1763	3356		1760	3539	1554	1760	3539	1554
Peak-hour factor, PHF	0.83	0.83	0.83	0.96	0.96	0.96	0.86	0.86	0.86	0.91	0.91	0.91
Adj. Flow (vph)	41	333	29	4	360	16	21	115	5	22	80	22
RTOR Reduction (vph)	0	8	0	0	4	0	0	0	4	0	0	19
Lane Group Flow (vph)	41	354	0	4	372	0	21	115	1	22	80	3
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Heavy Vehicles (%)	2%	5%	2%	2%	7%	2%	2%	2%	2%	2%	2%	2%
Turn Type	Prot			Prot			Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases									2			6
Actuated Green, G (s)	1.9	11.1		0.6	9.8		0.7	4.3	4.3	0.7	4.3	4.3
Effective Green, g (s)	1.9	11.1		0.6	9.8		0.7	4.3	4.3	0.7	4.3	4.3
Actuated g/C Ratio	0.06	0.32		0.02	0.28		0.02	0.12	0.12	0.02	0.12	0.12
Clearance Time (s)	4.0	4.9		4.0	4.9		4.0	4.9	4.9	4.0	4.9	4.9
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	97	1094		31	953		36	441	194	36	441	194
v/s Ratio Prot	c0.02	0.10		0.00	c0.11		0.01	c0.03		c0.01	0.02	
v/s Ratio Perm									0.00			0.00
v/c Ratio	0.42	0.32		0.13	0.39		0.58	0.26	0.00	0.61	0.18	0.01
Uniform Delay, d1	15.8	8.9		16.7	9.9		16.8	13.7	13.2	16.8	13.5	13.2
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	3.0	0.2		1.9	0.3		21.8	0.3	0.0	27.0	0.2	0.0
Delay (s)	18.7	9.0		18.6	10.2		38.6	14.0	13.2	43.7	13.7	13.3
Level of Service	B	A		B	B		D	B	B	D	B	B
Approach Delay (s)		10.0			10.3			17.6			19.0	
Approach LOS		B			B			B			B	
Intersection Summary												
HCM Average Control Delay			12.2			HCM Level of Service				B		
HCM Volume to Capacity ratio			0.37									
Actuated Cycle Length (s)			34.5			Sum of lost time (s)			17.8			
Intersection Capacity Utilization			35.2%			ICU Level of Service			A			
Analysis Period (min)			15									
c Critical Lane Group												

Queues

20: Mountain View Ave & Golden State Blvd

Existing-AM

10/26/2011






















Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	41	362	4	376	21	115	5	22	80	22
v/c Ratio	0.07	0.19	0.01	0.22	0.04	0.09	0.01	0.04	0.07	0.04
Control Delay	18.5	8.8	21.2	11.4	19.6	13.7	11.8	19.6	13.9	8.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	18.5	8.8	21.2	11.4	19.6	13.7	11.8	19.6	13.9	8.9
Queue Length 50th (ft)	4	14	1	15	2	5	0	2	3	0
Queue Length 95th (ft)	38	85	9	103	25	35	7	27	28	15
Internal Link Dist (ft)		476		2144		775			357	
Turn Bay Length (ft)	250		200		200		25	180		25
Base Capacity (vph)	739	2389	739	2250	739	2481	1084	739	2481	1089
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.06	0.15	0.01	0.17	0.03	0.05	0.00	0.03	0.03	0.02

Intersection Summary

HCM Unsignalized Intersection Capacity Analysis 21: Mountain View Ave & Bethel Ave.

















Existing-AM
10/26/2011

																				
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR								
Lane Configurations																				
Volume (veh/h)	6	222	30	28	374	8	4	30	24	3	35	6								
Sign Control	Free			Free			Stop			Stop										
Grade	0%			0%			0%			0%										
Peak Hour Factor	0.84	0.84	0.84	0.92	0.92	0.92	0.85	0.85	0.85	0.73	0.73	0.73								
Hourly flow rate (vph)	7	264	36	30	407	9	5	35	28	4	48	8								
Pedestrians	10			10			10			10										
Lane Width (ft)	12.0			12.0			12.0			12.0										
Walking Speed (ft/s)	4.0			4.0			4.0			4.0										
Percent Blockage	1			1			1			1										
Right turn flare (veh)																				
Median type	None			None																
Median storage (veh)																				
Upstream signal (ft)																				
pX, platoon unblocked																				
vC, conflicting volume	425			310			613	793	170	684	806	228								
vC1, stage 1 conf vol																				
vC2, stage 2 conf vol																				
vCu, unblocked vol	425			310			613	793	170	684	806	228								
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9								
tC, 2 stage (s)																				
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3								
p0 queue free %	99			98			98	88	97	99	84	99								
cM capacity (veh/h)	1121			1237			310	305	830	280	299	762								
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1												
Volume Total	7	176	124	30	271	144	68	60												
Volume Left	7	0	0	30	0	0	5	4												
Volume Right	0	0	36	0	0	9	28	8												
cSH	1121	1700	1700	1237	1700	1700	414	325												
Volume to Capacity	0.01	0.10	0.07	0.02	0.16	0.08	0.16	0.19												
Queue Length 95th (ft)	0	0	0	2	0	0	15	17												
Control Delay (s)	8.2	0.0	0.0	8.0	0.0	0.0	15.4	18.6												
Lane LOS	A			A			C	C												
Approach Delay (s)	0.2			0.5			15.4	18.6												
Approach LOS							C	C												
Intersection Summary																				
Average Delay	2.8																			
Intersection Capacity Utilization	31.8%																			
ICU Level of Service	A																			
Analysis Period (min)	15																			

HCM Unsignalized Intersection Capacity Analysis 22: Mountain View Ave & Academy Ave

Existing-AM

10/26/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	7	230	7	20	363	4	10	27	18	5	36	24
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.86	0.86	0.86	0.81	0.81	0.81
Hourly flow rate (vph)	8	256	8	22	403	4	12	31	21	6	44	30
Pedestrians		10			10			10			10	
Lane Width (ft)		12.0			12.0			12.0			12.0	
Walking Speed (ft/s)		4.0			4.0			4.0			4.0	
Percent Blockage		1			1			1			1	
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	418			273			797	747	279	782	749	426
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	418			273			797	747	279	782	749	426
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			98			95	90	97	98	86	95
cM capacity (veh/h)	1132			1279			248	328	747	268	327	618
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	271	430	64	80								
Volume Left	8	22	12	6								
Volume Right	8	4	21	30								
cSH	1132	1279	374	388								
Volume to Capacity	0.01	0.02	0.17	0.21								
Queue Length 95th (ft)	1	1	15	19								
Control Delay (s)	0.3	0.6	16.6	16.7								
Lane LOS	A	A	C	C								
Approach Delay (s)	0.3	0.6	16.6	16.7								
Approach LOS			C	C								
Intersection Summary												
Average Delay			3.2									
Intersection Capacity Utilization			43.0%		ICU Level of Service				A			
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis 25: Amber Ave & Golden State Blvd

Existing-AM
10/26/2011













Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	2	1	3	150	109	1
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.88	0.88	0.85	0.85	0.74	0.74
Hourly flow rate (vph)	2	1	4	176	147	1
Pedestrians	10			10	10	
Lane Width (ft)	12.0			12.0	12.0	
Walking Speed (ft/s)	4.0			4.0	4.0	
Percent Blockage	1			1	1	
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)					855	
pX, platoon unblocked						
vC, conflicting volume	263	94	159			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	263	94	159			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	100	100			
cM capacity (veh/h)	690	928	1407			
Direction, Lane #	EB 1	NB 1	NB 2	SB 1	SB 2	
Volume Total	3	62	118	98	50	
Volume Left	2	4	0	0	0	
Volume Right	1	0	0	0	1	
cSH	755	1407	1700	1700	1700	
Volume to Capacity	0.00	0.00	0.07	0.06	0.03	
Queue Length 95th (ft)	0	0	0	0	0	
Control Delay (s)	9.8	0.4	0.0	0.0	0.0	
Lane LOS	A	A				
Approach Delay (s)	9.8	0.2		0.0		
Approach LOS	A					
Intersection Summary						
Average Delay			0.2			
Intersection Capacity Utilization			19.1%	ICU Level of Service		A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

31: Kamm Ave (SR 99 NB On) & Bethel Ave





















Existing-AM
10/26/2011

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	1	1	131	143	104	146
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.88	0.88	0.79	0.79	0.86	0.86
Hourly flow rate (vph)	1	1	166	181	121	170
Pedestrians	10			10	10	
Lane Width (ft)	12.0			12.0	12.0	
Walking Speed (ft/s)	4.0			4.0	4.0	
Percent Blockage	1			1	1	
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	654	141	131			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	654	141	131			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	100	89			
cM capacity (veh/h)	376	892	1442			
Direction, Lane #	EB 1	NB 1	SB 1	SB 2		
Volume Total	2	347	121	170		
Volume Left	1	166	0	0		
Volume Right	1	0	0	170		
cSH	529	1442	1700	1700		
Volume to Capacity	0.00	0.11	0.07	0.10		
Queue Length 95th (ft)	0	10	0	0		
Control Delay (s)	11.8	4.3	0.0	0.0		
Lane LOS	B	A				
Approach Delay (s)	11.8	4.3	0.0			
Approach LOS	B					
Intersection Summary						
Average Delay		2.4				
Intersection Capacity Utilization		34.3%		ICU Level of Service		A
Analysis Period (min)		15				

HCM Unsignalized Intersection Capacity Analysis 32: Bethel Ave & Golden State Blvd










Existing-AM

10/26/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	31	83	22	14	152	19	84	73	15	8	67	11
Peak Hour Factor	0.65	0.65	0.65	0.83	0.83	0.83	0.84	0.84	0.84	0.80	0.80	0.80
Hourly flow rate (vph)	48	128	34	17	183	23	100	87	18	10	84	14
Direction, Lane #	EB 1	EB 2	WB 1	NB 1	NB 2	SB 1	SB 2	SB 3				
Volume Total (vph)	175	34	223	143	61	38	56	14				
Volume Left (vph)	48	0	17	100	0	10	0	0				
Volume Right (vph)	0	34	23	0	18	0	0	14				
Hadj (s)	0.10	-0.57	0.00	0.38	-0.17	0.17	0.03	-0.67				
Departure Headway (s)	5.1	3.2	5.0	6.1	5.5	6.0	5.9	3.2				
Degree Utilization, x	0.25	0.03	0.31	0.24	0.09	0.06	0.09	0.01				
Capacity (veh/h)	659	1121	686	560	611	548	562	1121				
Control Delay (s)	9.9	6.3	10.2	9.8	7.9	8.2	8.3	5.0				
Approach Delay (s)	9.3		10.2	9.2		7.9						
Approach LOS	A		B	A		A						
Intersection Summary												
Delay			9.3									
HCM Level of Service			A									
Intersection Capacity Utilization			35.3%			ICU Level of Service			A			
Analysis Period (min)			15									


















HCM Unsignalized Intersection Capacity Analysis 33: Bethel Ave & Kamm Ave

Existing-AM
10/26/2011

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Sign Control	Stop			Stop	Stop	
Volume (vph)	71	31	3	61	119	8
Peak Hour Factor	0.80	0.80	0.73	0.73	0.76	0.76
Hourly flow rate (vph)	89	39	4	84	157	11
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total (vph)	128	88	167			
Volume Left (vph)	0	4	157			
Volume Right (vph)	39	0	11			
Hadj (s)	0.11	0.09	0.18			
Departure Headway (s)	4.3	4.5	4.6			
Degree Utilization, x	0.15	0.11	0.21			
Capacity (veh/h)	801	749	752			
Control Delay (s)	8.1	8.1	8.8			
Approach Delay (s)	8.1	8.1	8.8			
Approach LOS	A	A	A			
Intersection Summary						
Delay			8.4			
HCM Level of Service			A			
Intersection Capacity Utilization			23.6%	ICU Level of Service	A	
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis 34: Kamm Ave & Academy Ave

Existing-AM
10/26/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	1	22	20	49	76	4	50	59	41	11	55	6
Peak Hour Factor	0.88	0.88	0.88	0.77	0.77	0.77	0.85	0.85	0.85	0.75	0.75	0.75
Hourly flow rate (vph)	1	25	23	64	99	5	59	69	48	15	73	8
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1							
Volume Total (vph)	49	168	128	48	96							
Volume Left (vph)	1	64	59	0	15							
Volume Right (vph)	23	5	0	48	8							
Hadj (s)	-0.24	0.09	0.26	-0.67	0.01							
Departure Headway (s)	4.6	4.7	5.4	4.5	4.8							
Degree Utilization, x	0.06	0.22	0.19	0.06	0.13							
Capacity (veh/h)	727	718	639	765	708							
Control Delay (s)	7.9	9.0	8.5	6.5	8.5							
Approach Delay (s)	7.9	9.0	7.9		8.5							
Approach LOS	A	A	A		A							
Intersection Summary												
Delay			8.4									
HCM Level of Service			A									
Intersection Capacity Utilization			33.1%			ICU Level of Service			A			
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis

35: SR 99 NB Off & Bethel Ave


















Existing-AM
10/26/2011



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	←	←	↑	↑	←	←
Volume (veh/h)	1	23	251	0	0	101
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.67	0.67	0.71	0.71	0.59	0.59
Hourly flow rate (vph)	1	34	354	0	0	171
Pedestrians	10		10			10
Lane Width (ft)	12.0		12.0			12.0
Walking Speed (ft/s)	4.0		4.0			4.0
Percent Blockage	1		1			1
Right turn flare (veh)						
Median type			None			None
Median storage veh						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	545	374			364	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	545	374			364	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	95			100	
cM capacity (veh/h)	491	661			1185	
Direction, Lane #	WB 1	NB 1	SB 1			
Volume Total	36	354	171			
Volume Left	1	0	0			
Volume Right	34	0	0			
cSH	652	1700	1700			
Volume to Capacity	0.05	0.21	0.10			
Queue Length 95th (ft)	4	0	0			
Control Delay (s)	10.8	0.0	0.0			
Lane LOS	B					
Approach Delay (s)	10.8	0.0	0.0			
Approach LOS	B					
Intersection Summary						
Average Delay			0.7			
Intersection Capacity Utilization			26.1%		ICU Level of Service	A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis 36: Parkway Drive & Bethel Ave

















Existing-AM
10/26/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	33	5	20	0	0	0	4	220	1	26	84	5
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.73	0.73	0.73	0.88	0.88	0.88	0.79	0.79	0.79	0.67	0.67	0.67
Hourly flow rate (vph)	45	7	27	0	0	0	5	278	1	39	125	7
Pedestrians		10			10			10			10	
Lane Width (ft)		12.0			0.0			12.0			12.0	
Walking Speed (ft/s)		4.0			4.0			4.0			4.0	
Percent Blockage		1			0			1			1	
Right turn flare (veh)			3									
Median type								None			None	
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	516	517	149	533	520	299	143			290		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	516	517	149	533	520	299	143			290		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	90	98	97	100	100	100	100			97		
cM capacity (veh/h)	447	443	883	420	441	734	1428			1272		
Direction, Lane #	EB 1	NB 1	SB 1									
Volume Total	79	285	172									
Volume Left	45	5	39									
Volume Right	27	1	7									
cSH	681	1428	1272									
Volume to Capacity	0.12	0.00	0.03									
Queue Length 95th (ft)	10	0	2									
Control Delay (s)	12.4	0.2	2.0									
Lane LOS	B	A	A									
Approach Delay (s)	12.4	0.2	2.0									
Approach LOS	B											
Intersection Summary												
Average Delay			2.6									
Intersection Capacity Utilization			37.3%				ICU Level of Service			A		
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis 16: Mountain View Ave & SR 99 SB Off / Van Horn









Existing-PM

10/14/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	211	2	10	123	0	2	0	34	285	9	48
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.84	0.84	0.84	0.88	0.88	0.88	0.82	0.82	0.82	0.96	0.96	0.96
Hourly flow rate (vph)	0	251	2	11	140	0	2	0	41	297	9	50
Pedestrians		10			10			10			10	
Lane Width (ft)		12.0			12.0			12.0			12.0	
Walking Speed (ft/s)		4.0			4.0			4.0			4.0	
Percent Blockage		1			1			1			1	
Right turn flare (veh)												8
Median type		None			None							
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	150			264			465	435	272	476	436	160
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	150			264			465	435	272	476	436	160
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			99			99	100	94	34	98	94
cM capacity (veh/h)	1420			1290			455	501	754	452	501	871
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	254	151	44	356								
Volume Left	0	11	2	297								
Volume Right	2	0	41	50								
cSH	1700	1290	727	527								
Volume to Capacity	0.15	0.01	0.06	0.68								
Queue Length 95th (ft)	0	1	5	126								
Control Delay (s)	0.0	0.7	10.3	25.3								
Lane LOS		A	B	D								
Approach Delay (s)	0.0	0.7	10.3	25.3								
Approach LOS			B	D								
Intersection Summary												
Average Delay			11.9									
Intersection Capacity Utilization			44.3%		ICU Level of Service				A			
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis
17: Mountain View Ave & SR 99 SB On

Existing-PM
10/14/2011

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	500	42	24	132	0	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.97	0.97	0.80	0.80	0.88	0.88
Hourly flow rate (vph)	515	43	30	165	0	0
Pedestrians	10			10	10	
Lane Width (ft)	12.0			12.0	0.0	
Walking Speed (ft/s)	4.0			4.0	4.0	
Percent Blockage	1			1	0	
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			569		782	557
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			569		782	557
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			97		100	100
cM capacity (veh/h)			1004		349	525
Direction, Lane #	EB 1	WB 1				
Volume Total	559	195				
Volume Left	0	30				
Volume Right	43	0				
cSH	1700	1004				
Volume to Capacity	0.33	0.03				
Queue Length 95th (ft)	0	2				
Control Delay (s)	0.0	1.6				
Lane LOS		A				
Approach Delay (s)	0.0	1.6				
Approach LOS						
Intersection Summary						
Average Delay		0.4				
Intersection Capacity Utilization		41.8%	ICU Level of Service	A		
Analysis Period (min)		15				

HCM Unsignalized Intersection Capacity Analysis

18: Mountain View Ave & SR 99 NB On

Existing-PM
10/14/2011



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↔	↔			
Volume (veh/h)	34	449	151	216	0	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.94	0.94	0.90	0.90	0.88	0.88
Hourly flow rate (vph)	36	478	168	240	0	0
Pedestrians		10	10		10	
Lane Width (ft)		12.0	12.0		0.0	
Walking Speed (ft/s)		4.0	4.0		4.0	
Percent Blockage		1	1		0	
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	418				858	308
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	418				858	308
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	97				100	100
cM capacity (veh/h)	1141				314	726
Direction, Lane #	EB 1	WB 1				
Volume Total	514	408				
Volume Left	36	0				
Volume Right	0	240				
cSH	1141	1700				
Volume to Capacity	0.03	0.24				
Queue Length 95th (ft)	2	0				
Control Delay (s)	0.9	0.0				
Lane LOS	A					
Approach Delay (s)	0.9	0.0				
Approach LOS						
Intersection Summary						
Average Delay		0.5				
Intersection Capacity Utilization		63.5%		ICU Level of Service	B	
Analysis Period (min)		15				

HCM Unsignalized Intersection Capacity Analysis 19: Mountain View Ave & SR 99 NB Off

Existing-PM
10/14/2011























	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑			↑	↘	↗
Volume (veh/h)	449	0	0	342	22	22
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.88	0.88	0.88	0.89	0.65	0.65
Hourly flow rate (vph)	510	0	0	384	34	34
Pedestrians	10			10	10	
Lane Width (ft)	12.0			12.0	12.0	
Walking Speed (ft/s)	4.0			4.0	4.0	
Percent Blockage	1			1	1	
Right turn flare (veh)						1
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)				1085		
pX, platoon unblocked					0.92	
vC, conflicting volume			520		914	530
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			520		865	530
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		88	94
cM capacity (veh/h)			1037		294	540
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	510	384	68			
Volume Left	0	0	34			
Volume Right	0	0	34			
cSH	1700	1700	588			
Volume to Capacity	0.30	0.23	0.12			
Queue Length 95th (ft)	0	0	10			
Control Delay (s)	0.0	0.0	15.5			
Lane LOS			C			
Approach Delay (s)	0.0	0.0	15.5			
Approach LOS			C			
Intersection Summary						
Average Delay			1.1			
Intersection Capacity Utilization			36.5%	ICU Level of Service		A
Analysis Period (min)			15			

HCM Signalized Intersection Capacity Analysis

20: Mountain View Ave & Golden State Blvd

Existing-PM

10/14/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	23	388	48	6	282	40	17	122	5	48	144	26
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.9		4.0	4.9		4.0	4.9	4.9	4.0	4.9	4.9
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	0.98	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00		1.00	1.00		0.99	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.98		1.00	0.98		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1762	3443		1763	3435		1760	3539	1553	1770	3539	1553
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1762	3443		1763	3435		1760	3539	1553	1770	3539	1553
Peak-hour factor, PHF	0.88	0.88	0.88	0.80	0.80	0.80	0.95	0.95	0.95	0.78	0.78	0.78
Adj. Flow (vph)	26	441	55	8	352	50	18	128	5	62	185	33
RTOR Reduction (vph)	0	12	0	0	14	0	0	0	4	0	0	26
Lane Group Flow (vph)	26	484	0	8	388	0	18	128	1	62	185	7
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Heavy Vehicles (%)	2%	3%	2%	2%	3%	2%	2%	2%	2%	2%	2%	2%
Turn Type	Prot			Prot			Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases									2			6
Actuated Green, G (s)	0.8	12.8		0.7	12.7		0.8	7.2	7.2	2.1	8.5	8.5
Effective Green, g (s)	0.8	12.8		0.7	12.7		0.8	7.2	7.2	2.1	8.5	8.5
Actuated g/C Ratio	0.02	0.32		0.02	0.31		0.02	0.18	0.18	0.05	0.21	0.21
Clearance Time (s)	4.0	4.9		4.0	4.9		4.0	4.9	4.9	4.0	4.9	4.9
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	35	1085		30	1074		35	628	275	92	741	325
v/s Ratio Prot	c0.01	c0.14		0.00	0.11		0.01	0.04		c0.04	c0.05	
v/s Ratio Perm									0.00			0.00
v/c Ratio	0.74	0.45		0.27	0.36		0.51	0.20	0.00	0.67	0.25	0.02
Uniform Delay, d1	19.8	11.1		19.7	10.8		19.7	14.3	13.7	18.9	13.4	12.7
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	58.7	0.3		4.7	0.2		12.2	0.2	0.0	17.7	0.2	0.0
Delay (s)	78.5	11.4		24.4	11.0		31.9	14.4	13.8	36.7	13.6	12.8
Level of Service	E	B		C	B		C	B	B	D	B	B
Approach Delay (s)		14.7			11.3			16.5			18.6	
Approach LOS		B			B			B			B	
Intersection Summary												
HCM Average Control Delay		14.7					HCM Level of Service		B			
HCM Volume to Capacity ratio		0.30										
Actuated Cycle Length (s)		40.6					Sum of lost time (s)		8.0			
Intersection Capacity Utilization		40.6%					ICU Level of Service		A			
Analysis Period (min)		15										
c Critical Lane Group												

Queues

Existing-PM

20: Mountain View Ave & Golden State Blvd

10/14/2011






















Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	26	496	8	402	18	128	5	62	185	33
v/c Ratio	0.06	0.32	0.02	0.26	0.04	0.13	0.01	0.14	0.15	0.06
Control Delay	19.7	12.1	21.0	12.0	20.2	14.6	11.8	18.9	11.8	6.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	19.7	12.1	21.0	12.0	20.2	14.6	11.8	18.9	11.8	6.7
Queue Length 50th (ft)	3	21	1	16	2	6	0	6	10	0
Queue Length 95th (ft)	29	126	13	93	24	41	7	48	46	15
Internal Link Dist (ft)		476		2144		775			357	
Turn Bay Length (ft)	250		200		200		25	180		25
Base Capacity (vph)	685	2073	685	2068	685	2289	1001	685	2304	1017
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.04	0.24	0.01	0.19	0.03	0.06	0.00	0.09	0.08	0.03

Intersection Summary
















HCM Unsignalized Intersection Capacity Analysis 21: Mountain View Ave & Bethel Ave.

Existing-PM
10/14/2011

																		
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR						
Lane Configurations																		
Volume (veh/h)	20	422	10	24	296	7	10	38	34	10	27	16						
Sign Control	Free			Free			Stop			Stop								
Grade	0%			0%			0%			0%								
Peak Hour Factor	0.86	0.86	0.86	0.90	0.90	0.90	0.68	0.68	0.68	0.83	0.83	0.83						
Hourly flow rate (vph)	23	491	12	27	329	8	15	56	50	12	33	19						
Pedestrians	10			10			10			10								
Lane Width (ft)	12.0			12.0			12.0			12.0								
Walking Speed (ft/s)	4.0			4.0			4.0			4.0								
Percent Blockage	1			1			1			1								
Right turn flare (veh)																		
Median type	None						None											
Median storage (veh)																		
Upstream signal (ft)																		
pX, platoon unblocked																		
vC, conflicting volume	347				512				816	953	271	776	955	188				
vC1, stage 1 conf vol																		
vC2, stage 2 conf vol																		
vCu, unblocked vol	347				512				816	953	271	776	955	188				
tC, single (s)	4.1				4.1				7.5	6.5	6.9	7.5	6.5	6.9				
tC, 2 stage (s)																		
tF (s)	2.2				2.2				3.5	4.0	3.3	3.5	4.0	3.3				
p0 queue free %	98				97				93	77	93	94	87	98				
cM capacity (veh/h)	1199				1040				221	242	715	206	241	808				
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1										
Volume Total	23	327	175	27	219	117	121	64										
Volume Left	23	0	0	27	0	0	15	12										
Volume Right	0	0	12	0	0	8	50	19										
cSH	1199	1700	1700	1040	1700	1700	328	294										
Volume to Capacity	0.02	0.19	0.10	0.03	0.13	0.07	0.37	0.22										
Queue Length 95th (ft)	1	0	0	2	0	0	41	20										
Control Delay (s)	8.1	0.0	0.0	8.6	0.0	0.0	22.2	20.6										
Lane LOS	A				A				C	C								
Approach Delay (s)	0.4				0.6				22.2	20.6								
Approach LOS							C											
Intersection Summary																		
Average Delay	4.1																	
Intersection Capacity Utilization	33.8%			ICU Level of Service			A											
Analysis Period (min)	15																	

HCM Unsignalized Intersection Capacity Analysis 22: Mountain View Ave & Academy Ave




Existing-PM
10/14/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	7	416	10	19	339	4	8	38	13	6	41	11
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.94	0.94	0.94	0.90	0.90	0.90	0.74	0.74	0.74	0.85	0.85	0.85
Hourly flow rate (vph)	7	443	11	21	377	4	11	51	18	7	48	13
Pedestrians		10			10			10			10	
Lane Width (ft)		12.0			12.0			12.0			12.0	
Walking Speed (ft/s)		4.0			4.0			4.0			4.0	
Percent Blockage		1			1			1			1	
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	391			463			941	906	468	947	909	399
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	391			463			941	906	468	947	909	399
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			98			94	81	97	96	82	98
cM capacity (veh/h)	1158			1089			195	264	585	190	263	640
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	461	402	80	68								
Volume Left	7	21	11	7								
Volume Right	11	4	18	13								
cSH	1158	1089	285	284								
Volume to Capacity	0.01	0.02	0.28	0.24								
Queue Length 95th (ft)	0	1	28	23								
Control Delay (s)	0.2	0.6	22.5	21.7								
Lane LOS	A	A	C	C								
Approach Delay (s)	0.2	0.6	22.5	21.7								
Approach LOS			C	C								
Intersection Summary												
Average Delay			3.6									
Intersection Capacity Utilization			42.7%		ICU Level of Service					A		
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis 25: Amber Ave & Golden State Blvd











Existing-PM
10/14/2011



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	2	1	1	144	189	3
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.88	0.88	0.84	0.84	0.89	0.89
Hourly flow rate (vph)	2	1	1	171	212	3
Pedestrians	10			10	10	
Lane Width (ft)	12.0			12.0	12.0	
Walking Speed (ft/s)	4.0			4.0	4.0	
Percent Blockage	1			1	1	
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)					855	
pX, platoon unblocked						
vC, conflicting volume	322	128	226			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	322	128	226			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	100	100			
cM capacity (veh/h)	635	883	1329			
Direction, Lane #	EB 1	NB 1	NB 2	SB 1	SB 2	
Volume Total	3	58	114	142	74	
Volume Left	2	1	0	0	0	
Volume Right	1	0	0	0	3	
cSH	701	1329	1700	1700	1700	
Volume to Capacity	0.00	0.00	0.07	0.08	0.04	
Queue Length 95th (ft)	0	0	0	0	0	
Control Delay (s)	10.2	0.2	0.0	0.0	0.0	
Lane LOS	B	A				
Approach Delay (s)	10.2	0.1		0.0		
Approach LOS	B					
Intersection Summary						
Average Delay		0.1				
Intersection Capacity Utilization		20.4%		ICU Level of Service		A
Analysis Period (min)		15				




















HCM Unsignalized Intersection Capacity Analysis 31: Kamm Ave (SR 99 NB On) & Bethel Ave

Existing-PM
10/14/2011

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	2	1	40	179	94	71
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.88	0.88	0.83	0.83	0.86	0.86
Hourly flow rate (vph)	2	1	48	216	109	83
Pedestrians	10			10	10	
Lane Width (ft)	12.0			12.0	12.0	
Walking Speed (ft/s)	4.0			4.0	4.0	
Percent Blockage	1			1	1	
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	441	129	119			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	441	129	119			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	100	97			
cM capacity (veh/h)	545	905	1456			
Direction, Lane #	EB 1	NB 1	SB 1	SB 2		
Volume Total	3	264	109	83		
Volume Left	2	48	0	0		
Volume Right	1	0	0	83		
cSH	629	1456	1700	1700		
Volume to Capacity	0.01	0.03	0.06	0.05		
Queue Length 95th (ft)	0	3	0	0		
Control Delay (s)	10.8	1.6	0.0	0.0		
Lane LOS	B	A				
Approach Delay (s)	10.8	1.6	0.0			
Approach LOS	B					
Intersection Summary						
Average Delay		1.0				
Intersection Capacity Utilization		31.1%		ICU Level of Service		A
Analysis Period (min)		15				

HCM Unsignalized Intersection Capacity Analysis 32: Bethel Ave & Golden State Blvd

Existing-PM
10/14/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	33	86	43	18	88	27	36	108	4	36	123	39
Peak Hour Factor	0.88	0.88	0.88	0.83	0.83	0.83	0.82	0.82	0.82	0.93	0.93	0.93
Hourly flow rate (vph)	38	98	49	22	106	33	44	132	5	39	132	42
Direction, Lane #	EB 1	EB 2	WB 1	NB 1	NB 2	SB 1	SB 2	SB 3				
Volume Total (vph)	135	49	160	110	71	83	88	42				
Volume Left (vph)	38	0	22	44	0	39	0	0				
Volume Right (vph)	0	49	33	0	5	0	0	42				
Hadj (s)	0.09	0.57	0.06	0.23	0.01	0.27	0.03	0.67				
Departure Headway (s)	5.1	3.2	4.9	5.7	5.5	5.8	5.5	3.2				
Degree Utilization, x	0.19	0.04	0.22	0.17	0.11	0.13	0.14	0.04				
Capacity (veh/h)	657	1121	683	594	619	586	612	1121				
Control Delay (s)	9.3	6.3	9.3	8.7	7.9	8.5	8.2	5.1				
Approach Delay (s)	8.5		9.3	8.4		7.7						
Approach LOS	A		A	A		A						
Intersection Summary												
Delay			8.4									
HCM Level of Service			A									
Intersection Capacity Utilization			37.9%			ICU Level of Service				A		
Analysis Period (min)			15									


















HCM Unsignalized Intersection Capacity Analysis 33: Bethel Ave & Kamm Ave

Existing-PM
10/14/2011

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↰			↰	↰	
Sign Control	Stop			Stop	Stop	
Volume (vph)	66	78	9	90	47	2
Peak Hour Factor	0.84	0.84	0.83	0.83	0.77	0.77
Hourly flow rate (vph)	79	93	11	108	61	3
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total (vph)	171	119	64			
Volume Left (vph)	0	11	61			
Volume Right (vph)	93	0	3			
Hadj (s)	-0.29	0.05	0.20			
Departure Headway (s)	3.9	4.3	4.7			
Degree Utilization, x	0.19	0.14	0.08			
Capacity (veh/h)	903	822	716			
Control Delay (s)	7.8	8.0	8.1			
Approach Delay (s)	7.8	8.0	8.1			
Approach LOS	A	A	A			
Intersection Summary						
Delay			7.9			
HCM Level of Service			A			
Intersection Capacity Utilization			25.1%	ICU Level of Service	A	
Analysis Period (min)			15			










HCM Unsignalized Intersection Capacity Analysis
34: Kamm Ave & Academy Ave

Existing-PM
10/14/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	3	74	38	49	33	2	20	51	52	3	62	1
Peak Hour Factor	0.87	0.87	0.87	0.78	0.78	0.78	0.77	0.77	0.77	0.86	0.86	0.86
Hourly flow rate (vph)	3	85	44	63	42	3	26	66	68	3	72	1
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1							
Volume Total (vph)	132	108	92	68	77							
Volume Left (vph)	3	63	26	0	3							
Volume Right (vph)	44	3	0	68	1							
Hadj (s)	-0.16	0.14	0.17	-0.67	0.03							
Departure Headway (s)	4.5	4.8	5.3	4.5	4.8							
Degree Utilization, x	0.16	0.14	0.14	0.08	0.10							
Capacity (veh/h)	767	709	643	757	698							
Control Delay (s)	8.3	8.6	8.0	6.7	8.4							
Approach Delay (s)	8.3	8.6	7.4		8.4							
Approach LOS	A	A	A		A							
Intersection Summary												
Delay			8.1									
HCM Level of Service			A									
Intersection Capacity Utilization			31.7%			ICU Level of Service			A			
Analysis Period (min)			15									


















HCM Unsignalized Intersection Capacity Analysis 35: SR 99 NB Off & Bethel Ave

Existing-PM
10/14/2011

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	7	28	185	0	0	94
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.73	0.73	0.76	0.76	0.90	0.90
Hourly flow rate (vph)	10	38	243	0	0	104
Pedestrians	10		10			10
Lane Width (ft)	12.0		12.0			12.0
Walking Speed (ft/s)	4.0		4.0			4.0
Percent Blockage	1		1			1
Right turn flare (veh)						
Median type			None			None
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	368	263			253	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	368	263			253	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	98	95			100	
cM capacity (veh/h)	622	762			1301	
Direction, Lane #	WB 1	NB 1	SB 1			
Volume Total	48	243	104			
Volume Left	10	0	0			
Volume Right	38	0	0			
cSH	729	1700	1700			
Volume to Capacity	0.07	0.14	0.06			
Queue Length 95th (ft)	5	0	0			
Control Delay (s)	10.3	0.0	0.0			
Lane LOS	B					
Approach Delay (s)	10.3	0.0	0.0			
Approach LOS	B					
Intersection Summary						
Average Delay		1.2				
Intersection Capacity Utilization		23.6%	ICU Level of Service	A		
Analysis Period (min)		15				

HCM Unsignalized Intersection Capacity Analysis 36: Parkway Drive & Bethel Ave

Existing-PM
10/14/2011

















												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	99	9	93	0	0	0	3	89	2	20	68	6
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.72	0.72	0.72	0.88	0.88	0.88	0.84	0.84	0.84	0.76	0.76	0.76
Hourly flow rate (vph)	138	12	129	0	0	0	4	106	2	26	89	8
Pedestrians		10			10			10			10	
Lane Width (ft)		12.0			0.0			12.0			12.0	
Walking Speed (ft/s)		4.0			4.0			4.0			4.0	
Percent Blockage		1			0			1			1	
Right turn flare (veh)			3									
Median type								None			None	
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	280	282	113	351	284	127	107			118		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	280	282	113	351	284	127	107			118		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	79	98	86	100	100	100	100			98		
cM capacity (veh/h)	646	609	924	496	607	915	1471			1470		
Direction, Lane #	EB 1	NB 1	SB 1									
Volume Total	279	112	124									
Volume Left	138	4	26									
Volume Right	129	2	8									
cSH	1197	1471	1470									
Volume to Capacity	0.23	0.00	0.02									
Queue Length 95th (ft)	23	0	1									
Control Delay (s)	11.0	0.3	1.7									
Lane LOS	B	A	A									
Approach Delay (s)	11.0	0.3	1.7									
Approach LOS	B											
Intersection Summary												
Average Delay		6.4										
Intersection Capacity Utilization		31.7%	ICU Level of Service		A							
Analysis Period (min)		15										

2035 No-Project Conditions

HCM Unsignalized Intersection Capacity Analysis
16: Mountain View Ave & SR 99 SB Off / Van Horn

Year 2035 No Project-AM

9/19/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	1002	125	505	925	0	102	0	402	353	272	465
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	1089	136	549	1005	0	111	0	437	384	296	505
Pedestrians		10			10			10			10	
Lane Width (ft)		12.0			12.0			12.0			12.0	
Walking Speed (ft/s)		4.0			4.0			4.0			4.0	
Percent Blockage		1			1			1			1	
Right turn flare (veh)												8
Median type		None			None							
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1015			1235			3681	3280	1177	3717	3348	1025
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1015			1235			3681	3280	1177	3717	3348	1025
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.2	6.5	6.3
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.6	4.0	3.4
p0 queue free %	100			2			0	100	0	0	0	0
cM capacity (veh/h)	677			559			0	0	229	0	0	273
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	1225	1554	548	1185								
Volume Left	0	549	111	384								
Volume Right	136	0	437	505								
cSH	1700	559	0	0								
Volume to Capacity	0.72	0.98	Err	Err								
Queue Length 95th (ft)	0	343	Err	Err								
Control Delay (s)	0.0	60.7	Err	Err								
Lane LOS		F	F	F								
Approach Delay (s)	0.0	60.7	Err	Err								
Approach LOS			F	F								
Intersection Summary												
Average Delay			Err									
Intersection Capacity Utilization			215.5%	ICU Level of Service					H			
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis 17: Mountain View Ave & SR 99 SB On

Year 2035 No Project-AM
9/19/2011

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↗			↖		
Volume (veh/h)	1543	214	59	1430	0	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1677	233	64	1554	0	0
Pedestrians	10			10	10	
Lane Width (ft)	12.0			12.0	0.0	
Walking Speed (ft/s)	4.0			4.0	4.0	
Percent Blockage	1			1	0	
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			1920		3496	1813
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			1920		3496	1813
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tP (s)			2.2		3.5	3.3
p0 queue free %			79		100	100
cM capacity (veh/h)			308		6	97
Direction, Lane #	EB 1	WB 1				
Volume Total	1910	1618				
Volume Left	0	64				
Volume Right	233	0				
cSH	1700	308				
Volume to Capacity	1.12	0.21				
Queue Length 95th (ft)	0	19				
Control Delay (s)	0.0	19.8				
Lane LOS		C				
Approach Delay (s)	0.0	19.8				
Approach LOS						
Intersection Summary						
Average Delay			9.1			
Intersection Capacity Utilization			135.9%	ICU Level of Service	H	
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis 18: Mountain View Ave & SR 99 NB On

Year 2035 No Project-AM
9/19/2011



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↰	↱			
Volume (veh/h)	304	1239	1489	546	0	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	330	1347	1618	593	0	0
Pedestrians		10	10		10	
Lane Width (ft)		12.0	12.0		0.0	
Walking Speed (ft/s)		4.0	4.0		4.0	
Percent Blockage		1	1		0	
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	2222				3943	1935
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	2222				3943	1935
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	0				0	100
cM capacity (veh/h)	234				0	81
Direction, Lane #	EB 1	WB 1				
Volume Total	1677	2212				
Volume Left	330	0				
Volume Right	0	593				
cSH	234	1700				
Volume to Capacity	1.41	1.30				
Queue Length 95th (ft)	466	0				
Control Delay (s)	247.8	0.0				
Lane LOS	F					
Approach Delay (s)	247.8	0.0				
Approach LOS						
Intersection Summary						
Average Delay		106.8				
Intersection Capacity Utilization		210.1%		ICU Level of Service		H
Analysis Period (min)		15				

HCM Unsignalized Intersection Capacity Analysis 19: Mountain View Ave & SR 99 NB Off























Year 2035 No Project-AM
9/19/2011

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑			↑	↘	↗
Volume (veh/h)	1239	0	0	1789	246	101
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1347	0	0	1945	267	110
Pedestrians	10			10	10	
Lane Width (ft)	12.0			12.0	12.0	
Walking Speed (ft/s)	4.0			4.0	4.0	
Percent Blockage	1			1	1	
Right turn flare (veh)						1
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)				1085		
pX, platoon unblocked					0.63	
vC, conflicting volume			1357		3311	1367
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			1357		4373	1367
tC, single (s)			4.1		6.4	6.4
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.5
p0 queue free %			100		0	32
cM capacity (veh/h)			503		1	162
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	1347	1945	377			
Volume Left	0	0	267			
Volume Right	0	0	110			
cSH	1700	1700	2			
Volume to Capacity	0.79	1.14	237.59			
Queue Length 95th (ft)	0	0	Err			
Control Delay (s)	0.0	0.0	Err			
Lane LOS			F			
Approach Delay (s)	0.0	0.0	Err			
Approach LOS			F			
Intersection Summary						
Average Delay		1028.0				
Intersection Capacity Utilization		114.5%		ICU Level of Service		H
Analysis Period (min)		15				

HCM Signalized Intersection Capacity Analysis 20: Mountain View Ave & Golden State Blvd

Year 2035 No Project-AM

9/19/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	422	790	127	63	1154	202	209	338	9	127	295	475
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.9		4.0	4.9		4.0	4.9	4.9	4.0	4.9	4.9
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	0.98	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.98		1.00	0.98		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3368		1770	3309		1770	3539	1544	1770	3539	1544
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1770	3368		1770	3309		1770	3539	1544	1770	3539	1544
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	459	859	138	68	1254	220	227	367	10	138	321	516
RTOR Reduction (vph)	0	16	0	0	20	0	0	0	5	0	0	203
Lane Group Flow (vph)	459	981	0	68	1454	0	227	367	5	138	321	313
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Heavy Vehicles (%)	2%	5%	2%	2%	7%	2%	2%	2%	2%	2%	2%	2%
Turn Type	Prot			Prot			Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases									2			6
Actuated Green, G (s)	8.0	24.3		4.7	21.0		8.0	15.9	15.9	7.8	15.7	15.7
Effective Green, g (s)	8.0	24.3		4.7	21.0		8.0	15.9	15.9	7.8	15.7	15.7
Actuated g/C Ratio	0.11	0.34		0.07	0.30		0.11	0.23	0.23	0.11	0.22	0.22
Clearance Time (s)	4.0	4.9		4.0	4.9		4.0	4.9	4.9	4.0	4.9	4.9
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	201	1161		118	986		201	798	348	196	788	344
v/s Ratio Prot	c0.26	c0.29		0.04	c0.44		c0.13	0.10		0.08	0.09	
v/s Ratio Perm									0.00			c0.20
v/c Ratio	2.28	0.84		0.58	1.47		1.13	0.46	0.01	0.70	0.41	0.91
Uniform Delay, d1	31.2	21.4		31.9	24.8		31.2	23.6	21.2	30.2	23.4	26.7
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	593.1	5.8		6.7	219.3		102.6	0.4	0.0	10.9	0.3	27.2
Delay (s)	624.4	27.1		38.6	244.0		133.8	24.0	21.2	41.1	23.8	53.9
Level of Service	F	C		D	F		F	C	C	D	C	D
Approach Delay (s)		215.4			235.0			65.2			42.2	
Approach LOS		F			F			E			D	
Intersection Summary												
HCM Average Control Delay		165.3				HCM Level of Service		F				
HCM Volume to Capacity ratio		1.45										
Actuated Cycle Length (s)		70.5				Sum of lost time (s)		22.7				
Intersection Capacity Utilization		97.9%				ICU Level of Service		F				
Analysis Period (min)		15										
c Critical Lane Group												

Queues

Year 2035 No Project-AM

20: Mountain View Ave & Golden State Blvd

9/19/2011



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	459	997	68	1474	227	367	10	138	321	516
v/c Ratio	2.24	0.83	0.37	1.55	1.11	0.45	0.03	0.69	0.40	0.93
Control Delay	591.9	31.2	34.7	274.8	127.7	24.7	14.6	50.0	24.2	40.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	591.9	31.2	34.7	274.8	127.7	24.7	14.6	50.0	24.2	40.1
Queue Length 50th (ft)	-328	-247	28	-487	-115	70	1	58	61	109
Queue Length 95th (ft)	#495	#364	63	#617	#242	108	12	#136	95	#294
Internal Link Dist (ft)		476		2144		775			1682	
Turn Bay Length (ft)	250		200		200		25	180		25
Base Capacity (vph)	205	1206	205	953	205	863	382	205	863	574
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	2.24	0.83	0.33	1.55	1.11	0.43	0.03	0.67	0.37	0.90

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.



















95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

HCM Unsignalized Intersection Capacity Analysis 21: Mountain View Ave & Bethel Ave.

Year 2035 No Project-AM
















9/19/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	44	588	72	85	1127	16	33	61	91	6	71	85
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	48	639	78	92	1225	17	36	66	99	7	77	92
Pedestrians		10			10			10			10	
Lane Width (ft)		12.0			12.0			12.0			12.0	
Walking Speed (ft/s)		4.0			4.0			4.0			4.0	
Percent Blockage		1			1			1			1	
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1252			727			1722	2221	379	1986	2252	641
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1252			727			1722	2221	379	1986	2252	641
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	91			89			0	0	84	0	0	77
cM capacity (veh/h)	547			865			0	34	609	0	33	410
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1				
Volume Total	48	426	291	92	817	426	201	176				
Volume Left	48	0	0	92	0	0	36	7				
Volume Right	0	0	78	0	0	17	99	92				
cSH	547	1700	1700	865	1700	1700	0	0				
Volume to Capacity	0.09	0.25	0.17	0.11	0.48	0.25	Err	Err				
Queue Length 95th (ft)	7	0	0	9	0	0	Err	Err				
Control Delay (s)	12.2	0.0	0.0	9.7	0.0	0.0	Err	Err				
Lane LOS	B			A			F	F				
Approach Delay (s)	0.8			0.7			Err	Err				
Approach LOS							F	F				
Intersection Summary												
Average Delay				Err								
Intersection Capacity Utilization			69.9%		ICU Level of Service				C			
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis 22: Mountain View Ave & Academy Ave

Year 2035 No Project-AM

9/19/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	57	590	34	101	995	27	69	78	57	29	147	148
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	62	641	37	110	1082	29	75	85	62	32	160	161
Pedestrians		10			10			10			10	
Lane Width (ft)		12.0			12.0			12.0			12.0	
Walking Speed (ft/s)		4.0			4.0			4.0			4.0	
Percent Blockage		1			1			1			1	
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1121			688			2360	2134	680	2224	2138	1116
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1121			688			2360	2134	680	2224	2138	1116
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	90			88			0	0	86	0	0	35
cM capacity (veh/h)	618			898			0	38	444	0	38	248
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	740	1221	222	352								
Volume Left	62	110	75	32								
Volume Right	37	29	62	161								
cSH	618	898	0	0								
Volume to Capacity	0.10	0.12	Err	Err								
Queue Length 95th (ft)	8	10	Err	Err								
Control Delay (s)	2.7	3.9	Err	Err								
Lane LOS	A	A	F	F								
Approach Delay (s)	2.7	3.9	Err	Err								
Approach LOS			F	F								
Intersection Summary												
Average Delay			Err									
Intersection Capacity Utilization			115.3%		ICU Level of Service				H			
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis 25: Amber Ave & Golden State Blvd











Year 2035 No Project-AM
9/19/2011

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	Y			↑↑	↑↑	
Volume (veh/h)	50	47	56	506	417	68
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Hourly flow rate (vph)	57	53	64	575	474	77
Pedestrians	10			10	10	
Lane Width (ft)	12.0			12.0	12.0	
Walking Speed (ft/s)	4.0			4.0	4.0	
Percent Blockage	1			1	1	
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)					855	
pX, platoon unblocked	0.96	0.96	0.96			
vC, conflicting volume	947	296	561			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	856	175	453			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	78	93	94			
cM capacity (veh/h)	263	789	1049			
Direction, Lane #	EB 1	NB 1	NB 2	SB 1	SB 2	
Volume Total	110	255	383	316	235	
Volume Left	57	64	0	0	0	
Volume Right	53	0	0	0	77	
cSH	388	1049	1700	1700	1700	
Volume to Capacity	0.28	0.06	0.23	0.19	0.14	
Queue Length 95th (ft)	29	5	0	0	0	
Control Delay (s)	17.9	2.6	0.0	0.0	0.0	
Lane LOS	C	A				
Approach Delay (s)	17.9	1.0		0.0		
Approach LOS	C					
Intersection Summary						
Average Delay		2.0				
Intersection Capacity Utilization		47.6%		ICU Level of Service		A
Analysis Period (min)		15				

HCM Unsignalized Intersection Capacity Analysis
31: Kamm Ave (SR 99 NB On) & Bethel Ave





















Year 2035 No Project-AM

9/19/2011

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	2	2	211	357	248	372
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	2	2	229	388	270	404
Pedestrians	10			10	10	
Lane Width (ft)	12.0			12.0	12.0	
Walking Speed (ft/s)	4.0			4.0	4.0	
Percent Blockage	1			1	1	
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1136	290	280			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1136	290	280			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	99	100	82			
cM capacity (veh/h)	180	737	1272			
Direction, Lane #	EB 1	NB 1	SB 1	SB 2		
Volume Total	4	617	270	404		
Volume Left	2	229	0	0		
Volume Right	2	0	0	404		
cSH	289	1272	1700	1700		
Volume to Capacity	0.02	0.18	0.16	0.24		
Queue Length 95th (ft)	1	16	0	0		
Control Delay (s)	17.6	4.4	0.0	0.0		
Lane LOS	C	A				
Approach Delay (s)	17.6	4.4	0.0			
Approach LOS	C					
Intersection Summary						
Average Delay		2.1				
Intersection Capacity Utilization		61.2%		ICU Level of Service	B	
Analysis Period (min)		15				

HCM Unsignalized Intersection Capacity Analysis 32: Bethel Ave & Golden State Blvd

Year 2035 No Project-AM
9/19/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	107	205	48	28	321	127	183	217	42	111	189	116
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	116	223	52	30	349	138	199	236	46	121	205	126
Direction, Lane #	EB 1	EB 2	WB 1	NB 1	NB 2	SB 1	SB 2	SB 3				
Volume Total (vph)	339	52	517	317	164	189	137	126				
Volume Left (vph)	116	0	30	199	0	121	0	0				
Volume Right (vph)	0	52	138	0	46	0	0	126				
Hadj (s)	0.11	-0.57	-0.10	0.35	-0.16	0.35	0.03	-0.67				
Departure Headway (s)	8.3	3.2	7.8	8.9	8.4	9.3	9.0	3.2				
Degree Utilization, x	0.78	0.05	1.13	0.78	0.38	0.49	0.34	0.11				
Capacity (veh/h)	423	1121	462	397	421	367	387	1121				
Control Delay (s)	35.4	6.4	108.4	36.0	15.2	19.6	15.3	5.4				
Approach Delay (s)	31.5		108.4	28.9		14.3						
Approach LOS	D		F	D		B						
Intersection Summary												
Delay			48.2									
HCM Level of Service			E									
Intersection Capacity Utilization			79.2%	ICU Level of Service		D						
Analysis Period (min)			15									
















HCM Unsignalized Intersection Capacity Analysis
33: Bethel Ave & Kamm Ave

Year 2035 No Project-AM
9/19/2011

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↰			↰	↰	
Sign Control	Stop			Stop	Stop	
Volume (vph)	184	174	59	134	343	139
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	200	189	64	146	373	151
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total (vph)	389	210	524			
Volume Left (vph)	0	64	373			
Volume Right (vph)	189	0	151			
Hadj (s)	-0.23	0.13	0.00			
Departure Headway (s)	5.7	6.4	5.6			
Degree Utilization, x	0.62	0.37	0.82			
Capacity (veh/h)	593	522	622			
Control Delay (s)	17.4	13.0	29.1			
Approach Delay (s)	17.4	13.0	29.1			
Approach LOS	C	B	D			
Intersection Summary						
Delay			22.0			
HCM Level of Service			C			
Intersection Capacity Utilization			68.9%	ICU Level of Service	C	
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis 34: Kamm Ave & Academy Ave










Year 2035 No Project-AM
9/19/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control	Stop			Stop			Stop			Stop		
Volume (vph)	44	179	64	100	338	92	150	169	88	32	119	72
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	48	195	70	109	367	100	163	184	96	35	129	78
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1							
Volume Total (vph)	312	576	347	96	242							
Volume Left (vph)	48	109	163	0	35							
Volume Right (vph)	70	100	0	96	78							
Hadj (s)	-0.07	-0.03	0.27	-0.67	-0.13							
Departure Headway (s)	8.0	7.6	8.5	7.6	8.4							
Degree Utilization, x	0.69	1.22	0.82	0.20	0.56							
Capacity (veh/h)	425	466	415	464	402							
Control Delay (s)	27.1	139.6	38.8	11.3	21.7							
Approach Delay (s)	27.1	139.6	32.8	21.7								
Approach LOS	D	F	D	C								
Intersection Summary												
Delay	69.1											
HCM Level of Service	F											
Intersection Capacity Utilization	81.9%			ICU Level of Service			D					
Analysis Period (min)	15											

HCM Unsignalized Intersection Capacity Analysis
35: SR 99 NB Off & Bethel Ave

















Year 2035 No Project-AM

9/19/2011

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	41	175	391	0	0	250
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	45	190	425	0	0	272
Pedestrians	10		10			10
Lane Width (ft)	12.0		12.0			12.0
Walking Speed (ft/s)	4.0		4.0			4.0
Percent Blockage	1		1			1
Right turn flare (veh)						
Median type			None			None
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	717	445			435	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	717	445			435	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	89	68			100	
cM capacity (veh/h)	390	603			1115	
Direction, Lane #	WB 1	NB 1	SB 1			
Volume Total	235	425	272			
Volume Left	45	0	0			
Volume Right	190	0	0			
cSH	546	1700	1700			
Volume to Capacity	0.43	0.25	0.16			
Queue Length 95th (ft)	54	0	0			
Control Delay (s)	16.5	0.0	0.0			
Lane LOS	C					
Approach Delay (s)	16.5	0.0	0.0			
Approach LOS	C					
Intersection Summary						
Average Delay			4.1			
Intersection Capacity Utilization			41.1%	ICU Level of Service		A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis 36: Parkway Drive & Bethel Ave


















Year 2035 No Project-AM
9/19/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	61	23	53	0	0	0	46	327	2	82	140	69
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	66	25	58	0	0	0	50	355	2	89	152	75
Pedestrians		10			10			10			10	
Lane Width (ft)		12.0			0.0			12.0			12.0	
Walking Speed (ft/s)		4.0			4.0			4.0			4.0	
Percent Blockage		1			0			1			1	
Right turn flare (veh)			3									
Median type								None			None	
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	844	846	210	886	882	377	237			368		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	844	846	210	886	882	377	237			368		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	74	91	93	100	100	100	96			93		
cM capacity (veh/h)	253	264	817	207	252	664	1319			1191		
Direction, Lane #	EB 1	NB 1	SB 1									
Volume Total	149	408	316									
Volume Left	66	50	89									
Volume Right	58	2	75									
cSH	418	1319	1191									
Volume to Capacity	0.36	0.04	0.07									
Queue Length 95th (ft)	40	3	6									
Control Delay (s)	20.1	1.3	2.8									
Lane LOS	C	A	A									
Approach Delay (s)	20.1	1.3	2.8									
Approach LOS	C											
Intersection Summary												
Average Delay		5.1										
Intersection Capacity Utilization		49.6%	ICU Level of Service	A								
Analysis Period (min)		15										

HCM Unsignalized Intersection Capacity Analysis 16: Mountain View Ave & SR 99 SB Off / Van Horn

Year 2035 No Project-PM

9/19/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	2197	165	555	1429	0	217	0	1322	677	310	564
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	2388	179	603	1553	0	236	0	1437	736	337	613
Pedestrians		10			10			10			10	
Lane Width (ft)		12.0			12.0			12.0			12.0	
Walking Speed (ft/s)		4.0			4.0			4.0			4.0	
Percent Blockage		1			1			1			1	
Right turn flare (veh)												8
Median type	None			None								
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1563			2577			5732	5258	2498	6694	5347	1573
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1563			2577			5732	5258	2498	6694	5347	1573
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			0			0	0	0	0	0	0
cM capacity (veh/h)	419			168			0	0	36	0	0	133
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	2567	2157	1673	1686								
Volume Left	0	603	236	736								
Volume Right	179	0	1437	613								
cSH	1700	168	0	0								
Volume to Capacity	1.51	3.59	Err	Err								
Queue Length 95th (ft)	0	Err	Err	Err								
Control Delay (s)	0.0	1219.5	Err	Err								
Lane LOS		F	F	F								
Approach Delay (s)	0.0	1219.5	Err	Err								
Approach LOS			F	F								
Intersection Summary												
Average Delay				Err								
Intersection Capacity Utilization				393.3%	ICU Level of Service	H						
Analysis Period (min)				15								

HCM Unsignalized Intersection Capacity Analysis
17: Mountain View Ave & SR 99 SB On

Year 2035 No Project-PM
9/19/2011

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↗			↖		
Volume (veh/h)	3759	437	249	1984	0	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	4086	475	271	2157	0	0
Pedestrians	10			10	10	
Lane Width (ft)	12.0			12.0	0.0	
Walking Speed (ft/s)	4.0			4.0	4.0	
Percent Blockage	1			1	0	
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			4571		7041	4343
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			4571		7041	4343
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			0		0	100
cM capacity (veh/h)			26		0	2
Direction, Lane #	EB 1	WB 1				
Volume Total	4561	2427				
Volume Left	0	271				
Volume Right	475	0				
cSH	1700	26				
Volume to Capacity	2.68	10.41				
Queue Length 95th (ft)	0	Err				
Control Delay (s)	0.0	504.7				
Lane LOS		F				
Approach Delay (s)	0.0	504.7				
Approach LOS						
Intersection Summary						
Average Delay			175.3			
Intersection Capacity Utilization			326.1%	ICU Level of Service	H	
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis 18: Mountain View Ave & SR 99 NB On

Year 2035 No Project-PM
9/19/2011



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↰	↰			
Volume (veh/h)	936	2823	2233	820	0	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1017	3068	2427	891	0	0
Pedestrians		10	10		10	
Lane Width (ft)		12.0	12.0		0.0	
Walking Speed (ft/s)		4.0	4.0		4.0	
Percent Blockage		1	1		0	
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	3328				7996	2893
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	3328				7996	2893
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	0				0	100
cM capacity (veh/h)	85				0	21
Direction, Lane #	EB 1	WB 1				
Volume Total	4086	3318				
Volume Left	1017	0				
Volume Right	0	891				
cSH	85	1700				
Volume to Capacity	12.02	1.95				
Queue Length 95th (ft)	Err	0				
Control Delay (s)	1257.7	0.0				
Lane LOS	F					
Approach Delay (s)	1257.7	0.0				
Approach LOS						
Intersection Summary						
Average Delay		694.0				
Intersection Capacity Utilization		384.2%		ICU Level of Service		H
Analysis Period (min)		15				

HCM Unsignalized Intersection Capacity Analysis

19: Mountain View Ave & SR 99 NB Off

Year 2035 No Project-PM

9/19/2011

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑			↑	↘	↗
Volume (veh/h)	2823	0	0	2706	348	200
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	3068	0	0	2941	378	217
Pedestrians	10			10	10	
Lane Width (ft)	12.0			12.0	12.0	
Walking Speed (ft/s)	4.0			4.0	4.0	
Percent Blockage	1			1	1	
Right turn flare (veh)						1
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)				1085		
pX, platoon unblocked					0.64	
vC, conflicting volume			3078		6030	3088
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			3078		8588	3088
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		0	0
cM capacity (veh/h)			106		0	16
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	3068	2941	596			
Volume Left	0	0	378			
Volume Right	0	0	217			
cSH	1700	1700	0			
Volume to Capacity	1.80	1.73	Err			
Queue Length 95th (ft)	0	0	Err			
Control Delay (s)	0.0	0.0	Err			
Lane LOS			F			
Approach Delay (s)	0.0	0.0	Err			
Approach LOS			F			
Intersection Summary						
Average Delay		901.7				
Intersection Capacity Utilization		174.5%		ICU Level of Service		H
Analysis Period (min)		15				

Queues

Year 2035 No Project-PM

20: Mountain View Ave & Golden State Blvd

9/19/2011



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	1195	2091	84	1866	424	752	29	577	810	1125
v/c Ratio	6.75	1.89	0.51	1.85	1.59	0.85	0.07	2.37	0.96	2.12
Control Delay	2608.4	424.7	45.5	407.2	311.9	39.1	18.4	651.8	54.1	530.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	2608.4	424.7	45.5	407.2	311.9	39.1	18.4	651.8	54.1	530.5
Queue Length 50th (ft)	~1169	~891	40	~756	~308	188	8	~481	211	~835
Queue Length 95th (ft)	#1404	#1031	85	#894	#479	#281	27	#672	#327	#1074
Internal Link Dist (ft)		476		2144		775			1689	
Turn Bay Length (ft)	250		200		200		25	180		25
Base Capacity (vph)	177	1108	177	1011	266	889	394	243	845	530
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	6.75	1.89	0.47	1.85	1.59	0.85	0.07	2.37	0.96	2.12























Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis 20: Mountain View Ave & Golden State Blvd




















Year 2035 No Project-PM

9/19/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	1099	1556	368	77	1280	437	390	692	27	531	745	1035
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.9		4.0	4.9		4.0	4.9	4.9	4.0	4.9	4.9
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	0.99		1.00	0.99		1.00	1.00	0.97	1.00	1.00	0.97
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.97		1.00	0.96		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3393		1770	3356		1770	3539	1541	1770	3539	1541
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1770	3393		1770	3356		1770	3539	1541	1770	3539	1541
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1195	1691	400	84	1391	475	424	752	29	577	810	1125
RTOR Reduction (vph)	0	25	0	0	42	0	0	0	7	0	0	163
Lane Group Flow (vph)	1195	2066	0	84	1824	0	424	752	22	577	810	962
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Heavy Vehicles (%)	2%	3%	2%	2%	3%	2%	2%	2%	2%	2%	2%	2%
Turn Type	Prot			Prot			Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases									2			6
Actuated Green, G (s)	8.0	25.6		6.3	23.9		12.0	20.1	20.1	11.0	19.1	19.1
Effective Green, g (s)	8.0	25.6		6.3	23.9		12.0	20.1	20.1	11.0	19.1	19.1
Actuated g/C Ratio	0.10	0.32		0.08	0.30		0.15	0.25	0.25	0.14	0.24	0.24
Clearance Time (s)	4.0	4.9		4.0	4.9		4.0	4.9	4.9	4.0	4.9	4.9
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	175	1075		138	993		263	880	383	241	837	364
v/s Ratio Prot	c0.68	c0.61		0.05	0.54		0.24	0.21		c0.33	0.23	
v/s Ratio Perm									0.01			c0.62
v/c Ratio	6.83	1.92		0.61	1.84		1.61	0.85	0.06	2.39	0.97	2.64
Uniform Delay, d1	36.4	27.6		36.1	28.4		34.4	29.0	23.1	34.9	30.5	30.8
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	2634.9	418.5		7.4	380.7		292.5	8.1	0.1	640.0	23.2	747.6
Delay (s)	2671.3	446.1		43.5	409.2		326.9	37.1	23.2	674.9	53.8	778.4
Level of Service	F	F		D	F		F	D	C	F	D	F
Approach Delay (s)		1255.3			393.4			138.7			521.0	
Approach LOS		F			F			F			F	
Intersection Summary												
HCM Average Control Delay		711.3					HCM Level of Service		F			
HCM Volume to Capacity ratio		2.64										
Actuated Cycle Length (s)		80.8					Sum of lost time (s)		12.9			
Intersection Capacity Utilization		173.9%					ICU Level of Service		H			
Analysis Period (min)		15										
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis 21: Mountain View Ave & Bethel Ave.

















Year 2035 No Project-PM
9/19/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	180	1707	99	70	1172	14	74	77	97	20	55	148
Sign Control	Free			Free			Stop			Stop		
Grade	0%			0%			0%			0%		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	196	1855	108	76	1274	15	80	84	105	22	60	161
Pedestrians	10			10			10			10		
Lane Width (ft)	12.0			12.0			12.0			12.0		
Walking Speed (ft/s)	4.0			4.0			4.0			4.0		
Percent Blockage	1			1			1			1		
Right turn flare (veh)												
Median type	None			None								
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1299			1973			3300	3762	1002	2920	3808	665
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1299			1973			3300	3762	1002	2920	3808	665
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	63			74			0	0	56	0	0	59
cM capacity (veh/h)	525			288			0	2	237	0	2	396
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1				
Volume Total	196	1237	726	76	849	440	270	242				
Volume Left	196	0	0	76	0	0	80	22				
Volume Right	0	0	108	0	0	15	105	161				
cSH	525	1700	1700	288	1700	1700	0	0				
Volume to Capacity	0.37	0.73	0.43	0.26	0.50	0.26	Err	Err				
Queue Length 95th (ft)	43	0	0	26	0	0	Err	Err				
Control Delay (s)	15.9	0.0	0.0	22.0	0.0	0.0	Err	Err				
Lane LOS	C			C			F	F				
Approach Delay (s)	1.4			1.2			Err	Err				
Approach LOS							F	F				
Intersection Summary												
Average Delay				Err								
Intersection Capacity Utilization				95.9%			ICU Level of Service			F		
Analysis Period (min)				15								

HCM Unsignalized Intersection Capacity Analysis 22: Mountain View Ave & Academy Ave










Year 2035 No Project-PM

9/19/2011

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Volume (veh/h)	207	1510	112	103	1000	98	91	308	62	44	112	173	
Sign Control		Free			Free			Stop			Stop		
Grade		0%			0%			0%			0%		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	
Hourly flow rate (vph)	225	1641	122	112	1087	107	99	335	67	48	122	188	
Pedestrians		10			10			10			10		
Lane Width (ft)		12.0			12.0			12.0			12.0		
Walking Speed (ft/s)		4.0			4.0			4.0			4.0		
Percent Blockage		1			1			1			1		
Right turn flare (veh)													
Median type		None			None								
Median storage (veh)													
Upstream signal (ft)													
pX, platoon unblocked													
vC, conflicting volume	1203			1773			3785	3590	1722	3771	3597	1160	
vC1, stage 1 conf vol													
vC2, stage 2 conf vol													
vCu, unblocked vol	1203			1773			3785	3590	1722	3771	3597	1160	
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2	
tC, 2 stage (s)													
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3	
p0 queue free %	61			68			0	0	38	0	0	20	
cM capacity (veh/h)	575			348			0	2	109	0	2	234	
Direction, Lane #	EB 1	WB 1	NB 1	SB 1									
Volume Total	1988	1305	501	358									
Volume Left	225	112	99	48									
Volume Right	122	107	67	188									
cSH	575	348	0	0									
Volume to Capacity	0.39	0.32	Err	Err									
Queue Length 95th (ft)	46	34	Err	Err									
Control Delay (s)	1.7	20.2	Err	Err									
Lane LOS	A	C	F	F									
Approach Delay (s)	1.7	20.2	Err	Err									
Approach LOS			F	F									
Intersection Summary													
Average Delay			Err										
Intersection Capacity Utilization		184.8%		ICU Level of Service		H							
Analysis Period (min)		15											











HCM Unsignalized Intersection Capacity Analysis 25: Amber Ave & Golden State Blvd

Year 2035 No Project-PM
9/19/2011

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	266	144	247	839	939	251
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Hourly flow rate (vph)	302	164	281	953	1067	285
Pedestrians	10			10	10	
Lane Width (ft)	12.0			12.0	12.0	
Walking Speed (ft/s)	4.0			4.0	4.0	
Percent Blockage	1			1	1	
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)					855	
pX, platoon unblocked	0.79	0.79	0.79			
vC, conflicting volume	2268	696	1362			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	2068	69	916			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	0	78	51			
cM capacity (veh/h)	19	758	577			
Direction, Lane #	EB 1	NB 1	NB 2	SB 1	SB 2	
Volume Total	466	598	636	711	641	
Volume Left	302	281	0	0	0	
Volume Right	164	0	0	0	285	
cSH	28	577	1700	1700	1700	
Volume to Capacity	16.48	0.49	0.37	0.42	0.38	
Queue Length 95th (ft)	Err	66	0	0	0	
Control Delay (s)	Err	13.4	0.0	0.0	0.0	
Lane LOS	F	B				
Approach Delay (s)	Err	6.5		0.0		
Approach LOS	F					
Intersection Summary						
Average Delay		1528.9				
Intersection Capacity Utilization		98.5%		ICU Level of Service	F	
Analysis Period (min)		15				

HCM Unsignalized Intersection Capacity Analysis 31: Kamm Ave (SR 99 NB On) & Bethel Ave




















Year 2035 No Project-PM
9/19/2011

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	4	2	64	888	499	304
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	4	2	70	965	542	330
Pedestrians	10			10	10	
Lane Width (ft)	12.0			12.0	12.0	
Walking Speed (ft/s)	4.0			4.0	4.0	
Percent Blockage	1			1	1	
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1667	562	552			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1667	562	552			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	96	100	93			
cM capacity (veh/h)	97	517	1009			
Direction, Lane #	EB 1	NB 1	SB 1	SB 2		
Volume Total	7	1035	542	330		
Volume Left	4	70	0	0		
Volume Right	2	0	0	330		
cSH	133	1009	1700	1700		
Volume to Capacity	0.05	0.07	0.32	0.19		
Queue Length 95th (ft)	4	6	0	0		
Control Delay (s)	33.4	1.9	0.0	0.0		
Lane LOS	D	A				
Approach Delay (s)	33.4	1.9	0.0			
Approach LOS	D					
Intersection Summary						
Average Delay			1.1			
Intersection Capacity Utilization			92.7%	ICU Level of Service	F	
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis
32: Bethel Ave & Golden State Blvd

Year 2035 No Project-PM

9/19/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	370	386	143	137	378	291	95	441	23	280	505	330
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	402	420	155	149	411	316	103	479	25	304	549	359
Direction, Lane #	EB 1	EB 2	WB 1	NB 1	NB 2	SB 1	SB 2	SB 3				
Volume Total (vph)	822	155	876	343	265	487	366	359				
Volume Left (vph)	402	0	149	103	0	304	0	0				
Volume Right (vph)	0	155	316	0	25	0	0	359				
Hadj (s)	0.13	-0.57	-0.15	0.18	-0.03	0.35	0.03	-0.67				
Departure Headway (s)	9.5	3.2	9.2	9.8	9.6	9.9	9.6	3.2				
Degree Utilization, x	2.16	0.14	2.24	0.93	0.71	1.34	0.97	0.32				
Capacity (veh/h)	387	1121	399	361	368	371	366	1113				
Control Delay (s)	552.7	6.7	585.8	62.8	31.4	196.9	70.8	6.5				
Approach Delay (s)	465.9		585.8	49.1		102.5						
Approach LOS	F		F	E		F						
Intersection Summary												
Delay			305.6									
HCM Level of Service			F									
Intersection Capacity Utilization			137.5%	ICU Level of Service		H						
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis
33: Bethel Ave & Kamm Ave

















Year 2035 No Project-PM
9/19/2011

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↰			↰	↰	
Sign Control	Stop			Stop	Stop	
Volume (vph)	134	556	107	383	423	114
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	146	604	116	416	460	124
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total (vph)	750	533	584			
Volume Left (vph)	0	116	460			
Volume Right (vph)	604	0	124			
Hadj (s)	-0.45	0.08	0.06			
Departure Headway (s)	6.5	7.1	7.0			
Degree Utilization, x	1.36	1.04	1.14			
Capacity (veh/h)	563	515	515			
Control Delay (s)	194.0	78.6	110.4			
Approach Delay (s)	194.0	78.6	110.4			
Approach LOS	F	F	F			
Intersection Summary						
Delay			134.9			
HCM Level of Service			F			
Intersection Capacity Utilization			108.8%	ICU Level of Service	G	
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis 34: Kamm Ave & Academy Ave










Year 2035 No Project-PM

9/19/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control	Stop			Stop			Stop			Stop		
Volume (vph)	89	523	273	180	262	95	211	322	112	133	326	53
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	97	568	297	196	285	103	229	350	122	145	354	58
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1							
Volume Total (vph)	962	584	579	122	557							
Volume Left (vph)	97	196	229	0	145							
Volume Right (vph)	297	103	0	122	58							
Hadj (s)	-0.13	-0.01	0.23	-0.67	0.02							
Departure Headway (s)	9.4	9.5	9.9	9.0	9.7							
Degree Utilization, x	2.51	1.54	1.59	0.30	1.49							
Capacity (veh/h)	392	391	367	396	384							
Control Delay (s)	707.8	282.0	302.7	14.7	260.3							
Approach Delay (s)	707.8	282.0	252.7	260.3								
Approach LOS	F	F	F	F								
Intersection Summary												
Delay	416.5											
HCM Level of Service	F											
Intersection Capacity Utilization	136.4%				ICU Level of Service				H			
Analysis Period (min)	15											


















HCM Unsignalized Intersection Capacity Analysis
35: SR 99 NB Off & Bethel Ave

Year 2035 No Project-PM
9/19/2011

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	78	487	466	0	0	501
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	85	529	507	0	0	545
Pedestrians	10		10			10
Lane Width (ft)	12.0		12.0			12.0
Walking Speed (ft/s)	4.0		4.0			4.0
Percent Blockage	1		1			1
Right turn flare (veh)						
Median type			None			None
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1071	527			517	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1071	527			517	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	65	2			100	
cM capacity (veh/h)	240	542			1041	
Direction, Lane #	WB 1	NB 1	SB 1			
Volume Total	614	507	545			
Volume Left	85	0	0			
Volume Right	529	0	0			
cSH	462	1700	1700			
Volume to Capacity	1.33	0.30	0.32			
Queue Length 95th (ft)	685	0	0			
Control Delay (s)	187.5	0.0	0.0			
Lane LOS	F					
Approach Delay (s)	187.5	0.0	0.0			
Approach LOS	F					
Intersection Summary						
Average Delay		69.1				
Intersection Capacity Utilization		68.3%	ICU Level of Service		C	
Analysis Period (min)		15				

HCM Unsignalized Intersection Capacity Analysis 36: Parkway Drive & Bethel Ave

Year 2035 No Project-PM
9/19/2011


















																					
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR									
Lane Configurations																					
Volume (veh/h)	292	80	214	0	0	0	53	174	3	318	177	83									
Sign Control		Stop			Stop			Free			Free										
Grade		0%			0%			0%			0%										
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92									
Hourly flow rate (vph)	317	87	233	0	0	0	58	189	3	346	192	90									
Pedestrians		10			10			10			10										
Lane Width (ft)		12.0			0.0			12.0			12.0										
Walking Speed (ft/s)		4.0			4.0			4.0			4.0										
Percent Blockage		1			0			1			1										
Right turn flare (veh)			3																		
Median type								None			None										
Median storage (veh)																					
Upstream signal (ft)																					
pX, platoon unblocked																					
vC, conflicting volume	1255	1256	258	1415	1300	211	293			202											
vC1, stage 1 conf vol																					
vC2, stage 2 conf vol																					
vCu, unblocked vol	1255	1256	258	1415	1300	211	293			202											
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1											
tC, 2 stage (s)																					
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2											
p0 queue free %	0	28	70	100	100	100	95			75											
cM capacity (veh/h)	113	121	768	27	114	823	1258			1369											
Direction, Lane #	EB 1	NB 1	SB 1																		
Volume Total	637	250	628																		
Volume Left	317	58	346																		
Volume Right	233	3	90																		
cSH	167	1258	1369																		
Volume to Capacity	3.82	0.05	0.25																		
Queue Length 95th (ft)	Err	4	25																		
Control Delay (s)	Err	2.2	5.8																		
Lane LOS	F	A	A																		
Approach Delay (s)	Err	2.2	5.8																		
Approach LOS	F																				
Intersection Summary																					
Average Delay		4206.1																			
Intersection Capacity Utilization		81.7%	ICU Level of Service						D												
Analysis Period (min)		15																			

2035 With-Project Conditions

HCM Unsignalized Intersection Capacity Analysis 16: Mountain View Ave & SR 99 SB Off / Van Horn

Year 2035 Plus Project-AM

9/19/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	1002	125	505	925	0	102	0	402	353	272	465
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	1089	136	549	1005	0	111	0	437	384	296	505
Pedestrians		10			10			10			10	
Lane Width (ft)		12.0			12.0			12.0			12.0	
Walking Speed (ft/s)		4.0			4.0			4.0			4.0	
Percent Blockage		1			1			1			1	
Right turn flare (veh)												8
Median type		None			None							
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1015			1235			3681	3280	1177	3717	3348	1025
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1015			1235			3681	3280	1177	3717	3348	1025
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.2	6.5	6.3
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.6	4.0	3.4
p0 queue free %	100			2			0	100	0	0	0	0
cM capacity (veh/h)	677			559			0	0	229	0	0	273
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	1225	1554	548	1185								
Volume Left	0	549	111	384								
Volume Right	136	0	437	505								
cSH	1700	559	0	0								
Volume to Capacity	0.72	0.98	Err	Err								
Queue Length 95th (ft)	0	343	Err	Err								
Control Delay (s)	0.0	60.7	Err	Err								
Lane LOS		F	F	F								
Approach Delay (s)	0.0	60.7	Err	Err								
Approach LOS			F	F								
Intersection Summary												
Average Delay			Err									
Intersection Capacity Utilization			215.5%		ICU Level of Service				H			
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis

17: Mountain View Ave & SR 99 SB On

Year 2035 Plus Project-AM

9/19/2011

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↗			↖		
Volume (veh/h)	1543	214	59	1430	0	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1677	233	64	1554	0	0
Pedestrians	10			10	10	
Lane Width (ft)	12.0			12.0	0.0	
Walking Speed (ft/s)	4.0			4.0	4.0	
Percent Blockage	1			1	0	
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			1920		3496	1813
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			1920		3496	1813
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			79		100	100
cM capacity (veh/h)			308		6	97
Direction, Lane #	EB 1	WB 1				
Volume Total	1910	1618				
Volume Left	0	64				
Volume Right	233	0				
cSH	1700	308				
Volume to Capacity	1.12	0.21				
Queue Length 95th (ft)	0	19				
Control Delay (s)	0.0	19.8				
Lane LOS		C				
Approach Delay (s)	0.0	19.8				
Approach LOS						
Intersection Summary						
Average Delay			9.1			
Intersection Capacity Utilization			135.9%	ICU Level of Service	H	
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis 18: Mountain View Ave & SR 99 NB On

Year 2035 Plus Project-AM
9/19/2011



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↔	↔			
Volume (veh/h)	304	1239	1489	546	0	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	330	1347	1618	593	0	0
Pedestrians		10	10		10	
Lane Width (ft)		12.0	12.0		0.0	
Walking Speed (ft/s)		4.0	4.0		4.0	
Percent Blockage		1	1		0	
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	2222				3943	1935
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	2222				3943	1935
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	0				0	100
cM capacity (veh/h)	234				0	81
Direction, Lane #	EB 1	WB 1				
Volume Total	1677	2212				
Volume Left	330	0				
Volume Right	0	593				
cSH	234	1700				
Volume to Capacity	1.41	1.30				
Queue Length 95th (ft)	466	0				
Control Delay (s)	247.8	0.0				
Lane LOS	F					
Approach Delay (s)	247.8	0.0				
Approach LOS						
Intersection Summary						
Average Delay		106.8				
Intersection Capacity Utilization		210.1%	ICU Level of Service		H	
Analysis Period (min)		15				

HCM Unsignalized Intersection Capacity Analysis 19: Mountain View Ave & SR 99 NB Off























Year 2035 Plus Project-AM
9/19/2011

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑			↑	↘	↗
Volume (veh/h)	1239	0	0	1789	246	101
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1347	0	0	1945	267	110
Pedestrians	10			10	10	
Lane Width (ft)	12.0			12.0	12.0	
Walking Speed (ft/s)	4.0			4.0	4.0	
Percent Blockage	1			1	1	
Right turn flare (veh)						1
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)				1085		
pX, platoon unblocked					0.63	
vC, conflicting volume			1357		3311	1367
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			1357		4373	1367
tC, single (s)			4.1		6.4	6.4
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.5
p0 queue free %			100		0	32
cM capacity (veh/h)			503		1	162
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	1347	1945	377			
Volume Left	0	0	267			
Volume Right	0	0	110			
cSH	1700	1700	2			
Volume to Capacity	0.79	1.14	237.59			
Queue Length 95th (ft)	0	0	Err			
Control Delay (s)	0.0	0.0	Err			
Lane LOS			F			
Approach Delay (s)	0.0	0.0	Err			
Approach LOS			F			
Intersection Summary						
Average Delay		1028.0				
Intersection Capacity Utilization		114.5%		ICU Level of Service		H
Analysis Period (min)		15				

HCM Signalized Intersection Capacity Analysis 20: Mountain View Ave & Golden State Blvd

Year 2035 Plus Project-AM

9/19/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	422	790	127	63	1154	202	209	338	9	127	295	475
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.9		4.0	4.9		4.0	4.9	4.9	4.0	4.9	4.9
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	0.98	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.98		1.00	0.98		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3368		1770	3309		1770	3539	1544	1770	3539	1544
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1770	3368		1770	3309		1770	3539	1544	1770	3539	1544
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	459	859	138	68	1254	220	227	367	10	138	321	516
RTOR Reduction (vph)	0	16	0	0	20	0	0	0	5	0	0	203
Lane Group Flow (vph)	459	981	0	68	1454	0	227	367	5	138	321	313
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Heavy Vehicles (%)	2%	5%	2%	2%	7%	2%	2%	2%	2%	2%	2%	2%
Turn Type	Prot			Prot			Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases									2			6
Actuated Green, G (s)	8.0	24.3		4.7	21.0		8.0	15.9	15.9	7.8	15.7	15.7
Effective Green, g (s)	8.0	24.3		4.7	21.0		8.0	15.9	15.9	7.8	15.7	15.7
Actuated g/C Ratio	0.11	0.34		0.07	0.30		0.11	0.23	0.23	0.11	0.22	0.22
Clearance Time (s)	4.0	4.9		4.0	4.9		4.0	4.9	4.9	4.0	4.9	4.9
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	201	1161		118	986		201	798	348	196	788	344
v/s Ratio Prot	c0.26	c0.29		0.04	c0.44		c0.13	0.10		0.08	0.09	
v/s Ratio Perm									0.00			c0.20
v/c Ratio	2.28	0.84		0.58	1.47		1.13	0.46	0.01	0.70	0.41	0.91
Uniform Delay, d1	31.2	21.4		31.9	24.8		31.2	23.6	21.2	30.2	23.4	26.7
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	593.1	5.8		6.7	219.3		102.6	0.4	0.0	10.9	0.3	27.2
Delay (s)	624.4	27.1		38.6	244.0		133.8	24.0	21.2	41.1	23.8	53.9
Level of Service	F	C		D	F		F	C	C	D	C	D
Approach Delay (s)		215.4			235.0			65.2			42.2	
Approach LOS		F			F			E			D	
Intersection Summary												
HCM Average Control Delay	165.3			HCM Level of Service			F					
HCM Volume to Capacity ratio	1.45											
Actuated Cycle Length (s)	70.5			Sum of lost time (s)			22.7					
Intersection Capacity Utilization	97.9%			ICU Level of Service			F					
Analysis Period (min)	15											
c Critical Lane Group												

Queues

Year 2035 Plus Project-AM

20: Mountain View Ave & Golden State Blvd

9/19/2011



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	459	997	68	1474	227	367	10	138	321	516
v/c Ratio	2.24	0.83	0.37	1.55	1.11	0.45	0.03	0.69	0.40	0.93
Control Delay	591.9	31.2	34.7	274.8	127.7	24.7	14.6	50.0	24.2	40.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	591.9	31.2	34.7	274.8	127.7	24.7	14.6	50.0	24.2	40.1
Queue Length 50th (ft)	-328	-247	28	-487	-115	70	1	58	61	109
Queue Length 95th (ft)	#495	#364	63	#617	#242	108	12	#136	95	#294
Internal Link Dist (ft)		476		2144		775			1682	
Turn Bay Length (ft)	250		200		200		25	180		25
Base Capacity (vph)	205	1206	205	953	205	863	382	205	863	574
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	2.24	0.83	0.33	1.55	1.11	0.43	0.03	0.67	0.37	0.90

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.




















Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

HCM Unsignalized Intersection Capacity Analysis 21: Mountain View Ave & Bethel Ave.

Year 2035 Plus Project-AM
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










												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	44	588	72	85	1127	16	33	61	91	6	71	85
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	48	639	78	92	1225	17	36	66	99	7	77	92
Pedestrians		10			10			10			10	
Lane Width (ft)		12.0			12.0			12.0			12.0	
Walking Speed (ft/s)		4.0			4.0			4.0			4.0	
Percent Blockage		1			1			1			1	
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1252			727			1722	2221	379	1986	2252	641
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1252			727			1722	2221	379	1986	2252	641
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	91			89			0	0	84	0	0	77
cM capacity (veh/h)	547			865			0	34	609	0	33	410
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1				
Volume Total	48	426	291	92	817	426	201	176				
Volume Left	48	0	0	92	0	0	36	7				
Volume Right	0	0	78	0	0	17	99	92				
cSH	547	1700	1700	865	1700	1700	0	0				
Volume to Capacity	0.09	0.25	0.17	0.11	0.48	0.25	Err	Err				
Queue Length 95th (ft)	7	0	0	9	0	0	Err	Err				
Control Delay (s)	12.2	0.0	0.0	9.7	0.0	0.0	Err	Err				
Lane LOS	B			A			F	F				
Approach Delay (s)	0.8			0.7			Err	Err				
Approach LOS							F	F				
Intersection Summary												
Average Delay				Err								
Intersection Capacity Utilization			69.9%			ICU Level of Service			C			
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis

22: Mountain View Ave & Academy Ave

Year 2035 Plus Project-AM

9/19/2011










												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	57	590	34	101	995	27	69	78	57	29	147	148
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	62	641	37	110	1082	29	75	85	62	32	160	161
Pedestrians		10			10			10			10	
Lane Width (ft)		12.0			12.0			12.0			12.0	
Walking Speed (ft/s)		4.0			4.0			4.0			4.0	
Percent Blockage		1			1			1			1	
Right turn flare (veh)												
Median type	None			None								
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1121			688			2360	2134	680	2224	2138	1116
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1121			688			2360	2134	680	2224	2138	1116
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	90			88			0	0	86	0	0	35
cM capacity (veh/h)	618			898			0	38	444	0	38	248
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	740	1221	222	352								
Volume Left	62	110	75	32								
Volume Right	37	29	62	161								
cSH	618	898	0	0								
Volume to Capacity	0.10	0.12	Err	Err								
Queue Length 95th (ft)	8	10	Err	Err								
Control Delay (s)	2.7	3.9	Err	Err								
Lane LOS	A	A	F	F								
Approach Delay (s)	2.7	3.9	Err	Err								
Approach LOS			F	F								
Intersection Summary												
Average Delay				Err								
Intersection Capacity Utilization				115.3%	ICU Level of Service				H			
Analysis Period (min)				15								

HCM Unsignalized Intersection Capacity Analysis

25: Amber Ave & Golden State Blvd











Year 2035 Plus Project-AM

9/19/2011

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	50	47	56	506	417	68
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Hourly flow rate (vph)	57	53	64	575	474	77
Pedestrians	10			10	10	
Lane Width (ft)	12.0			12.0	12.0	
Walking Speed (ft/s)	4.0			4.0	4.0	
Percent Blockage	1			1	1	
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)					855	
pX, platoon unblocked	0.96	0.96	0.96			
vC, conflicting volume	947	296	561			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	856	175	453			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	78	93	94			
cM capacity (veh/h)	263	789	1049			
Direction, Lane #	EB 1	NB 1	NB 2	SB 1	SB 2	
Volume Total	110	265	383	316	235	
Volume Left	57	64	0	0	0	
Volume Right	53	0	0	0	77	
cSH	388	1049	1700	1700	1700	
Volume to Capacity	0.28	0.06	0.23	0.19	0.14	
Queue Length 95th (ft)	29	5	0	0	0	
Control Delay (s)	17.9	2.6	0.0	0.0	0.0	
Lane LOS	C	A				
Approach Delay (s)	17.9	1.0		0.0		
Approach LOS	C					
Intersection Summary						
Average Delay		2.0				
Intersection Capacity Utilization		47.6%		ICU Level of Service		A
Analysis Period (min)		15				

HCM Unsignalized Intersection Capacity Analysis 31: Kamm Ave (SR 99 NB On) & Bethel Ave



















Year 2035 Plus Project-AM
9/19/2011

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	2	2	212	509	501	372
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	2	2	230	553	545	404
Pedestrians	10			10	10	
Lane Width (ft)	12.0			12.0	12.0	
Walking Speed (ft/s)	4.0			4.0	4.0	
Percent Blockage	1			1	1	
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1579	565	555			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1579	565	555			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	98	100	77			
cM capacity (veh/h)	91	516	1007			
Direction, Lane #	EB 1	NB 1	SB 1	SB 2		
Volume Total	4	784	545	404		
Volume Left	2	230	0	0		
Volume Right	2	0	0	404		
cSH	155	1007	1700	1700		
Volume to Capacity	0.03	0.23	0.32	0.24		
Queue Length 95th (ft)	2	22	0	0		
Control Delay (s)	28.9	5.1	0.0	0.0		
Lane LOS	D	A				
Approach Delay (s)	28.9	5.1	0.0			
Approach LOS	D					
Intersection Summary						
Average Delay		2.4				
Intersection Capacity Utilization		81.1%		ICU Level of Service		D
Analysis Period (min)		15				

HCM Unsignalized Intersection Capacity Analysis 32: Bethel Ave & Golden State Blvd

Year 2035 Plus Project-AM





















9/19/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	99	261	152	25	400	120	201	302	60	110	253	272
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	108	284	165	27	435	130	218	328	65	120	275	296
Direction, Lane #	EB 1	EB 2	WB 1	NB 1	NB 2	SB 1	SB 2	SB 3				
Volume Total (vph)	391	165	592	383	229	211	183	296				
Volume Left (vph)	108	0	27	218	0	120	0	0				
Volume Right (vph)	0	165	130	0	65	0	0	296				
Hadj (s)	0.10	-0.57	-0.08	0.32	-0.17	0.32	0.03	-0.67				
Departure Headway (s)	8.9	3.2	8.9	9.4	8.9	9.9	9.6	3.2				
Degree Utilization, x	0.97	0.15	1.46	1.00	0.57	0.58	0.49	0.26				
Capacity (veh/h)	391	1121	421	383	391	353	361	1112				
Control Delay (s)	67.7	6.8	245.3	76.7	21.9	24.4	20.2	6.1				
Approach Delay (s)	49.6		245.3	56.2		15.5						
Approach LOS	E		F	F		C						
Intersection Summary												
Delay			88.9									
HCM Level of Service			F									
Intersection Capacity Utilization			89.8%	ICU Level of Service		E						
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis 33: Bethel Ave & Kamm Ave


















Year 2035 Plus Project-AM

9/19/2011

																
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR				
Lane Configurations																
Sign Control	Stop			Stop			Stop			Stop						
Volume (vph)	138	266	132	41	307	113	281	271	108	110	317	74				
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92				
Hourly flow rate (vph)	150	289	143	45	334	123	305	295	117	120	345	80				
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2								
Volume Total (vph)	150	433	45	457	305	412	120	425								
Volume Left (vph)	150	0	45	0	305	0	120	0								
Volume Right (vph)	0	143	0	123	0	117	0	80								
Hadj (s)	0.53	-0.16	0.53	-0.12	0.53	-0.17	0.53	-0.10								
Departure Headway (s)	10.1	9.4	10.3	9.6	10.0	9.3	10.1	9.5								
Degree Utilization, x	0.42	1.13	0.13	1.22	0.85	1.07	0.34	1.12								
Capacity (veh/h)	344	395	345	379	356	392	352	390								
Control Delay (s)	19.0	115.7	13.6	149.4	48.4	95.0	17.0	113.2								
Approach Delay (s)	90.8	137.3		75.2		92.1										
Approach LOS	F	F		F		F										
Intersection Summary																
Delay	96.2															
HCM Level of Service	F															
Intersection Capacity Utilization	80.8%				ICU Level of Service				D							
Analysis Period (min)	15															

HCM Unsignalized Intersection Capacity Analysis
34: Kamm Ave & Academy Ave










Year 2035 Plus Project-AM
9/19/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	44	179	64	100	338	92	150	205	88	32	253	72
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	48	195	70	109	367	100	163	223	96	35	275	78
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1							
Volume Total (vph)	312	576	386	96	388							
Volume Left (vph)	48	109	163	0	35							
Volume Right (vph)	70	100	0	96	78							
Hadj (s)	-0.07	-0.03	0.25	-0.67	-0.07							
Departure Headway (s)	9.4	9.0	9.5	8.6	9.1							
Degree Utilization, x	0.82	1.44	1.02	0.23	0.98							
Capacity (veh/h)	377	408	386	415	388							
Control Delay (s)	42.8	236.7	81.6	12.9	71.0							
Approach Delay (s)	42.8	236.7	67.9		71.0							
Approach LOS	E	F	F		F							
Intersection Summary												
Delay			119.5									
HCM Level of Service			F									
Intersection Capacity Utilization			90.5%			ICU Level of Service			E			
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis
35: SR 99 NB Off & Bethel Ave


















Year 2035 Plus Project-AM

9/19/2011

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	91	271	449	0	0	503
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	99	295	488	0	0	547
Pedestrians	10		10			10
Lane Width (ft)	12.0		12.0			12.0
Walking Speed (ft/s)	4.0		4.0			4.0
Percent Blockage	1		1			1
Right turn flare (veh)						
Median type			None			None
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1055	508			498	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1055	508			498	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	60	47			100	
cM capacity (veh/h)	246	555			1057	
Direction, Lane #	WB 1	NB 1	SB 1			
Volume Total	393	488	547			
Volume Left	99	0	0			
Volume Right	295	0	0			
cSH	422	1700	1700			
Volume to Capacity	0.93	0.29	0.32			
Queue Length 95th (ft)	263	0	0			
Control Delay (s)	60.1	0.0	0.0			
Lane LOS	F					
Approach Delay (s)	60.1	0.0	0.0			
Approach LOS	F					
Intersection Summary						
Average Delay		16.6				
Intersection Capacity Utilization		55.7%		ICU Level of Service		B
Analysis Period (min)		15				

HCM Unsignalized Intersection Capacity Analysis 36: Parkway Drive & Bethel Ave


















Year 2035 Plus Project-AM
9/19/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	123	23	53	0	0	0	46	327	2	170	306	118
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	134	25	58	0	0	0	50	355	2	185	333	128
Pedestrians		10			10			10			10	
Lane Width (ft)		12.0			0.0			12.0			12.0	
Walking Speed (ft/s)		4.0			4.0			4.0			4.0	
Percent Blockage		1			0			1			1	
Right turn flare (veh)			3									
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1243	1244	417	1284	1307	377	471			368		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1243	1244	417	1284	1307	377	471			368		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	0	82	91	100	100	100	95			84		
cM capacity (veh/h)	126	139	625	93	128	664	1082			1191		
Direction, Lane #	EB 1	NB 1	SB 1									
Volume Total	216	408	646									
Volume Left	134	50	185									
Volume Right	58	2	128									
cSH	165	1082	1191									
Volume to Capacity	1.31	0.05	0.16									
Queue Length 95th (ft)	318	4	14									
Control Delay (s)	228.6	1.5	3.8									
Lane LOS	F	A	A									
Approach Delay (s)	228.6	1.5	3.8									
Approach LOS	F											
Intersection Summary												
Average Delay		41.3										
Intersection Capacity Utilization		77.5%	ICU Level of Service			D						
Analysis Period (min)		15										

HCM Unsignalized Intersection Capacity Analysis 16: Mountain View Ave & SR 99 SB Off / Van Horn

Year 2035 Plus Project-PM

9/19/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	2197	165	555	1429	0	217	0	1322	677	310	564
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	2388	179	603	1553	0	236	0	1437	736	337	613
Pedestrians		10			10			10			10	
Lane Width (ft)		12.0			12.0			12.0			12.0	
Walking Speed (ft/s)		4.0			4.0			4.0			4.0	
Percent Blockage		1			1			1			1	
Right turn flare (veh)												8
Median type		None			None							
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1563			2577			5732	5258	2498	6694	5347	1573
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1563			2577			5732	5258	2498	6694	5347	1573
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			0			0	0	0	0	0	0
cM capacity (veh/h)	419			168			0	0	36	0	0	133
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	2567	2157	1673	1686								
Volume Left	0	603	236	736								
Volume Right	179	0	1437	613								
cSH	1700	168	0	0								
Volume to Capacity	1.51	3.59	Err	Err								
Queue Length 95th (ft)	0	Err	Err	Err								
Control Delay (s)	0.0	1219.5	Err	Err								
Lane LOS		F	F	F								
Approach Delay (s)	0.0	1219.5	Err	Err								
Approach LOS			F	F								
Intersection Summary												
Average Delay			Err									
Intersection Capacity Utilization			393.3%		ICU Level of Service				H			
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis

17: Mountain View Ave & SR 99 SB On

Year 2035 Plus Project-PM

9/19/2011

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↗			↖		
Volume (veh/h)	3759	437	249	1984	0	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	4086	475	271	2157	0	0
Pedestrians	10			10	10	
Lane Width (ft)	12.0			12.0	0.0	
Walking Speed (ft/s)	4.0			4.0	4.0	
Percent Blockage	1			1	0	
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			4571		7041	4343
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			4571		7041	4343
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			0		0	100
cM capacity (veh/h)			26		0	2
Direction, Lane #	EB 1	WB 1				
Volume Total	4561	2427				
Volume Left	0	271				
Volume Right	475	0				
cSH	1700	26				
Volume to Capacity	2.68	10.41				
Queue Length 95th (ft)	0	Err				
Control Delay (s)	0.0	504.7				
Lane LOS		F				
Approach Delay (s)	0.0	504.7				
Approach LOS						
Intersection Summary						
Average Delay		175.3				
Intersection Capacity Utilization		326.1%	ICU Level of Service		H	
Analysis Period (min)		15				

HCM Unsignalized Intersection Capacity Analysis 18: Mountain View Ave & SR 99 NB On

Year 2035 Plus Project-PM

9/19/2011



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		←	←			
Volume (veh/h)	936	2823	2233	820	0	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1017	3068	2427	891	0	0
Pedestrians		10	10		10	
Lane Width (ft)		12.0	12.0		0.0	
Walking Speed (ft/s)		4.0	4.0		4.0	
Percent Blockage		1	1		0	
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	3328				7996	2893
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	3328				7996	2893
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	0				0	100
cM capacity (veh/h)	85				0	21
Direction, Lane #	EB 1	WB 1				
Volume Total	4086	3318				
Volume Left	1017	0				
Volume Right	0	891				
cSH	85	1700				
Volume to Capacity	12.02	1.95				
Queue Length 95th (ft)	Err	0				
Control Delay (s)	1257.7	0.0				
Lane LOS	F					
Approach Delay (s)	1257.7	0.0				
Approach LOS						
Intersection Summary						
Average Delay		694.0				
Intersection Capacity Utilization		384.2%		ICU Level of Service		H
Analysis Period (min)		15				

HCM Unsignalized Intersection Capacity Analysis 19: Mountain View Ave & SR 99 NB Off

Year 2035 Plus Project-PM























9/19/2011

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑			↑	↘	↗
Volume (veh/h)	2823	0	0	2706	348	200
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	3068	0	0	2941	378	217
Pedestrians	10			10	10	
Lane Width (ft)	12.0			12.0	12.0	
Walking Speed (ft/s)	4.0			4.0	4.0	
Percent Blockage	1			1	1	
Right turn flare (veh)						1
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)				1085		
pX, platoon unblocked					0.64	
vC, conflicting volume			3078		6030	3088
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			3078		8588	3088
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		0	0
cM capacity (veh/h)			106		0	16
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	3068	2941	596			
Volume Left	0	0	378			
Volume Right	0	0	217			
cSH	1700	1700	0			
Volume to Capacity	1.80	1.73	Err			
Queue Length 95th (ft)	0	0	Err			
Control Delay (s)	0.0	0.0	Err			
Lane LOS			F			
Approach Delay (s)	0.0	0.0	Err			
Approach LOS			F			
Intersection Summary						
Average Delay		901.7				
Intersection Capacity Utilization		174.5%		ICU Level of Service		H
Analysis Period (min)		15				

HCM Signalized Intersection Capacity Analysis
20: Mountain View Ave & Golden State Blvd

Year 2035 Plus Project-PM

9/19/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	1099	1556	368	77	1280	437	390	692	27	531	745	1035
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.9		4.0	4.9		4.0	4.9	4.9	4.0	4.9	4.9
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	0.99		1.00	0.99		1.00	1.00	0.97	1.00	1.00	0.97
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.97		1.00	0.96		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3393		1770	3356		1770	3539	1541	1770	3539	1541
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1770	3393		1770	3356		1770	3539	1541	1770	3539	1541
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1195	1691	400	84	1391	475	424	752	29	577	810	1125
RTOR Reduction (vph)	0	25	0	0	42	0	0	0	7	0	0	163
Lane Group Flow (vph)	1195	2066	0	84	1824	0	424	752	22	577	810	962
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Heavy Vehicles (%)	2%	3%	2%	2%	3%	2%	2%	2%	2%	2%	2%	2%
Turn Type	Prot			Prot			Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases									2			6
Actuated Green, G (s)	8.0	25.6		6.3	23.9		12.0	20.1	20.1	11.0	19.1	19.1
Effective Green, g (s)	8.0	25.6		6.3	23.9		12.0	20.1	20.1	11.0	19.1	19.1
Actuated g/C Ratio	0.10	0.32		0.08	0.30		0.15	0.25	0.25	0.14	0.24	0.24
Clearance Time (s)	4.0	4.9		4.0	4.9		4.0	4.9	4.9	4.0	4.9	4.9
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	175	1075		138	993		263	880	383	241	837	364
v/s Ratio Prot	c0.68	c0.61		0.05	0.54		0.24	0.21		c0.33	0.23	
v/s Ratio Perm									0.01			c0.62
v/c Ratio	6.83	1.92		0.61	1.84		1.61	0.85	0.06	2.39	0.97	2.64
Uniform Delay, d1	36.4	27.6		36.1	28.4		34.4	29.0	23.1	34.9	30.5	30.8
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	2634.9	418.5		7.4	380.7		292.5	8.1	0.1	640.0	23.2	747.6
Delay (s)	2671.3	446.1		43.5	409.2		326.9	37.1	23.2	674.9	53.8	778.4
Level of Service	F	F		D	F		F	D	C	F	D	F
Approach Delay (s)		1255.3			393.4			138.7			521.0	
Approach LOS		F			F			F			F	
Intersection Summary												
HCM Average Control Delay		711.3					HCM Level of Service		F			
HCM Volume to Capacity ratio		2.64										
Actuated Cycle Length (s)		80.8					Sum of lost time (s)		12.9			
Intersection Capacity Utilization		173.9%					ICU Level of Service		H			
Analysis Period (min)		15										
c Critical Lane Group												

Queues

Year 2035 Plus Project-PM

20: Mountain View Ave & Golden State Blvd

9/19/2011



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	1195	2091	84	1866	424	752	29	577	810	1125
v/c Ratio	6.75	1.89	0.51	1.85	1.59	0.85	0.07	2.37	0.96	2.12
Control Delay	2608.4	424.7	45.5	407.2	311.9	39.1	18.4	651.8	54.1	530.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	2608.4	424.7	45.5	407.2	311.9	39.1	18.4	651.8	54.1	530.5
Queue Length 50th (ft)	~1169	~891	40	~756	~308	188	8	~481	211	~835
Queue Length 95th (ft)	#1404	#1031	85	#894	#479	#281	27	#672	#327	#1074
Internal Link Dist (ft)		476		2144		775			1689	
Turn Bay Length (ft)	250		200		200		25	180		25
Base Capacity (vph)	177	1108	177	1011	266	889	394	243	845	530
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	6.75	1.89	0.47	1.85	1.59	0.85	0.07	2.37	0.96	2.12

Intersection Summary

~ Volume exceeds capacity; queue is theoretically infinite.

Queue shown is maximum after two cycles.




















95th percentile volume exceeds capacity; queue may be longer.

Queue shown is maximum after two cycles.

HCM Unsignalized Intersection Capacity Analysis 21: Mountain View Ave & Bethel Ave.

Year 2035 Plus Project-PM

















9/19/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	180	1707	99	70	1172	14	74	77	97	20	55	148
Sign Control	Free			Free			Stop			Stop		
Grade	0%			0%			0%			0%		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	196	1855	108	76	1274	15	80	84	105	22	60	161
Pedestrians	10			10			10			10		
Lane Width (ft)	12.0			12.0			12.0			12.0		
Walking Speed (ft/s)	4.0			4.0			4.0			4.0		
Percent Blockage	1			1			1			1		
Right turn flare (veh)												
Median type	None						None					
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1299			1973			3300	3762	1002	2920	3808	665
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1299			1973			3300	3762	1002	2920	3808	665
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	63			74			0	0	56	0	0	59
cM capacity (veh/h)	525			288			0	2	237	0	2	396
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1				
Volume Total	196	1237	726	76	849	440	270	242				
Volume Left	196	0	0	76	0	0	80	22				
Volume Right	0	0	108	0	0	15	105	161				
cSH	525	1700	1700	288	1700	1700	0	0				
Volume to Capacity	0.37	0.73	0.43	0.26	0.50	0.26	Err	Err				
Queue Length 95th (ft)	43	0	0	26	0	0	Err	Err				
Control Delay (s)	15.9	0.0	0.0	22.0	0.0	0.0	Err	Err				
Lane LOS	C			C			F	F				
Approach Delay (s)	1.4			1.2			Err	Err				
Approach LOS							F	F				
Intersection Summary												
Average Delay	Err											
Intersection Capacity Utilization	95.9%											
ICU Level of Service	F											
Analysis Period (min)	15											

HCM Unsignalized Intersection Capacity Analysis 22: Mountain View Ave & Academy Ave










Year 2035 Plus Project-PM

9/19/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	207	1510	112	103	1000	98	91	308	62	44	112	173
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	225	1641	122	112	1087	107	99	335	67	48	122	188
Pedestrians		10			10			10			10	
Lane Width (ft)		12.0			12.0			12.0			12.0	
Walking Speed (ft/s)		4.0			4.0			4.0			4.0	
Percent Blockage		1			1			1			1	
Right turn flare (veh)												
Median type	None				None							
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1203			1773			3785	3590	1722	3771	3597	1160
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1203			1773			3785	3590	1722	3771	3597	1160
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	61			68			0	0	38	0	0	20
cM capacity (veh/h)	575			348			0	2	109	0	2	234
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	1988	1305	501	358								
Volume Left	225	112	99	48								
Volume Right	122	107	67	188								
cSH	575	348	0	0								
Volume to Capacity	0.39	0.32	Err	Err								
Queue Length 95th (ft)	46	34	Err	Err								
Control Delay (s)	1.7	20.2	Err	Err								
Lane LOS	A	C	F	F								
Approach Delay (s)	1.7	20.2	Err	Err								
Approach LOS			F	F								
Intersection Summary												
Average Delay			Err									
Intersection Capacity Utilization			184.8%		ICU Level of Service		H					
Analysis Period (min)			15									











HCM Unsignalized Intersection Capacity Analysis 25: Amber Ave & Golden State Blvd

Year 2035 Plus Project-PM
9/19/2011

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	266	144	247	839	939	251
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Hourly flow rate (vph)	302	164	281	953	1067	285
Pedestrians	10			10	10	
Lane Width (ft)	12.0			12.0	12.0	
Walking Speed (ft/s)	4.0			4.0	4.0	
Percent Blockage	1			1	1	
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)					855	
pX, platoon unblocked	0.79	0.79	0.79			
vC, conflicting volume	2268	696	1362			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	2068	69	916			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	0	78	51			
cM capacity (veh/h)	19	758	577			
Direction, Lane #	EB 1	NB 1	NB 2	SB 1	SB 2	
Volume Total	466	598	636	711	641	
Volume Left	302	281	0	0	0	
Volume Right	164	0	0	0	285	
cSH	28	577	1700	1700	1700	
Volume to Capacity	16.48	0.49	0.37	0.42	0.38	
Queue Length 95th (ft)	Err	66	0	0	0	
Control Delay (s)	Err	13.4	0.0	0.0	0.0	
Lane LOS	F	B				
Approach Delay (s)	Err	6.5		0.0		
Approach LOS	F					
Intersection Summary						
Average Delay		1528.9				
Intersection Capacity Utilization		98.5%		ICU Level of Service		F
Analysis Period (min)		15				

HCM Unsignalized Intersection Capacity Analysis 31: Kamm Ave (SR 99 NB On) & Bethel Ave



















Year 2035 Plus Project-PM
9/19/2011

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	4	2	117	940	527	391
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	4	2	127	1022	573	425
Pedestrians	10			10	10	
Lane Width (ft)	12.0			12.0	12.0	
Walking Speed (ft/s)	4.0			4.0	4.0	
Percent Blockage	1			1	1	
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1869	593	583			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1869	593	583			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	94	100	87			
cM capacity (veh/h)	68	497	983			
Direction, Lane #	EB 1	NB 1	SB 1	SB 2		
Volume Total	7	1149	573	425		
Volume Left	4	127	0	0		
Volume Right	2	0	0	425		
cSH	96	983	1700	1700		
Volume to Capacity	0.07	0.13	0.34	0.25		
Queue Length 95th (ft)	5	11	0	0		
Control Delay (s)	45.4	3.7	0.0	0.0		
Lane LOS	E	A				
Approach Delay (s)	45.4	3.7	0.0			
Approach LOS	E					
Intersection Summary						
Average Delay		2.1				
Intersection Capacity Utilization		99.8%		ICU Level of Service	F	
Analysis Period (min)		15				

HCM Unsignalized Intersection Capacity Analysis
32: Bethel Ave & Golden State Blvd

Year 2035 Plus Project-PM





















9/19/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	342	392	212	195	439	224	98	691	70	240	637	379
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	372	426	230	212	477	243	107	751	76	261	692	412
Direction, Lane #	EB 1	EB 2	WB 1	NB 1	NB 2	SB 1	SB 2	SB 3				
Volume Total (vph)	798	230	933	482	452	492	462	412				
Volume Left (vph)	372	0	212	107	0	261	0	0				
Volume Right (vph)	0	230	243	0	76	0	0	412				
Hadj (s)	0.14	0.57	0.07	0.14	0.08	0.30	0.03	0.67				
Departure Headway (s)	9.7	3.2	9.5	9.8	9.6	10.0	9.7	3.2				
Degree Utilization, x	2.15	0.20	2.46	1.31	1.20	1.36	1.24	0.37				
Capacity (veh/h)	378	1122	388	374	381	370	377	1114				
Control Delay (s)	547.6	7.0	685.2	185.9	141.9	205.5	158.1	6.8				
Approach Delay (s)	426.5		685.2	164.6		129.5						
Approach LOS	F		F	F		F						
Intersection Summary												
Delay			330.5									
HCM Level of Service			F									
Intersection Capacity Utilization			149.5%	ICU Level of Service		H						
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis
33: Bethel Ave & Kamm Ave

Year 2035 Plus Project-PM


















9/19/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control	Stop			Stop			Stop			Stop		
Volume (vph)	90	476	507	107	518	13	371	211	162	77	264	295
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	98	517	551	116	563	14	403	229	176	84	287	321
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2				
Volume Total (vph)	98	1068	116	577	403	405	84	608				
Volume Left (vph)	98	0	116	0	403	0	84	0				
Volume Right (vph)	0	551	0	14	0	176	0	321				
Hadj (s)	0.53	-0.30	0.53	0.07	0.53	-0.27	0.53	-0.34				
Departure Headway (s)	10.3	9.5	10.3	9.9	10.0	9.2	10.4	9.5				
Degree Utilization, x	0.28	2.82	0.33	1.58	1.12	1.04	0.24	1.61				
Capacity (veh/h)	344	389	345	379	370	394	343	382				
Control Delay (s)	16.1	847.0	17.2	296.9	115.4	86.3	15.4	307.1				
Approach Delay (s)	777.3		250.0		100.8		271.8					
Approach LOS	F		F		F		F					
Intersection Summary												
Delay	401.6											
HCM Level of Service	F											
Intersection Capacity Utilization	128.4%				ICU Level of Service				H			
Analysis Period (min)	15											

HCM Unsignalized Intersection Capacity Analysis
34: Kamm Ave & Academy Ave










Year 2035 Plus Project-PM

9/19/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	89	523	273	180	262	95	211	380	112	133	396	53
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	97	568	297	196	285	103	229	413	122	145	430	58
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1							
Volume Total (vph)	962	584	642	122	633							
Volume Left (vph)	97	196	229	0	145							
Volume Right (vph)	297	103	0	122	58							
Hadj (s)	-0.13	-0.01	0.21	-0.67	0.03							
Departure Headway (s)	9.4	9.5	9.9	9.0	9.7							
Degree Utilization, x	2.51	1.54	1.76	0.30	1.70							
Capacity (veh/h)	392	391	369	396	377							
Control Delay (s)	707.8	282.0	376.2	14.7	348.0							
Approach Delay (s)	707.8	282.0	318.6		348.0							
Approach LOS	F	F	F		F							
Intersection Summary												
Delay			444.9									
HCM Level of Service			F									
Intersection Capacity Utilization			143.1%			ICU Level of Service			H			
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis 35: SR 99 NB Off & Bethel Ave


















Year 2035 Plus Project-PM
9/19/2011

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	177	473	585	0	0	529
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	192	514	636	0	0	575
Pedestrians	10		10			10
Lane Width (ft)	12.0		12.0			12.0
Walking Speed (ft/s)	4.0		4.0			4.0
Percent Blockage	1		1			1
Right turn flare (veh)						
Median type			None			None
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1231	656			646	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1231	656			646	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	0	0			100	
cM capacity (veh/h)	193	458			932	
Direction, Lane #	WB 1	NB 1	SB 1			
Volume Total	707	636	575			
Volume Left	192	0	0			
Volume Right	514	0	0			
cSH	333	1700	1700			
Volume to Capacity	2.12	0.37	0.34			
Queue Length 95th (ft)	1295	0	0			
Control Delay (s)	540.3	0.0	0.0			
Lane LOS	F					
Approach Delay (s)	540.3	0.0	0.0			
Approach LOS	F					
Intersection Summary						
Average Delay		199.1				
Intersection Capacity Utilization		77.1%		ICU Level of Service		D
Analysis Period (min)		15				

HCM Unsignalized Intersection Capacity Analysis 36: Parkway Drive & Bethel Ave

Year 2035 Plus Project-PM

9/19/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	292	80	214	0	0	0	53	293	3	360	219	125
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	317	87	233	0	0	0	58	318	3	391	238	136
Pedestrians		10			10			10			10	
Lane Width (ft)		12.0			0.0			12.0			12.0	
Walking Speed (ft/s)		4.0			4.0			4.0			4.0	
Percent Blockage		1			0			1			1	
Right turn flare (veh)			3									
Median type								None			None	
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1544	1546	326	1704	1612	340	384			332		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1544	1546	326	1704	1612	340	384			332		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	0	0	67	0	100	100	95			68		
cM capacity (veh/h)	66	74	703	0	67	696	1165			1228		
Direction, Lane #	EB 1	NB 1	SB 1									
Volume Total	637	379	765									
Volume Left	317	58	391									
Volume Right	233	3	136									
cSH	101	1165	1228									
Volume to Capacity	6.29	0.05	0.32									
Queue Length 95th (ft)	Err	4	35									
Control Delay (s)	Err	1.7	6.6									
Lane LOS	F	A	A									
Approach Delay (s)	Err	1.7	6.6									
Approach LOS	F											
Intersection Summary												
Average Delay		3578.2										
Intersection Capacity Utilization		94.8%	ICU Level of Service		F							
Analysis Period (min)		15										

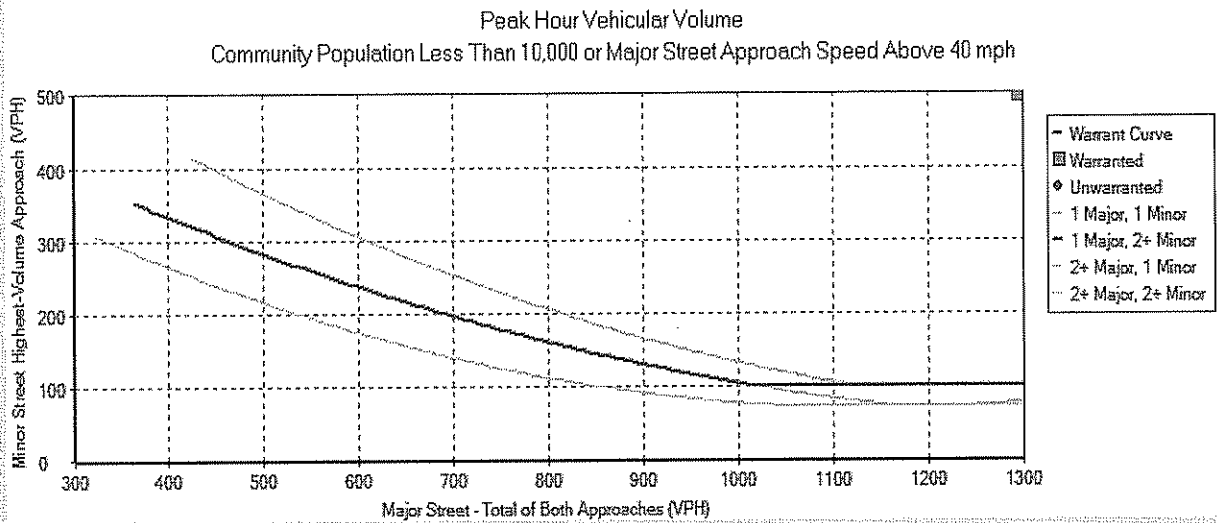
APPENDIX C

PEAK HOUR TRAFFIC SIGNAL WARRANTS

Warrant 3: Peak Hour

2035 With Project

16: SR 99 SB Off / Van Horn & Mountain View Ave

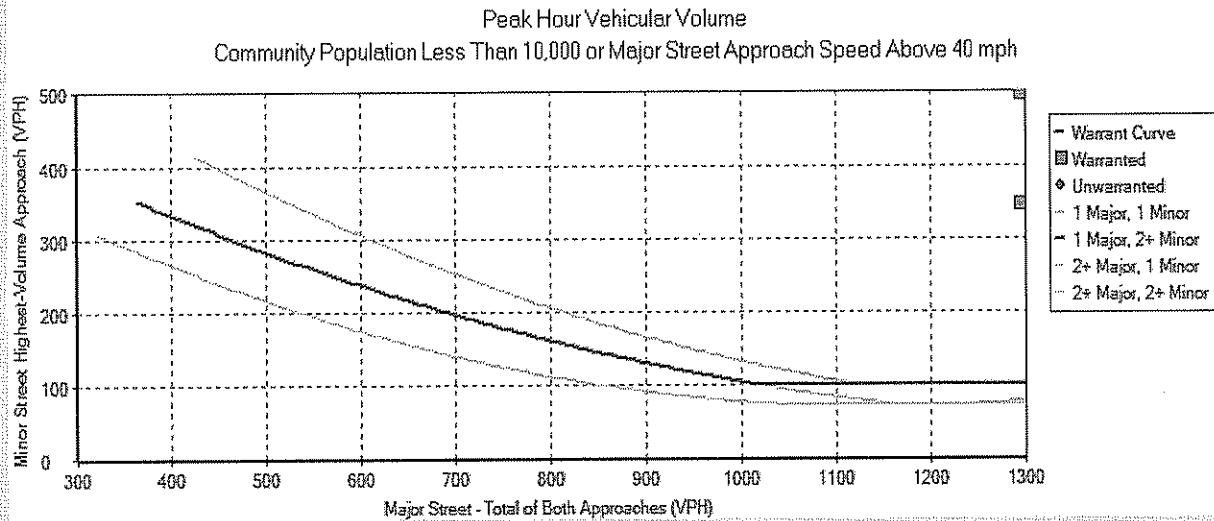


Warranted / Unwarranted		
Hour	Major Street Total of both approaches (VPH)	Minor Street Highest volume approach (VPH)
7:30	2557	1090
17:00	4346	1551

Warrant 3: Peak Hour

2035 With Project

19: SR 99 NB Off & Mountain View Ave

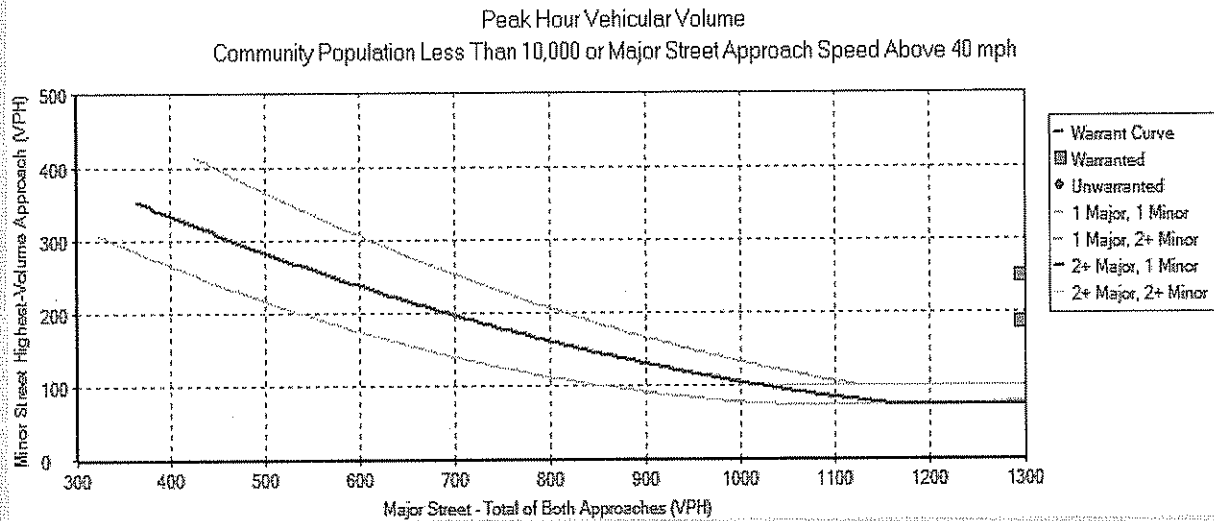


Warranted / Unwarranted		
Hour	Major Street Total of both approaches (VPH)	Minor Street Highest volume approach (VPH)
7:30	3028	347
17:00	5529	548

Warrant 3: Peak Hour

2035 With Project

21: Mountain View Ave & Bethel Ave.

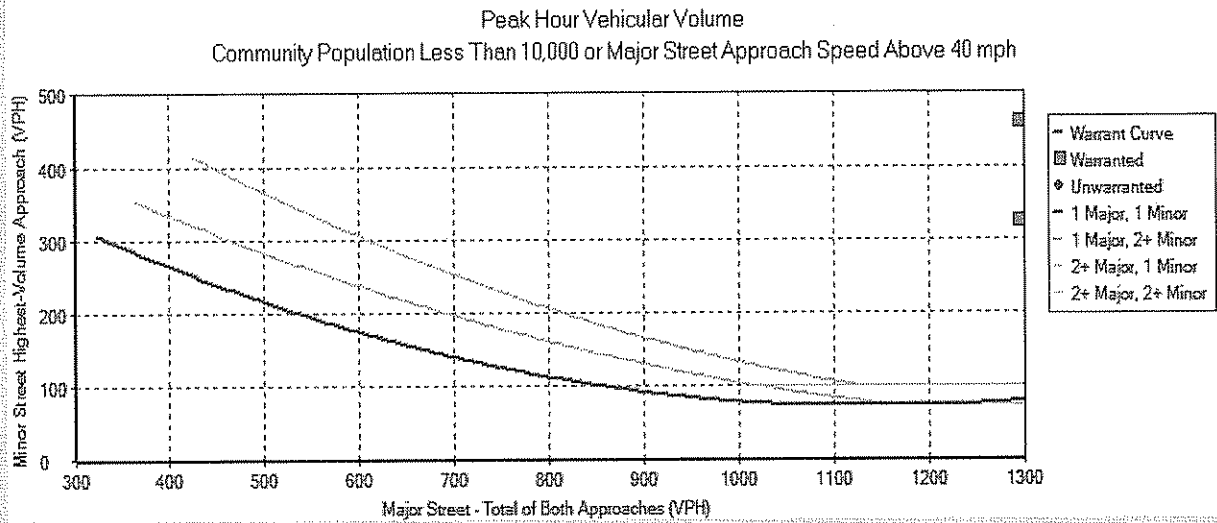


Warranted / Unwarranted		
Hour	Major Street Total of both approaches (VPH)	Minor Street Highest volume approach (VPH)
7:30	1902	185
17:00	3242	248

Warrant 3: Peak Hour

2035 With Project

22: Academy Ave & Mountain View Ave

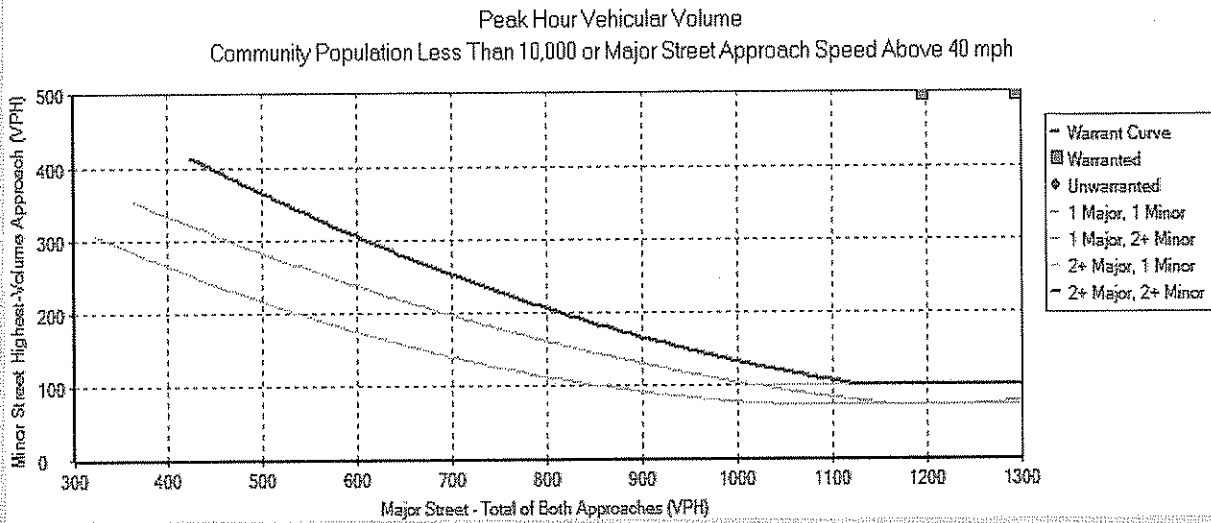


Warranted / Unwarranted		
Hour	Major Street Total of both approaches (VPH)	Minor Street Highest volume approach (VPH)
7:30	1804	324
16:45	3030	461

Warrant 3: Peak Hour

2035 With Project

32: Golden State Blvd & Bethel Ave

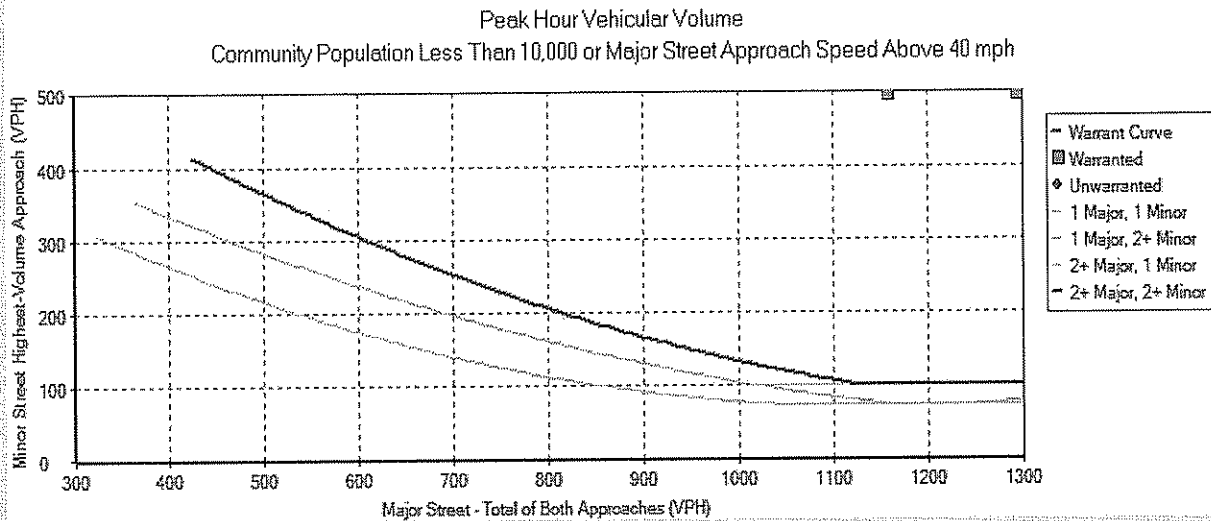


Warranted / Unwarranted		
Hour	Major Street Total of both approaches (VPH)	Minor Street Highest volume approach (VPH)
7:45	1198	545
16:45	2115	946

Warrant 3: Peak Hour

2035 With Project

33: Kamm Ave & Bethel Ave

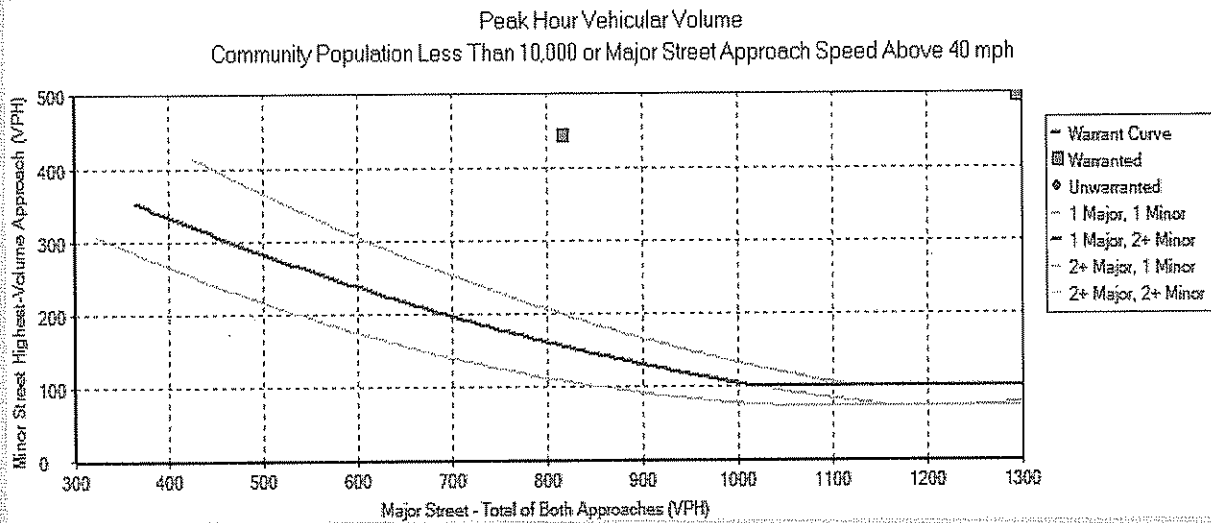


Warranted / Unwarranted		
Hour	Major Street Total of both approaches (VPH)	Minor Street Highest volume approach (VPH)
7:45	1161	536
16:45	1380	1073

Warrant 3: Peak Hour

2035 With Project

34: Academy Ave & Kamm Ave

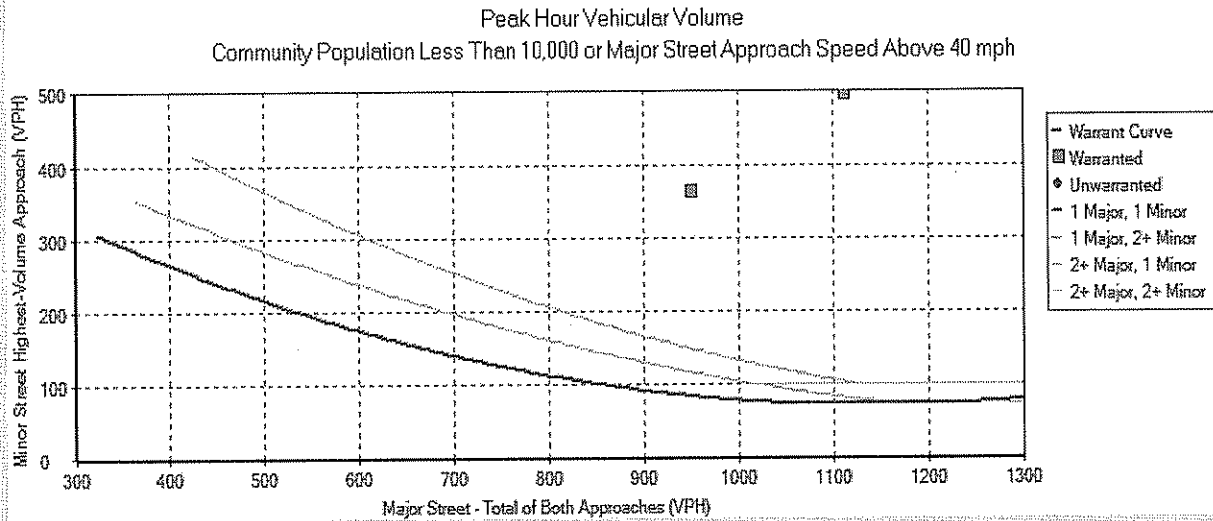


Warranted / Unwarranted		
Hour	Major Street Total of both approaches (VPH)	Minor Street Highest volume approach (VPH)
7:30	817	443
16:45	1422	703

Warrant 3: Peak Hour

2035 With Project

35: Bethel Ave & SR 99 NB Off

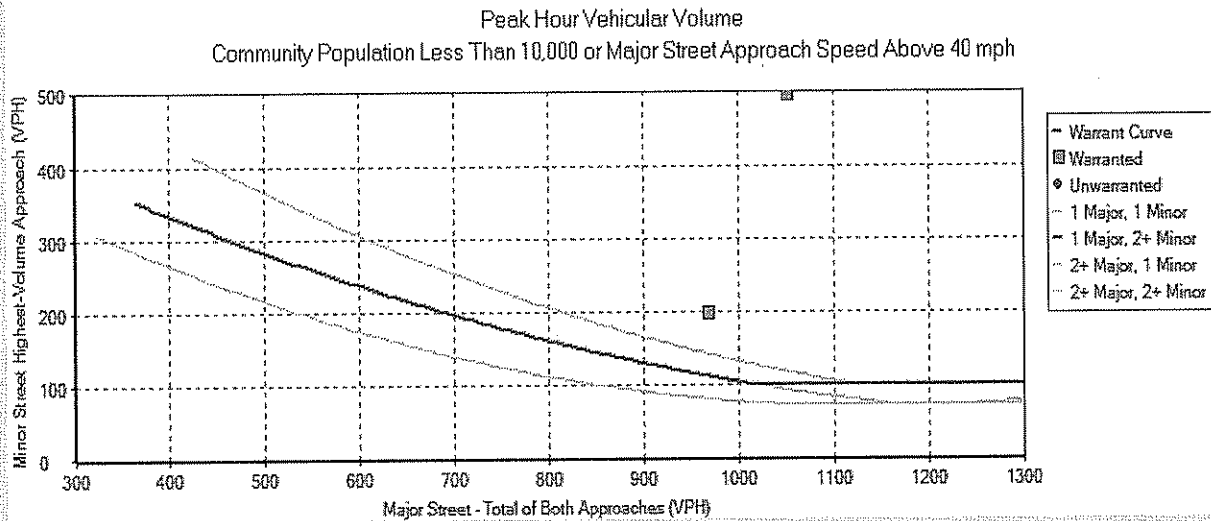


Warranted / Unwarranted		
Hour	Major Street Total of both approaches (VPH)	Minor Street Highest volume approach (VPH)
7:30	952	362
16:30	1114	650

Warrant 3: Peak Hour

2035 With Project

36: Bethel Ave & Parkway Drive



Warranted / Unwarranted		
Hour	Major Street Total of both approaches (VPH)	Minor Street Highest volume approach (VPH)
7:45	969	199
16:30	1053	586

APPENDIX D

FLORIDA TABLES FOR ROAD SEGMENT ANALYSES

TABLE 4

Generalized **Peak Hour Two-Way Volumes** for Florida's
Urbanized Areas¹

10/4/10

STATE SIGNALIZED ARTERIALS					
Class I (>0.00 to 1.99 signalized intersections per mile)					
Lanes	Median	B	C	D	E
2	Undivided	930	1,500	1,600	***
4	Divided	2,840	3,440	3,560	***
6	Divided	4,370	5,200	5,360	***
8	Divided	5,900	6,970	7,160	***
Class II (2.00 to 4.50 signalized intersections per mile)					
Lanes	Median	B	C	D	E
2	Undivided	**	1,020	1,480	1,570
4	Divided	**	2,420	3,220	3,400
6	Divided	**	3,790	4,880	5,150
8	Divided	**	5,150	6,530	6,880
Class III/IV (more than 4.50 signalized intersections per mile)					
Lanes	Median	B	C	D	E
2	Undivided	**	500	1,150	1,440
4	Divided	**	1,220	2,730	3,100
6	Divided	**	1,910	4,240	4,680
8	Divided	**	2,620	5,770	6,280

FREEWAYS					
Lanes	B	C	D	E	
4	4,000	5,500	6,770	7,300	
6	6,000	8,320	10,150	11,290	
8	8,000	11,050	13,480	15,270	
10	10,000	13,960	16,930	19,250	
12	13,730	18,600	21,950	23,230	
Freeway Adjustments					
Auxiliary Lanes		Ramp Metering			
+ 1,800		+ 5%			

UNINTERRUPTED FLOW HIGHWAYS					
Lanes	Median	B	C	D	E
2	Undivided	730	1,460	2,080	2,620
4	Divided	3,220	4,660	6,040	6,840
6	Divided	4,840	6,990	9,060	10,280
Uninterrupted Flow Highway Adjustments					
Lanes	Median	Exclusive left lanes	Adjustment factors		
2	Divided	Yes	+5%		
Multi	Undivided	Yes	-5%		
Multi	Undivided	No	-25%		

Non-State Signalized Roadway Adjustments	
(Alter corresponding state volumes by the indicated percent.)	
Major City/County Roadways	- 10%
Other Signalized Roadways	- 35%

BICYCLE MODE ²					
(Multiply motorized vehicle volumes shown below by number of directional roadway lanes to determine two-way maximum service volumes.)					
Paved Shoulder/ Bicycle Lane					
Coverage	B	C	D	E	
0-49%	**	310	1,180	>1,180	
50-84%	240	360	>360	***	
85-100%	620	>620	***	***	

PEDESTRIAN MODE ²					
(Multiply motorized vehicle volumes shown below by number of directional roadway lanes to determine two-way maximum service volumes.)					
Sidewalk Coverage	B	C	D	E	
0-49%	**	**	480	1,390	
50-84%	**	**	1,100	1,820	
85-100%	**	1,100	1,820	>1,820	

BUS MODE (Scheduled Fixed Route) ³					
(Buses in peak hour in peak direction)					
Sidewalk Coverage	B	C	D	E	
0-84%	>5	≥4	≥3	≥2	
85-100%	>4	≥3	≥2	≥1	

¹ Values shown are presented as hourly two-way volumes for levels of service and are for the automobile/truck modes unless specifically stated. Although presented as peak hour two-way volumes, they actually represent peak hour peak direction conditions with an applicable D factor applied. This table does not constitute a standard and should be used only for general planning applications. The computer models from which this table is derived should be used for more specific planning applications. The table and deriving computer models should not be used for corridor or intersection design, where more refined techniques exist. Calculations are based on planning applications of the Highway Capacity Manual, Bicycle LOS Model, Pedestrian LOS Model and Transit Capacity and Quality of Service Manual, respectively for the automobile/truck, bicycle, pedestrian and bus modes.

² Level of service for the bicycle and pedestrian modes in this table is based on number of motorized vehicles, not number of bicyclists or pedestrians using the facility.

³ Buses per hour shown are only for the peak hour in the single direction of the higher traffic flow.

** Cannot be achieved using table input value defaults.

*** Not applicable for that level of service letter grade. For the automobile mode, volumes greater than level of service D become F because intersection capacities have been reached. For the bicycle mode, the level of service letter grade (including F) is not achievable because there is no maximum vehicle volume threshold using table input value defaults.

Source:
Florida Department of Transportation
Systems Planning Office
605 Suwannee Street, MS 19
Tallahassee, FL 32399-0450

¹ Values shown are presented as hourly two-way volumes for levels of service and are for the automobile/truck modes unless specifically stated. Although presented as peak hour two-way volumes, they actually represent peak hour peak direction conditions with an applicable D factor applied. This table does not constitute a standard and should be used only for general planning applications. The computer models from which this table is derived should be used for more specific planning applications. The table and deriving computer models should not be used for corridor or intersection design, where more refined techniques exist. Calculations are based on planning applications of the Highway Capacity Manual, Bicycle LOS Model, Pedestrian LOS Model and Transit Capacity and Quality of Service Manual, respectively for the automobile/truck, bicycle, pedestrian and bus modes.

² Level of service for the bicycle and pedestrian modes in this table is based on number of motorized vehicles, not number of bicyclists or pedestrians using the facility.

³ Buses per hour shown are only for the peak hour in the single direction of the higher traffic flow.

** Cannot be achieved using table input value defaults.

*** Not applicable for that level of service letter grade. For the automobile mode, volumes greater than level of service D become F because intersection capacities have been reached. For the bicycle mode, the level of service letter grade (including F) is not achievable because there is no maximum vehicle volume threshold using table input value defaults.

Source:













Florida Department of Transportation
Systems Planning Office
605 Suwannee Street, MS 19
Tallahassee, FL 32399-0450

APPENDIX E

MITIGATED INTERSECTION ANALYSIS SHEETS

HCM Signalized Intersection Capacity Analysis 16: Mountain View Ave & SR 99 SB ramps

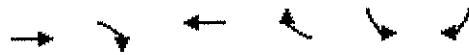
Year 2035 Plus Project-AM
Mitigated

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑	↑		↑↑↑	↑				↑↑		↑↑↑
Volume (vph)	0	1190	214	0	1430	59	0	0	0	353	0	737
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.9	4.0		4.9	4.0				4.9		4.9
Lane Util. Factor		0.91	1.00		0.91	1.00				0.97		0.76
Frpb, ped/bikes		1.00	0.99		1.00	0.98				1.00		0.96
Flpb, ped/bikes		1.00	1.00		1.00	1.00				0.99		1.00
Frt		1.00	0.85		1.00	0.85				1.00		0.85
Flt Protected		1.00	1.00		1.00	1.00				0.95		1.00
Satd. Flow (prot)		5036	1560		5036	1544				3329		3471
Flt Permitted		1.00	1.00		1.00	1.00				0.95		1.00
Satd. Flow (perm)		5036	1560		5036	1544				3329		3471
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	1293	233	0	1554	64	0	0	0	384	0	801
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	16
Lane Group Flow (vph)	0	1293	233	0	1554	64	0	0	0	384	0	785
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Heavy Vehicles (%)	2%	3%	2%	2%	3%	2%	2%	2%	2%	4%	2%	2%
Turn Type		Free			Free					custom		custom
Protected Phases		4			8							
Permitted Phases		Free			Free					6		6
Actuated Green, G (s)		28.1	60.0		28.1	60.0				22.1		22.1
Effective Green, g (s)		28.1	60.0		28.1	60.0				22.1		22.1
Actuated g/C Ratio		0.47	1.00		0.47	1.00				0.37		0.37
Clearance Time (s)		4.9			4.9					4.9		4.9
Vehicle Extension (s)		3.0			3.0					3.0		3.0
Lane Grp Cap (vph)		2359	1560		2359	1544				1226		1278
v/s Ratio Prot		0.26			0.31							
v/s Ratio Perm			0.15			0.04				0.12		0.23
v/c Ratio		0.55	0.15		0.66	0.04				0.31		0.61
Uniform Delay, d1		11.4	0.0		12.3	0.0				13.5		15.5
Progression Factor		1.00	1.00		0.66	1.00				1.00		1.00
Incremental Delay, d2		0.9	0.2		1.3	0.0				0.7		2.2
Delay (s)		12.3	0.2		9.4	0.0				14.2		17.7
Level of Service		B	A		A	A				B		B
Approach Delay (s)		10.5			9.0			0.0			16.6	
Approach LOS		B			A			A			B	
Intersection Summary												
HCM Average Control Delay			11.6				HCM Level of Service			B		
HCM Volume to Capacity ratio			0.64									
Actuated Cycle Length (s)			60.0				Sum of lost time (s)			9.8		
Intersection Capacity Utilization			54.0%				ICU Level of Service			A		
Analysis Period (min)			15									
c Critical Lane Group												

Queues
16: Mountain View Ave & SR 99 SB ramps

Year 2035 Plus Project-AM

Mitigated



Lane Group	EBT	EBR	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	1293	233	1554	64	384	801
v/c Ratio	0.55	0.15	0.66	0.04	0.31	0.62
Control Delay	12.5	0.2	9.5	0.1	14.4	17.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	12.5	0.2	9.5	0.1	14.4	17.5
Queue Length 50th (ft)	114	0	89	0	49	97
Queue Length 95th (ft)	151	0	113	0	78	141
Internal Link Dist (ft)	1057		1034			
Turn Bay Length (ft)		200		250		200
Base Capacity (vph)	2359	1560	2359	1544	1226	1294
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.55	0.15	0.66	0.04	0.31	0.62

Intersection Summary













m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis

18: Mountain View Ave & SR 99 NB ramps

Year 2035 Plus Project-AM

Mitigated

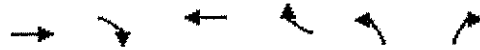
												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑	↑		↑↑↑	↑	↑↑		↑			
Volume (vph)	0	1239	304	0	1243	546	246	0	101	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.9	4.0		4.9	4.0	4.9		4.9			
Lane Util. Factor		0.91	1.00		0.91	1.00	0.97		1.00			
Frpb, ped/bikes		1.00	0.98		1.00	1.00	1.00		0.98			
Flpb, ped/bikes		1.00	1.00		1.00	1.00	0.99		1.00			
Frt		1.00	0.85		1.00	0.85	1.00		0.85			
Flt Protected		1.00	1.00		1.00	1.00	0.95		1.00			
Satd. Flow (prot)		5036	1544		5036	1583	3394		1547			
Flt Permitted		1.00	1.00		1.00	1.00	0.95		1.00			
Satd. Flow (perm)		5036	1544		5036	1583	3394		1547			
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	1347	330	0	1351	593	267	0	110	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	21	0	0	0
Lane Group Flow (vph)	0	1347	330	0	1351	593	267	0	89	0	0	0
Confl. Peds. (#/hr)			10	10			10		10			
Heavy Vehicles (%)	2%	3%	2%	2%	3%	2%	2%	2%	2%	2%	2%	2%
Turn Type		Free				Free	custom		custom			
Protected Phases		4			8							
Permitted Phases		Free			Free		2		2			
Actuated Green, G (s)		31.1	60.0		31.1	60.0	19.1		19.1			
Effective Green, g (s)		31.1	60.0		31.1	60.0	19.1		19.1			
Actuated g/C Ratio		0.52	1.00		0.52	1.00	0.32		0.32			
Clearance Time (s)		4.9			4.9		4.9		4.9			
Vehicle Extension (s)		3.0			3.0		3.0		3.0			
Lane Grp Cap (vph)		2610	1544		2610	1583	1080		492			
v/s Ratio Prot		0.27			0.27							
v/s Ratio Perm			0.21			0.37	0.08		0.06			
v/c Ratio		0.52	0.21		0.52	0.37	0.25		0.18			
Uniform Delay, d1		9.5	0.0		9.5	0.0	15.1		14.8			
Progression Factor		0.82	1.00		1.00	1.00	1.00		1.00			
Incremental Delay, d2		0.6	0.3		0.7	0.7	0.5		0.8			
Delay (s)		8.5	0.3		10.2	0.7	15.7		15.6			
Level of Service		A	A		B	A	B		B			
Approach Delay (s)		6.9			7.3			15.7			0.0	
Approach LOS		A			A			B			A	
Intersection Summary												
HCM Average Control Delay		7.9			HCM Level of Service		A					
HCM Volume to Capacity ratio		0.46										
Actuated Cycle Length (s)		60.0			Sum of lost time (s)		4.9					
Intersection Capacity Utilization		45.4%			ICU Level of Service		A					
Analysis Period (min)		15										
c - Critical Lane Group												

Queues

Year 2035 Plus Project-AM

18: Mountain View Ave & SR 99 NB ramps

Mitigated


























Lane Group	EBT	EBR	WBT	WBR	NBL	NBR
Lane Group Flow (vph)	1347	330	1351	593	267	110
v/c Ratio	0.52	0.21	0.52	0.37	0.25	0.21
Control Delay	8.6	0.3	10.4	0.7	15.9	12.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	8.6	0.3	10.4	0.7	15.9	12.6
Queue Length 50th (ft)	80	0	107	0	36	20
Queue Length 95th (ft)	129	0	141	0	61	52
Internal Link Dist (ft)	1034		1005			
Turn Bay Length (ft)		250		250		200
Base Capacity (vph)	2610	1544	2610	1583	1080	514
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.52	0.21	0.52	0.37	0.25	0.21

Intersection Summary

HCM Signalized Intersection Capacity Analysis 20: Mountain View Ave & Golden State Blvd

Year 2035 Plus Project-AM
Mitigated













												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	422	790	127	63	1154	202	209	338	9	127	295	475
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.9	4.9	4.0	4.9	4.9	4.0	4.9	4.9	4.0	4.9	4.9
Lane Util. Factor	0.97	0.91	0.88	0.97	0.91	0.88	0.97	0.91	0.88	0.97	0.91	0.88
Frpb, ped/bikes	1.00	1.00	0.96	1.00	1.00	0.97	1.00	1.00	0.97	1.00	1.00	0.97
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	5036	2668	3433	5036	2715	3433	5085	2715	3433	5085	2715
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	5036	2668	3433	5036	2715	3433	5085	2715	3433	5085	2715
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	459	859	138	68	1254	220	227	367	10	138	321	516
RTOR Reduction (vph)	0	0	81	0	0	151	0	0	8	0	0	372
Lane Group Flow (vph)	459	859	57	68	1254	69	227	367	2	138	321	144
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Heavy Vehicles (%)	2%	3%	2%	2%	3%	2%	2%	2%	2%	2%	2%	2%
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Actuated Green, G (s)	12.6	30.4	30.4	5.5	23.3	23.3	7.9	14.1	14.1	6.1	12.3	12.3
Effective Green, g (s)	12.6	30.4	30.4	5.5	23.3	23.3	7.9	14.1	14.1	6.1	12.3	12.3
Actuated g/C Ratio	0.17	0.41	0.41	0.07	0.32	0.32	0.11	0.19	0.19	0.08	0.17	0.17
Clearance Time (s)	4.0	4.9	4.9	4.0	4.9	4.9	4.0	4.9	4.9	4.0	4.9	4.9
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	585	2072	1098	256	1588	856	367	970	518	283	846	452
v/s Ratio Prot	c0.13	0.17		0.02	c0.25		c0.07	c0.07		0.04	0.06	
v/s Ratio Perm			0.02			0.03			0.00			0.05
v/c Ratio	0.78	0.41	0.05	0.27	0.79	0.08	0.62	0.38	0.00	0.49	0.38	0.32
Uniform Delay, d1	29.4	15.4	13.1	32.3	23.1	17.8	31.6	26.1	24.2	32.4	27.4	27.1
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	6.8	0.1	0.0	0.6	2.7	0.0	3.1	0.2	0.0	1.3	0.3	0.4
Delay (s)	36.2	15.6	13.1	32.9	25.8	17.8	34.7	26.3	24.2	33.7	27.7	27.5
Level of Service	D	B	B	C	C	B	C	C	C	C	C	C
Approach Delay (s)		21.8			24.9			29.4			28.5	
Approach LOS		C			C			C			C	
Intersection Summary												
HCM Average Control Delay	25.3			HCM Level of Service			C					
HCM Volume to Capacity ratio	0.63											
Actuated Cycle Length (s)	73.9			Sum of lost time (s)			12.9					
Intersection Capacity Utilization	63.0%			ICU Level of Service			B					
Analysis Period (min)	15											
c Critical Lane Group												

Queues

Year 2035 Plus Project-AM

20: Mountain View Ave & Golden State Blvd

Mitigated

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	459	859	138	68	1254	220	227	367	10	138	321	516
v/c Ratio	0.77	0.40	0.11	0.21	0.80	0.22	0.61	0.37	0.02	0.39	0.40	0.64
Control Delay	39.2	16.7	3.7	33.2	28.4	3.9	39.4	27.7	14.1	34.9	28.8	9.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	39.2	16.7	3.7	33.2	28.4	3.9	39.4	27.7	14.1	34.9	28.8	9.2
Queue Length 50th (ft)	102	98	0	14	185	0	51	56	0	30	48	15
Queue Length 95th (ft)	#185	154	18	35	#267	26	#94	82	6	60	73	59
Internal Link Dist (ft)		1005			2144			775			1639	
Turn Bay Length (ft)	250		200	200		200	200		200	180		200
Base Capacity (vph)	622	2121	1201	383	1628	1026	383	1288	694	383	1275	1014
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.74	0.40	0.11	0.18	0.77	0.21	0.59	0.28	0.01	0.36	0.25	0.51

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.






















Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis

21: Mountain View Ave & Bethel Ave.

Year 2035 Plus Project-AM

Mitigated

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	44	588	72	85	1127	16	33	61	91	6	71	85
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.9		4.0	4.9		4.0	4.9		4.0	4.9	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	0.99		1.00	0.99	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.98		1.00	1.00		1.00	0.91		1.00	0.92	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3443		1770	3497		1770	3176		1770	3209	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3443		1770	3497		1770	3176		1770	3209	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	48	639	78	92	1225	17	36	66	99	7	77	92
RTOR Reduction (vph)	0	10	0	0	1	0	0	82	0	0	78	0
Lane Group Flow (vph)	48	707	0	92	1241	0	36	83	0	7	91	0
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Heavy Vehicles (%)	2%	3%	2%	2%	3%	2%	2%	2%	2%	2%	2%	2%
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	3.8	27.0		4.5	27.7		2.3	10.5		1.0	9.2	
Effective Green, g (s)	3.8	27.0		4.5	27.7		2.3	10.5		1.0	9.2	
Actuated g/C Ratio	0.06	0.44		0.07	0.46		0.04	0.17		0.02	0.15	
Clearance Time (s)	4.0	4.9		4.0	4.9		4.0	4.9		4.0	4.9	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	111	1529		131	1593		67	548		29	486	
v/s Ratio Prot	0.03	0.21		c0.05	c0.35		c0.02	0.03		0.00	c0.03	
v/s Ratio Perm												
v/c Ratio	0.43	0.46		0.70	0.78		0.54	0.15		0.24	0.19	
Uniform Delay, d1	27.5	11.8		27.5	14.0		28.7	21.4		29.5	22.5	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	2.7	0.2		15.7	2.5		8.1	0.1		4.3	0.2	
Delay (s)	30.2	12.0		43.2	16.4		36.8	21.5		33.8	22.7	
Level of Service	C	B		D	B		D	C		C	C	
Approach Delay (s)		13.2			18.3			24.2			23.2	
Approach LOS		B			B			C			C	
Intersection Summary												
HCM Average Control Delay	17.5			HCM Level of Service			B					
HCM Volume to Capacity ratio	0.58											
Actuated Cycle Length (s)	60.8			Sum of lost time (s)			12.9					
Intersection Capacity Utilization	60.7%			ICU Level of Service			B					
Analysis Period (min)	15											
c Critical Lane Group												

Queues

Year 2035 Plus Project-AM

21: Mountain View Ave & Bethel Ave.

Mitigated



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	48	717	92	1242	36	165	7	169
v/c Ratio	0.21	0.43	0.36	0.72	0.16	0.25	0.03	0.30
Control Delay	31.2	13.7	31.9	18.6	31.1	11.6	31.5	14.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	31.2	13.7	31.9	18.6	31.1	11.6	31.5	14.9
Queue Length 50th (ft)	15	76	29	155	11	11	2	12
Queue Length 95th (ft)	55	198	88	#453	44	38	15	42
Internal Link Dist (ft)		2167		703		1432		1285
Turn Bay Length (ft)	200		200		200		200	
Base Capacity (vph)	279	1925	314	2017	279	1147	279	1126
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.17	0.37	0.29	0.62	0.13	0.14	0.03	0.15

Intersection Summary

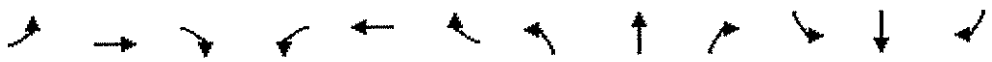
95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis 22: Mountain View Ave & Academy Ave

Year 2035 Plus Project-AM

Mitigated

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↙↘	↑↑	↗	↙	↑↑	↗	↙	↑	↗	↙	↑	↗
Volume (vph)	57	590	34	101	995	27	69	78	57	29	147	148
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.9	4.9	4.0	4.9	4.9	4.0	4.9	4.9	4.0	4.9	4.9
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00	0.98	1.00	1.00	0.98	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	3539	1546	1770	3539	1546	1770	1863	1546	1770	1863	1546
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	3539	1546	1770	3539	1546	1770	1863	1546	1770	1863	1546
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	62	641	37	110	1082	29	75	85	62	32	160	161
RTOR Reduction (vph)	0	0	24	0	0	17	0	0	49	0	0	130
Lane Group Flow (vph)	62	641	13	110	1082	12	75	85	13	32	160	31
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Actuated Green, G (s)	3.6	21.5	21.5	6.8	24.7	24.7	3.9	13.3	13.3	2.5	11.9	11.9
Effective Green, g (s)	3.6	21.5	21.5	6.8	24.7	24.7	3.9	13.3	13.3	2.5	11.9	11.9
Actuated g/C Ratio	0.06	0.35	0.35	0.11	0.40	0.40	0.06	0.21	0.21	0.04	0.19	0.19
Clearance Time (s)	4.0	4.9	4.9	4.0	4.9	4.9	4.0	4.9	4.9	4.0	4.9	4.9
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	200	1229	537	194	1412	617	112	400	332	71	358	297
v/s Ratio Prot	0.02	0.18		c0.06	c0.31		c0.04	0.05		0.02	c0.09	
v/s Ratio Perm			0.01			0.01			0.01			0.02
v/c Ratio	0.31	0.52	0.02	0.57	0.77	0.02	0.67	0.21	0.04	0.45	0.45	0.10
Uniform Delay, d1	28.0	16.1	13.3	26.2	16.1	11.3	28.4	20.0	19.2	29.0	22.1	20.6
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.9	0.4	0.0	3.8	2.5	0.0	14.2	0.3	0.0	4.5	0.9	0.2
Delay (s)	28.8	16.5	13.3	29.9	18.6	11.3	42.5	20.3	19.3	33.5	23.0	20.8
Level of Service	C	B	B	C	B	B	D	C	B	C	C	C
Approach Delay (s)		17.4			19.5			27.5			22.9	
Approach LOS		B			B			C			C	

Intersection Summary

HCM Average Control Delay	20.1	HCM Level of Service	C
HCM Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	61.9	Sum of lost time (s)	17.8
Intersection Capacity Utilization	58.8%	ICU Level of Service	B
Analysis Period (min)	15		













c Critical Lane Group

Queues

Year 2035 Plus Project-AM

22: Mountain View Ave & Academy Ave

Mitigated

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	62	641	37	110	1082	29	75	85	62	32	160	161
v/c Ratio	0.15	0.52	0.07	0.40	0.72	0.04	0.32	0.20	0.15	0.15	0.45	0.38
Control Delay	29.7	19.7	7.3	32.5	21.6	7.2	32.9	23.3	8.5	31.2	29.1	7.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	29.7	19.7	7.3	32.5	21.6	7.2	32.9	23.3	8.5	31.2	29.1	7.9
Queue Length 50th (ft)	12	115	0	43	213	0	30	24	0	13	63	0
Queue Length 95th (ft)	30	183	19	96	#372	16	73	69	29	39	118	45
Internal Link Dist (ft)		3716			2312			899			1126	
Turn Bay Length (ft)	200		200	200		200	200		200	200		200
Base Capacity (vph)	529	1574	707	341	1732	770	272	615	551	272	577	589
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.12	0.41	0.05	0.32	0.62	0.04	0.28	0.14	0.11	0.12	0.28	0.27

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

HCM Unsignalized Intersection Capacity Analysis

25: Amber Ave & Golden State Blvd

Year 2035 Plus Project-AM
Mitigated



























Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↗		↑↑	↑↑↗	
Volume (veh/h)	0	97	0	556	417	68
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Hourly flow rate (vph)	0	110	0	632	474	77
Pedestrians	10			10	10	
Lane Width (ft)	12.0			12.0	12.0	
Walking Speed (ft/s)	4.0			4.0	4.0	
Percent Blockage	1			1	1	
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)					855	
pX, platoon unblocked	0.94	0.94	0.94			
vC, conflicting volume	848	296	561			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	719	133	415			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	87	100			
cM capacity (veh/h)	337	827	1067			
Direction, Lane #	EB 1	NB 1	NB 2	SB 1	SB 2	
Volume Total	110	316	316	316	235	
Volume Left	0	0	0	0	0	
Volume Right	110	0	0	0	77	
cSH	827	1700	1700	1700	1700	
Volume to Capacity	0.13	0.19	0.19	0.19	0.14	
Queue Length 95th (ft)	11	0	0	0	0	
Control Delay (s)	10.0	0.0	0.0	0.0	0.0	
Lane LOS	B					
Approach Delay (s)	10.0	0.0		0.0		
Approach LOS	B					
Intersection Summary						
Average Delay		0.9				
Intersection Capacity Utilization		29.3%		ICU Level of Service		A
Analysis Period (min)		15				

HCM Signalized Intersection Capacity Analysis 32: Bethel Ave & Golden State Blvd

Year 2035 Plus Project-AM

Mitigated

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	107	205	48	28	321	127	183	217	42	111	189	116
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.9	4.9	4.0	4.9	4.9	4.0	4.9	4.9	4.0	4.9	4.9
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	0.97	0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.97	1.00	1.00	0.97	1.00	1.00	0.97	1.00	1.00	0.95
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	3539	1538	1770	3539	1538	1770	3539	1538	3433	3539	1508
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	3539	1538	1770	3539	1538	1770	3539	1538	3433	3539	1508
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	122	233	55	32	365	144	208	247	48	126	215	132
RTOR Reduction (vph)	0	0	30	0	0	78	0	0	42	0	0	116
Lane Group Flow (vph)	122	233	25	32	365	66	208	247	6	126	215	16
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Actuated Green, G (s)	8.6	41.0	41.0	9.0	41.4	41.4	11.0	11.8	11.8	10.4	11.2	11.2
Effective Green, g (s)	8.6	41.0	41.0	9.0	41.4	41.4	11.0	11.8	11.8	10.4	11.2	11.2
Actuated g/C Ratio	0.10	0.46	0.46	0.10	0.46	0.46	0.12	0.13	0.13	0.12	0.12	0.12
Clearance Time (s)	4.0	4.9	4.9	4.0	4.9	4.9	4.0	4.9	4.9	4.0	4.9	4.9
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	328	1612	701	177	1628	707	216	464	202	397	440	188
v/s Ratio Prot	c0.04	0.07		0.02	c0.10		c0.12	0.07		0.04	c0.06	
v/s Ratio Perm			0.02			0.04			0.00			0.01
v/c Ratio	0.37	0.14	0.04	0.18	0.22	0.09	0.96	0.53	0.03	0.32	0.49	0.09
Uniform Delay, d1	38.2	14.3	13.6	37.1	14.6	13.7	39.3	36.5	34.1	36.5	36.7	34.9
Progression Factor	1.00	1.00	1.00	0.60	0.57	0.36	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.7	0.2	0.1	0.5	0.3	0.2	50.4	1.2	0.1	0.5	0.9	0.2
Delay (s)	38.9	14.5	13.7	22.8	8.6	5.2	89.7	37.7	34.2	37.0	37.6	35.1
Level of Service	D	B	B	C	A	A	F	D	C	D	D	D
Approach Delay (s)		21.6			8.6			58.9			36.7	
Approach LOS		C			A			E			D	

Intersection Summary

HCM Average Control Delay	31.4	HCM Level of Service	C
HCM Volume to Capacity ratio	0.37		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	12.9
Intersection Capacity Utilization	49.2%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Queues

Year 2035 Plus Project-AM

32: Bethel Ave & Golden State Blvd

Mitigated

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	122	233	55	32	365	144	208	247	48	126	215	132
v/c Ratio	0.37	0.14	0.07	0.14	0.22	0.18	0.96	0.53	0.20	0.32	0.49	0.43
Control Delay	41.1	16.7	6.2	21.1	9.2	1.7	94.2	40.3	12.0	38.9	39.9	11.1
Queue Delay	0.0	0.0	0.0	0.0	0.8	0.8	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	41.1	16.7	6.2	21.1	10.1	2.5	94.2	40.3	12.0	38.9	39.9	11.1
Queue Length 50th (ft)	34	44	0	10	28	0	120	70	0	34	61	0
Queue Length 95th (ft)	58	75	24	m22	54	3	#247	100	28	59	88	45
Internal Link Dist (ft)		365			80			574			5552	
Turn Bay Length (ft)	100		100	100			200			200		100
Base Capacity (vph)	610	1674	756	295	1628	785	216	849	406	496	928	493
Starvation Cap Reductn	0	0	0	0	954	418	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	5	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.20	0.14	0.07	0.11	0.54	0.39	0.96	0.29	0.12	0.26	0.23	0.27

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis 33: Bethel Ave & Kamm Ave

Year 2035 Plus Project-AM

Mitigated

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↑	↑	↑	↑	↑
Volume (vph)	184	174	59	134	343	139
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.9	4.9	4.9	4.9	4.9	4.9
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frpb, ped/bikes	1.00	0.97	1.00	1.00	1.00	0.95
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	1863	1538	1770	1863	1770	1508
Flt Permitted	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (perm)	1863	1538	1770	1863	1770	1508
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	209	198	67	152	390	158
RTOR Reduction (vph)	0	106	0	0	0	113
Lane Group Flow (vph)	209	92	67	152	390	45
Confl. Peds. (#/hr)		10	10		10	10
Turn Type	Perm		Prot	Perm		
Protected Phases	4		3	8	2	
Permitted Phases		4				2
Actuated Green, G (s)	41.8	41.8	7.6	54.3	25.9	25.9
Effective Green, g (s)	41.8	41.8	7.6	54.3	25.9	25.9
Actuated g/C Ratio	0.46	0.46	0.08	0.60	0.29	0.29
Clearance Time (s)	4.9	4.9	4.9	4.9	4.9	4.9
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	865	714	149	1124	509	434
v/s Ratio Prot	c0.11		c0.04	0.08	c0.22	
v/s Ratio Perm		0.06				0.03
v/c Ratio	0.24	0.13	0.45	0.14	0.77	0.10
Uniform Delay, d1	14.5	13.7	39.2	7.7	29.3	23.5
Progression Factor	0.41	0.07	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.7	0.4	2.2	0.3	6.8	0.1
Delay (s)	6.7	1.3	41.4	8.0	36.1	23.6
Level of Service	A	A	D	A	D	C
Approach Delay (s)	4.1			18.2	32.5	
Approach LOS	A			B	C	
Intersection Summary						
HCM Average Control Delay		20.0		HCM Level of Service		B
HCM Volume to Capacity ratio		0.44				
Actuated Cycle Length (s)		90.0		Sum of lost time (s)		14.7
Intersection Capacity Utilization		47.9%		ICU Level of Service		A
Analysis Period (min)		15				
c Critical Lane Group						

Queues
33: Bethel Ave & Kamm Ave

Year 2035 Plus Project-AM
Mitigated



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	209	198	67	152	390	158
v/c Ratio	0.24	0.24	0.39	0.14	0.76	0.29
Control Delay	8.0	0.9	43.9	9.6	38.8	4.8
Queue Delay	0.8	0.6	0.0	0.0	0.0	0.0
Total Delay	8.8	1.5	43.9	9.6	38.8	4.8
Queue Length 50th (ft)	23	0	36	34	202	0
Queue Length 95th (ft)	43	1	72	75	256	35
Internal Link Dist (ft)	80			95	528	
Turn Bay Length (ft)						
Base Capacity (vph)	884	834	222	1123	769	745
Starvation Cap Reductn	419	356	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.45	0.41	0.30	0.14	0.51	0.21
Intersection Summary						

HCM Unsignalized Intersection Capacity Analysis 31: Kamm Ave (SR 99 NB On) & Bethel Ave

Year 2035 Plus Project-AM
Mitigated



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	←	→	←	↑	↑	→
Volume (veh/h)	2	2	212	509	501	372
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	2	2	230	553	545	404
Pedestrians	10			10	10	
Lane Width (ft)	12.0			12.0	12.0	
Walking Speed (ft/s)	4.0			4.0	4.0	
Percent Blockage	1			1	1	
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)				664	445	
pX, platoon unblocked	0.91	0.91	0.91			
vC, conflicting volume	1579	565	555			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1587	471	460			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	97	100	77			
cM capacity (veh/h)	82	530	993			
Direction, Lane #	EB 1	EB 2	NB 1	NB 2	SB 1	SB 2
Volume Total	2	2	230	553	545	404
Volume Left	2	0	230	0	0	0
Volume Right	0	2	0	0	0	404
cSH	82	530	993	1700	1700	1700
Volume to Capacity	0.03	0.00	0.23	0.33	0.32	0.24
Queue Length 95th (ft)	2	0	22	0	0	0
Control Delay (s)	50.3	11.8	9.7	0.0	0.0	0.0
Lane LOS	F	B	A			
Approach Delay (s)	31.1		2.9		0.0	
Approach LOS	D					
Intersection Summary						
Average Delay			1.4			
Intersection Capacity Utilization			54.3%		ICU Level of Service	A
Analysis Period (min)			15			

Queues

Year 2035 Plus Project-AM

32: Bethel Ave & Golden State Blvd

Mitigated



























Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	108	284	165	27	435	130	218	328	65	120	275	296
v/c Ratio	0.30	0.20	0.23	0.16	0.36	0.21	0.76	0.45	0.18	0.24	0.48	0.60
Control Delay	31.0	16.7	5.1	30.6	20.5	5.6	46.3	27.0	8.0	26.8	28.8	8.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	31.0	16.7	5.1	30.6	20.5	5.6	46.3	27.0	8.0	26.8	28.8	8.9
Queue Length 50th (ft)	22	34	0	11	76	0	90	68	0	23	57	0
Queue Length 95th (ft)	44	86	43	32	129	39	#185	99	28	44	84	57
Internal Link Dist (ft)		365			939			574			5552	
Turn Bay Length (ft)	100		100	100		100	200			200		100
Base Capacity (vph)	395	1447	729	202	1217	616	303	1020	492	527	809	575
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.27	0.20	0.23	0.13	0.36	0.21	0.72	0.32	0.13	0.23	0.34	0.51

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis 32: Bethel Ave & Golden State Blvd

Year 2035 Plus Project-AM
Mitigated

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	99	261	152	25	400	120	201	302	60	110	253	272
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.9	4.9	4.0	4.9	4.9	4.0	4.9	4.9	4.0	4.9	4.9
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	0.97	0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00	0.98	1.00	1.00	0.98	1.00	1.00	0.96
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	3539	1544	1770	3539	1544	1770	3539	1544	3433	3539	1518
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	3539	1544	1770	3539	1544	1770	3539	1544	3433	3539	1518
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	108	284	165	27	435	130	218	328	65	120	275	296
RTOR Reduction (vph)	0	0	105	0	0	88	0	0	52	0	0	245
Lane Group Flow (vph)	108	284	60	27	435	42	218	328	13	120	275	51
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Actuated Green, G (s)	6.1	25.5	25.5	3.2	22.6	22.6	11.4	14.4	14.4	9.1	12.1	12.1
Effective Green, g (s)	6.1	25.5	25.5	3.2	22.6	22.6	11.4	14.4	14.4	9.1	12.1	12.1
Actuated g/C Ratio	0.09	0.36	0.36	0.05	0.32	0.32	0.16	0.21	0.21	0.13	0.17	0.17
Clearance Time (s)	4.0	4.9	4.9	4.0	4.9	4.9	4.0	4.9	4.9	4.0	4.9	4.9
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	299	1289	562	81	1143	498	288	728	318	446	612	262
v/s Ratio Prot	c0.03	0.08		0.02	c0.12		c0.12	0.09		0.03	c0.08	
v/s Ratio Perm			0.04			0.03			0.01			0.03
v/c Ratio	0.36	0.22	0.11	0.33	0.38	0.08	0.76	0.45	0.04	0.27	0.45	0.20
Uniform Delay, d1	30.1	15.4	14.7	32.4	18.3	16.5	28.0	24.3	22.3	27.5	26.0	24.8
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.7	0.4	0.4	2.4	1.0	0.3	10.8	0.4	0.1	0.3	0.5	0.4
Delay (s)	30.9	15.8	15.1	34.8	19.3	16.8	38.8	24.8	22.3	27.8	26.5	25.1
Level of Service	C	B	B	C	B	B	D	C	C	C	C	C
Approach Delay (s)		18.5			19.4			29.5			26.1	
Approach LOS		B			B			C			C	
Intersection Summary												
HCM Average Control Delay			23.6				HCM Level of Service			C		
HCM Volume to Capacity ratio			0.48									
Actuated Cycle Length (s)			70.0				Sum of lost time (s)			17.8		
Intersection Capacity Utilization			53.8%				ICU Level of Service			A		
Analysis Period (min)			15									













c Critical Lane Group

Queues

Year 2035 Plus Project-AM

33: Bethel Ave & Kamm Ave

Mitigated

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	150	289	143	45	334	123	305	295	117	120	345	80
v/c Ratio	0.59	0.21	0.21	0.27	0.32	0.22	0.55	0.36	0.26	0.54	0.58	0.24
Control Delay	42.4	19.0	5.5	35.2	23.7	6.5	32.5	25.6	6.3	39.5	32.3	8.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	42.4	19.0	5.5	35.2	23.7	6.5	32.5	25.6	6.3	39.5	32.3	8.5
Queue Length 50th (ft)	64	50	0	20	65	0	68	64	0	53	78	0
Queue Length 95th (ft)	#162	95	43	49	108	39	99	87	35	102	111	32
Internal Link Dist (ft)		939			1312			473			1475	
Turn Bay Length (ft)	150		100	150		100	150		100	150		100
Base Capacity (vph)	253	1384	690	191	1028	547	774	1033	533	260	762	404
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.59	0.21	0.21	0.24	0.32	0.22	0.39	0.29	0.22	0.46	0.45	0.20

Intersection Summary

























95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis

33: Bethel Ave & Kamm Ave

Year 2035 Plus Project-AM

Mitigated

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	138	266	132	41	307	113	281	271	108	110	317	74
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.9	4.9	4.0	4.9	4.9	4.0	4.9	4.9	4.0	4.9	4.9
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	0.97	0.95	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.97	1.00	1.00	1.00	1.00	1.00	0.97	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3539	1543	1770	3539	1583	3433	3539	1543	1770	3539	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1770	3539	1543	1770	3539	1583	3433	3539	1543	1770	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	150	289	143	45	334	123	305	295	117	120	345	80
RTOR Reduction (vph)	0	0	92	0	0	89	0	0	90	0	0	66
Lane Group Flow (vph)	150	289	51	45	334	34	305	295	27	120	345	14
Confl. Peds. (#/hr)			10	10			10		10			
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Actuated Green, G (s)	10.7	26.9	26.9	4.8	21.0	21.0	12.1	17.3	17.3	8.2	13.4	13.4
Effective Green, g (s)	10.7	26.9	26.9	4.8	21.0	21.0	12.1	17.3	17.3	8.2	13.4	13.4
Actuated g/C Ratio	0.14	0.36	0.36	0.06	0.28	0.28	0.16	0.23	0.23	0.11	0.18	0.18
Clearance Time (s)	4.0	4.9	4.9	4.0	4.9	4.9	4.0	4.9	4.9	4.0	4.9	4.9
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	253	1269	553	113	991	443	554	816	356	194	632	283
v/s Ratio Prot	c0.08	0.08		0.03	c0.09		c0.09	c0.08		0.07	c0.10	
v/s Ratio Perm			0.03			0.02			0.02			0.01
v/c Ratio	0.59	0.23	0.09	0.40	0.34	0.08	0.55	0.36	0.08	0.62	0.55	0.05
Uniform Delay, d1	30.1	16.8	16.0	33.7	21.5	19.9	28.9	24.2	22.6	31.9	28.0	25.5
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	3.7	0.4	0.3	2.3	0.9	0.3	1.2	0.3	0.1	5.8	1.0	0.1
Delay (s)	33.8	17.2	16.3	36.0	22.4	20.2	30.1	24.5	22.7	37.7	29.0	25.6
Level of Service	C	B	B	D	C	C	C	C	C	D	C	C
Approach Delay (s)		21.3			23.1			26.6			30.4	
Approach LOS		C			C			C			C	

Intersection Summary

HCM Average Control Delay	25.4	HCM Level of Service	C
HCM Volume to Capacity ratio	0.51		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	22.7
Intersection Capacity Utilization	48.3%	ICU Level of Service	A
Analysis Period (min)	15		

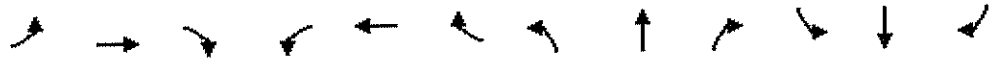
c Critical Lane Group

Queues

Year 2035 Plus Project-AM

34: Kamm Ave & Academy Ave

Mitigated



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	48	195	70	109	367	100	163	223	96	35	275	78
v/c Ratio	0.19	0.26	0.18	0.39	0.34	0.19	0.47	0.19	0.17	0.14	0.37	0.20
Control Delay	26.9	21.2	7.6	29.8	18.1	6.5	28.3	15.7	5.9	26.7	22.1	7.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	26.9	21.2	7.6	29.8	18.1	6.5	28.3	15.7	5.9	26.7	22.1	7.7
Queue Length 50th (ft)	14	30	0	33	42	0	47	21	0	10	42	0
Queue Length 95th (ft)	48	61	29	#93	107	34	#122	64	31	38	82	30
Internal Link Dist (ft)	2997				2339				887		4138	
Turn Bay Length (ft)	200		150		200		150		200		150	
Base Capacity (vph)	317	1266	597	317	1362	646	435	1661	776	317	1361	642
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.15	0.15	0.12	0.34	0.27	0.15	0.37	0.13	0.12	0.11	0.20	0.12

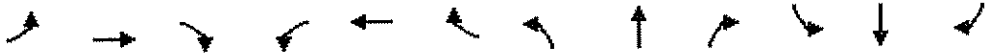












Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis 34: Kamm Ave & Academy Ave

Year 2035 Plus Project-AM

Mitigated

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	44	179	64	100	338	92	150	205	88	32	253	72
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.9	4.9	4.0	4.9	4.9	4.0	4.9	4.9	4.0	4.9	4.9
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00	0.96	1.00	1.00	0.98	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3539	1548	1770	3539	1525	1770	3539	1548	1770	3539	1548
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1770	3539	1548	1770	3539	1525	1770	3539	1548	1770	3539	1548
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	48	195	70	109	367	100	163	223	96	35	275	78
RTOR Reduction (vph)	0	0	54	0	0	72	0	0	66	0	0	61
Lane Group Flow (vph)	48	195	16	109	367	28	163	223	30	35	275	17
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Actuated Green, G (s)	2.5	12.5	12.5	5.6	15.6	15.6	7.3	17.2	17.2	2.4	12.3	12.3
Effective Green, g (s)	2.5	12.5	12.5	5.6	15.6	15.6	7.3	17.2	17.2	2.4	12.3	12.3
Actuated g/C Ratio	0.05	0.23	0.23	0.10	0.28	0.28	0.13	0.31	0.31	0.04	0.22	0.22
Clearance Time (s)	4.0	4.9	4.9	4.0	4.9	4.9	4.0	4.9	4.9	4.0	4.9	4.9
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	80	797	349	179	995	429	233	1097	480	77	784	343
v/s Ratio Prot	0.03	0.06		c0.06	c0.10		c0.09	0.06		0.02	c0.08	
v/s Ratio Perm			0.01			0.02			0.02			0.01
v/c Ratio	0.60	0.24	0.05	0.61	0.37	0.07	0.70	0.20	0.06	0.45	0.35	0.05
Uniform Delay, d1	26.0	17.6	16.8	23.9	16.0	14.6	23.1	14.1	13.5	25.9	18.2	17.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	11.5	0.2	0.1	5.8	0.2	0.1	8.8	0.1	0.1	4.2	0.3	0.1
Delay (s)	37.6	17.8	16.9	29.7	16.2	14.7	31.9	14.2	13.5	30.1	18.5	17.1
Level of Service	D	B	B	C	B	B	C	B	B	C	B	B
Approach Delay (s)		20.6			18.5			20.0			19.3	
Approach LOS		C			B			C			B	

Intersection Summary

HCM Average Control Delay	19.5	HCM Level of Service	B
HCM Volume to Capacity ratio	0.47		
Actuated Cycle Length (s)	55.5	Sum of lost time (s)	17.8
Intersection Capacity Utilization	45.7%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Queues
35: SR 99 NB Off & Bethel Ave











Year 2035 Plus Project-AM
Mitigated



Lane Group	WBL	WBR	NBT	SBT
Lane Group Flow (vph)	99	295	488	547
v/c Ratio	0.23	0.49	0.56	0.63
Control Delay	13.0	5.4	10.1	11.3
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	13.0	5.4	10.1	11.3
Queue Length 50th (ft)	13	0	52	61
Queue Length 95th (ft)	48	42	160	187
Internal Link Dist (ft)	341		745	584
Turn Bay Length (ft)				
Base Capacity (vph)	1412	1286	1863	1863
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.07	0.23	0.26	0.29
Intersection Summary				

HCM Signalized Intersection Capacity Analysis 35: SR 99 NB Off & Bethel Ave

Year 2035 Plus Project-AM
Mitigated

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	91	271	449	0	0	503
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.9	4.9	4.9			4.9
Lane Util. Factor	1.00	1.00	1.00			1.00
Frpb, ped/bikes	1.00	0.98	1.00			1.00
Flpb, ped/bikes	1.00	1.00	1.00			1.00
Frt	1.00	0.85	1.00			1.00
Flt Protected	0.95	1.00	1.00			1.00
Satd. Flow (prot)	1770	1554	1863			1863
Flt Permitted	0.95	1.00	1.00			1.00
Satd. Flow (perm)	1770	1554	1863			1863
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	99	295	488	0	0	547
RTOR Reduction (vph)	0	223	0	0	0	0
Lane Group Flow (vph)	99	72	488	0	0	547
Confl. Peds. (#/hr)	10	10		10	10	
Turn Type	Perm					
Protected Phases	8		2			6
Permitted Phases		8				
Actuated Green, G (s)	8.6	8.6	16.6			16.6
Effective Green, g (s)	8.6	8.6	16.6			16.6
Actuated g/C Ratio	0.25	0.25	0.47			0.47
Clearance Time (s)	4.9	4.9	4.9			4.9
Vehicle Extension (s)	3.0	3.0	3.0			3.0
Lane Grp Cap (vph)	435	382	884			884
v/s Ratio Prot	c0.06		0.26			c0.29
v/s Ratio Perm		0.05				
v/c Ratio	0.23	0.19	0.55			0.62
Uniform Delay, d1	10.5	10.4	6.6			6.8
Progression Factor	1.00	1.00	1.00			1.00
Incremental Delay, d2	0.3	0.2	0.7			1.3
Delay (s)	10.8	10.7	7.3			8.1
Level of Service	B	B	A			A
Approach Delay (s)	10.7		7.3			8.1
Approach LOS	B		A			A
Intersection Summary						
HCM Average Control Delay		8.6		HCM Level of Service		A
HCM Volume to Capacity ratio		0.49				
Actuated Cycle Length (s)		35.0		Sum of lost time (s)		9.8
Intersection Capacity Utilization		49.6%		ICU Level of Service		A
Analysis Period (min)		15				

c Critical Lane Group

Queues
36: Parkway Drive & Bethel Ave

Year 2035 Plus Project-AM

Mitigated



Lane Group	EBL	EBT	EBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	134	25	58	50	357	185	461
v/c Ratio	0.37	0.07	0.18	0.19	0.49	0.31	0.43
Control Delay	21.5	19.2	8.2	23.7	15.7	21.4	10.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	21.5	19.2	8.2	23.7	15.7	21.4	10.9
Queue Length 50th (ft)	29	5	0	11	74	21	48
Queue Length 95th (ft)	91	26	26	48	177	63	221
Internal Link Dist (ft)		474			214		745
Turn Bay Length (ft)	200		73	200		200	
Base Capacity (vph)	783	787	671	431	1669	987	1607
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.17	0.03	0.09	0.12	0.21	0.19	0.29





















Intersection Summary

HCM Signalized Intersection Capacity Analysis

36: Parkway Drive & Bethel Ave

Year 2035 Plus Project-AM

Mitigated

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	123	23	53	0	0	0	46	327	2	170	306	118
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.9	4.9				4.0	4.9		4.0	4.9	
Lane Util. Factor	1.00	1.00	1.00				1.00	1.00		0.97	1.00	
Frpb, ped/bikes	1.00	1.00	0.96				1.00	1.00		1.00	0.99	
Flpb, ped/bikes	1.00	1.00	1.00				1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85				1.00	1.00		1.00	0.96	
Flt Protected	0.95	1.00	1.00				0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1863	1527				1770	1861		3433	1767	
Flt Permitted	0.95	1.00	1.00				0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	1863	1527				1770	1861		3433	1767	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	134	25	58	0	0	0	50	355	2	185	333	128
RTOR Reduction (vph)	0	0	50	0	0	0	0	0	0	0	15	0
Lane Group Flow (vph)	134	25	8	0	0	0	50	357	0	185	446	0
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Turn Type	Prot		Perm				Prot			Prot		
Protected Phases	7	4					5	2		1	6	
Permitted Phases			4									
Actuated Green, G (s)	8.3	7.4	7.4				2.7	21.6		8.5	27.4	
Effective Green, g (s)	8.3	7.4	7.4				2.7	21.6		8.5	27.4	
Actuated g/C Ratio	0.16	0.14	0.14				0.05	0.42		0.17	0.53	
Clearance Time (s)	4.0	4.9	4.9				4.0	4.9		4.0	4.9	
Vehicle Extension (s)	3.0	3.0	3.0				3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	286	269	220				93	784		569	944	
v/s Ratio Prot	c0.08	0.01					c0.03	0.19		0.05	c0.25	
v/s Ratio Perm			0.01									
v/c Ratio	0.47	0.09	0.04				0.54	0.46		0.33	0.47	
Uniform Delay, d1	19.5	19.0	18.9				23.7	10.6		18.9	7.4	
Progression Factor	1.00	1.00	1.00				1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.2	0.2	0.1				5.9	0.4		0.3	0.4	
Delay (s)	20.7	19.2	19.0				29.6	11.1		19.2	7.8	
Level of Service	C	B	B				C	B		B	A	
Approach Delay (s)		20.1			0.0			13.3			11.1	
Approach LOS		C			A			B			B	
Intersection Summary												
HCM Average Control Delay			13.3				HCM Level of Service			B		
HCM Volume to Capacity ratio			0.48									
Actuated Cycle Length (s)			51.3				Sum of lost time (s)			12.9		
Intersection Capacity Utilization			44.6%				ICU Level of Service			A		
Analysis Period (min)			15									

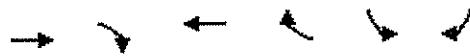
c Critical Lane Group

Queues

Year 2035 Plus Project-PM

16: Mountain View Ave & SR 99 SB ramps

Mitigated



Lane Group	EBT	EBR	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	3350	475	2157	271	736	950
v/c Ratio	1.03	0.30	0.66	0.18	0.88	1.07
Control Delay	41.1	0.5	8.8	0.2	49.4	87.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	41.1	0.5	8.8	0.2	49.4	87.4
Queue Length 50th (ft)	~838	0	205	0	232	~291
Queue Length 95th (ft)	#926	0	213	0	#334	#398
Internal Link Dist (ft)	1057		1034			
Turn Bay Length (ft)		200		250		200
Base Capacity (vph)	3268	1560	3268	1544	836	886
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	1.03	0.30	0.66	0.18	0.88	1.07

Intersection Summary



















- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis

16: Mountain View Ave & SR 99 SB ramps

Year 2035 Plus Project-PM

Mitigated

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	3082	437	0	1984	249	0	0	0	677	0	874
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.9	4.0		4.9	4.0				4.9		4.9
Lane Util. Factor		0.91	1.00		0.91	1.00				0.97		0.76
Frpb, ped/bikes		1.00	0.99		1.00	0.98				1.00		0.95
Flpb, ped/bikes		1.00	1.00		1.00	1.00				0.98		1.00
Frt		1.00	0.85		1.00	0.85				1.00		0.85
Flt Protected		1.00	1.00		1.00	1.00				0.95		1.00
Satd. Flow (prot)		5036	1560		5036	1544				3304		3427
Flt Permitted		1.00	1.00		1.00	1.00				0.95		1.00
Satd. Flow (perm)		5036	1560		5036	1544				3304		3427
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	3350	475	0	2157	271	0	0	0	736	0	950
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	19
Lane Group Flow (vph)	0	3350	475	0	2157	271	0	0	0	736	0	931
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Heavy Vehicles (%)	2%	3%	2%	2%	3%	2%	2%	2%	2%	4%	2%	2%
Turn Type		Free			Free					custom		custom
Protected Phases		4			8							
Permitted Phases		Free			Free					6		6
Actuated Green, G (s)		64.9			64.9					25.3		25.3
Effective Green, g (s)		64.9			64.9					25.3		25.3
Actuated g/C Ratio		0.65			0.65					0.25		0.25
Clearance Time (s)		4.9			4.9					4.9		4.9
Vehicle Extension (s)		3.0			3.0					3.0		3.0
Lane Grp Cap (vph)		3268	1560		3268	1544				836		867
v/s Ratio Prot		c0.67			0.43							
v/s Ratio Perm		0.30			0.18					0.22		c0.27
v/c Ratio		1.03	0.30		0.66	0.18				0.88		1.07
Uniform Delay, d1		17.5	0.0		10.8	0.0				35.9		37.4
Progression Factor		1.00	1.00		0.72	1.00				1.00		1.00
Incremental Delay, d2		22.6	0.5		0.9	0.2				12.8		52.5
Delay (s)		40.1	0.5		8.7	0.2				48.7		89.9
Level of Service		D	A		A	A				D		F
Approach Delay (s)		35.2			7.7			0.0				71.9
Approach LOS		D			A			A				E
Intersection Summary												
HCM Average Control Delay		34.6			HCM Level of Service			C				
HCM Volume to Capacity ratio		1.04										
Actuated Cycle Length (s)		100.0			Sum of lost time (s)			9.8				
Intersection Capacity Utilization		87.0%			ICU Level of Service			E				
Analysis Period (min)		15										
c Critical Lane Group												

Queues

Year 2035 Plus Project-PM

18: Mountain View Ave & SR 99 NB ramps

Mitigated



Lane Group	EBT	EBR	WBT	WBR	NBL	NBR
Lane Group Flow (vph)	3068	1017	2049	891	378	217
v/c Ratio	0.87	0.66	0.58	0.56	0.56	0.70
Control Delay	5.6	0.7	8.4	1.5	39.6	50.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	5.6	0.7	8.4	1.5	39.6	50.2
Queue Length 50th (ft)	140	0	210	0	112	128
Queue Length 95th (ft)	m139	m0	246	0	160	#227
Internal Link Dist (ft)	1034		1005			
Turn Bay Length (ft)		250		250		200
Base Capacity (vph)	3530	1544	3530	1583	677	310
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.87	0.66	0.58	0.56	0.56	0.70

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.













Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis 18: Mountain View Ave & SR 99 NB ramps

Year 2035 Plus Project-PM

Mitigated

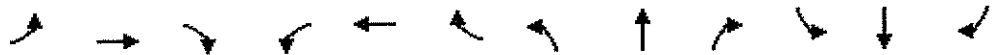
												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑	↑		↑↑↑	↑	↑↑		↑			
Volume (vph)	0	2823	936	0	1885	820	348	0	200	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.9	4.0		4.9	4.0	4.9		4.9			
Lane Util. Factor		0.91	1.00		0.91	1.00	0.97		1.00			
Frpb, ped/bikes		1.00	0.98		1.00	1.00	1.00		0.97			
Flpb, ped/bikes		1.00	1.00		1.00	1.00	0.98		1.00			
Frt		1.00	0.85		1.00	0.85	1.00		0.85			
Flt Protected		1.00	1.00		1.00	1.00	0.95		1.00			
Satd. Flow (prot)		5036	1544		5036	1583	3369		1535			
Flt Permitted		1.00	1.00		1.00	1.00	0.95		1.00			
Satd. Flow (perm)		5036	1544		5036	1583	3369		1535			
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	3068	1017	0	2049	891	378	0	217	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	2	0	0	0
Lane Group Flow (vph)	0	3068	1017	0	2049	891	378	0	215	0	0	0
Confl. Peds. (#/hr)			10	10			10		10			
Heavy Vehicles (%)	2%	3%	2%	2%	3%	2%	2%	2%	2%	2%	2%	2%
Turn Type		Free				Free	custom		custom			
Protected Phases		4			8							
Permitted Phases		Free				Free	2		2			
Actuated Green, G (s)		70.1	100.0		70.1	100.0	20.1		20.1			
Effective Green, g (s)		70.1	100.0		70.1	100.0	20.1		20.1			
Actuated g/C Ratio		0.70	1.00		0.70	1.00	0.20		0.20			
Clearance Time (s)		4.9			4.9		4.9		4.9			
Vehicle Extension (s)		3.0			3.0		3.0		3.0			
Lane Grp Cap (vph)		3530	1544		3530	1583	677		309			
v/s Ratio Prot		0.61			0.41							
v/s Ratio Perm		0.66				0.56	0.11		0.14			
v/c Ratio		0.87	0.66		0.58	0.56	0.56		0.70			
Uniform Delay, d1		11.4	0.0		7.5	0.0	36.0		37.1			
Progression Factor		0.41	1.00		1.00	1.00	1.00		1.00			
Incremental Delay, d2		0.8	0.5		0.7	1.5	3.3		12.3			
Delay (s)		5.5	0.5		8.2	1.5	39.3		49.4			
Level of Service		A	A		A	A	D		D			
Approach Delay (s)		4.2			6.2			43.0			0.0	
Approach LOS		A			A			D			A	
Intersection Summary												
HCM Average Control Delay		8.0			HCM Level of Service			A				
HCM Volume to Capacity ratio		0.81										
Actuated Cycle Length (s)		100.0			Sum of lost time (s)			4.9				
Intersection Capacity Utilization		76.1%			ICU Level of Service			D				
Analysis Period (min)		15										
c Critical Lane Group												

Queues

Year 2035 Plus Project-PM

20: Mountain View Ave & Golden State Blvd

Mitigated



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	1195	1691	400	84	1391	475	424	752	29	577	810	1125
v/c Ratio	1.11	0.65	0.27	0.47	1.08	0.54	1.16	0.93	0.06	1.10	0.78	0.92
Control Delay	109.7	27.8	5.9	78.2	101.7	22.4	153.9	80.8	19.6	125.2	62.2	26.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	109.7	27.8	5.9	78.2	101.7	22.4	153.9	80.8	19.6	125.2	62.2	26.4
Queue Length 50th (ft)	~687	432	30	41	~556	96	~252	269	1	~328	277	177
Queue Length 95th (ft)	#825	483	62	72	#653	160	#363	#349	18	#450	329	#342
Internal Link Dist (ft)		1005			2144			775			1639	
Turn Bay Length (ft)	250		200	200		200	200		200	180		200
Base Capacity (vph)	1077	2606	1486	183	1287	884	366	811	449	526	1049	1226
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.11	0.65	0.27	0.46	1.08	0.54	1.16	0.93	0.06	1.10	0.77	0.92

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

























Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis

20: Mountain View Ave & Golden State Blvd

Year 2035 Plus Project-PM

Mitigated

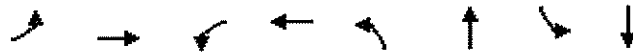
												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	1099	1556	368	77	1280	437	390	692	27	531	745	1035
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.9	4.9	4.0	4.9	4.9	4.0	4.9	4.9	4.0	4.9	4.9
Lane Util. Factor	0.97	0.91	0.88	0.97	0.91	0.88	0.97	0.91	0.88	0.97	0.91	0.88
Frpb, ped/bikes	1.00	1.00	0.93	1.00	1.00	0.96	1.00	1.00	0.96	1.00	1.00	0.96
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	5036	2603	3433	5036	2676	3433	5085	2676	3433	5085	2676
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	5036	2603	3433	5036	2676	3433	5085	2676	3433	5085	2676
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1195	1691	400	84	1391	475	424	752	29	577	810	1125
RTOR Reduction (vph)	0	0	139	0	0	201	0	0	23	0	0	675
Lane Group Flow (vph)	1195	1691	261	84	1391	274	424	752	6	577	810	450
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Heavy Vehicles (%)	2%	3%	2%	2%	3%	2%	2%	2%	2%	2%	2%	2%
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Actuated Green, G (s)	47.0	77.6	77.6	7.7	38.3	38.3	16.0	23.8	23.8	23.0	30.8	30.8
Effective Green, g (s)	47.0	77.6	77.6	7.7	38.3	38.3	16.0	23.8	23.8	23.0	30.8	30.8
Actuated g/C Ratio	0.31	0.52	0.52	0.05	0.26	0.26	0.11	0.16	0.16	0.15	0.21	0.21
Clearance Time (s)	4.0	4.9	4.9	4.0	4.9	4.9	4.0	4.9	4.9	4.0	4.9	4.9
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	1076	2607	1348	176	1287	684	366	807	425	527	1045	550
v/s Ratio Prot	c0.35	0.34		0.02	c0.28		0.12	c0.15		c0.17	0.16	
v/s Ratio Perm			0.10			0.10			0.00			0.17
v/c Ratio	1.11	0.65	0.19	0.48	1.08	0.40	1.16	0.93	0.01	1.09	0.78	0.82
Uniform Delay, d1	51.5	26.3	19.4	69.1	55.8	46.3	67.0	62.2	53.2	63.5	56.3	56.9
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	63.0	0.6	0.1	2.0	50.0	0.4	97.6	17.3	0.0	67.6	3.7	9.2
Delay (s)	114.5	26.8	19.4	71.2	105.8	46.7	164.5	79.6	53.2	131.0	59.9	66.0
Level of Service	F	C	B	E	F	D	F	E	D	F	E	E
Approach Delay (s)		57.8			89.9			108.8			79.0	
Approach LOS		E			F			F			E	
Intersection Summary												
HCM Average Control Delay			77.6			HCM Level of Service				E		
HCM Volume to Capacity ratio			1.07									
Actuated Cycle Length (s)			149.9			Sum of lost time (s)				17.8		
Intersection Capacity Utilization			99.4%			ICU Level of Service				F		
Analysis Period (min)			15									
c Critical Lane Group												

Queues

Year 2035 Plus Project-PM

21: Mountain View Ave & Bethel Ave.

Mitigated












Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	196	1963	76	1289	80	189	22	221
v/c Ratio	0.75	0.91	0.55	0.70	0.57	0.36	0.18	0.53
Control Delay	60.2	26.6	62.0	21.5	63.4	20.9	49.6	18.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	60.2	26.6	62.0	21.5	63.4	20.9	49.6	18.6
Queue Length 50th (ft)	121	580	48	322	50	23	14	19
Queue Length 95th (ft)	#242	#923	#113	477	#122	61	40	55
Internal Link Dist (ft)		2167		703		1432		1285
Turn Bay Length (ft)	200		200		200		200	
Base Capacity (vph)	296	2164	148	1895	148	668	148	670
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.66	0.91	0.51	0.68	0.54	0.28	0.15	0.33

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis 21: Mountain View Ave & Bethel Ave.

Year 2035 Plus Project-PM
Mitigated

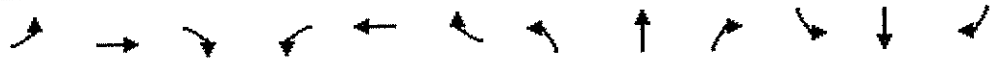
												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	180	1707	99	70	1172	14	74	77	97	20	55	148
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.9		4.0	4.9		4.0	4.9		4.0	4.9	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	0.98		1.00	0.98	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.99		1.00	1.00		1.00	0.92		1.00	0.89	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3472		1770	3498		1770	3189		1770	3082	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3472		1770	3498		1770	3189		1770	3082	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	196	1855	108	76	1274	15	80	84	105	22	60	161
RTOR Reduction (vph)	0	3	0	0	0	0	0	91	0	0	145	0
Lane Group Flow (vph)	196	1960	0	76	1289	0	80	98	0	22	76	0
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Heavy Vehicles (%)	2%	3%	2%	2%	3%	2%	2%	2%	2%	2%	2%	2%
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	14.4	60.5		6.1	52.2		6.1	13.4		2.9	10.2	
Effective Green, g (s)	14.4	60.5		6.1	52.2		6.1	13.4		2.9	10.2	
Actuated g/C Ratio	0.14	0.60		0.06	0.52		0.06	0.13		0.03	0.10	
Clearance Time (s)	4.0	4.9		4.0	4.9		4.0	4.9		4.0	4.9	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	253	2086		107	1813		107	424		51	312	
v/s Ratio Prot	c0.11	c0.56		0.04	0.37		c0.05	c0.03		0.01	0.02	
v/s Ratio Perm												
v/c Ratio	0.77	0.94		0.71	0.71		0.75	0.23		0.43	0.24	
Uniform Delay, d1	41.6	18.4		46.4	18.5		46.5	39.0		48.1	41.7	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	13.7	9.0		19.8	1.3		24.4	0.3		5.8	0.4	
Delay (s)	55.3	27.4		66.3	19.8		71.0	39.3		53.8	42.1	
Level of Service	E	C		E	B		E	D		D	D	
Approach Delay (s)		29.9			22.4			48.7			43.2	
Approach LOS		C			C			D			D	
Intersection Summary												
HCM Average Control Delay		29.4					HCM Level of Service			C		
HCM Volume to Capacity ratio		0.83										
Actuated Cycle Length (s)		100.7					Sum of lost time (s)			17.8		
Intersection Capacity Utilization		82.0%					ICU Level of Service			E		
Analysis Period (min)		15										
c Critical Lane Group												

Queues

Year 2035 Plus Project-PM

22: Mountain View Ave & Academy Ave

Mitigated



























Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	225	1641	122	112	1087	107	99	335	67	48	122	188
v/c Ratio	0.61	0.94	0.15	0.75	0.65	0.14	0.68	0.88	0.18	0.36	0.43	0.48
Control Delay	49.1	35.5	6.1	74.7	22.6	3.9	68.3	63.8	10.2	51.1	41.1	9.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	49.1	35.5	6.1	74.7	22.6	3.9	68.3	63.8	10.2	51.1	41.1	9.7
Queue Length 50th (ft)	71	525	12	71	285	0	63	213	0	29	68	0
Queue Length 95th (ft)	110	#704	43	#164	362	30	#142	#382	36	66	122	57
Internal Link Dist (ft)		3716			2312			899			1126	
Turn Bay Length (ft)	200		200	200		200	200		200	200		200
Base Capacity (vph)	397	1753	803	149	1671	781	149	384	369	149	374	458
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.57	0.94	0.15	0.75	0.65	0.14	0.66	0.87	0.18	0.32	0.33	0.41

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis 22: Mountain View Ave & Academy Ave










Year 2035 Plus Project-PM
Mitigated

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	207	1510	112	103	1000	98	91	308	62	44	112	173
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.9	4.9	4.0	4.9	4.9	4.0	4.9	4.9	4.0	4.9	4.9
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00	0.97	1.00	1.00	0.97	1.00	1.00	0.97	1.00	1.00	0.97
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	3539	1536	1770	3539	1536	1770	1863	1536	1770	1863	1536
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	3539	1536	1770	3539	1536	1770	1863	1536	1770	1863	1536
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	225	1641	122	112	1087	107	99	335	67	48	122	188
RTOR Reduction (vph)	0	0	44	0	0	57	0	0	54	0	0	156
Lane Group Flow (vph)	225	1641	78	112	1087	50	99	335	13	48	122	32
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Actuated Green, G (s)	10.2	47.3	47.3	8.0	45.1	45.1	7.8	19.5	19.5	4.6	16.3	16.3
Effective Green, g (s)	10.2	47.3	47.3	8.0	45.1	45.1	7.8	19.5	19.5	4.6	16.3	16.3
Actuated g/C Ratio	0.10	0.49	0.49	0.08	0.46	0.46	0.08	0.20	0.20	0.05	0.17	0.17
Clearance Time (s)	4.0	4.9	4.9	4.0	4.9	4.9	4.0	4.9	4.9	4.0	4.9	4.9
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	360	1722	747	146	1642	713	142	374	308	84	312	258
v/s Ratio Prot	0.07	c0.46		c0.06	0.31		c0.06	c0.18		0.03	0.07	
v/s Ratio Perm			0.05			0.03			0.01			0.02
v/c Ratio	0.62	0.95	0.10	0.77	0.66	0.07	0.70	0.90	0.04	0.57	0.39	0.12
Uniform Delay, d1	41.7	23.9	13.5	43.7	20.2	14.4	43.5	37.9	31.3	45.3	36.0	34.4
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	3.4	12.3	0.1	21.1	1.0	0.0	13.9	22.9	0.1	9.1	0.8	0.2
Delay (s)	45.0	36.2	13.6	64.8	21.2	14.5	57.4	60.8	31.4	54.4	36.8	34.6
Level of Service	D	D	B	E	C	B	E	E	C	D	D	C
Approach Delay (s)		35.8			24.4			56.2			38.0	
Approach LOS		D			C			E			D	
Intersection Summary												
HCM Average Control Delay			34.9									C
HCM Volume to Capacity ratio			0.87									
Actuated Cycle Length (s)			97.2							12.9		
Intersection Capacity Utilization			81.8%									D
Analysis Period (min)			15									

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis 25: Amber Ave & Golden State Blvd

Year 2035 Plus Project-PM
Mitigated

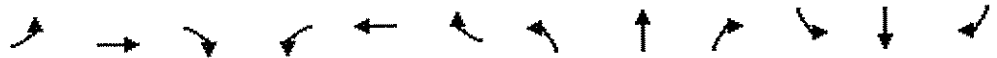
						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	0	410	0	1105	939	251
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Hourly flow rate (vph)	0	466	0	1256	1067	285
Pedestrians	10			10	10	
Lane Width (ft)	12.0			12.0	12.0	
Walking Speed (ft/s)	4.0			4.0	4.0	
Percent Blockage	1			1	1	
Right turn flare (veh)						
Median type				None	None	
Median storage veh						
Upstream signal (ft)					855	
pX, platoon unblocked	0.83	0.83	0.83			
vC, conflicting volume	1858	696	1362			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1618	214	1019			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	28	100			
cM capacity (veh/h)	77	643	555			
Direction, Lane #	EB 1	NB 1	NB 2	SB 1	SB 2	
Volume Total	466	628	628	711	641	
Volume Left	0	0	0	0	0	
Volume Right	466	0	0	0	285	
cSH	643	1700	1700	1700	1700	
Volume to Capacity	0.72	0.37	0.37	0.42	0.38	
Queue Length 95th (ft)	154	0	0	0	0	
Control Delay (s)	23.9	0.0	0.0	0.0	0.0	
Lane LOS	C					
Approach Delay (s)	23.9	0.0		0.0		
Approach LOS	C					
Intersection Summary						
Average Delay		3.6				
Intersection Capacity Utilization		67.3%		ICU Level of Service		C
Analysis Period (min)		15				

Queues

Year 2035 Plus Project-PM

32: Bethel Ave & Golden State Blvd

Mitigated



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	420	439	162	156	430	331	108	501	26	318	574	375
v/c Ratio	0.74	0.42	0.28	0.53	0.41	0.48	0.57	0.72	0.08	0.65	0.64	0.59
Control Delay	44.2	28.0	6.1	36.9	25.4	6.9	49.8	39.7	11.3	43.1	33.7	9.0
Queue Delay	0.0	0.1	0.0	44.8	3.4	1.4	0.0	0.0	0.0	0.6	0.0	0.0
Total Delay	44.2	28.2	6.1	81.7	28.8	8.4	49.8	39.7	11.3	43.7	33.7	9.0
Queue Length 50th (ft)	116	107	0	66	73	19	58	141	0	87	156	17
Queue Length 95th (ft)	161	154	44	m121	137	62	108	180	20	129	201	86
Internal Link Dist (ft)		365			80			574			5552	
Turn Bay Length (ft)	100		100	100			200			200		100
Base Capacity (vph)	611	1049	570	295	1054	686	216	849	389	520	956	653
Starvation Cap Reductn	0	0	0	143	514	191	0	0	0	0	0	0
Spillback Cap Reductn	0	111	0	0	0	0	0	0	21	42	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.69	0.47	0.28	1.03	0.80	0.67	0.50	0.59	0.07	0.67	0.60	0.57

























Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis

32: Bethel Ave & Golden State Blvd

Year 2035 Plus Project-PM
Mitigated

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	370	386	143	137	378	291	95	441	23	280	505	330
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.9	4.9	4.0	4.9	4.9	4.0	4.9	4.9	4.0	4.9	4.9
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	0.97	0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.97	1.00	1.00	0.97	1.00	1.00	0.97	1.00	1.00	0.95
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	3539	1538	1770	3539	1538	1770	3539	1538	3433	3539	1508
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	3539	1538	1770	3539	1538	1770	3539	1538	3433	3539	1508
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	420	439	162	156	430	331	108	501	26	318	574	375
RTOR Reduction (vph)	0	0	116	0	0	231	0	0	21	0	0	251
Lane Group Flow (vph)	420	439	46	156	430	100	108	501	5	318	574	124
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Actuated Green, G (s)	14.9	25.8	25.8	15.0	25.9	25.9	8.4	17.7	17.7	13.7	23.0	23.0
Effective Green, g (s)	14.9	25.8	25.8	15.0	25.9	25.9	8.4	17.7	17.7	13.7	23.0	23.0
Actuated g/C Ratio	0.17	0.29	0.29	0.17	0.29	0.29	0.09	0.20	0.20	0.15	0.26	0.26
Clearance Time (s)	4.0	4.9	4.9	4.0	4.9	4.9	4.0	4.9	4.9	4.0	4.9	4.9
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	568	1015	441	295	1018	443	165	696	302	523	904	385
v/s Ratio Prot	c0.12	c0.12		c0.09	0.12		0.06	c0.14		0.09	c0.16	
v/s Ratio Perm			0.03			0.06			0.00			0.08
v/c Ratio	0.74	0.43	0.11	0.53	0.42	0.22	0.65	0.72	0.02	0.61	0.63	0.32
Uniform Delay, d1	35.7	26.1	23.6	34.3	26.0	24.4	39.4	33.8	29.1	35.6	29.8	27.2
Progression Factor	1.00	1.00	1.00	0.90	0.90	1.25	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	5.0	1.3	0.5	1.4	1.1	1.0	9.0	3.6	0.0	2.0	1.5	0.5
Delay (s)	40.7	27.5	24.1	32.2	24.5	31.5	48.4	37.4	29.2	37.6	31.2	27.7
Level of Service	D	C	C	C	C	C	D	D	C	D	C	C
Approach Delay (s)		32.4			28.3			38.9			31.8	
Approach LOS		C			C			D			C	
Intersection Summary												
HCM Average Control Delay			32.3				HCM Level of Service			C		
HCM Volume to Capacity ratio			0.59									
Actuated Cycle Length (s)			90.0				Sum of lost time (s)		12.9			
Intersection Capacity Utilization			59.2%				ICU Level of Service		B			
Analysis Period (min)			15									

c Critical Lane Group

Queues
33: Bethel Ave & Kamm Ave

Year 2035 Plus Project-PM
Mitigated



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	152	632	122	435	481	130
v/c Ratio	0.20	0.63	0.63	0.41	0.85	0.23
Control Delay	12.3	10.7	53.3	13.4	42.4	4.6
Queue Delay	0.9	8.6	0.0	0.2	1.0	0.0
Total Delay	13.2	19.3	53.3	13.6	43.4	4.6
Queue Length 50th (ft)	11	93	66	132	249	0
Queue Length 95th (ft)	51	346	#131	218	334	33
Internal Link Dist (ft)	80			95	528	
Turn Bay Length (ft)						
Base Capacity (vph)	756	999	207	1062	671	652
Starvation Cap Reductn	392	328	0	0	0	0
Spillback Cap Reductn	0	0	0	147	54	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.42	0.94	0.59	0.48	0.78	0.20

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis

33: Bethel Ave & Kamm Ave

Year 2035 Plus Project-PM
Mitigated

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↑	↑	↑	↑	↑
Volume (vph)	134	556	107	383	423	114
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.9	4.9	4.9	4.9	4.9	4.9
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frpb, ped/bikes	1.00	0.97	1.00	1.00	1.00	0.95
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	1863	1538	1770	1863	1770	1508
Flt Permitted	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (perm)	1863	1538	1770	1863	1770	1508
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	152	632	122	435	481	130
RTOR Reduction (vph)	0	376	0	0	0	88
Lane Group Flow (vph)	152	256	122	435	481	42
Confl. Peds. (#/hr)		10	10		10	10
Turn Type		Perm	Prot			Perm
Protected Phases	4		3	8	2	
Permitted Phases		4				2
Actuated Green, G (s)	36.5	36.5	9.9	51.3	28.9	28.9
Effective Green, g (s)	36.5	36.5	9.9	51.3	28.9	28.9
Actuated g/C Ratio	0.41	0.41	0.11	0.57	0.32	0.32
Clearance Time (s)	4.9	4.9	4.9	4.9	4.9	4.9
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	756	624	195	1062	568	484
v/s Ratio Prot	0.08		c0.07	c0.23	c0.27	
v/s Ratio Perm		0.17				0.03
v/c Ratio	0.20	0.41	0.63	0.41	0.85	0.09
Uniform Delay, d1	17.3	19.1	38.3	10.9	28.5	21.3
Progression Factor	0.60	3.70	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.5	1.8	6.1	1.2	11.2	0.1
Delay (s)	10.9	72.4	44.4	12.0	39.7	21.4
Level of Service	B	E	D	B	D	C
Approach Delay (s)	60.5			19.1	35.8	
Approach LOS	E			B	D	
Intersection Summary						
HCM Average Control Delay			40.9		HCM Level of Service	D
HCM Volume to Capacity ratio			0.58			
Actuated Cycle Length (s)			90.0		Sum of lost time (s)	9.8
Intersection Capacity Utilization			54.9%		ICU Level of Service	A
Analysis Period (min)			15			

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis 31: Kamm Ave (SR 99 NB On) & Bethel Ave

Year 2035 Plus Project-PM
Mitigated



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↰	↱	↰	↑	↑	↱
Volume (veh/h)	4	2	117	940	527	391
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	4	2	127	1022	573	425
Pedestrians	10			10	10	
Lane Width (ft)	12.0			12.0	12.0	
Walking Speed (ft/s)	4.0			4.0	4.0	
Percent Blockage	1			1	1	
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)				664	445	
pX, platoon unblocked	0.80	0.88	0.88			
vC, conflicting volume	1869	593	583			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1616	466	454			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	94	100	87			
cM capacity (veh/h)	77	515	962			
Direction, Lane #	EB 1	EB 2	NB 1	NB 2	SB 1	SB 2
Volume Total	4	2	127	1022	573	425
Volume Left	4	0	127	0	0	0
Volume Right	0	2	0	0	0	425
cSH	77	515	962	1700	1700	1700
Volume to Capacity	0.06	0.00	0.13	0.60	0.34	0.25
Queue Length 95th (ft)	4	0	11	0	0	0
Control Delay (s)	54.3	12.0	9.3	0.0	0.0	0.0
Lane LOS	F	B	A			
Approach Delay (s)	40.2		1.0		0.0	
Approach LOS	E					
Intersection Summary						
Average Delay			0.7			
Intersection Capacity Utilization			62.3%		ICU Level of Service	B
Analysis Period (min)			15			

Queues

Year 2035 Plus Project-PM

32: Bethel Ave & Golden State Blvd

Mitigated



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	372	426	230	212	477	243	107	751	76	261	692	412
v/c Ratio	0.77	0.50	0.42	0.84	0.56	0.44	0.56	0.85	0.17	0.67	0.69	0.58
Control Delay	41.0	25.8	6.3	59.3	26.7	6.3	41.2	35.5	6.8	39.4	27.4	6.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	41.0	25.8	6.3	59.3	26.7	6.3	41.2	35.5	6.8	39.4	27.4	6.9
Queue Length 50th (ft)	80	84	0	90	96	0	44	160	0	56	144	6
Queue Length 95th (ft)	#139	126	50	#201	142	52	#93	#245	29	#99	203	74
Internal Link Dist (ft)		365			939			574			5552	
Turn Bay Length (ft)	100		100	100		100	200			200		100
Base Capacity (vph)	490	844	543	253	848	555	202	915	456	392	1006	713
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.76	0.50	0.42	0.84	0.56	0.44	0.53	0.82	0.17	0.67	0.69	0.58

Intersection Summary

























95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis

32: Bethel Ave & Golden State Blvd

Year 2035 Plus Project-PM

Mitigated

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	342	392	212	195	439	224	98	691	70	240	637	379
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.9	4.9	4.0	4.9	4.9	4.0	4.9	4.9	4.0	4.9	4.9
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	0.97	0.95	1.00
Frbp, ped/bikes	1.00	1.00	0.98	1.00	1.00	0.98	1.00	1.00	0.98	1.00	1.00	0.96
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	3539	1544	1770	3539	1544	1770	3539	1544	3433	3539	1518
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	3539	1544	1770	3539	1544	1770	3539	1544	3433	3539	1518
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	372	426	230	212	477	243	107	751	76	261	692	412
RTOR Reduction (vph)	0	0	178	0	0	187	0	0	57	0	0	281
Lane Group Flow (vph)	372	426	52	212	477	56	107	751	19	261	692	131
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Actuated Green, G (s)	9.9	15.9	15.9	10.0	16.0	16.0	6.4	17.6	17.6	8.7	19.9	19.9
Effective Green, g (s)	9.9	15.9	15.9	10.0	16.0	16.0	6.4	17.6	17.6	8.7	19.9	19.9
Actuated g/C Ratio	0.14	0.23	0.23	0.14	0.23	0.23	0.09	0.25	0.25	0.12	0.28	0.28
Clearance Time (s)	4.0	4.9	4.9	4.0	4.9	4.9	4.0	4.9	4.9	4.0	4.9	4.9
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	486	804	351	253	809	353	162	890	388	427	1006	432
v/s Ratio Prot	c0.11	0.12		c0.12	c0.13		0.06	c0.21		0.08	c0.20	
v/s Ratio Perm			0.03			0.04			0.01			0.09
v/c Ratio	0.77	0.53	0.15	0.84	0.59	0.16	0.66	0.84	0.05	0.61	0.69	0.30
Uniform Delay, d1	28.9	23.8	21.6	29.2	24.1	21.6	30.7	24.9	19.9	29.0	22.3	19.6
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	7.1	2.5	0.9	20.8	3.1	0.9	9.7	7.4	0.1	2.6	2.0	0.4
Delay (s)	36.0	26.3	22.5	50.0	27.2	22.6	40.4	32.3	19.9	31.6	24.3	20.0
Level of Service	D	C	C	D	C	C	D	C	B	C	C	C
Approach Delay (s)		29.0			31.2			32.2			24.4	
Approach LOS		C			C			C			C	
Intersection Summary												
HCM Average Control Delay			28.7				HCM Level of Service			C		
HCM Volume to Capacity ratio			0.78									
Actuated Cycle Length (s)			70.0				Sum of lost time (s)			17.8		
Intersection Capacity Utilization			64.9%				ICU Level of Service			C		
Analysis Period (min)			15									













c Critical Lane Group

Queues

Year 2035 Plus Project-PM

33: Bethel Ave & Kamm Ave

Mitigated

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	98	517	551	116	563	14	403	229	176	84	287	321
v/c Ratio	0.49	0.45	0.65	0.54	0.48	0.03	0.64	0.25	0.33	0.44	0.51	0.65
Control Delay	39.9	24.3	8.5	41.5	24.3	12.3	32.8	22.3	5.3	38.8	31.4	12.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	39.9	24.3	8.5	41.5	24.3	12.3	32.8	22.3	5.3	38.8	31.4	12.3
Queue Length 50th (ft)	43	107	15	51	116	0	89	46	0	37	64	15
Queue Length 95th (ft)	#91	167	#126	#119	183	14	127	66	40	78	95	83
Internal Link Dist (ft)		939			1312			473			1475	
Turn Bay Length (ft)	150		100	150		100	150		100	150		100
Base Capacity (vph)	209	1149	844	222	1176	535	774	1128	612	212	755	561
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.47	0.45	0.65	0.52	0.48	0.03	0.52	0.20	0.29	0.40	0.38	0.57

























Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis

33: Bethel Ave & Kamm Ave

Year 2035 Plus Project-PM
Mitigated

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	90	476	507	107	518	13	371	211	162	77	264	295
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.9	4.9	4.0	4.9	4.9	4.0	4.9	4.9	4.0	4.9	4.9
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	0.97	0.95	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.97	1.00	1.00	1.00	1.00	1.00	0.97	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3539	1543	1770	3539	1583	3433	3539	1543	1770	3539	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1770	3539	1543	1770	3539	1583	3433	3539	1543	1770	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	98	517	551	116	563	14	403	229	176	84	287	321
RTOR Reduction (vph)	0	0	353	0	0	10	0	0	130	0	0	236
Lane Group Flow (vph)	98	517	198	116	563	4	403	229	46	84	287	85
Confl. Peds. (#/hr)			10	10			10		10			
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Actuated Green, G (s)	7.3	22.8	22.8	7.8	23.3	23.3	13.8	19.7	19.7	6.9	12.8	12.8
Effective Green, g (s)	7.3	22.8	22.8	7.8	23.3	23.3	13.8	19.7	19.7	6.9	12.8	12.8
Actuated g/C Ratio	0.10	0.30	0.30	0.10	0.31	0.31	0.18	0.26	0.26	0.09	0.17	0.17
Clearance Time (s)	4.0	4.9	4.9	4.0	4.9	4.9	4.0	4.9	4.9	4.0	4.9	4.9
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	172	1076	469	184	1099	492	632	930	405	163	604	270
v/s Ratio Prot	0.06	0.15		c0.07	c0.16		c0.12	0.06		0.05	c0.08	
v/s Ratio Perm			0.13			0.00			0.03			0.05
v/c Ratio	0.57	0.48	0.42	0.63	0.51	0.01	0.64	0.25	0.11	0.52	0.48	0.32
Uniform Delay, d1	32.3	21.3	20.8	32.2	21.2	17.9	28.3	21.8	21.0	32.5	28.1	27.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	4.3	1.5	2.8	6.9	1.7	0.0	2.1	0.1	0.1	2.7	0.6	0.7
Delay (s)	36.6	22.8	23.6	39.1	22.9	17.9	30.4	21.9	21.1	35.2	28.7	27.9
Level of Service	D	C	C	D	C	B	C	C	C	D	C	C
Approach Delay (s)		24.4			25.5			26.0			29.1	
Approach LOS		C			C			C			C	
Intersection Summary												
HCM Average Control Delay			26.0				HCM Level of Service			C		
HCM Volume to Capacity ratio			0.51									
Actuated Cycle Length (s)			75.0				Sum of lost time (s)			12.9		
Intersection Capacity Utilization			57.2%				ICU Level of Service			B		
Analysis Period (min)			15									
c Critical Lane Group												

Queues

Year 2035 Plus Project-PM

34: Kamm Ave & Academy Ave

Mitigated



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	97	568	297	196	285	103	229	413	122	145	430	58
v/c Ratio	0.45	0.71	0.51	0.79	0.29	0.21	0.83	0.49	0.27	0.68	0.60	0.16
Control Delay	34.4	29.2	6.8	54.2	21.6	6.7	56.3	23.6	6.2	47.0	27.2	7.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	34.4	29.2	6.8	54.2	21.6	6.7	56.3	23.6	6.2	47.0	27.2	7.8
Queue Length 50th (ft)	36	108	0	78	49	0	91	76	0	57	83	0
Queue Length 95th (ft)	82	171	57	#194	87	35	#221	115	35	#144	125	26
Internal Link Dist (ft)	2997				2339				887		4138	
Turn Bay Length (ft)	200		150		200		150		200		150	
Base Capacity (vph)	248	879	607	248	978	494	275	1055	546	220	946	455
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.39	0.65	0.49	0.79	0.29	0.21	0.83	0.39	0.22	0.66	0.45	0.13

Intersection Summary

























95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis

34: Kamm Ave & Academy Ave

Year 2035 Plus Project-PM

Mitigated

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	89	523	273	180	262	95	211	380	112	133	396	53
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.9	4.9	4.0	4.9	4.9	4.0	4.9	4.9	4.0	4.9	4.9
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00	0.96	1.00	1.00	0.98	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3539	1545	1770	3539	1520	1770	3539	1545	1770	3539	1545
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1770	3539	1545	1770	3539	1520	1770	3539	1545	1770	3539	1545
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	97	568	297	196	285	103	229	413	122	145	430	58
RTOR Reduction (vph)	0	0	227	0	0	75	0	0	93	0	0	46
Lane Group Flow (vph)	97	568	70	196	285	28	229	413	29	145	430	12
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Actuated Green, G (s)	6.7	15.5	15.5	9.1	17.9	17.9	10.1	15.5	15.5	7.8	13.2	13.2
Effective Green, g (s)	6.7	15.5	15.5	9.1	17.9	17.9	10.1	15.5	15.5	7.8	13.2	13.2
Actuated g/C Ratio	0.10	0.24	0.24	0.14	0.27	0.27	0.15	0.24	0.24	0.12	0.20	0.20
Clearance Time (s)	4.0	4.9	4.9	4.0	4.9	4.9	4.0	4.9	4.9	4.0	4.9	4.9
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	181	835	364	245	964	414	272	835	364	210	711	310
v/s Ratio Prot	0.05	c0.16		c0.11	0.08		c0.13	0.12		0.08	c0.12	
v/s Ratio Perm			0.05			0.02			0.02			0.01
v/c Ratio	0.54	0.68	0.19	0.80	0.30	0.07	0.84	0.49	0.08	0.69	0.60	0.04
Uniform Delay, d1	28.0	22.8	20.1	27.4	18.9	17.7	27.0	21.7	19.5	27.8	23.9	21.1
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	3.0	2.3	0.3	16.8	0.2	0.1	20.4	0.5	0.1	9.4	1.5	0.0
Delay (s)	31.1	25.1	20.3	44.3	19.1	17.8	47.4	22.2	19.6	37.2	25.3	21.2
Level of Service	C	C	C	D	B	B	D	C	B	D	C	C
Approach Delay (s)		24.3			27.3			29.3			27.7	
Approach LOS		C			C			C			C	

Intersection Summary

HCM Average Control Delay	26.9	HCM Level of Service	C
HCM Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	65.7	Sum of lost time (s)	17.8
Intersection Capacity Utilization	62.6%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Queues

Year 2035 Plus Project-PM

35: SR 99 NB Off & Bethel Ave

Mitigated













Lane Group	WBL	WBR	NBT	SBT
Lane Group Flow (vph)	192	514	636	575
v/c Ratio	0.31	0.77	0.76	0.68
Control Delay	16.4	19.9	20.9	18.4
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	16.4	19.9	20.9	18.4
Queue Length 50th (ft)	44	88	162	140
Queue Length 95th (ft)	121	274	396	342
Internal Link Dist (ft)	341		745	584
Turn Bay Length (ft)				
Base Capacity (vph)	1210	1111	1457	1457
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.16	0.46	0.44	0.39

Intersection Summary

HCM Signalized Intersection Capacity Analysis
35: SR 99 NB Off & Bethel Ave

Year 2035 Plus Project-PM

Mitigated

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	177	473	585	0	0	529
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.9	4.9	4.9			4.9
Lane Util. Factor	1.00	1.00	1.00			1.00
Frpb, ped/bikes	1.00	0.98	1.00			1.00
Flpb, ped/bikes	1.00	1.00	1.00			1.00
Frt	1.00	0.85	1.00			1.00
Flt Protected	0.95	1.00	1.00			1.00
Satd. Flow (prot)	1770	1548	1863			1863
Flt Permitted	0.95	1.00	1.00			1.00
Satd. Flow (perm)	1770	1548	1863			1863
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	192	514	636	0	0	575
RTOR Reduction (vph)	0	120	0	0	0	0
Lane Group Flow (vph)	192	394	636	0	0	575
Confl. Peds. (#/hr)	10	10		10	10	
Turn Type	Perm					
Protected Phases	8		2			6
Permitted Phases		8				
Actuated Green, G (s)	20.6	20.6	26.2			26.2
Effective Green, g (s)	20.6	20.6	26.2			26.2
Actuated g/C Ratio	0.36	0.36	0.46			0.46
Clearance Time (s)	4.9	4.9	4.9			4.9
Vehicle Extension (s)	3.0	3.0	3.0			3.0
Lane Grp Cap (vph)	644	563	862			862
v/s Ratio Prot	0.11		0.34			0.31
v/s Ratio Perm		0.25				
v/c Ratio	0.30	0.70	0.74			0.67
Uniform Delay, d1	12.8	15.4	12.4			11.8
Progression Factor	1.00	1.00	1.00			1.00
Incremental Delay, d2	0.3	3.8	3.3			2.0
Delay (s)	13.1	19.2	15.7			13.8
Level of Service	B	B	B			B
Approach Delay (s)	17.5		15.7			13.8
Approach LOS	B		B			B
Intersection Summary						
HCM Average Control Delay			15.8		HCM Level of Service	B
HCM Volume to Capacity ratio			0.72			
Actuated Cycle Length (s)			56.6		Sum of lost time (s)	9.8
Intersection Capacity Utilization			69.3%		ICU Level of Service	C
Analysis Period (min)			15			
c Critical Lane Group						

Queues

36: Parkway Drive & Bethel Ave

Year 2035 Plus Project-PM

Mitigated























Lane Group	EBL	EBT	EBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	317	87	233	58	321	391	374
v/c Ratio	0.64	0.18	0.41	0.27	0.63	0.53	0.46
Control Delay	26.7	19.6	5.7	32.4	26.3	25.7	14.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	26.7	19.6	5.7	32.4	26.3	25.7	14.7
Queue Length 50th (ft)	94	23	0	18	95	61	88
Queue Length 95th (ft)	219	67	49	65	220	137	197
Internal Link Dist (ft)		474			214		745
Turn Bay Length (ft)	200		73	200		200	
Base Capacity (vph)	920	939	875	254	1004	1108	1255
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.34	0.09	0.27	0.23	0.32	0.35	0.30

Intersection Summary

HCM Signalized Intersection Capacity Analysis 36: Parkway Drive & Bethel Ave

Year 2035 Plus Project-PM

Mitigated

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	292	80	214	0	0	0	53	293	3	360	219	125
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.9	4.9				4.0	4.9		4.0	4.9	
Lane Util. Factor	1.00	1.00	1.00				1.00	1.00		0.97	1.00	
Frpb, ped/bikes	1.00	1.00	0.96				1.00	1.00		1.00	0.99	
Flpb, ped/bikes	1.00	1.00	1.00				1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85				1.00	1.00		1.00	0.95	
Flt Protected	0.95	1.00	1.00				0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1863	1522				1770	1860		3433	1736	
Flt Permitted	0.95	1.00	1.00				0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	1863	1522				1770	1860		3433	1736	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	317	87	233	0	0	0	58	318	3	391	238	136
RTOR Reduction (vph)	0	0	173	0	0	0	0	1	0	0	23	0
Lane Group Flow (vph)	317	87	60	0	0	0	58	320	0	391	351	0
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Turn Type	Prot		Perm				Prot			Prot		
Protected Phases	7	4					5	2		1	6	
Permitted Phases			4									
Actuated Green, G (s)	16.6	15.7	15.7				4.1	18.4		12.7	27.0	
Effective Green, g (s)	16.6	15.7	15.7				4.1	18.4		12.7	27.0	
Actuated g/C Ratio	0.27	0.26	0.26				0.07	0.30		0.21	0.45	
Clearance Time (s)	4.0	4.9	4.9				4.0	4.9		4.0	4.9	
Vehicle Extension (s)	3.0	3.0	3.0				3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	485	483	394				120	565		719	773	
v/s Ratio Prot	c0.18	0.05					0.03	c0.17		c0.11	0.20	
v/s Ratio Perm			0.04									
v/c Ratio	0.65	0.18	0.15				0.48	0.57		0.54	0.45	
Uniform Delay, d1	19.5	17.4	17.3				27.2	17.7		21.4	11.7	
Progression Factor	1.00	1.00	1.00				1.00	1.00		1.00	1.00	
Incremental Delay, d2	3.2	0.2	0.2				3.0	1.3		0.8	0.4	
Delay (s)	22.6	17.6	17.5				30.3	19.1		22.2	12.1	
Level of Service	C	B	B				C	B		C	B	
Approach Delay (s)		20.1			0.0			20.8			17.3	
Approach LOS		C			A			C			B	
Intersection Summary												
HCM Average Control Delay			19.0				HCM Level of Service				B	
HCM Volume to Capacity ratio			0.59									
Actuated Cycle Length (s)			60.6				Sum of lost time (s)			12.9		
Intersection Capacity Utilization			52.8%				ICU Level of Service			A		
Analysis Period (min)			15									
c Critical Lane Group												