INITIAL STUDY/ADDENDUM
to the
APPROVED ENVIRONMENTAL IMPACT STUDIES
for the

MOUNTAIN HOUSE PLANNED COMMUNITY

MASTER PLAN, SPECIFIC PLAN I AND SPECIFIC PLAN II

TRIMARK COMMUNITIES, LLC, PROPOSED LAND USE CHANGES, SUBDIVISION AND RESIDENTIAL DEVELOPMENT

July 29, 2024

PREVIOUSLY- APPROVED MOUNTAIN HOUSE ENVIRONMENTAL STUDIES:
San Joaquin County General Plan EIR
SCH# 90020018

Mountain House Master Plan/Specific Plan I EIR
SCH# 90020776

Mountain House Specific Plan II, Adopted Initial Study

Prepared for:
City of Mountain House
251 E Main Street
Mountain House, CA 95391

Prepared by:
Base Camp Environmental, Inc.
802 West Lodi Avenue
Lodi, CA 95240

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BASECAMP ENVIRONMENTAL, INC.
802 West Lodi Avenue
Lodi, CA 95240
www.basecampenv.com

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1.0 INTRODUCTION

1.1 PURPOSE OF THE INITIAL STUDY/ADDENDUM

The California Environmental Quality Act (CEQA) requires State and local agencies to consider and document the potential environmental impacts of proposed projects and, if necessary, identify mitigation measures to avoid potentially significant impacts or to reduce them to a level that would be less than significant. This is ordinarily accomplished in Initial Studies, Negative Declarations, and Environmental Impact Reports (EIRs). CEQA also encourages the use of previously prepared and programmatic environmental documents in evaluating subsequent projects when they effectively address the environmental issues associated with the project.

The Mountain House planned community was identified as a "new town" project in the San Joaquin County General Plan and addressed in an EIR addressing adoption of the General Plan in 1990. Master planning of the new community and analysis of its potential environmental impacts under CEQA occurred over the next few years culminating in the certification of the Mountain House Master Plan and Specific Plan I EIR in 1994 and the adoption of these plans. Community planning and buildout continued over the years with County adoption of CEQA analysis of the Specific Plan II and Specific Plan III areas.

The Mountain House Community Services District was organized in ___ and has provided a range of urban services to the unincorporated community since that time. During this period, community interest in the formation of an incorporated City has grown to the point of a definite incorporation proposal, which was approved by the San Joaquin Local Agency Formation Commission (LAFCo) and subsequently approved by voters; incorporation took effect on July 1, 2024.

To comply with California Planning Law, the City of Mountain House has adopted planning and environmental documentation originally prepared and adopted by San Joaquin County to guide and regulate community development. As adopted, these documents will be utilized by City of Mountain House officials to govern ongoing development in the community in the near term. The City is expected to prepare and adopt its own planning and environmental documentation, which will replace the interim documentation upon adoption.

> As noted above, CEQA explicitly encourages and provides guidance for the use of previously certified and adopted environmental documents for evaluation of subsequent projects. These provisions include, among others:15152 Tiering.
> 15153 Use of an EIR from an Earlier Project.
> 15162 Subsequent EIRs and Negative Declarations
> 15163 Supplement to an EIR
> 15164 Addendum to an EIR or Negative Declaration
> 15165 Multiple and Phased Projects
> 15168 Program EIR

The proposed TriMark project involves amendments to the adopted San Joaquin County 2035 General Plan (as adopted by the City of Mountain House), the Mountain House Master Plan (Master Plan), and the adopted Specific Plans I and II, along with associated zoning reclassifications and Tentative Subdivision Map approvals. The General Plan, Master Plan, Specific Plan and zoning documents have been adopted by the City of Mountain House, including portions of the San Joaquin County Development Title, as interim planning governance documents. These documents will remain in force until replaced by the City.

The proposed amendments and reclassifications are hereinafter referred to as the "proposed project." The proposed project actions are related to three sites in the City of Mountain House in western San Joaquin County (Figures 1-1 through 1-4); the three sites will be referred to as Area 1, Area 2, and Area 3. The proposed project would redesignate and rezone these three areas, together totaling approximately 60.71 acres from existing Community Commercial and Commercial Office land uses to Medium Density Residential and Low Density Residential land uses. In all three areas, subdivision into single-family residential lots is proposed which would require City approval of a Tentative Subdivision Map for each site. The City of Mountain House (City) is the CEQA Lead Agency for the proposed project.

The City of Mountain House has determined, based on the analysis provided in Chapter 3.0 of this document, the potentially significant environmental effects of the portions of the proposed project (project Areas 2 and 3) were adequately addressed in the Final Environmental Impact Report for the Mountain House Master Plan and Mountain House Specific Plan I, hereinafter referred to as the "certified EIR;" the EIR was certified by the County in 1994 and is incorporated by reference into this document. The City has also determined that potentially significant effects were adequately addressed in the County General Plan EIR, which evaluated the potential impacts of the development of the Mountain House community and incorporated information from the certified EIR in its analysis. These adopted County documents, including CEQA findings, have all been adopted by the City of Mountain House.

The potential environmental effects of land use designation and zoning changes related to to proposed Area 1 were also adequately addressed in the certified EIR. In addition, the County prepared a CEQA Initial Study for Mountain House Specific Plan II, which was adopted in 2005 and is also incorporated herein by reference. The Specific Plan II Initial Study considered the potential environmental effects of implementing the specific plan and concluded that all potentially significant environmental effects of that project were adequately addressed in the certified EIR. Therefore, for the purposes of this document, it is assumed that the certified EIR provided adequate CEQA coverage for both Mountain House Specific Plan I and Specific Plan II, although a further discussion of the Initial Study analysis is provided in Chapter 3.0 of this document for some issues. A copy of the certified EIR and the adopted Initial Study, both of which have been adopted by the City of Mountain House, may be reviewed at the office of the City of Mountain House, 251 E. Main Street, Mountain House, CA, 95391.

This document provides substantial evidence supporting the City's determination. It considers the potential environmental effects of the proposed project in light of the environmental analysis of the Mountain House project in the certified EIR and the adopted Specific Plan II Initial Study. Based on this analysis, this document determines whether any revisions to the certified EIR (or the adopted Initial Study) are needed to provide an adequate environmental review document for the proposed project, consistent with the requirements of CEQA. The remainder of this chapter describes the criteria for reaching this conclusion, the proposed project background, and a description of the proposed project. Chapter 3.0 – the Initial Study for the proposed project – analyzes the degree to which the environmental effects of the proposed project are adequately addressed, or would differ substantially, if at all, from the environmental effects described in the certified EIR and the Specific Plan II Initial Study. Chapter 4.0 lists the references cited in the preparation of this document.

1.2 PROJECT BACKGROUND

The City of Mountain House is a 4,784-acre Master Plan Community located in western San Joaquin County. Its boundaries include the Alameda County/San Joaquin County line on the west, Old River on the north, Mountain House Parkway on the east, and I-205 on the south. Unincorporated until July 1, 2024, urban services within Mountain House were administered by the Mountain House Community Services District (CSD), which operated and maintained the water, sewer, and storm drainage systems of the community, along with its streets and street lighting, and park and recreational services. A special function of the CSD was the ability to enforce community-wide covenants, conditions, and restrictions (CC&Rs) that establish rules, restrictions, and obligations for property owners within the Mountain House community. These and other municipal obligations were transferred to the City upon its incorporation.

In 1992, San Joaquin County formulated a planning process for new communities that implements the General Plan through use of a Master Plan and phased Specific Plans. The purpose of phased Specific Plans is to allow each such plan to respond to prevailing conditions over the long-term buildout of the community. In 1993, the San Joaquin County Board of Supervisors approved a General Plan amendment that included the new community of Mountain House in the County General Plan. The County certified a Final Environmental Impact Report (FEIR) on the entire project in 1992, and a Supplemental Environmental Impact Report (SEIR) in early 1993.

The Mountain House Master Plan was approved in 1994 after certification of its Final Environmental Impact Report (EIR) (State Clearinghouse No. 1990020776), known in this document as the "certified EIR." As a part of this action, the San Joaquin County General Plan was amended to be consistent with the adopted Master Plan. Figure 1-5 shows the approved land use designations of the Mountain House Master Plan. As originally approved, the Master Plan proposed residential development consisting of 12 neighborhoods, each organized around a Neighborhood Center containing a neighborhood park, a kindergarten to 8th grade school, and a small commercial area. Major shopping and other services would be met by the Village Centers and the Town Center, the civic and commercial focus of the community designated for mixed use commercial, office, and residential development. Employment centers would include office and industrial parks. The Mountain House Creek corridor and the Old River edge would be enhanced as part of an overall parks and open space system. The Master Plan has been subsequently amended several times since its adoption. The most recently-updated version of the Master Plan was adopted by the City of Mountain House upon its incorporation.

The Master Plan was and is intended to serve as the overall community-wide policy document guiding subsequent Specific Plans, Tentative Maps, development projects, Development Agreements, and other approvals brought before the City of Mountain House as required to implement the adopted Plan. Three Specific Plans, previously adopted by the County, and now adopted by the City of Mountain House, implement the Master Plan. The first of these, Specific Plan I, was adopted concurrently with the Master Plan, and the certified EIR for the Master Plan also addressed the potential environmental effects of Specific Plan I. Like the Master Plan, Specific Plan I has been subsequently amended. Specific Plan II, adopted in 2005 (Figure 1-7), describes development plans, zoning, and phased infrastructure for the second stage of development within Mountain House. The potential environmental effects of Specific Plan II were also adequately addressed in the certified Master Plan EIR. Specific Plan III, also adopted in 2005 and subsequently amended, guides development of approximately 816 acres of the southern portion of the Master Plan area; however, no portion of the proposed project is located within the Specific Plan III area. The most recently updated version of each of the Specific Plans were adopted by the City of Mountain House upon its incorporation.

Figure 1-6 depicts the areas for each of the Specific Plans within the Master Plan area. Specific Plan I covers approximately 1,348 acres and contains three distinct subareas: Central Mountain House in the central portion of the community, Old River Industrial Park in the northeast, and Mountain House Business Park in the southeast. The Central Mountain House portion of Specific Plan I consists of approximately 1,040 acres of land, of which 654.6 acres are proposed for residential development, 53.39 acres for various types of commercial development, and the remaining approximately 332 acres are for industrial, institutional, school, and open space land uses. Old River Industrial Park, approximately 164.5 acres, is proposed for heavy industrial use. Mountain House Business Park, approximately 143.5 acres, is proposed as an employment center. Proposed project Areas 2 and 3 are located in the Specific Plan I area.

Specific Plan II encompasses approximately 2,290 acres in two areas: one in the northernmost area of Mountain House, and the other in the south-central area. It includes seven of the 12 Mountain House neighborhoods, the Town Center, commercial areas, and associated parks, schools, open space and infrastructure. Specific Plan II currently proposes the development of approximately 1,424 acres of residential land uses, 395 acres of commercial, 6 acres of industrial, and 101 acres of public facilities including schools. It also proposes approximately 364 acres of open space, most of which is parks and lakes. Proposed project Area 1 is located in the Specific Plan II area.

The approved Master Plan anticipated a community population of approximately 44,000 residing in approximately 16,000 dwelling units, along with the provision of approximately 21,000 jobs, at full buildout. As of the 2020 U.S. Census, Mountain House had a population of 24,499 with 7,189 housing units. In the years since Master Plan approval, there have been substantial changes in development styles and fluctuations in residential demand. With the rapid growth of online retailing, demand for brick-and-mortar retail commercial development has softened, and the increase in remote work since the COVID-19 pandemic has had a dampening effect on office development. Within Mountain House, several retail and office commercial sites remain undeveloped, including the three proposed project sites totaling 60.68.

Prior to the incorporation of Mountain House, a study by EPS was conducted to review the reports prepared for the Mountain House CSD by Kosmont in 2020 and 2022. The Kosmont studies which included job forecasts and recommended a jobs-housing policy update. EPS also considered the implications of updated job forecasts and the potential changes in the jobs-housing policy for Mountain House land use policies; in particular, to explore the possibility of allowing for re-designations of land from commercial/industrial to residential uses without constraining future economic development in the Mountain House community.

The EPS study concurs with the conclusions of the Kosmont studies that the Master Plan commercial/industrial land use designations are substantially above likely commercial/industrial demand and that industrial/commercial job generation in Mountain House will be less than forecasted. EPS also acknowledged there is a stronger demand for residential development than commercial/industrial development. However, EPS recommended a more incremental approach in redesignating land from commercial/industrial to residential, noting that land once converted is unlikely to revert to the original designation, plus the incremental approach leaves more flexibility for the community should it decide to incorporate, as it has in 2024. EPS recommends reserving 124 acres for commercial/office land use, as opposed to the 228 acres that would be reserved under the amended Master Plan (EPS 2023). The project proposes to convert just 60.71 acres of commercial/office land, which would be consistent with the EPS recommendation.

1.3 CEQA ANALYSIS APPROACH

Ordinarily, the certification of an EIR or adoption of a Negative Declaration and filing of a Notice of Determination closes further CEQA review of a project. However, changes in a project may occur after certification of an EIR that may have environmental impacts not analyzed in the prior EIR. This current review of the potential environmental impacts of the project considers specifically whether the proposed project is within the scope of the project analyzed in the prior EIR and whether the current project's environmental impacts were adequately addressed in the prior EIR.

Options for CEQA documentation for a project addressed by a previous EIR are defined in Sections 15162 through 15164 of the CEQA Guidelines. These options include preparation of a subsequent EIR, a supplemental EIR, or an addendum. CEQA Guidelines Section 15162 describes the conditions under which preparation of a subsequent EIR may be warranted, while CEQA Guidelines Section 15163 describes the same for a supplemental EIR. If none of those conditions apply, then an addendum can be prepared.

CEQA Guidelines Section 15162(a) states that once an EIR has been certified or a negative declaration has been adopted for a project, no subsequent CEQA documentation shall be prepared for that project unless the lead agency determines one or more of the following:

1. Substantial changes are proposed in the project which will require major revisions of the previous EIR or negative declaration due to the involvement of new significant environmental effects or a substantial increase in the severity of previously identified significant effects.

2. Substantial changes occur with respect to the circumstances under which the project is undertaken which will require major revisions of the previous EIR or negative declaration due to the involvement of new significant environmental effects or a substantial increase in the severity of previously identified significant effects.

3. New information of substantial importance, which was not known and could not have been known with the exercise of reasonable diligence at the time the previous EIR was certified as complete or the Negative Declaration was adopted, shows any of the following:

(a) The project will have one or more significant effects not discussed in the previous EIR or negative declaration;

(b) Significant effects previously examined will be substantially more severe than shown in the previous EIR;

(c) Mitigation measures or alternatives previously found to be not feasible would in fact be feasible, and would substantially reduce one or more significant effects of the project, but the project proponents decline to adopt the mitigation measure or alternative; or

(d) Mitigation measures or alternatives which are considerably different from those analyzed in the previous EIR would substantially reduce one or more significant effects of the project, but the project proponents decline to adopt the mitigation measure or alternative.

CEQA Guidelines Section 15164 provides that an addendum to a certified EIR may be prepared if only minor technical changes or additions are necessary, or if none of the conditions described in CEQA Guidelines Section 15162 calling for the preparation of a subsequent EIR have occurred. As noted, Chapter 3.0 of this document analyzes whether the certified Mountain House EIR, which addresses the potential environmental effects of planned development under both Specific Plan I and Specific Plan II, provides an adequate analysis of the environmental impacts of the current proposed project.

Master EIR

As noted, the Mountain House Master Plan EIR was certified in 1994 and that the Master Plan EIR, together with other documents such as the County General Plan 2010 EIR, may meet the requirements for a "Master EIR." Article 11.5 of the CEQA Guidelines discusses procedures and content of a Master EIR, which is intended to streamline the later environmental review of projects within the project, plan, or program analyzed in the Master EIR. CEQA Guidelines Section 15175(b)(1) states that a Master EIR may be prepared for a general plan or a specific plan. CEQA Guidelines Section 15175(d) further states that where a Master EIR is prepared in connection with a general plan or specific plan, the anticipated subsequent projects included within a Master EIR may consist of later planning approvals, including parcel-specific approvals, consistent with the overall planning decision for which the Master EIR has been prepared. Such subsequent projects shall be adequately described if the Master EIR and any other documents embodying or relating to the overall planning decision identify the land use designations and the permissible densities and intensities of use for the affected parcel(s).

As discussed in CEQA Guidelines Section 15177, subsequent projects which the lead agency determines as being within the scope of the Master EIR will be subject to only limited environmental review. Neither a new environmental document nor the preparation of findings shall be required of a subsequent project when all of the following requirements are met:

(1) The lead agency for the subsequent project is the lead agency or any responsible agency identified in the Master EIR.

> (2) The lead agency for the subsequent project prepares an initial study on the proposal. The initial study shall analyze whether the subsequent project was described in the Master EIR and whether the subsequent project may cause any additional significant effect on the environment which was not previously examined in the Master EIR.
>
> (3) The lead agency for the subsequent project determines, on the basis of written findings, that no additional significant environmental effect will result from the proposal, no new additional mitigation measures or alternatives may be required, and that the project is within the scope of the Master EIR.

Based on the above information, the Mountain House Master Plan EIR is considered to function as a Master EIR as described in Article 11.5 of the CEQA Guidelines, and that evaluation of subsequent projects may occur consistent with the provisions of Article 11.5.

Typically, a certified master EIR is not used for a subsequent project if the master EIR was certified more than five years prior to the filing of an application for a subsequent project. However, Public Resources Code Section 21157.6, a part of CEQA, states that a master EIR certified more than five years ago may be used to review a subsequent project described in the master EIR if the Lead Agency finds that no substantial changes have occurred with respect to the circumstances under which the master EIR was certified or that no new information, which was not known and could not have been known at the time that the master EIR was certified as complete, has become available.

The City has reviewed the adequacy of the Master Plan EIR in both of these respects, as documented in Chapter 3.0 of this document, and finds that no substantial changes have occurred with respect to the circumstances under which the Master Plan EIR was certified.

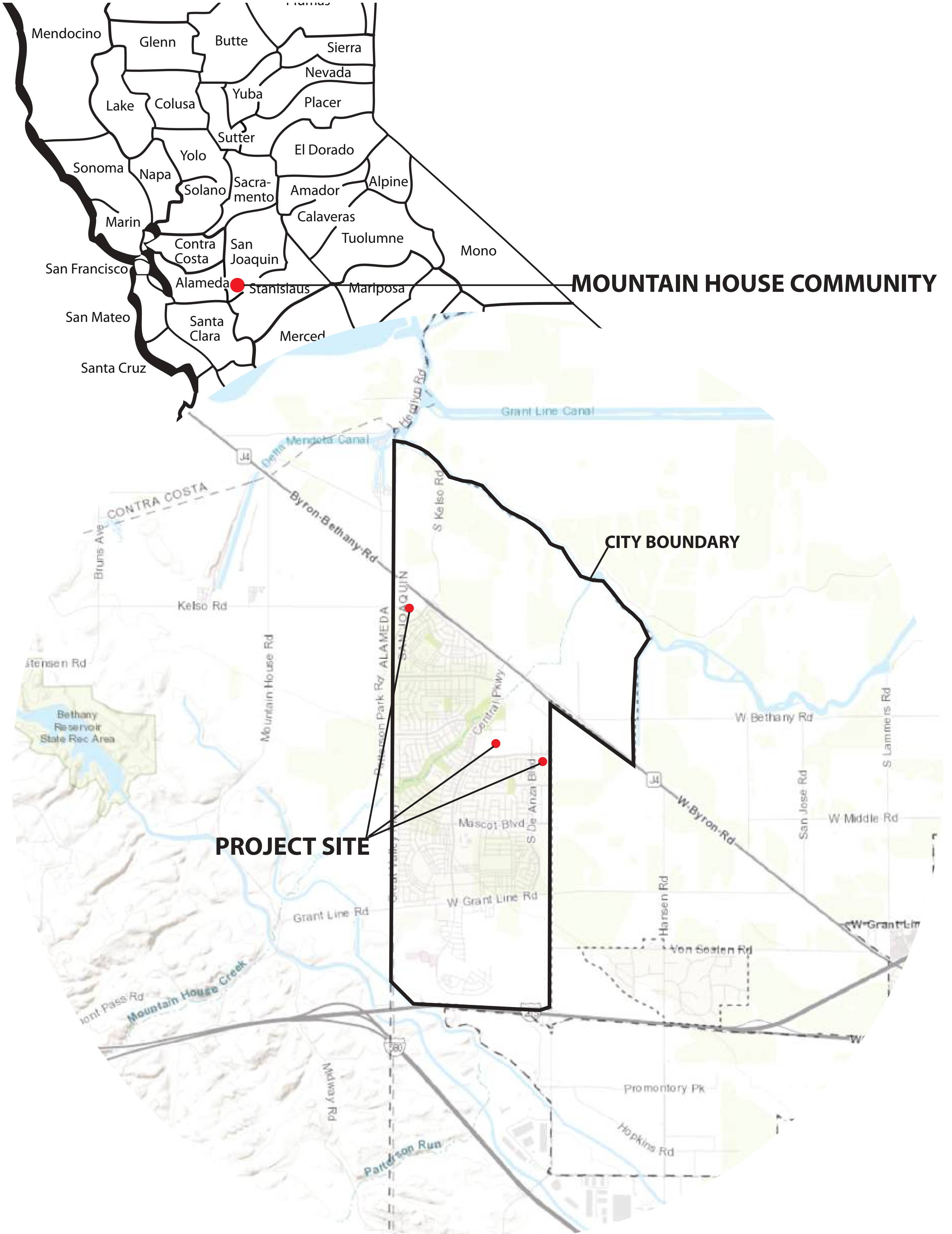

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Figure 1-1
REGIONAL LOCATION MAP

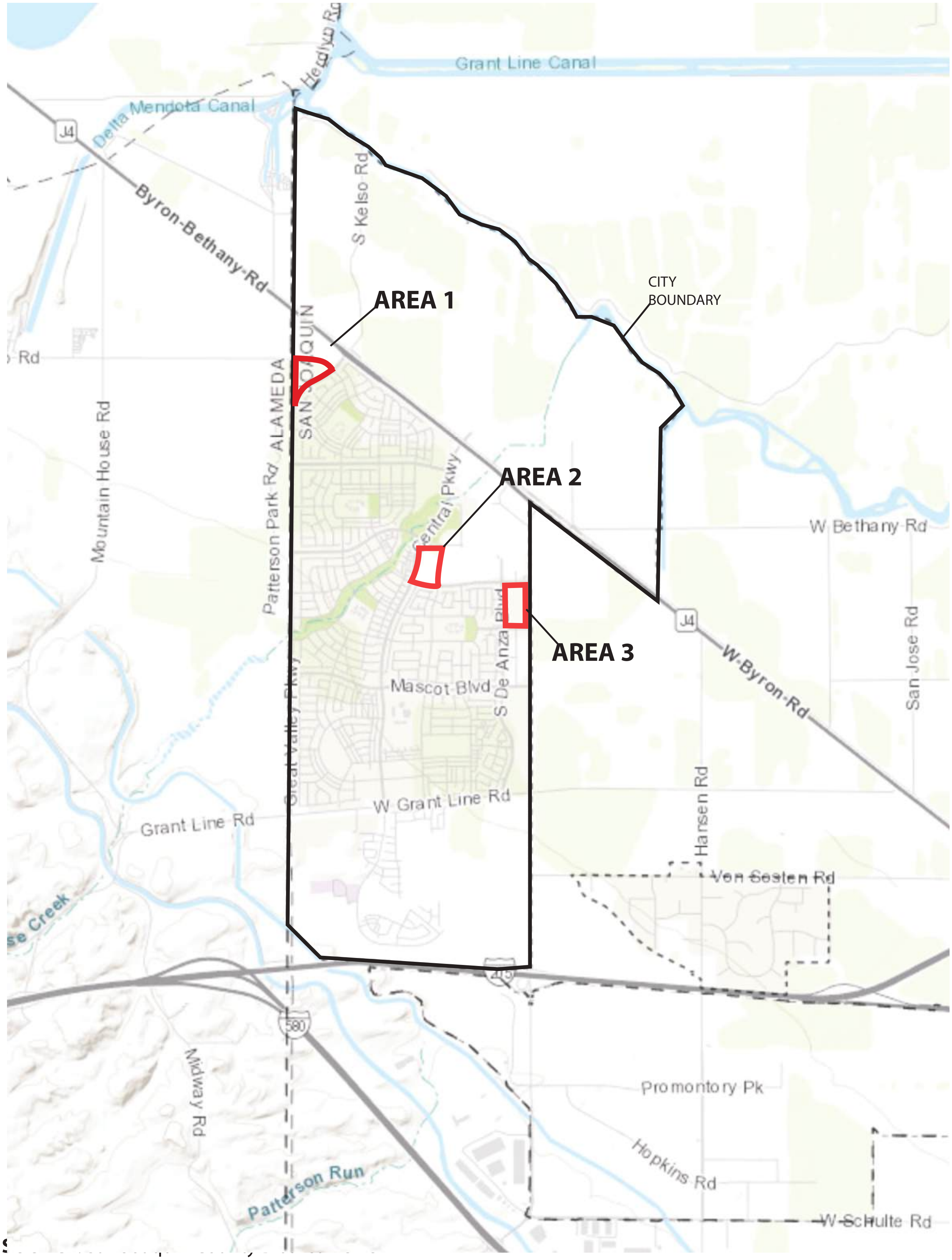

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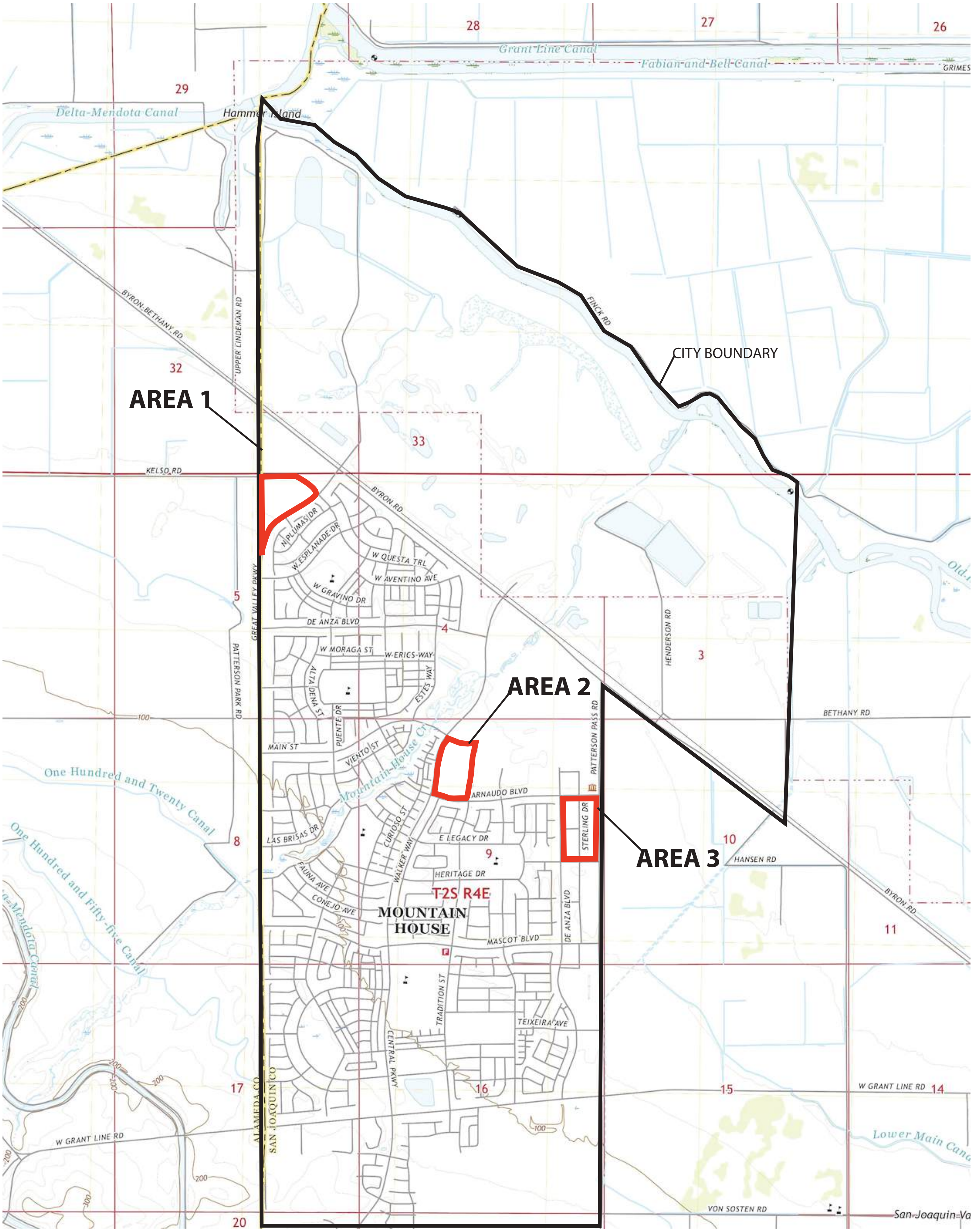
Figure 1-2
STREET MAP



SOURCE: Clifton Court Forebay, Ca USGS Quadrangle map, 2021

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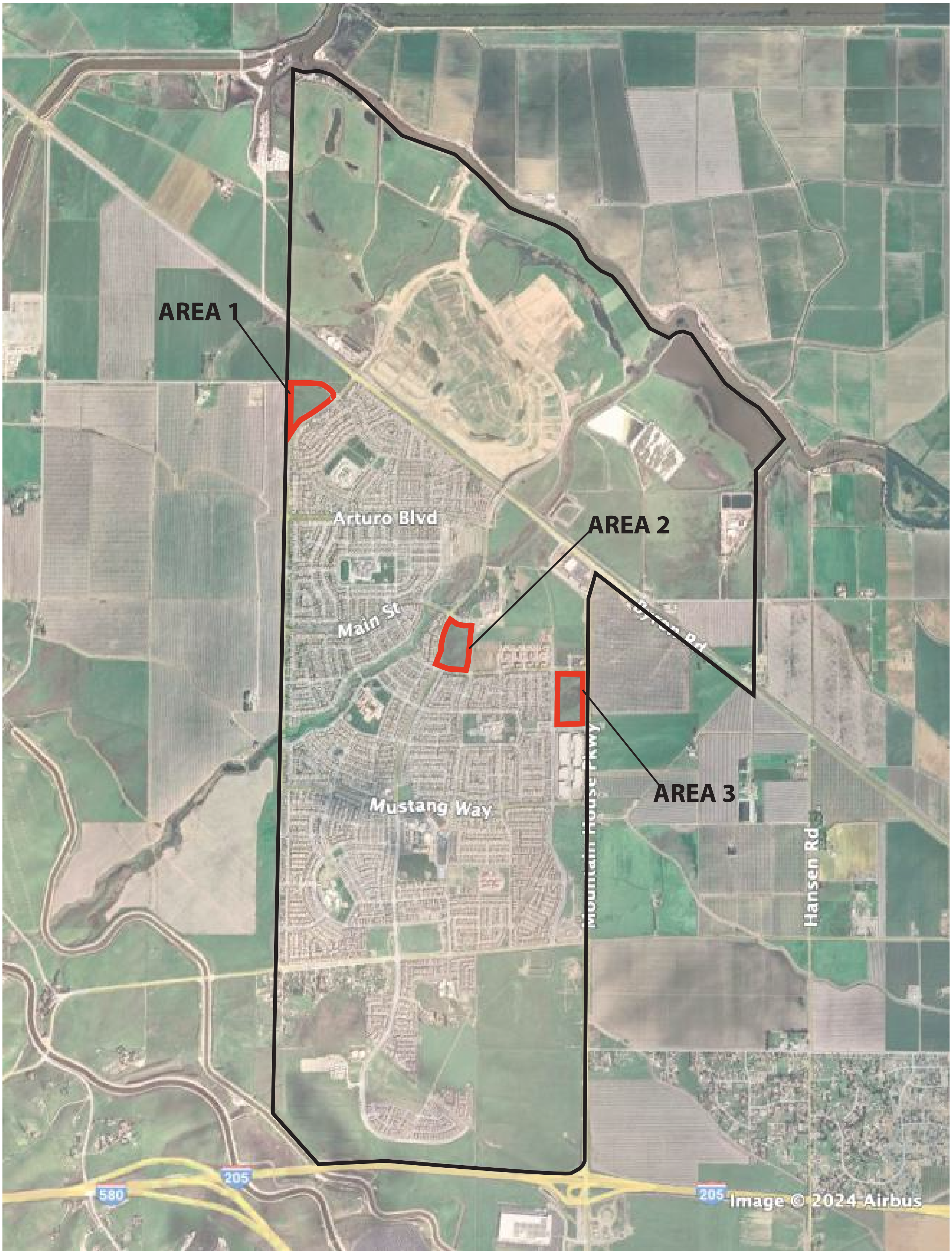
Figure 1-3
USGS MAP



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SOURCE: Google Maps

Figure 1-4
AERIAL PHOTO

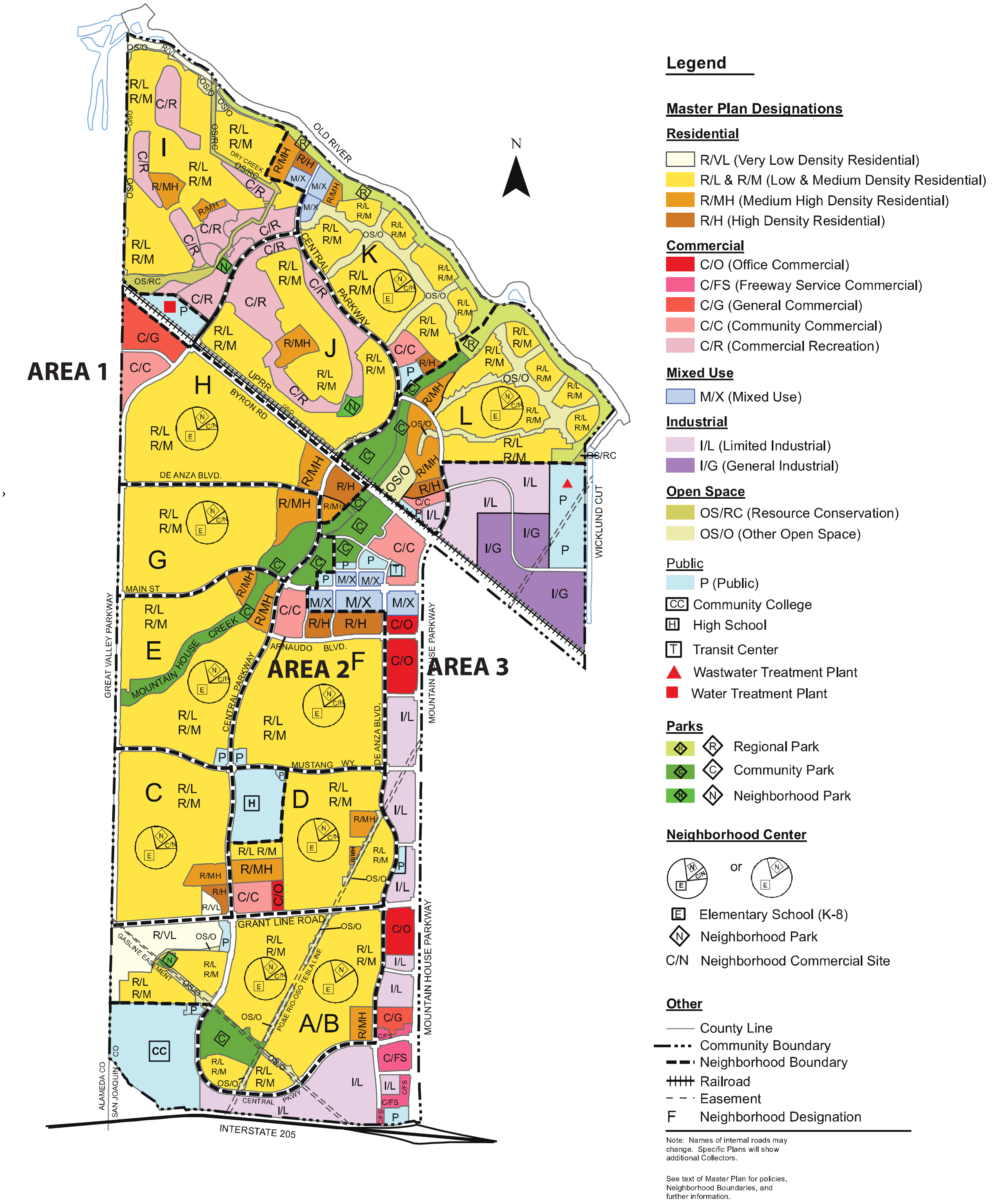

Figure 1-5
MOUNTAIN HOUSE MASTER PLAN

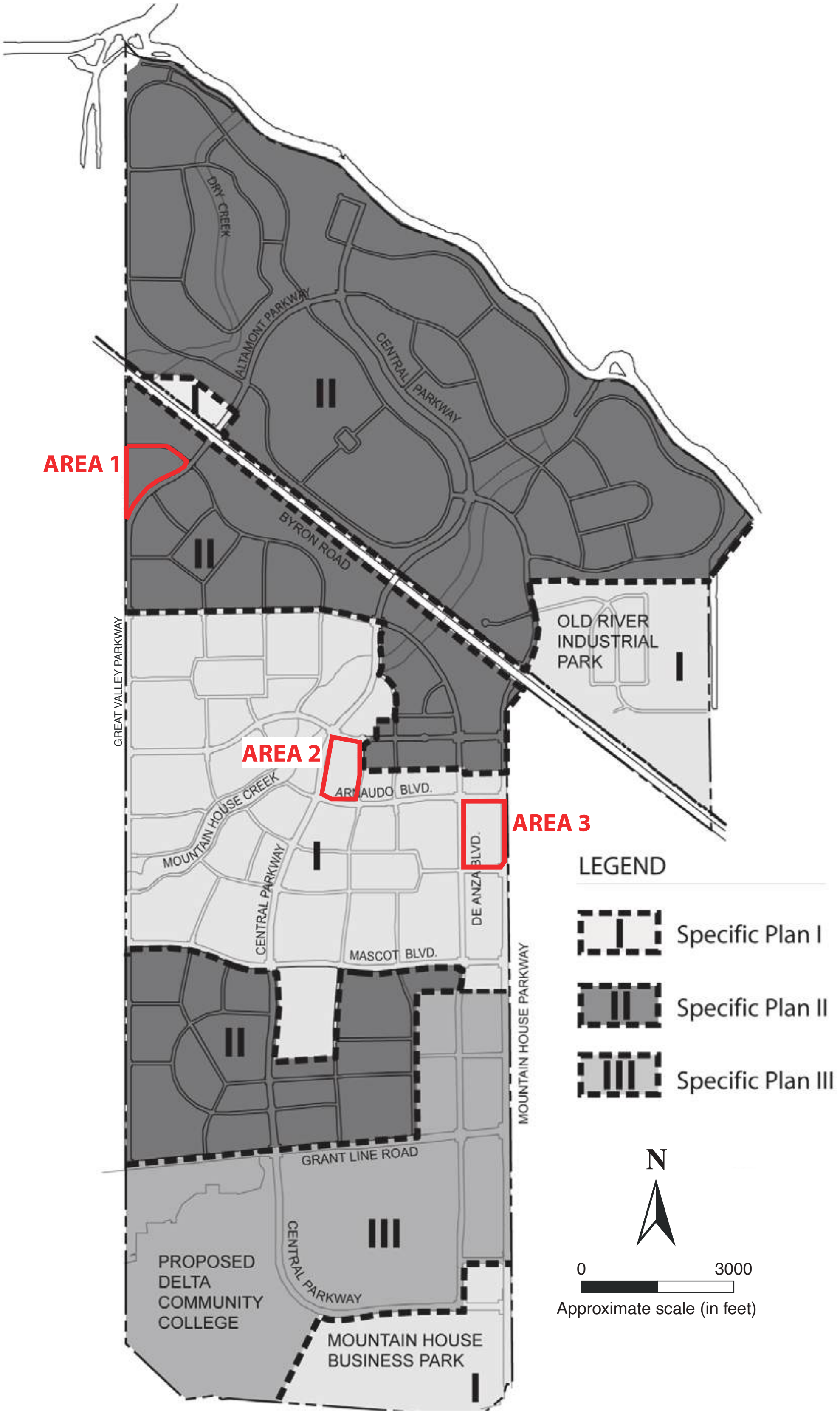

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Figure 1-6
SPECIFIC PLAN AREAS MAP

2.0 PROJECT DESCRIPTION

2.1 PROJECT LOCATION AND EXISTING SETTING

The City of Mountain House is located in the northern San Joaquin Valley in the southwestern portion of San Joaquin County. Mountain House is immediately northwest of the City of Tracy, and approximately 50 miles east of the City of San Francisco and 50 miles south of Sacramento. Mountain House is adjacent to the Alameda County line and north of Interstate 205, east of its junction with Interstate 580.

The three areas that comprise the proposed project are within the Mountain House city limits (Figure 2-1). The three areas encompass a total of 11 parcels and 60 acres. Area 1 is adjacent to the western boundary of Mountain House and to Great Valley Parkway near its intersection with Byron Road. Area 1 is within the Specific Plan II area. Proposed Area 2 is within Central Mountain House, adjacent to and south of Central Community Park. Area 3, which includes nine of the 11 parcels, is also within Central Mountain House, adjacent to and west of Mountain House Parkway south of the Lammersville Unified School District property. Areas 2 and 3 are within the Specific Plan I area.

All three project areas are currently vacant. Existing residential development is adjacent to and southeast of Area 1. Area 2 has adjacent residential development to its south and west and Central Community Park to the north. Area 3 has adjacent residential development to its west and industrial development to its south.

2.2 PROJECT DETAILS

Proposed Changes to Land Use Designations

Mountain House developer TriMark Communities, LLC has submitted of applications for amendments to the interim Mountain House General Plan, the Mountain House Master Plan, and Mountain House Specific Plans I and II, along with a Zone Reclassification, to permit development of Areas 1, 2 and 3 to permit their development for medium-density residential use. Table 2-1 lists the parcels that would be affected by the proposed project, along with their current and proposed designations. The subject documents, originally adopted by San Joaquin County, have all been adopted by the City of Mountain House.

Approximately 17.83 acres of General Commercial (C/G) and 22.59 acres of Office Commercial (C/O) would be changed to R/M (Medium Density Residential) and their zoning changed to R-M (Medium Density Residential). Another 20.29 acres of General Commercial (C/G) would be changed to R/L (Low Density Residential) and the zoning changed to R-L (Low Density Residential). Based on the floor/area ratio (FAR) allowed for development on C/G parcels (0.30 FAR) and C/O parcels (0.35 FAR), the total square footage of potential C/G and C/O development that would be eliminated by the proposed project would be approximately 498,152 square feet and 344,407 square feet, respectively.

TABLE 2-1
CURRENT AND PROPOSED PROJECT DESIGNATIONS

		Current Designations				**Proposed Designations**			
APN	**Acres**	**GP**	**Master Plan**	**Specific Plan**	**Zoning**	**GP**	**Master Plan**	**Specific Plan**	**Zoning**
Area 1									
256-520-01	20.29	C/G	C/C	C-C	C-C	R/LM	R/L, R/M	R-L	R-L
Area 2									
254-020-01	17.76	C/G	C/C	C/C	C-C	R/LM	R/L, R/M	R/M	R-M
254-230-06	0.07	C/G	C/G	C/C	C-C	R/LM	R/L, R/M	R/M	R-M
Area 3									
254-030-11	1.89	C/O	C/O	C/O	C-O	R/LM	R/L, R/M	R-M	R-M
254-030-12	3.78	C/O	C/O	C/O	C-O	R/LM	R/L, R/M	R-M	R-M
254-030-13	3.73	C/O	C/O	C/O	C-O	R/LM	R/L, R/M	R-M	R-M
254-030-14	1.94	C/O	C/O	C/O	C-O	R/LM	R/L, R/M	R-M	R-M
254-030-15	1.80	C/O	C/O	C/O	C-O	R/LM	R/L, R/M	R-M	R-M
254-030-16	2.43	C/O	C/O	C/O	C-O	R/LM	R/L, R/M	R-M	R-M
254-030-17	2.74	C/O	C/O	C/O	C-O	R/LM	R/L, R/M	R-M	R-M
254-030-18	2.38	C/O	C/O	C/O	C-O	R/LM	R/L, R/M	R-M	R-M
254-030-19	1.90	C/O	C/O	C/O	C-O	R/LM	R/L, R/M	R-M	R-M
Total	**60.71**								

GP: C/G – General Commercial; C/O – Commercial Office; R/LM –Low and Medium Density Residential

Master Plan: C/C – Community Commercial; C/G – General Commercial; C/O – Commercial Office; R/L – Low Density Residential; R/M – Medium Density Residential

Specific Plan: C/C – Community Commercial; C/O – Commercial Office; R/L – Low Density Residential; R/M – Medium Density Residential

Zoning: C-C – Community Commercial; C-O – Commercial Office; R-L – Low Density Residential; R-M – Medium Density Residential

Proposed Development

If the proposed plan amendments and zone reclassifications are adopted, subdivision of the three project areas into single-family residential lots would be permitted via City approval of one Major Tentative Subdivision Map for each of the three proposed project areas. Table 2-1 shows the number of proposed residential units for each of the proposed project areas. Residential lots in general would range from approximately 3,500 to 6,000 square feet in size, with a few lots substantially larger. Water, wastewater, and storm drainage services to these lots would be provided by the City of Mountain House, and lines providing each of these services would be installed within each residential subdivision. The proposed land use changes and the proposed tentative subdivision map for each of the three areas are shown on Figures 2-2, 2-3 and 2-4, following.

More specific information on the development of each of the proposed project areas is provided below. All infrastructure improvements associated with the described development would be installed in accordance with City of Mountain House design standards and specifications.

Area 1

Area 1 is within the Specific Plan II area. Figure 2-2A and 2-2B show the proposed Land Use Changes and the Tentative Subdivision Map for Area 1. The map proposes a subdivision of Area 1 into 81 single-family residential lots, with a typical lot size of 5,500 square feet. Eight second-unit dwellings are proposed in this area. These dwellings, plus the existing 77 second-unit dwellings in the Neighborhood H area, total 85 second-unit dwellings, which would satisfy the Master Plan and Specific Plan II requirements of a minimum of 84 second-unit dwellings in this neighborhood.

A masonry soundwall, approximately six feet in height, is proposed along the Area 1 boundary with Great Valley Parkway and Kelso Road. A community edge buffer of approximately 100 feet, which includes an existing drainage ditch to be landscaped and a street, is proposed along the western boundary of Area 1. One entrance to Area 1 would be provided off Great Valley Parkway to the southeast; a second entrance would be provided off Kelso Road to the north. Water service would be provided via 8-inch diameter water lines. Wastewater service would be provided via 12-inch diameter sanitary sewer lines. Storm water would be collected by 15-inch diameter storm drainage lines. Infrastructure systems on the Area 1 site would connect to existing facilities beneath Kelso Road.

Area 2

Area 2 is within the Specific Plan I area. Figure 2-3A and 2-3B show the proposed Land Use Changes and the Tentative Subdivision Map for Area 2. The map proposes a subdivision of Area 2 into 106 single-family residential lots. Two typical lot types are proposed: 53 alley-loaded lots of 5,000 square feet, and 53 lots of approximately 3,570 square feet. The project proposes 11 second-unit dwellings in this area, all on the alley-loaded lots. These dwellings, plus the existing 69 second-unit dwellings in the Neighborhood F area, total 80 second-unit dwellings, which would satisfy the Master Plan and Specific Plan I requirements of a minimum of 80 second-unit dwellings in this neighborhood.

Masonry soundwalls, approximately six feet in height, are proposed along the Area 2 boundaries with Tradition Street and Arnaudo Boulevard. Entrance to Area 2 would be provided off Tradition Street to the east; a second entrance would be provided off Arnaudo Boulevard to the south. Water service would be provided via 8-inch diameter water lines. Wastewater service would be provided via 8-inch diameter sanitary sewer lines. Storm water would be collected by storm drainage lines ranging from 15 to 24 inches in diameter. Infrastructure systems on the Area 2 site would connect to existing facilities beneath Tradition Street.

Area 3

Area 3 is within the Specific Plan I area. Figure 2-4A and 2-4B show the proposed Land Use Changes and the Tentative Subdivision Map for Area 3. The map proposes a subdivision of Area 3 into 143 single-family residential lots, with a typical lot size of 3,825 square feet. No second-unit dwellings are proposed in this area, as it is not within a neighborhood as indicated in Specific Plan I. While Mountain House Master Plan Policy 3.3.4b requires second-unit dwellings on a specified percentage of parcels within R-L and R-M zoning districts, it also allows second-unit dwellings to be provided elsewhere. As this area is a likely extension of Neighborhood F, second-unit dwellings required for this area would be satisfied with the new secondary units provided in Area 2 of this project as well as the balance of Neighborhood F.

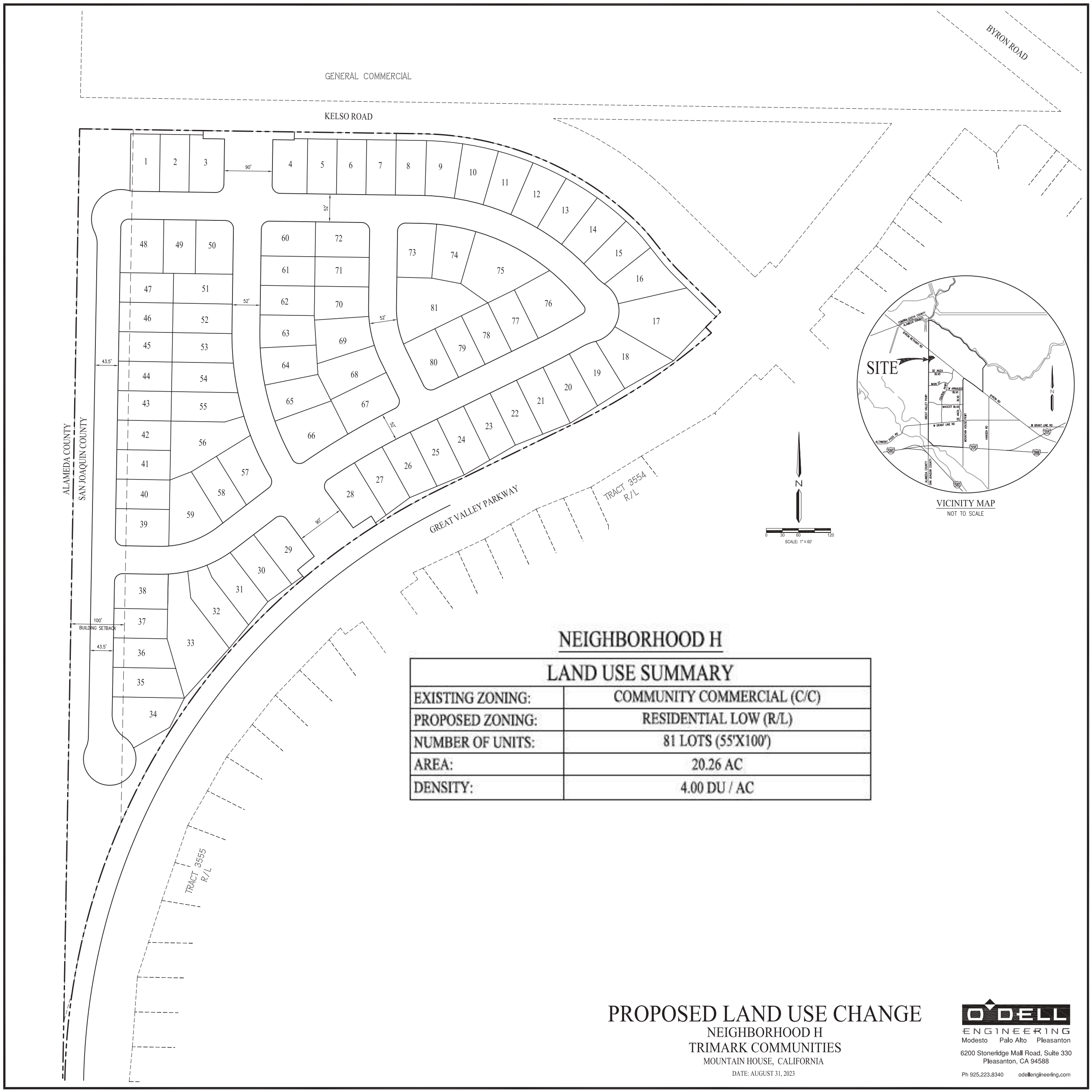
Masonry soundwalls, approximately six feet in height, are proposed along all Area 3 boundaries. Entrances to Area 3 would be provided off Arnaudo Boulevard to the north, De Anza Boulevard to the west, and Wicklund Crossing Way to the south. Water service would be provided via 8-inch diameter water lines. Wastewater service would be provided via 8-inch diameter sanitary sewer lines. Storm water would be collected by storm drainage lines ranging from 15 to 24 inches in diameter. Infrastructure systems on the Area 3 site would connect to existing facilities beneath Arnaudo Boulevard, Wicklund Crossing Way, and Mountain House Parkway.

2.3 PROJECT ENTITLEMENTS

The proposed project development would require amendments to the Mountain House General Plan, the Mountain House Master Plan, and the Mountain House Specific Plans I and II, along with zone reclassifications of the proposed project areas, as described in Table 2-1. The plan amendments and rezonings would require approval from the Mountain House City Council, following the recommendations of the Mountain House Planning Commission. The three proposed Major Tentative Subdivision Maps would likewise require approval from the City of Mountain House. Future development plans with associated improvements, circulation and parking, landscaping, and lighting would require City Planning and City Engineer review and approval for consistency with applicable plans and standards.

SOURCE: Google Maps

Figure 2-1
PROPOSED PROJECT AREAS



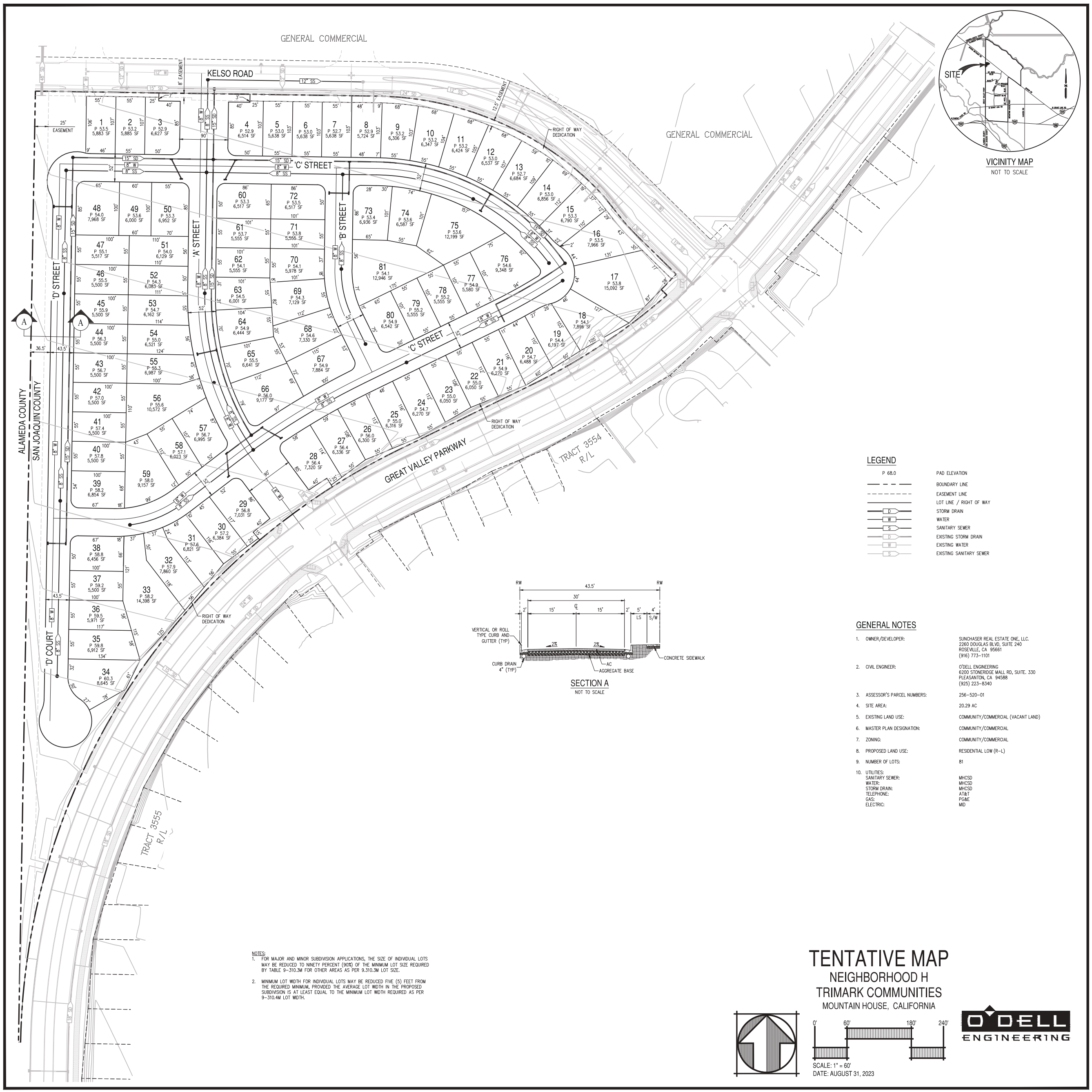
NEIGHBORHOOD H

LAND USE SUMMARY	
EXISTING ZONING:	COMMUNITY COMMERCIAL (C/C)
PROPOSED ZONING:	RESIDENTIAL LOW (R/L)
NUMBER OF UNITS:	81 LOTS (55'X100')
AREA:	20.26 AC
DENSITY:	4.00 DU / AC

PROPOSED LAND USE CHANGE
NEIGHBORHOOD H
TRIMARK COMMUNITIES
MOUNTAIN HOUSE, CALIFORNIA
DATE: AUGUST 31, 2023

O'DELL ENGINEERING
Modesto Palo Alto Pleasanton
6200 Stoneridge Mall Road, Suite 330
Pleasanton, CA 94588
Ph 925.223.8340 odellengineering.com

Figure 2-2A
AREA 1, PROPOSED LAND USE CHANGE



GENERAL NOTES

1.	OWNER/DEVELOPER:	SUNCHASER REAL ESTATE ONE, LLC. 2260 DOUGLAS BLVD, SUITE 240 ROSEVILLE, CA 95661 (916) 773-1101
2.	CIVIL ENGINEER:	O'DELL ENGINEERING 6200 STONERIDGE MALL RD, SUITE. 330 PLEASANTON, CA 94588 (925) 223-8340
3.	ASSESSOR'S PARCEL NUMBERS:	256-520-01
4.	SITE AREA:	20.29 AC
5.	EXISTING LAND USE:	COMMUNITY/COMMERCIAL (VACANT LAND)
6.	MASTER PLAN DESIGNATION:	COMMUNITY/COMMERCIAL
7.	ZONING:	COMMUNITY/COMMERCIAL
8.	PROPOSED LAND USE:	RESIDENTIAL LOW (R-L)
9.	NUMBER OF LOTS:	81
10.	UTILITIES:	
	SANITARY SEWER:	MHCSD
	WATER:	MHCSD
	STORM DRAIN:	MHCSD
	TELEPHONE:	AT&T
	GAS:	PG&E
	ELECTRIC:	MID

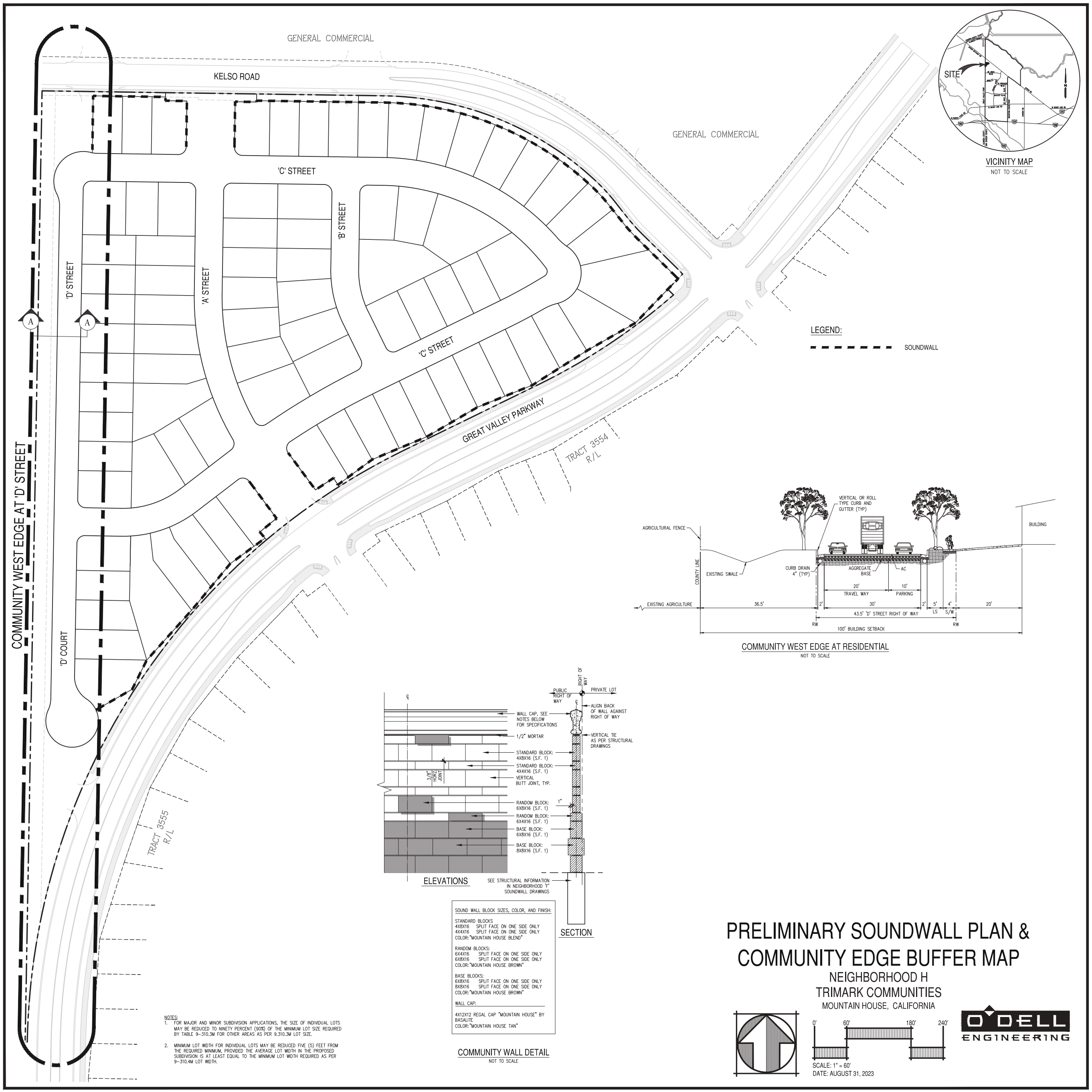
NOTES:

1. FOR MAJOR AND MINOR SUBDIVISION APPLICATIONS, THE SIZE OF INDIVIDUAL LOTS MAY BE REDUCED TO NINETY PERCENT (90%) OF THE MINIMUM LOT SIZE REQUIRED BY TABLE 9-310.3M FOR OTHER AREAS AS PER 9.310.3M LOT SIZE.
2. MINIMUM LOT WIDTH FOR INDIVIDUAL LOTS MAY BE REDUCED FIVE (5) FEET FROM THE REQUIRED MINIMUM, PROVIDED THE AVERAGE LOT WIDTH IN THE PROPOSED SUBDIVISION IS AT LEAST EQUAL TO THE MINIMUM LOT WIDTH REQUIRED AS PER 9-310.4M LOT WIDTH.

TENTATIVE MAP
NEIGHBORHOOD H
TRIMARK COMMUNITIES
MOUNTAIN HOUSE, CALIFORNIA

SCALE: 1" = 60'
DATE: AUGUST 31, 2023

Figure 2-2B
AREA 1, TENTATIVE SUBDIVISION MAP



SOUND WALL BLOCK SIZES, COLOR, AND FINISH:

STANDARD BLOCKS
4X8X16 SPLIT FACE ON ONE SIDE ONLY
4X4X16 SPLIT FACE ON ONE SIDE ONLY
COLOR: "MOUNTAIN HOUSE BLEND"

RANDOM BLOCKS:
6X4X16 SPLIT FACE ON ONE SIDE ONLY
6X8X16 SPLIT FACE ON ONE SIDE ONLY
COLOR: "MOUNTAIN HOUSE BROWN"

BASE BLOCKS:
6X8X16 SPLIT FACE ON ONE SIDE ONLY
8X8X16 SPLIT FACE ON ONE SIDE ONLY
COLOR: "MOUNTAIN HOUSE BROWN"

WALL CAP:

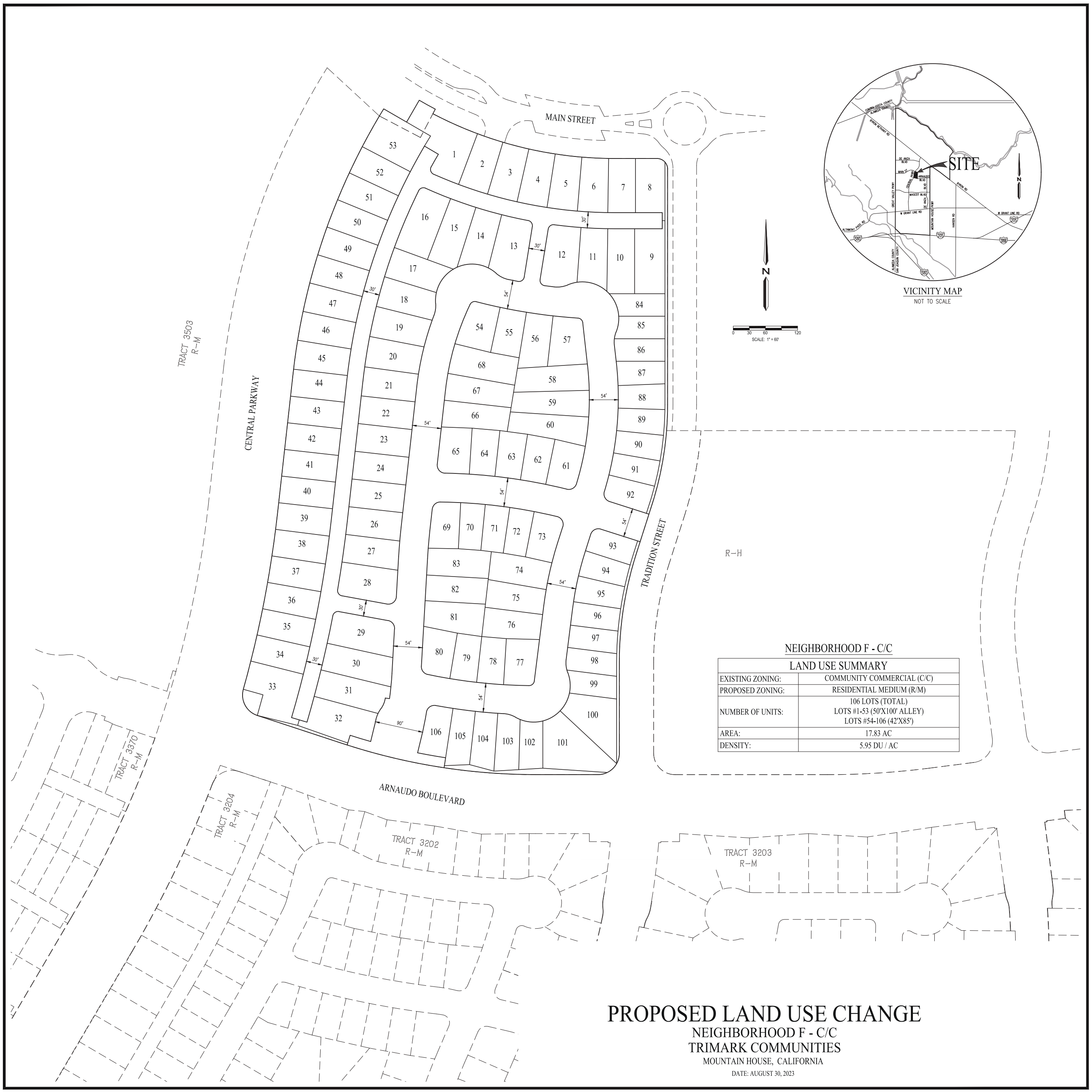
4X12X12 REGAL CAP "MOUNTAIN HOUSE" BY BASALITE
COLOR: "MOUNTAIN HOUSE TAN"

NOTES:

1. FOR MAJOR AND MINOR SUBDIVISION APPLICATIONS, THE SIZE OF INDIVIDUAL LOTS MAY BE REDUCED TO NINETY PERCENT (90%) OF THE MINIMUM LOT SIZE REQUIRED BY TABLE 9-310.3M FOR OTHER AREAS AS PER 9.310.3M LOT SIZE.
2. MINIMUM LOT WIDTH FOR INDIVIDUAL LOTS MAY BE REDUCED FIVE (5) FEET FROM THE REQUIRED MINIMUM, PROVIDED THE AVERAGE LOT WIDTH IN THE PROPOSED SUBDIVISION IS AT LEAST EQUAL TO THE MINIMUM LOT WIDTH REQUIRED AS PER 9-310.4M LOT WIDTH.

T:\26917 NEIGH H COMM COMMERCIAL - MOUNTAIN HOUSE\ACAD\TM\NH H (C-C) - PRELIM SW & COMMUNITY EDGE BUFFER PLAN.DWG

Figure 2-2C
AREA 1, PRELIMINARY SOUNDWALL PLAN & COMMUNITY EDGE BUFFER MAP



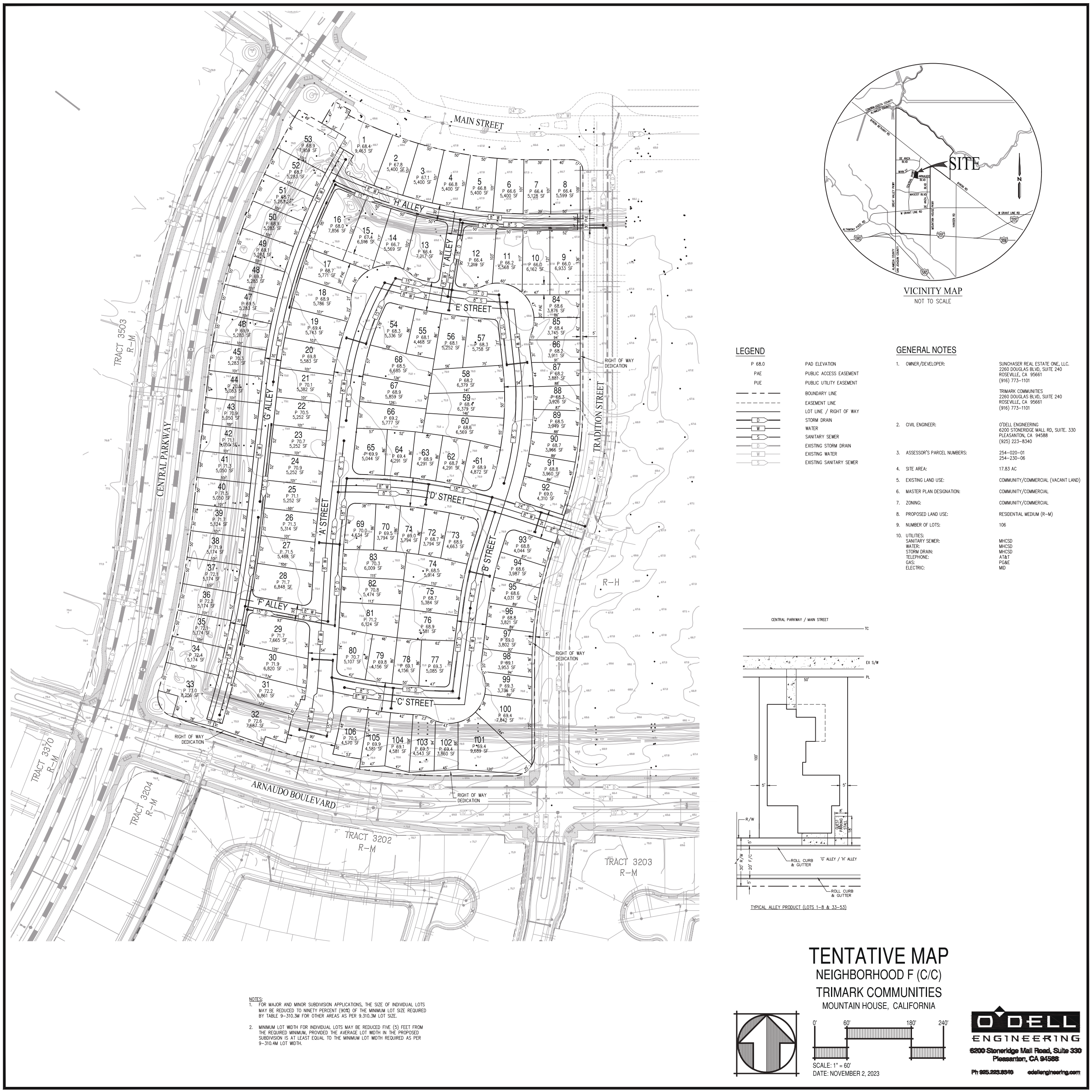
NEIGHBORHOOD F - C/C

LAND USE SUMMARY	
EXISTING ZONING:	COMMUNITY COMMERCIAL (C/C)
PROPOSED ZONING:	RESIDENTIAL MEDIUM (R/M)
NUMBER OF UNITS:	106 LOTS (TOTAL) LOTS #1-53 (50'X100' ALLEY) LOTS #54-106 (42'X85')
AREA:	17.83 AC
DENSITY:	5.95 DU / AC

PROPOSED LAND USE CHANGE
NEIGHBORHOOD F - C/C
TRIMARK COMMUNITIES
MOUNTAIN HOUSE, CALIFORNIA
DATE: AUGUST 30, 2023

T:\26918 NEIGH F COMM COMMERCIAL - MOUNTAIN HOUSE\ACAD\EXHIBITS\PROPOSED LAND USE CHANGE NH-F (C-C).DWG

Figure 2-3A
AREA 2, PROPOSED LAND USE CHANGE



LEGEND

P 68.0	PAD ELEVATION
PAE	PUBLIC ACCESS EASEMENT
PUE	PUBLIC UTILITY EASEMENT
— — —	BOUNDARY LINE
- - - - -	EASEMENT LINE
———	LOT LINE / RIGHT OF WAY
D	STORM DRAIN
W	WATER
S	SANITARY SEWER
D	EXISTING STORM DRAIN
W	EXISTING WATER
S	EXISTING SANITARY SEWER

GENERAL NOTES

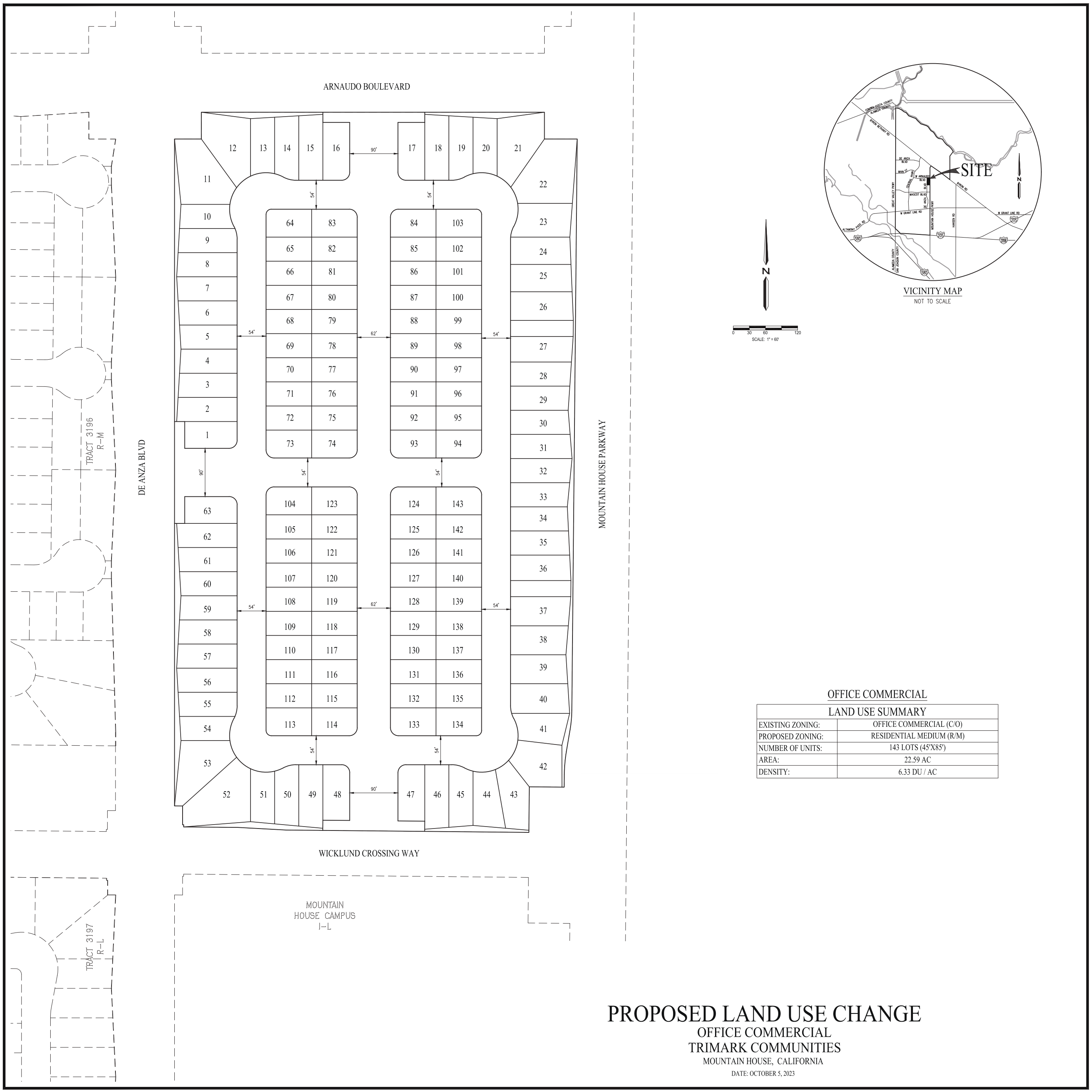
1.	OWNER/DEVELOPER:	SUNCHASER REAL ESTATE ONE, LLC. 2260 DOUGLAS BLVD, SUITE 240 ROSEVILLE, CA 95661 (916) 773-1101 TRIMARK COMMUNITIES 2260 DOUGLAS BLVD, SUITE 240 ROSEVILLE, CA 95661 (916) 773-1101
2.	CIVIL ENGINEER:	O'DELL ENGINEERING 6200 STONERIDGE MALL RD, SUITE. 330 PLEASANTON, CA 94588 (925) 223-8340
3.	ASSESSOR'S PARCEL NUMBERS:	254-020-01 254-230-06
4.	SITE AREA:	17.83 AC
5.	EXISTING LAND USE:	COMMUNITY/COMMERCIAL (VACANT LAND)
6.	MASTER PLAN DESIGNATION:	COMMUNITY/COMMERCIAL
7.	ZONING:	COMMUNITY/COMMERCIAL
8.	PROPOSED LAND USE:	RESIDENTIAL MEDIUM (R-M)
9.	NUMBER OF LOTS:	106
10.	UTILITIES:	
	SANITARY SEWER:	MHCSD
	WATER:	MHCSD
	STORM DRAIN:	MHCSD
	TELEPHONE:	AT&T
	GAS:	PG&E
	ELECTRIC:	MID

NOTES:

1. FOR MAJOR AND MINOR SUBDIVISION APPLICATIONS, THE SIZE OF INDIVIDUAL LOTS MAY BE REDUCED TO NINETY PERCENT (90%) OF THE MINIMUM LOT SIZE REQUIRED BY TABLE 9-310.3M FOR OTHER AREAS AS PER 9.310.3M LOT SIZE.
2. MINIMUM LOT WIDTH FOR INDIVIDUAL LOTS MAY BE REDUCED FIVE (5) FEET FROM THE REQUIRED MINIMUM, PROVIDED THE AVERAGE LOT WIDTH IN THE PROPOSED SUBDIVISION IS AT LEAST EQUAL TO THE MINIMUM LOT WIDTH REQUIRED AS PER 9-310.4M LOT WIDTH.

TENTATIVE MAP
NEIGHBORHOOD F (C/C)
TRIMARK COMMUNITIES
MOUNTAIN HOUSE, CALIFORNIA

Figure 2-3B
AREA 2, TENTATIVE SUBDIVISION MAP



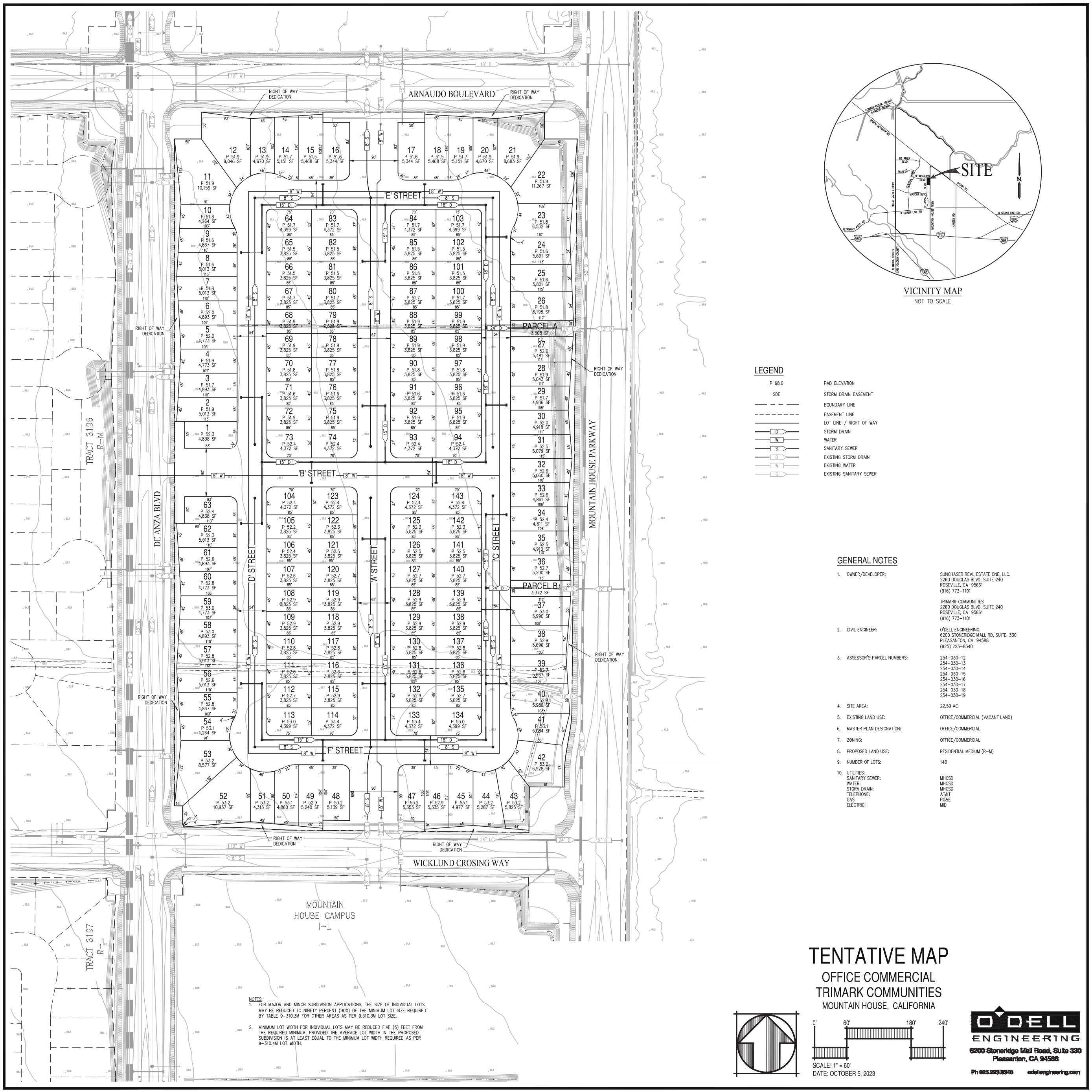
OFFICE COMMERCIAL

LAND USE SUMMARY	
EXISTING ZONING:	OFFICE COMMERCIAL (C/O)
PROPOSED ZONING:	RESIDENTIAL MEDIUM (R/M)
NUMBER OF UNITS:	143 LOTS (45'X85')
AREA:	22.59 AC
DENSITY:	6.33 DU / AC

PROPOSED LAND USE CHANGE
OFFICE COMMERCIAL
TRIMARK COMMUNITIES
MOUNTAIN HOUSE, CALIFORNIA
DATE: OCTOBER 5, 2023

T:\26915 NEIGH F OFFICE COMMERCIAL - MOUNTAIN HOUSE\ACAD\EXHIBITS\PROPOSED LAND USE CHANGE NH-F (C-O).DWG

Figure 2-4A
AREA 3, PROPOSED LAND USE CHANGE



LEGEND

P 68.0	PAD ELEVATION
SDE	STORM DRAIN EASEMENT
— — —	BOUNDARY LINE
- - - - -	EASEMENT LINE
———	LOT LINE / RIGHT OF WAY
D	STORM DRAIN
W	WATER
S	SANITARY SEWER
D	EXISTING STORM DRAIN
W	EXISTING WATER
S	EXISTING SANITARY SEWER

GENERAL NOTES

1. OWNER/DEVELOPER:	SUNCHASER REAL ESTATE ONE, LLC. 2260 DOUGLAS BLVD, SUITE 240 ROSEVILLE, CA 95661 (916) 773-1101 TRIMARK COMMUNITIES 2260 DOUGLAS BLVD, SUITE 240 ROSEVILLE, CA 95661 (916) 773-1101
2. CIVIL ENGINEER:	O'DELL ENGINEERING 6200 STONERIDGE MALL RD, SUITE. 330 PLEASANTON, CA 94588 (925) 223-8340
3. ASSESSOR'S PARCEL NUMBERS:	254-030-12 254-030-13 254-030-14 254-030-15 254-030-16 254-030-17 254-030-18 254-030-19
4. SITE AREA:	22.59 AC
5. EXISTING LAND USE:	OFFICE/COMMERCIAL (VACANT LAND)
6. MASTER PLAN DESIGNATION:	OFFICE/COMMERCIAL
7. ZONING:	OFFICE/COMMERCIAL
8. PROPOSED LAND USE:	RESIDENTIAL MEDIUM (R-M)
9. NUMBER OF LOTS:	143
10. UTILITIES:	
SANITARY SEWER:	MHCSD
WATER:	MHCSD
STORM DRAIN:	MHCSD
TELEPHONE:	AT&T
GAS:	PG&E
ELECTRIC:	MID

NOTES:

1. FOR MAJOR AND MINOR SUBDIVISION APPLICATIONS, THE SIZE OF INDIVIDUAL LOTS MAY BE REDUCED TO NINETY PERCENT (90%) OF THE MINIMUM LOT SIZE REQUIRED BY TABLE 9-310.3M FOR OTHER AREAS AS PER 9.310.3M LOT SIZE.
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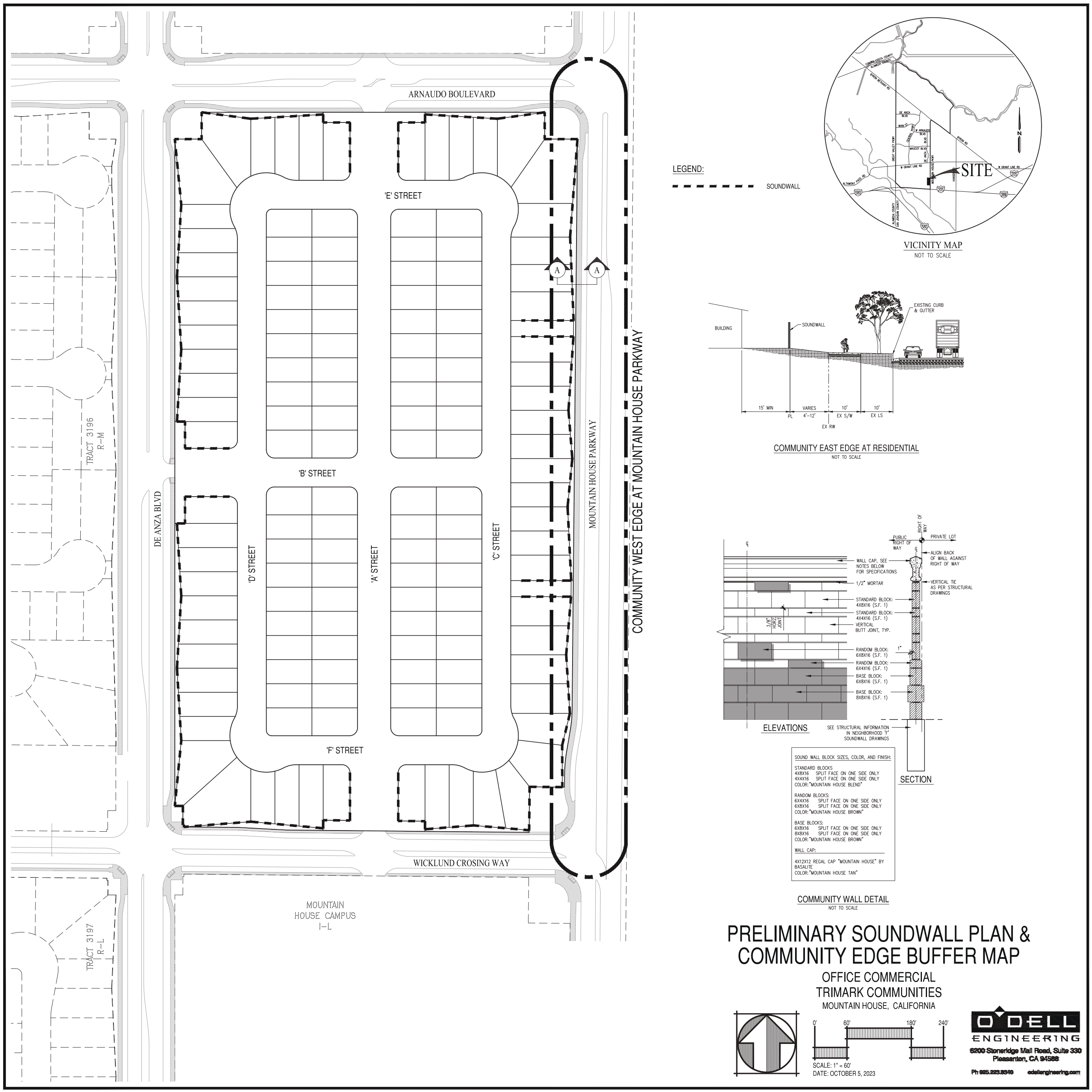
TENTATIVE MAP
OFFICE COMMERCIAL
TRIMARK COMMUNITIES
MOUNTAIN HOUSE, CALIFORNIA

0' 60' 180' 240'
SCALE: 1" = 60'
DATE: OCTOBER 5, 2023

O'DELL ENGINEERING
6200 Stoneridge Mall Road, Suite 330
Pleasanton, CA 94588
Ph 925.223.8340 odellengineering.com

T:\26915 NEIGH F OFFICE COMMERCIAL - MOUNTAIN HOUSE\ACAD\TM\TM NH-F (C-O).DWG

Figure 2-4B
AREA 3, TENTATIVE SUBDIVISION MAP



T:\26915 NEIGH F OFFICE COMMERCIAL - MOUNTAIN HOUSE\ACAD\TM\NH-F (C-O) - PRELIM SOUNDWALL PLAN.DWG

Figure 2-4C
AREA 3 PRELIMINARY SOUNDWALL PLAN&
COMMUNITY EDGE BUFFER MAP

BaseCamp Environmental

3.0 ENVIRONMENTAL IMPACT COMPARISON

This chapter evaluates the potential environmental impacts of the proposed project in comparison to the potential environmental effects of development of the three project sites as considered in the certified EIR. In accordance with the requirements of CEQA Guidelines Section 15163 and 15168, the purpose is to evaluate each of the environmental categories in terms of any "changes" or "new information" that may result in new or more severe environmental impact and whether additional mitigation measures would be required to address any changes.

3.1 EXPLANATION OF IMPACT EVALUATION CATEGORIES

This section describes the organization of the sections for each CEQA Appendix G environmental resource area included in this Addendum. Each environmental resource area presents the relevant CEQA Guidelines Appendix G questions to be analyzed.

Where Impact Was Analyzed in the Previous CEQA Documents: This column provides a reference to the page(s) of the certified EIR where information and analysis may be found relative to the environmental issue listed under each topic.

Do Proposed Changes Involve New or More Severe Impacts?: Pursuant to Section 15162(a)(1) of the CEQA Guidelines, this column indicates whether the changes represented by the current project will result in new impacts that have not already been considered and mitigated by a previous EIR or that substantially increase the severity of a previously identified impact. If a "yes" answer is given and more severe impacts are specified, additional mitigations will be specified in the discussion section including a statement of impact status after mitigation.

Any New Circumstances Involving New or More Severe Impacts?: Pursuant to Section 15162(a)(2) of the CEQA Guidelines, this column indicates whether there have been changes to the project site or the vicinity (environmental setting) that have occurred subsequent to the certification of an EIR, which would result in the current project having significant impacts that were not considered or mitigated by that EIR or which substantially increase the severity of a previously identified impact.

Any New Information Requiring New Analysis or Verification?: Pursuant to Section 15162(a)(3) of the CEQA Guidelines, this column indicates whether new information is available requiring an update to the analysis of a previous EIR to verify that the environmental conclusions and mitigations remain valid. This also applies to any new regulations that might change the nature of analysis or the specifications of a mitigation measure. If additional analysis is conducted as part of this environmental impact comparison and the environmental conclusion remains the same, no new or additional mitigation is necessary. If the analysis indicates that a mitigation requires supplemental specifications, no additional environmental documentation is needed if it is found that the modified mitigation achieves a reduction in impact to the same level as originally intended.

Discussion: A discussion of the elements of the impact is provided for each impact statement to clarify the answers. The discussion provides information about the environmental issue, how the project relates to the issue, and the status of any mitigation that may be required or that has already been implemented. The discussion of each lettered CEQA Appendix G question includes a concluding statement indicating if the proposed project would result in any changes, new circumstances, or new information that would involve new significant impacts or substantially more severe impacts from what has been anticipated for the proposed project areas in the previous CEQA documents.

It should be noted that a "No" answer does not necessarily mean that potential impacts do not exist relative to the environmental category. Rather, it means that the project would not involve a relevant change to the significance of the impact or the need for mitigation as described in the previous environmental document. Under these circumstances, a "No" answer indicates the proposed project does not result in any need to modify the conclusions of the certified EIR.

3.2 MITIGATION SECTIONS

This section describes the previous, modified, and new mitigation measures for the proposed project and how the mitigation measures are presented within each section of this Addendum.

Mitigation Measures from the Previous CEQA Documents: Applicable mitigation measures from the previous CEQA documents that apply to the changes or new information are referenced under each environmental category. These mitigation measures follow the numbering scheme of the certified EIR. Only the mitigation measure numbers are referenced in this section - Appendix A of this Addendum contains the full listing of mitigation measures. The mitigation measures are from the Master Plan/Specific Plan I EIR. The Specific Plan II Initial Study found that the Master Plan EIR adequately addressed environmental impacts associated with Specific Plan II implementation and therefore did not identify any mitigation measures beyond those in the EIR.

Modified Mitigation Measures: Where applicable, the mitigation measures from the previous CEQA documents have been modified for application to the project. The modification of previous mitigation measures ensures the incorporation of relevant site-specific information to maintain potential project related impacts at a level equal to those identified in the previous CEQA documents. Deleted text that does not apply to the currently proposed project is shown as struck through.

Additional Project-Specific Mitigation Measures: If changes or new information involve new impacts, additional mitigation measures, if available and feasible, are listed under each environmental category. The mitigation measures will be included as project conditions to address those impacts. The project applicant has agreed in advance to accept all such mitigation measures.

3.3 ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED

The environmental categories checked below would ordinarily be those areas of environmental concern potentially affected by the proposed project, typically an impact that is a new significant impact or a substantially more severe environmental impact than what was described in the certified EIR. These potential impacts would be discussed on the pages following this section as necessary, along with any mitigation measures that would be needed address such impacts. Since no new or substantially more severe environmental impacts have been identified with respect to the proposed project, no categories have been checked.

☐ Aesthetics
☐ Agriculture/Forestry Resources
☐ Air Quality
☐ Biological Resources
☐ Cultural Resources
☐ Energy
☐ Geology/Soils
☐ Greenhouse Gas Emissions
☐ Hazards/Hazardous Materials
☐ Hydrology/Water Quality
☐ Land Use
☐ Mineral Resources
☐ Noise
☐ Population/Housing
☐ Public Services
☐ Recreation
☐ Transportation
☐ Tribal Cultural Resources
☐ Utilities/Service Systems
☐ Wildfire
☐ Mandatory Findings of Significance

3.4 ENVIRONMENTAL CHECKLIST

3.4.1 Aesthetics and Visual Resources

Except as provided in Public Resources Code Section 21099, would the project:	**Where impact was analyzed in previous CEQA documents**	**Do proposed changes involve new or more severe impacts?**	**New circumstances involving new impacts?**	**Any new information requiring new analysis or verification?**
a) Have a substantial adverse effect on a scenic vista?	Master Plan EIR pp. 4.8-11A, 4.8-12.	No	No	No
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	Master Plan EIR pp. 4.8-13, 4.8-16.	No	No	No
c) In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage points.) If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?	Master Plan EIR pp. 4.8-3 through 4.8-11A, and 4.8-12 through 4.8-13.	No	No	No
d) Create a new source of substantial light or glare which would adversely affect daytime or nighttime views in the area?	Master Plan EIR pp. 4.8-13 and 4.8-14.	No	No	No

DISCUSSION

a) Impact M4.8-2 in the certified EIR addressed potential impacts to scenic vistas, which were identified as views of Mt. Diablo and the foothills west of the Master Plan area. The foothills form a backdrop to open agricultural fields, providing a sense of distance to the viewer. The views of concern are from Patterson Pass Road, Grant Line Road, and Byron Road. Mitigation Measure M4.8-2 proposes a Master Plan policy of protecting view corridors of Mt. Diablo and the foothills to the greatest extent possible and implementing actions that include the planting of trees on east-west roadways to frame views to the west and identification of breaks in landscaping along north-south arterials to maximize views. The certified EIR concluded that implementation of Mitigation Measure M4.8-2 would reduce Impact M4.8-2 to a level that would be less than significant.

Development under the proposed project would result in a similar visual quality impact to what was evaluated in the certified EIR. The project would not cause a new significant or substantially more severe impact on scenic vistas beyond that previously analyzed in the certified EIR. The proposed project would still be subject to Mitigation Measure M4.8-2, which would render impacts less than significant. Therefore, the conclusions in the certified EIR remain applicable to the proposed project. Based on the above, the proposed project would not result in any changes, new circumstances, or new information that would involve new significant impacts or substantially more severe impacts from what had been anticipated for the proposed project areas in the certified EIR.

b) Impacts M4.8-4 and S4.8-2 in the certified EIR discussed impacts on scenic resources. The scenic resources identified in the certified EIR were rows of mature deciduous trees that line Patterson Pass Road (renamed Mountain House Parkway north of Interstate 205) and Grant Line Road. Mitigation Measure M4.8-4 requires a change to a Master Plan policy that would preserve these existing healthy mature trees and incorporate them into the landscape design of the community to the greatest extent practicable. Mitigation Measure S4.8-2 requires existing mature trees to be identified on tentative maps or construction plans prior to their approval, and for these trees to be preserved in accordance with the Parks and Open Space Plan. The certified EIR concluded that implementation of Mitigation Measures M4.8-4 and S4.8-2 would reduce Impacts M4.8-4 and S4.8-2, respectively, to a level that would be less than significant.

The proposed project areas are not on Grant Line Road; there are no identified scenic resources within Areas 1, 2 or 3. Area 3 is adjacent to Mountain House Parkway. None of the scenic trees are located along Mountain House Parkway frontage, which is now entirely developed with street improvements, including paving and curbs, sidewalks and landscaping strips. As a result, the project would not cause a new significant or substantially more severe impact on scenic resources beyond that previously analyzed in the certified EIR. The proposed project would still be subject to Mitigation Measures M4.8-4 and S4.8-2, which would render impacts less than significant. Therefore, the conclusions in the certified EIR remain applicable to the proposed project. Based on the above, the proposed project would not result in any changes, new circumstances, or new information that would involve new significant impacts or substantially more severe impacts from what had been anticipated for the proposed project areas in the certified EIR.

c) Impacts M4.8-1, M4.8-3, and S4.8-1 in the certified EIR addressed the potential impacts to the visual character and quality of the project site and its surroundings. Impact M4.8-1 noted that Master Plan development would alter the visual character of the project site as viewed from public roads in the area, due to building construction. The Master Plan contains landscaping and setback treatments applicable to development along Master Plan boundaries and main roads. It also mentions a policy requiring conformance of development to sign regulations, except as modified in the Mountain House Design Manual or by future Specific Plans. Mitigation Measure M4.8-1 expands a policy on landscaping treatments to include fencing, trails, and bikeways and to include a conceptual plant and tree palette, to amend the Draft Mountain House Design Review Manual to define the Community Review Board (which is now known as the Design Review Committee) and to describe its typical duties, among other revisions. The applicable documents have been adopted by the City and would apply to the proposed project.

Impact M4.8-3 stated that industrial and high-density residential buildings along major view corridors or open space corridors could affect views or create a strong visual contrast and generate long shadows. Mitigation Measure M4.8-3 stated that structures in a high-density residential area west of the open space corridor along Mountain House Creek must meet specified setback requirements.

Impact S4.8-1 identified potential adverse visual impacts related to signage along the Interstate 205 corridor. Mitigation Measure S4.8-1 modifies a proposed policy to require a signage program for the Freeway Service Commercial District. For all three impacts, implementation of mitigation measures would reduce impacts to a level that would be less than significant.

While the proposed project would change the types of uses proposed, the project would not result in the development of any lands that were not previously analyzed for urban uses. In fact, the impacts of the proposed project on visual character along the Mountain House Parkway "community edge" would not be significant. The "community edge" is defined by existing road improvements and mature landscaping within the 128-foot Mountain House Parkway right-of-way, which largely obscures existing urban commercial and industrial development west of the Parkway. This is illustrated by existing commercial development west of the Parkway to the immediate south and north of Area 3.

South of Area 3, recently constructed light industrial buildings are set back 40-50 feet from the property boundary, which would exceed the 15-foot minimum rear setback for single-family residences; however, the apparent height of these buildings at their eastern edge exceeds the much lower profile than would be associated with single-family residences; the light industrial buildings have little architectural variation and present a monolithic and somewhat confining view to the Parkway.

Immediately north of Area 3, a recently constructed two-story office building backs up to its eastern property line and has its entry and parking access from Arnaudo Boulevard. This building is separated from Mountain House Parkway right-of-way by only a 10 to 20-foot landscaping strip.

The potential aesthetic effects of the proposed low-density residential development west of the Parkway would be generally less obtrusive than the anticipated commercial and industrial development that was analyzed in the certified EIR. The proposed residential development of Area 3 would result in some changes to the anticipated visual character of the community edge along Mountain House Parkway, but these changes would not be significant. Proposed single-family residential development would involve substantially more variation in building spacing, height, massing and architectural treatment than nearby industrial and commercial development. Residential development would include the installation of sound walls along the Mountain House Parkway, but these would be consistent with the uniform Mountain House wall treatment made up of decorative block, cap and pilasters.

The project would have no substantial effect on the appearance of the community edge from the east. Views of Mountain House from this angle are defined by existing trees and landscaping along the Parkway, which filter or obstruct views of land uses west of the Parkway. Project aesthetic effects would in any event be limited to the approximately 1,300 feet of Area 3 frontage on Mountain House Parkway; the remainder of the Parkway frontage is planned for light industrial and commercial development as provided in the Master Plan.

Therefore, project aesthetic effects s would not exceed those described in the certified EIR. In addition, Mitigation Measure M4.8-1 would still be applicable.

In addition, future development of Area 3 along Mountain House Parkway would be subject to landscaping requirements that would mitigate any changes in views from the roadway. These same requirements would apply to development in other Mountain House areas. Therefore, project impacts would not be more severe from what was previously anticipated. In addition, Mitigation Measure M4.8-1 would still be applicable.

No industrial or high-density residential buildings are proposed, and no changes are proposed in the Specific Plan I area along Interstate 205. Based on the above, the proposed project would not result in any changes, new circumstances, or new information that would involve new significant impacts or substantially more severe impacts from what had been anticipated for the proposed project areas in the certified EIR.

d) Impact M4.8-5 in the certified EIR addressed the generation of new light and glare from Master Plan development. The Master Plan contains several implementing actions that address lighting design standards; however, the issue of minimizing light impacts between adjacent land uses was not adequately addressed. Mitigation Measure M4.8-5 includes a Master Plan policy that lighting throughout the Master Plan area shall be designed to minimize glare and impacts to adjacent land uses. The certified EIR concluded that implementation of Mitigation Measure M4.8-5 would reduce Impact M4.8-5 to a level that would be less than significant.

Development under the proposed project would result in a similar visual quality impact to what was evaluated in the certified EIR. In fact, impacts related to light and glare may be reduced, as commercial and office uses that may require more exterior lighting would be replaced by single-family residences, which would not use as much exterior lighting. The project would not cause a new significant or substantially more severe impact related to light and glare beyond that previously analyzed in the certified EIR. The proposed project would still be subject to Mitigation Measure M4.8-5, which would render impacts less than significant. Therefore, the conclusions in the certified EIR remain applicable to the proposed project. Based on the above, the proposed project would not result in any changes, new circumstances, or new information that would involve new significant impacts or substantially more severe impacts from what had been anticipated for the proposed project areas in the certified EIR.

MITIGATION MEASURES

Mitigation Measures from the Previous CEQA Documents

Master Plan EIR Mitigation Measures M4.8-1, M4.8-2, M4.8-3, M4.8-4, M4.8-5, S4.8-1, and S4.8-2 (see Appendix A of this Addendum).

Modified Mitigation Measures

None required.

Additional Project-Specific Mitigation Measures

None required.

3.4.2 Agriculture and Forestry Resources

Would the project:	**Where impact was analyzed in previous CEQA documents**	**Do proposed changes involve new or more severe impacts?**	**New circumstances involving new impacts?**	**Any new information requiring new analysis or verification?**
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance, as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	Master Plan EIR p. 4.1-10.	No	No	No
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	Master Plan EIR pp. 4.1-17 through 4.1-21.	No	No	No
c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code Section 12220(g)), timberland (as defined by Public Resources Code Section 4526), or timberland zoned Timberland Production (as defined by Government Code Section 51104(g))?	Not analyzed.	No	No	No
d) Result in the loss of forest land or conversion of forest land to non-forest use?	Not analyzed.	No	No	No
d) Involve other changes in the existing environment that, due to their location or nature, could	Master Plan EIR pp. 4.1-10 through 4.1-15, 4.1-21 through 4.1-23.	No	No	No

result in conversion of Farmland to non-agricultural use?				

DISCUSSION

a) Impact 4.1-1 of the certified EIR evaluated the conversion of Farmland, defined in CEQA Guidelines Appendix G as Prime Farmland, Unique Farmland, or Farmland of Statewide Importance. Development under the Master Plan would convert approximately 3,600 acres of Prime Farmland to non-agricultural uses. Mitigation Measure M4.1-1 requires the project developer to pay an agricultural mitigation fee if a Countywide agricultural mitigation fee were established. Nevertheless, the certified EIR concluded that the impact of Farmland conversion was significant and unavoidable. A Statement of Overriding Considerations was adopted justifying the loss of Prime Farmland resulting from development occurring under the Master Plan.

Development under the proposed project would result in a similar impact on Farmland to what was evaluated in the certified EIR. The project would not cause a new significant or substantially more severe impact on Farmland beyond that previously analyzed in the certified EIR. Therefore, the conclusions in the certified EIR remain applicable to the proposed project. The proposed project would still be subject to Mitigation Measure M4.1-1, which would reduce the impact but not to a level considered less than significant. Based on the above, the proposed project would not result in any changes, new circumstances, or new information that would involve new significant impacts or substantially more severe impacts from what had been anticipated for the proposed project areas in the certified EIR. The adopted Statement of Overriding Considerations would still apply to the proposed project.

b) Potential conflicts with agricultural zoning were not discussed in the certified EIR, as the Master Plan would involve changes to any agricultural zoning to non-agricultural zoning. The proposed project would not involve any land currently zoned for agricultural use, so it would not conflict with agricultural zoning.

Impact S4.1-1 of the certified EIR discussed the impacts of Specific Plan I on lands with Williamson Act contracts. Of concern here was the restriction of development of the Specific Plan I area due to non-expiring Williamson Act contracts. Mitigation Measure S4.1-1 provides alternatives to development should lands under Williamson Act contracts not become available. However, Williamson Act contracts in existence on Specific Plan I lands at the time the EIR was certified were scheduled to expire no later than December 1998. None of the parcels that are part of the proposed project are under a Williamson Act contract. Therefore, the proposed project would have no impact on either agricultural zoning or Williamson Act contracts. Mitigation Measure S4.1-1 would not apply to the proposed project.

c, d) California Public Resources Code Section 12220(g) defines forest land as land that can support 10-percent native tree cover of any species, including hardwoods, under natural conditions, and that allows for management of one or more forest resources, including timber, aesthetics, fish and wildlife, biodiversity, water quality, recreation, and other public benefits. The Public Resources Code defines timberland as privately owned land, or land acquired for state forest purposes, which is devoted to and used for growing and harvesting timber, or for growing and harvesting timber and compatible uses, and which is capable of growing an average annual volume of wood fiber of at least 15 cubic feet per acre.

The certified EIR did not evaluate impacts related to forestry resources, because the CEQA Guidelines did not include forestry resources questions in its Appendix G Checklist at the time of EIR certification. However, none of the proposed project areas contain forests, and existing conditions in these areas do not meet the definitions of forest land or timberland. Thus, no impact would occur to forestry resources.

e) Impacts M4.1-2, S4.1-2, and S4.1-3 of the certified EIR addressed issues associated with potential indirect conversion of Farmland. Both Impacts M4.1-2 and S4.1-3 noted that placing urban uses next to agricultural operations in the vicinity could potentially conflict with the continued cultivation of these farmlands, which could potentially lead to the indirect conversion of off-site adjacent farmland to non-agricultural uses. Impact S4.1-3 more specifically identified this potential impact with Specific Plan I. Impact S4.1-2 stated that inclusion of lands within the CSD that are not proposed for development under Specific Plan I could result in premature conversion of agricultural operations. The Master Plan prescribes treatments along edge areas designed to reduce potential urban/agricultural conflicts, such as buffer areas. Mitigation Measure M4.1-2 further refines these treatments by identifying the agencies to maintain the buffer areas. Similar treatments were prescribed for Specific Plan I, with refinements made by Mitigation Measure S-4.1-3. Mitigation Measure S4.1-2 requires agricultural properties that are not proposed for development within five years to be deleted from the initial CSD boundaries, with exceptions. For all three impacts, implementation of mitigation measures would reduce impacts to a level that would be less than significant. The requirements are not applicable to the three project areas, none of which are in agricultural use and all of which can be considered infill sites.

Development under the proposed project would result in a similar indirect conversion impact to what was evaluated in the certified EIR, except that there are no lands designated for agriculture within the CITY, so Mitigation Measure S4.1-2 would not apply. The project would not cause a new significant or substantially more severe impact related to indirect conversion of Farmland beyond that previously analyzed in the certified EIR. The proposed project would still be subject to Mitigation Measures M4.1-2 and S4.1-3, which would render potential impacts less than significant. Therefore, the conclusions in the certified EIR remain applicable to the proposed project. Based on the above, the proposed project would not result in any changes, new circumstances, or new information that would involve new significant impacts or substantially more severe impacts from what had been anticipated for the proposed project areas in the certified EIR.

MITIGATION MEASURES

Mitigation Measures from the Previous CEQA Documents

Master Plan EIR Mitigation Measures M4.1-1, M4.1-2, and S4.1-3 (see Appendix A of this Addendum).

Modified Mitigation Measures

None required.

Additional Project-Specific Mitigation Measures

None required.

3.4.3 Air Quality

Where available, the significance criteria established by the applicable air quality management district or air pollutant control district may be relied upon to make the following determinations. Would the project:	**Where impact was analyzed in previous CEQA documents**	**Do proposed changes involve new or more severe impacts?**	**New circumstances involving new impacts?**	**Any new information requiring new analysis or verification?**
a) Conflict with or obstruct implementation of the applicable Air Quality Attainment Plan?	Master Plan EIR pp. 4.13-2 through 4.13-4A, 4.13-6 through 4.13-9.	No	No	No
b) 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?	Master Plan EIR pp. 4.13-2 through 4.13-4A.	No	No	No
c) Expose sensitive receptors to substantial pollutant concentrations?	Master Plan EIR pp. 4.13-6 through 4.13-9.	No	No	No
d) Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?	Master Plan EIR pp. 4.13-5 through 4.13-6.	No	No	No

DISCUSSION

a) The certified EIR analyzed the air quality impacts of the Master Plan based on proposed development and results from the URBEMIS-3 computer modeling program. At the time the EIR was prepared, the San Joaquin Valley Air Basin, within which the Master Plan area is located, was in nonattainment status of federal and State air quality standards for ozone and federal air quality standards for particulate matter less than 10 micrometers in diameter (PM_{10}). Currently, the Air Basin area is designated as extreme nonattainment for the federal 8-hour ozone standard, nonattainment for the federal particulate matter less than 2.5 micrometers in diameter ($PM_{2.5}$) standard, and attainment or unclassified for all other federal air quality standards, including PM_{10}. At the State level, the area is designated as severe nonattainment for the 1-hour ozone standard, nonattainment for the 8-hour ozone, PM_{10}, and $PM_{2.5}$ standards, and attainment or unclassified for all other State air quality standards.

The discussion under Impacts M4.13-1 and S4.13-2 in the certified EIR indicated that Master Plan development, which includes development of Specific Plan I, would generate emissions of ozone precursors and PM_{10} such that they would delay attainment of federal and State air quality standards for ozone and PM_{10}. Mitigation Measure M4.13-1 adds policies to the Master Plan that require tentative residential subdivision maps to include features designed to reduce emissions. Nevertheless, the certified EIR concluded that both impacts would be significant and unavoidable. A Statement of Overriding Considerations was adopted justifying the impacts on air quality resulting from development occurring from development of Mountain House.

Air quality impacts were assessed for the proposed project, to determine whether the proposed project could involve more severe air quality impacts than those that were analyzed in the certified EIR. The analysis below evaluates the anticipated emissions from implementation of the proposed project compared with buildout of the site as previously approved. To analyze emissions from construction and operations, emissions were quantified using the California Emissions Estimator Model (CalEEMod) – a Statewide model designed to provide a uniform platform to quantify air quality and greenhouse gas (GHG) emissions from land use projects. The model applies inherent default values for various land uses, including construction data, vehicle mix, trip length, average speed, etc.

Under the current Specific Plan I, approximately 414,256 square feet of Community Commercial and 344,560 square feet of Office Commercial development is allowed in the proposed project areas. The proposed project would develop 330 single-family residences in these areas. CalEEMod emission estimates were generated based on both development scenarios. The results of the CalEEMod runs are included in Appendix B of this Addendum, and a summary of the results is provided in Table 3-1 below.

As indicated in Table 3-1, construction emissions would in general be greater under the proposed project. Construction activities would, however, be subject to SJVAPCD rules and regulations. These include Regulation VIII, which controls fugitive dust emissions, and Rule 9510, which requires projects of specified sizes to reduce NO_x and PM_{10} emissions. In addition, construction emissions are temporary and would cease when project work is completed.

TABLE 3-1
EMISSIONS FROM PROPOSED PROJECT COMPARED TO EXISTING DESIGNATIONS

	ROG	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
Construction Emissions (tons/year)[1]						
Current Designations	1.96	1.79	2.25	<0.01	0.46	0.21
Proposed Project	1.26	3.19	3.22	<0.01	2.17	0.98
Operational Emissions (tons/year)[2]						
Current Designations	7.22	6.05	39.37	0.09	11.97	3.26
Proposed Project	3.50	1.82	11.96	0.03	3.41	0.96

[1] Maximum unmitigated emissions in a calendar year.
[2] Annual unmitigated emissions.
Source: CalEEMod Version 2020.4.0.

Operational emissions generated by the proposed project were found to be less than those generated by potential development under current Specific Plan I designations. Emissions under the proposed project would still contribute to the significant and unavoidable impact identified in the certified EIR. However, the proposed project would contribute fewer emissions; therefore, it would have less of an impact on air quality. Because of this, the proposed project would not result in any changes, new circumstances, or new information that would involve new significant impacts or substantially more severe impacts from what had been anticipated for the proposed project areas in the certified EIR. The adopted Statement of Overriding Considerations would still apply to the proposed project.

b) As noted, the certified EIR identified significant and unavoidable impacts on regional air quality. As shown, in a) above, the proposed project would lead to a generation of fewer emissions than would potential development under current Specific Plan I designations. Therefore, while the proposed project would contribute to a cumulatively considerable impact, it would make less of a cumulative contribution than the previous project. The proposed project would not result in any changes, new circumstances, or new information that would involve new significant impacts or substantially more severe impacts from what had been anticipated for the proposed project areas in the certified EIR. The adopted Statement of Overriding Considerations adopted by…would still apply to the proposed project.

c) Some land uses are considered more sensitive to air pollution than others, due to the types of population groups or activities involved. Heightened sensitivity may be caused by pre-existing health problems, proximity to the emissions source, and/or duration of exposure to air pollutants. Children, pregnant women, the elderly, and those with existing health problems are especially vulnerable to the effects of air pollution. Accordingly, land uses that are typically considered to be sensitive receptors include residences, schools, childcare centers, playgrounds, retirement homes, convalescent homes, hospitals, and medical clinics.

Impacts M4.1-2, M4.13-5 and S4.13-3 of the certified EIR analyzed the potential impacts of dust generated by construction activities. The discussion noted that construction activities could create a dust nuisance for residents in the area. The Draft Master Plan contains a program to mitigate construction air impacts, which is consistent with the rules in SJVAPCD Regulation VIII mentioned above. The certified EIR concluded that compliance with this program would reduce Impacts M4.13-5 and S4.13-3 to a level that would be less than significant.

Impact M4.13-4 of the certified EIR analyzed the impacts of carbon monoxide (CO) emissions generated by Master Plan traffic on sensitive land uses near streets and intersections. As part of preparation of the EIR, modeling using the CALINE-4 computer model was conducted to determine the CO concentrations near the most heavily congested intersections in the vicinity and along the Interstate 205 and Interstate 580 freeways. The results of the CALINE-4 modeling indicated that CO concentrations at these facilities would not exceed federal or State standards. As noted in a) above, operational CO emissions of the proposed project would be less than those from development of the three project sites under their current designations. Therefore, the proposed project would not contribute to an increase in CO concentrations.

Impacts M4.1-2, M4.13-2 and S4.13-1 of the certified EIR analyzed the impacts of placing residential development proposed in the Master Plan adjacent to existing agricultural operations. It was concluded that residences along the western boundary of the Master Plan area could be exposed to dust emissions and aerial spraying residues generated by agricultural activities to the west. EIR Mitigation Measure M4.1-2 and M4.13-2 required a minimum 500-foot setback of residences from the community boundary in order to minimize these effects. Proposed development of Area 1 would result in a potential impact similar to that evaluated in the certified EIR; Area 1 is adjacent to the western community boundary.

Since approval of the Master Plan and EIR certification, additional understanding has been gained with respect to agriculture west of Mountain House. Lands assumed to be in row crop use that could involve dust and aerial spraying have been converted to orchards, which do not involve either effect to any substantial degree. Rather than a 500-foot setback to prevent these air quality effects, the applicant proposes a reduced setback of 100 feet, which has been incorporated into a revised version of Mitigation Measure M4.13-2 as shown in Appendix A.

Development of Area 1 would involve similar exposure to potential air emissions from agriculture. However, as discussed above, the project would not cause a new significant or substantially more severe impact on exposure of residences beyond that previously analyzed in the certified EIR. In fact, based on new information, the impact would be less, and mitigation measures scaled back to reflect this information. Therefore, the conclusions in the certified EIR remain applicable to the proposed project. The proposed project would still be subject to Mitigation Measure M4.13-2, as revised in Appendix A, which would reduce the potential air quality impact to a level considered less than significant.

Overall, the proposed project is not expected to lead to additional residences or development of other sensitive land uses that could be exposed to substantial pollutant concentration, with implementation of mitigation measures from the certified EIR. The proposed project would not result in any changes, new circumstances, or new information that would involve new significant impacts or substantially more severe impacts from what had been anticipated for the proposed project areas in the certified EIR.

d) Impact 4.13-3 of the certified EIR analyzed the potential presence of objectionable odors that could adversely affect either existing or proposed sensitive land uses. It noted that the only significant potential odor source would be the on-site wastewater treatment plant in the northeastern portion of the Master Plan area. However, there are no residences or other sensitive land uses near the plant, and the certified EIR concluded the impact would be less than significant, requiring no mitigation.

The nearest proposed residences to the wastewater treatment plant is the area adjacent to Mountain House Parkway. However, this area is more than 4,000 feet away from the plant. Based on the analysis in the certified EIR, it is unlikely that future residents would be exposed to substantial odors. Moreover, as noted in the certified EIR, the SJVAPCD regulates objectionable odors through Rule 4102, Nuisance, which prohibits any person or source from emitting air contaminants that cause injury, detriment, nuisance, or annoyance to any considerable number of persons or the public or which endanger the comfort, repose, health, or safety of any such person or the public. Enforcement of Rule 4102 would further reduce impacts considered less than significant.

Another category of environmental concern is toxic air contaminants (TACs). TACs are air pollutants that cause or may cause short-term (acute) or long-term (chronic) adverse health effects. These health effects may include cancer, birth defects, neurological and reproductive disorders, or chronic eye, lung, or skin irritation. Health risks from TACs are a function of both the concentration of emissions and the duration of exposure. Diesel particulate matter, considered a carcinogen, is the most common TAC, as it is a product of combustion in diesel engines. Other TACs are less common and are typically associated with industrial operations.

The certified EIR did not analyze impacts related to TACs. Construction-related activities associated with the proposed project could result in the generation of relatively small amounts of TACs, specifically diesel particulate matter from on-road haul trucks and off-road equipment exhaust emissions. However, construction is temporary and occurs over a relatively short duration in comparison to the operational lifetime of the proposed developments. As noted, health risks associated with TACs are a function of both the concentration of emissions and the duration of exposure. Considering the short-term nature of construction activities, as well as the regulated and intermittent nature of the operation of construction equipment, the likelihood that any one sensitive receptor would be exposed to high concentrations of diesel particulate matter for any extended period of time would be low. Therefore, project construction would not be expected to expose sensitive receptors to substantial pollutant concentrations.

Residential land uses that would be established under the proposed project are not typically considered to represent substantial sources of TACs, such as diesel particulate matter. Diesel particulate matter is generated mainly by diesel engine combustion, and residential development under the proposed project would not involve any substantial activities using diesel engines, such as truck traffic.

Overall, the proposed project would not result in substantial odor or TAC emissions in proximity to existing sensitive receptors. The proposed project would not result in any changes, new circumstances, or new information that would involve new significant impacts or substantially more severe impacts from what had been anticipated for the proposed project areas in the certified EIR.

MITIGATION MEASURES

Mitigation Measures from the Previous CEQA Documents

Master Plan EIR Mitigation Measures M4.13-l and M4.13-2 (see Appendix A of this Addendum).

Modified Mitigation Measures

None required.

Additional Project-Specific Mitigation Measures

None required.

3.4.4 Biological Resources

Would the project:	**Where impact was analyzed in previous CEQA documents**	**Do proposed changes involve new or more severe impacts?**	**New circumstances involving new impacts?**	**Any new information requiring new analysis or verification?**
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?	Master Plan EIR pp. 4.11-25 through 4.11-41, 4.11-49 through 4.11-51.	No	No	No
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	Master Plan EIR pp. 4.11-46 and 4.11-47.	No	No	No
c) Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling,	Master Plan EIR pp. 4.11-45 and 4.11-46; Specific Plan II IS pp. 5-52 and 5-53.	No	No	No

hydrological interruption, or other means?				
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?	Master Plan EIR pp. 4.11-41 through 4.11-45; Specific Plan II IS pp. 5-53 and 5-54.	No	No	No
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	Master Plan EIR pp. 4.11-11 and 4.11-12; Specific Plan II pp. 5-54 and 5-55.	No	No	No
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Conservation Community Plan, or other approved local, regional, or state habitat conservation plan?	Specific Plan II IS p. 5-55.	No	No	No

DISCUSSION

a) The certified EIR evaluated the potential presence of special-status species within and near the Master Plan area. It noted the presence of seven special-status species, of which two were identified as being particularly affected by Master Plan development: San Joaquin kit fox and Swainson's hawk. Both species are listed as "threatened" under the California Endangered Species Act; the San Joaquin kit fox is also listed as "endangered" under the federal Endangered Species Act. Impacts on these two species were described in Impacts M4.11-2 and M4.11-3, and impacts in the Specific Plan I area were described in Impacts S4.11-1 and S4.11-2. Mitigation Measures M4.11-2 and M4.11-3 address potential impacts on San Joaquin kit fox and Swainson's hawk, respectively, as do Mitigation Measures S4.11-1 and S4.11-2. Potential impacts on other special-status species were described in Impact 4.11-4, and Mitigation Measure M4.11-4 addresses potential impacts on these species. The certified EIR concluded that implementation of these mitigation measures would reduce impacts on special-status species to a level that would be less than significant.

Development under the proposed project would result in a similar special-status species impact to what was evaluated in the certified EIR. The project would not cause a new significant or substantially more severe impact on special-status species beyond that previously analyzed in the certified EIR. The proposed project would still be subject to Mitigation Measures M4.11-2, M4.11-3, M4.11-4, S4.11-1 and S4.11-2, which would render impacts less than significant. Therefore, the conclusions in the certified EIR remain applicable to the proposed project. Based on the above, the proposed project would not result in any changes, new circumstances, or new information that would involve new significant impacts or substantially more severe impacts from what had been anticipated for the proposed project areas in the certified EIR.

As an alternative, the proposed project is entitled to participate in the San Joaquin County Multi-Species Habitat Conservation and Open Space Plan (SJMSCP), which is discussed in f) below.

b) The certified EIR analyzed the proposed project's potential impacts on riparian habitats and other sensitive natural communities. Impact M4.11-7 discussed potential impacts of marina development on inshore zone and riparian edge habitat along Old River. However, the proposed project areas are not on Old River or any other streams, so the project would have no impact on riparian habitat. No sensitive natural communities were identified in the certified EIR. Based on this, the proposed project would not result in any changes, new circumstances, or new information that would involve new significant impacts or substantially more severe impacts from what had been anticipated for the proposed project areas in the certified EIR.

c) Impact M4.11-6 of the certified EIR analyzed the potential impacts to wetlands and jurisdictional waters of the United States. The certified EIR found that while most of the existing wetlands in the Master Plan area would be preserved, some seasonal wetlands would be eliminated, along with temporarily flooded areas such as irrigated pastures and drainage swales. Mitigation Measure M4.11-6 revises Master Plan provisions on wetland management to ensure adequate setbacks and coordination with jurisdictional agencies, mainly the U.S. Army Corps of Engineers and the California Department of Fish and Wildlife. The certified EIR concluded that implementation of Mitigation Measure M4.11-6 would reduce Impact M4.11-6 to a level that would be less than significant.

The Specific Plan II Initial Study noted that a component of the plan was the elimination of a proposed marina along Old River and proposed modifications to the Old River levee. The result was a reduction of impacts on jurisdictional Waters of the U.S. and on wetlands. As such, impacts of implementing Specific Plan II were considered less than significant.

Development under the proposed project would result in a similar wetland impact to what was evaluated in the certified EIR and Initial Study. The project would not cause a new significant or substantially more severe impact on wetlands beyond that previously analyzed in the certified EIR and Initial Study. The proposed project would still be subject to Mitigation Measure M4.11-6, which would render impacts less than significant. Therefore, the conclusions in the certified EIR and Initial Study remain applicable to the proposed project. Based on the above, the proposed project would not result in any changes, new circumstances, or new information that would involve new significant impacts or substantially more severe impacts from what had been anticipated for the proposed project areas in the certified EIR and Initial Study.

d) Impacts M4.11-5 and S4.11-3 analyzed potential impacts on wildlife movement corridors. Development under the Master Plan would block the movement of most terrestrial species between the eastern base of the Altamont Hills and the Sacramento-San Joaquin Delta. Also, the Mountain House Creek Linear Park proposed in Specific Plan I could affect wildlife movement. Mitigation Measures M4.11-5 and S4.11-3 set Policies and Implementations designed to minimize impacts on wildlife corridors. The certified EIR concluded that implementation of Mitigation Measures M4.11-5 and S4.11-3 would reduce Impacts M4.11-5 and S4.11-3 to a level that would be less than significant.

The Specific Plan II Initial Study noted that the plan proposed wetland creation and riparian restoration projects along Mountain House Creek and Dry Creek. These projects, along with the Old River actions described in c) above, would reduce fish and wildlife corridor impacts to a level that would be less than significant.

As noted, the proposed project areas are not on any streams, including Mountain House Creek. Otherwise, development under the proposed project would result in a similar wildlife corridor impact to what was evaluated in the certified EIR and Initial Study. The project would not cause a new significant or substantially more severe impact on wildlife corridors beyond that previously analyzed in the certified EIR and Initial Study. The proposed project would still be subject to Mitigation Measures M4.11-5 and S4.11-3, which would render impacts less than significant. Therefore, the conclusions in the certified EIR remain applicable to the proposed project. Based on the above, the proposed project would not result in any changes, new circumstances, or new information that would involve new significant impacts or substantially more severe impacts from what had been anticipated for the proposed project areas in the certified EIR.

e) The certified EIR discussed applicable policies and implementing actions designed to protect biological resources; these provisions have been updated since the EIR was certified,. Policies specific to protection of biological resources include Policy NCR-2.1, which states “The City shall protect significant biological and ecological resources including: wetlands; riparian areas; vernal pools; significant oak woodlands and heritage trees; and rare, threatened, and endangered species and their habitats.” Other General Plan policies call for preservation of significant oak groves and no net loss of wetlands. In addition, the adopted Development Title Chapter 9-1505 sets forth procedures for the preservation of specific types of oak trees. The Specific Plan II Initial Study noted that the plan area had only a few patches of trees, mostly along creek corridors. Any trees removed along the creeks would be replaced as part of the wetland restoration projects that would occur.

As noted, the proposed project would be required to comply with Master Plan and Specific Plan I policies designed to protect wetlands, special-status species, and wildlife corridors. The proposed project areas have no trees; therefore, policies and codes requiring protection of trees would not apply. Therefore, the proposed project would be consistent with biological resource policies and ordinances. The proposed project would not result in any changes, new circumstances, or new information that would involve new significant impacts or substantially more severe impacts from what had been anticipated for the proposed project areas in the certified EIR and Initial Study.

f) The certified EIR did not analyze potential conflicts with Habitat Conservation Plans or similar plans, since no such plans applied to the Master Plan area at that time. In 2000, the SJMSCP was adopted by San Joaquin County and its incorporated cities. However, the Specific Plan II Initial Study evaluated plan consistency with the SJMSCP as it was adopted by that time. Specific Plan II was found to be consistent with the SJMSCP.

The SJMSCP, which is administered by the San Joaquin Council of Governments, protects 97 wildlife species and 52 vegetative communities. For the conversion of open space to non-open space uses that affect covered plant, fish, and wildlife species, the SJMSCP provides three compensation methods: preservation of existing sensitive lands, creation of new comparable habitat on the project site, or payment of fees that would be used to secure preserve lands outside the project site. In addition to fee payments, the SJMSCP identifies and requires the applicants to abide by Incidental Take Minimization Measures, which are protection measures that avoid direct impacts of development on special-status species.

Participation by a project in the SJMSCP is voluntary, but if a project opts against participation, then it would be required to mitigate independently through consultation and by obtaining the appropriate permits, including take permits. The participating local agencies consider a project that complies with the SJMSCP to result in biological resource impacts that are less than significant.

It is expected that development under the proposed project would participate in the SJMSCP; therefore, the proposed project would not conflict with the SJMSCP. No other habitat conservation plans apply to the proposed project. The proposed project would not result in any changes, new circumstances, or new information that would involve new significant impacts or substantially more severe impacts from what has been anticipated for the proposed project areas in the certified EIR and Initial Study.

MITIGATION MEASURES

Mitigation Measures from the Previous CEQA Documents

Master Plan EIR Mitigation Measures M4.11-2, M4.11-3, M4.11-4, M4.11-5, M4.11-6, S4.11-1, S4.11-2, and S4.11-3 (see Appendix A of this Addendum).

Modified Mitigation Measures

None required.

Additional Project-Specific Mitigation Measures

None required.

3.4.5 Cultural Resources

Would the project:	**Where impact was analyzed in previous CEQA documents**	**Do proposed changes involve new or more severe impacts?**	**New circumstances involving new impacts?**	**Any new information requiring new analysis or verification?**
a) Cause a substantial adverse change in the significance of a historical resource pursuant to Section 15064.5?	Master Plan EIR pp. 4.5-2 through 4.5-6.	No	No	No
b) Cause a substantial adverse change in the significance of a	Master Plan EIR pp. 4.5-2 through 4.5-6.	No	No	No

unique archaeological resource pursuant to Section 15064.5?				
c) Disturb any human remains, including those interred outside of formal cemeteries?	Master Plan EIR pp. 4.5-4 and 4.5-5	No	No	No

DISCUSSION

a, b) Impacts M4.5-1, M4.5-3, and S4.5-1 of the certified EIR analyzed potential impacts on historic and prehistoric resources. For the Specific Plan I area, in the Old River Business Park subarea, CA-SJo-229H, the former location of the town of Wicklund, may contain buried artifacts; in the southern portion of the subarea, CA-SJo-23 JH may also be affected by construction; this area contains a dense scatter of historic artifacts. In Central Mountain House, prehistoric resources may be located along Mountain House Creek, and a house on West Byron Road may have historic significance. The Mountain House Business Park subarea has been subjected to intensive surveying and no historic or prehistoric resources have been identified. None of these recorded resources are within the proposed project areas, and none of the proposed project areas are along Mountain House Creek, West Byron Road, or the Old River Business Park subarea.

Additional cultural resources studies were conducted in conjunction with the preparation of Specific Plan I and Specific Plan II. The specific plans reported (Specific Plan I, page 7.11 and page 7-29, Specific Plan II referencing Peak and Associates, *Resources Studies for the Proposed Mountain House Specific Plan II Area*) that followup surveys and intensive study did not identify any archeological resources and that all historic resources within the specific plan areas were not considered eligible for listing in the California Register. That is, there were no potentially significant cultural resources identified within either the Specific Plan I area or the Specific Plan II area. Development within these areas, including the proposed project sites, would not involve potential for a significant cultural resource effect, except potential effects on buried undiscovered resources.

In the years after these studies, the project applicant indicates that all of the proposed project areas as well as surrounding areas were mass graded in preparation for development. No potentially significant cultural resources were identified during intensive cultural resource studies, and subsequent mass grading disturbed all of the surface soils in these areas; as a result, the project sites are considered disturbed and therefore not sensitive for the discovery of cultural resources.

Impact M4.5-3 analyzed potential impacts on structures more than 50 years old, which may make such structures historic. The proposed project would be constructed on vacant lands; as such, it would have no impact on any structures.

The certified EIR found it possible that currently unknown archaeological resources may be encountered during proposed project construction. Mitigation Measure S4.5-1 establishes procedures designed to protect archaeological resources within the Specific Plan I area. These requirements, which include further study and evaluation of potential historic resources, have largely been met. Potential for inadvertent discovery of buried cultural resources still exists and the final portion of the mitigation measure would still apply. This measure has been updated to reflect current requirements as set forth in the CEQA Guidelines. The portions of the proposed project within the Specific Plan I area would be subject to this mitigation measure, which the certified EIR concluded would reduce impacts to a level that would be less than significant. Therefore, the conclusions in the certified EIR remain applicable to the proposed project. The proposed project would not result in any changes, new circumstances, or new information that would involve new significant impacts or substantially more severe impacts from what has been anticipated for the.

c) Impact M4.5-2 of the certified EIR analyzed the possible disturbance of human remains, particularly unknown human prehistoric burial sites. Mitigation Measure M4.5-2 establishes procedures if burial sites are encountered. The certified EIR concluded that implementation of Mitigation Measure M4.5-2 would reduce Impact M4.5-2 to a level that would be less than significant.

Development under the proposed project would result in a similar impact on human burials to what was evaluated in the certified EIR. The project would not cause a new significant or substantially more severe impact on human burials beyond that previously analyzed in the certified EIR. The proposed project would still be subject to Mitigation Measure M4.5-2, which would render impacts less than significant. Therefore, the conclusions in the certified EIR remain applicable to the proposed project. Based on the above, the proposed project would not result in any changes, new circumstances, or new information that would involve new significant impacts or substantially more severe impacts from what had been anticipated for the proposed project areas in the certified EIR.

MITIGATION MEASURES

Mitigation Measures from the Previous CEQA Documents

Master Plan EIR Mitigation Measure S4.5-1 (see Appendix A of this Addendum).

Modified Mitigation Measures

None required.

Additional Project-Specific Mitigation Measures

None required.

3.4.6 Energy

Would the project:	**Where impact was analyzed in previous CEQA documents**	**Do proposed changes involve new or more severe impacts?**	**New circumstances involving new impacts?**	**Any new information requiring new analysis or verification?**
a) Result in potentially significant environmental impacts due to wasteful, inefficient, or unnecessary consumption of energy resources during project construction or operation?	Master Plan EIR pp. 4.4-41 through 4.4-43.	No	No	No
b) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?	Master Plan EIR pp. 4.4-41 through 4.4-43.	No	No	No

DISCUSSION

a) The CEQA Guidelines did not include energy questions in its Appendix G Checklist at the time of Master Plan EIR certification. However, the certified EIR did discuss energy consumption in Chapter 4.4, Public Utilities, specifically under Impact 4.4.4-2. Development under the Master Plan was determined to have a significant energy demand and that it would contribute to the depletion of non-renewable resources such as fossil fuels. It also would increase demand for environmentally detrimental renewable resources such as hydroelectric power. Mitigation Measure M4.4.4-2 requires changes in design guidelines of the Master Plan that would increase energy efficiency and reduce energy consumption. The certified EIR concluded that implementation of Mitigation Measure M4.4.4-2 would reduce Impact M4.4.4-2 to a level that would be less than significant.

The proposed project would change Master Plan and Specific Plan 1 designations and zoning such that development within three areas would be single-family residential instead of commercial or office. Increased use of renewable energy and improved energy efficiency standards since the proposed project was evaluated in 1994 would offset any increase in energy demand associated with the intensification of development. As compared to the California Energy Commission's 2013 Building Energy Efficiency Standards, single-family homes built to the 2016 Standards used approximately 28 percent less energy. Single-family homes built to the updated 2019 Standards improve upon the energy efficiency of the 2016 Standards by seven percent (San Joaquin County 2022).

Any future development also would be subject to all relevant provisions of the most recent update of the California Green Building Standards Code (CALGreen), including its Building Energy Efficiency Standards for residential development. Adherence to the most recent CALGreen requirements would ensure that new buildings achieve energy efficiency and preserve outdoor and indoor environmental quality. In addition, electricity supplied to buildings within the proposed project area would comply with the State's Renewable Portfolio Standard (RPS), which requires investor-owned utilities, electric service providers, and community choice aggregators to increase procurement from eligible renewable energy resources to 33 percent of total procurement by 2020 and to 60 percent by 2030. Thus, a portion of the energy consumed during operations would originate from renewable sources.

Based on the above, the proposed project would not result in any changes, new circumstances, or new information that would involve new significant impacts or substantially more severe impacts from what has been anticipated for the proposed project areas in the certified EIR.

b) Impact S4.4.4-1 in the certified EIR discussed Specific Plan I compliance with Master Plan objectives of minimizing the consumption of non-renewable energy and encouraging the development and use of on-site alternative energy sources. The analysis concluded that the Specific Plan I did not include specifications for complying with the Master Plan objectives related to energy. Compliance with Mitigation Measure M4.4.4-2, described in a) above, would reduce Impact S4.4.4-1 to a level that would be less than significant.

Development under the proposed project would result in a similar energy impact to what was evaluated in the certified EIR. The project would not cause a new significant or substantially more severe impact on energy beyond that previously analyzed in the certified EIR. The proposed project would still be subject to Mitigation Measure M4.4.4-2, which would render Impact S4.4.4-1 less than significant. Therefore, the conclusions in the certified EIR remain applicable to the proposed project. Based on the above, the proposed project would not result in any changes, new circumstances, or new information that would involve new significant impacts or substantially more severe impacts from what had been anticipated for the proposed project areas in the certified EIR.

MITIGATION MEASURES

Mitigation Measures from the Previous CEQA Documents

Master Plan EIR Mitigation Measure M4.4.4-2 (see Appendix A of this Addendum).

Modified Mitigation Measures

None required.

Additional Project-Specific Mitigation Measures

None required.

3.4.7 Geology and Soils

Would the project:	**Where impact was analyzed in previous CEQA documents**	**Do proposed changes involve new or more severe impacts?**	**New circumstances involving new impacts?**	**Any new information requiring new analysis or verification?**
a) Directly or indirectly cause 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.)	Master Plan EIR p. 4.6-3.	No	No	No
ii) Strong seismic ground shaking?	Master Plan EIR pp. 4.6-3 through 4.6-5, 4.6-7 through 4.6-8.	No	No	No
iii) Seismic-related ground failure, including liquefaction?	Master Plan EIR pp. 4.6-1, 4.6-3, 4.6-7 through 4.6-8.	No	No	No
iv) Landslides?	Master Plan EIR p. 4.6-1.	No	No	No
b) Result in substantial soil erosion or the loss of topsoil?	Master Plan EIR pp. 4.6-1 through 4.6-3, 4.6-6.	No	No	No
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?	Master Plan EIR pp. 4.6-1, 4.6-3, 4.6-6.	No	No	No
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?	Master Plan EIR pp. 4.6-2 through 4.6-3.	No	No	No
e) Have soils incapable of adequately supporting the use of septic tanks or alternative	Not analyzed.	No	No	No

wastewater disposal systems where sewers are not available for the disposal of wastewater?				
f) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	Not analyzed.	No	No	No

DISCUSSION

a-i) The certified EIR found that the Master Plan area is not located within, bisected by, or close to an Alquist-Priolo earthquake fault zone as designated on an Alquist-Priolo Earthquake Fault Zone Map. Because of this, ground rupture from faulting is not considered a significant hazard at the project site and no impact would occur. The proposed project would not result in any changes, new circumstances, or new information that would involve new significant impacts or substantially more severe impacts from what has been anticipated for the proposed project areas in the certified EIR.

a-ii) Impact M4.6-1 of the certified EIR addressed ground shaking impacts. It noted that the project site is located within the proximity of a number of major active faults, earthquakes from which may cause damage to buildings and infrastructure within the Master Plan area. Mitigation Measure M4.6-1 notes that the Master Plan requires the preparation and distribution of a Community Earthquake Preparedness Plan to promote public awareness and education on earthquake hazards. For the Specific Plan I area, seismic hazards would be mitigated by compliance with the Uniform Building Code and with recommendations for special conditions that are presented in the required preliminary soils report. Nevertheless, even with mitigation, the certified EIR concluded that ground shaking would represent a significant unavoidable adverse impact.

Based on the above information, the proposed project would not result in new significant impacts or substantially more severe impacts related to strong seismic ground shaking because the area of disturbance for the proposed project would not be greater than the area previously analyzed. Therefore, the proposed project would remain consistent with the conclusions determined by the certified EIR, and the land use changes in the proposed project do not alter this assessment. Mitigation Measure M4.6-1 has already been implemented. The proposed project would not result in any changes, new circumstances, or new information that would involve new significant impacts or substantially more severe impacts from what has been anticipated for the proposed project areas in the certified EIR.

a-iii) The certified EIR discussed liquefaction and concluded that, while there may a potential for liquefaction within the Master Plan area, implementation of State laws, the preparation of soils reports for each Tentative Map as required by the Subdivision Map Act and the Development Title, and implementation of Mitigation Measure M4.6-l, would reduce the potential liquefaction hazard to a level that would be less than significant.

Since the proposed project is generally comparable with the location, type of development assumed and evaluated for the site in the certified EIR, the proposed project would not exacerbate identified liquefaction impacts. Therefore, the proposed project would result in an impact that is less than significant with implementation of Mitigation Measure M4.6-1, which as noted has already been implemented. The land use changes proposed in the amendments do not alter this assessment. The proposed project would not result in any changes, new circumstances, or new information that would involve new significant impacts or substantially more severe impacts from what has been anticipated for the project areas in the certified EIR.

a-iv) Landslide potential was evaluated in the certified EIR, which indicated that gentle slopes are located within the southwestern portion of the Master Plan area, but that these slopes do not show evidence of significant landslides. The landslide potential was considered less than significant. The proposed project site is relatively flat in all three areas, and none of these areas are in the southwestern portion of the Master Plan area. Based on the above, the proposed project would not result in any changes, new circumstances, or new information that would involve new significant impacts or substantially more severe impacts from what has been anticipated for the proposed project areas in the certified EIR.

b) The certified EIR discussed the potential for soil erosion resulting from development activities in the Master Plan area. It noted that the Master Plan addressed this issue by compliance with State permitting requirements for control of runoff during construction activities, development of Storm Water Pollution Prevention Plans (SWPPPs) for each construction project, and control of discharges of sediments to drainage channels.

The above measures would be implemented as part of the National Pollutant Discharge Elimination System (NPDES) General Construction Activities Storm Water permit program, which includes required implementation of erosion control measures during and immediately after construction. They are also part of the State Water Resources Control Board (SWRCB) Construction General Permit, conditions of which include the preparation and implementation of a SWPPP, along with implementation of Best Management Practices (BMPs) to control pollution in stormwater runoff from the construction site. Development under the proposed project would be subject to these permit requirements and conditions. Thus, the proposed project would not result in any changes, new circumstances, or new information that would involve new significant impacts or substantially more severe impacts from what has been anticipated for the proposed project areas in the certified EIR.

c) The certified EIR discussed the potential for ground settlement and its impacts on structural stability, including building damage, warped and cracked roads, and rupture of utility lines. The Draft Master Plan specified that a preliminary soils report for each subdivision would provide recommendations for appropriate structure design values. Incorporation of these design values would minimize settlement impacts. Development within the proposed project area would be subject to the same requirements. Thus, the proposed project would not result in any changes, new circumstances, or new information that would involve new significant impacts or substantially more severe impacts from what has been anticipated for the proposed project areas in the certified EIR.

d) The certified EIR noted the potential presence of expansive soils within the Master Plan area. The Draft Master Plan specified that a preliminary soils report for each subdivision would identify areas of expansive soils and provide recommendations for appropriate structure design values for construction on such soils. Incorporation of these design values would minimize expansive soil impacts. Development within the proposed project area would be subject to the same requirements. Thus, the proposed project would not result in any changes, new circumstances, or new information that would involve new significant impacts or substantially more severe impacts from what has been anticipated for the proposed project areas in the certified EIR.

e) The certified EIR did not analyze potential impacts related to soils incapable of adequately supporting the use of septic tanks, since land uses in the Master Plan area would be connected to a wastewater collection and treatment system. The proposed project likewise would not involve the use of septic tanks. The proposed project would not result in any changes, new circumstances, or new information that would involve new significant impacts or substantially more severe impacts from what has been anticipated for the proposed project areas in the certified EIR.

f) The certified EIR did not analyze potential impacts on paleontological resources. According to the General Plan Background Report, the vast majority of paleontological specimens have been found in rock formations in the foothills of the Diablo Mountain Range. However, remains of extinct animals, such as mammoth, could be found virtually anywhere, especially along watercourses such as the San Joaquin River and its tributaries (San Joaquin County 2016a). The proposed project, as well as the Master Plan area, is not located in the Diablo Mountain foothills. Also, the proposed project areas are not on any streams. However, a search of the UC Museum of Paleontology's database found a record of one find in the Mountain House area.

Mitigation Measure 4.E-2 of the General Plan EIR revises a General Plan policy protecting archaeological and historical resources to include paleontological resources (San Joaquin County 2016b). Implementation of this mitigation measure would reduce impacts on paleontological resources to a level that would be less than significant. The proposed project would be subject to Mitigation Measure 4.E-2. Therefore, the proposed project would not result in any changes, new circumstances, or new information that would involve new significant impacts or substantially more severe impacts from what has been anticipated for the proposed project areas in the certified EIR.

MITIGATION MEASURES

Mitigation Measures from the Previous CEQA Documents

Master Plan EIR Mitigation Measure M4.6-1 and General Plan EIR Mitigation Measure 4E-2 (see Appendix A of this Addendum).

Modified Mitigation Measures

None required.

Additional Project-Specific Mitigation Measures

None required.

3.4.8 Greenhouse Gas Emissions

Would the project:	**Where impact was analyzed in previous CEQA documents**	**Do proposed changes involve new or more severe impacts?**	**New circumstances involving new impacts?**	**Any new information requiring new analysis or verification?**
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	Not analyzed.	No	No	No
b) Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	Not analyzed.	No	No	No

DISCUSSION

a, b) Greenhouse gas (GHG) emissions were not addressed in the certified EIR. Thus, this section relies on the air quality and GHG modeling conducted for the proposed project using CalEEMod. However, potential impacts related to GHG emissions do not constitute "new information" as defined by CEQA, because GHG emissions were known as potential environmental issues before 1994.

Emissions of GHGs contributing to global climate change are attributable in large part to human activities associated with the industrial/manufacturing, utility, transportation, residential, and agricultural sectors. Therefore, the cumulative global emissions of GHGs contributing to global climate change can be attributed to every nation, region, and city, and virtually every individual on Earth. A project's GHG emissions are at a micro-scale relative to global emissions, but they could result in a cumulatively considerable incremental contribution to a significant cumulative macro-scale impact.

Implementation of the proposed project would cumulatively contribute to increases of GHG emissions. Estimated GHG emissions attributable to the project would be primarily associated with increases of carbon dioxide (CO_2) and, to a lesser extent, other GHG pollutants, such as methane (CH_4) and nitrous oxide (N_2O) associated with area sources, mobile sources (vehicles), utilities (electricity and natural gas), water usage, wastewater generation, and the generation of solid waste. As indicated in the CalEEMod runs conducted for this analysis (see Appendix B of this Addendum), the primary sources of GHG emissions are mobile sources.

It should be noted that project-level thresholds for construction or operational GHG emissions are not defined for Mountain House. Construction GHG emissions are a one-time release; therefore, these emissions are not typically expected to make a significant contribution to global climate change. As such, the analysis herein is limited to discussion of long-term operational GHG emissions.

The analysis below evaluates the anticipated GHG emissions from implementation of the proposed project as compared to buildout of the site under the previously approved land uses. The GHG emissions were modeled using CalEEMod under the same assumptions described in Section 3.4.3, Air Quality (see also Appendix B). According to the CalEEMod results, the GHG operational emissions generated by development under existing Master Plan designations would be approximately 9,990 metric tons per year of carbon dioxide equivalent (CO_2e). The proposed project would generate approximately 3,285 metric tons per year CO_2e - an approximately 67% decrease.

The SJVAPCD has adopted the *Guidance for Valley Land-use Agencies in Addressing GHG Emission Impacts for New Projects under CEQA* and the District Policy – Addressing GHG Emission Impacts for Stationary Source Projects Under CEQA When Serving as the Lead Agency. The guidance and policy rely on the use of performance-based standards, otherwise known as Best Performance Standards to assess significance of project specific GHG emissions on global climate change during the environmental review process, as required by CEQA. Projects implementing Best Performance Standards would have a less-than-significant individual and cumulative impact on global climate change and would not require project-specific quantification of GHG emissions. If projects are not shown to incorporate the SJVAPCD's adopted Best Performance Standards to a sufficient degree, the project's GHG emissions must be quantified, and measures incorporated sufficient to reduce emissions by 29 percent (SJVAPCD 2009). As shown above, the proposed project would result in a decrease in GHG emissions under existing designations greater than 29 percent. Therefore, the proposed project would be consistent with SJVAPCD guidance regarding GHG emissions.

It should be noted that the proposed project would also contain features that would reduce vehicle trips, thereby further reducing GHG emissions. Such features would include proximity to job centers and the central area, provision of pedestrian facilities and connection to existing facilities, availability of public transit service, and development in a densely developed area.

In summary, the proposed project would generate GHG emissions, but at a substantially lower amount than would be generated from development under existing Master Plan designations. The proposed project would not result in any changes, new circumstances, or new information that would involve new significant impacts or substantially more severe impacts from what has been anticipated for the proposed project areas in the certified EIR.

MITIGATION MEASURES

Mitigation Measures from the Previous CEQA Documents

None.

Modified Mitigation Measures

None required.

Additional Project-Specific Mitigation Measures

None required.

3.4.9 Hazards and Hazardous Materials

Would the project:	**Where impact was analyzed in previous CEQA documents**	**Do proposed changes involve new or more severe impacts?**	**New circumstances involving new impacts?**	**Any new information requiring new analysis or verification?**
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	Not analyzed.	No	No	No
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?	Master Plan EIR pp. 4.10-9A through 4.10-12; Specific Plan II IS pp.5-88 through 5-90.	No	No	No
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	Not analyzed.	No	No	No
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?	Master Plan EIR pp. 4.10-3 through 4.10-8; Specific Plan II IS pp.5-88 through 5-90.	No	No	No
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	Not analyzed.	No	No	No

project result in a safety hazard or excessive noise for people residing or working in the project area?				
f) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	Not analyzed.	No	No	No
g) Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?	Not analyzed.	No	No	No

DISCUSSION

a) The certified EIR did not analyze the potential of the Mountain House project to create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials. Land uses within the Master Plan area would be required to follow all federal, state, and local regulations governing the use, transport, and disposal of such materials. Moreover, the proposed project would change the designation and zoning of the affected areas from commercial to residential. While commercial land uses may use materials considered hazardous in significant quantities, depending on the type of commercial activity, residential areas use only a limited amount of hazardous materials, mainly household products and paints. Therefore, it is expected that the proposed development would not create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials. The impacts of the proposed project would be less than significant, and no further analysis is required.

b, c) Impacts M4.10-6 and M4.10-7 of the certified EIR analyzed the potential to create a significant hazard through reasonably foreseeable upset and accident conditions involving the release of hazardous materials through railway accidents (Impact M4.10-6) and pipeline ruptures (Impact M4.10-7). The certified EIR concluded that implementation of Mitigation Measures M4.10-6 and M4.10-7 would reduce Impacts M4.10-6 and M4.10-7, respectively, to a level that would be less than significant. No other potential hazardous material releases were analyzed.

The proposed project areas are not near the existing railroad tracks along Byron Road, so Mitigation Measure M4.10-6 would not apply. However, the easternmost area affected by the proposed project may be traversed by a natural gas pipeline. The Specific Plan II Initial Study indicated that several fuel-related pipelines cross the plan area. Development under the proposed project would result in a similar pipeline rupture impact to what was evaluated in the certified EIR and Initial Study. The project would not cause a new significant or substantially more severe impact related to pipeline ruptures beyond that previously analyzed in the certified EIR and Initial Study. The proposed project would still be subject to EIR Mitigation Measure M4.10-7 and Specific Plan II Section 6.8.1, which would render impacts less than significant. Therefore, the conclusions in the certified EIR and Initial

Study remain applicable to the proposed project. Based on the above, the proposed project would not result in any changes, new circumstances, or new information that would involve new significant impacts or substantially more severe impacts from what had been anticipated for the proposed project areas in the certified EIR and Initial Study.

A potential source of release of hazardous materials would be construction activities. Construction activities may involve the use of hazardous materials such as fuels and solvents, and thus create a potential for hazardous material spills. Construction and maintenance vehicles would transport and use fuels in ordinary quantities. Fuel spills, if any occur, would typically be minimal and would not typically have significant adverse effects. In accordance with SWPPP requirements (see Section 3.4.7, Geology and Soils), contractors have absorbent materials at construction sites to clean up minor spills. Other substances used in the construction process would ordinarily be stored in approved containers and used in relatively small quantities, in accordance with the manufacturers' recommendations and/or applicable regulations. Therefore, impacts related to releases of hazardous materials during construction activities would be less than significant, and no further analysis is required.

The proposed project would change the designation and zoning of the affected areas from commercial to residential. As discussed in a) above, residential areas would use mainly household products and paints; no significant quantities of hazardous materials would be used. Therefore, proposed development would not emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school. The proposed project would have no impact on this issue, and no further analysis is required.

d) Impacts M4.10-1 and M4.10-2 of the certified EIR analyzed potential hazardous material locations in the Master Plan area. Impact M4.10-1 discussed potential pesticide and herbicide residues left over from historic agricultural activities, while Impact M4.10-2 discussed the presence of PCBs in transformers and electromagnetic fields from electricity transmission lines. The certified EIR concluded that Mitigation Measures M4.10-1 and M4.10-2 would reduce Impacts M4.10-1 and M4.10-2, respectively, to a level that would be less than significant.

The Specific Plan II IS identified potential soil contamination in Neighborhood F and H, which are part of the proposed project. Potential contamination included likely accumulation of hazardous materials at two tailwater pond sites. The Initial Study concluded that implementation Specific Plan II Section 6.84 would reduce potential impacts to a level that would be less than significant.

Impact M4.10-3 analyzed potential impacts related to the potential release of asbestos from existing farm buildings, which would be less than significant with mitigation. However, there are no buildings on the proposed project areas, so this impact is not relevant to this analysis.

Development under the proposed project would result in a similar impact to what was evaluated in the certified EIR and Initial Study. The project would not cause a new significant or substantially more severe impact related to hazardous material sites beyond that previously analyzed in the certified EIR and Initial Study. The proposed project would still be subject to Mitigation Measures M4.10-1 and M4.10-2, which would render impacts less than significant. Therefore, the conclusions in the certified EIR and Initial Study remain applicable to the proposed project. Based on the above, the proposed project would not result in any changes, new circumstances, or new information that would involve new significant impacts or substantially more severe impacts from what had been anticipated for the proposed project areas in the certified EIR and Initial Study.

e) The certified EIR did not analyze impacts related to public airports, as the Master Plan area was not within two miles of a public airport or public use airport. The nearest public airport, Byron Airport, is located approximately seven miles to the northwest. Also, the Master Plan area was not located within an airport land use plan area at the time of EIR certification. However, in 2000, the Contra Costa County Airport Land Use Commission adopted the Contra Costa County Airport Land Use Compatibility Plan (ALUCP). The ALUCP shows that most of the Master Plan area, including Specific Plan I, is located within Zone D on the Byron Airport Compatibility Map (Contra Costa County ALUC 2000).

Section 6.7 of the ALUCP specifies that Zone D does not place any restrictions on residential or nonresidential development, except that structures cannot exceed 100 feet in height (Contra Costa County ALUC 2000). As development under the proposed project would not lead to any structures exceeding 100 feet in height, the proposed project would be consistent with the Contra Costa ALUCP. Thus, the proposed project would not result in any changes, new circumstances, or new information that would involve new significant impacts or substantially more severe impacts from what has been anticipated for the proposed project areas in the certified EIR. Section 3.4.13, Noise, discusses potential impacts associated with airport noise.

f) The certified EIR did not analyze the potential of Master Plan development to impair implementation of or interfere with an adopted emergency response or evacuation plan. An updated Emergency Operations Plan for Mountain House was adopted in 2016, and the most recent Emergency Operations Plan for San Joaquin County was adopted on February 17, 2022. The proposed project would be required to comply with the provisions of these plans. Thus, the proposed project would not result in any changes, new circumstances, or new information that would involve new significant impacts or substantially more severe impacts from what has been anticipated for the proposed project areas in the certified EIR.

g) The certified EIR did not analyze potential wildland fire impacts. The California Department of Forestry and Fire Protection's Fire and Resource Assessment Program identifies fire threat based on a combination of two factors: 1) fire frequency, or the likelihood of a given area burning, and 2) potential fire behavior (hazard). These two factors are combined in determining the following Fire Hazard Severity Zones: Moderate, High, Very High, Extreme. These zones apply to areas designated as State Responsibility Areas – areas in which the State has primary firefighting responsibility. The Master Plan area is not within a State Responsibility Area; rather, it is within a Local Responsibility Area, where local fire districts or departments have primary firefighting responsibility. A portion of the Master Plan area along its western boundary has been designated on the Local Responsibility Area fire hazard zone map as having a Moderate fire hazard. The remainder of the Master Plan area is not within a designated fire hazard zone (Cal Fire 2007a, 2007b).

The proposed project areas are not within the designated Moderate fire hazard zone. They are in a predominantly urbanized area with limited open spaces. Since these areas are vacant, the proposed project would reduce the existing fire hazard in them by replacing existing grasses and weeds with proposed residential development. Moreover, as noted in Section 3.4.15, Public Services, the community of Mountain House has a fire station that can respond to any fire in the proposed project areas within standard response times. Based on the above, the proposed project would not result in any changes, new circumstances, or new information that would involve new significant impacts or substantially more severe impacts from what had been anticipated for the proposed project areas in the certified EIR. Refer to Section 3.4.20, Wildfire, for further discussion of this subject.

MITIGATION MEASURES

Mitigation Measures from the Previous CEQA Documents

Master Plan EIR Mitigation Measures M4.10-1, M4.10-2, and M4.10-7 (see Appendix A of this Addendum).

Modified Mitigation Measures

None required.

Additional Project-Specific Mitigation Measures

None required.

3.4.10 Hydrology and Water Quality

Would the project:	**Where impact was analyzed in previous CEQA documents**	**Do proposed changes involve new or more severe impacts?**	**New circumstances involving new impacts?**	**Any new information requiring new analysis or verification?**
a) Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?	Master Plan EIR pp.. 4.7-6 through 4.7-9	No	No	No
b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?	Master Plan EIR pp. 4.7-9 and 4.7-10.	No	No	No

c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river runoff or through the addition of impervious surfaces, in a manner which would:				
i) Result in substantial erosion or siltation on- or off-site?	Master Plan EIR pp. 4.7-5 and 4.7-6, 4.7-10 and 4.7-11; Specific Plan II IS pp. 5-110 and 5-111.	No	No	No
ii) Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?	Master Plan EIR p. 4.7-11; Specific Plan II IS p. 5-111.	No	No	No
iii) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?	Master Plan EIR pp. 4.4-32 through 4.4-38; pp. 4.7-6 through 4.7-8; Specific Plan II IS p. 5-112.	No	No	No
iv) Impede or redirect flood flows?	Master Plan EIR pp. 4.7-5 and 4.7-6, 4.7-10 and 4.7-11; Specific Plan II IS p. 5-113.	No	No	No
d) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?	Specific Plan II IS p. 5-115.	No	No	No
e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	Not analyzed.	No	No	No

DISCUSSION

a) The certified EIR addressed the proposed project's potential to violate water quality standards or waste discharge requirements or substantially degrade surface or groundwater. Impacts M4.7-2 and M4.7-3 focused on water quality issues associated with the construction of a proposed marina, which are not relevant to the proposed project.

Impact M4.7-1 analyzed potential water quality effects on Old River caused by runoff from Mountain House Creek and operation of the proposed marina. As noted, impacts of the proposed marina are not relevant to the proposed project. However, runoff that enters

Mountain House Creek could contribute additional sediments to Old River, thereby decreasing its water quality. The Master Plan proposed to minimize sediment deposits through widening and deepening the channel to reduce flow velocity in the lower reach of the creek, in accordance with Master Plan objectives under Storm Drainage and Flood Protection (Master Plan Appendix C). In addition, Mitigation Measure M4.7-1 addresses the potential accumulation of sediments along Old River. The certified EIR concluded that implementation of Mitigation Measure M4.7-1 plus the Master Plan program would reduce Impact M4.7-1 to a level that would be less than significant.

Impact M4.7-6 of the certified EIR analyzed the potential impacts of sediments transported by Mountain House Creek that could be deposited within the project site. As discussed under Impact M4.7-1, the sediment could affect the water quality of Old River. Under the Master Plan, the incorporation of detention basins would reduce sediment transport. Also, Mitigation Measure 4.7-6 proposes the construction of a sediment control structure that would remove sediments from Mountain House Creek where it crosses the Master Plan area's western boundary. The certified EIR concluded that implementation of Mitigation Measure 4.7-6 would reduce Impact M4.7-6 to a level that would be less than significant.

Development under the proposed project would result in a similar water quality impact to what was evaluated in the certified EIR. The change in land use from commercial/office uses to residential uses would likely reduce impervious surfaces, which would reduce the amount of runoff generated. With less runoff, there would be fewer sediments or other contaminants that would be conveyed to surface waters. The project would not cause a new significant or substantially more severe impact on water quality beyond that previously analyzed in the certified EIR.

The proposed project would be subject to Mitigation Measure S4.7-1, which ensured Specific Plan I consistency within streambed modification plans. With this consistency, impacts would be less than significant. Therefore, the conclusions in the certified EIR remain applicable to the proposed project. Based on the above, the proposed project would not result in any changes, new circumstances, or new information that would involve new significant impacts or substantially more severe impacts from what had been anticipated for the proposed project areas in the certified EIR.

b) Impact M4.7-4 of the certified EIR analyzed impacts related to groundwater; however, the analysis was limited to the impacts of shallow groundwater tables on building foundations and retention/detention basins. The issues of groundwater supply and reduction in groundwater recharge area were not addressed. However, the proposed project would lead to development of vacant land, meaning that it would have similar impacts to groundwater recharge area as development under existing designations. The proposed project would place demands on water supplies for the Master Plan area. Water for the Master Plan area comes from surface water purchased from the Byron Bethany Irrigation District; no groundwater is used. Therefore, the proposed project would not deplete groundwater supplies. The proposed project would not result in any changes, new circumstances, or new information that would involve new significant impacts or substantially more severe impacts from what had been anticipated for the proposed project areas in the certified EIR.

c-i) As discussed in a) above, increased sedimentation could occur as a result of Master Plan development. Features proposed in the Master Plan, along with implementation of mitigation measures, would reduce impacts to a level that would be less than significant. Issues related to Specific Plan II implementation are addressed by proposed drainage improvements and by Master Plan sections 4.3.1, 5.1.4, 7.2.8, 15.4, 15.5, 15.6, 15.8, and 15.11.2(a).

Development under the proposed project would result in a similar water quality impact to what was evaluated in the certified EIR and Initial Study. The proposed project would not result in any changes, new circumstances, or new information that would involve new significant impacts or substantially more severe impacts from what had been anticipated for the proposed project areas in the certified EIR and Initial Study.

c-ii) The certified EIR did not identify any flooding impacts associated with changes in drainage patterns. Issues related to Specific Plan II implementation are addressed in proposed drainage improvements and by Master Plan sections 4.3.1, 5.1, 6.5, 7.2.8, 15.4, 15.5, 15.6, 15.8, and 15.11.2(a).

The proposed project would not lead to new impacts on this issue, as development had been proposed in any case, so anticipated alterations in drainage patterns from development would not change. The proposed project would not result in any changes, new circumstances, or new information that would involve new significant impacts or substantially more severe impacts from what had been anticipated for the proposed project areas in the certified EIR and Initial Study.

c-iii) Chapter 4.4, Public Utilities, of the certified EIR discussed the proposed storm drainage system for the Master Plan area and its adequacy to accommodate runoff. The storm drainage system would be designed to accommodate runoff from 100-year, 24-hour storm events. No issues regarding adequate accommodation of runoff were identified in the certified EIR.

Chapter 4.4 also discussed potential contaminants in the collected runoff. Common pollutants include sediments, nutrients, bacteria, oil and grease, trace metals, trace toxic organics, and chlorides or salts. The Storm Drainage and Flood Protection section of the Master Plan includes a discussion of Best Management Practices for the storm drainage system. Objective 1 sets a goal of developing a storm drainage system design that reduces the discharge of storm water pollutants. This objective is supported by three policies, including incorporation of appropriate source control Best Management Practices in each specific plan.

Chapter 15 of Specific Plan I addresses storm drainage specific to the plan area. These include drainage system requirements and Best Management Practices. As a portion of the proposed project is within the Specific Plan I area, it would be required to comply with these requirements. It also would be subject to the provisions of the Master Plan’s Storm Drainage and Flood Protection section. Therefore, the conclusions in the certified EIR remain applicable to the proposed project. The proposed project would not result in any changes, new circumstances, or new information that would involve new significant impacts or substantially more severe impacts from what has been anticipated for the proposed project areas in the certified EIR.

Issues related to Specific Plan II implementation are addressed in proposed drainage improvements and by Master Plan sections 7.3.6 and 15.7. The conclusions in the Initial Study remain applicable to the proposed project.

c-iv) The certified EIR noted that portions of the Master Plan area are within a 100-year floodplain. Existing levees are along Old River, and the Master Plan proposed construction of a new levee system to meet FEMA flood protection requirements. While the certified EIR did not directly address the potential for Master Plan development to impede or redirect flows within a 100-year flood hazard area, it did not identify any flooding impacts.

FEMA Flood Insurance Rate Map #06077C0570F, effective date October 16, 2009, indicates that most of the Mountain House community, including the proposed project areas, is not within any designated floodplain (FEMA 2009). The Specific Plan II Initial Study notes that proposed improvements to the Old River levee would remove all portions of Mountain House from the 100-year flood.

The proposed project would have no impact on impeding or redirecting flood flows. The proposed project would not result in any changes, new circumstances, or new information that would involve new significant impacts or substantially more severe impacts from what has been anticipated for the proposed project areas in the certified EIR.

d) The certified EIR did not analyze the potential release of pollutants due to project inundation in flood hazards, tsunami, or seiche zones. As noted in c-iv) above, a FEMA map of the Mountain House area confirms that the proposed project areas are located outside any designated floodplains. Additionally, the proposed project areas are not located near water features, such as oceans or large lakes, that are capable of inundating these areas by seiche or tsunami.

The Specific Plan II Initial Study analyzed potential impacts of seiche, tsunami, or mudflow. While some neighborhoods would include landlocked water features, seiche hazards would be minimal, and the plan area is not located in an area vulnerable to tsunamis or mudflows. The same conditions would apply to the proposed project, so the proposed project would not have any new or more severe impacts from those analyzed in the Initial Study.

The certified EIR discussed the potential for flooding caused by levee or dam failure. However, as noted, the proposed project areas are outside any designated floodplains. Also, as noted, the Master Plan proposed an upgraded levee system. The proposed project would not alter these conditions, and the proposed project would not result in any changes, new circumstances, or new information that would involve new significant impacts or substantially more severe impacts from what has been anticipated for the proposed project areas in the certified EIR.

e) The certified EIR did not analyze conflicts with water quality control plans or sustainable groundwater management plans. However, storm drainage discharges are regulated by the community's NPDES storm water discharge permit. Discharges from development under the proposed project would be subject to permit conditions.

Since certification of the EIR, the State has enacted the Sustainable Groundwater Management Act, which requires the adoption and implementation of Groundwater Sustainability Plans (GSPs) by groundwater basins experiencing overdraft conditions. The Master Plan area is within the Tracy Groundwater Subbasin. A GSP was prepared for this subbasin in 2021. The GSP sets groundwater sustainability objectives and a monitoring program, and it describes projects and implementing actions to achieve these objectives (GEI Consultants 2021). It is expected that the Master Plan area, including the proposed project areas, would comply with applicable provisions of the Tracy Subbasin GSP. The proposed project would not result in any changes, new circumstances, or new information that would involve new significant impacts or substantially more severe impacts from what has been anticipated for the proposed project areas in the certified EIR.

MITIGATION MEASURES

Mitigation Measures from the Previous CEQA Documents

Master Plan EIR Mitigation Measures M4.7-1, M4.7-4, M4.7-6, and S4.7-1 (see Appendix A of this Addendum).

Modified Mitigation Measures

None required.

Additional Project-Specific Mitigation Measures

None required.

3.4.11 Land Use and Planning

Would the project:	**Where impact was analyzed in previous CEQA documents**	**Do proposed changes involve new or more severe impacts?**	**New circumstances involving new impacts?**	**Any new information requiring new analysis or verification?**
a) Physically divide an established community?	Not analyzed.	No	No	No
b) Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?	Master Plan EIR Chapter 4.2.	No	No	No

DISCUSSION

a) The certified EIR did not address the potential of the Master Plan to physically divide an established community, since no established community was in place. The proposed project is in an existing developed area, is consistent with existing development in the area and would contribute to the development in the Mountain House planned community. The proposed project would have no impact on division of an established community, and it would not result in any changes, new circumstances, or new information relating to dividing an established community that would involve new significant impacts or substantially more severe impacts from what has been anticipated for the proposed project areas in the certified EIR.

b) The certified EIR noted that Specific Plan I development would be governed by policies and implementation measures of the Master Plan. No additional impacts related to General Plan and Development Title consistency were identified in the Draft Specific Plan I. Inconsistencies were identified between the General Plan and the Draft Master Plan; however, General Plan amendments and mitigation measures described in the certified EIR have resolved those inconsistencies.

The proposed project would require changes to the existing Master Plan designation and zoning of the affected parcels. However, these changes would not necessarily conflict with land use plans, policies, or regulations adopted to avoid or to mitigate environmental effects. Development under the proposed project would have the same environmental effects as the development proposed under existing Master Plan designations and zoning. The environmental effects under the latter development scenario were analyzed in the certified EIR, and the conclusions and mitigation measures described in the certified EIR would apply to the proposed project. The proposed project would not alter these conditions, and the proposed project would not result in any changes, new circumstances, or new information that would involve new significant impacts or substantially more severe impacts from what has been anticipated for the proposed project areas in the certified EIR.

MITIGATION MEASURES

Mitigation Measures from the Previous CEQA Documents

None.

Modified Mitigation Measures

None required.

Additional Project-Specific Mitigation Measures

None required.

3.4.12 Mineral Resources

Would the project:	**Where impact was analyzed in previous CEQA documents**	**Do proposed changes involve new or more severe impacts?**	**New circumstances involving new impacts?**	**Any new information requiring new analysis or verification?**
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?	Not analyzed.	No	No	No
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?	Not analyzed.	No	No	No

DISCUSSION

a, b) No mineral resources have been mapped within the entire Master Plan area; thus, the issue was not evaluated further in the certified EIR. Maps in the General Plan (based on information from the State Mining and Geology Board at the California Department of Conservation) show significant sand and gravel aggregate excavation sites elsewhere in San Joaquin County, none of which are located at or within the vicinity of Mountain House. Thus, the proposed project would have no impact on mineral resources, and the proposed project would not result in any changes, new circumstances, or new information that would involve new significant impacts or substantially more severe impacts from what has been anticipated for the proposed project areas in the certified EIR.

MITIGATION MEASURES

Mitigation Measures from the Previous CEQA Documents

None.

Modified Mitigation Measures

None required.

Additional Project-Specific Mitigation Measures

None required.

3.4.13 Noise

Would the project result in:	**Where impact was analyzed in previous CEQA documents**	**Do proposed changes involve new or more severe impacts?**	**New circumstances involving new impacts?**	**Any new information requiring new analysis or verification?**
a) Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	Master Plan EIR pp. 4.14-3 through 4.14-11; Specific Plan II IS p. 5-142 through 5-145.	No	No	No
b) Generation of excessive groundborne vibration or groundborne noise levels?	Specific Plan II IS p. 5-144.	No	No	No
c) For a project located within the vicinity of a private airstrip or 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?	Master Plan EIR pp. 4.14-10 and 4.14-11.	No	No	No

DISCUSSION

a) Traffic Noise

Impacts M4.14-1 of the certified EIR analyzed traffic noise impacts on sensitive land uses, mainly residences. The noise analysis was based on a standard of 60 decibels (dB) as the maximum noise level exposure for outdoor activity areas. Using this standard, the main areas of concern for traffic noise are the residential areas along six roadways: Interstate 205, De Anza Boulevard, Marina Boulevard, Central Parkway, Byron Road, and Grant Line Road. Mitigation Measure M4.14-1 adds Policies and Implementations that would ensure residences are not exposed to excessive noise levels. The certified EIR concluded that implementation of Mitigation Measure M4.14-1 would reduce Impact M4.14-1 to a level that would be less than significant. The Specific Plan II Initial Study identified permanent noise level increases along Grant Line Road. A sound wall that would be constructed would reduce noise received by nearby residences to a level that would be less than significant. In addition, noise mitigation for existing scattered homes on the east side of Mountain House Parkway and south side of Byron Road is addressed under (a) above and in Sections 11.2.2 and 11.2.6 of Specific Plan II.

The proposed project areas are along none of those roadways except two - Central Parkway and De Anza Boulevard. In addition, one of these areas is along Mountain House Parkway, a main roadway that was not part of the analysis of impacts on residences as only non-residential uses were proposed at the time the certified EIR was prepared. Proposed development adjacent to these roadways could expose some residences to traffic noise levels that exceed 60 dB. However, development under the proposed project would result in a similar traffic noise impact to what was evaluated in the certified EIR for Central Parkway and De Anza Boulevard. The proposed project would not cause a new significant or substantially more severe impact on traffic noise along those roadways beyond that previously analyzed in the certified EIR.

The project would place a residential area along Mountain House Parkway. Site plans for this residential area indicate a buffer area of between 39 and 47 feet between a residential building and the existing curb and gutter of Mountain House Parkway. A soundwall would be placed approximately 15 feet east of the residential building, which would reduce the exposure of the building to traffic noise. Moreover, according to a traffic study conducted for the project, the daily traffic trips that would be generated by the proposed residential area would be 1,348. This would be substantially less than the estimated 3,735 daily traffic trips that would be generated by development under existing zoning (Advanced Mobility Group 2023), thereby generating less overall ambient traffic noise.

Since the baseline condition at the Mountain House Parkway site is an undeveloped area, further analysis was conducted to determine the impacts of the project on traffic noise. The proposed project would still be subject to Mitigation Measure M4.14-1, which would render impacts less than significant. Therefore, the conclusions in the certified EIR remain applicable to the proposed project.

Impact 4.14-2 of the certified EIR analyzed traffic noise impacts on existing residences along streets leading to the Master Plan area. This impact was considered potentially significant. Mitigation Measure M4.14-2 adds an Implementation that required submittal of a plan for mitigating noise levels at existing residences with each specific plan application. The certified EIR concluded that implementation of Mitigation Measure M4.14-2 would reduce Impact M4.14-2 to a level that would be less than significant. Chapter 11 of Specific Plan I discussed the potential traffic noise impacts and included an implementing action regarding design features to reduce noise. This is consistent with Mitigation Measure 4.14-2.

Overall, the proposed project would not cause a new significant or substantially more severe impact on traffic noise beyond that previously analyzed in the certified EIR and Initial Study. The proposed project would not result in any changes, new circumstances, or new information that would involve new significant impacts or substantially more severe impacts from what had been anticipated for the proposed project areas in the certified EIR and Initial Study.

<u>Noise from Agricultural Operations</u>

Impact 4.14-3 of the certified EIR analyzed the potential impacts of noise from agricultural operations on proposed residences along the western boundary of the Master Plan area.

Noise generated by agricultural machinery and helicopters applying pesticides was considered potentially significant. Mitigation Measure M4.14-3 requires a buffer 500 feet wide between the residences and agricultural operations (see also Section 3.4.2, Agriculture and Forestry Resources). However, the certified EIR concluded that Impact M4.14-3 would remain significant even with implementation of Mitigation Measure M4.14-3, mainly because of helicopter noise. A Statement of Overriding Considerations was adopted justifying the impacts related to noise resulting from future development in Mountain House.

One of the proposed project areas is along the western boundary of the Master Plan area. Mitigation Measure M4.14-3 would apply to this area. Even with implementation of this mitigation measure, it cannot be stated with certainty that noise impacts from agricultural operations would be reduced to a level that would be less than significant, However, development under the proposed project would result in the same noise impact to what was evaluated in the certified EIR. The project would not cause a new significant or substantially more severe impact beyond that previously analyzed in the certified EIR. Therefore, the proposed project would not result in any changes, new circumstances, or new information that would involve new significant impacts or substantially more severe impacts from what had been anticipated for the proposed project areas in the certified EIR.

It should be noted that the California Supreme Court ruled in *CBIA v. BAAQMD* (2015) that CEQA does not generally require the analysis of the impacts of the environment on a project – a “CEQA in reverse” situation. An exception is made for projects that could exacerbate an existing environmental condition that may have adverse effects. The impact of agricultural operations noise on proposed development is considered a CEQA-in-reverse situation, and the project would not exacerbate existing noise from agricultural operations.

Stationary Noise Sources

Stationary noise sources in Specific Plan II include the wastewater treatment plant, the proposed Old River Industrial Park area, the water treatment plant at the intersection of Byron Road and Great Valley Parkway, and the proposed general/commercial and neighborhood commercial areas. Localized noise impacts could occur around these sources depending upon the final site design and proximity of other noise sensitive land uses to individual noise sources such as loading docks, pumps, etc. The Mountain House Master Plan requires that noise from these commercial facilities be controlled to an hourly L_{eq} of 55 dBA in the daytime (7:00 a.m. to 10:00 p.m.) and 50 dBA during the nighttime (10:00 p.m. to 7:00 a.m.). These standards will ensure that noise levels are appropriate for adjacent noise-sensitive land uses and no significant impacts would result. The proposed project would not result in any changes, new circumstances, or new information that would involve new significant impacts or substantially more severe impacts from what had been anticipated for the proposed project areas in the Specific Plan II Initial Study.

Construction Noise

The certified EIR did not analyze impacts of noise from construction activities on sensitive land uses. The Specific Plan II Initial Study analyzed potential impacts of noise from construction activities. Temporary increases in noise levels would be associated with construction of buildings and infrastructure in the Specific Plan II area. For the proposed project, this construction noise would be of most concern along the perimeter of existing Neighborhood F and for existing residences along Grant Line Road. Construction in these areas would take place across a major street from each of these locations, and all locations, with the exception of the existing homes along Grant Line Road, would be screened by an existing 7-foot-high sound wall. These sound walls and the distance buffer provided by the intervening roads would reduce construction noise levels to less than 60 dB outside of the existing homes. Therefore, while audible, construction noise is not expected to be significant.

Construction activities of the proposed project would add to the noise environment in the immediate project vicinity, potentially disturbing nearby residents. Construction equipment would generate noise levels ranging from 76 to 90 dBA L_{max} at a distance of 50 feet, depending on the equipment used (FHWA 2006). However, the majority of building construction would occur at distances of 50 feet or greater from the nearest residences and, thus, receptors would be exposed to noise levels less than those values. Also, Section 9-1025.9 of the Development Title essentially prohibits noise from construction activities between 9:00 p.m. and 6:30 a.m., which are the hours most residents would sleep. Finally, construction activities are temporary and would cease once construction work is completed. Therefore, the proposed project would have no significant impact related to construction noise.

b) The certified EIR did not address groundborne vibration and groundborne noise levels. Groundborne vibration is not a common environmental problem. Some common sources of groundborne vibration are trains, trucks, and buses on rough roads, heavy earth-moving equipment, and construction activities such as blasting and pile driving. While it is typically associated with transportation facilities, it is unusual for vibration from sources such as buses and trucks to be perceptible, even in locations close to major roads.

The Specific Plan II Initial Study evaluated groundborne vibration impacts. The only potential source of ground-borne vibration would be rail traffic on the Union Pacific Railroad. The closest proposed homes would be set back more than 100 feet from these tracks. Measurements along commuter rail corridors have shown that at distances of 100 feet or more, ground vibration levels are insignificant. Thus, the Initial Study concluded that no impacts due to groundborne vibration would be expected.

The proposed project would allow for residential development. Vehicle traffic associated with such development consists of lighter vehicles that do not generate substantial groundborne vibrations. The proposed project would not involve construction activities that would generate groundborne vibrations, such as pile driving and blasting. Furthermore, sensitive receptors which could be impacted by construction-related vibrations, especially vibratory compactors/rollers, would be at least 100 feet from typical construction activities, and in many cases further away. At these distances, construction vibrations are not predicted to exceed acceptable levels. As noted, construction activities would be temporary in nature and would likely occur during normal daytime working hours. Therefore, the proposed project would have no impact related to groundborne vibrations.

c) Impact 4.14-4 of the certified EIR analyzed impacts related to aircraft noise. Flyovers of aircraft would occur mainly over the southern portion of the Master Plan area, and residences in that flyover area would experience noise levels of up to 76 dB from the noisiest jets. A typical home with the windows closed would reduce the noise level from the exterior 76 dB to an interior 55 dB, which the Federal Aviation Administration has determined would not cause sleep disturbance. Moreover, overflights would be occasional, and not all aircraft would be as noisy. Therefore, the certified EIR concluded that aircraft noise was not significant.

The proposed project areas are outside the overflight zone of the Master Plan area. As such, development under the proposed project would experience less of an impact from aircraft noise than that analyzed in the certified EIR. Therefore, impacts of aircraft noise would not be significant. The proposed project would not result in any changes, new circumstances, or new information that would involve new significant impacts or substantially more severe impacts from what has been anticipated for the proposed project areas in the certified EIR.

MITIGATION MEASURES

Mitigation Measures from the Previous CEQA Documents

Master Plan EIR Mitigation Measures M4.14-1, M4.14-2, and M4.14-3 (see Appendix A of this Addendum).

Modified Mitigation Measures

None required.

Additional Project-Specific Mitigation Measures

None required.

3.4.14 Population and Housing

Would the project:	Where impact was analyzed in previous CEQA documents	Do proposed changes involve new or more severe impacts?	New circumstances involving new impacts?	Any new information requiring new analysis or verification?
a) Induce substantial unplanned 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)?	Not analyzed.	No	No	No
b) Displace substantial numbers of existing people or housing,	Not analyzed.	No	No	No

necessitating the construction of replacement housing elsewhere?				

DISCUSSION

a) The certified EIR analyzed Master Plan impacts related to population. However, the focus of the analysis was on jobs-housing balance. The certified EIR did not evaluate impacts related to unplanned population growth, because the CEQA Guidelines did not include a question on this issue in its Appendix G Checklist at the time of EIR certification.

The proposed project would change land use designations and zoning in three areas from commercial and office to single-family residential. This would lead to an increase in population and housing units not currently planned for in the Master Plan. As noted in Chapter 1.0, development under the proposed project would produce 330 single-family residences. The 2020 U.S. Census determined that the City of Mountain House had a population of 24,499 with 7,189 housing units. Therefore, in 2020, Mountain House had approximately 3.41 persons per housing unit. When this ratio is applied to the housing that would be constructed under the proposed project, the resulting population would be approximately 1,125.

However, as previously noted, the Master Plan anticipated a population of approximately 44,000 and development of approximately 16,000 housing units. Therefore, the housing to be developed under the proposed project would be within the development parameters of the Master Plan, along with the population increase resulting from this development.

Jobs-Housing Balance

The certified EIR analyzed the potential impacts of the Master Plan related to the jobs-housing balance. While jobs-housing balance is more of a socioeconomic issue, it may have direct or indirect impacts on the environment. If fewer jobs or affordable housing units are created in the Master Plan area than anticipated, or the timing for either is slower, more automobile trips and more air pollution could be created, as more commute trips would likely occur (San Joaquin County 1994). The Master Plan currently has a jobs-housing balance target of 0.99, which is based on fairly aggressive commercial development assumptions, mainly full absorption of large acreage dedicated to commercial development. The proposed project would add more residential units to Mountain House, which has the potential to alter the jobs-housing balance such that impacts identified in the certified EIR may become more severe.

However, the assumptions underlying the analysis of jobs-housing balance impacts have changed substantially since the Master Plan was adopted in 1994. Demand for office uses in Mountain House is limited, as the existing workforce is not sufficiently large enough to attract companies, and demand has been further diminished by work-from-home trends. While industrial lands north of Byron Road has drawn market interest, industrial lands south of Byron Road have attracted less development due to general market conditions and site dimensions.

EPS developed a jobs-housing balance estimate based on a Reserve Scenario that estimated a total of 4,700 commercial and industrial jobs. Based on this scenario, the anticipated jobs-housing balance for the Master Plan area is 0.76. While this is below the target of 0.99, it is above the current estimated jobs-housing balance in 2019 that ranged from 0.07 to 0.17 (EPS 2023).

Based on the above, the proposed project would not result in any changes, new circumstances, or new information that would involve new significant impacts or substantially more severe impacts from what has been anticipated for the proposed project areas in the certified EIR.

b) The certified EIR did not analyze potential displacement of housing or people. The proposed project areas are currently vacant; no housing or people are located within these areas. Therefore, the proposed project would not result in the displacement of housing or people; in fact, it would create additional housing. The proposed project would not result in any changes, new circumstances, or new information that would involve new significant impacts or substantially more severe impacts from what has been anticipated for the proposed project areas in the certified EIR.

MITIGATION MEASURES

Mitigation Measures from the Previous CEQA Documents

None.

Modified Mitigation Measures

None required.

Additional Project-Specific Mitigation Measures

None required.

3.4.15 Public Services

Would the project:	Where impact was analyzed in previous CEQA documents	Do proposed changes involve new or more severe impacts?	New circumstances involving new impacts?	Any new information requiring new analysis or verification?
a) Result in substantial adverse physical impacts associated with the provision of, 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) Fire protection?	Master Plan EIR pp. 4.3-16 through 4.3-20.	No	No	No
ii) Police protection?	Master Plan EIR pp. 4.3-20 through 4.3-23.	No	No	No
iii) Schools?	Master Plan EIR pp. 4.3-6 through 4.3-16.	No	No	No
iv) Parks?	Master Plan EIR pp. 4.3-1 through 4.3-6.	No	No	No
v) Other public facilities?	Master Plan EIR p. 4.3-26.	No	No	No

DISCUSSION

a-i) Impacts M4.3.3-1 and S4.3.3-1 of the certified EIR addressed the potential impacts to fire protection services. Both impacts identified an increase in demand on local fire protection services until long-term services would be provided, and mitigation measures were described for both impacts. However, since certification of the EIR, a fire station has been built on the corner of Traditions Street and Mustang Way and is currently staffed by the French Camp McKinley Fire District. Because of this, the mitigation measures are no longer applicable.

All three areas that are part of the proposed project are within approximately two miles of the fire station. According to the CSD's Municipal Service Review, the fire station's average response time to calls is five minutes and 50 seconds, which compares favorably to the goal of an eight-minute response time or less for 90 percent of calls. While the proposed project would increase the number of residences within the fire station's service area, and therefore the number of calls, this would not result in an increase in response times because the footprints of the Specific Plan I and II areas are not being expanded. In addition, the CSD is planning for a second fire station north of Byron Road in the near future (Mountain House CSD 2017). The CSD's current contract with the French Camp McKinley Fire District provides for staffing additional fire stations and engine companies as the need occurs. As such, the proposed project would not require new or expanded fire protection facilities to serve the increased demand for services. The proposed project would not result in any changes, new circumstances, or new information that would involve new significant impacts or substantially more severe impacts from what has been anticipated for the proposed project areas in the certified EIR or the Initial Study.

a-ii) Impacts M4.3.4-1 and S4.3.4-1 of the certified EIR addressed the potential impacts to police protection services, currently provided by the San Joaquin County Sheriff's Department. Both impacts identified an increase in demand for services from the Sheriff's

Department, based on a General Plan standard of one sworn officer per 1,000 population. For both impacts, mitigation measures require maintenance of this standard.

The proposed project would result in the construction of residential units that would create an increased demand for law enforcement services. Although new staff would be required to meet service standards, new or expanded facilities would not be required, as the footprints of the Specific Plan I and II areas are not being expanded. Therefore, law enforcement would not have to respond to new locations that were not anticipated in the certified EIR and that are not within the current service area. The proposed project would not result in any changes, new circumstances, or new information that would involve new significant impacts or substantially more severe impacts from what has been anticipated for the proposed project areas in the certified EIR.

a-iii) Impacts M4.3.2-1 and S4.3.2-1 of the certified EIR addressed the potential impacts to schools. The Lammersville Unified School District serves students from kindergarten to high school. Impact M4.3.2-1 noted that the 12 elementary/middle schools and two high schools proposed in the Master Plan may have inadequate space to accommodate the anticipated student population. Mitigation Measure M4.3.2-1 requires the public facilities plan to identify funding sources for schools, and the number of proposed schools shall not be reduced without a Master Plan revision and concurrence from the School District. Impact S4.3.2-1 noted that Specific Plan I was not in conformance with the Master Plan regarding school facilities. Mitigation Measure S4.3.2-1 requires an amendment to Specific Plan I that would require a School Facilities Plan to be approved prior to issuance of first Development Permit. As the first Development Permit has been issued, Mitigation Measure S4.3.2-1 is not applicable to the proposed project.

The proposed project would construct 330 single-family residences. Based on student generation factors used by the School District (Lammersville USD 2018), the proposed project would generate approximately 225 elementary school students (0.6804 per unit) and 58 high school students (0.1746 per unit). This would be above the total anticipated by both the Master Plan and the draft School Facilities Plan of the School District. However, the draft School Facilities Plan anticipates the addition of at least two elementary schools and high school classrooms in the future, independent of the proposed project. Moreover, developers would be required to pay State-mandated school impact fees. Under State law, payment of impact fees is deemed adequate CEQA mitigation of impacts on schools.

a-iv) The certified EIR addressed potential impacts to parks and determined that impacts would be less than significant with mitigation. Potential impacts on parks will be further discussed in Section 3.4.16, Recreation, of this Addendum.

a-v) The certified EIR discussed potential impacts on libraries, which are managed by the Stockton-San Joaquin Public Library. At the time of EIR certification, the nearest library to the Master Plan area was the Tracy Branch Library. Since then, a library of 5,000 square feet was established in Mountain House. In 2020, a library totaling 21,000 square feet was opened at the new Town Hall, which is in the Specific Plan I area.

As noted, the proposed project would result in new single-family residences, which is expected to lead to an increased demand for library services. Given the recent expansion of the library, it is expected that existing library facilities can accommodate the increased demand, especially since the new library is in the Specific Plan I area. The proposed project would not result in any changes, new circumstances, or new information that would involve new significant impacts or substantially more severe impacts from what has been anticipated for the proposed project areas in the certified EIR.

MITIGATION MEASURES

Mitigation Measures from the Previous CEQA Documents

Mitigation Measures M4.3.2-1, M4.3.3-1, M4.3.4-1, S4.3.2-1, S4.3.3-1, and S4.3.4-1 (see Appendix A of this Addendum).

Modified Mitigation Measures

None required.

Additional Project-Specific Mitigation Measures

None required.

3.4.16 Recreation

Would the project:	**Where impact was analyzed in previous CEQA documents**	**Do proposed changes involve new or more severe impacts?**	**New circumstances involving new impacts?**	**Any new information requiring new analysis or verification?**
a) Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facilities would occur or be accelerated?	Master Plan EIR pp. 4.3-1 through 4.3-6; Specific Plan II IS pp. 5-161 through 5-165.	No	No	No
b) Include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment?	Master Plan EIR pp. 4.3-1 through 4.3-6; Specific Plan II IS pp. 5-161 through 5-165.	No	No	No

DISCUSSION

a, b) The certified EIR addressed potential impacts related to parks and recreational facilities. It stated that a significant impact would occur if park and recreation facilities were not sufficient to comply with the requirements of the General Plan and if planned facilities were not available to the residents as they occupy the site. At the time the Master Plan was adopted, General Plan objectives were to provide three acres of local parks per 1,000 residents and ten acres of regional park land per 1,000 residents. As discussed under Impact M4.3.1-1, the Master Plan was projected to meet the adopted standards for community and neighborhood parks, but it was not expected to meet regional park standards. For Specific Plan I, Impact S4.3.1-1 identified the same impacts. Mitigation Measure M4.3.1-1 revises Master Plan Policies and Implementations to provide alternatives to meeting regional park standards. Mitigation Measure S4.3.1-1 refers to Mitigation Measure M4.3.1-1. The certified EIR concluded that implementation of Mitigation Measures M4.3.1-1 and S4.3.1-1 would reduce Impacts M4.3.1-1 and S4.3.1-1, respectively, to a level that would be less than significant.

Specific Plan I allocates 15 acres to neighborhood parks and 74 acres to community parks, for a total of 89 acres. With an expected population of 10,994, this equates to a ratio of approximately 8.1 acres per 1,000 population. This would be in excess of the minimum standard, although it is expected that most of the acreage would function as wildlife habitat and storm water control. Under Specific Plan II, Specific Plan II includes seven new neighborhoods, and each would have a 5-acre neighborhood park except for Neighborhoods I and J. This would include Neighborhoods F and H, which are part of the proposed project.

The proposed project would add 330 single-family residential units to the Specific Plan I and II areas. Given the average persons per unit of 3.41 (see Section 3.4.14, Population and Housing), the estimated number of additional residents would be approximately 1,125. With the addition of this population, the local park ratio would be approximately 7.3 acres per 1,000, which would still exceed the minimum standard. Therefore, the proposed project would not substantially alter the availability of park and recreational facilities in the Specific Plan I and II areas. The proposed project would not result in any changes, new circumstances, or new information that would involve new significant impacts or substantially more severe impacts from what has been anticipated for the proposed project areas in the certified EIR and the Initial Study.

MITIGATION MEASURES

Mitigation Measures from the Previous CEQA Documents

Master Plan EIR Mitigation Measures M4.3.1-1 and S4.3.1-1 (see Appendix A of this Addendum).

Modified Mitigation Measures

None required.

Additional Project-Specific Mitigation Measures

None required.

3.4.17 Transportation

Would the project:	**Where impact was analyzed in previous CEQA documents**	**Do proposed changes involve new or more severe impacts?**	**New circumstances involving new impacts?**	**Any new information requiring new analysis or verification?**
a) Conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities?	Master Plan EIR pp. 4.12-15 though 4.12-50, 4.12-53 through 4.12-78; Specific Plan II IS pp. 5-176 through 5-211, 5-213 through 5-215.	No	No	No
b) Conflict with or be inconsistent with CEQA Guidelines Section 15064.3, subdivision (b)?	Not analyzed.	No	No	No
c) Substantially increase hazards to a geometric design feature (e g., sharp curves or dangerous intersections) or incompatible uses (e g, farm equipment)?	Master Plan EIR pp. 4.12-50, 4.12-78.	No	No	No
d) Result in inadequate emergency access?	Specific Plan II IS p. 5-211.	No	No	No

DISCUSSION

a) *Motor Vehicle Traffic*

The certified EIR addressed the potential impacts of Master Plan development on the circulation system and their consistency with local and regional plans and policies related to traffic. Impacts M4.12-1, M4.12-2, S4.12-1, and S4.12-2 noted that Master Plan development would generate additional vehicle trips on the road system in the vicinity that would lead to significant and unavoidable impacts, even with implementation of Mitigation Measures M4.12-1, M4.12-2, S4.12-1, and S4.12-2.

However, this conclusion was reached based on adopted Level of Service (LOS) standards. As of July 1, 2020, LOS is no longer used to assess the significance of transportation impacts under CEQA. Instead, vehicle miles traveled (VMT) is the preferred metric for assessing the transportation impacts of a project (see b) below). Therefore, any changes to LOS resulting from the proposed project would not qualify as significant effects under the current CEQA Guidelines. Nevertheless, project impacts on LOS have been evaluated to determine consistency with Master Plan traffic standards. An evaluation of traffic impacts in the Specific Plan II Initial Study found no significant impacts with implementation of Master Plan mitigation measures.

A traffic study, available in this document as Appendix C, was prepared for the project by Advanced Mobility Group. Preparation of the traffic study involved traffic counts to establish baseline conditions, project trip generation and distribution of project trips, determination of traffic conditions under five scenarios, and effects of the project on LOS based on established significance thresholds. In addition, a VMT analysis for the project was completed using the buildout scenario of the SJCOG model.

The traffic study evaluated traffic conditions at 21 existing intersections that could be affected by the project, along with two future intersections. These are listed in the traffic study in Appendix C. The LOS criteria used in the study, which are from the General Plan and the Master Plan, are a minimally acceptable LOS C on County roads and Mountain House streets and a minimally acceptable LOS D on State facilities, gateway roadways to Mountain House, and Grant Line Road in Alameda County.

Under existing traffic conditions, all existing study intersections operate at an acceptable LOS except for the Mountain House Parkway/Interstate 205 westbound ramp intersection, which operates at LOS E during the morning peak hour. Under Existing Plus Project conditions, all existing study intersections would operate at an acceptable LOS except for the Mountain House Parkway/Interstate 205 westbound ramp intersection, which again would operate at LOS E during the morning peak hour.

Based on the results of the traffic study, the project would not substantially affect existing traffic conditions in the Mountain House area. For traffic conditions at the Mountain House Parkway/Interstate 205 westbound ramp intersection, the traffic study recommended restriping the intersection with one left-turn lane, one right-turn lane, and one shared through/right-turn lane. With this improvement, the intersection would operate at an acceptable LOS D. However, as LOS is no longer used to determine potential environmental impacts, this is a recommended improvement only and not a mitigation measure.

Impacts M4.12-3, M4.12-4, and M4.12-5 described Master Plan impacts on freeway interchanges, County and other roads, and Mountain House City streets. Impacts specific to Specific Plan I are described in Impacts S4.12-3, S4.12-4, and S4.12-5. Mitigation Measures M4.12-3, M4.12-4, and M4.12-5, along with Mitigation Measures S4.12-3, S4.12-4, and S4.12-5, would reduce these impacts to a level that would be less than significant. Development under the proposed project would result in a similar impact to what was evaluated in the certified EIR. The proposed project would not cause a new significant or substantially more severe impact beyond that previously analyzed in the certified EIR. The proposed project would still be subject to Mitigation Measures M4.12-3, M4.12-4, M4.12-5, S4.12-3, S4.12-4, and S4.12-5, which would render impacts less than significant. Therefore, the conclusions in the certified EIR remain applicable to the proposed project. Again, conclusions reached in the certified EIR were based on LOS standards that are no longer used to determine environmental impacts under CEQA.

Alternative Modes of Transportation

Impact M4.12-7 described a potential increase in the demand for bicycle travel within and outside the Master Plan area. Impact S4.12-7 described a similar increase in bicycle travel under Specific Plan I, along with an increase in pedestrian travel. Mitigation Measure M4.12-7 requires participation in the planning and implementation of off-site bicycle facilities, while Mitigation Measure S4.12-7 would require provisions for bicycle facilities along north-south arterials that are extended to or beyond Grant Line Road. The certified EIR concluded that implementation of these mitigation measures would reduce impacts to a level that is less than significant. Development under the proposed project would result in a similar impact on bicycle travel to what was evaluated in the certified EIR. The proposed project would still be subject to Mitigation Measures M4.12-7 and S4.12-7, which would render impacts less than significant. Therefore, the conclusions in the certified EIR remain applicable to the proposed project. This also would be consistent with General Plan and Regional Transportation Plan policies encouraging bicycle and pedestrian travel.

Based on the above, the proposed project would not result in any changes, new circumstances, or new information that would involve new significant impacts or substantially more severe impacts from what has been anticipated for the proposed project areas in the certified EIR. The mitigation measures described above would still be applicable for General Plan, Master Plan, and Specific Plans I and II consistency.

b) Neither the certified EIR nor the Specific Plan II Initial Study evaluated VMT because a VMT analysis was not required at the time those documents were prepared. Senate Bill (SB) 743 requires that vehicle miles traveled (VMT), rather than LOS, be used for the purpose of assessing traffic impacts under CEQA. Lead agencies have discretion to choose the most appropriate methodology to evaluate a project’s VMT, including whether to express the change in absolute terms, per capita, per household or any other measure. VMT refers to the amount and distance of automobile travel “attributable to a project.”

The project traffic study analyzed the VMT impacts of the project. As noted, the VMT analysis was completed using the buildout scenario of the SJCOG model. Based on the Technical Advisory on VMT issues by the Governor’s Office of Planning and Research, the VMT metric for new development projects is the net change of the overall VMT. For this project, VMT impacts were considered significant if the project would lead to an increase in VMT. The traffic study estimated that VMT with existing zoning would be 7,375,762. With the proposed zoning changes, the VMT would be 7,342,072 – a decrease of 33,690. This reduction is due to a reduction in the anticipated daily trips generated by land uses on the parcels resulting from the proposed rezoning. Since the proposed project would lead to a net decrease in VMT, project impacts related to VMT would be less than significant.

Impacts M4.12-1 and S4.12-1 acknowledged increases in VMT resulting from implementation of the Master Plan and Specific Plan I, respectively. As noted, the proposed project would result in less VMT than would existing designations. Therefore, the proposed project would not cause a new significant or substantially more severe impact beyond that previously analyzed in the certified EIR.

c) The certified EIR analyzed the potential to substantially increase hazards due to a geometric design feature or incompatible uses. This impact, analyzed in Impacts M4.12-8 and S4.12-8, focused on increased vehicle traffic, including bicycles, crossing the railroad tracks traversing the Master Plan area. Mitigation Measures M4.12-8 and S4.12-8 modify implementation actions regarding railroad crossings to include bicycle traffic. The certified EIR concluded that implementation of Mitigation Measures M4.12-8 and S4.12-8 would reduce Impacts M4.12-8 and S4.12-8, respectively, to a level that would be less than significant.

Development under the proposed project would result in a similar impact to what was evaluated in the certified EIR. The project would not cause a new significant or substantially more severe impact beyond that previously analyzed in the certified EIR. The proposed project would still be subject to Mitigation Measures M4.12-8 and S4.12-8, which would render impacts less than significant. Therefore, the conclusions in the certified EIR remain applicable to the proposed project. Based on the above, the proposed project would not result in any changes, new circumstances, or new information that would involve new significant impacts or substantially more severe impacts from what had been anticipated for the proposed project areas in the certified EIR.

d) The certified EIR did not analyze the potential for inadequate emergency access. The Specific Plan II Initial Study analyzed emergency access and did not identify any significant impacts requiring mitigation. Within the Master Plan area, an internal road system has been developed that provides access to all parcels, including those within the proposed project areas. Therefore, adequate access for emergency vehicles would be provided to the proposed project areas. The proposed project would have no impact on this issue.

MITIGATION MEASURES

Mitigation Measures from the Previous CEQA Documents

Master Plan EIR Mitigation Measures M4.12-1, M4.12-2, M4.12-3, M4.12-4, M4.12-5, M4.12-7, M4.12-8, S4.12-1, S4.12-2, S4.12-3, S4.12-4, S4.12-5, S4.12-7, and S4.12-8 (see Appendix A of this Addendum).

Modified Mitigation Measures

None required.

Additional Project-Specific Mitigation Measures

None required.

3.4.18 Tribal Cultural Resources

Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code Section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:	**Where impact was analyzed in previous CEQA documents**	**Do proposed changes involve new or more severe impacts?**	**New circumstances involving new impacts?**	**Any new information requiring new analysis or verification?**
a) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code Section 5020.1(k), or	Master Plan EIR pp. 4.5-2 through 4.5-6.	No	No	No
b) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1? In applying the criteria set forth in subdivision (c) of Public Resources Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.	Master Plan EIR pp. 4.5-2 through 4.5-6.	No	No	No

DISCUSSION

a, b) The CEQA Guidelines did not include tribal cultural resource questions in its Appendix G Checklist at the time of Master Plan EIR certification. Since EIR certification, the State Legislature enacted AB 52 in 2015, which focuses on consultation with Native American tribes to avoid or mitigate potential impacts on tribal cultural resources. The consultation must occur prior to the release of the CEQA document for the project. Since the Master Plan and Specific Plan I were adopted prior to 2015, and since no Notice of Preparation or a negative declaration/mitigated negative declaration will be filed for the proposed project, the AB 52 consultation requirements would not apply.

Also, subsequent to EIR certification, the State Legislature enacted SB 18 in 2004. SB 18 requires local governments to notify the appropriate tribes of the opportunity to conduct consultations for the purpose of preserving, or mitigating impacts to, cultural places located on land within the local government's jurisdiction prior to the adoption or any amendment of a general plan or specific plan. However, unlike AB 52, SB 18 does not require consultations prior to the CEQA public review process. It is anticipated that the City would consult with potentially affected tribes pursuant to SB 18.

However, the certified EIR did discuss impacts on cultural resources in Chapter 4.5, as noted in Section 3.4.5, Cultural Resources. Impacts M4.5-1 and S4.5-1 discussed potential impacts on prehistoric cultural deposits, and Impact M4.5-2 addressed human burials. These impacts could affect tribal cultural resources. Implementation of Mitigation Measures M4.5-1, M4.5-2, and S4.5-1 would reduce impacts to a level that would be less than significant.

Development under the proposed project would result in a similar impact to tribal cultural resources. The project would not cause a new significant or substantially more severe impact on tribal cultural resources beyond that previously analyzed in the certified EIR. The proposed project would still be subject to Mitigation Measures M4.5-1, M4.5-2, and S4.5-1, which would render Impacts M4.5-1, M4.5-2, and S4.5-1 less than significant. Therefore, the conclusions in the certified EIR remain applicable to the proposed project. Based on the above, the proposed project would not result in any changes, new circumstances, or new information that would involve new significant impacts or substantially more severe impacts from what had been anticipated for the proposed project areas in the certified EIR.

MITIGATION MEASURES

Mitigation Measures from the Previous CEQA Documents

See mitigation measures in Section 3.4.5, Cultural Resources, in Appendix A of this Addendum.

Modified Mitigation Measures

None required.

Additional Project-Specific Mitigation Measures

None required.

3.4.19 Utilities and Service Systems

Would the project:	Where impact was analyzed in previous CEQA documents	Do proposed changes involve new or more severe impacts?	New circumstances involving new impacts?	Any new information requiring new analysis or verification?
a) Require or result in the relocation or construction of new or expanded water, wastewater treatment, or storm water drainage,	Master Plan EIR Chapter 4.4; Specific Plan II IS	No	No	No

electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?	pp. 5-224 through 5-230.			
b) Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry, and multiple dry years?	Master Plan EIR pp. 4.4-8 through 4.4-11A; Specific Plan II IS pp. 5-224, 5-230 through 5-232.	No	No	No
c) Result in a determination by the wastewater treatment provider that would serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	Master Plan EIR pp. 4.4-19 through 4.4-27.	No	No	No
d) Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?	Master Plan EIR pp. 4.3-23 through 4.3-26.	No	No	No
e) Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?	Master Plan EIR pp. 4.3-23 through 4.3-26.	No	No	No

DISCUSSION

a) Chapter 3.0, Project Description, of the certified EIR described the infrastructure proposed to be installed as part of development of the Master Plan area, along with existing infrastructure such as natural gas pipelines. Chapter 4.4, Public Utilities, of the certified EIR analyzed potential impacts related to utilities except for solid waste, impacts related to which were analyzed in Chapter 4.3, Public Services. The certified EIR did not identify any infrastructure impacts specific to Specific Plan I development. The Specific Plan II Initial Study evaluated impacts related to water, wastewater, and storm drainage facilities and did not identify any impacts requiring additional mitigation.

Most of the infrastructure for the Master Plan area has been installed, and the Specific Plan I area is fully served. Development under the proposed project would connect to the existing water, wastewater, and storm drainage systems operated by the CSD, along with existing energy and telecommunication systems.

Impact M4.4.4-1 analyzed the potential need to relocate infrastructure, specific electrical transmission lines and natural gas pipelines owned by Pacific Gas and Electric Company (PG&E). Mitigation Measure M4.4.4-1 outlines procedures for relocating PG&E utility lines. Based on information in the certified EIR, development under the proposed project could affect a natural gas pipeline and potential transmission line. The proposed project would still be subject to Mitigation Measure M4.4.4-1, which would render impacts less than significant. Therefore, the conclusions in the certified EIR remain applicable to the proposed project. Based on the above, the proposed project would not result in any changes, new circumstances, or new information that would involve new significant impacts or substantially more severe impacts from what had been anticipated for the proposed project areas in the certified EIR.

b) Section 4.4.1 of the certified EIR described potential impacts on water supplies. Of the impacts identified in the certified EIR, Impact 4.4.1-3 addressed a situation applicable to the proposed project. Impact 4.4.1-3 noted that anticipated water supplies may be inadequate to serve the anticipated water demand of Master Plan development. The Master Plan proposed the use of water conservation measures such as low-flow shower heads and toilet and low-water landscaping. In addition, mitigation measures were described that required specific plans beyond Specific Plan I to implement water conservation measures to ensure that demand does not exceed water supplies. The Specific Plan II Initial Study stated that the plan area could be adequately supplied if development complies with the water conservation program of the CSD and with Section 12.4 of Specific Plan II.

The certified EIR estimated that Specific Plan I development would generate an average water demand of 2.25 million gallons per day, or approximately 2,521 acre-feet per year, based on current Master Plan designations and zoning. The Specific Plan II development would generate an average water demand of 4.89 million gallons per day, or 5,642 acre-feet per year.

The proposed project would add 330 single-family residential units with an estimated number of residents of 1,125 (see Section 3.4.14, Population and Housing). Of that total, 81 units would be in the Specific Plan II area (Area 1) and the remainder in the Specific Plan I area (Areas 2 and 3). According to the CSD's 2020 Urban Water Management Plan, the gallons per capita per day (GPCD) water use baseline for the CSD is 272 GPCD (Mountain House CSD 2022). While water efficiency is expected to improve over time, the 272 GPCD factor allows for a conservative analysis of the water demand generated by the proposed project. Based on this factor, the proposed project would generate a water demand of approximately 0.31 million gallons per day, or approximately 342.8 acre-feet per year. Of the total acre-feet per year, approximately 84.1 acre-feet would be from Area 1 (Specific Plan II) and the remaining 258.7 acre-feet would be Areas 2 and 3 (Specific Plan I). The estimated water demand from the proposed project does not consider the estimated water demand from the current land use designations; therefore, the actual increase in water demand would be less than 342.8 acre-feet per year.

The Master Plan area is expected to have water surpluses ranging from 5,903 to 9,595 acre-feet even during five dry years, except for a fourth dry year. In 2040, the CSD is expected to receive additional water supplies from its Old River riparian rights (Mountain House CSD 2022). The water surpluses are projected to be adequate to serve the additional water demand created by the proposed project. Thus, the Master Plan area is considered to have a reliable water supply that would accommodate the increases in population associated with the changes in uses that would occur with the proposed project. The proposed project would not result in any changes, new circumstances, or new information that would involve new significant impacts or substantially more severe impacts from what has been anticipated for the proposed project areas in the certified EIR and Initial Study.

c) Section 4.4.2 of the certified EIR described potential impacts related to wastewater. The Master Plan proposed to construct the wastewater treatment plant for Master Plan development in increments as development occurs. The proposed wastewater treatment was originally proposed to have an ultimate design capacity of 5.7 million gallons per day of average dry weather flow, but that has been reduced to 5.4 million gallons per day. According to the certified EIR, Specific Plan I development at buildout would generate approximately 1.76 million gallons per day of wastewater, assuming water conservation measures are implemented. The Specific Plan II Initial Study indicated that wastewater flow from the plan area would be approximately 2.69 million gallons per day. As of 2015, the wastewater treatment plant received an average dry weather flow of 0.7 million gallons per day (Mountain House CSD 2017).

According to the CSD's Design Standards, the wastewater generation baseline for residential uses is 100 GPCD. Based on the anticipated population of the proposed project development, approximately 113,500 gallons of wastewater per day (0.114 million gallons per day) would be generated by the proposed project. This increase is relatively small and would not have an impact on the ultimate treatment capacity of 5.4 million gallons per day. The proposed project would not result in any changes, new circumstances, or new information that would involve new significant impacts or substantially more severe impacts from what has been anticipated for the proposed project areas in the certified EIR and the Initial Study.

d, e) Impacts M4.3.5-1 and S4.3.5-1 of the certified EIR analyzed potential impacts related to solid waste. It was determined that solid waste generated by Master Plan development would affect capacity at the landfill where the solid waste would be disposed. Mitigation Measure M4.3.5-1 encourages greater recycling opportunities of both operational and construction waste. Mitigation Measure S4.3.5-1 requires the Specific Plan I to identify waste transfer and waste recycling facility sites. The certified EIR concluded that implementation of Mitigation Measures M4.3.5-1 and S4.3.5-1 would reduce Impacts M4.3.5-1 and S4.3.5-1, respectively, to a level that would be less than significant. Subsequently, Specific Plan I was modified to include a designated waste transfer site in compliance with Mitigation Measure S4.3.5-1.

Development under the proposed project would result in a similar solid waste impact to what was evaluated in the certified EIR. The project would not cause a new significant or substantially more severe impact on solid waste beyond that previously analyzed in the certified EIR. The proposed project would still be subject to Mitigation Measure M4.3.5-1, which would render impacts less than significant. Therefore, the conclusions in the certified EIR remain applicable to the proposed project.

Non-hazardous solid waste from the City of Mountain House is collected and transported to the Foothill Landfill for disposal. Hazardous wastes would be transported to Class I or II landfills for disposal. These landfills are licensed and operated in compliance with applicable federal, state, and local statutes and regulations, and proposed project impacts would not substantially change from those identified in the certified EIR. The proposed project would have no impact related to solid waste regulations.

Based on the above, the proposed project would not result in any changes, new circumstances, or new information that would involve new significant impacts or substantially more severe impacts from what has been anticipated for the proposed project areas in the certified EIR.

MITIGATION MEASURES

Mitigation Measures from the Previous CEQA Documents

Master Plan EIR Mitigation Measure M4.3.5-1 and M4.4.4-l (see Appendix A of this Addendum).

Modified Mitigation Measures

None required.

Additional Project-Specific Mitigation Measures

None required.

3.4.20 Wildfire

If located in or near State Responsibility Areas or lands classified as Very High Fire Hazard Severity Zones, would the project:	Where impact was analyzed in previous CEQA documents	Do proposed changes involve new or more severe impacts?	New circumstances involving new impacts?	Any new information requiring new analysis or verification?
a) Substantially impair an adopted emergency response plan or emergency evacuation plan?	Not analyzed.	No	No	No
b) Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?	Not analyzed.	No	No	No
c) Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?	Not analyzed.	No	No	No

d) Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?	Not analyzed.	No	No	No

DISCUSSION

a) Emergency response plans and emergency evacuation plans were discussed in Section 3.4.9, Hazards and Hazardous Materials. The proposed project would be required to comply with the provisions of adopted emergency operations plans. Thus, the proposed project would not result in any changes, new circumstances, or new information that would involve new significant impacts or substantially more severe impacts from what had been anticipated for the proposed project areas in the certified EIR and the Initial Study.

b) The CEQA Guidelines did not include this and the following two questions on wildfire in its Appendix G Checklist at the time of Master Plan EIR certification or Initial Study adoption. The certified EIR did not analyze potential impacts of the Master Plan as they relate to wildfire. As discussed in Section 3.4.9, Hazards and Hazardous Materials, the proposed project areas are not within the only designated fire hazard zone within the Master Plan area. The proposed project would reduce the existing fire hazard in them by replacing existing grasses and weeds with industrial development. Moreover, as noted in Section 3.4.15, Public Services, the City of Mountain House has a fire station that can respond to any fire in the proposed project areas within standard response times. Based on the above, the proposed project would not result in any changes, new circumstances, or new information that would involve new significant impacts or substantially more severe impacts from what had been anticipated for the proposed project areas in the certified EIR.

c) Development under the proposed project would connect to existing utilities; no new infrastructure would be installed. As noted in b) above, the proposed project areas are not in a fire hazard zone. The proposed project would not result in any changes, new circumstances, or new information that would involve new significant impacts or substantially more severe impacts from what had been anticipated for the proposed project areas in the certified EIR.

d) The Master Plan area is relatively flat. Although there are foothills west of the Master Plan area, they are relatively low in elevation and slope. Mountain House Creek originates in the foothills and crosses the center of the Master Plan area. However, the creek is cut off by the Delta Mendota Canal, so any flows would likely be stopped by this facility. Based on the above, it is not expected that people or structures would be exposed to significant risks from changes resulting from fires in steeper areas, including downslope or downstream flooding or landslides. The proposed project would not result in any changes, new circumstances, or new information that would involve new significant impacts or substantially more severe impacts from what had been anticipated for the proposed project areas in the certified EIR.

MITIGATION MEASURES

Mitigation Measures from the Previous CEQA Documents

See mitigation measures for Section 3.4.9, Hazards and Hazardous Materials, in Appendix A of this Addendum.

Modified Mitigation Measures

None required.

Additional Project-Specific Mitigation Measures

None required.

3.4.21 Mandatory Findings of Significance

	Where impact was analyzed in previous CEQA documents	**Do proposed changes involve new or more severe impacts?**	**New circumstances involving new impacts?**	**Any new information requiring new analysis or verification?**
a) Does the project have the potential to substantially 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, substantially 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?	Master Plan EIR Chapters 4.5 and 4.12: Specific Plan II IS Chapter 6.	No	No	No
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)?	Master Plan EIR pp. 6-1 through 6-23; Specific Plan II IS Chapter 6.	No	No	No
c) Does the project have environmental effects which would cause substantial adverse effects on	Master Plan EIR Chapters 4.1 through 4.14;	No	No	No

human beings, either directly or indirectly?	Specific Plan II IS Chapter 6.			

DISCUSSION

a) Findings on Biological and Cultural Resources.

The certified EIR found that the Master Plan would have the potential to substantially 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, substantially 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. However, it also found that all impacts relating to biological and cultural resources could be mitigated to a less-than-significant level with the implementation of appropriate mitigation measures. The Specific Plan II Initial Study identified only potential biological resource impacts, but it concluded that these impacts would be mitigated by Specific Plan II implementation measures.

The proposed project would only involve changes to the types of uses proposed and would not involve the development of any lands not previously analyzed for urban uses. Therefore, the proposed project would not result in impacts beyond what were identified in the certified EIR.

b) Findings on Cumulatively Considerable Impacts.

Chapter 6.0 of the certified EIR included an analysis of the potential cumulative impacts of Master Plan development. Most of the cumulative impacts identified in the certified EIR would be similar under the proposed project, with no increased severity of impacts. Cumulative impacts under Master Plan development were considered unmitigable in the following resource areas: land use and agriculture, transportation, air quality, noise, and visual quality. However, as addressed throughout this Addendum, new or more severe impacts associated with the proposed project have not been identified for these issue areas. The Specific Plan II Initial Study stated that the potential cumulative impacts of the implementation of Specific Plan II were addressed in the certified EIR.

The project traffic study, available in this document as Appendix C, determined traffic conditions under five scenarios, including cumulative conditions without and with the project. Cumulative conditions represent conditions with planned transportation network changes and planned future land use development to be implemented by the year 2042. Effects of the project on LOS were determined based on the established significance thresholds described in Section 3.4.17, Transportation.

Under cumulative conditions without the project, traffic conditions would operate at an acceptable LOS at all the intersections except for three:

- Mountain House Parkway/Grant Line Road (LOS E during evening peak hour)
- Mountain House Parkway/Interstate 205 westbound ramp (LOS E during morning peak hour)

- Mountain House Parkway/Interstate 205 eastbound ramp (LOS E during evening peak hour)

Under cumulative conditions with the project, traffic conditions would operate at an acceptable LOS at all the intersections except for Mountain House Parkway/Interstate 205 westbound ramp (LOS E during morning and evening peak hour) and the Mountain House Parkway/Interstate 205 eastbound ramp (LOS E during evening peak hour). Based on the results of the traffic study, the project would not substantially affect traffic conditions in the Mountain House area under cumulative conditions.

For traffic conditions at the Mountain House Parkway/Interstate 205 westbound ramp intersection, the traffic study recommended restriping the intersection with one left-turn lane, one right-turn lane, and one shared through/right-turn lane – the same recommendation as under Existing Plus Project conditions. For traffic conditions at the Mountain House Parkway/Interstate 205 eastbound ramp intersection, the traffic study recommended restriping the intersection to two left-turn lanes and one shared through/right-turn lane. With these improvements, the intersections would operate at an acceptable LOS D. However, as LOS is no longer used to determine potential environmental impacts, these are recommended improvements only and not mitigation measures.

Based on this information, the proposed project would not result in any changes, new circumstances, or new information that would involve new significant impacts or substantially more severe cumulative impacts from what has been anticipated for the proposed project areas in the certified EIR.

c) Findings on Adverse Effects on Human Beings.

The certified EIR and the Initial Study indicated the potential to result in impacts which could cause substantial adverse effects on human beings, either directly or indirectly, especially relating to hazards/hazardous materials, noise, and transportation. All these potentially significant impacts would be less than significant with the implementation of mitigation measures. As analyzed in the hazards, noise, and transportation sections of this Addendum, the proposed project would only involve changes to the types of uses proposed; thus, the proposed project would not result in any changes, new circumstances, or new information that would involve new significant impacts or substantially more severe impacts from what has been anticipated for the proposed project areas in the certified EIR.

MITIGATION MEASURES

Mitigation Measures from the Previous CEQA Documents

See mitigation measures in Appendix A for Biological Resources, Cultural Resources, Hazards and Hazardous Materials, Noise, and Transportation.

Modified Mitigation Measures

None required.

Additional Project-Specific Mitigation Measures

None required

4.0 FINDINGS AND CONCLUSION

Based on the analysis in Chapter 3.0 of this Initial Study/Addendum, the proposed amendments to the Mountain House Master Plan and to Specific Plans I and II would not require any substantial changes to the approved CEQA environmental impact analyses of these documents to address the potential impacts of the proposed project. The certified EIRs for the General Plan, the Master Plan and Specific Plan I, and the adopted Initial Study for Specific Plan II, all adopted by the City of Mountain House upon its incorporation, considered a wide range of potential environmental effects associated with planned land uses. The revisions to the environmental documents needed to describe the proposed project and its potential environmental impacts are documented in this Initial Study/Addendum; these revisions consist entirely of minor changes and updates to the Project Description and to the environmental impact analyses. In most cases, these changes are needed to address project-specific environmental effects.

The project proposes changes in future development of three sites within the City of Mountain House from previously planned Community Commercial and Commercial Office uses to residential land uses. Compared to the conclusions in the applicable environmental impact analyses, separately or in aggregate, the proposed project would not result in any new significant environmental effects or a substantial increase in the severity of significant effects as described in the approved environmental documents. Additionally, the City has not identified any new information related to the project, nor any changes in the circumstances of the project, that would involve the potential for new or more severe environmental effects that were not described in the approved environmental documents.

The analysis and conclusions in the approved environmental documents adequately describe the potentially significant environmental effects of the proposed project and the mitigation measures needed to reduce the project's effects to a less-than-significant level. No additional mitigation measures are required to address the potential environmental effects of the project. Two of the applicable mitigation measures are updated by this addendum.

The project conforms to the criteria for adopting an addendum, as described in CEQA Guidelines Section 15164. As discussed in Chapters 2.0 and 3.0, the changes associated with the proposed project do not meet any of the criteria of CEQA Guidelines Sections 15162 and 15163 for preparation of a Subsequent or Supplemental EIR. Therefore, it is appropriate for the City to adopt this Addendum to the certified EIRs for the General Plan and the Mountain House Master Plan/Specific Plan I and to the adopted Initial Study for Specific Plan II.

As noted, the County adopted a MMRP prior to certifying the EIR and approving the Mountain House Master Plan, which has now been adopted by the City of Mountain House. Appendix A contains the MMRP, which describes the mitigation measures that are to be implemented as part of Master Plan development activities. Since new or substantially more severe environmental effects were not identified in this Initial Study/Addendum, the adopted MMRP is applicable to the proposed project. Two of the applicable mitigation measures in the MMRP have been updated by this addendum.

5.0 REFERENCES CITED

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APPENDIX A
MITIGATION MEASURES APPLICABLE TO THE PROPOSED PROJECT

Unless otherwise noted, all mitigation measures are in
Mountain House Master Plan and Specific Plan I Final Environmental
Impact Report (SCH #90020776), September 1994

Mitigation Measures Applicable
to the Proposed Project

2.4.1 Aesthetics and Visual Resources

Mitigation Measure M4.8-1

(a) The following two policies should be added under Landscape Concept and Policies in Development and Design (Appendix C):

> Landscaping plans that include fencing, trails, bikeways, and a conceptual plant and tree palette for both existing and proposed roadways. of collector classification and above, and other edge treatments shall be included in each adopted specific plan, if not already set forth in the Design Manual.
>
> The landscaping plans included in each specific plan shall be used as criteria by the proposed Community Review Board to review the design and landscaping plans of all major projects within the community prior to construction.

(b) The Specific Plan and Special Purpose Plan for Mountain House Business Park should include a comprehensive sign program for the Freeway Service Commercial district which would limit pole signs identifying the Freeway Service area to no more than two locations; height and size restrictions shall be imposed where feasible to lessen the visual impact. The height limits of the one or two pole signs shall not exceed the heights specified in the Development Title for C-FS areas.

(c) The following Policy should be added under Old River Regional Park (Objective 6) in Recreation and Open Space (Appendix C):

> i) Additional trees shall be provided along Old River where necessary to screen the project from boaters, while still affording views of the water for people using the regional park. Along Old River, the landscaped area shall be planted with species of trees and shrubs compatible with existing riparian vegetation. Species shall also be chosen to provide effective screening so that the public using the levees for walking or bicycling would have a limited view of development on site. Provisions to accomplish this shall be included in the Park and Open Space Plan.

(d) The Draft Mountain House Design Review Manual should be amended to define the Community Review Board and describe its typical duties. The Community Review Board could include some members of the larger Community Services District Board of Directors augmented with one or more design professionals. The main purpose of the Review Board would be to review Development Permits of other development applications for their consistency with established design standards in the Draft Master Plan or specific plans. The Community Review Board would also be advisory to the CSD Board and the County on design issues that are not directly regulated by master or specific plan policies or implementations (such as the choice for public art in common spaces, minor design details of playgrounds or community parks, and choosing an appropriate gateway monument along the 1-205 frontage).

Mitigation Measure M4.8-2

The following Policy and Implementation should be added under Landscape Concept and Policies in Development and Design (Appendix C):

> Policy: View corridors towards the foothills and Mt. Diablo shall be protected and enhanced to the greatest extent possible, without compromising the ability of windrows planted along the western boundary to mitigate wind, dust, and aerial spraying.
>
> Implementation:
>
> a) Critical view corridors shall be identified in the Parks and Open Space Plan.
>
> b) East-west roadways and pedestrian corridors throughout the project site shall be landscaped with trees to frame views to the west and, whenever feasible, the trees shall be planted at least 40 feet apart to allow open views.
>
> c) Periodic breaks in the continuous landscaping plans for north-south arterials and other roadways shall be identified to maximize views toward Mount Diablo and the foothills.

Mitigation Measure M4.8-3

Table 4.1 should be amended to note that any High Density Residential structures in the High Density Residential area west of the open space corridor along Mountain House Creek must be set back from the lot line adjacent to lhe creek by at least 50 feet. as already required by a policy in the Draft Master Plan.

Mitigation Measure M4.8-4

Policy a) under Tree Mapping and Conservation Policy (Objective 6) in Recreation and Open Space (Appendix C) should he revised as follows:

> a) Existing healthy mature trees, particularly those along Patterson Pass and Grant Line roads. shall be preserved and incorporated to the greatest extent practical into the landscape design of the community. Land uses adjacent to the existing rnature trees should be compatible with the preservation program for mature trees.

Mitigation Measure M4.8-5

Include the following Policy b) and Implementation c) under Lighting (Objective 4) in Development and Design (Appendix C) and make appropriate revisions in the Lighting section of the Design Manual (Appendix 4-A of the Draft Master Plan):

> Policy:
>
> b) Lighting throughout the project shall be designed to minimize glare and impacts to adjacent land uses, especially residences.

Implementation:

> c) Special Purpose Plans and building plans for significant commercial and industrial structures shall include specific designs to ensure light and glare from the project would be minimized, especially between commercial/industrial and residential uses. Mechanisms such as screening or parking areas with evergreen trees, setbacks from residential neighborhoods adjacent to commercial areas, and a design review process to review development plans shall be included in the Design Manual. The design review process shall include review of lighting proposals and architectural materials for all proposed projects. The proposed Community Review Board, a Design Review Committee, consisting of both architects and landscape architects, shall oversee the design review process.

Mitigation Measure S4.8-1

The Specific Plan and Special Purpose Plan for Mountain House Business Park should include a comprehensive sign program for the Freeway Service Commercial district which would limit pole signs identifying the Freeway Service area to no more than two locations; height and size restrictions shall be imposed where feasible to lessen the visual impact. The height limits of the one or two pole signs shall not exceed the heights specified in the Development Title for C-FS areas.

Mitigation Measure S4.8-2

The Parks and Open Space Plan should include a detailed tree survey, as required by Draft Master Plan policy. The specific trees that are proposed for protection and the criteria to be used should be identified. Prior to approval of any tentative map or any construction plans for major roadways with existing mature trees, especially Grant Line and Patterson Pass roads, the map or plans shall identify the specific mature trees that would be preserved. Other significant trees that are to be protected in open space, residential. commercial, or industrial areas should be identified in the detailed figures that are included in the Specific Plan.

2.4.2 Agriculture and Forestry Resources

Mitigation Measure M4.1-1

The following should be added as an Implementation in Chapter Three of the Draft Master Plan:

> If a Countywide agricultural mitigation fee were established, an agricultural mitigation fee, based on each acre converted to an urban use, shall be paid by the developer to the County at the time of the approval of each subdivision map or other discretionary permit, if a Countywide agricultural mitigation fee has been established by the County.
>
> Any off-site mitigation resulting in the set-aside of lands by the applicant shall be considered when assessing the fee. Further. consideration shall be made for dual use of mitigation lands, as appropriate. For example, land set aside for Swainson's Hawk

mitigation that is also prime agricultural land could be credited as mitigating both impacts.

Mitigation Measure M4.1-2

(a) The following Policy statement, should be inserted in Section 4.3.2 under West Edge Treatment in Development and Design in place of existing Policies a) and b):

The Master Plan determined that residences along the western boundary of the planning area area could be exposed to dust emissions and aerial spraying residues generated by adjacent agricultural activities. EIR Mitigation Measure M4.1-2 and M4.13-2 required a minimum 500-foot setback of residences from the community boundary in order to minimize these effects.

Since approval of the Master Plan and EIR certification, agriculture west of Mountain House, once assumed to be in row crop use that could involve dust generation and aerial spraying, has been converted to orchards, which do not involve either effect to any substantial degree. In light of this new information, a 500-foot setback is not considered necessary to prevent these effects. For these reasons, a reduced setback of 100 feet is considered acceptable.

(b) The following Policy and Implementation should be inserted under Objective 3, in Community Monitoring Programs in Jobs/Housing & Affordable Housing (Appendix C) in place of Policy a) and b):

> On-site residents shall be notified of the County's Right-to-Farm ordinance and that they are purchasing land or homes in an agricultural area. The disclosure shall cite specific examples of potential nuisances (e.g., noise, dust, odor. vectors, spraying) associated with ongoing and future agricultural activity.
>
> Implementation:
>
> Notification shall be recorded by separate instrument or on the face of the deed for each newly-created parcel.

Mitigation Measure S4.1-3

a) Specific Plan I should be amended to provide interim buffers. setbacks, and/or appropriate landscaping treatment along the boundaries of the three Specific Plan subareas, to reduce land use conflicts between planned urban uses and the existing agricultural operations. Any interim buffer areas or larger than normal setbacks should remain in place until the adjacent agricultural operations cease and/or a specific plan is adopted for the adjacent properties.

(b) Agricultural lessees who farm lands owned by the applicant which are within 1,000 feet and upwind of neighborhoods under construction in the Central Mountain House subarea shall be prohibited from cultivating sugar beets.

(c) To mitigate the potential for significant temporary agricultural/urban land use conflicts along the western side of the Mountain House Business Park, where no roadway forms a boundary, the Specific Plan I should be amended to require a landscaped area incorporating a combination of windrows, hedges, and evergreens to reduce the impacts of aerial spray and dust from the adjacent agricultural operations. The intent of this mitigation measure is to provide a buffer strip that would ultimately be a part of the final landscaping design for the Business Park buildout.

(d) Specific Plan l contains no policies requiring notification to all buyers (not just properties located within 1.000 feet of the western and eastern boundaries) that all properties are surrounded by agricultural operations. The following policy should be inserted in Chapter Three of Specific Plan I:

> The deed of each newly created parcel within Specific Plan I shall include a clear statement to inform new buyers that they are purchasing land or homes in a predominantly agricultural area and that the County has adopted a Right-to-Farm ordinance to protect farmers from nuisance suits as a result of normal farming practices.

2.4.3 Air Quality

Mitigation Measure M4.13-l

(a) The County should incorporate a Countywide requirement for an air quality mitigation fee as part of the Development Title. Such a fee could be imposed when new projects generating more than 200 trips per day are not able to reduce trip generation by at least 25 percent. This fee could be used for air quality mitigation improvements, such as park and ride facilities, transit, vehicle inspection, or old car buy-back programs.

(b) Industrial or commercial operations at the project site with equipment that causes or has a potential for air pollution, or that controls such air pollution, may need to apply for an Authority to Construct and Permit to Operate, according to regulations of the San Joaquin Valley Unified Air Pollution Control District.

(c) The Implementation under Objective 1 of Houses and Buildings, Air Quality and Transportation Demand Management (Appendix C) should be revised as follows:

> The following items shall be required as conditions of approval of tentative subdivision maps for residential development:
>
> a) Gas Outlets. Natural gas line outlets shall be provided to backyards to encourage usage of natural gas or electric barbecues.
>
> b) Electrical Outlets. 220-volt electrical outlets for recharging electric automobiles shall be provided in each garage. Electrical outlets shall be located on the outside of single family homes to accommodate electric lawn maintenance equipment and electric barbecues.
>
> c) Water Heaters. Low nitrogen oxide (NO_x) emitting and/or high efficiency water heaters shall be required for all dwelling units.
>
> d) Fireplaces. Each single family residence shall have no more than one zero clearance fireplace or freestanding wood stove. Only EPA certified fireplaces and wood stoves shall be installed.

Mitigation Measure M4.13-2

As discussed under Mitigation Measure 4.1-2, edge treatments along the west edge shall provide a minimum 100-foot setback for residences. A larger setback to address potential dust and aerial spraying concerns is no longer considered necessary.

2.4.4 Biological Resources

Mitigation Measure M4.11-2

(a) The Draft Master Plan provisions related to San Joaquin kit fox should be revised and amended, based on the results of further negotiation with representatives of the USFWS and the CDFG. The revised Draft Master Plan should provide a coordinated approach to addressing the concerns of jurisdictional agencies. Adjacent agricultural lands in Alameda County may be considered as a suitable off-site mitigation area for San Joaquin kit fox. Alternatively, mitigation lands within the "Core Conservation Area" identified in the County's draft HCP could be acquired by the applicant. Approval of the Draft Master Plan should be contingent on subsequent revisions necessary to comply with San Joaquin County General Plan 2010 policies regarding habitat protection and any possible requirements of jurisdictional agencies, pursuant to the provisions of the State and Federal Endangered Species Acts.

If required by jurisdictional agencies, an incidental take permit and a Habitat Management Agreement for San Joaquin kit fox should be obtained by the project applicant, or by subsequent applicants for other specific plans within the project, or by subsequent applicants of individual Tentative Maps. A copy of any and all fully executed permits and/or management agreements should be submitted to the San Joaquin County Community Development Department prior to the issuance of any Development Permit, construction permits, or building permits, or initiation of any improvements such as construe/ion of water or wastewater treatment plants, whichever occurs first.

(b) The Draft Master Plan provisions regarding kit fox should be revised to reflect the position of jurisdictional agencies and the likelihood that an incidental take permit would be required from the USFWS and a Habitat Management Agreement would be required from the CDFG before grading or other modifications to the site would be allowed. Revisions should be made to the relevant discussion, assumptions, policies, and implementation measures in section 7.3.3 of the Draft Master Plan and "The San Joaquin Kit Fox Report" contained in Appendix 7-D to reflect these likely requirements. These should include the following:

- Revise Assumption 7.3.3-1 b) of the Draft Master Plan, and Policy a) and Implementation a) for Objective 3 of Biological Resource Management section (Appendix C) to reflect that compensation for loss of suitable kit fox habitat could include off-site mitigation and/or other requirements to comply with the provisions of Section 10(a) of the Federal Endangered Species Act and Section 2081 of the State Fish and Game Code.

- Revise Implementation a) for Objective 3 of Biological Resource Management section (Appendix C) to indicate that the proposed "Kit Fox Pre-construction and Construction Protocol" contained in Appendix 7-F should be reviewed and meet with the approval of the USFWS and the CDFG, and that these protocol shall apply until jurisdictional agencies determine that their implementation is no longer required to prevent harm or injury to kit fox. A copy of the revised protocol should be submitted to the San Joaquin County Community Development Department, together with the written approval of jurisdictional agencies, prior to issuance of any construction permit or initiation of site improvements, whichever comes first.

(c) The proposed "Kit Fox Pre-construction and Construction Protocol" contained in Appendix 7-F of the Draft Master Plan should be revised to provide greater consistency with the preconstruction, construction, and operational recommendations specified in the survey report by BioSystems (1992), and at minimum should meet the "Standardized Recommendations of the Protection of the San Joaquin Kit Fox" (USFWS, 1989). This should include the following:

- Revise Pre-construction Protocol Measure 1 to adjust the pre-construction survey period from "six (6) months" to "within 60 days" prior to initiation of any construction activity, and to include the USFWS in the required notification of survey results within two weeks of completing a survey.

- Revise Pre-construction Protocol Measure 2 to include treatment of both known and "potential" kit fox dens encountered during pre-construction surveys. This should include provisions related to monitoring of den status (Measure 2a), den destruction (Measure 2b), and establishment of a protective exclusion zone if the potential den would not be destroyed by grading or other development activities (Measure 2e).

- Revise Pre-construction Protocol Measure 2d to read as follows:

  "Prior to destruction of any known kit fox den, the USFWS shall be notified in writing of the intent to destroy the subject den(s), and disposition of the den shall be determined by the USFWS. Destruction of occupied known or suspected natal or pupping dens shall not be permitted during the breeding season (1 November through 31 July), until the den has been vacated or the kit fox pups have dispersed. Adequate measures, including restrictions or curtailment of construction activity and use of exclusion fencing, shall be developed in consultation with the USFWS and implemented to ensure protection of the natal or pupping dens while occupied by kit fox pups."

- Revise Pre-construction Protocol Measure 2e to delete all references to specific distances for the protective exclusion zone and to indicate that the size (radius) of the zone shall be established in consultation with representatives of the USFWS and CDFG.

- Revise Construction Protocol Measure 1 to include the following provision at the end of the measure:

  "If live kit fox are encountered, ramps or structures should be installed immediately, if possible, to allow the animal(s) to escape."

- Revise Construction Protocol Measure 6 to state that all construction pipes of 4-24 inches in diameter shall be stacked "at least 3.5 feet above ground" prior to use. The end of this measure should include the following provision:

  "If during inspection, a kit fox is discovered inside a pipe, that section of pipe should not be moved, or if necessary should be moved only once to remove it from the path of construction activity, until the kit fox has escaped."

- Revise Construction Protocol Measure 8 to include the following provisions at the end of the measure:

  'The designated ecological monitor shall notify the USFWS and CDFG in writing within three working days of the findings of any such animal. Notification must include the date,ime, and location of the incident, and any other pertinent information. Any kit fox found dead or injured must be turned over immediately to the CDFG for care and analysis."

(d) If off-site mitigation is required by jurisdictional agencies, the management practices and habitat enhancement recommendations specified in the survey report by BioSystems (1992) should be incorporated into the habitat management plan to ensure long-term viability of mitigation areas as kit fox habitat. Any deviation from the BioSystems recommendations should be negotiated with representatives of the USFWS and CDFG, with adequate explanation provided to justify them from a biological standpoint.

Mitigation Measure M4.11-3

(a) Approval of the Draft Master Plan (which includes the HMP) should be contingent on subsequent revisions necessary to comply with San Joaquin County General Plan 2010 policies regarding habitat protection and with Section 2081 of the State Fish and Game Code and the Habitat Management Agreement required by the CDFG.

The Draft Master Plan and proposed HMP provisions regarding compensation for conversion of suitable foraging habitat should be revised to provide greater consistency with the "Draft Mitigation Guidelines for Swainson 's Hawks in the Central Valley of California" prepared by the CDFG. Depending on the extent of any on-site preservation and the enhancement associated with off-site mitigation, replacement habitat requirements could be as high as 4,560 acres (includes 300 acres for off-site wastewater storage ponds).

Revisions should be made to the relevant assumptions, policies, implementations of the Draft Master Plan, and the "Mountain House Multi-Purpose Habitat Management Plan" (Zentner & Zentner, 1994b). This should include the following:

- Revise Assumptions 7.3.1 a) and b) of the Draft Master Plan, and Policy a) and Implementation c) for Objective 2 of Biological Resources Management section (Appendix C) to indicate that acreage requirements for the HMP would be determined through negotiation with CDFG in preparing a Habitat Management Agreement pursuant to Section 2081 of the State Fish and Game Code.

- Delete specific references to a limited mitigation requirement of only 1,500 acres throughout the Draft Master Plan and revise the proposed HMP to indicate that an estimated 4,240 acres of on-site habitat could be converted to urban uses. Specific references that should be deleted or revised in the Draft Master Plan include: Assumptions 7.3.1 a) and b), Assumption 7.3.2 a), Table 7.3, and Figure 7.8 of the Draft Master Plan, as well as Policy a) for Objective 2 of Biological Resources Management section (Appendix C).

- Resolve acceptability of establishing mitigation credit prescription ratios for foraging habitat based on proximity of mitigation lands to an active nest rather than distance of lost habitat from an active nest with the CDFG, and revise the proposed Swainson's Hawk Mitigation Program (Table 7-3 of the Draft Master Plan) accordingly. If the proposed approach is considered acceptable by the CDFG, mitigation ratios indicated in the Swainson's Hawk Mitigation Program should be revised. The proposed establishment of mitigation land greater than 10 miles from an active nest should be eliminated from the Swainson's Hawk Mitigation Program and deleted from Table 7-3 of the Draft Master Plan as these lands would have highly limited value to nesting pairs due to their distance from an active nest.

- Resolve acceptability of establishing mitigation credit for nesting habitat, and as directed by the CDFG delete or revise the specified acreage ratios defined in the Swainson 's Hawk Mitigation Program of the proposed HMP (Table 7.3 of the Draft Master Plan) for existing and potential nesting habitat.

- Revise the relevant text of the Draft Master Plan and the proposed HMP regarding Swainson 's hawk nesting habitat to reflect more recent data on distribution of nesting locations in the project vicinity, including the active nests on the site during the 1994 breeding season, that nesting locations change to varying degrees over time as new breeding pairs enter an area or disturbance factors reduce the suitability of historic nest locations, and the fact that trees on the site could be used for nesting in the future.

- Revise the text of the Draft Master Plan and the proposed HMP to provide for preservation or adequate mitigation for loss of the active Swainson 's hawk nests on the site. Adequate development setbacks should be provided around the active nest along Old River to ensure its long-term suitability for nesting, which may include establishment of permanent foraging habitat on the site. The land area of the proposed Regional Park along Old River should be expanded, as necessary, to provide for the protection of the nest and surrounding foraging habitat, with additional policies and implementations included in the Old River Regional Park section of the Draft Master Plan to prevent possible disturbance associated with recreational use of the parklands. This should also include provisions to prohibit or intensively monitor any disturbance, construction, or other project-related activities within 1/2 mile which may cause nest abandonment or forced fledging if the nest is in active use in future years. Details regarding appropriate setbacks, monitoring requirements, and development restrictions around an active nest, as well as appropriate mitigation if the active nest in the center of the site is lost, should be defined in consultation with the CDFG.

- Revise Implementation g) for Objective 1 of Biological Resources Management section (Appendix C) and the proposed HMP to indicate that unacceptable crop types would not be planted on mitigation lands and that a mechanism would be established to ensure a minimum level of high-quality foraging habitat (i.e., alfalfa). Unacceptable crop types to be specified in the HMP should include vineyard, orchard, cotton, and other crop types where prey are inaccessible to foraging hawks. A mechanism to ensure that minimum acreage requirements for suitable foraging crop types are met is particularly important if unsuitable crops such as silage corn are to be permitted as part of crop rotation in the mitigation lands. A minimum acreage requirement for alfalfa within the mitigation area should be coordinated with the CDFG, but the 35 percent specified in the proposed HMP appears too low. Acreage devoted to alfalfa on mitigation lands should at a minimum meet the average for the project site, estimated at 41 percent, based on cropping patterns for 1989, 1992, 1993, and 1994.

- Revise implementation h) for Objective 1 of Biological Resources Management section (Appendix C) and the proposed HMP to indicate that use of rodenticide shall only be allowed when small mammal levels pose a serious threat to agricultural crops and populations levels reach a specified threshold. This threshold and procedures to determine and implement remedial action should be coordinated with the CDFG, but the threshold specified in the proposed HMP of only 10 burrows per 100 feet appears too low. A mean of 20 burrows per 100 feet were observed in alfalfa fields during the survey by BioSystems (1992) and would be a more acceptable threshold before use of rodenticides should be permitted.

- Revise Assumption 7.3.2 c) of the Draft Master Plan to indicate that mitigated land dedicated as part of a specific Swainson 's Hawk Mitigation Program needs to be at least 100 acres in size, consistent with the proposed HMP.

- Revise the proposed HMP to include information on all mitigation options, overall phasing and monitoring of all mitigation lands established as part of each specific Swainson 's Hawk Mitigation Program, and relationship of implementing the specific programs to phasing of improvements associated with wastewater reuse.

A take permit or Habitat Management Agreement for loss of Swainson's hawk habitat should be obtained by the applicant, pursuant to Section 2081 of the State Fish and Game Code. A copy of the fully executed habitat management agreement with the CDFG should be submitted to the San Joaquin County Community Development Department prior to the issuance of any Development Permit, construction permit, or building permit, or initiation of any improvements such as construction of water or wastewater treatment plants, whichever occurs first.

(b) The proposed HMP should be revised to include a combination of on-site habitat preservation and off-site replacement. Ideally, the entire area north of Byron Road, containing approximately 1,500 acres, should be set aside as an agricultural preserve Iv be enhanced and managed for Swainson's hawk and other protected wildlife species, with the required replacement habitat provided at a ratio negotiated and approved by the CDFG, and any additional compensation provided in the immediate vicinity off-site.

As an alternative to a combination of on- and off-site habitat mitigation, Fabian Tract would be the preferred off-site mitigation area, due to its location within the Delta system, proximity to active nesting territories, and presence of existing and potential foraging habitat.

With the possible exception of the area north of Byron Road, which is currently not within the boundary of the proposed secondary wastewater reuse area, the adjacent lands in Alameda County should not be used as mitigation lands for loss of Swainson's hawk foraging habitat on the site. The proposed alternative permanent reclamation area in Alameda County is unsuitable for Swainson's hawk mitigation due to its distance from Old River and the Delta system, lack of nesting habitat in close proximity to the area, potential conflicts with habitat requirements of other special-status taxa such as kit fox, and ultimate separation from other foraging habitat as the Mountain House project is implemented. Reference to use of adjacent lands in Alameda County as mitigation lands for loss of Swainson's hawk foraging habitat should be deleted from the Draft Master Plan and proposed HMP unless the mitigation area is restricted 10 north of Byron Road.

Mitigation Measure M4.11-4

(a) To provide for protection of any populations of special-status species along the Old River frontage of the site, the following should be included as part of the Parks and Open Space Master Plan as an additional Implementation for Objective 4 of Biological Resources Management section (Appendix C):

> j) A habitat protection plan shall be prepared for the population of Mason's lilaeopsis in the northwestern portion of the site prior to approval of the first specific plan adjacent to Old River in this area. The habitat protection plan shall be prepared by a qualified plant ecologist in consultation with and which meets with the approval of representatives of the USFWS and CDFG. The plan shall provide for the protection of identified populations. addressing potential impacts associated with boating, marina development, water diversion, storm drainage runoff, levee modifications, and recreational use of levee habitat.

k) A habitat protection plan for Mason's lilaeopsis and other special-status taxa which may be encountered during further detailed surveys, shall be prepared prior to approval of any specific plan along Old River. Other special-status taxa of concern include delta smelt, Sacramento splittail, winter-run ch/nook salmon, and California hibiscus.

l) A survey shall be conducted along the banks of Old River to confirm the presence or absence of the California hibiscus on the site, prior to approval of any specific plan which could affect Old River. The survey shall preferably be conducted by a qualified botanist during the blooming period of this species, in August and September. If populations of this species are encountered, a habitat protection plan shall be prepared by a qualified plant ecologist in consultation with representatives of the USFWS and CDFG. The plan shall provide for the protection of identified populations, addressing potential impacts associated with boating, marina development, water diversion, storm drainage runoff, levee modifications, and recreational use of levee habitat.

m) A survey shall be conducted to confirm the presence or absence of delta smelt, winter-run chinook salmon, and Sacramento splittail along the river segment bordering the site, prior to approval of any specific plan which could affect Old River. The survey shall be conducted by a qualified fishery biologist using an otter trawl at intervals along the river segment during the spring spawning season and during migration periods. If any of the species is detected, a habitat protection plan should be prepared by a qualified fisheries biologist in consultation with and which meets with the approval of representatives of the USFWS and CDFG, The plan shall provide for the protection and enhancement of existing habitat conditions, addressing potential impacts associated with boating, marina development, water diversion, storm drainage runoff, levee modifications, and recreational use of levee habitat.

(b) Several aspects of the Draft Master Plan provisions regarding Other Special-Status Species should be revised to ensure protection of active nests and compliance with applicable State and Federal regulations, as follows:

- Revise Implementation b) for Objective 4 of Biological Resources Management (Appendix CJ to include pre-construction raptor surveys along the Old River frontage of the site as well.

- Revise Implementation c) for Objective 4 of Biological Resources Management to indicate that any relocation of an active burrowing owl nest should be performed in accordance with CDFG guidelines and that a pem1it must be obtained prior to any disturbance to the nest.

- Revise Implementation i) for Objective 4 of Biological Resources Management to indicate that pre-construction raptor and burrowing owl surveys would still be required to protect active nests until young birds have fledged even if an applicant participates in the HMP or other conservation plan.

Mitigation Measure M4.11-5

(a) The Mountain House Creek Planting and Restoration Measures contained in Appendix 7-A to the Draft Master Plan, referred to in Implementations l), n), dd), ee), and ff) for Objectives 3 and 4 of Parks and Recreation section (Appendix C), should be expanded to include provisions for monitoring, replacement plantings, and re-evaluation of the restoration plan, similar to the provisions contained on pages 27-33 of the "Mountain House Creek Phase One Habitat Restoration Plan" (Zentner & Zentner, 1993c).

Several aspects of Draft Master Plan provisions regarding Mountain House Creek should be revised to ensure successful implementation of proposed restoration and enhancement efforts, provide for establishment of protective cover prior to development of adjacent lands, and to limit disturbance to wildlife along the enhanced corridor. This should include the following:

- Revise Implementation p) for Objectives 3 and 4 of Parks and Recreation (Appendix C) to read as follows:

  p) The restored Mountain House Creek corridor shall accommodate a multi-purpose trail along one side of the creek, but other recreational uses such as picnic areas, playgrounds, and turf shall be restricted outside the corridor to minimize human activity within sensitive wildlife habitat. The location of the multi-use path can vary from either side of the Creek, but the opposite side of the Creek corridor shall remain without a paved path to limit disturbance to wildlife.

- Revise Implementation q) for Objectives 3 and 4 of Parks and Recreation (Appendix C) to read as follows:

  q) Recreational uses may be located along the perimeter of the corridor, but shall require additional land area separate from the minimum corridor width of 200 feet. Trails shall meander on the outside edge of the corridor encroaching no closer than 50 feet from the creek channel or other surface water features, providing views of the creek and a sense of community participation without degrading the wildlife habitat value of the corridor.

- Revise Implementation s) for Objectives 3 and 4 of Parks and Recreation (Appendix C) to read as follows:

  s) Recreational activities shall be buffered from wetlands and sensitive wildlife habitat along the Creek. These buffers may include vegetative screens or hedges composed of native plant materials which allow views but discourage access to sensitive areas.

- Revise Implementation u) for Objectives 3 and 4 of Parks and Recreation (Appendix C) to read as follows:

u) A post-and-cable or similar barrier shall be provided along all Creek corridor edges which front public spaces such as roads. 'Good neighbor' fencing (open fencing promoting views of the corridor) shall be used to minimize the potential for dumping of debris and yard clippings into the corridor where private residential and commercial uses border the Creek and no trail system is proposed.

- Merge and revise Implementations w) and x) for Objectives 3 and 4 of Parks and Recreation (Appendix C) into a single measure to read as follows:

  w) A multi-use path shall be constructed along the Creek from Marina Boulevard to Old River. A minimum 16-foot right-of-way shall be reserved for the path. Within the right-of-way, a minimum eight-foot width shall be improved with asphalt, and painted with a center stripe. The path shall be grade-separated where it crosses the SP tracks.

- Revise Policy e) for Objective 5 of Parks and Recreation (Appendix C) to read as follows:

  e) Passive recreational uses such as bird watching, nature trails, and observation areas are normally compatible with wetlands and may be permitted adjacent to wetlands. Active recreational uses such as ballfields, paved bike trails, or o,her such uses shall not be located within or immediately adjacent to wetlands areas.

The Mountain House Creek Community Park section of the Draft Master Plan, including Implementation v) for Objectives 3 and 4 of Parks and Recreation (Appendix C), should be revised to define timing of the creek restoration component of the park plans during the specific plan phase. Implementation v) should indicate that:

> v) All channel modifications, wetland enhancement, and revegetation associated with the Creek restoration component of the park plans shall be funded and implemented as backbone improvements during the specific plan phase and not deferred as a requirement of individual tentative map or phased flood control improvements along the Creek corridor.

(b) All exhibits depicting the creek corridor in the Draft Master Plan should be modified to show a single multi-use path, possible alternating from one to the other side of the corridor as it follows the length of the creek (and should include provisions for access for maintenance vehicles). This should include Figures 7.4 and 7.5 referred to in Implementations b), g), and p) for Objectives 3 and 4 of Parks and Recreation (Appendix C).

Mitigation Measure M4.11-6

The Draft Master Plan provisions regarding Wetlands Management should be revised to ensure adequate setbacks from wetlands and coordination with jurisdictional agencies. This should include the following:

- Revise Policy d) for Objective 5 of Biological Resources Management (Appendix C) to read as follows:

  d) Wetlands shall be protected from damage caused by adjoining development. Buildings and structures shall be setback from the edge of wetlands a minimum of 50 feet. This setback distance should be increased where wetlands are of high value, or restoration and enhancement is proposed.

- The following should be included as an additional Implementation for Objective 5 of Biological Resources (Appendix C):

  j) Any proposed modifications to wetlands or waters of the U.S. should be prepared in consultation with and meet, where required, with the approval of representatives of the Corps and the CDFG prior to approval of any specific plans encompassing these features.

Mitigation Measure S4.11-1

(a) Specific Plan I section 7.2.2 should be revised to include appropriate discussion, policies, and implementation measures regarding San Joaquin kit fox, consistent with the recommendations in Mitigation Measures 4.11-2(a), (b), (c), and (d). Approval of Specific Plan l should be contingent on subsequent revisions necessary to comply with the State and Federal Endangered Species Acts.

(b) The Kit Fox Pre-construction and Construction Protocol contained in Appendix 7-B of the Draft Master Plan should be revised as recommended in Mitigation Measure M4.l l-2(c), and section 7.2.2 of the Draft Specific Plan I should be expanded to include an implementation measure which requires that these protocol shall apply until jurisdictional agencies determine that their implementation is no longer required to prevent harm or injury to kit fox.

Mitigation Measure S4.11-2

The Draft Specific Plan l section 7.2.l should be revised to include appropriate discussion, policies. and implementation measures regarding Swainson's hawk and the proposed Habitat Management Plan, consistent with the recommendations in Mitigation Measures 4.1 l-3(a) and (b). This should include deleting the reference to loss of only 175 acres of Swainson's hawk foraging habitat on the site, and providing a clear description of the timing and relationship of required mitigation to wastewater reuse if the proposed HMP is to be implemented during Specific Plan I. Approval of the Draft Specific Plan l should be contingent on subsequent revisions necessary to comply with the required habitat management agreement with the CDFG.

A take permit for loss of Swainson's hawk habitat shall be required, pursuant to Section 2081 of the State Fish and Game Code. If required, a copy of the fully executed habitat management agreement with the CDFG should be submitted to the San Joaquin Community Development Department prior to the issuance of any Development Permit, construction permit, or building permit, or initiation of any improvements, such as construction of the water or wastewater treatment plants, whichever occurs first.

Mitigation Measure S4.11-3

The Draft Specific Plan I section 7.1.3 should be revised to include appropriate discussion, policies, and implementation measures regarding treatment of the Mountain House Creek corridor, consistent with the recommendations in Mitigation Measure 4.11-5(a).

2.4.5 Cultural Resources

Mitigation Measure S4.5-1

Specific Plan I should include a section on cultural resources, containing the following Objectives, Policies, and Implementations, at a minimum:

> Objective: To preserve and enhance significant cultural resources.
>
> Policy: Significant historic and prehistoric resources shall be located and either integrated into new development, recorded, or relocated.
>
> Implementation:
>
> a) Areas proposed for development, wastewater treatment and reuse, water treatment, and the alternative raw water pipeline alignments not previously subject to intensive archaeological surveys shall be surveyed and the results shall be submitted with the first Development Pennit, including those required for the water and wastewater treatment plants and related facilities. The recommendations of the archaeologist regarding preservation, recordation, or relocation shall be implemented to the greatest extent possible, and shall, at a minimum, contain the measures in Appendix K of the CEQA Guidelines.
>
> b) Potential historic structures shall be evaluated for the entire Specific Plan I area by an architectural historian and recommendations regarding incorporation into the project development, recordation, or relocation shall be implemented prior to submittal of the first Development Permit.
>
> c) If during construction activities, buried prehistoric cultural resources and/or human remains were found, excavation shall cease and an archaeologist shall be contacted immediately to evaluate these resources. In he event human remains are found, the County Coroner shall be contacted and the requirements of CEQA Guidelines 15064.5 shall be implemented.

2.4.6 Energy

Mitigation Measure M4.4.4-2

(a) The following Implementations should be added under Architectural Guidelines in the Design Manual (Appendix 4-A of the Draft Master Plan):

rr) Residential street layouts that include building and roof orientations that optimize the ability of residences to use solar energy to the maximum extent possible.

(b) The following Implementation should be added under Landscape Concepts and Policies. General Issues in the Design Manual (Appendix 4-A of the Draft Master Plan):

m) Street trees shall not be located in areas that would prevent residents' ability to use solar energy, unless they are deciduous trees that will not impact solar access during winter months.

(c) The Design Manual for the Master Plan should be amended to include a section on energy efficiency that would provide guidelines for energy efficient designs for residential and non-residential development within the entire community. The guidelines for buildings should meet or exceed the most recent standards established by the California Energy Commission and promote passive solar design. The guidelines for the community should incorporate PG&E's recommendations, encourage efficient street design, and transportation alternatives to reduce automobile use.

(d) A new Implementation should be added under Commercial Objective 2 (Appendix C):

c) The neighborhood commercial areas shall be sited so that as many homes as possible are located within one-quarter mile walk or the closest neighborhood or community shopping area.

2.4.7 Geology and Soils

Mitigation Measure M4.6-1

The preparation and distribution of a Community Earthquake Preparedness Plan, proposed in the Draft Master Plan, would reduce this impact. This remains an unavoidable adverse impact. Implementation a) under Objective 5 of Potential Site Hazards (Appendix C) should be amended to ensure that the Plan be prepared prior to submittal of the first Development Permit. No further mitigation is possible.

San Joaquin County General Plan EIR Mitigation Measure 4E-2

The following revision to NCR-6.5 “Protect Archaeological and Historical Resources,” in the 2035 General Plan would reduce impacts to significant archaeological resources from issuance of any discretionary permit or approval in San Joaquin County.

NCR-6.5: Protect Archaeological, Paleontological, and Historical Resources. The County shall protect significant archaeological, paleontological, and historical resources by requiring that a cultural resources report be prepared by a qualified cultural resource specialist prior to the issuance of any discretionary permit or approval in areas determined to contain significant historic or prehistoric archaeological artifacts or paleontological resources that could be disturbed by project construction. The County shall require feasible mitigation identified in the report, such as avoidance, testing, or data recovery efforts, to be implemented.

2.4.8 Greenhouse Gas Emissions

No mitigation measures.

2.4.9 Hazards and Hazardous Materials

Mitigation Measure M4.10-1

(a) The following Implementation should be included under Objective 2 in Potential Site Hazards (Appendix C):

> b) In anticipation of the development of specific areas. pesticide and/or herbicide applications shall be reduced or eliminated six months prior to Development Permit submittal.

(b) The following Implementation under Objective 2 in Potential Site Hazards (Appendix C) should be added:

> c) Aerial spraying shall be restricted within 500 feet of the nearest dwelling along the western site boundary.

(c) Implementation b) under Objective 6 in Potential Site Hazards (Appendix C) should be revised as follows:

> b) Site Searches. Prior to the submittal of any Development Permit for areas to be developed, the property owner shall submit a Site Assessment prepared in accordance with ASTM standards to assess the presence of any fuel…

Mitigation Measure M4.10-2

The following measures are recommended to be added as Implementations under Objective 2 in Electric and Magnetic Fields (Appendix C):

> d) Prior to development permit submittal for areas containing electrical transformers, the developer shall request that PG&E investigate whether existing electrical transformers on the site contain PCBs and whether there are any records of spills from such equipment. If PCB-containing equipment (50 to 500 parts per million PCBs in the oil) or PCB equipment (over 500 parts per million) were identified, this equipment shall be replaced with non-PCB containing equipment prior to construction. Any identified spill areas shall be evaluated for cleanup.
>
> e) An information packet shall be prepared by the developer; the packet shall include a summary of major studies regarding EMF effects and a list of reference studies, with copies available to residents upon request. The information packet shall be updated annually.

f) Any metal structures or objects located within and adjacent to transmission line easements shall be grounded to avoid nuisance induction effects such as shocks (experienced upon initial contact).

Mitigation Measure M4.10-7

(a) The following Objective, Policy, and Implementation are recommended to be added to Potential Site Hazards (Appendix C):

Objective:

To minimize the risk of human injury or property damage in the event of an explosion and/or fire at a natural gas pipeline.

Policy:

A Pipeline Safety Plan shall be part of the Incident Action Plan developed to minimize risks associated with natural gas pipelines within the project site.

Implementation:

a) Building sites within 220 yards of high pressure gas pipelines shall be chosen to minimize the risk of human injury or property damage in the event of an explosion and/or fire at the pipeline. The project densities in the vicinity of the pipelines should be limited to those allowed for a Class I location designation, which corresponds to a density of 10 or fewer buildings intended for occupancy within an area of 220 yards on either side of the centerline of any continuous one-mile length of natural gas pipeline. Alternatively, the Class Location designation should be revised by the PUC and alternative routes for future gas pipelines should be identified by the developer and approved by the PUC.

b) Vapor barriers and/or vents shall be included in designs for utility trenches that are not under the jurisdiction of the PUC crossing or within 100 feet of the high pressure gas pipelines to reduce the potential for the migration and accumulation of gas, leaked from a pipeline, in utility trenches. The design of the utility trenches shall be reviewed and evaluated by the Department of Public Works prior to final map approval.

2.4.10 Hydrology and Water Quality

Mitigation Measure M4.7-1

The Draft Master Plan should include the following Objective, Policy, and Implementations under Parks and Recreation (Appendix C) as mitigation measures for reduction of sedimentation impacts related to construction and operation of the proposed marina:

Objective:

To ensure that the design and operation of private recreation areas do not adversely affect water resources.

Policy:

The marina on Old River shall be designed, constructed, operated, and maintained to minimize the accumulation of sediment within the marina and the Old River Channel.

Implementation:

a) A dredging plan shall be developed at the specific plan stage for the Marina portion of Neighborhood K along Old River for removal of accumulated sediment from the Old River channel in the area of the proposed marina outlet. This plan shall comply with the requirements of dredging permits issued by the U.S. Army Corps of Engineers and shall have provisions for controlling turbidity during dredging.

b) Prior to obtaining a dredging permit, a disposal area for the dredged sediments shall be established by the applicant and approved by the Central Valley Regional Water Quality Control Board. The disposal area shall be identified in the recommended dredging plan. The characteristics and design of the dredge disposal area shall minimize the potential discharge of sediments to surface water and potential discharge of contaminants to the surface water or groundwater. A sampling plan to evaluate the potential levels of contaminants within the sediments shall be incorporated in the recommended dredging plan. The collected samples shall, as a minimum, be analyzed for trace metals, salts, pesticides, and herbicides.

Mitigation Measure M4.7-4

The following Implementation is recommended for inclusion under Objective 3 in Primary Storm Drain Collection System (Appendix C):

e) Preliminary Soils Report. The soils report required for each subdivision shall identify the seasonal high groundwater level at the site of any detention/retention basins proposed as part of the stormwater management system. The report shall provide recommendations for appropriate design elevations for the detention/retention basins that would avoid saturation or partial filling by groundwater. The report shall specifically address the potential for increased groundwater levels caused by removal or disruption of existing subsurface drains. The report will provide recommendations for subsurface drains for all newly constructed structures or facilities. These recommendations all include provisions for routing and disposal of drain discharges that will not result in adverse flooding or saturation hazards within other areas of the project site.

Mitigation Measure M4.7-6

The following Implementation should be added to the Draft Master Plan under Objective 2 in Mountain House Creek Improvements (Appendix C):

- A sedimentation basin or other effective sediment control structure shall be designed and constructed near the point where Mountain House Creek crosses the western project boundary. The basin shall be designed to effectively remove sediment from the creek flows entering the project site. The basin maintenance shall be the responsibility of the CSD. The basin design and maintenance program shall minimize the potential for wetland development in the basin which could hinder the function or maintenance of the structure.

Mitigation Measure S4.7-1

The Draft Master Plan should be revised to require streambed modification proposals to be submitted to the County prior to submittal of the first Development Permit.

2.4.11 Land Use and Planning

No mitigation measures.

2.4.12 Mineral Resources

No mitigation measures.

2.4.13 Noise

Mitigation Measures M4.14-1

(a) The following Policies should be added under Objective 1, Mobile Source Noise Control:

> d) Noise levels in primary outdoor use areas of new residential development, schools, andother noise-sensitive land uses shall not exceed an L_{dn} of 60 dB unless the project design includes effective mitigation measures to reduce noise in outdoor activity areas to an L_{dn} of 60 dB. Noise-sensitive land uses include, but are not limited to, schools, group care facilities, hospitals, and park facilities.
>
> e) Interior noise levels for housing proposed to be located in areas exposed to an exterior noise level of an L_{dn} above 60 dB shall be maintained below an L_{dn} of 45 dB. Compliance with this recommended mitigation measure shall be verified prior to issuance of building permits.

(c) Implementation a) under Objective 2 in Noise (Appendix C) should be replaced with:

> Specific Plan and Development Permit Application Requirements. Applications for a specific plan or a Development Permit shall include acoustical studies for noise-sensitive land uses proposed to be located in areas exposed to noise levels above an L_{dn} of 60 dB. These studies shall be submitted to the County with each specific plan. Appropriate mitigation measures shall be recommended in these studies and implemented by the appropriate party to ensure that the L_{dn} of 60 dB is maintained.

(d) The following Implementation should be added under Objective 1 in Mobile Sources Noise Control (Noise) (Appendix C):

> d) Noise studies for specific residential projects proposed in noise impacted areas (exposed to an L_{dn} above 60 dB) shall address how noise levels in outdoor use areas, such as backyards, patios, decks, and other noise-sensitive land uses, could be maintained below an L_{dn} of 60 dB. Noise studies and recommendations shall be submitted with each Tentative Map application.

(e) Table 11.1 In the Draft Master Plan should be revised to reflect the most recent average daily traffic projections for I-205 (assuming six lanes in the future, not eight lanes), and for all other roadways.

Mitigation Measure M4.14-2

A new Objective, Policy, and Implementation under Mobile Source Noise Control (Noise) (Appendix C) should be added:

> Objective:
>
> To minimize impacts on existing residences located along the roads to the Mountain House community.
>
> Policy:
>
> Outdoor use areas of existing residences that are projected to be impacted (i.e., would experience an increase of five dB in the L_{dn}) by project-generated traffic noise at buildout shall be protected from excessive noise. Individual residences could take the form of constructing soundwalls along the roadways. soundproofing homes, or building barriers around specific portions of yards to provide shielded outdoor spaces. Because of the nature of the development in the area, solutions will have to be tailored to each specific situation, based on individual noise studies.
>
> Implementation:
>
> A plan for mitigating noise levels at existing residences shall be submitted with each specific plan application. The plan shall identify the mitigation necessary to reduce exterior noise levels to an L_{dn} of 60 dB and interior noise levels to an L_{dn} of 45 dB or less.

Mitigation Measure M4.14-3

The following should be added to Implementation a) under Objective 6 under Mobile Source Noise Control (Noise) (Appendix C):

> “A 500-foot wide on-site or off-site buffer would reduce noise levels generated by agricultural machinery and helicopters by approximately 20 dB and would significantly reduce the potential for noise impacts." Alternatively, "Helicopter use shall not be permitted within 500 feet of the nearest residential dwelling along the western site boundary.”

2.4.14 Population and Housing

No mitigation measures.

2.4.15 Public Services

Mitigation Measure M4.3.2-1

The Draft Master Plan should include a revised and an additional Implementation under Objective I in Education (Appendix C), and Master Plan Table 17-2, as follows:

> f) Funding sources for school facilities, Including temporary facilities at existing off-site locations shall be identified in the public financing plan.
>
> g) The second and each subsequent specific plan shall contain an evaluation of the student generation rates in previous specific plan(s) to assess the appropriateness of the assumed student generation rates for medium, medium high, and high density residential development. If the rates were higher than assumed, additional schools may be necessary in subsequent specific plan areas; if the rates were lower, fewer students may be attending each school; the number of schools shall not change. The land use plan containing twelve K-8 and two high schools shall not be changed to reduce the number of schools without a Master Plan revision and concurrence from the school district.

Mitigation Measure 4.3.3-1

The following Implementations are recommended for addition to Objective 1 in Fire Protection and Emergency Response (Appendix C):

> i) The on-site fire station shall include an ambulance if the Fire Services were responsible for emergency medical service transport.
>
> j) Fire service and protection standards during construction and occupation of the project, including the addition of staff and equipment to existing off-site facilities and the construction, staffing, and outfitting of on-site facilities, shall be included in the Fire Protection Plan. The standards shall be submitted to the County and local fire protection service agency for review and approval prior to approval of the first Development Permit.

Mitigation Measure M4.3.4-1

The Master Plan should include Implementations under Objective 1 in Police Protection (Appendix C), as follows:

e) A proposal for Institutional and funding arrangements for providing police services shall be submitted at the time of formation of the Community Services District as well as phasing of on-site police services, if required.

f) Deputy officers shall be added to the Sheriff's Department when the first residences in the first Specific Plan area are constructed. Sworn officers shall be provided at a ratio of 1.5 officers per 1,000 residents within the community

Mitigation Measure S4.3.2-1

Specific Plan I should be amended to ensure that a School Facilities Plan be prepared and approved by the State and the school districts prior to submittal of the first Development Permit.

Mitigation Measure S4.3.3-1

(a) Documentation pertaining to finalized institutional arrangements, fire flow data, and funding and ownership of stations from construction through buildout should be provided prior to the first Development Permit.

(b) The Fire Protection sections in the Draft Master Plan and Draft Specific Plan I should be amended to state that the first permanent fire station shall be provided when 1,800 dwelling units have been constructed and occupied or as determined by the Fire Protection District.

Mitigation Measure S4.3.4-1

Deputy officers should be added to the Sheriff's Department when the first residence in the Specific Plan I area has been constructed. Sworn officers should be provided in the Mountain House community as the population grows at a ratio of 1.5 officers per 1,000 population.

2.4.16 Recreation

Mitigation Measure 4.3.1-1

(a) The Land Use Map. Policies, and/or Implementations under Recreation and Open Space (Appendix C) should be revised in accordance with one of the following alternative mitigation measures:

(1) The Land Use Map for the project should be changed to include an additional 365 acres of on-site regional park land to be developed on an incremental basis as the site develops, or

(2) The on-site golf courses should be dedicated to the County for public use and maintenance. The Land Use Map also should be changed to provide for 34 acres of regional park in addition to the 70-acre Old River regional park; the regional park facilities and golf courses should be developed incrementally as the site develops, or

(3) 365 acres (or less if golf course(s) were donated to the County) of off-site regional park land in the Tracy or Delta Planning Area along a waterway shall be acquired and developed incrementally on a specific plan-by-specific plan basis as approved by the San Joaquin County Department of Parks and Recreation. If more than one park site were acquired, there must be one site of 100 acres minimum in size. The Park land could be developed as part of off-site mitigation for wildlife habitat and/or wastewater reclamation areas only if the development priority were recreational use, or

(4) If an in-lieu fee program were adopted on a Countywide basis by the County, in-lieu fees shall be contributed to the County to allow the County to expand regional park facilities. An in-lieu fee could be imposed on the project at any time during project site development. This requirement shall be codified in the Development Agreement to apply to all phases of the project, or.

(5) The County Park and Recreation Department should enter into discussions with the East Bay Regional Park District regarding a reciprocity agreement regarding use of District facilities by County residents and residents within District boundaries using County facilities.

(b) The Draft Master Plan should be amended to ensure neighborhood and regional park availability for the first site residents; the Phasing and Costs section should be amended to read:

> Regional parks shall be implemented incrementally on a specific plan-by-specific plan basis; by completion of the first specific plan (which would result in about 25 percent project buildout), 25 percent of the proposed 70-acre regional Old River park shall be developed.
>
> Alternatively, the park can be developed in two stages, with the first stage being during construction of the first specific plan.

Mitigation Measure S4.3.1-1

Refer to Mitigation Measure M4.3.1-l(a) for alternate methods of mitigation for the regional park land deficiency.

2.4.17 Transportation

Mitigation Measure M4.12-1

(a) The County should prepare and implement a countywide Transportation Systems Management (TSM) program to promote and facilitate use of alternative modes to the single-occupant vehicle within the County. The program should include measures such as continuation and expansion of the County rideshare program, transportation coordinators at employment sites, provision of park-and-ride lots throughout the County, and development of a network of high occupancy vehicle (HOV) lanes on corridors of high travel demand.

(b) The Transportation Management Association (TMA) should promote, with State and County assistance, lanes for priority HOV access to/from the project site (e.g., HOV bypass lanes at metered on-ramps to 1-580 at Grant Line Road, and at on-ramps to I-205 at Patterson Pass Road). The TMA should promote the construction of HOV lanes when I-205 is widened. A policy stating this commitment should be added under Freeway Improvements and TDM Measures (Appendix C).

(c) Local transit service (using clean fuel-transit buses, if feasible) proposed in the Draft Master Plan should be increased, with more frequent service during peak periods to facilitate non-vehicle travel on internal roads, and more direct routing to destinations and fewer transfers than proposed in the Draft Master Plan.

d) A new Policy should be added under Commercial Objective 2 (Appendix C):

> f) Neighborhood commercial areas shall be located so as to optimize accessibility for local pedestrians and cyclists and to reduce automobile trips.

A new Implementation should be added under Commercial Objective 2 (Appendix C):

> c) The Neighborhood Commercial areas shall be sited so that as many homes as possible are located within a one-quarter mile walk of the closest neighborhood or community shopping area.

(e) To reduce peak hour vehicle trip generation, employers should be encouraged to provide flexible work hour programs and/or "9/80" and "4/40" week schedules. This mitigation measure should be added as an Implementation to the Transportation Demand Management section (Appendix C).

(f) The Draft Master Plan should be amended with a policy in the Transportation Demand Management section under Objective I (Appendix C), as follows:

> j) Transit Oriented Development (TOD) Guidelines shall be considered in the design of each neighborhood center. Review and approval of TOD provisions by the County Community Development Department shall be required prior to approval of the first Development Permit.

(g) Implementation cJ under Objective 2 in Transit (Appendix C) should be amended as follows:

> c) The Community shall contribute on a "fair share" basis to any Altamont Station study. The Community shall contribute a fair share toward the capital costs of building an Altamont Station and to the operating and maintenance costs that are identified. The fair share contribution of the Community toward constructing the station shall be based on ridership projections. Bus service between the Community and the Altamont Station shall be included In the Community's transit commitment.

(h) Implementation c) under Objective 1 in Transportation Demand Management should be revised as follows:

> c) The applicant shall develop an annual Transportation Monitoring Program, which would be conducted at the same time as the annual monitoring for the Jobs/Housing and Affordable Housing Programs. The monitoring program would serve as a means of comparing the actual traffic generated by the project to the traffic projections, and would allow revisions to mitigation measures and trigger points for needed transportation improvements.
>
> The annual reports should identify various data including land use occupancy information, traffic counts, and progress of planned transportation improvements and planning studies such as PSRs. Traffic monitoring should include traffic counts and level of service analysis on all community gateways and other impacted County roads. Adequacy of the near-term trigger points and progress toward implementation of the required transportation improvements should also be reviewed.
>
> Should traffic impacts of the project be found during the annual monitoring to be different (i.e., higher than projected levels), then the County shall hold hearings, receive testimony, make findings, and take appropriate action. The County shall adopt findings related to whether the adopted trigger points for transportation improvements and the project's fair share of costs should be revised to ensure the timely construction of needed improvements, and incorporated as a condition of further development approvals.

(i) The fol/owing Implementation should be added under Objectives 2 and 3 of Telecommunication Systems (Appendix C):

> b) One or more telecommuting centers furnished with satellite telecommunication devices and computer equipment shall be constructed within the project site to reduce commuting to off-site locations.

Mitigation Measure M4.12-2

The following mitigation measures should be implemented to reduce impacts of the project on freeways; however, the impact would remain an unavoidable adverse impact.

Three Implementations should be included under Objective 1 in Freeway Improvements (Appendix C), as follows:

> d) The project shall fund its fair share of the cost of widening I-205 from four lanes to six lanes, and from six lanes to eight lanes between I-580 and I-5, either as HOV lanes or mixed flow lanes. As an alternative to widening the I·205 freeway beyond six lanes, the project sponsor shall contribute a fair share to development of a parallel east-west roadway system north of I-205, extending between Mountain House and the City of Lathrop's Gold Rush City development, Including the necessary Multi-jurisdictional alternative/feasibility studies.

e) As an alternative to widening the I-580 freeway, the project sponsor shall contribute a fair share to safety and operational improvements and/or to the widening of Altamont Pass Road west of Grant Line Road to four lanes (as HOV or truck lanes), if determined to be consistent with Alameda County policy.

f) The Public Financing Plan shall reflect the most current cost estimates and fair share contributions, based on refined San Joaquin County Travel Model estimates.

Mitigation Measure M4.12-3

(a) Table 9.1 in the Draft Master Plan, Schedule of Freeway Interchange Improvements, should be expanded to add "Upgrade interchange, PPR/I580" with a footnote indicating that "Extent and phasing of improvements to be determined prior to approval of second Specific Plan."

(b) Table 9.1 in the Draft Master Plan should be expanded to include a PSR for Grant Line/I-580 interchange improvements and a trigger point for its completion. Tha PSR should explicitly consider other planned projects affecting the Interchange such as truck climbing lanes.

(c) Two Implementations should be added under Freeway Improvements (Appendix C) as follows:

> Interchange improvements on I-205 and on I-580 (west of I-205 junction) shall provide for ramp metering with HOV bypass lanes.
> Prior to approval of the first Development Permit in Specific Plan I and prior to approval of each subsequent Specific Plan, the County shall review and, if appropriate, revise the trigger points listed in Table 9.1 of the Draft Master Plan. These reviews shall use the latest version of the COG Travel Model and most current projections of growth, and shall be funded by the applicant.

Mitigation Measure M4.12-4

(a) Policy f) under Objective 1 in County Arterials should be amended to specifically call out 11th Street, Grant Line Road (east), Altamont Pass Road, and Byron Highway, as follows:

> f) The community shall, to the extent of its fair share, participate in appropriate traffic studies and improvement measures with other counties or cities whose roadways are impacted by the community. The specific roadway improvements that shall be studied include 11th Street and Grant Line Road east of Patterson Pass Road (City of Tracy), Altamont Pass Road (Alameda County), and Byron Highway (Alameda and Contra Costa counties). Where roadway widening for additional capacity is not feasible or acceptable, safety and operational improvements shall be considered in order to better accommodate increased traffic.

(b) Implementation a) under Objective I in Transit (Appendix C) should be amended as follows:

h) No later than occupancy of the twenty-fifth dwel/lng unit, a service agreement shall be executed to establish bus service between Mountain House and Tracy.

(c) Table 9.2 of the Draft Master Plan should be revised to include the realignment of Grant Line Road to form a continuous segment where it meets Byron Road. A trigger point should be established for this improvement. Also, a new Implementation should be added under Objective 1 in County Arterials (Appendix C):

g) The community shall, to the extent of its fair share, participate in study and implementation of a grade-separated crossing of the existing Southern Pacific railroad tracks at Grant Line Road to accommodate traffic associated with the proposed project and the proposed Tracy regional mall.

(d) Table 9.2 of the Draft Master Plan should be revised to include the road segment of Grant Line Road, Patterson Pass Road to the Tracy regional mall. The "Lanes" column should read "To 4", and a trigger point should be established for this improvement. A footnote to Table 9.2, referring to the new segments, should state: "The Master Developer shall provide fair share funding for the widening of Grant Line Road, based on more detailed studies that identify both Mountain House and City of Tracy fair share contributions to the widening."

(e) Table 9.2 of the Draft Master Plan should be revised to include Byron Road, east of Lammers Road with a footnote to indicate this improvement would be required if the County does not accept LOS D on this route. The "lane" column should read "To 4" and a trigger point should be established.

(f) Table 9.2 of the Draft Master Plan should be revised to include the road segment of Altamont Pass Road, Greenville Road to Grant Line Road. Under the "Lanes" and "Trigger DU's" columns, the notation "n.a." (not applicable) should be. entered. A footnote to Table 9.2, referring to the new segment, should state: "Safety and operational improvements may include passing lanes, realignments, and shoulder widening. No additional capacity improvements may be constructed on Altamont Pass Road if it is determined that such improvements would violate Alameda County policy.

(g) Three new Implementations should be added under Objective · 1 in County Arterials (Appendix C). as follows:

h) The community shall, to the extent of its fair share, participate in upgrading of existing pavement sections and/or safety improvements (e.g., standard pavement widths and paved shoulders) on rural roads (such as Bethany, Kelso, Hansen, Von Sosten, Reeve, Middle, and Tracy Boulevard), where necessary to accommodate additional traffic caused by the project.

i) Prior to initial occupancy of any specific plan, the County shall review and, if appropriate, revise the trigger points listed in Table 9.2 of the Draft Master Plan. These revisions shall use the latest version of the COG Travel Model and most current projections of growth, and shall be funded by the applicant. Revisions shall be

> incorporated into subsequent specific plans. Improvements shall be constructed at or before issuance of building permits for the number of units specified in the applicable trigger point.
>
> j) The community shall submit a Construction Truck Traffic Management Plan to the County prior to the Issuance of the first Development Permit. The plan shall identify the preferred routes for trucks bringing construction materials to the site, and shall include measures to ensure compliance by general contractors.

(h) The existing footnote to Table 9.2 of the Draft Master Plan should be revised to delete the reference to "the Mountain House EIR traffic model," because it was not used to determine the "trigger DU's." The footnote should also explain that the "Trigger DU's" column refers to when during project buildout the improvements would be completed.

Mitigation Measure M4.12-5

The following revisions should be made under Objective 1 in Arterial Intersections (Appendix C):

> (a) Implementation c) and the accompanying Figure 9.3 in the Draft Master Plan should be revised to include possible signalization when warranted at the following three intersections:
>
> - De Anza Boulevard/Von Sosten
> - C Street/Mountain House Boulevard
> - D Street/Mountain House Boulevard
>
> (b) Implementation d) should be revised to provide channelization at 18 intersections. Figure 9.3 of the Draft Master Plan should be revised to include channelization at the intersection of Central Parkway and Patterson Pass Road North, where an exclusive westbound left-turn lane should be added.
>
> (c) A Policy should be added under Objective 1 in On-Site Roadway Circulation and Design (Appendix C) as follows:
>
> > p) Unnecessary cul-de-sacs shall be avoided to ensure that access between adjacent neighborhoods is not restricted.
>
> (d) Figure 9.4 of the Draft Master Plan (Roadway Classification Diagram) should be revised to indicate Mascot Boulevard as a minor arterial (4 lanes) from Marina Boulevard to Patterson Pass Road. Figure 9.19 (Mascot Boulevard-Collector) should likewise be revised to reflect the minor arterial designation.
>
> (e) For consistency with the Draft Master Plan, and to promote transit/HOV usage and efficient land use, the County should amend its General Plan policy that requires LOS C on all county road segments in the Tracy planning area, as follows: "Permit LOS D on

> new community gateways that are used as major commute routes, subject to the approval of the county."
>
> (f) Amend Table IV-8 (page IV-102) of the General Plan to indicate that major arterials may be up to 8 lanes wide in some segments if needed for capacity and if operationally feasible. Also amend this table to indicate that the daily capacities are approximate only, and may be superseded by more detailed level of service analysis based on peak hour volumes and controlling intersections and will be higher on roadway segments where LOS D is approved by the county.
>
> (g) Mitigation Measures M4.2-1 (e) and (f) in the General Plan and Development Title Consistency section of this DEIR call for the conflicting language and standards in the Master Plan transportation chapter to be revised or, alternatively, a General Plan Text Amendment should be submitted that would allow new communities, or projects that have an adopted Master and/or Specific plan, to deviate from the General Plan standards.

Mitigation Measure M4.12-7

Implementation i) under Objective 1 in Bicycle and Pedestrian Circulation (Appendix C) should be revised:

> The community shall participate on a fair share basis in the planning and implementation of off-sire bicycle facilities on and connecting with regional bike routes designated on the County Regional Bicycle Plan within five miles of the project, including those along Grant Line Road, Patterson Pass Road, Byron Road, Schulte Road, and the Edmund G. Brown Aqueduct.

Mitigation Measure M4.12-8

Implementation a) under Objective 3 in Transit (Appendix C) should be revised to include: "... Any proposed new vehicular, pedestrian, or bicycle railroad crossing …"

Mitigation Measure S4.12-1

In addition to mitigation measures proposed for the Master Plan (Mitigation Measure M4.12-1), the following mitigation measures are recommended to reduce vehicle trips generated by the Specific Plan I project:

> (a) Local bus routes should extend from the interim central transfer facility on Patterson Pass Road into Neighborhoods E, F, and G, providing no-transfer service within one-quarter mile walking distance to a majority of the residents, and providing convenient connections to regional commute period bus routes at the interim transfer facility. For example, this could be a one-way loop along westbound Mountain House Boulevard, northbound Central Parkway, westbound Main Street, southbound Marina Boulevard, and eastbound Mascot Boulevard.

(b) The Specific Plan I land use map should be revised so that as many homes as possible are within one-quarter mile walk of the closest neighborhood or community shopping area.

(c) A park and ride lot should be established in the Mountain House Business Park.

Mitigation Measure S4.12-2

Refer to Mitigation Measure M4.12-2.

Mitigation Measure S4.12-3

(a) As a part of a Land Use/Traffic Monitoring program (Mitigation Measure M4.12-1(j)), traffic growth trends and levels of service at the Grant Line Road/I-580 interchange shall be monitored and reported to the County. Should the review indicate the need for interchange improvements at I-580/Grant Line at or before buildout of Specific Plan I, the required interchange improvements should be added to Table 9.1 of Draft Specific Plan I accordingly.

(b) The I-205 Interchange section of Table 9.1 should be amended to specifically provide for future ramp metering with HOV bypass lane. This may involve widening and lengthening of the westbound on-ramp.

Mitigation Measure S4.12-4

Table 9.1 in Section 9.4 of Specific Plan I should be amended to include the following arterial improvements, and to add trigger points for each:

a) Byron Road widening east of Patterson Pass Road to four lanes, concurrently with the beginning of construction of the Old River Industrial Park (unless the General Plan is amended to accept LOS D as the gateway standard).

b) North-South arterial or widening of Patterson Pass Road north of Grant Line Road. A traffic analysis shall be carried out prior to beginning construction of housing over the 3,200 unit level to determine the need and feasibility of extending Central Parkway or De Anza Boulevard southerly to at least Grant Line Road, and/or widening of Patterson Pass Road beyond four lanes. Subject to findings of this study and review by the County, Figures 9.3 and 9.4 will be revised accordingly.

c) Grant Line Road widening between I-580 and Mountain House Road to four lanes. Widening shall proceed concurrently with the beginning of construction of the Mountain House Business Park.

d) Grant Line Road safety and operational improvements between Mountain House Road and Byron Road. These improvements shall begin concurrently with approval of the first discretionary permit.

e) Initiation of discussions with Contra Costa and Alameda county representatives regarding mutually agreeable measures to address traffic increases on Byron Highway in accordance with the Draft Master Plan (Policy g) under Objective 1 in County Arterials (Appendix C). Interim improvements to accommodate traffic growth to year 2000 may consist of safety/operational improvements.

f) Initiation of discussions with Alameda County representatives regarding mutually agreeable measures to address traffic increases on Altamont Pass Road and all Alameda County roads, in accordance with the Draft Master Plan (Policy g) under Objective 1 in County Arterials (Appendix C), and Alameda County Policy 164(a).

g) Initiation of discussions and improvement plans with City of Tracy regarding improvements to Grant Line Road east of Byron Road (widening to 4 lanes) to accommodate traffic between Mountain House and Tracy Regional Mall. The Master Developer shall provide fair share funding for the widening of Grant Line Road, based on more detailed studies that identify both Mountain House and City of Tracy fair shares.

Mitigation Measure S4.12-5

(a) Figure 9.4 of Specific Plan I should be revised to include the following intersections:

- De Anza Boulevard/Mascot Boulevard
- D Street/Mountain House Boulevard

Both intersections would operate acceptably (LOS D or better) in both peak hours when signalized. Note that no additional lanes were assumed for the mitigation analysis. Additional turning lanes may be needed to accommodate left-turning vehicles.

(b) Figure 9. 7 of Specific Plan I should be revised to include the following intersection:

- Patterson Pass Road/Von Sosten Road

This intersection would operate acceptably (LOS D or better) in both peak hours when signalized. Note that no additional lanes were assumed for the mitigation analysis. Additional turning lanes may be needed to accommodate left-turning vehicles.

(c) Figure 9.3 of Specific Plan I (Road Classification Diagram) should be revised to designate Mascot Boulevard as a minor arterial from Marina Boulevard to Patterson Pass Road, with four lanes to be provided between Central Parkway and Patterson Pass Road at a minimum.

(d) Figure 9.4 of Specific Plan I (Central Mountain House Street System) should be revised to designate an interim width of two lanes on Marina Boulevard while retaining the ultimate four-lane width.

Mitigation Measure S4.12-7

Should Central Parkway or another north-south arterial be extended south to or beyond Grant Line Road as described in Mitigation Measure S4.12-4 (b), bicycle provisions should be included as prescribed in the Master Plan.

Mitigation Measure S4.12-8

Implementation c) under Rail Crossings in the Draft Master Plan should be revised to add: "Improvements to the rail crossing shall include provisions for bicyclists."

2.4.18 Tribal Cultural Resources

See Section 2.4.5, Cultural Resources.

2.4.19 Utilities and Service Systems

Mitigation Measure M4.3.5-1

The following Implementations are recommended for addition to the Draft Master Plan under Objective 1 in Waste Management:

> i) The size of land(s) to be allocated for the on-site transfer station, recycling, and composting center(s) shall be determined on the basis of the actual waste generation rates and projected recycling rates to meet State-mandated reductions in solid waste disposal. Alternative sites for on-site waste management shall be identified in each specific plan.
>
> j) Areas for recycling containers or adequate provisions to ensure on-site recycling opportunities at proposed commercial facilities and large apartment complexes shall be incorporated into Tentative Maps.
>
> k) Recyclable construction waste, such as wood and metal, shall be separated and arrangement shall be made with the County, or on-site recycling services, for collection. Recycling of construction wastes shall be made part of the construction specifications for contractors.

Mitigation Measure M4.4.4-l

The following Implementations should be included under Objective 1 in Electricity (Appendix C):

> e) A formal application shall be submitted to PG&E to relocate the Weber-Herdlyn 60-kV electrical transmission line or provide an adequate open space corridor or other appropriate land use approved by PG&E for the easement prior to submittal of the first Development Permit north of Byron Road.

f) A detailed proposal to relocate the eight-inch natural gas pipeline located north of Byron Road shall be included in the draft specific plan(s) for that area. A preliminary response from PG&E regarding the proposed relocation shall be secured and documented in the applicable final specific plan(s).

g) An open space corridor or appropriate land use approved by PG&E shall be provided for the Rio Oso-Tesla transmission line easements. PG&E's approval shall be secured prior to the first Development Permit in the applicable specific plans.

h) Construction plans shall be submitted to PG&E and other easement owners for review prior to construction in applicable specific plan areas. In particular, the construction plans should identify proposed land uses in utility easements, and procedures for movement of heavy machinery over pipelines installed in non-roadway areas which may not be designed to withstand forces exerted by heavy loads.

The Master Plan should include Policies under Objective 1 in Electricity (Appendix C) to read as follows:

i) Land uses shall be compatible with overhead transmission line corridors, existing or proposed.

j) Specific plans that propose residential or school development adjacent to an overhead transmission line shall summarize and provide an evaluation of the latest information regarding EMF exposure and incorporate additional measures to mitigate those effects, if appropriate.

2.4.20 Wildfire

No mitigation measures.

2.4.21 Mandatory Findings of Significance

No mitigation measures.

APPENDIX B
AIR QUALITY MODELING RESULTS

SP1 commercial

San Joaquin County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Office Building	344.56	1000sqft	7.91	344,560.00	0
Strip Mall	414.26	1000sqft	9.51	414,256.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.7	**Precipitation Freq (Days)**	51
Climate Zone	2			**Operational Year**	2040
Utility Company	Pacific Gas and Electric Company				
CO2 Intensity (lb/MWhr)	203.98	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use -

Construction Phase - No demolition.

Architectural Coating - Per SJVAPCD Rule 4601.

Area Coating - Per SJVAPCD Rule 4601.

Area Mitigation -

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	EF_Nonresidential_Exterior	150.00	50.00
tblArchitecturalCoating	EF_Nonresidential_Interior	150.00	50.00
tblAreaCoating	Area_EF_Nonresidential_Exterior	150	50

tblAreaCoating	Area_EF_Nonresidential_Interior	150	50
tblConstructionPhase	NumDays	20.00	0.00
tblConstructionPhase	PhaseEndDate	5/28/2024	4/30/2024

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2024	0.1920	1.7344	1.8302	5.0300e-003	0.3979	0.0640	0.4619	0.1494	0.0597	0.2090	0.0000	453.8403	453.8403	0.0665	0.0228	462.2981
2025	1.9649	1.7913	2.2471	6.4500e-003	0.2599	0.0576	0.3175	0.0709	0.0542	0.1250	0.0000	585.7379	585.7379	0.0616	0.0358	597.9436
Maximum	**1.9649**	**1.7913**	**2.2471**	**6.4500e-003**	**0.3979**	**0.0640**	**0.4619**	**0.1494**	**0.0597**	**0.2090**	**0.0000**	**585.7379**	**585.7379**	**0.0665**	**0.0358**	**597.9436**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2024	0.1920	1.7344	1.8302	5.0300e-003	0.3979	0.0640	0.4619	0.1494	0.0597	0.2090	0.0000	453.8400	453.8400	0.0665	0.0228	462.2978
2025	1.9649	1.7913	2.2471	6.4500e-003	0.2599	0.0576	0.3175	0.0709	0.0542	0.1250	0.0000	585.7376	585.7376	0.0616	0.0358	597.9433
Maximum	**1.9649**	**1.7913**	**2.2471**	**6.4500e-003**	**0.3979**	**0.0640**	**0.4619**	**0.1494**	**0.0597**	**0.2090**	**0.0000**	**585.7376**	**585.7376**	**0.0665**	**0.0358**	**597.9433**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

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

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	**5-1-2024**	**7-31-2024**	0.7460	0.7460
2	**8-1-2024**	**10-31-2024**	0.7076	0.7076
3	**11-1-2024**	**1-31-2025**	0.7028	0.7028
4	**2-1-2025**	**4-30-2025**	0.6505	0.6505
5	**5-1-2025**	**7-31-2025**	0.6640	0.6640
6	**8-1-2025**	**9-30-2025**	0.3870	0.3870
		Highest	0.7460	0.7460

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	3.1401	6.0000e-005	6.9300e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	0.0136	0.0136	3.0000e-005	0.0000	0.0144
Energy	0.0562	0.5105	0.4288	3.0600e-003		0.0388	0.0388		0.0388	0.0388	0.0000	1,299.4554	1,299.4554	0.1310	0.0248	1,310.1121
Mobile	4.0226	5.5398	38.9364	0.0862	11.8831	0.0496	11.9327	3.1728	0.0465	3.2193	0.0000	7,966.2357	7,966.2357	0.4409	0.4441	8,109.6002
Waste						0.0000	0.0000		0.0000	0.0000	153.3414	0.0000	153.3414	9.0622	0.0000	379.8968
Water						0.0000	0.0000		0.0000	0.0000	29.1636	64.2672	93.4308	3.0058	0.0720	190.0277
Total	**7.2188**	**6.0503**	**39.3721**	**0.0892**	**11.8831**	**0.0884**	**11.9715**	**3.1728**	**0.0854**	**3.2581**	**182.5050**	**9,329.9719**	**9,512.4769**	**12.6399**	**0.5409**	**9,989.6513**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	3.1401	6.0000e-005	6.9300e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	0.0136	0.0136	3.0000e-005	0.0000	0.0144
Energy	0.0562	0.5105	0.4288	3.0600e-003		0.0388	0.0388		0.0388	0.0388	0.0000	1,299.4554	1,299.4554	0.1310	0.0248	1,310.1121
Mobile	4.0226	5.5398	38.9364	0.0862	11.8831	0.0496	11.9327	3.1728	0.0465	3.2193	0.0000	7,966.2357	7,966.2357	0.4409	0.4441	8,109.6002
Waste						0.0000	0.0000		0.0000	0.0000	153.3414	0.0000	153.3414	9.0622	0.0000	379.8968
Water						0.0000	0.0000		0.0000	0.0000	29.1636	64.2672	93.4308	3.0058	0.0720	190.0277
Total	**7.2188**	**6.0503**	**39.3721**	**0.0892**	**11.8831**	**0.0884**	**11.9715**	**3.1728**	**0.0854**	**3.2581**	**182.5050**	**9,329.9719**	**9,512.4769**	**12.6399**	**0.5409**	**9,989.6513**

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

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	5/1/2024	4/30/2024	5	0	
2	Site Preparation	Site Preparation	5/29/2024	6/11/2024	5	10	
3	Grading	Grading	6/12/2024	7/23/2024	5	30	

4	Building Construction	Building Construction	7/24/2024	9/16/2025	5	300	
5	Paving	Paving	9/17/2025	10/14/2025	5	20	
6	Architectural Coating	Architectural Coating	10/15/2025	11/11/2025	5	20	

Acres of Grading (Site Preparation Phase): 15

Acres of Grading (Grading Phase): 90

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 1,138,224; Non-Residential Outdoor: 379,408; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	1	6.00	78	0.48
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Building Construction	Cranes	1	7.00	231	0.29
Demolition	Excavators	3	8.00	158	0.38
Grading	Excavators	2	8.00	158	0.38
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Grading	Graders	1	8.00	187	0.41
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Demolition	Rubber Tired Dozers	2	8.00	247	0.40
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37

Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	7	18.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	243.00	124.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	49.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Demolition - 2024

Unmitigated Construction On-Site

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

3.2 Demolition - 2024

Unmitigated Construction Off-Site

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

Mitigated Construction On-Site

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

3.2 Demolition - 2024

Mitigated Construction Off-Site

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

3.3 Site Preparation - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0983	0.0000	0.0983	0.0505	0.0000	0.0505	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0133	0.1359	0.0917	1.9000e-004		6.1500e-003	6.1500e-003		5.6600e-003	5.6600e-003	0.0000	16.7285	16.7285	5.4100e-003	0.0000	16.8638
Total	**0.0133**	**0.1359**	**0.0917**	**1.9000e-004**	**0.0983**	**6.1500e-003**	**0.1044**	**0.0505**	**5.6600e-003**	**0.0562**	**0.0000**	**16.7285**	**16.7285**	**5.4100e-003**	**0.0000**	**16.8638**

3.3 Site Preparation - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.4000e-004	1.5000e-004	1.8900e-003	1.0000e-005	7.2000e-004	0.0000	7.2000e-004	1.9000e-004	0.0000	1.9000e-004	0.0000	0.5438	0.5438	2.0000e-005	1.0000e-005	0.5486
Total	**2.4000e-004**	**1.5000e-004**	**1.8900e-003**	**1.0000e-005**	**7.2000e-004**	**0.0000**	**7.2000e-004**	**1.9000e-004**	**0.0000**	**1.9000e-004**	**0.0000**	**0.5438**	**0.5438**	**2.0000e-005**	**1.0000e-005**	**0.5486**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0983	0.0000	0.0983	0.0505	0.0000	0.0505	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0133	0.1359	0.0917	1.9000e-004		6.1500e-003	6.1500e-003		5.6500e-003	5.6500e-003	0.0000	16.7285	16.7285	5.4100e-003	0.0000	16.8638
Total	**0.0133**	**0.1359**	**0.0917**	**1.9000e-004**	**0.0983**	**6.1500e-003**	**0.1044**	**0.0505**	**5.6500e-003**	**0.0562**	**0.0000**	**16.7285**	**16.7285**	**5.4100e-003**	**0.0000**	**16.8638**

3.3 Site Preparation - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.4000e-004	1.5000e-004	1.8900e-003	1.0000e-005	7.2000e-004	0.0000	7.2000e-004	1.9000e-004	0.0000	1.9000e-004	0.0000	0.5438	0.5438	2.0000e-005	1.0000e-005	0.5486
Total	**2.4000e-004**	**1.5000e-004**	**1.8900e-003**	**1.0000e-005**	**7.2000e-004**	**0.0000**	**7.2000e-004**	**1.9000e-004**	**0.0000**	**1.9000e-004**	**0.0000**	**0.5438**	**0.5438**	**2.0000e-005**	**1.0000e-005**	**0.5486**

3.4 Grading - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1381	0.0000	0.1381	0.0548	0.0000	0.0548	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0483	0.4857	0.4158	9.3000e-004		0.0200	0.0200		0.0184	0.0184	0.0000	81.7793	81.7793	0.0265	0.0000	82.4405
Total	**0.0483**	**0.4857**	**0.4158**	**9.3000e-004**	**0.1381**	**0.0200**	**0.1581**	**0.0548**	**0.0184**	**0.0732**	**0.0000**	**81.7793**	**81.7793**	**0.0265**	**0.0000**	**82.4405**

3.4 Grading - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	8.0000e-004	5.1000e-004	6.3100e-003	2.0000e-005	2.3900e-003	1.0000e-005	2.4000e-003	6.4000e-004	1.0000e-005	6.5000e-004	0.0000	1.8126	1.8126	5.0000e-005	5.0000e-005	1.8287
Total	**8.0000e-004**	**5.1000e-004**	**6.3100e-003**	**2.0000e-005**	**2.3900e-003**	**1.0000e-005**	**2.4000e-003**	**6.4000e-004**	**1.0000e-005**	**6.5000e-004**	**0.0000**	**1.8126**	**1.8126**	**5.0000e-005**	**5.0000e-005**	**1.8287**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1381	0.0000	0.1381	0.0548	0.0000	0.0548	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0483	0.4857	0.4158	9.3000e-004		0.0200	0.0200		0.0184	0.0184	0.0000	81.7792	81.7792	0.0265	0.0000	82.4404
Total	**0.0483**	**0.4857**	**0.4158**	**9.3000e-004**	**0.1381**	**0.0200**	**0.1581**	**0.0548**	**0.0184**	**0.0732**	**0.0000**	**81.7792**	**81.7792**	**0.0265**	**0.0000**	**82.4404**

3.4 Grading - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	8.0000e-004	5.1000e-004	6.3100e-003	2.0000e-005	2.3900e-003	1.0000e-005	2.4000e-003	6.4000e-004	1.0000e-005	6.5000e-004	0.0000	1.8126	1.8126	5.0000e-005	5.0000e-005	1.8287
Total	**8.0000e-004**	**5.1000e-004**	**6.3100e-003**	**2.0000e-005**	**2.3900e-003**	**1.0000e-005**	**2.4000e-003**	**6.4000e-004**	**1.0000e-005**	**6.5000e-004**	**0.0000**	**1.8126**	**1.8126**	**5.0000e-005**	**5.0000e-005**	**1.8287**

3.5 Building Construction - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0846	0.7730	0.9296	1.5500e-003		0.0353	0.0353		0.0332	0.0332	0.0000	133.3132	133.3132	0.0315	0.0000	134.1014
Total	**0.0846**	**0.7730**	**0.9296**	**1.5500e-003**		**0.0353**	**0.0353**		**0.0332**	**0.0332**	**0.0000**	**133.3132**	**133.3132**	**0.0315**	**0.0000**	**134.1014**

3.5 Building Construction - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	7.3500e-003	0.3156	0.0910	1.4100e-003	0.0471	2.0300e-003	0.0492	0.0136	1.9500e-003	0.0156	0.0000	135.2393	135.2393	6.5000e-004	0.0204	141.3413
Worker	0.0374	0.0236	0.2939	9.2000e-004	0.1113	5.2000e-004	0.1118	0.0296	4.8000e-004	0.0301	0.0000	84.4235	84.4235	2.3900e-003	2.3200e-003	85.1737
Total	**0.0448**	**0.3392**	**0.3849**	**2.3300e-003**	**0.1584**	**2.5500e-003**	**0.1610**	**0.0432**	**2.4300e-003**	**0.0456**	**0.0000**	**219.6628**	**219.6628**	**3.0400e-003**	**0.0227**	**226.5150**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0846	0.7730	0.9296	1.5500e-003		0.0353	0.0353		0.0332	0.0332	0.0000	133.3131	133.3131	0.0315	0.0000	134.1012
Total	**0.0846**	**0.7730**	**0.9296**	**1.5500e-003**		**0.0353**	**0.0353**		**0.0332**	**0.0332**	**0.0000**	**133.3131**	**133.3131**	**0.0315**	**0.0000**	**134.1012**

3.5 Building Construction - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	7.3500e-003	0.3156	0.0910	1.4100e-003	0.0471	2.0300e-003	0.0492	0.0136	1.9500e-003	0.0156	0.0000	135.2393	135.2393	6.5000e-004	0.0204	141.3413
Worker	0.0374	0.0236	0.2939	9.2000e-004	0.1113	5.2000e-004	0.1118	0.0296	4.8000e-004	0.0301	0.0000	84.4235	84.4235	2.3900e-003	2.3200e-003	85.1737
Total	**0.0448**	**0.3392**	**0.3849**	**2.3300e-003**	**0.1584**	**2.5500e-003**	**0.1610**	**0.0432**	**2.4300e-003**	**0.0456**	**0.0000**	**219.6628**	**219.6628**	**3.0400e-003**	**0.0227**	**226.5150**

3.5 Building Construction - 2025

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1265	1.1535	1.4878	2.4900e-003		0.0488	0.0488		0.0459	0.0459	0.0000	214.5255	214.5255	0.0504	0.0000	215.7862
Total	**0.1265**	**1.1535**	**1.4878**	**2.4900e-003**		**0.0488**	**0.0488**		**0.0459**	**0.0459**	**0.0000**	**214.5255**	**214.5255**	**0.0504**	**0.0000**	**215.7862**

3.5 Building Construction - 2025

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0116	0.5060	0.1439	2.2300e-003	0.0758	3.2700e-003	0.0791	0.0219	3.1300e-003	0.0250	0.0000	213.6902	213.6902	1.0000e-003	0.0322	223.3182
Worker	0.0559	0.0337	0.4390	1.4300e-003	0.1790	7.9000e-004	0.1798	0.0476	7.3000e-004	0.0483	0.0000	131.2137	131.2137	3.4600e-003	3.4700e-003	132.3335
Total	**0.0674**	**0.5397**	**0.5829**	**3.6600e-003**	**0.2548**	**4.0600e-003**	**0.2589**	**0.0695**	**3.8600e-003**	**0.0734**	**0.0000**	**344.9039**	**344.9039**	**4.4600e-003**	**0.0357**	**355.6516**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1265	1.1534	1.4878	2.4900e-003		0.0488	0.0488		0.0459	0.0459	0.0000	214.5252	214.5252	0.0504	0.0000	215.7860
Total	**0.1265**	**1.1534**	**1.4878**	**2.4900e-003**		**0.0488**	**0.0488**		**0.0459**	**0.0459**	**0.0000**	**214.5252**	**214.5252**	**0.0504**	**0.0000**	**215.7860**

3.5 Building Construction - 2025

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0116	0.5060	0.1439	2.2300e-003	0.0758	3.2700e-003	0.0791	0.0219	3.1300e-003	0.0250	0.0000	213.6902	213.6902	1.0000e-003	0.0322	223.3182
Worker	0.0559	0.0337	0.4390	1.4300e-003	0.1790	7.9000e-004	0.1798	0.0476	7.3000e-004	0.0483	0.0000	131.2137	131.2137	3.4600e-003	3.4700e-003	132.3335
Total	**0.0674**	**0.5397**	**0.5829**	**3.6600e-003**	**0.2548**	**4.0600e-003**	**0.2589**	**0.0695**	**3.8600e-003**	**0.0734**	**0.0000**	**344.9039**	**344.9039**	**4.4600e-003**	**0.0357**	**355.6516**

3.6 Paving - 2025

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	9.1500e-003	0.0858	0.1458	2.3000e-004		4.1900e-003	4.1900e-003		3.8500e-003	3.8500e-003	0.0000	20.0193	20.0193	6.4700e-003	0.0000	20.1811
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**9.1500e-003**	**0.0858**	**0.1458**	**2.3000e-004**		**4.1900e-003**	**4.1900e-003**		**3.8500e-003**	**3.8500e-003**	**0.0000**	**20.0193**	**20.0193**	**6.4700e-003**	**0.0000**	**20.1811**

3.6 Paving - 2025

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.7000e-004	2.2000e-004	2.9300e-003	1.0000e-005	1.1900e-003	1.0000e-005	1.2000e-003	3.2000e-004	0.0000	3.2000e-004	0.0000	0.8756	0.8756	2.0000e-005	2.0000e-005	0.8831
Total	**3.7000e-004**	**2.2000e-004**	**2.9300e-003**	**1.0000e-005**	**1.1900e-003**	**1.0000e-005**	**1.2000e-003**	**3.2000e-004**	**0.0000**	**3.2000e-004**	**0.0000**	**0.8756**	**0.8756**	**2.0000e-005**	**2.0000e-005**	**0.8831**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	9.1500e-003	0.0858	0.1458	2.3000e-004		4.1900e-003	4.1900e-003		3.8500e-003	3.8500e-003	0.0000	20.0192	20.0192	6.4700e-003	0.0000	20.1811
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**9.1500e-003**	**0.0858**	**0.1458**	**2.3000e-004**		**4.1900e-003**	**4.1900e-003**		**3.8500e-003**	**3.8500e-003**	**0.0000**	**20.0192**	**20.0192**	**6.4700e-003**	**0.0000**	**20.1811**

3.6 Paving - 2025

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.7000e-004	2.2000e-004	2.9300e-003	1.0000e-005	1.1900e-003	1.0000e-005	1.2000e-003	3.2000e-004	0.0000	3.2000e-004	0.0000	0.8756	0.8756	2.0000e-005	2.0000e-005	0.8831
Total	**3.7000e-004**	**2.2000e-004**	**2.9300e-003**	**1.0000e-005**	**1.1900e-003**	**1.0000e-005**	**1.2000e-003**	**3.2000e-004**	**0.0000**	**3.2000e-004**	**0.0000**	**0.8756**	**0.8756**	**2.0000e-005**	**2.0000e-005**	**0.8831**

3.7 Architectural Coating - 2025

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	1.7586					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.7100e-003	0.0115	0.0181	3.0000e-005		5.2000e-004	5.2000e-004		5.2000e-004	5.2000e-004	0.0000	2.5533	2.5533	1.4000e-004	0.0000	2.5567
Total	**1.7603**	**0.0115**	**0.0181**	**3.0000e-005**		**5.2000e-004**	**5.2000e-004**		**5.2000e-004**	**5.2000e-004**	**0.0000**	**2.5533**	**2.5533**	**1.4000e-004**	**0.0000**	**2.5567**

3.7 Architectural Coating - 2025

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.2200e-003	7.3000e-004	9.5700e-003	3.0000e-005	3.9000e-003	2.0000e-005	3.9200e-003	1.0400e-003	2.0000e-005	1.0500e-003	0.0000	2.8604	2.8604	8.0000e-005	8.0000e-005	2.8848
Total	**1.2200e-003**	**7.3000e-004**	**9.5700e-003**	**3.0000e-005**	**3.9000e-003**	**2.0000e-005**	**3.9200e-003**	**1.0400e-003**	**2.0000e-005**	**1.0500e-003**	**0.0000**	**2.8604**	**2.8604**	**8.0000e-005**	**8.0000e-005**	**2.8848**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	1.7586					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.7100e-003	0.0115	0.0181	3.0000e-005		5.2000e-004	5.2000e-004		5.2000e-004	5.2000e-004	0.0000	2.5533	2.5533	1.4000e-004	0.0000	2.5567
Total	**1.7603**	**0.0115**	**0.0181**	**3.0000e-005**		**5.2000e-004**	**5.2000e-004**		**5.2000e-004**	**5.2000e-004**	**0.0000**	**2.5533**	**2.5533**	**1.4000e-004**	**0.0000**	**2.5567**

3.7 Architectural Coating - 2025

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.2200e-003	7.3000e-004	9.5700e-003	3.0000e-005	3.9000e-003	2.0000e-005	3.9200e-003	1.0400e-003	2.0000e-005	1.0500e-003	0.0000	2.8604	2.8604	8.0000e-005	8.0000e-005	2.8848
Total	**1.2200e-003**	**7.3000e-004**	**9.5700e-003**	**3.0000e-005**	**3.9000e-003**	**2.0000e-005**	**3.9200e-003**	**1.0400e-003**	**2.0000e-005**	**1.0500e-003**	**0.0000**	**2.8604**	**2.8604**	**8.0000e-005**	**8.0000e-005**	**2.8848**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	4.0226	5.5398	38.9364	0.0862	11.8831	0.0496	11.9327	3.1728	0.0465	3.2193	0.0000	7,966.2357	7,966.2357	0.4409	0.4441	8,109.6002
Unmitigated	4.0226	5.5398	38.9364	0.0862	11.8831	0.0496	11.9327	3.1728	0.0465	3.2193	0.0000	7,966.2357	7,966.2357	0.4409	0.4441	8,109.6002

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Office Building	3,356.01	761.48	241.19	6,070,908	6,070,908
Strip Mall	18,359.83	17,415.32	8463.25	25,889,650	25,889,650
Total	21,715.84	18,176.80	8,704.44	31,960,558	31,960,558

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
General Office Building	9.50	7.30	7.30	33.00	48.00	19.00	77	19	4
Strip Mall	9.50	7.30	7.30	16.60	64.40	19.00	45	40	15

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
General Office Building	0.573064	0.056512	0.176925	0.120658	0.018144	0.004898	0.011512	0.014870	0.000404	0.000300	0.019812	0.000768	0.002133
Strip Mall	0.573064	0.056512	0.176925	0.120658	0.018144	0.004898	0.011512	0.014870	0.000404	0.000300	0.019812	0.000768	0.002133

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	743.7561	743.7561	0.1203	0.0146	751.1105
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	743.7561	743.7561	0.1203	0.0146	751.1105
NaturalGas Mitigated	0.0562	0.5105	0.4288	3.0600e-003		0.0388	0.0388		0.0388	0.0388	0.0000	555.6994	555.6994	0.0107	0.0102	559.0016
NaturalGas Unmitigated	0.0562	0.5105	0.4288	3.0600e-003		0.0388	0.0388		0.0388	0.0388	0.0000	555.6994	555.6994	0.0107	0.0102	559.0016

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
General Office Building	5.61633e +006	0.0303	0.2753	0.2313	1.6500e-003		0.0209	0.0209		0.0209	0.0209	0.0000	299.7087	299.7087	5.7400e-003	5.4900e-003	301.4897
Strip Mall	4.79708e +006	0.0259	0.2352	0.1975	1.4100e-003		0.0179	0.0179		0.0179	0.0179	0.0000	255.9907	255.9907	4.9100e-003	4.6900e-003	257.5119
Total		**0.0562**	**0.5105**	**0.4288**	**3.0600e-003**		**0.0388**	**0.0388**		**0.0388**	**0.0388**	**0.0000**	**555.6994**	**555.6994**	**0.0107**	**0.0102**	**559.0016**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
General Office Building	5.61633e +006	0.0303	0.2753	0.2313	1.6500e-003		0.0209	0.0209		0.0209	0.0209	0.0000	299.7087	299.7087	5.7400e-003	5.4900e-003	301.4897
Strip Mall	4.79708e +006	0.0259	0.2352	0.1975	1.4100e-003		0.0179	0.0179		0.0179	0.0179	0.0000	255.9907	255.9907	4.9100e-003	4.6900e-003	257.5119
Total		**0.0562**	**0.5105**	**0.4288**	**3.0600e-003**		**0.0388**	**0.0388**		**0.0388**	**0.0388**	**0.0000**	**555.6994**	**555.6994**	**0.0107**	**0.0102**	**559.0016**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
General Office Building	3.32845e +006	307.9607	0.0498	6.0400e-003	311.0059
Strip Mall	4.71009e +006	435.7954	0.0705	8.5500e-003	440.1046
Total		**743.7561**	**0.1203**	**0.0146**	**751.1105**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
General Office Building	3.32845e +006	307.9607	0.0498	6.0400e-003	311.0059
Strip Mall	4.71009e +006	435.7954	0.0705	8.5500e-003	440.1046
Total		**743.7561**	**0.1203**	**0.0146**	**751.1105**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	3.1401	6.0000e-005	6.9300e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	0.0136	0.0136	3.0000e-005	0.0000	0.0144
Unmitigated	3.1401	6.0000e-005	6.9300e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	0.0136	0.0136	3.0000e-005	0.0000	0.0144

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.1759					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	2.9636					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	6.3000e-004	6.0000e-005	6.9300e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	0.0136	0.0136	3.0000e-005	0.0000	0.0144
Total	**3.1401**	**6.0000e-005**	**6.9300e-003**	**0.0000**		**2.0000e-005**	**2.0000e-005**		**2.0000e-005**	**2.0000e-005**	**0.0000**	**0.0136**	**0.0136**	**3.0000e-005**	**0.0000**	**0.0144**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.1759					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	2.9636					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	6.3000e-004	6.0000e-005	6.9300e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	0.0136	0.0136	3.0000e-005	0.0000	0.0144
Total	**3.1401**	**6.0000e-005**	**6.9300e-003**	**0.0000**		**2.0000e-005**	**2.0000e-005**		**2.0000e-005**	**2.0000e-005**	**0.0000**	**0.0136**	**0.0136**	**3.0000e-005**	**0.0000**	**0.0144**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	93.4308	3.0058	0.0720	190.0277
Unmitigated	93.4308	3.0058	0.0720	190.0277

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
General Office Building	61.2399 / 37.5342	62.2430	2.0024	0.0480	126.5951
Strip Mall	30.6853 / 18.8071	31.1879	1.0034	0.0240	63.4326
Total		**93.4308**	**3.0058**	**0.0720**	**190.0277**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
General Office Building	61.2399 / 37.5342	62.2430	2.0024	0.0480	126.5951
Strip Mall	30.6853 / 18.8071	31.1879	1.0034	0.0240	63.4326
Total		**93.4308**	**3.0058**	**0.0720**	**190.0277**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	153.3414	9.0622	0.0000	379.8968
Unmitigated	153.3414	9.0622	0.0000	379.8968

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
General Office Building	320.44	65.0464	3.8441	0.0000	161.1498
Strip Mall	434.97	88.2950	5.2181	0.0000	218.7471
Total		**153.3414**	**9.0622**	**0.0000**	**379.8968**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
General Office Building	320.44	65.0464	3.8441	0.0000	161.1498
Strip Mall	434.97	88.2950	5.2181	0.0000	218.7471
Total		**153.3414**	**9.0622**	**0.0000**	**379.8968**

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

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

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

SP1 proposed residential

San Joaquin County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Single Family Housing	333.00	Dwelling Unit	108.12	599,400.00	1056

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.7	**Precipitation Freq (Days)**	51
Climate Zone	2			**Operational Year**	2040
Utility Company	Pacific Gas and Electric Company				
CO2 Intensity (lb/MWhr)	203.98	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use -

Construction Phase - No demolition.

Architectural Coating - Per SJVAPCD Rule 4601.

Area Coating - Per SJVAPCD Rule 4601.

Area Mitigation -

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	EF_Residential_Exterior	150.00	50.00
tblArchitecturalCoating	EF_Residential_Interior	150.00	50.00
tblAreaCoating	Area_EF_Residential_Exterior	150	50
tblAreaCoating	Area_EF_Residential_Interior	150	50

tblConstructionPhase	NumDays	200.00	0.00
tblConstructionPhase	PhaseEndDate	2/4/2025	4/30/2024

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2024	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2025	0.3222	3.1381	2.6457	6.0300e-003	2.0397	0.1309	2.1706	0.8561	0.1204	0.9765	0.0000	530.0141	530.0141	0.1675	3.5000e-004	534.3054
2026	0.3423	3.1891	3.2178	7.5200e-003	1.1327	0.1279	1.2606	0.3893	0.1181	0.5073	0.0000	662.1409	662.1409	0.1902	4.1800e-003	668.1426
2027	0.2171	1.8510	2.4288	5.3300e-003	0.1558	0.0707	0.2265	0.0421	0.0665	0.1086	0.0000	472.7262	472.7262	0.0735	0.0148	478.9762
2028	0.2141	1.8413	2.4053	5.2700e-003	0.1552	0.0704	0.2256	0.0420	0.0662	0.1082	0.0000	466.9531	466.9531	0.0731	0.0144	473.0664
2029	0.2130	1.8458	2.4024	5.2500e-003	0.1558	0.0706	0.2264	0.0421	0.0664	0.1086	0.0000	465.0783	465.0783	0.0732	0.0141	471.1105
2030	0.2036	1.2520	2.4018	5.7400e-003	0.1558	0.0210	0.1768	0.0421	0.0210	0.0631	0.0000	502.1649	502.1649	0.0157	0.0138	506.6700
2031	0.2018	1.2504	2.3931	5.7100e-003	0.1558	0.0210	0.1768	0.0421	0.0209	0.0631	0.0000	499.2361	499.2361	0.0156	0.0135	503.6600
2032	0.2011	1.2538	2.3950	5.7000e-003	0.1564	0.0211	0.1774	0.0423	0.0210	0.0633	0.0000	498.5516	498.5516	0.0155	0.0134	502.9221
2033	0.1982	1.2431	2.3707	5.6300e-003	0.1552	0.0209	0.1761	0.0420	0.0208	0.0628	0.0000	492.4741	492.4741	0.0153	0.0131	496.7508
2034	0.1970	1.2420	2.3654	5.6100e-003	0.1552	0.0208	0.1760	0.0420	0.0208	0.0627	0.0000	490.4483	490.4483	0.0152	0.0129	494.6714
2035	0.1847	1.1448	2.3648	5.6100e-003	0.1558	0.0134	0.1692	0.0421	0.0133	0.0554	0.0000	490.5427	490.5427	0.0142	0.0128	494.7107
2036	0.1854	1.1492	2.3739	5.6300e-003	0.1564	0.0134	0.1698	0.0423	0.0133	0.0556	0.0000	492.4222	492.4222	0.0143	0.0128	496.6061
2037	0.1847	1.1448	2.3648	5.6100e-003	0.1558	0.0134	0.1692	0.0421	0.0133	0.0554	0.0000	490.5427	490.5427	0.0142	0.0128	494.7107
2038	0.1722	0.9544	2.2617	4.9200e-003	0.1032	0.0175	0.1207	0.0279	0.0175	0.0454	0.0000	427.8790	427.8790	0.0135	8.0700e-003	430.6207
2039	1.2576	0.3517	1.1226	2.0500e-003	0.0205	0.0122	0.0326	5.4400e-003	0.0122	0.0176	0.0000	176.6473	176.6473	6.4900e-003	2.8000e-004	176.8929
2040	0.7048	0.0305	0.0854	1.7000e-004	7.8400e-003	3.2000e-004	8.1600e-003	2.0800e-003	3.2000e-004	2.4000e-003	0.0000	14.8709	14.8709	4.3000e-004	1.0000e-004	14.9122
Maximum	**1.2576**	**3.1891**	**3.2178**	**7.5200e-003**	**2.0397**	**0.1309**	**2.1706**	**0.8561**	**0.1204**	**0.9765**	**0.0000**	**662.1409**	**662.1409**	**0.1902**	**0.0148**	**668.1426**

2.1 Overall Construction

Mitigated Construction

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2024	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2025	0.3222	3.1381	2.6457	6.0300e-003	2.0397	0.1309	2.1706	0.8561	0.1204	0.9765	0.0000	530.0135	530.0135	0.1675	3.5000e-004	534.3048
2026	0.3423	3.1891	3.2178	7.5200e-003	1.1327	0.1279	1.2606	0.3893	0.1181	0.5073	0.0000	662.1401	662.1401	0.1902	4.1800e-003	668.1419
2027	0.2171	1.8510	2.4288	5.3300e-003	0.1558	0.0707	0.2265	0.0421	0.0665	0.1086	0.0000	472.7258	472.7258	0.0735	0.0148	478.9758
2028	0.2141	1.8413	2.4053	5.2700e-003	0.1552	0.0704	0.2256	0.0420	0.0662	0.1082	0.0000	466.9527	466.9527	0.0731	0.0144	473.0660
2029	0.2130	1.8458	2.4024	5.2500e-003	0.1558	0.0706	0.2264	0.0421	0.0664	0.1086	0.0000	465.0779	465.0779	0.0732	0.0141	471.1102
2030	0.2036	1.2520	2.4018	5.7400e-003	0.1558	0.0210	0.1768	0.0421	0.0210	0.0631	0.0000	502.1645	502.1645	0.0157	0.0138	506.6696
2031	0.2018	1.2504	2.3930	5.7100e-003	0.1558	0.0210	0.1768	0.0421	0.0209	0.0631	0.0000	499.2357	499.2357	0.0156	0.0135	503.6595
2032	0.2011	1.2538	2.3950	5.7000e-003	0.1564	0.0211	0.1774	0.0423	0.0210	0.0633	0.0000	498.5512	498.5512	0.0155	0.0134	502.9217
2033	0.1982	1.2431	2.3707	5.6300e-003	0.1552	0.0209	0.1761	0.0420	0.0208	0.0628	0.0000	492.4737	492.4737	0.0153	0.0131	496.7504
2034	0.1970	1.2420	2.3654	5.6100e-003	0.1552	0.0208	0.1760	0.0420	0.0208	0.0627	0.0000	490.4479	490.4479	0.0152	0.0129	494.6710
2035	0.1847	1.1448	2.3648	5.6100e-003	0.1558	0.0134	0.1692	0.0421	0.0133	0.0554	0.0000	490.5423	490.5423	0.0142	0.0128	494.7103
2036	0.1854	1.1492	2.3739	5.6300e-003	0.1564	0.0134	0.1698	0.0423	0.0133	0.0556	0.0000	492.4218	492.4218	0.0143	0.0128	496.6057
2037	0.1847	1.1448	2.3648	5.6100e-003	0.1558	0.0134	0.1692	0.0421	0.0133	0.0554	0.0000	490.5423	490.5423	0.0142	0.0128	494.7103
2038	0.1722	0.9544	2.2617	4.9200e-003	0.1032	0.0175	0.1207	0.0279	0.0175	0.0454	0.0000	427.8786	427.8786	0.0135	8.0700e-003	430.6203
2039	1.2576	0.3517	1.1226	2.0500e-003	0.0205	0.0122	0.0326	5.4400e-003	0.0122	0.0176	0.0000	176.6471	176.6471	6.4900e-003	2.8000e-004	176.8927
2040	0.7048	0.0305	0.0854	1.7000e-004	7.8400e-003	3.2000e-004	8.1600e-003	2.0800e-003	3.2000e-004	2.4000e-003	0.0000	14.8709	14.8709	4.3000e-004	1.0000e-004	14.9122
Maximum	**1.2576**	**3.1891**	**3.2178**	**7.5200e-003**	**2.0397**	**0.1309**	**2.1706**	**0.8561**	**0.1204**	**0.9765**	**0.0000**	**662.1401**	**662.1401**	**0.1902**	**0.0148**	**668.1419**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

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

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
4	2-1-2025	4-30-2025	0.8434	0.8434
5	5-1-2025	7-31-2025	0.9229	0.9229
6	8-1-2025	10-31-2025	1.0162	1.0162
7	11-1-2025	1-31-2026	1.0162	1.0162
8	2-1-2026	4-30-2026	0.9829	0.9829
9	5-1-2026	7-31-2026	1.0160	1.0160
10	8-1-2026	10-31-2026	0.8449	0.8449
11	11-1-2026	1-31-2027	0.5239	0.5239
12	2-1-2027	4-30-2027	0.5046	0.5046
13	5-1-2027	7-31-2027	0.5191	0.5191
14	8-1-2027	10-31-2027	0.5204	0.5204
15	11-1-2027	1-31-2028	0.5224	0.5224
16	2-1-2028	4-30-2028	0.5090	0.5090
17	5-1-2028	7-31-2028	0.5179	0.5179
18	8-1-2028	10-31-2028	0.5191	0.5191
19	11-1-2028	1-31-2029	0.5212	0.5212
20	2-1-2029	4-30-2029	0.5022	0.5022
21	5-1-2029	7-31-2029	0.5167	0.5167
22	8-1-2029	10-31-2029	0.5180	0.5180
23	11-1-2029	1-31-2030	0.4692	0.4692
24	2-1-2030	4-30-2030	0.3553	0.3553
25	5-1-2030	7-31-2030	0.3648	0.3648
26	8-1-2030	10-31-2030	0.3660	0.3660
27	11-1-2030	1-31-2031	0.3682	0.3682

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

28	**2-1-2031**	**4-30-2031**	0.3544	0.3544
29	**5-1-2031**	**7-31-2031**	0.3639	0.3639
30	**8-1-2031**	**10-31-2031**	0.3652	0.3652
31	**11-1-2031**	**1-31-2032**	0.3673	0.3673
32	**2-1-2032**	**4-30-2032**	0.3577	0.3577
33	**5-1-2032**	**7-31-2032**	0.3632	0.3632
34	**8-1-2032**	**10-31-2032**	0.3644	0.3644
35	**11-1-2032**	**1-31-2033**	0.3666	0.3666
36	**2-1-2033**	**4-30-2033**	0.3530	0.3530
37	**5-1-2033**	**7-31-2033**	0.3625	0.3625
38	**8-1-2033**	**10-31-2033**	0.3638	0.3638
39	**11-1-2033**	**1-31-2034**	0.3660	0.3660
40	**2-1-2034**	**4-30-2034**	0.3525	0.3525
41	**5-1-2034**	**7-31-2034**	0.3619	0.3619
42	**8-1-2034**	**10-31-2034**	0.3632	0.3632
43	**11-1-2034**	**1-31-2035**	0.3558	0.3558
44	**2-1-2035**	**4-30-2035**	0.3244	0.3244
45	**5-1-2035**	**7-31-2035**	0.3329	0.3329
46	**8-1-2035**	**10-31-2035**	0.3341	0.3341
47	**11-1-2035**	**1-31-2036**	0.3366	0.3366
48	**2-1-2036**	**4-30-2036**	0.3281	0.3281
49	**5-1-2036**	**7-31-2036**	0.3329	0.3329
50	**8-1-2036**	**10-31-2036**	0.3341	0.3341
51	**11-1-2036**	**1-31-2037**	0.3366	0.3366
52	**2-1-2037**	**4-30-2037**	0.3244	0.3244
53	**5-1-2037**	**7-31-2037**	0.3329	0.3329
54	**8-1-2037**	**10-31-2037**	0.3341	0.3341
55	**11-1-2037**	**1-31-2038**	0.3366	0.3366
56	**2-1-2038**	**4-30-2038**	0.3244	0.3244

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

57	**5-1-2038**	**7-31-2038**	0.3329	0.3329
58	**8-1-2038**	**10-31-2038**	0.2236	0.2236
59	**11-1-2038**	**1-31-2039**	0.1988	0.1988
60	**2-1-2039**	**4-30-2039**	0.1923	0.1923
61	**5-1-2039**	**7-31-2039**	0.3692	0.3692
62	**8-1-2039**	**10-31-2039**	0.5907	0.5907
63	**11-1-2039**	**1-31-2040**	0.5903	0.5903
64	**2-1-2040**	**4-30-2040**	0.5381	0.5381
		Highest	1.0162	1.0162

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	2.6167	0.1530	2.5147	9.3000e-004		0.0238	0.0238		0.0238	0.0238	0.0000	148.2970	148.2970	6.6100e-003	2.6400e-003	149.2503
Energy	0.0425	0.3630	0.1545	2.3200e-003		0.0294	0.0294		0.0294	0.0294	0.0000	664.0505	664.0505	0.0475	0.0125	668.9580
Mobile	0.8381	1.3041	9.2948	0.0238	3.3464	0.0132	3.3596	0.8935	0.0124	0.9058	0.0000	2,196.4069	2,196.4069	0.1020	0.1076	2,231.0065
Waste						0.0000	0.0000		0.0000	0.0000	77.1690	0.0000	77.1690	4.5606	0.0000	191.1830
Water						0.0000	0.0000		0.0000	0.0000	6.8832	15.2916	22.1748	0.7095	0.0170	44.9749
Total	**3.4973**	**1.8201**	**11.9640**	**0.0270**	**3.3464**	**0.0663**	**3.4127**	**0.8935**	**0.0655**	**0.9590**	**84.0523**	**3,024.0459**	**3,108.0982**	**5.4261**	**0.1397**	**3,285.3727**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	2.6167	0.1530	2.5147	9.3000e-004		0.0238	0.0238		0.0238	0.0238	0.0000	148.2970	148.2970	6.6100e-003	2.6400e-003	149.2503
Energy	0.0425	0.3630	0.1545	2.3200e-003		0.0294	0.0294		0.0294	0.0294	0.0000	664.0505	664.0505	0.0475	0.0125	668.9580
Mobile	0.8381	1.3041	9.2948	0.0238	3.3464	0.0132	3.3596	0.8935	0.0124	0.9058	0.0000	2,196.4069	2,196.4069	0.1020	0.1076	2,231.0065
Waste						0.0000	0.0000		0.0000	0.0000	77.1690	0.0000	77.1690	4.5606	0.0000	191.1830
Water						0.0000	0.0000		0.0000	0.0000	6.8832	15.2916	22.1748	0.7095	0.0170	44.9749
Total	**3.4973**	**1.8201**	**11.9640**	**0.0270**	**3.3464**	**0.0663**	**3.4127**	**0.8935**	**0.0655**	**0.9590**	**84.0523**	**3,024.0459**	**3,108.0982**	**5.4261**	**0.1397**	**3,285.3727**

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

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	5/1/2024	4/30/2024	5	0	
2	Site Preparation	Site Preparation	2/5/2025	7/22/2025	5	120	
3	Grading	Grading	7/23/2025	9/29/2026	5	310	

4	Building Construction	Building Construction	9/30/2026	8/17/2038	5	3100	
5	Paving	Paving	8/18/2038	6/21/2039	5	220	
6	Architectural Coating	Architectural Coating	6/22/2039	4/24/2040	5	220	

Acres of Grading (Site Preparation Phase): 180

Acres of Grading (Grading Phase): 930

Acres of Paving: 0

Residential Indoor: 1,213,785; Residential Outdoor: 404,595; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	1	6.00	78	0.48
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Building Construction	Cranes	1	7.00	231	0.29
Demolition	Excavators	3	8.00	158	0.38
Grading	Excavators	2	8.00	158	0.38
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Grading	Graders	1	8.00	187	0.41
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Demolition	Rubber Tired Dozers	2	8.00	247	0.40
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37

Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	7	18.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	120.00	36.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	24.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Demolition - 2024

Unmitigated Construction On-Site

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

3.2 Demolition - 2024

Unmitigated Construction Off-Site

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

Mitigated Construction On-Site

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

3.2 Demolition - 2024

Mitigated Construction Off-Site

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

3.3 Site Preparation - 2025

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					1.1794	0.0000	1.1794	0.6062	0.0000	0.6062	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.1484	1.5140	1.0747	2.2900e-003		0.0652	0.0652		0.0600	0.0600	0.0000	200.8019	200.8019	0.0649	0.0000	202.4255
Total	**0.1484**	**1.5140**	**1.0747**	**2.2900e-003**	**1.1794**	**0.0652**	**1.2446**	**0.6062**	**0.0600**	**0.6661**	**0.0000**	**200.8019**	**200.8019**	**0.0649**	**0.0000**	**202.4255**

3.3 Site Preparation - 2025

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.6800e-003	1.6200e-003	0.0211	7.0000e-005	8.6000e-003	4.0000e-005	8.6400e-003	2.2900e-003	3.0000e-005	2.3200e-003	0.0000	6.3046	6.3046	1.7000e-004	1.7000e-004	6.3584
Total	**2.6800e-003**	**1.6200e-003**	**0.0211**	**7.0000e-005**	**8.6000e-003**	**4.0000e-005**	**8.6400e-003**	**2.2900e-003**	**3.0000e-005**	**2.3200e-003**	**0.0000**	**6.3046**	**6.3046**	**1.7000e-004**	**1.7000e-004**	**6.3584**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					1.1794	0.0000	1.1794	0.6062	0.0000	0.6062	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.1484	1.5140	1.0747	2.2900e-003		0.0652	0.0652		0.0600	0.0600	0.0000	200.8017	200.8017	0.0649	0.0000	202.4253
Total	**0.1484**	**1.5140**	**1.0747**	**2.2900e-003**	**1.1794**	**0.0652**	**1.2446**	**0.6062**	**0.0600**	**0.6661**	**0.0000**	**200.8017**	**200.8017**	**0.0649**	**0.0000**	**202.4253**

3.3 Site Preparation - 2025

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.6800e-003	1.6200e-003	0.0211	7.0000e-005	8.6000e-003	4.0000e-005	8.6400e-003	2.2900e-003	3.0000e-005	2.3200e-003	0.0000	6.3046	6.3046	1.7000e-004	1.7000e-004	6.3584
Total	**2.6800e-003**	**1.6200e-003**	**0.0211**	**7.0000e-005**	**8.6000e-003**	**4.0000e-005**	**8.6400e-003**	**2.2900e-003**	**3.0000e-005**	**2.3200e-003**	**0.0000**	**6.3046**	**6.3046**	**1.7000e-004**	**1.7000e-004**	**6.3584**

3.4 Grading - 2025

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.8424	0.0000	0.8424	0.2452	0.0000	0.2452	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.1683	1.6207	1.5272	3.6000e-003		0.0656	0.0656		0.0603	0.0603	0.0000	316.1360	316.1360	0.1022	0.0000	318.6922
Total	**0.1683**	**1.6207**	**1.5272**	**3.6000e-003**	**0.8424**	**0.0656**	**0.9080**	**0.2452**	**0.0603**	**0.3056**	**0.0000**	**316.1360**	**316.1360**	**0.1022**	**0.0000**	**318.6922**

3.4 Grading - 2025

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.8800e-003	1.7400e-003	0.0227	7.0000e-005	9.2400e-003	4.0000e-005	9.2800e-003	2.4600e-003	4.0000e-005	2.4900e-003	0.0000	6.7716	6.7716	1.8000e-004	1.8000e-004	6.8294
Total	**2.8800e-003**	**1.7400e-003**	**0.0227**	**7.0000e-005**	**9.2400e-003**	**4.0000e-005**	**9.2800e-003**	**2.4600e-003**	**4.0000e-005**	**2.4900e-003**	**0.0000**	**6.7716**	**6.7716**	**1.8000e-004**	**1.8000e-004**	**6.8294**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.8424	0.0000	0.8424	0.2452	0.0000	0.2452	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.1683	1.6207	1.5272	3.6000e-003		0.0656	0.0656		0.0603	0.0603	0.0000	316.1357	316.1357	0.1022	0.0000	318.6918
Total	**0.1683**	**1.6207**	**1.5272**	**3.6000e-003**	**0.8424**	**0.0656**	**0.9080**	**0.2452**	**0.0603**	**0.3056**	**0.0000**	**316.1357**	**316.1357**	**0.1022**	**0.0000**	**318.6918**

3.4 Grading - 2025

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.8800e-003	1.7400e-003	0.0227	7.0000e-005	9.2400e-003	4.0000e-005	9.2800e-003	2.4600e-003	4.0000e-005	2.4900e-003	0.0000	6.7716	6.7716	1.8000e-004	1.8000e-004	6.8294
Total	**2.8800e-003**	**1.7400e-003**	**0.0227**	**7.0000e-005**	**9.2400e-003**	**4.0000e-005**	**9.2800e-003**	**2.4600e-003**	**4.0000e-005**	**2.4900e-003**	**0.0000**	**6.7716**	**6.7716**	**1.8000e-004**	**1.8000e-004**	**6.8294**

3.4 Grading - 2026

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					1.0773	0.0000	1.0773	0.3743	0.0000	0.3743	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.2814	2.7105	2.5541	6.0200e-003		0.1097	0.1097		0.1009	0.1009	0.0000	528.7103	528.7103	0.1710	0.0000	532.9852
Total	**0.2814**	**2.7105**	**2.5541**	**6.0200e-003**	**1.0773**	**0.1097**	**1.1870**	**0.3743**	**0.1009**	**0.4753**	**0.0000**	**528.7103**	**528.7103**	**0.1710**	**0.0000**	**532.9852**

3.4 Grading - 2026

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.5000e-003	2.6100e-003	0.0358	1.2000e-004	0.0155	7.0000e-005	0.0155	4.1100e-003	6.0000e-005	4.1700e-003	0.0000	10.9643	10.9643	2.7000e-004	2.8000e-004	11.0548
Total	**4.5000e-003**	**2.6100e-003**	**0.0358**	**1.2000e-004**	**0.0155**	**7.0000e-005**	**0.0155**	**4.1100e-003**	**6.0000e-005**	**4.1700e-003**	**0.0000**	**10.9643**	**10.9643**	**2.7000e-004**	**2.8000e-004**	**11.0548**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					1.0773	0.0000	1.0773	0.3743	0.0000	0.3743	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.2814	2.7105	2.5541	6.0200e-003		0.1097	0.1097		0.1009	0.1009	0.0000	528.7096	528.7096	0.1710	0.0000	532.9845
Total	**0.2814**	**2.7105**	**2.5541**	**6.0200e-003**	**1.0773**	**0.1097**	**1.1870**	**0.3743**	**0.1009**	**0.4753**	**0.0000**	**528.7096**	**528.7096**	**0.1710**	**0.0000**	**532.9845**

3.4 Grading - 2026

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.5000e-003	2.6100e-003	0.0358	1.2000e-004	0.0155	7.0000e-005	0.0155	4.1100e-003	6.0000e-005	4.1700e-003	0.0000	10.9643	10.9643	2.7000e-004	2.8000e-004	11.0548
Total	**4.5000e-003**	**2.6100e-003**	**0.0358**	**1.2000e-004**	**0.0155**	**7.0000e-005**	**0.0155**	**4.1100e-003**	**6.0000e-005**	**4.1700e-003**	**0.0000**	**10.9643**	**10.9643**	**2.7000e-004**	**2.8000e-004**	**11.0548**

3.5 Building Construction - 2026

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0458	0.4177	0.5388	9.0000e-004		0.0177	0.0177		0.0166	0.0166	0.0000	77.6930	77.6930	0.0183	0.0000	78.1496
Total	**0.0458**	**0.4177**	**0.5388**	**9.0000e-004**		**0.0177**	**0.0177**		**0.0166**	**0.0166**	**0.0000**	**77.6930**	**77.6930**	**0.0183**	**0.0000**	**78.1496**

3.5 Building Construction - 2026

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.1900e-003	0.0529	0.0149	2.3000e-004	7.9700e-003	3.4000e-004	8.3100e-003	2.3000e-003	3.3000e-004	2.6300e-003	0.0000	22.0536	22.0536	1.0000e-004	3.3200e-003	23.0458
Worker	9.3300e-003	5.4100e-003	0.0742	2.5000e-004	0.0320	1.4000e-004	0.0322	8.5100e-003	1.2000e-004	8.6400e-003	0.0000	22.7198	22.7198	5.6000e-004	5.8000e-004	22.9073
Total	**0.0105**	**0.0583**	**0.0891**	**4.8000e-004**	**0.0400**	**4.8000e-004**	**0.0405**	**0.0108**	**4.5000e-004**	**0.0113**	**0.0000**	**44.7733**	**44.7733**	**6.6000e-004**	**3.9000e-003**	**45.9531**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0458	0.4177	0.5388	9.0000e-004		0.0177	0.0177		0.0166	0.0166	0.0000	77.6929	77.6929	0.0183	0.0000	78.1495
Total	**0.0458**	**0.4177**	**0.5388**	**9.0000e-004**		**0.0177**	**0.0177**		**0.0166**	**0.0166**	**0.0000**	**77.6929**	**77.6929**	**0.0183**	**0.0000**	**78.1495**

3.5 Building Construction - 2026

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.1900e-003	0.0529	0.0149	2.3000e-004	7.9700e-003	3.4000e-004	8.3100e-003	2.3000e-003	3.3000e-004	2.6300e-003	0.0000	22.0536	22.0536	1.0000e-004	3.3200e-003	23.0458
Worker	9.3300e-003	5.4100e-003	0.0742	2.5000e-004	0.0320	1.4000e-004	0.0322	8.5100e-003	1.2000e-004	8.6400e-003	0.0000	22.7198	22.7198	5.6000e-004	5.8000e-004	22.9073
Total	**0.0105**	**0.0583**	**0.0891**	**4.8000e-004**	**0.0400**	**4.8000e-004**	**0.0405**	**0.0108**	**4.5000e-004**	**0.0113**	**0.0000**	**44.7733**	**44.7733**	**6.6000e-004**	**3.9000e-003**	**45.9531**

3.5 Building Construction - 2027

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1785	1.6273	2.0991	3.5200e-003		0.0689	0.0689		0.0648	0.0648	0.0000	302.6549	302.6549	0.0711	0.0000	304.4335
Total	**0.1785**	**1.6273**	**2.0991**	**3.5200e-003**		**0.0689**	**0.0689**		**0.0648**	**0.0648**	**0.0000**	**302.6549**	**302.6549**	**0.0711**	**0.0000**	**304.4335**

3.5 Building Construction - 2027

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	4.5700e-003	0.2046	0.0574	8.8000e-004	0.0311	1.3300e-003	0.0324	8.9700e-003	1.2700e-003	0.0102	0.0000	84.1696	84.1696	3.8000e-004	0.0127	87.9517
Worker	0.0341	0.0191	0.2724	9.4000e-004	0.1247	5.0000e-004	0.1252	0.0332	4.6000e-004	0.0336	0.0000	85.9017	85.9017	2.0000e-003	2.1500e-003	86.5910
Total	**0.0386**	**0.2237**	**0.3298**	**1.8200e-003**	**0.1558**	**1.8300e-003**	**0.1576**	**0.0421**	**1.7300e-003**	**0.0439**	**0.0000**	**170.0713**	**170.0713**	**2.3800e-003**	**0.0148**	**174.5427**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1784	1.6273	2.0991	3.5200e-003		0.0689	0.0689		0.0648	0.0648	0.0000	302.6545	302.6545	0.0711	0.0000	304.4331
Total	**0.1784**	**1.6273**	**2.0991**	**3.5200e-003**		**0.0689**	**0.0689**		**0.0648**	**0.0648**	**0.0000**	**302.6545**	**302.6545**	**0.0711**	**0.0000**	**304.4331**

3.5 Building Construction - 2027

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	4.5700e-003	0.2046	0.0574	8.8000e-004	0.0311	1.3300e-003	0.0324	8.9700e-003	1.2700e-003	0.0102	0.0000	84.1696	84.1696	3.8000e-004	0.0127	87.9517
Worker	0.0341	0.0191	0.2724	9.4000e-004	0.1247	5.0000e-004	0.1252	0.0332	4.6000e-004	0.0336	0.0000	85.9017	85.9017	2.0000e-003	2.1500e-003	86.5910
Total	**0.0386**	**0.2237**	**0.3298**	**1.8200e-003**	**0.1558**	**1.8300e-003**	**0.1576**	**0.0421**	**1.7300e-003**	**0.0439**	**0.0000**	**170.0713**	**170.0713**	**2.3800e-003**	**0.0148**	**174.5427**

3.5 Building Construction - 2028

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1778	1.6211	2.0910	3.5000e-003		0.0686	0.0686		0.0645	0.0645	0.0000	301.4953	301.4953	0.0709	0.0000	303.2671
Total	**0.1778**	**1.6211**	**2.0910**	**3.5000e-003**		**0.0686**	**0.0686**		**0.0645**	**0.0645**	**0.0000**	**301.4953**	**301.4953**	**0.0709**	**0.0000**	**303.2671**

3.5 Building Construction - 2028

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	4.4900e-003	0.2028	0.0566	8.6000e-004	0.0309	1.3100e-003	0.0322	8.9400e-003	1.2500e-003	0.0102	0.0000	82.2014	82.2014	3.7000e-004	0.0124	85.8903
Worker	0.0319	0.0174	0.2577	9.1000e-004	0.1243	4.6000e-004	0.1247	0.0330	4.3000e-004	0.0335	0.0000	83.2564	83.2564	1.8200e-003	2.0400e-003	83.9090
Total	**0.0364**	**0.2202**	**0.3143**	**1.7700e-003**	**0.1552**	**1.7700e-003**	**0.1570**	**0.0420**	**1.6800e-003**	**0.0437**	**0.0000**	**165.4578**	**165.4578**	**2.1900e-003**	**0.0144**	**169.7993**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1778	1.6211	2.0910	3.5000e-003		0.0686	0.0686		0.0645	0.0645	0.0000	301.4949	301.4949	0.0709	0.0000	303.2667
Total	**0.1778**	**1.6211**	**2.0910**	**3.5000e-003**		**0.0686**	**0.0686**		**0.0645**	**0.0645**	**0.0000**	**301.4949**	**301.4949**	**0.0709**	**0.0000**	**303.2667**

3.5 Building Construction - 2028

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	4.4900e-003	0.2028	0.0566	8.6000e-004	0.0309	1.3100e-003	0.0322	8.9400e-003	1.2500e-003	0.0102	0.0000	82.2014	82.2014	3.7000e-004	0.0124	85.8903
Worker	0.0319	0.0174	0.2577	9.1000e-004	0.1243	4.6000e-004	0.1247	0.0330	4.3000e-004	0.0335	0.0000	83.2564	83.2564	1.8200e-003	2.0400e-003	83.9090
Total	**0.0364**	**0.2202**	**0.3143**	**1.7700e-003**	**0.1552**	**1.7700e-003**	**0.1570**	**0.0420**	**1.6800e-003**	**0.0437**	**0.0000**	**165.4578**	**165.4578**	**2.1900e-003**	**0.0144**	**169.7993**

3.5 Building Construction - 2029

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1785	1.6273	2.0991	3.5200e-003		0.0689	0.0689		0.0648	0.0648	0.0000	302.6549	302.6549	0.0711	0.0000	304.4335
Total	**0.1785**	**1.6273**	**2.0991**	**3.5200e-003**		**0.0689**	**0.0689**		**0.0648**	**0.0648**	**0.0000**	**302.6549**	**302.6549**	**0.0711**	**0.0000**	**304.4335**

3.5 Building Construction - 2029

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	4.4500e-003	0.2024	0.0563	8.4000e-004	0.0311	1.3100e-003	0.0324	8.9700e-003	1.2500e-003	0.0102	0.0000	80.9187	80.9187	3.6000e-004	0.0121	84.5455
Worker	0.0301	0.0162	0.2471	8.9000e-004	0.1247	4.4000e-004	0.1252	0.0332	4.0000e-004	0.0336	0.0000	81.5046	81.5046	1.6900e-003	1.9600e-003	82.1316
Total	**0.0345**	**0.2185**	**0.3034**	**1.7300e-003**	**0.1558**	**1.7500e-003**	**0.1575**	**0.0421**	**1.6500e-003**	**0.0438**	**0.0000**	**162.4234**	**162.4234**	**2.0500e-003**	**0.0141**	**166.6770**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1784	1.6273	2.0991	3.5200e-003		0.0689	0.0689		0.0648	0.0648	0.0000	302.6545	302.6545	0.0711	0.0000	304.4331
Total	**0.1784**	**1.6273**	**2.0991**	**3.5200e-003**		**0.0689**	**0.0689**		**0.0648**	**0.0648**	**0.0000**	**302.6545**	**302.6545**	**0.0711**	**0.0000**	**304.4331**

3.5 Building Construction - 2029

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	4.4500e-003	0.2024	0.0563	8.4000e-004	0.0311	1.3100e-003	0.0324	8.9700e-003	1.2500e-003	0.0102	0.0000	80.9187	80.9187	3.6000e-004	0.0121	84.5455
Worker	0.0301	0.0162	0.2471	8.9000e-004	0.1247	4.4000e-004	0.1252	0.0332	4.0000e-004	0.0336	0.0000	81.5046	81.5046	1.6900e-003	1.9600e-003	82.1316
Total	**0.0345**	**0.2185**	**0.3034**	**1.7300e-003**	**0.1558**	**1.7500e-003**	**0.1575**	**0.0421**	**1.6500e-003**	**0.0438**	**0.0000**	**162.4234**	**162.4234**	**2.0500e-003**	**0.0141**	**166.6770**

3.5 Building Construction - 2030

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1708	1.0355	2.1085	4.0400e-003		0.0193	0.0193		0.0193	0.0193	0.0000	343.0336	343.0336	0.0138	0.0000	343.3777
Total	**0.1708**	**1.0355**	**2.1085**	**4.0400e-003**		**0.0193**	**0.0193**		**0.0193**	**0.0193**	**0.0000**	**343.0336**	**343.0336**	**0.0138**	**0.0000**	**343.3777**

3.5 Building Construction - 2030

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	4.4000e-003	0.2015	0.0560	8.3000e-004	0.0311	1.3000e-003	0.0324	8.9700e-003	1.2400e-003	0.0102	0.0000	79.4673	79.4673	3.5000e-004	0.0119	83.0249
Worker	0.0283	0.0150	0.2373	8.7000e-004	0.1247	4.1000e-004	0.1252	0.0332	3.8000e-004	0.0335	0.0000	79.6640	79.6640	1.5600e-003	1.8900e-003	80.2674
Total	**0.0327**	**0.2165**	**0.2933**	**1.7000e-003**	**0.1558**	**1.7100e-003**	**0.1575**	**0.0421**	**1.6200e-003**	**0.0438**	**0.0000**	**159.1313**	**159.1313**	**1.9100e-003**	**0.0138**	**163.2923**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1708	1.0355	2.1085	4.0400e-003		0.0193	0.0193		0.0193	0.0193	0.0000	343.0332	343.0332	0.0138	0.0000	343.3773
Total	**0.1708**	**1.0355**	**2.1085**	**4.0400e-003**		**0.0193**	**0.0193**		**0.0193**	**0.0193**	**0.0000**	**343.0332**	**343.0332**	**0.0138**	**0.0000**	**343.3773**

3.5 Building Construction - 2030

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	4.4000e-003	0.2015	0.0560	8.3000e-004	0.0311	1.3000e-003	0.0324	8.9700e-003	1.2400e-003	0.0102	0.0000	79.4673	79.4673	3.5000e-004	0.0119	83.0249
Worker	0.0283	0.0150	0.2373	8.7000e-004	0.1247	4.1000e-004	0.1252	0.0332	3.8000e-004	0.0335	0.0000	79.6640	79.6640	1.5600e-003	1.8900e-003	80.2674
Total	**0.0327**	**0.2165**	**0.2933**	**1.7000e-003**	**0.1558**	**1.7100e-003**	**0.1575**	**0.0421**	**1.6200e-003**	**0.0438**	**0.0000**	**159.1313**	**159.1313**	**1.9100e-003**	**0.0138**	**163.2923**

3.5 Building Construction - 2031

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1708	1.0355	2.1085	4.0400e-003		0.0193	0.0193		0.0193	0.0193	0.0000	343.0336	343.0336	0.0138	0.0000	343.3777
Total	**0.1708**	**1.0355**	**2.1085**	**4.0400e-003**		**0.0193**	**0.0193**		**0.0193**	**0.0193**	**0.0000**	**343.0336**	**343.0336**	**0.0138**	**0.0000**	**343.3777**

3.5 Building Construction - 2031

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	4.3700e-003	0.2008	0.0558	8.2000e-004	0.0311	1.2900e-003	0.0323	8.9700e-003	1.2400e-003	0.0102	0.0000	78.1720	78.1720	3.5000e-004	0.0117	81.6682
Worker	0.0266	0.0141	0.2288	8.5000e-004	0.1247	3.8000e-004	0.1251	0.0332	3.5000e-004	0.0335	0.0000	78.0305	78.0305	1.4500e-003	1.8400e-003	78.6140
Total	**0.0310**	**0.2149**	**0.2846**	**1.6700e-003**	**0.1558**	**1.6700e-003**	**0.1575**	**0.0421**	**1.5900e-003**	**0.0437**	**0.0000**	**156.2025**	**156.2025**	**1.8000e-003**	**0.0135**	**160.2823**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1708	1.0355	2.1085	4.0400e-003		0.0193	0.0193		0.0193	0.0193	0.0000	343.0332	343.0332	0.0138	0.0000	343.3773
Total	**0.1708**	**1.0355**	**2.1085**	**4.0400e-003**		**0.0193**	**0.0193**		**0.0193**	**0.0193**	**0.0000**	**343.0332**	**343.0332**	**0.0138**	**0.0000**	**343.3773**

3.5 Building Construction - 2031

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	4.3700e-003	0.2008	0.0558	8.2000e-004	0.0311	1.2900e-003	0.0323	8.9700e-003	1.2400e-003	0.0102	0.0000	78.1720	78.1720	3.5000e-004	0.0117	81.6682
Worker	0.0266	0.0141	0.2288	8.5000e-004	0.1247	3.8000e-004	0.1251	0.0332	3.5000e-004	0.0335	0.0000	78.0305	78.0305	1.4500e-003	1.8400e-003	78.6140
Total	**0.0310**	**0.2149**	**0.2846**	**1.6700e-003**	**0.1558**	**1.6700e-003**	**0.1575**	**0.0421**	**1.5900e-003**	**0.0437**	**0.0000**	**156.2025**	**156.2025**	**1.8000e-003**	**0.0135**	**160.2823**

3.5 Building Construction - 2032

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1715	1.0394	2.1166	4.0600e-003		0.0194	0.0194		0.0194	0.0194	0.0000	344.3479	344.3479	0.0138	0.0000	344.6933
Total	**0.1715**	**1.0394**	**2.1166**	**4.0600e-003**		**0.0194**	**0.0194**		**0.0194**	**0.0194**	**0.0000**	**344.3479**	**344.3479**	**0.0138**	**0.0000**	**344.6933**

3.5 Building Construction - 2032

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	4.3700e-003	0.2010	0.0559	8.1000e-004	0.0312	1.2900e-003	0.0325	9.0100e-003	1.2400e-003	0.0102	0.0000	77.3207	77.3207	3.4000e-004	0.0116	80.7761
Worker	0.0252	0.0134	0.2225	8.4000e-004	0.1252	3.6000e-004	0.1256	0.0333	3.3000e-004	0.0336	0.0000	76.8830	76.8830	1.3600e-003	1.8000e-003	77.4527
Total	**0.0296**	**0.2144**	**0.2784**	**1.6500e-003**	**0.1564**	**1.6500e-003**	**0.1580**	**0.0423**	**1.5700e-003**	**0.0439**	**0.0000**	**154.2037**	**154.2037**	**1.7000e-003**	**0.0134**	**158.2288**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1715	1.0394	2.1166	4.0600e-003		0.0194	0.0194		0.0194	0.0194	0.0000	344.3475	344.3475	0.0138	0.0000	344.6929
Total	**0.1715**	**1.0394**	**2.1166**	**4.0600e-003**		**0.0194**	**0.0194**		**0.0194**	**0.0194**	**0.0000**	**344.3475**	**344.3475**	**0.0138**	**0.0000**	**344.6929**

3.5 Building Construction - 2032

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	4.3700e-003	0.2010	0.0559	8.1000e-004	0.0312	1.2900e-003	0.0325	9.0100e-003	1.2400e-003	0.0102	0.0000	77.3207	77.3207	3.4000e-004	0.0116	80.7761
Worker	0.0252	0.0134	0.2225	8.4000e-004	0.1252	3.6000e-004	0.1256	0.0333	3.3000e-004	0.0336	0.0000	76.8830	76.8830	1.3600e-003	1.8000e-003	77.4527
Total	**0.0296**	**0.2144**	**0.2784**	**1.6500e-003**	**0.1564**	**1.6500e-003**	**0.1580**	**0.0423**	**1.5700e-003**	**0.0439**	**0.0000**	**154.2037**	**154.2037**	**1.7000e-003**	**0.0134**	**158.2288**

3.5 Building Construction - 2033

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1702	1.0315	2.1004	4.0200e-003		0.0193	0.0193		0.0193	0.0193	0.0000	341.7193	341.7193	0.0137	0.0000	342.0621
Total	**0.1702**	**1.0315**	**2.1004**	**4.0200e-003**		**0.0193**	**0.0193**		**0.0193**	**0.0193**	**0.0000**	**341.7193**	**341.7193**	**0.0137**	**0.0000**	**342.0621**

3.5 Building Construction - 2033

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	4.3300e-003	0.1989	0.0556	7.9000e-004	0.0309	1.2800e-003	0.0322	8.9400e-003	1.2200e-003	0.0102	0.0000	75.7236	75.7236	3.3000e-004	0.0113	79.1054
Worker	0.0237	0.0127	0.2147	8.2000e-004	0.1243	3.4000e-004	0.1246	0.0330	3.1000e-004	0.0334	0.0000	75.0312	75.0312	1.2700e-003	1.7500e-003	75.5834
Total	**0.0280**	**0.2116**	**0.2703**	**1.6100e-003**	**0.1552**	**1.6200e-003**	**0.1568**	**0.0420**	**1.5300e-003**	**0.0435**	**0.0000**	**150.7548**	**150.7548**	**1.6000e-003**	**0.0131**	**154.6888**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1702	1.0315	2.1004	4.0200e-003		0.0193	0.0193		0.0193	0.0193	0.0000	341.7189	341.7189	0.0137	0.0000	342.0617
Total	**0.1702**	**1.0315**	**2.1004**	**4.0200e-003**		**0.0193**	**0.0193**		**0.0193**	**0.0193**	**0.0000**	**341.7189**	**341.7189**	**0.0137**	**0.0000**	**342.0617**

3.5 Building Construction - 2033

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	4.3300e-003	0.1989	0.0556	7.9000e-004	0.0309	1.2800e-003	0.0322	8.9400e-003	1.2200e-003	0.0102	0.0000	75.7236	75.7236	3.3000e-004	0.0113	79.1054
Worker	0.0237	0.0127	0.2147	8.2000e-004	0.1243	3.4000e-004	0.1246	0.0330	3.1000e-004	0.0334	0.0000	75.0312	75.0312	1.2700e-003	1.7500e-003	75.5834
Total	**0.0280**	**0.2116**	**0.2703**	**1.6100e-003**	**0.1552**	**1.6200e-003**	**0.1568**	**0.0420**	**1.5300e-003**	**0.0435**	**0.0000**	**150.7548**	**150.7548**	**1.6000e-003**	**0.0131**	**154.6888**

3.5 Building Construction - 2034

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1702	1.0315	2.1004	4.0200e-003		0.0193	0.0193		0.0193	0.0193	0.0000	341.7193	341.7193	0.0137	0.0000	342.0621
Total	**0.1702**	**1.0315**	**2.1004**	**4.0200e-003**		**0.0193**	**0.0193**		**0.0193**	**0.0193**	**0.0000**	**341.7193**	**341.7193**	**0.0137**	**0.0000**	**342.0621**

3.5 Building Construction - 2034

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	4.3200e-003	0.1983	0.0556	7.8000e-004	0.0309	1.2700e-003	0.0322	8.9400e-003	1.2100e-003	0.0102	0.0000	74.8083	74.8083	3.3000e-004	0.0112	78.1472
Worker	0.0225	0.0122	0.2094	8.1000e-004	0.1243	3.2000e-004	0.1246	0.0330	2.9000e-004	0.0333	0.0000	73.9207	73.9207	1.2000e-003	1.7200e-003	74.4622
Total	**0.0268**	**0.2105**	**0.2650**	**1.5900e-003**	**0.1552**	**1.5900e-003**	**0.1568**	**0.0420**	**1.5000e-003**	**0.0435**	**0.0000**	**148.7290**	**148.7290**	**1.5300e-003**	**0.0129**	**152.6094**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1702	1.0315	2.1004	4.0200e-003		0.0193	0.0193		0.0193	0.0193	0.0000	341.7189	341.7189	0.0137	0.0000	342.0617
Total	**0.1702**	**1.0315**	**2.1004**	**4.0200e-003**		**0.0193**	**0.0193**		**0.0193**	**0.0193**	**0.0000**	**341.7189**	**341.7189**	**0.0137**	**0.0000**	**342.0617**

3.5 Building Construction - 2034

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	4.3200e-003	0.1983	0.0556	7.8000e-004	0.0309	1.2700e-003	0.0322	8.9400e-003	1.2100e-003	0.0102	0.0000	74.8083	74.8083	3.3000e-004	0.0112	78.1472
Worker	0.0225	0.0122	0.2094	8.1000e-004	0.1243	3.2000e-004	0.1246	0.0330	2.9000e-004	0.0333	0.0000	73.9207	73.9207	1.2000e-003	1.7200e-003	74.4622
Total	**0.0268**	**0.2105**	**0.2650**	**1.5900e-003**	**0.1552**	**1.5900e-003**	**0.1568**	**0.0420**	**1.5000e-003**	**0.0435**	**0.0000**	**148.7290**	**148.7290**	**1.5300e-003**	**0.0129**	**152.6094**

3.5 Building Construction - 2035

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1588	0.9346	2.1034	4.0400e-003		0.0118	0.0118		0.0118	0.0118	0.0000	343.0336	343.0336	0.0128	0.0000	343.3530
Total	**0.1588**	**0.9346**	**2.1034**	**4.0400e-003**		**0.0118**	**0.0118**		**0.0118**	**0.0118**	**0.0000**	**343.0336**	**343.0336**	**0.0128**	**0.0000**	**343.3530**

3.5 Building Construction - 2035

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	4.3300e-003	0.1984	0.0559	7.7000e-004	0.0311	1.2700e-003	0.0323	8.9700e-003	1.2100e-003	0.0102	0.0000	74.2778	74.2778	3.3000e-004	0.0111	77.5913
Worker	0.0215	0.0118	0.2055	8.0000e-004	0.1247	3.0000e-004	0.1250	0.0332	2.8000e-004	0.0334	0.0000	73.2313	73.2313	1.1400e-003	1.7000e-003	73.7663
Total	**0.0259**	**0.2103**	**0.2615**	**1.5700e-003**	**0.1558**	**1.5700e-003**	**0.1574**	**0.0421**	**1.4900e-003**	**0.0436**	**0.0000**	**147.5091**	**147.5091**	**1.4700e-003**	**0.0128**	**151.3576**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1588	0.9346	2.1034	4.0400e-003		0.0118	0.0118		0.0118	0.0118	0.0000	343.0332	343.0332	0.0128	0.0000	343.3526
Total	**0.1588**	**0.9346**	**2.1034**	**4.0400e-003**		**0.0118**	**0.0118**		**0.0118**	**0.0118**	**0.0000**	**343.0332**	**343.0332**	**0.0128**	**0.0000**	**343.3526**

3.5 Building Construction - 2035

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	4.3300e-003	0.1984	0.0559	7.7000e-004	0.0311	1.2700e-003	0.0323	8.9700e-003	1.2100e-003	0.0102	0.0000	74.2778	74.2778	3.3000e-004	0.0111	77.5913
Worker	0.0215	0.0118	0.2055	8.0000e-004	0.1247	3.0000e-004	0.1250	0.0332	2.8000e-004	0.0334	0.0000	73.2313	73.2313	1.1400e-003	1.7000e-003	73.7663
Total	**0.0259**	**0.2103**	**0.2615**	**1.5700e-003**	**0.1558**	**1.5700e-003**	**0.1574**	**0.0421**	**1.4900e-003**	**0.0436**	**0.0000**	**147.5091**	**147.5091**	**1.4700e-003**	**0.0128**	**151.3576**

3.5 Building Construction - 2036

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1594	0.9381	2.1114	4.0600e-003		0.0118	0.0118		0.0118	0.0118	0.0000	344.3479	344.3479	0.0128	0.0000	344.6686
Total	**0.1594**	**0.9381**	**2.1114**	**4.0600e-003**		**0.0118**	**0.0118**		**0.0118**	**0.0118**	**0.0000**	**344.3479**	**344.3479**	**0.0128**	**0.0000**	**344.6686**

3.5 Building Construction - 2036

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	4.3500e-003	0.1992	0.0561	7.8000e-004	0.0312	1.2700e-003	0.0324	9.0100e-003	1.2200e-003	0.0102	0.0000	74.5624	74.5624	3.3000e-004	0.0111	77.8886
Worker	0.0216	0.0119	0.2063	8.0000e-004	0.1252	3.0000e-004	0.1255	0.0333	2.8000e-004	0.0336	0.0000	73.5119	73.5119	1.1400e-003	1.7100e-003	74.0489
Total	**0.0260**	**0.2111**	**0.2625**	**1.5800e-003**	**0.1564**	**1.5700e-003**	**0.1580**	**0.0423**	**1.5000e-003**	**0.0438**	**0.0000**	**148.0743**	**148.0743**	**1.4700e-003**	**0.0128**	**151.9375**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1594	0.9381	2.1114	4.0600e-003		0.0118	0.0118		0.0118	0.0118	0.0000	344.3475	344.3475	0.0128	0.0000	344.6682
Total	**0.1594**	**0.9381**	**2.1114**	**4.0600e-003**		**0.0118**	**0.0118**		**0.0118**	**0.0118**	**0.0000**	**344.3475**	**344.3475**	**0.0128**	**0.0000**	**344.6682**

3.5 Building Construction - 2036

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	4.3500e-003	0.1992	0.0561	7.8000e-004	0.0312	1.2700e-003	0.0324	9.0100e-003	1.2200e-003	0.0102	0.0000	74.5624	74.5624	3.3000e-004	0.0111	77.8886
Worker	0.0216	0.0119	0.2063	8.0000e-004	0.1252	3.0000e-004	0.1255	0.0333	2.8000e-004	0.0336	0.0000	73.5119	73.5119	1.1400e-003	1.7100e-003	74.0489
Total	**0.0260**	**0.2111**	**0.2625**	**1.5800e-003**	**0.1564**	**1.5700e-003**	**0.1580**	**0.0423**	**1.5000e-003**	**0.0438**	**0.0000**	**148.0743**	**148.0743**	**1.4700e-003**	**0.0128**	**151.9375**

3.5 Building Construction - 2037

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1588	0.9346	2.1034	4.0400e-003		0.0118	0.0118		0.0118	0.0118	0.0000	343.0336	343.0336	0.0128	0.0000	343.3530
Total	**0.1588**	**0.9346**	**2.1034**	**4.0400e-003**		**0.0118**	**0.0118**		**0.0118**	**0.0118**	**0.0000**	**343.0336**	**343.0336**	**0.0128**	**0.0000**	**343.3530**

3.5 Building Construction - 2037

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	4.3300e-003	0.1984	0.0559	7.7000e-004	0.0311	1.2700e-003	0.0323	8.9700e-003	1.2100e-003	0.0102	0.0000	74.2778	74.2778	3.3000e-004	0.0111	77.5913
Worker	0.0215	0.0118	0.2055	8.0000e-004	0.1247	3.0000e-004	0.1250	0.0332	2.8000e-004	0.0334	0.0000	73.2313	73.2313	1.1400e-003	1.7000e-003	73.7663
Total	**0.0259**	**0.2103**	**0.2615**	**1.5700e-003**	**0.1558**	**1.5700e-003**	**0.1574**	**0.0421**	**1.4900e-003**	**0.0436**	**0.0000**	**147.5091**	**147.5091**	**1.4700e-003**	**0.0128**	**151.3576**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1588	0.9346	2.1034	4.0400e-003		0.0118	0.0118		0.0118	0.0118	0.0000	343.0332	343.0332	0.0128	0.0000	343.3526
Total	**0.1588**	**0.9346**	**2.1034**	**4.0400e-003**		**0.0118**	**0.0118**		**0.0118**	**0.0118**	**0.0000**	**343.0332**	**343.0332**	**0.0128**	**0.0000**	**343.3526**

3.5 Building Construction - 2037

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	4.3300e-003	0.1984	0.0559	7.7000e-004	0.0311	1.2700e-003	0.0323	8.9700e-003	1.2100e-003	0.0102	0.0000	74.2778	74.2778	3.3000e-004	0.0111	77.5913
Worker	0.0215	0.0118	0.2055	8.0000e-004	0.1247	3.0000e-004	0.1250	0.0332	2.8000e-004	0.0334	0.0000	73.2313	73.2313	1.1400e-003	1.7000e-003	73.7663
Total	**0.0259**	**0.2103**	**0.2615**	**1.5700e-003**	**0.1558**	**1.5700e-003**	**0.1574**	**0.0421**	**1.4900e-003**	**0.0436**	**0.0000**	**147.5091**	**147.5091**	**1.4700e-003**	**0.0128**	**151.3576**

3.5 Building Construction - 2038

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0992	0.5837	1.3136	2.5200e-003		7.3700e-003	7.3700e-003		7.3700e-003	7.3700e-003	0.0000	214.2317	214.2317	7.9800e-003	0.0000	214.4312
Total	**0.0992**	**0.5837**	**1.3136**	**2.5200e-003**		**7.3700e-003**	**7.3700e-003**		**7.3700e-003**	**7.3700e-003**	**0.0000**	**214.2317**	**214.2317**	**7.9800e-003**	**0.0000**	**214.4312**

3.5 Building Construction - 2038

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.7000e-003	0.1239	0.0349	4.8000e-004	0.0194	7.9000e-004	0.0202	5.6000e-003	7.6000e-004	6.3600e-003	0.0000	46.3881	46.3881	2.1000e-004	6.9300e-003	48.4574
Worker	0.0134	7.3900e-003	0.1284	5.0000e-004	0.0779	1.9000e-004	0.0781	0.0207	1.7000e-004	0.0209	0.0000	45.7345	45.7345	7.1000e-004	1.0600e-003	46.0686
Total	**0.0161**	**0.1313**	**0.1633**	**9.8000e-004**	**0.0973**	**9.8000e-004**	**0.0983**	**0.0263**	**9.3000e-004**	**0.0272**	**0.0000**	**92.1226**	**92.1226**	**9.2000e-004**	**7.9900e-003**	**94.5260**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0992	0.5837	1.3136	2.5200e-003		7.3700e-003	7.3700e-003		7.3700e-003	7.3700e-003	0.0000	214.2315	214.2315	7.9800e-003	0.0000	214.4310
Total	**0.0992**	**0.5837**	**1.3136**	**2.5200e-003**		**7.3700e-003**	**7.3700e-003**		**7.3700e-003**	**7.3700e-003**	**0.0000**	**214.2315**	**214.2315**	**7.9800e-003**	**0.0000**	**214.4310**

3.5 Building Construction - 2038

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.7000e-003	0.1239	0.0349	4.8000e-004	0.0194	7.9000e-004	0.0202	5.6000e-003	7.6000e-004	6.3600e-003	0.0000	46.3881	46.3881	2.1000e-004	6.9300e-003	48.4574
Worker	0.0134	7.3900e-003	0.1284	5.0000e-004	0.0779	1.9000e-004	0.0781	0.0207	1.7000e-004	0.0209	0.0000	45.7345	45.7345	7.1000e-004	1.0600e-003	46.0686
Total	**0.0161**	**0.1313**	**0.1633**	**9.8000e-004**	**0.0973**	**9.8000e-004**	**0.0983**	**0.0263**	**9.3000e-004**	**0.0272**	**0.0000**	**92.1226**	**92.1226**	**9.2000e-004**	**7.9900e-003**	**94.5260**

3.6 Paving - 2038

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0559	0.2389	0.7752	1.3700e-003		9.1800e-003	9.1800e-003		9.1800e-003	9.1800e-003	0.0000	118.0876	118.0876	4.5400e-003	0.0000	118.2012
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0559**	**0.2389**	**0.7752**	**1.3700e-003**		**9.1800e-003**	**9.1800e-003**		**9.1800e-003**	**9.1800e-003**	**0.0000**	**118.0876**	**118.0876**	**4.5400e-003**	**0.0000**	**118.2012**

3.6 Paving - 2038

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.0100e-003	5.6000e-004	9.6500e-003	4.0000e-005	5.8500e-003	1.0000e-005	5.8700e-003	1.5600e-003	1.0000e-005	1.5700e-003	0.0000	3.4371	3.4371	5.0000e-005	8.0000e-005	3.4622
Total	**1.0100e-003**	**5.6000e-004**	**9.6500e-003**	**4.0000e-005**	**5.8500e-003**	**1.0000e-005**	**5.8700e-003**	**1.5600e-003**	**1.0000e-005**	**1.5700e-003**	**0.0000**	**3.4371**	**3.4371**	**5.0000e-005**	**8.0000e-005**	**3.4622**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0559	0.2389	0.7752	1.3700e-003		9.1800e-003	9.1800e-003		9.1800e-003	9.1800e-003	0.0000	118.0875	118.0875	4.5400e-003	0.0000	118.2011
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0559**	**0.2389**	**0.7752**	**1.3700e-003**		**9.1800e-003**	**9.1800e-003**		**9.1800e-003**	**9.1800e-003**	**0.0000**	**118.0875**	**118.0875**	**4.5400e-003**	**0.0000**	**118.2011**

3.6 Paving - 2038

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.0100e-003	5.6000e-004	9.6500e-003	4.0000e-005	5.8500e-003	1.0000e-005	5.8700e-003	1.5600e-003	1.0000e-005	1.5700e-003	0.0000	3.4371	3.4371	5.0000e-005	8.0000e-005	3.4622
Total	**1.0100e-003**	**5.6000e-004**	**9.6500e-003**	**4.0000e-005**	**5.8500e-003**	**1.0000e-005**	**5.8700e-003**	**1.5600e-003**	**1.0000e-005**	**1.5700e-003**	**0.0000**	**3.4371**	**3.4371**	**5.0000e-005**	**8.0000e-005**	**3.4622**

3.6 Paving - 2039

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0696	0.2974	0.9650	1.7100e-003		0.0114	0.0114		0.0114	0.0114	0.0000	147.0070	147.0070	5.6600e-003	0.0000	147.1485
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0696**	**0.2974**	**0.9650**	**1.7100e-003**		**0.0114**	**0.0114**		**0.0114**	**0.0114**	**0.0000**	**147.0070**	**147.0070**	**5.6600e-003**	**0.0000**	**147.1485**

3.6 Paving - 2039

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.2600e-003	6.9000e-004	0.0120	5.0000e-005	7.2900e-003	2.0000e-005	7.3100e-003	1.9400e-003	2.0000e-005	1.9500e-003	0.0000	4.2788	4.2788	7.0000e-005	1.0000e-004	4.3101
Total	**1.2600e-003**	**6.9000e-004**	**0.0120**	**5.0000e-005**	**7.2900e-003**	**2.0000e-005**	**7.3100e-003**	**1.9400e-003**	**2.0000e-005**	**1.9500e-003**	**0.0000**	**4.2788**	**4.2788**	**7.0000e-005**	**1.0000e-004**	**4.3101**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0696	0.2974	0.9650	1.7100e-003		0.0114	0.0114		0.0114	0.0114	0.0000	147.0069	147.0069	5.6600e-003	0.0000	147.1483
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0696**	**0.2974**	**0.9650**	**1.7100e-003**		**0.0114**	**0.0114**		**0.0114**	**0.0114**	**0.0000**	**147.0069**	**147.0069**	**5.6600e-003**	**0.0000**	**147.1483**

3.6 Paving - 2039

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.2600e-003	6.9000e-004	0.0120	5.0000e-005	7.2900e-003	2.0000e-005	7.3100e-003	1.9400e-003	2.0000e-005	1.9500e-003	0.0000	4.2788	4.2788	7.0000e-005	1.0000e-004	4.3101
Total	**1.2600e-003**	**6.9000e-004**	**0.0120**	**5.0000e-005**	**7.2900e-003**	**2.0000e-005**	**7.3100e-003**	**1.9400e-003**	**2.0000e-005**	**1.9500e-003**	**0.0000**	**4.2788**	**4.2788**	**7.0000e-005**	**1.0000e-004**	**4.3101**

3.7 Architectural Coating - 2039

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	1.1763					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	8.1300e-003	0.0523	0.1238	2.1000e-004		6.8000e-004	6.8000e-004		6.8000e-004	6.8000e-004	0.0000	17.6175	17.6175	6.5000e-004	0.0000	17.6337
Total	**1.1845**	**0.0523**	**0.1238**	**2.1000e-004**		**6.8000e-004**	**6.8000e-004**		**6.8000e-004**	**6.8000e-004**	**0.0000**	**17.6175**	**17.6175**	**6.5000e-004**	**0.0000**	**17.6337**

3.7 Architectural Coating - 2039

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.2800e-003	1.2500e-003	0.0217	8.0000e-005	0.0132	3.0000e-005	0.0132	3.5100e-003	3.0000e-005	3.5400e-003	0.0000	7.7440	7.7440	1.2000e-004	1.8000e-004	7.8006
Total	**2.2800e-003**	**1.2500e-003**	**0.0217**	**8.0000e-005**	**0.0132**	**3.0000e-005**	**0.0132**	**3.5100e-003**	**3.0000e-005**	**3.5400e-003**	**0.0000**	**7.7440**	**7.7440**	**1.2000e-004**	**1.8000e-004**	**7.8006**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	1.1763					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	8.1300e-003	0.0523	0.1238	2.1000e-004		6.8000e-004	6.8000e-004		6.8000e-004	6.8000e-004	0.0000	17.6174	17.6174	6.5000e-004	0.0000	17.6337
Total	**1.1845**	**0.0523**	**0.1238**	**2.1000e-004**		**6.8000e-004**	**6.8000e-004**		**6.8000e-004**	**6.8000e-004**	**0.0000**	**17.6174**	**17.6174**	**6.5000e-004**	**0.0000**	**17.6337**

3.7 Architectural Coating - 2039

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.2800e-003	1.2500e-003	0.0217	8.0000e-005	0.0132	3.0000e-005	0.0132	3.5100e-003	3.0000e-005	3.5400e-003	0.0000	7.7440	7.7440	1.2000e-004	1.8000e-004	7.8006
Total	**2.2800e-003**	**1.2500e-003**	**0.0217**	**8.0000e-005**	**0.0132**	**3.0000e-005**	**0.0132**	**3.5100e-003**	**3.0000e-005**	**3.5400e-003**	**0.0000**	**7.7440**	**7.7440**	**1.2000e-004**	**1.8000e-004**	**7.8006**

3.7 Architectural Coating - 2040

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.6990					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	4.7100e-003	0.0298	0.0735	1.2000e-004		3.0000e-004	3.0000e-004		3.0000e-004	3.0000e-004	0.0000	10.4683	10.4683	3.7000e-004	0.0000	10.4776
Total	**0.7037**	**0.0298**	**0.0735**	**1.2000e-004**		**3.0000e-004**	**3.0000e-004**		**3.0000e-004**	**3.0000e-004**	**0.0000**	**10.4683**	**10.4683**	**3.7000e-004**	**0.0000**	**10.4776**

3.7 Architectural Coating - 2040

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.1100e-003	6.8000e-004	0.0120	5.0000e-005	7.8400e-003	1.0000e-005	7.8500e-003	2.0800e-003	1.0000e-005	2.1000e-003	0.0000	4.4026	4.4026	6.0000e-005	1.0000e-004	4.4347
Total	**1.1100e-003**	**6.8000e-004**	**0.0120**	**5.0000e-005**	**7.8400e-003**	**1.0000e-005**	**7.8500e-003**	**2.0800e-003**	**1.0000e-005**	**2.1000e-003**	**0.0000**	**4.4026**	**4.4026**	**6.0000e-005**	**1.0000e-004**	**4.4347**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.6990					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	4.7100e-003	0.0298	0.0735	1.2000e-004		3.0000e-004	3.0000e-004		3.0000e-004	3.0000e-004	0.0000	10.4683	10.4683	3.7000e-004	0.0000	10.4775
Total	**0.7037**	**0.0298**	**0.0735**	**1.2000e-004**		**3.0000e-004**	**3.0000e-004**		**3.0000e-004**	**3.0000e-004**	**0.0000**	**10.4683**	**10.4683**	**3.7000e-004**	**0.0000**	**10.4775**

3.7 Architectural Coating - 2040

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.1100e-003	6.8000e-004	0.0120	5.0000e-005	7.8400e-003	1.0000e-005	7.8500e-003	2.0800e-003	1.0000e-005	2.1000e-003	0.0000	4.4026	4.4026	6.0000e-005	1.0000e-004	4.4347
Total	**1.1100e-003**	**6.8000e-004**	**0.0120**	**5.0000e-005**	**7.8400e-003**	**1.0000e-005**	**7.8500e-003**	**2.0800e-003**	**1.0000e-005**	**2.1000e-003**	**0.0000**	**4.4026**	**4.4026**	**6.0000e-005**	**1.0000e-004**	**4.4347**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.8381	1.3041	9.2948	0.0238	3.3464	0.0132	3.3596	0.8935	0.0124	0.9058	0.0000	2,196.4069	2,196.4069	0.1020	0.1076	2,231.0065
Unmitigated	0.8381	1.3041	9.2948	0.0238	3.3464	0.0132	3.3596	0.8935	0.0124	0.9058	0.0000	2,196.4069	2,196.4069	0.1020	0.1076	2,231.0065

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Single Family Housing	3,143.52	3,176.82	2847.15	9,000,441	9,000,441
Total	3,143.52	3,176.82	2,847.15	9,000,441	9,000,441

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Single Family Housing	10.80	7.30	7.50	45.60	19.00	35.40	86	11	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Single Family Housing	0.573064	0.056512	0.176925	0.120658	0.018144	0.004898	0.011512	0.014870	0.000404	0.000300	0.019812	0.000768	0.002133

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	243.6300	243.6300	0.0394	4.7800e-003	246.0390
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	243.6300	243.6300	0.0394	4.7800e-003	246.0390
NaturalGas Mitigated	0.0425	0.3630	0.1545	2.3200e-003		0.0294	0.0294		0.0294	0.0294	0.0000	420.4206	420.4206	8.0600e-003	7.7100e-003	422.9189
NaturalGas Unmitigated	0.0425	0.3630	0.1545	2.3200e-003		0.0294	0.0294		0.0294	0.0294	0.0000	420.4206	420.4206	8.0600e-003	7.7100e-003	422.9189

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Single Family Housing	7.87838e+006	0.0425	0.3630	0.1545	2.3200e-003		0.0294	0.0294		0.0294	0.0294	0.0000	420.4206	420.4206	8.0600e-003	7.7100e-003	422.9189
Total		**0.0425**	**0.3630**	**0.1545**	**2.3200e-003**		**0.0294**	**0.0294**		**0.0294**	**0.0294**	**0.0000**	**420.4206**	**420.4206**	**8.0600e-003**	**7.7100e-003**	**422.9189**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Single Family Housing	7.87838e+006	0.0425	0.3630	0.1545	2.3200e-003		0.0294	0.0294		0.0294	0.0294	0.0000	420.4206	420.4206	8.0600e-003	7.7100e-003	422.9189
Total		**0.0425**	**0.3630**	**0.1545**	**2.3200e-003**		**0.0294**	**0.0294**		**0.0294**	**0.0294**	**0.0000**	**420.4206**	**420.4206**	**8.0600e-003**	**7.7100e-003**	**422.9189**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Single Family Housing	2.63316e+006	243.6300	0.0394	4.7800e-003	246.0390
Total		**243.6300**	**0.0394**	**4.7800e-003**	**246.0390**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Single Family Housing	2.63316e+006	243.6300	0.0394	4.7800e-003	246.0390
Total		**243.6300**	**0.0394**	**4.7800e-003**	**246.0390**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	2.6167	0.1530	2.5147	9.3000e-004		0.0238	0.0238		0.0238	0.0238	0.0000	148.2970	148.2970	6.6100e-003	2.6400e-003	149.2503
Unmitigated	2.6167	0.1530	2.5147	9.3000e-004		0.0238	0.0238		0.0238	0.0238	0.0000	148.2970	148.2970	6.6100e-003	2.6400e-003	149.2503

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.1875					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	2.3410					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0146	0.1246	0.0530	8.0000e-004		0.0101	0.0101		0.0101	0.0101	0.0000	144.2581	144.2581	2.7600e-003	2.6400e-003	145.1153
Landscaping	0.0736	0.0284	2.4617	1.3000e-004		0.0137	0.0137		0.0137	0.0137	0.0000	4.0389	4.0389	3.8400e-003	0.0000	4.1350
Total	**2.6167**	**0.1530**	**2.5147**	**9.3000e-004**		**0.0238**	**0.0238**		**0.0238**	**0.0238**	**0.0000**	**148.2970**	**148.2970**	**6.6000e-003**	**2.6400e-003**	**149.2503**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.1875					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	2.3410					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0146	0.1246	0.0530	8.0000e-004		0.0101	0.0101		0.0101	0.0101	0.0000	144.2581	144.2581	2.7600e-003	2.6400e-003	145.1153
Landscaping	0.0736	0.0284	2.4617	1.3000e-004		0.0137	0.0137		0.0137	0.0137	0.0000	4.0389	4.0389	3.8400e-003	0.0000	4.1350
Total	**2.6167**	**0.1530**	**2.5147**	**9.3000e-004**		**0.0238**	**0.0238**		**0.0238**	**0.0238**	**0.0000**	**148.2970**	**148.2970**	**6.6000e-003**	**2.6400e-003**	**149.2503**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	22.1748	0.7095	0.0170	44.9749
Unmitigated	22.1748	0.7095	0.0170	44.9749

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Single Family Housing	21.6963 / 13.6781	22.1748	0.7095	0.0170	44.9749
Total		**22.1748**	**0.7095**	**0.0170**	**44.9749**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Single Family Housing	21.6963 / 13.6781	22.1748	0.7095	0.0170	44.9749
Total		**22.1748**	**0.7095**	**0.0170**	**44.9749**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	77.1690	4.5606	0.0000	191.1830
Unmitigated	77.1690	4.5606	0.0000	191.1830

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Single Family Housing	380.16	77.1690	4.5606	0.0000	191.1830
Total		**77.1690**	**4.5606**	**0.0000**	**191.1830**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Single Family Housing	380.16	77.1690	4.5606	0.0000	191.1830
Total		**77.1690**	**4.5606**	**0.0000**	**191.1830**

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

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

User Defined Equipment

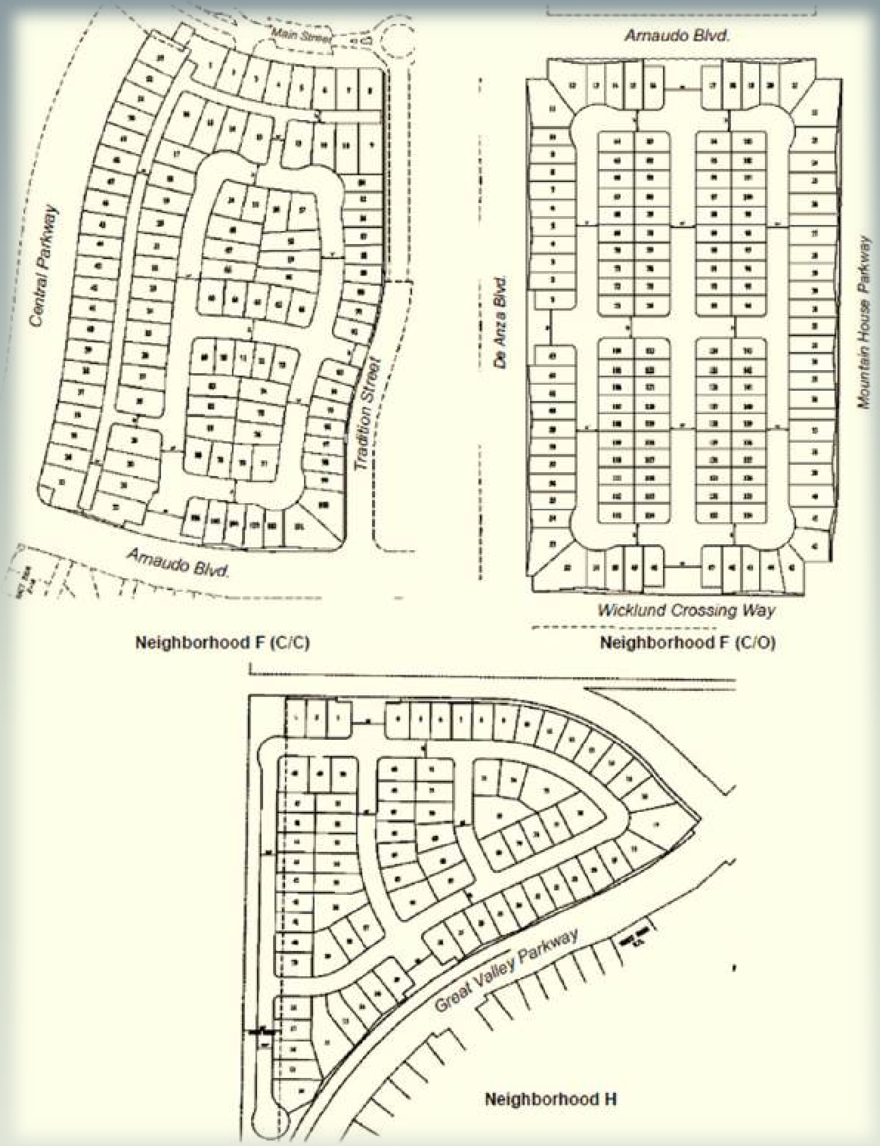
Equipment Type	Number

11.0 Vegetation

APPENDIX C
TRAFFIC IMPACT STUDY

Traffic Impact Study for the Proposed Rezone of Three Parcels in NH F & H from Commercial/Office to Residential, Mountain House, CA

February 2, 2024



AMG ADVANCED MOBILITY GROUP

Traffic Impact Study for the Proposed Rezone of Several Parcels in NH F & H from Commercial/Office to Residential, Mountain House, California

Final Report

Prepared for:
The Mountain House Community
Service District

Prepared by:
Advanced Mobility Group

February 2, 2024

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1.0 INTRODUCTION AND EXECUTIVE SUMMARY

INTRODUCTION

The purpose of this traffic impact study is to evaluate potential impacts of the proposed rezone of approximately 758.8 thousand square feet (ksf) of commercial and office zoning to residential zoning in the Mountain House Community Service District (CSD). The proposed project consists of 330 single-family dwelling units on three (3) separate parcels.

SUMMARY

Based on the results of the analysis, the following is a summary of our findings:

Existing Zoning and Proposed Project Trip Generation

- The three parcels of existing community commercial and commercial office zoning land use are estimated to generate approximately 450 and 1,036 trips during the AM and PM peak hours respectively.
- It is estimated that the proposed 330 residential land use project will generate approximately 233 and 328 total trips during the AM and PM peak hours, respectively.

Existing Traffic Conditions

- All the intersections operate at LOS D or better, except for Mountain House Parkway/I-205 WB Ramp intersection that operates at LOS E during the AM Peak.

Existing plus Project Traffic Conditions

- Similar to the Existing Traffic Conditions, the signalized intersection at Mountain House Parkway and I-205 WB ramp will continue to operate at LOS E during the AM Peak. All the other intersections are estimated to operate at LOS D or better.

Cumulative (No Project) Traffic Conditions

- All the intersections operate at LOS D or better, except for the following three intersections:
    - Intersection 7 - Mountain House Parkway/Grant Line
    - Intersection 16 - Mountain House Parkway/I-205 Westbound (WB) Ramp
    - Intersection 17 - Mountain House Parkway/I-205 Eastbound (EB) Ramp

Potential Intersection Improvements:
Mountain House Parkway/I-205 Westbound (WB) Ramp - The intersection would operate at LOS D if the intersection were restriped with one left-turn, one right and one shared through and right-turn lane.

Mountain House Parkway/I-205 Eastbound (EB) Ramp - The intersection would operate at LOS D if it were restriped to two left-turn lanes and a shared through and right-turn lane.

A more comprehensive and detailed analysis of the whole interchange should be conducted to determine what improvements would best serve future traffic.

Cumulative plus Proposed Project Traffic Conditions

- All the intersections operate at LOS D or better, except for the following two intersections:
    - Intersection 16 - Mountain House Parkway/I-205 Westbound (WB) Ramp
    - Intersection 17 - Mountain House Parkway/I-205 Eastbound (EB) Ramp

Similar to the Cumulative No Project Condition, potential intersection improvements include:
Mountain House Parkway/I-205 Westbound (WB) Ramp - The intersection would operate at LOS D if the intersection were restriped with one left-turn, one right and one shared through and right-turn lane.

Mountain House Parkway/I-205 Eastbound (EB) Ramp - The intersection would operate at LOS D if it were restriped to two left-turn lanes and a shared through and right-turn lane.

VMT Analysis

- VMT Analysis for the project was completed using the buildout scenario of the San Joaquin Council of Government (SJCOG) model.
- It is estimated there is a reduction of 15,955 daily trips due to the proposed rezone from current commercial and office zoning to residential zoning.
- Results of the model run indicated a reduction of approximately 33,690 VMT due to the change between current commercial and office zoning to residential zoning.
- Based on the VMT analysis, this project will result in less than significant transportation impact since the proposed zone change led to a net overall decrease in VMT.

2.0 PURPOSE OF PROJECT AND STUDY APPROACH

PROJECT OBJECTIVES DESCRIPTION

The purpose of this traffic impact study is to evaluate potential impacts of the proposed rezone of approximately 758.8 thousand square feet (ksf) of commercial and office zoning in Neighborhood F and H to approximately 330 single-family dwelling units in the Mountain House Community Service District (MHCSD). Compared to commercial and office land use, it is anticipated that the residential land use will generate fewer peak hour and daily trips.

The proposed project is located on three different parcels. The site in Neighborhood H is located on the southwest corner at the intersection of Great Valley Parkway and Kelso Road. It was originally intended to be used for community commercial land use. The site is in Neighborhood H and will consist of eighty-one (81) single-family dwelling units. The second site is located in Neighborhood F at the northeast corner of the intersection of Arnaudo Boulevard and Central Parkway. The third site is located in Neighborhood F at the southwest quadrant of the intersection of Arnaudo Boulevard and Mountain House Parkway. Both the second and third sites are part of Neighborhood F and will consist of a total of 249 single-family dwelling units. The proposed project site(s) and vicinity map are shown in **Figure 1.**

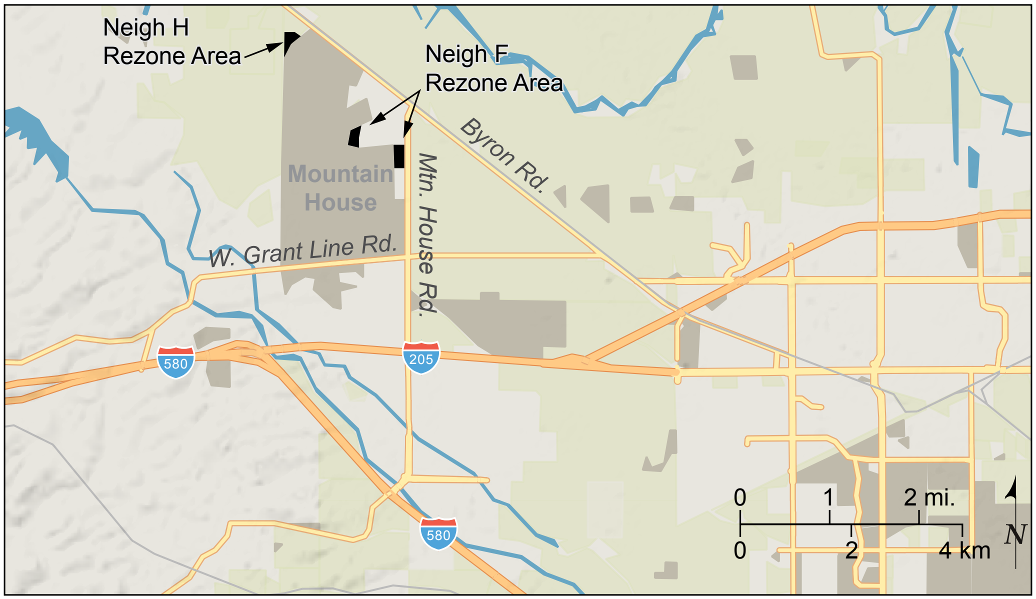
STUDY APPROACH

The following are key steps of the study approach:

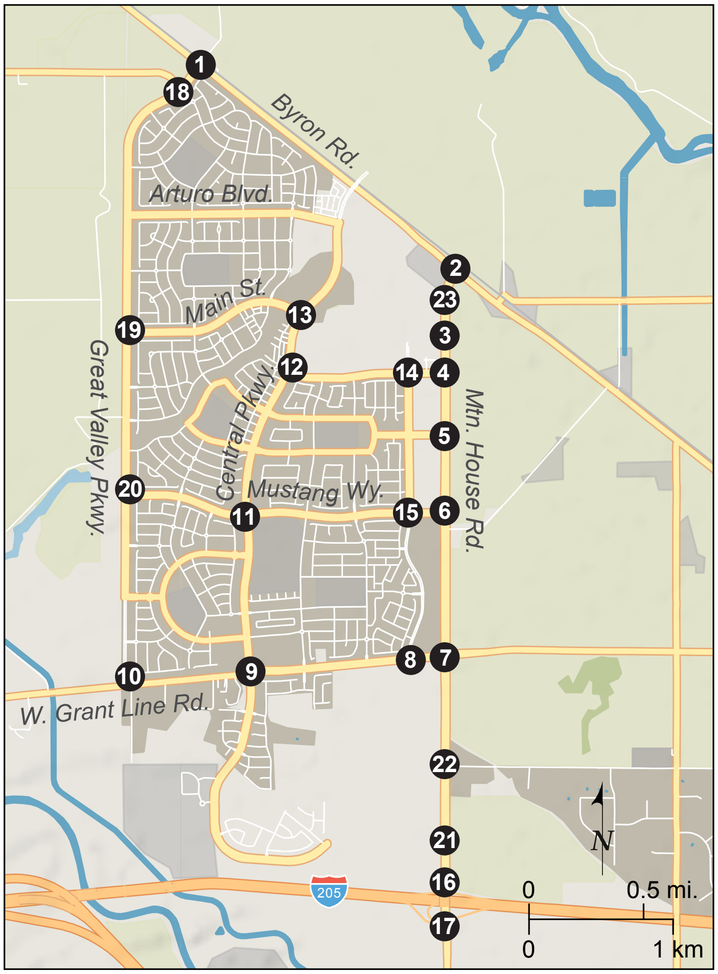
- Conduct traffic counts to establish baseline traffic conditions
- Conduct trip generation and distribution of project trips
- Determine traffic conditions for the following scenarios:
    - Existing Traffic Condition
    - Project Only Condition
    - Existing plus Project
    - Cumulative No Project (with approved Master Plan Land Use) Traffic Condition
    - Cumulative plus the Proposed Zone Change Project Traffic Condition
- Determine VMT and LOS impact of project trips based on established Significance Criteria

Mountain House CSD - Neighborhoods F & H Rezone Study
Site Vicinity Map

Figure
1



Base map: MapTiler



Base map: MapTiler

Legend

❶ Study Intersection

ID	**Intersection** (future intersections highlighted)
1	Great Valley Pkwy/Byron Rd
2	Mountain House Pkwy/Byron Rd
3	Mountain House Pkwy/Main St
4	Mountain House Pkwy/Arnaudo Blvd
5	Mountain House Pkwy/Wicklund Crossing
6	Mountain House Pkwy/Mustang Way
7	Mountain House Pkwy/Grant Line Rd
8	Grant Line Rd/De Anza Blvd
9	Central Pkwy/Grant Line Rd
10	Grant Line Rd/Great Valley Pkwy
11	Central Pkwy/Mustang Wy
12	Central Pkwy/Arnaudo Blvd
13	Central Pkwy/Main St
14	Arnaudo Blvd/De Anza Blvd
15	Mustang Wy/De Anza Blvd
16	Mountain House Pkwy/I-205 WB Ramp
17	Mountain House Pkwy/I-205 EB Ramp
18	Great Valley Pkwy/Kelso Rd-Questa Trail
19	Great Valley Pkwy/Main St
20	Great Valley Pkwy/Mustang Wy
21	Mountain House Pkwy/Central Pkwy
22	Mountain House Pkwy/Van Sosten Rd
23	Mountain House Pkwy/Grand Ave

AMG ADVANCED MOBILITY GROUP

3.0 SETTING

The following section describes the existing transportation conditions in the vicinity of the study area, including descriptions of the existing street system and intersection operating conditions.

EXISTING STREET SYSTEM

Regional Roadways

Interstate 580 (I-580) is a major east-west freeway connecting Interstate I-5 near Tracy to the east to Interstate I-80 near Emeryville to the west. I-580 is located approximately three and a half (3.5) miles south of the project site(s). Primary access to the project site(s) from I-580 is provided via connection through Interstate 205. I-580 provides access to regional employment centers in Pleasanton, San Ramon, and the rest of the San Francisco Bay Area.

Interstate 205 (I-205) is major east-west freeway connecting Tracy to the east with Interstate I-580. Residents rely primarily on I-205 to access from the City Tracy to various cities in the Bay Area (Livermore, Dublin, Hayward, Oakland). Near the project area, I-205 is a six-lane freeway. Primary access to the project site(s) from I-205 is provided via an interchange at Mountain House Parkway.

The latest available 2017 Caltrans traffic volume report indicates that the annual average daily traffic (ADT) volumes on Interstate 205 (I-205) is 113,000 vehicles per day (vpd), east and west of Mountain House Parkway.

Local Roadways

Mountain House Parkway is a north-south divided major arterial roadway that provides a connection between I-205 in the south to Byron Road in the north. It is typically a four-lane roadway but converts to a six-lane roadway from Mustang Way to Grant Line Road. Class I Bikeway facilities are available along this roadway from Byron Road to Mustang Way. Mountain House Parkway becomes International Parkway south of the I-205 interchange, which connects to Schulte Road and I-580 to the south. The Speed Limit is 40 mph. The existing ADT south of Mustang Way is approximately 14,900 vpd[1].

Bryon Road is a two-lane rural roadway that runs parallel to the Southern Pacific (SP) Railroad and cuts across the northern portion of the Mountain House Community. It is part of County Road J4 and provides access to downtown Tracy to the east and Contra Costa County to the west. The Speed Limit is 55 mph. The existing ADT is approximately 31,700 vpd.

Grant Line Road is a east-west rural roadway that provides a connection between Tracy in the east to Mountain House and Altamont Pass in the west. Near the study area, it converts to a four-lane divided major arterial roadway from Great Valley Parkway to Mountain House Parkway. Class I Bikeway facilities are available along this roadway on the westbound approach from Great Valley Parkway to Mountain House Parkway. Class II facilities are available along this roadway on the eastbound approach

---

[1] *ADT counts for local roads from MHCSD Bicycle and Pedestrian Master Plan, April 2021*

from Central Parkway to Mountain House Parkway. The Speed Limit near the study area is 35 mph. The existing ADT is approximately 15,200 vpd.

Great Valley Parkway is a north-south four-lane divided minor arterial roadway that extends from Byron Road in the north to Grant Line Road to the south. It is adjacent to Neighborhood H of the MHCSD and one of the project sites. Class I Bikeway facilities are available along this roadway from Byron Road to Grant Line Road. Sidewalk is available near the project site and entrances to the southeast and southwest Creek Trail are available on this roadway. The speed Limit approaching the project site(s) is 35 mph. The existing ADT is approximately 5,600 vpd.

Central Parkway is a north-south divided minor arterial roadway that currently extends from Arturo Boulevard in the north and ends at Zinnia Way to the south of Delta College. It is typically a four-line roadway but converts to a two-lane divided roadway from Main Street to Arturo Boulevard. It is adjacent to a section of Neighborhood F of the MHCSD and one of the newly proposed single-family developments in Neighborhood F at the Arnaudo Boulevard intersection. Class I Bikeway facilities are available throughout the entire roadway. Sidewalk is available near the project site and several entrances to the Creek Trail system are available on this roadway. The speed Limit approaching the project site(s) is 25 mph. The existing ADT is approximately 5,000 vpd north of Mustang Way.

Arnaudo Boulevard is an east-west four-lane divided minor arterial roadway that extends from Mountain House Parkway to Paraiso Way. It is adjacent to Neighborhood F and both newly proposed single-family Neighborhood F developments. Class I Bikeway facilities are available throughout the entire roadway. Sidewalk is available near the project sites. The speed limit approaching the project site(s) is 35 mph. The existing ADT is approximately 9,400 vpd.

De Anza Boulevard is a north-south four-lane divided minor arterial roadway that currently extends from the Lammersville Unified School District offices to Grant Line Road. It is adjacent to Neighborhood F of the MHCSD and one of the newly proposed single-family Neighborhood F developments. Class I Bikeway facilities are available throughout the entire roadway. Sidewalk is available near the project sites. The speed limit approaching the project site(s) is 35 mph. The existing ADT is approximately 1,500 vpd.

Kelso Road/Questa Trail is a east-west two-lane local roadway adjacent to the new proposed single-family development in Neighborhood H. The roadway extends from the Byron-Bethany Reservoir Area to Arturo Blvd. Class III Bike facilities are available from Great Valley Parkway to De Anza Boulevard. Sidewalk is available near the project site. The speed limit approaching the project site(s) is 25 mph. The existing ADT is approximately 4,400 vpd.

Wicklund Crossing is a east-west two-lane local roadway adjacent to one of the new proposed single-family developments in Neighborhood F. The roadway extends from Mountain House Parkway to Historic Street. Class I Bike facilities are available throughout the entire roadway. Sidewalk is available near the project site. The speed limit approaching the project site is 35 mph.

Main Street is a east-west divided minor arterial roadway that currently extends from Great Valley Parkway to Providence Street. It is typically a four-lane roadway but converts to a two-lane roadway from Central Parkway to Providence Street. Class I Bike facilities are available throughout the entire roadway. Sidewalks are available near the project site. The speed limit is 35 mph.

Mustang Way is an east-west four-lane divided minor arterial roadway that currently extends from Great Valley Parkway to Mountain House Parkway. Class I Bike facilities are available throughout the entire roadway. Sidewalks are available along the entire roadway. The speed limit is 35 mph. The existing ADT is approximately 5,800 vpd.

Van Sosten Road is an east-west two-lane rural roadway that currently extends from Mountain House Parkway to Byron Road near Tracy. The speed limit is 55 mph.

Grand Avenue is an east-west two-lane local roadway that connects Mountain House Parkway to Town Center and provides access to Safeway. On-street parking and sidewalks are available along the roadway. The speed limit is 35 mph.

EXISTING PEDESTRIAN AND BICYCLE FACILITIES

The existing pedestrian and bicycle facilities near the project site are described below.

Existing Bicycle Facilities

Bicycle facilities are classified by Caltrans into four distinct types of bikeway facilities, as generally described below:

- Class I Bikeway (Bike Path). Provides a separate right-of-way and is designated for the exclusive use of bicycles and pedestrians with vehicle and pedestrian crossflow minimized.

- Class II Bikeway (Bike Lane). Provides a restricted right-of-way and is designated for the use of bicycles with a striped lane on a street or highway. Vehicle parking and vehicle/pedestrian crossflow are permitted.

- Class III Bikeway (Bike Route). Provides a right-of-way designated by signs or pavement markings for shared use with pedestrians or motor vehicles.

- Class IV Bikeway (Separated Bikeway/Cycle Track). Provides a cycle track or protected bike lane, is for the exclusive use of bicycles, physically separated from motor traffic with a vertical feature.

Class I facilities are available near the project site(s) throughout Mountain House Parkway, Great Valley Parkway, Central Parkway, Grant Line Road, Main Street, De Anza Boulevard, Arnaudo Boulevard, and Mustang Way.

Class II facilities are available near the project site(s) on the eastbound approach on Grant Line Road from Central Parkway to Mountain House Parkway.

Class III facilities are available near the project site(s) on Kelso Road/Questa Trail and on Tradition Street south of Arnaudo Boulevard.

A map of all the Existing Bicycle Facilities near the project site(s) is shown in **Exhibit 1**.

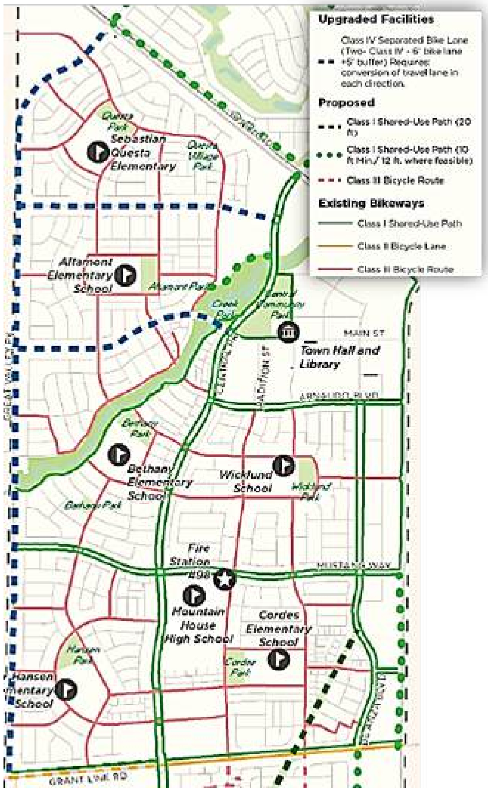


Exhibit 1: MHCSD Bicycle Facilities

Existing Pedestrian Facilities

Pedestrian Facilities in the study area include sidewalks and crosswalks. Sidewalks are eight (8) feet wide near the project area and are a part of the Class I Bikeway facilities described above. The intersection of Great Valley Parkway & Kelso Road/Questa Trail adjacent to Neighborhood H has crosswalks on all four intersection approaches. The intersections of Central Parkway & Arnaudo Boulevard and Tradition Street & Arnaudo Boulevard adjacent to Neighborhood F have crosswalks on all four intersection approaches. These intersections are signal-controlled and have pedestrian push buttons.

EXISTING TRANSIT AND RAIL SERVICE

Transit service within the study area is provided by San Joaquin Regional Transit District and the Altamont Corridor Express. The closest bus stop from the project area to both services is located at the Tracy Transit Center.

ROADWAY AND INTERSECTION OPERATING CONDITIONS

This section summarizes existing roadway and intersection operating conditions.

Traffic Data Collection

Based on understanding of the area and comments received from several jurisdiction staff[2], the following 23 study intersections as shown in **Exhibit 2** were selected for analysis:

AMG collected peak hour intersection traffic turning movement counts that were conducted in the past year[3]. **Figure 2** shows the turning movement volumes and lane configuration at each study intersection. Existing intersection turning movement counts are included in **Appendix A.**

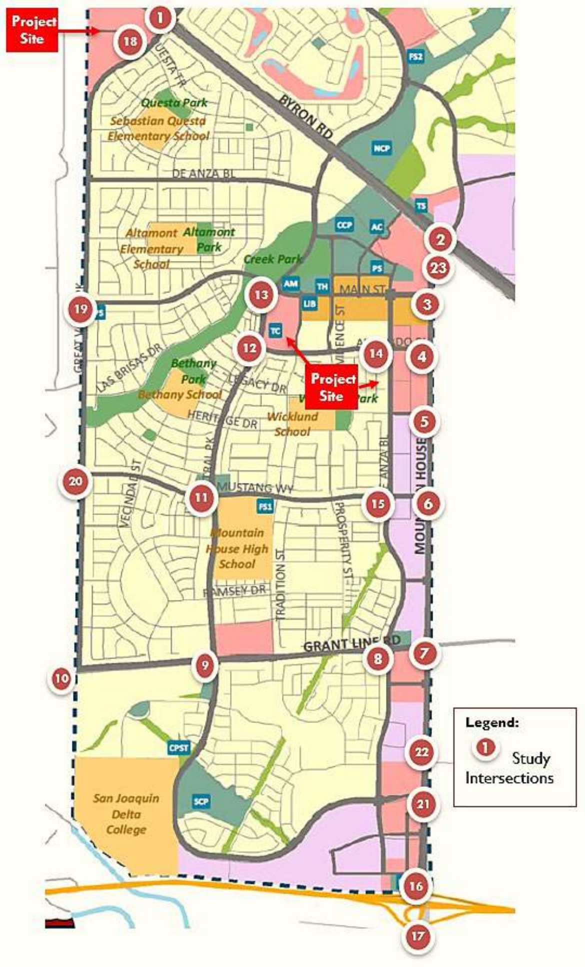


Exhibit 2: Study Intersections

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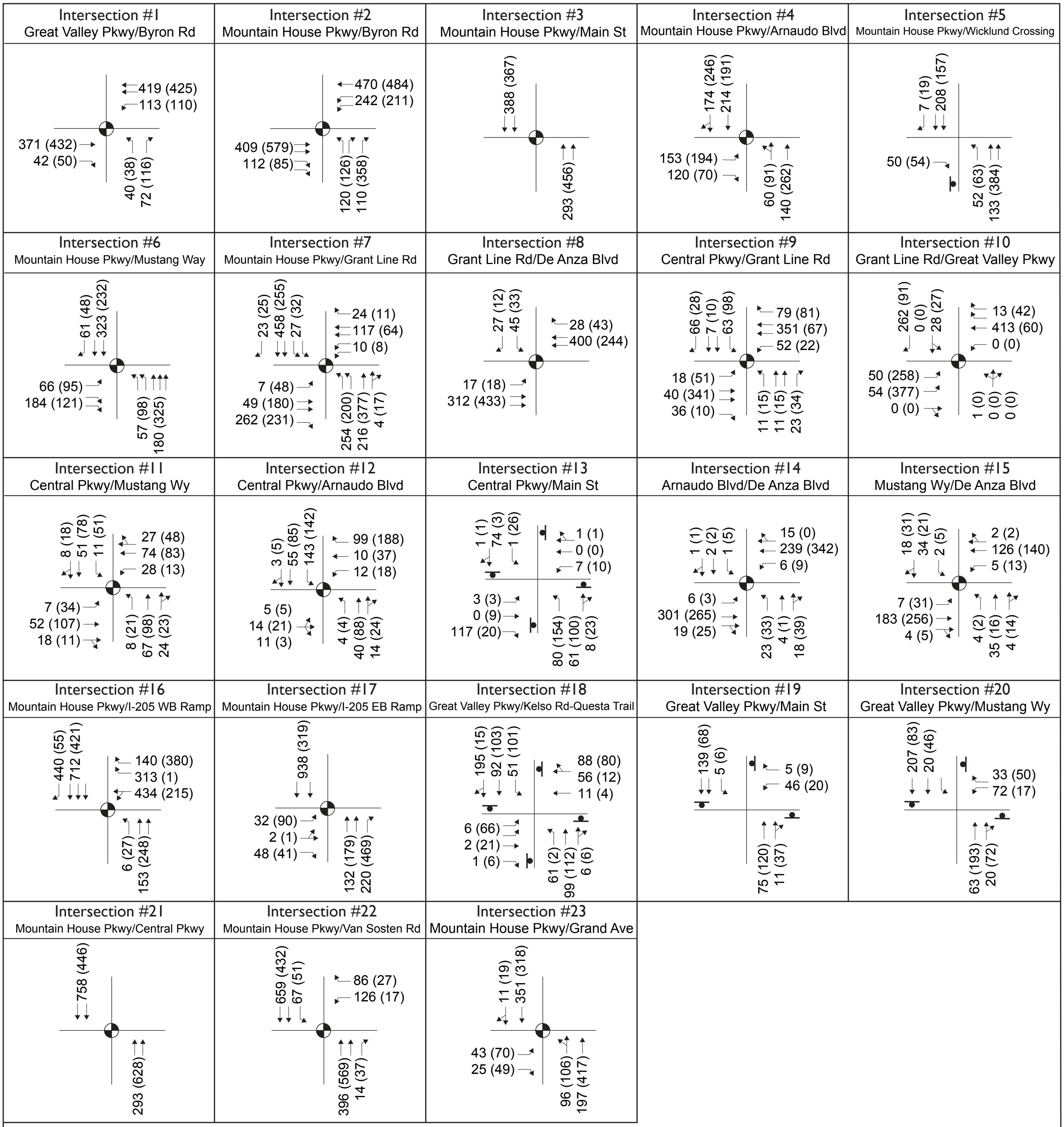
[2] *Staff review of scope, May 2022*

[3] *Counts were collected either in May 2022, October 2022 or April 2023*

Mountain House CSD - Neighborhoods F & H Rezone Study

Existing Peak Hour Volumes, Lane Geometry, and Controls

Figure 2



Legend

◐ Traffic Signal
● Stop Sign
XX AM Peak Hour Volume
(XX) PM Peak Hour Volume

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Rev 102723

LEVEL OF SERVICE METHODOLOGY

Level of Service is a qualitative index of the performance of an element of the transportation system. Level of Service (LOS) is a rating scale running from A to F, with A indicating no congestion of any kind, and F indicating intolerable congestion and delays.

The 2010 Highway Capacity Manual (HCM) is the standard reference published by the Transportation Research Board and contains the specific criteria and methods to be used in assessing LOS. There are several software packages that have been developed to implement HCM. In this study the Synchro software was used to calculate the LOS at the study intersections.

Table 1: Signalized Intersection LOS Criteria

LOS	Driver's Perception and Traffic Operation Description	Delay in Seconds
A	Operations with very low delay occurring with favorable Progression and/or short cycle length.	< 10
B	Operations with low delay occurring with good progression and/or short cycle lengths.	> 10 – 20
C	Operations with average delays resulting from fair progression and/or longer cycle lengths. Individual cycle failures begin to appear.	> 20 - 35
D	Operations with longer delays due to a combination of unfavorable progression, long cycle lengths, or high volume-to-capacity (V/C) ratios. Many vehicles stop, and individual cycle failures are noticeable.	> 35 – 55
E	Operations with high delay values indicating poor progression, long cycle lengths, and high V/C ratios. Individual cycle failures are frequent occurrences. This is considered to be the limit of acceptable delay.	> 55 - 80
F	Operation with delays unacceptable to most drivers occurring due to over saturation, poor progression, or very long cycle lengths.	> 80

Signalized Intersections

The relationship between average control delay, driver's perception of traffic, and LOS for signalized intersections is summarized in **Table 1**.

Unsignalized Intersections

The method of unsignalized intersection capacity analysis used in this study is from Chapter 19, "Two-Way Stop-Controlled Intersections" of the Highway Capacity Manual. This method applies to two-way STOP sign or YIELD sign-controlled intersections (or one-way STOP sign or YIELD sign controlled intersections at three-way intersections). At such intersections, drivers on the minor street are forced to use judgment when selecting gaps in the major flow through which to execute crossings or turning maneuvers. Thus, the capacity of the controlled legs of an intersection is based on three factors:

1. The distribution of gaps in the major street traffic stream.
2. Driver judgment in selecting gaps through which to execute their desired maneuvers.
3. Follow-up time required to move into the front-of-queue position.

The level of service criterion for two-way STOP controlled intersections is somewhat different from the criterion used for signalized intersections. The primary reason for this is the difference that drivers expect a signalized intersection to carry higher traffic volumes than unsignalized intersections. Additionally, several driver behavior conditions combine to make delays at signalized intersections less onerous than at unsignalized intersections.

The HCM provides procedures for calculating LOS on the minor street approaches and individual movements. It does not specify how a City must utilize that information. Depending on the availability of gaps, the minor approach might be operating at LOS D, E, or F while the overall intersection operates at LOS C or better. A minor approach that operates at LOS D, E, or F does not automatically translate into a need for a traffic signal. A signal warrant would still need to be met. There are many instances where only a few vehicles are experiencing LOS D, E, or F on the minor approach while the whole intersection operates at an acceptable LOS. A signal is usually not warranted under such conditions.

Table 2 summarizes the relationship between delay and LOS for unsignalized intersections. At side-street stop-controlled intersections, the delay is calculated for each stop-controlled movement, the left-turn movement from the major street, as well as the intersection average. The intersection average delay and highest movement/approach delay are reported for side street stop-controlled intersections.

Table 2: Unsignalized Intersection LOS Criteria

LOS	Driver's Perception and Traffic Operation Description	Delay in Seconds
A	Little or no delays	< 10
B	Short traffic delays	> 10 – 15
C	Average traffic delays	> 15 - 25
D	Long traffic delays	> 25 - 35
E	Very long traffic delays	> 35 – 50
F	Extreme traffic delays with intersection capacity exceeded	> 50

MHCSD generally defines acceptable citywide unsignalized intersection operations as LOS D (35 seconds of delay per vehicle) or better during the morning and evening peak periods. The minimum acceptable level of service standard for the Mountain House CSD roadway segments and peak hour intersections is LOS D.

VEHICLE MILES TRAVELLED ANALYSIS

Consistent with July 1, 2020 California State Legislature (Bill SB 743), a quantitative analysis for the proposed project's VMT is provided.

SB743 VMT Guidelines

According to the State Guidelines, the change in total VMT should be used to assess the transportation impacts for industrial development projects. The VMT threshold for residential land use is 15% below the citywide average for home-based VMT per resident. The VMT threshold for other land uses is on a case-by-basis, usually reflecting a no-net increase in total VMT.

SIGNIFICANCE CRITERIA

MHCSD Standards

The level of service standards used in the report shown below are based on the San Joaquin County General Plan and Mountain House Master Plan. The following criteria are used to evaluate the level of service (LOS) impacts at signalized intersections:

Intersections on State facilities	LOS D
Intersections on Gateway Roadways	LOS D
Intersections on San Joaquin County Roadways	LOS C
Intersections on MHCSD Streets	LOS C
Grant Line Road in Alameda County	LOS D

According to the Mountain House Master Plan, gateway roadways are defined as Grant Line Road, Mountain House Parkway and Byron Road (from near the Alameda County line in the west to near Wicklund Road to the east).

Caltrans Standards

Facilities under the jurisdiction of Caltrans include freeway segments, ramps, ramp terminals, and arterials. Caltrans is responsible for the maintenance and operation of State routes and highways. In Stockton, Caltrans facilities include I-5 and SR 99. Although Caltrans has not designated a LOS standard, Caltrans' Guide for the Preparation of Traffic Impact Studies (December 2002) indicates attempts to maintain LOS of a State highway facility between the LOS "C/D" threshold. When existing State highway facilities are operating at higher levels of service than noted above, 20-year forecasts or general plan build-out analysis for the facility should be considered to establish equitable project contributions to local development impact fee programs that address cumulative traffic impacts.

County Standards

The San Joaquin Council of Governments (SJCOG) is responsible for the county's Congestion Management Program. SJCOG is responsible for designated county roadways and intersections of regional significance. The minimum acceptable LOS for CMP designated roadways and intersections is LOS D[4]. Therefore, this report uses LOS D as the minimum acceptable standard and mitigation measures are recommended where service levels are below LOS D along roadways and intersections designated in the CMP.

CEQA Significance Criteria

With the passage of Senate Bill 743, the County has transitioned to a VMT metric to assess California Environmental Quality Act (CEQA) impacts. Historically, the County has used level of service (LOS) methodology to assess traffic operations and analyze environmental impacts for projects in accordance with CEQA. In 2013, Senate Bill 743 established new legislation mandating a change to the CEQA Guidelines which replaces the LOS metric with a VMT metric. Briefly, the shift from LOS to VMT focuses on regional traffic patterns and reducing greenhouse gas (GHG) emissions, rather than vehicle delays on local roadway networks.

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[4] *County Wide General Plan: Transportation and Mobility, San Joaquin County, December 2016*

4.0 EXISTING TRAFFIC CONDITION

This section presents the assessment of traffic conditions without the proposed project.

INTERSECTION LEVEL OF SERVICE

To accurately model the traffic condition, AMG created a Synchro traffic analysis model to determine the intersection LOS. The Existing Conditions traffic operations were evaluated based on levels of service criteria using Synchro. The macroscopic simulation model, Synchro, was used to evaluate several measures (such as lane geometries, signal optimization, signal phasing and traffic control) at the study intersections.

The results of the LOS analysis for the existing intersections are shown in **Table 3**. All the intersections except one operate at acceptable LOS D or better. The intersection of Mountain House Parkway/I-205 Westbound Ramp operates at LOS E during the AM peak hour.

Table 3: Existing LOS of Study Intersections

#	Intersection	Traffic Control	Existing			
			AM		PM	
			Delay	LOS	Delay	LOS
1	Great Valley Pkwy/Byron Rd	Signal	10.5	B	12.4	B
2	Mountain House Pkwy/Byron Rd	Signal	13.2	B	13.3	B
3	Mountain House Pkwy/Main St	Future	0.0	A	0.0	A
4	Mountain House Pkwy/Arnaudo Blvd	Signal	6.3	A	6.0	A
5	Mountain House Pkwy/Wicklund Crossing	OWSC	9.3	A	9.1	A
6	Mountain House Pkwy/Mustang Way	Signal	8.6	A	7.9	A
7	Mountain House Pkwy/Grant Line Rd	Signal	20.6	C	18.9	B
8	Grant Line Rd/De Anza Blvd	Signal	6.5	A	5.5	A
9	Central Pkwy/Grant Line Rd	Signal	9.7	A	10.5	B
10	Grant Line Rd/Great Valley Pkwy*	Signal	21.1	C	14.0	B
11	Central Pkwy/Mustang Wy	Signal	11.6	B	13.1	B
12	Central Pkwy/Arnaudo Blvd	Signal	11.4	B	11.2	B
13	Central Pkwy/Main St	AWSC	9.4	A	9.8	A
14	Arnaudo Blvd/De Anza Blvd	Signal	9.8	A	9.9	A
15	Mustang Wy/De Anza Blvd	Signal	11.0	B	10.8	B
16	Mountain House Pkwy/I-205 WB Ramp	Signal	75.5	E	11.6	B
17	Mountain House Pkwy/I-205 EB Ramp*	Signal	9.6	A	7.5	A
18	Great Valley Pkwy/Kelso Rd-Questa Trail	AWSC				
19	Great Valley Pkwy/Main St	AWSC	8.8	A	8.3	A
20	Great Valley Pkwy/Mustang Wy	AWSC	9.0	A	8.8	A
21	Mountain House Pkwy/Central Pkwy	Future	0.0	A	0.0	A
22	Mountain House Pkwy/Van Sosten Rd	Signal	8.4	A	6.0	A
23	Mountain House Pkwy/Grand Ave	Signal	4.2	A	4.8	A

Note:
Future Future Intersection

** - HCM 2000 Analysis; HCM 2010 supports maximum three lanes*

Detailed level of service worksheets are provided in **Appendix B**.

5.0 TRIP GENERATION AND DISTRIBUTION METHODOLOGY

The project proposes the rezoning of approximately 758.8 ksf of commercial zoning to residential zoning in the Mountain House Community Service District (CSD). The proposed project consists of 330 single-family dwelling units on three (3) separate parcels. The proposed project site plan for the three parcels are shown in **Figure 3**.

TRIP GENERATION

Trip generation is defined as the number of "vehicle trips" produced by a particular land use or project. A trip is defined as a one-direction vehicle movement. The total number of trips generated by each land use includes the inbound and outbound trips.

Typically, trip generation data based on actual or similar types of land use are not easily available. This is the reason trip generation estimates of most traffic impact study is based on using the standard reference Trip Generation, 11th Edition, published by the Institute of Transportation Engineers (ITE). The Low Density Residential land use (ITE 210 code) best matches the type of development of the proposed project.

The estimated potential trip generation of the proposed project is shown in **Table 4**. It is estimated that the project will generate approximately 233 and 328 trips during the AM and PM peak hours respectively.

Table 4: Proposed Project Trip Generation

Land Use	*ITE Code*	*Size*		*A.M. Peak*				*P.M. Peak*				**Daily**	
				Rate	*In*	*Out*	*Total*	*Rate*	*In*	*Out*	*Total*	*Rate*	*Total*
I. Existing Zoning													
Neigh H													
Community Commercial	ITE 820	221.0	KSF	0.61	81	50	131	1.54	164	177	341	37.01	8,178
Neigh F													
Community Commercial	ITE 820	193.3	KSF	0.61	71	44	115	1.54	143	155	298	37.01	7,154
Commercial Office	ITE 710	344.6	KSF	1.16	180	24	204	1.15	67	330	397	10.84	3,735
Subtotal					251	68	319		210	485	695		10,889
Total Neigh F & H Totals													
Total Existing Zone Project Trips					***332***	***118***	***450***		***374***	***662***	***1,036***		***19,067***

II. Proposed Zoning													
Neigh H													
Low Density Residential	ITE210	81	DU	0.7	14	43	57	0.99	51	30	81	9.43	764
Neigh F													
Low Density Residential	ITE210	106	DU	0.7	19	56	75	0.99	66	39	105	9.43	1,000
Low Density Residential	ITE210	143	DU	0.7	25	76	101	0.99	89	53	142	9.43	1,348
Total Proposed Project Total					***39***	***119***	***233***		***140***	***83***	***328***		***3,112***

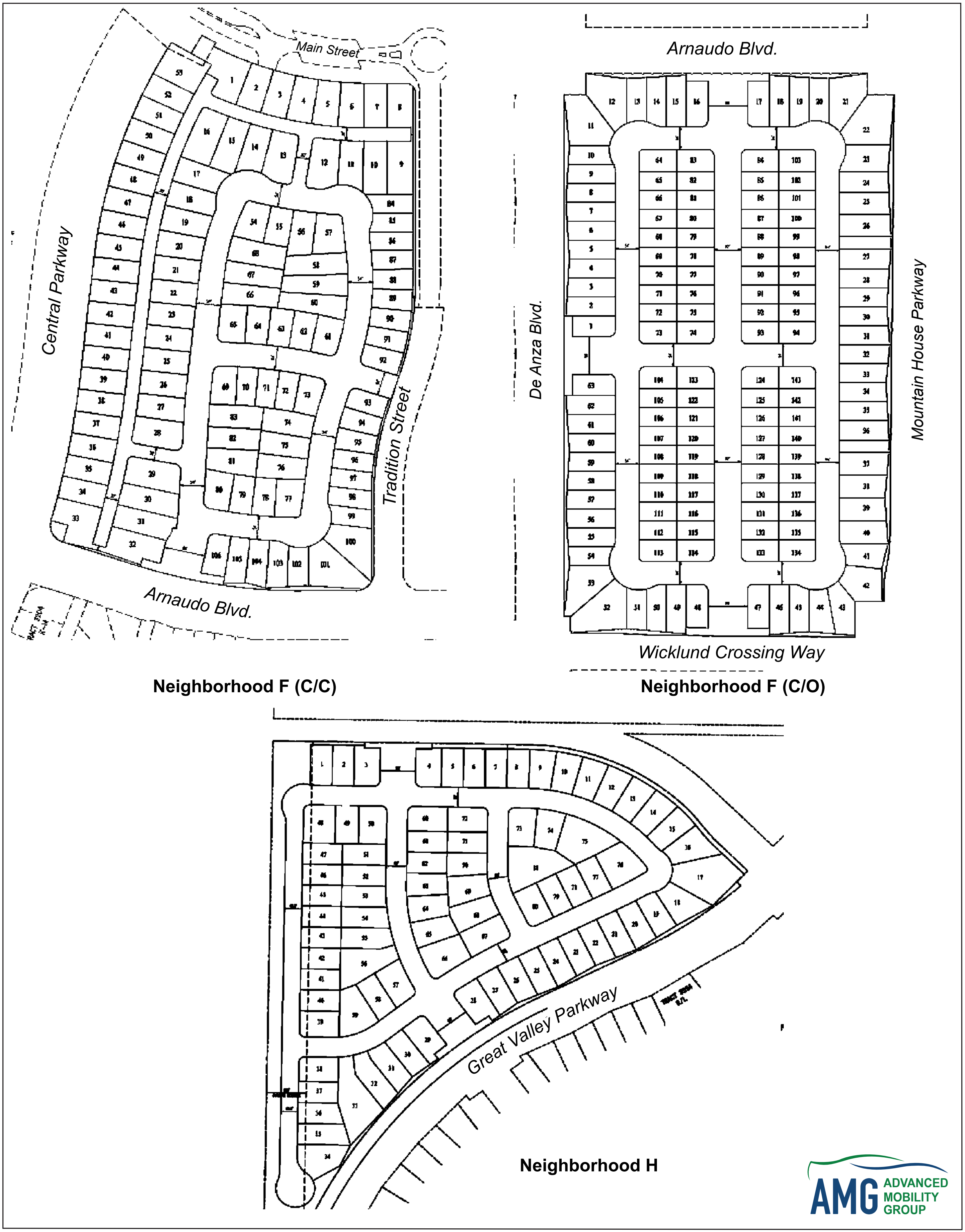
Note:
A - 34% *Ave. Pass-by trips for shopping center (ITE 820, ITE Handbook)*
B - *PM rates based on MH TIF rates*

ITE Source: ITE Trip Generation Manual 11th Edition, 2019

Mountain House CSD - Neighborhoods F & H Rezone Study

Proposed Project Site Plan

Figure
3



TRIP DISTRIBUTION

Trip distribution is a process that determines in what proportion vehicles would be expected to travel between a project site and various destinations outside the project study area. The process of trip assignment determines the various routes that vehicles would take from the project site to each destination using the estimated trip distribution.

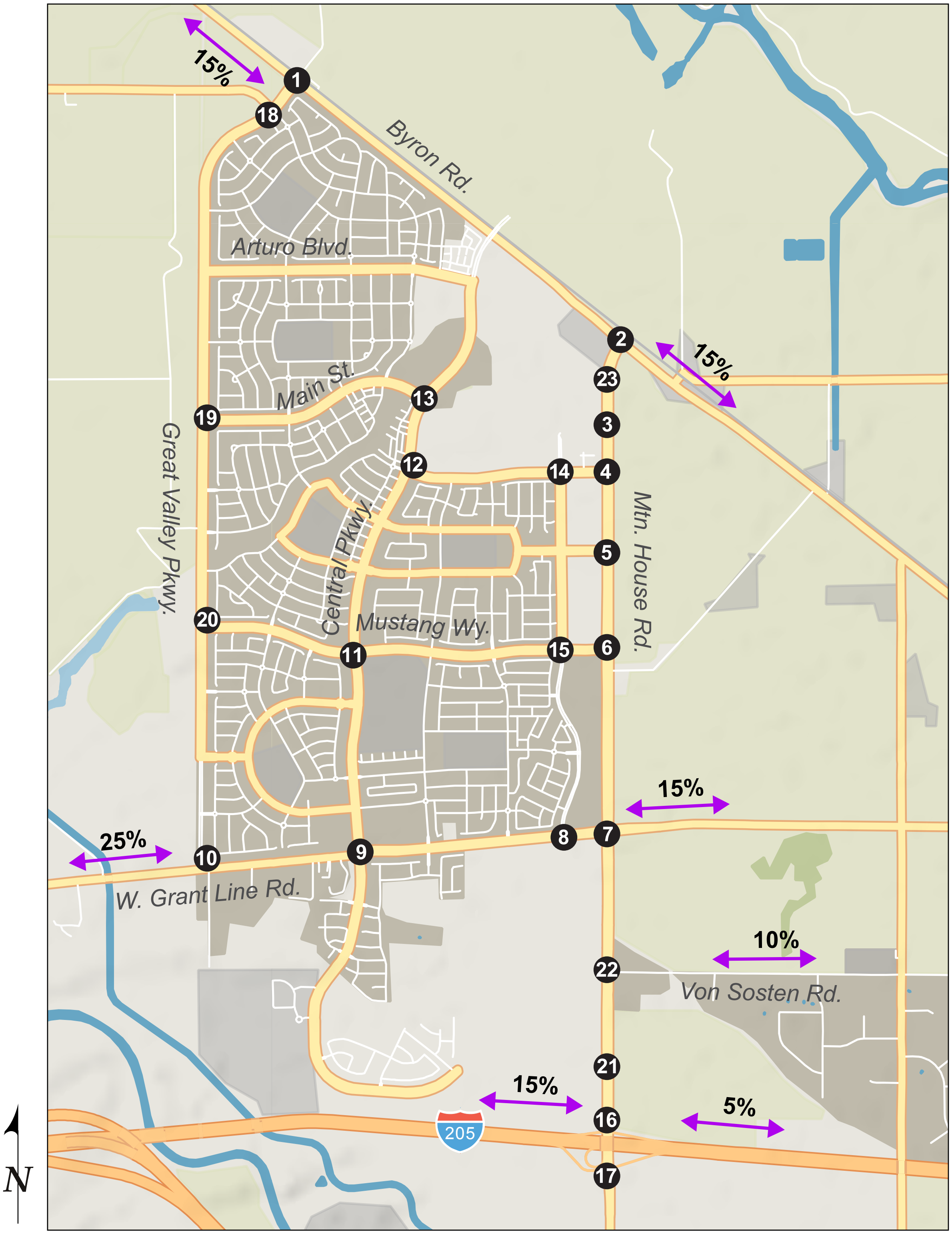
The project is expected to "generate" and "attract" trips throughout the City and from other locations throughout the area. The MHCSD land use growth projections are used in the travel demand model based on San Joaquin Council of Government (SJCOG) model to estimate future regional travel demand based on various assumptions as it relates to roadway network and trip rates by land use category in the MHCSD and the rest of San Joaquin County. The SJCOG 2018 Regional Transportation Plan (RTP) model was used for travel demand forecasting for this project. It was calibrated/validated to 2015 conditions and applied for 2018 RTP conformity analysis, which contains 2015, 2018, 2019, and 2042 model years.

AMG used the model projection and existing trip patterns to estimate near-term project trip distribution. The estimated trip distribution patterns for the project trips in the near term are shown on **Figure 4**. Traffic distribution for the cumulative long-term scenario is based on the SJCOG model which showed the cumulative effect of future regional land use and future transportation networks.

Mountain House CSD - Neighborhoods F & H Rezone Study

Project Trip Distribution

Figure
4



Base map: MapTiler

Legend

- ↔ Trip distribution
- ● Study Intersection

6.0 PROJECT ONLY TRAFFIC CONDITION

This section presents the assessment of potential transportation impacts of Project Only generated traffic. As indicated earlier, it is estimated that the project will generate approximately 233 and 328 trips during the AM and PM peak hours respectively. The estimated project trips were distributed based on trip distribution patterns as shown on **Figure 4**. **Figure 5** shows the Project Only peak hour turning movement volumes.

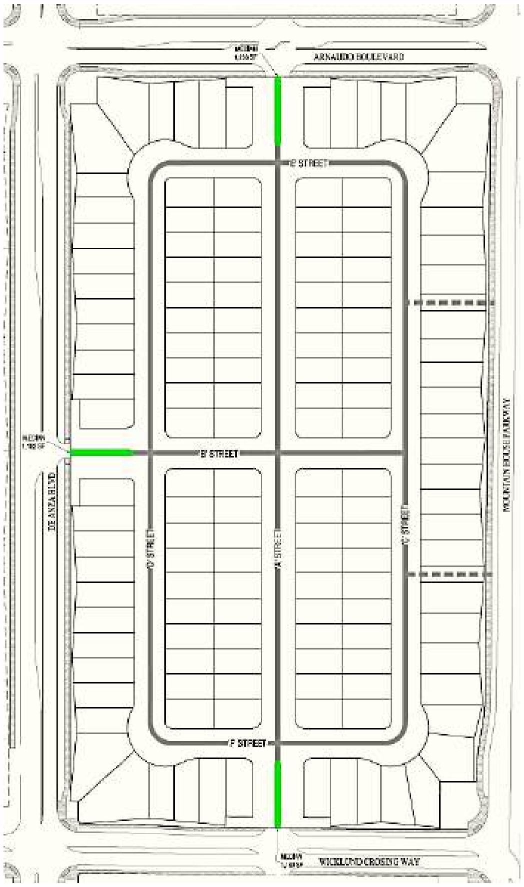


Exhibit 3: Access for Parcel @ Arnaudo Blvd & MH Parkway

Access and Circulation

Neighborhood F

<u>Parcel at Arnaudo Boulevard and Mountain House Parkway</u>

There are two parcels in Neighborhood F. The parcel adjacent to the intersection of Arnaudo Boulevard and Mountain House Parkway will consist of 143 residential units. The site plan showed three access driveways located on Arnaudo Boulevard to the north, Wicklund Crossing Way to the south and De Anza Boulevard to the west as shown in **Exhibit 3**. Left-turn out from the proposed access on Arnaudo Boulevard is shown to be prohibited. This would be acceptable.

The other two driveways are shown to be full access. The proposed driveway on De Anza Boulevard is centrally located between Arnaudo Boulevard and Wicklund Way and approximately 690 feet from both locations. In the near-term, the access could function without a traffic signal since it does not meet the peak hour signal warrant.

De Anza Boulevard is a major arterial that parallels Mountain House Boulevard and is estimated to carry major flow of north-south traffic. In the cumulative scenario, due to safety and anticipated heavy peak hour volumes, a signal would be required for the proposed driveway if full access movement is allowed. Instead of full access movements, southbound left-turns inbound and right-in and right-out access are recommended. Left-turn out would be prohibited.

Wicklund Crossing Way is a short two-lane collector street with stop control access at Mountain House Parkway. Only northbound left-turn in and right-in and right-out access are allowed. The existing average daily traffic is less than 1,500 vehicles per day (vpd). Full access would be acceptable. A left-turn pocket is recommended for the eastbound left-turn traffic.

<u>Parcel at Arnaudo Boulevard and Central Parkway</u>

The other parcel is located at the northeast quadrant of the intersection of Arnaudo Boulevard and Central Parkway and will consist of 106 residential units. Driveway access are provided on Tradition Street and Arnaudo Boulevard as shown in **Exhibit 4**. The access on Arnaudo Boulevard is right-in and right-out only.

Tradition Street would be extended from Arnaudo Boulevard to Main Street in the future. It is our understanding that the intersection of Tradition Street and Arnaudo Boulevard would be signalized in the near future and the future intersection of Tradition Street and Main Street would be a roundabout control. The proposed driveway should be stop control at Tradition Street.

Central Parkway is a major four-lane arterial. Main Street would also be a four-lane road at its intersection with Central Parkway. A traffic signal would be required at the intersection of Central Parkway/Main Street.

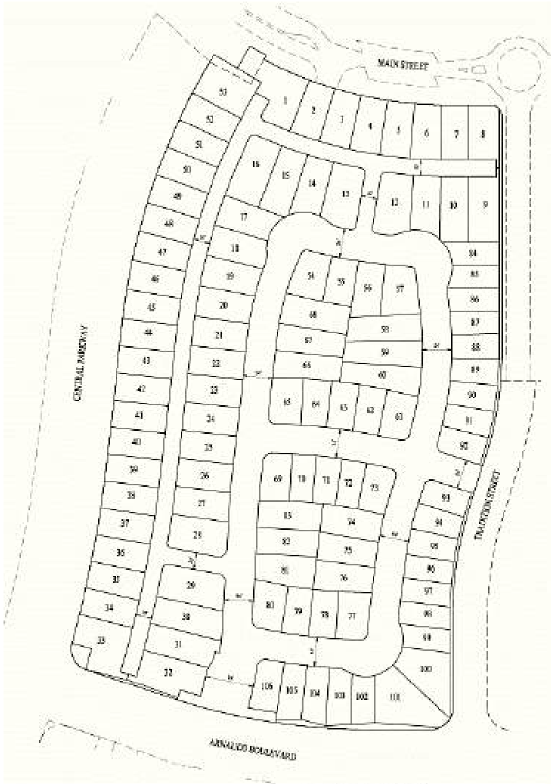


Exhibit 4: Access for Parcel @ Arnaudo Blvd & Central Parkway

Neighborhood H

The parcel is located on the southwest corner at the intersection of Great Valley Parkway and Kelso Road and consists of 81 residential units.

Two access points are shown as shown in **Exhibit 5**. Driveway access is proposed to the north on Kelso Road and another access to the south on Great Valley Parkway. The driveway to the south is proposed to be aligned with the existing W Riatta Ranch Drive intersection and stop control at the driveway.

The proposed driveway on Kelso Road is approximately 1,000 feet from the intersection of Great Valley Parkway/Kelso Road. Sight visibility is clear on both east and west approaches. It is recommended to create a median so that a left-turn pocket could be provided to accommodate westbound left-turn traffic.

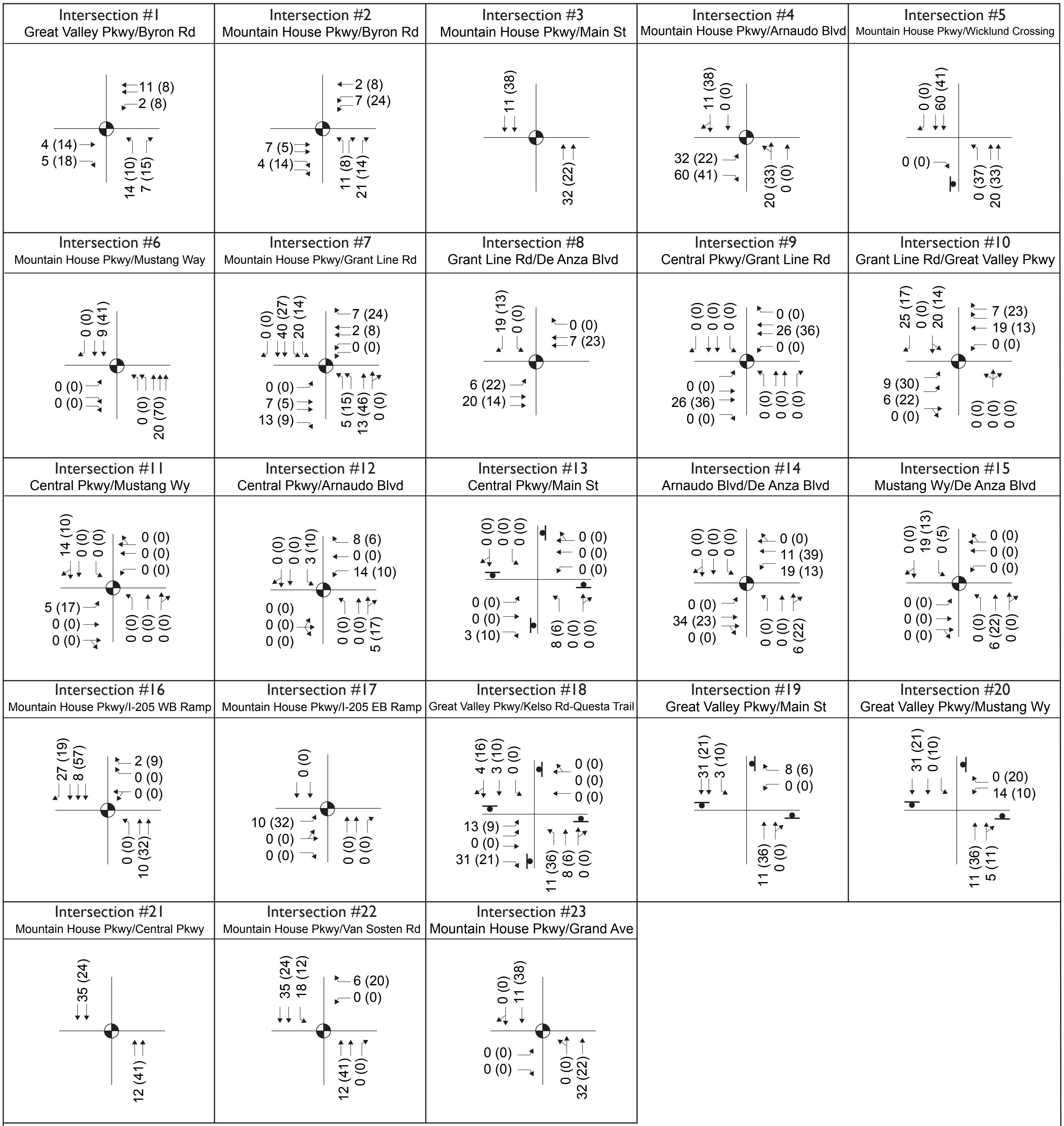
Exhibit 5: Access for Parcel @ Kelso Road & Great Valley Parkway

The distance from Mountain House Road in the west to the proposed project driveway is approximately 1.1 mile (5,800 feet). It is a straight road so eastbound vehicles could generate some speed when they reach Mountain House CSD. A radar speed driver feedback sign could be installed near Patterson Park Road to alert eastbound traffic to slow down. The radar sign could flash the detected speed followed by flashing “Slow Down.” Studies show that when alerted by a radar sign, speeders will slow down up to 80% of the time. In addition, transverse rumble strips could be installed to alert drivers to reduce speed.

A signal would be required at the intersection of Great Valley Parkway/Kelso Road.

Mountain House CSD - Neighborhoods F & H Rezone Study
Project Only Peak Hour Volumes, Lane Geometry, and Controls

Figure
5



Legend

- ◕ Traffic Signal
- ⊥ Stop Sign
- XX AM Peak Hour Volume
- (XX) PM Peak Hour Volume

AMG ADVANCED MOBILITY GROUP

7.0 EXISTING PLUS PROJECT TRAFFIC CONDITION

This section presents the assessment of potential transportation impacts of proposed project trips being added to the Existing plus Project Condition.

INTERSECTION LEVEL OF SERVICE ANALYSIS

Figure 6 shows the Existing plus Project peak hour turning movement volumes and lane geometry.

Table 6 shows the LOS under Existing plus Project Peak Hour LOS Conditions. Similar to the Existing Traffic Condition, all the intersections operate at acceptable LOS D or better, except for the Mountain House Parkway/I-205 WB ramp intersection which operates at LOS E during the AM peak hour.

Table 5: Existing plus Project Intersection LOS

#	Intersection	Traffic Control	Existing				Traffic Control	E+P			
			AM		PM			AM		PM	
			Delay	LOS	Delay	LOS		Delay	LOS	Delay	LOS
1	Great Valley Pkwy/Byron Rd	Signal	10.5	B	12.4	B	Signal	10.9	B	13.2	B
2	Mountain House Pkwy/Byron Rd	Signal	13.2	B	13.3	B	Signal	13.4	B	13.5	B
3	Mountain House Pkwy/Main St	Signal					Signal				
4	Mountain House Pkwy/Arnaudo Blvd	Signal	6.3	A	6.0	A	Signal	6.9	A	6.5	A
5	Mountain House Pkwy/Wicklund Crossing	OWSC	9.3	A	9.1	A	OWSC	9.6	A	9.2	A
6	Mountain House Pkwy/Mustang Way	Signal	8.6	A	7.9	A	Signal	8.7	A	7.8	A
7	Mountain House Pkwy/Grant Line Rd	Signal	20.6	C	18.9	B	Signal	21.3	C	19.3	B
8	Grant Line Rd/De Anza Blvd	Signal	6.5	A	5.5	A	Signal	7.2	A	5.7	A
9	Central Pkwy/Grant Line Rd	Signal	9.7	A	10.5	B	Signal	9.7	A	10.5	B
10	Grant Line Rd/Great Valley Pkwy*	Signal	21.1	C	14.0	B	Signal	22.0	C	17.9	B
11	Central Pkwy/Mustang Wy	Signal	11.6	B	13.1	B	Signal	11.7	B	13.5	B
12	Central Pkwy/Arnaudo Blvd	Signal	11.4	B	11.2	B	Signal	11.8	B	11.6	B
13	Central Pkwy/Main St	AWSC	9.4	A	9.8	A	AWSC	9.4	A	9.9	A
14	Arnaudo Blvd/De Anza Blvd	Signal	9.8	A	9.9	A	Signal	10.4	B	10.4	B
15	Mustang Wy/De Anza Blvd	Signal	11.0	B	10.8	B	Signal	11.7	B	11.4	B
16	Mountain House Pkwy/I-205 WB Ramp	Signal	75.5	**E**	11.6	B	Signal	77.8	**E**	11.5	B
17	Mountain House Pkwy/I-205 EB Ramp*	Signal	9.6	A	7.5	A	Signal	9.7	A	7.6	A
18	Great Valley Pkwy/Kelso Rd-Questa Trail [A]	AWSC					AWSC				
19	Great Valley Pkwy/Main St	AWSC	8.8	A	8.3	A	AWSC	8.7	A	8.5	A
20	Great Valley Pkwy/Mustang Wy	AWSC	9.0	A	8.8	A	AWSC	9.5	A	9.4	A
21	Mountain House Pkwy/Central Pkwy	Signal					Signal				
22	Mountain House Pkwy/Van Sosten Rd	Signal	8.4	A	6.0	A	Signal	8.7	A	6.6	A
23	Mountain House Pkwy/Grand Ave	Signal	4.2	A	4.8	A	Signal	4.4	A	4.8	A

Note:

Future Future Intersection

** - HCM 2000 used; HCM 2010 supports maximum three lanes*

A *- HCM 2000 supports max 2 lanes; HCM 2010 supports max 3 lanes*

A peak hour signal warrant was conducted for the two intersections near the project: Central Parkway/Main Street and Great Valley Parkway/Kelso Road

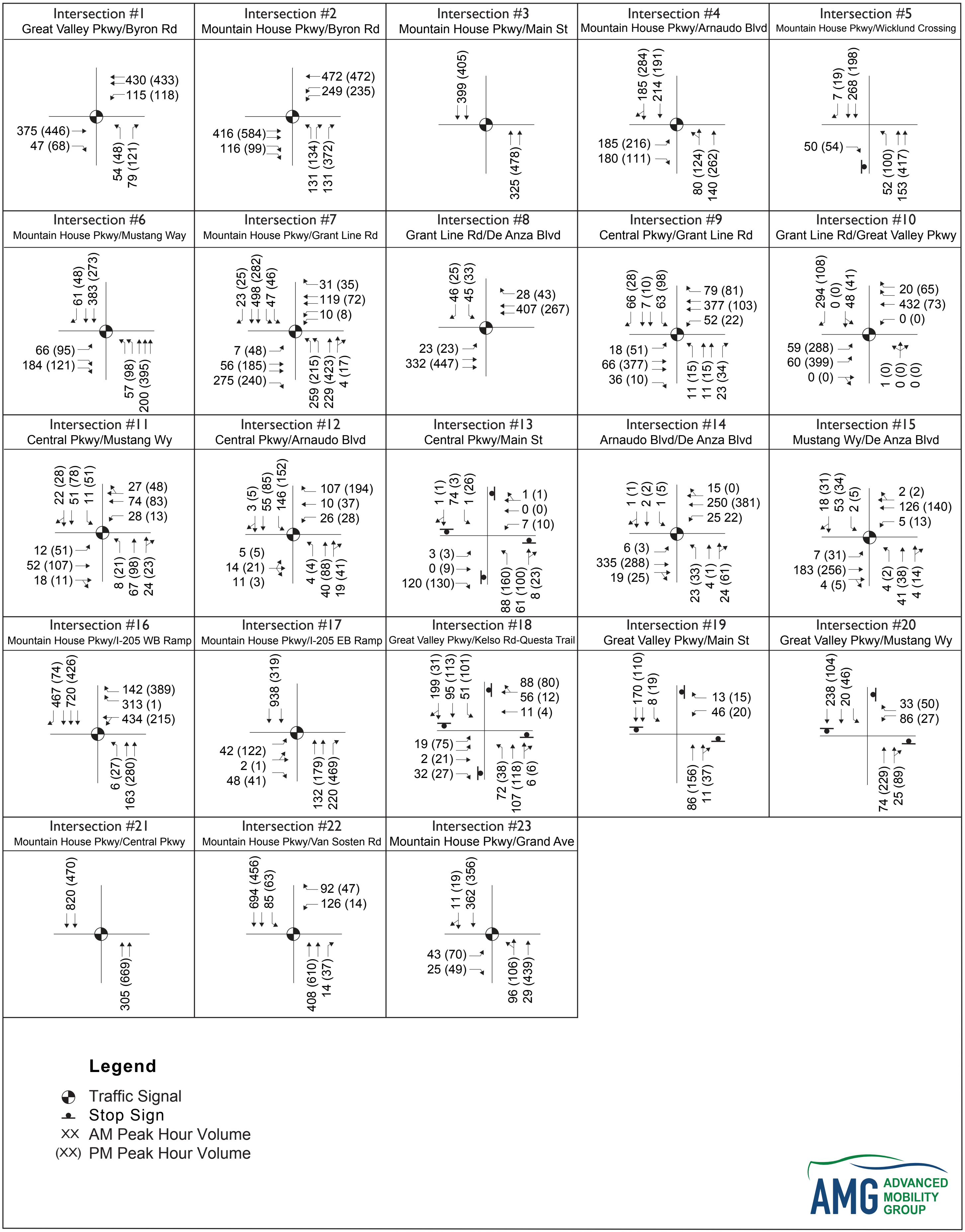
Both intersections are currently All Way Stop Control. Peak hour signal warrants are not met for both intersections. Signal warrant sheets and detailed level of service worksheets are provided in **Appendix C.**

Mountain House CSD - Neighborhoods F & H Rezone Study

Existing Plus Project Peak Hour Volumes, Lane Geometry, and Controls

Figure

6



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8.0 CUMULATIVE NO PROJECT TRAFFIC CONDITION

This section presents the assessment of potential transportation impacts of Cumulative No Project Condition. Cumulative conditions represent conditions with planned transportation network changes and planned future land use development. The future Cumulative 2042 Model volumes of roadways and intersection turning movement volumes in the area were estimated based on the SJCOG model.

The estimated trips for the three parcels (two in Neighborhoods F and one in NH H) are shown in **Table 4**. This consists of 221 ksf of community commercial in Neighborhood H; and 193.3 ksf of community commercial and 344.6 ksf of Commercial Office in Neighborhood F. It is estimated that the three parcels will generate approximately 450 and 1,036 trips during the AM and PM peak hours respectively. These trips are based on the approved zoning and constitute the base for the cumulative no project scenario.

INTERSECTION LEVEL OF SERVICE ANALYSIS

The National Cooperative Highway Research Program (NCHRP) NCHRP 255 Difference Method[5] was applied to calculate the travel demand forecasts for the existing conditions of the model (2015) and the future cumulative conditions (2042). As appropriate, volumes were adjusted at several intersections to more reasonably reflect planned future driveways and traffic distributions.

Figure 7 shows the Cumulative No Project peak hour turning movement volumes and lane geometry. Previously approved future intersection control and lane configuration (based on Master Plan, Specific Plan 1,2 and 3) are assumed in the analysis. **Table 7** shows the LOS under the Cumulative No Project Peak Hour LOS Conditions. All intersections except three operate at LOS D or better. Detailed level of service worksheets is provided in **Appendix D**.

The following three intersections are estimated to operate at LOS E:
Intersection 7 - Mountain House Parkway/Grant Line Road
The intersection is estimated to operate at LOS E during the PM peak hour. The northbound left-turn volumes were projected to be really high at approximately 1,100 during the peak hour. If this would occur during typical commute times, it is likely that some of these left-turn volumes would be diverted to other intersections further north such as Mountain House Parkway/Texeira Street or Mountain House Parkway/Mustang Way.

It is noted that many jurisdictions adopt LOS E standard for major arterials. Since LOS is no longer a CEQA requirement, MHCSD might want to consider amending the LOS standard in the future.

Intersection 16 - Mountain House Parkway/I-205 Westbound (WB) Ramp
The intersection is estimated to operate at LOS E during the AM peak hour. Currently the WB Off-Ramp is striped as one shared left-through lane and two right-turn lanes. The left-turn traffic is more than 400 vehicles and would operate more effectively if it had its own lane.

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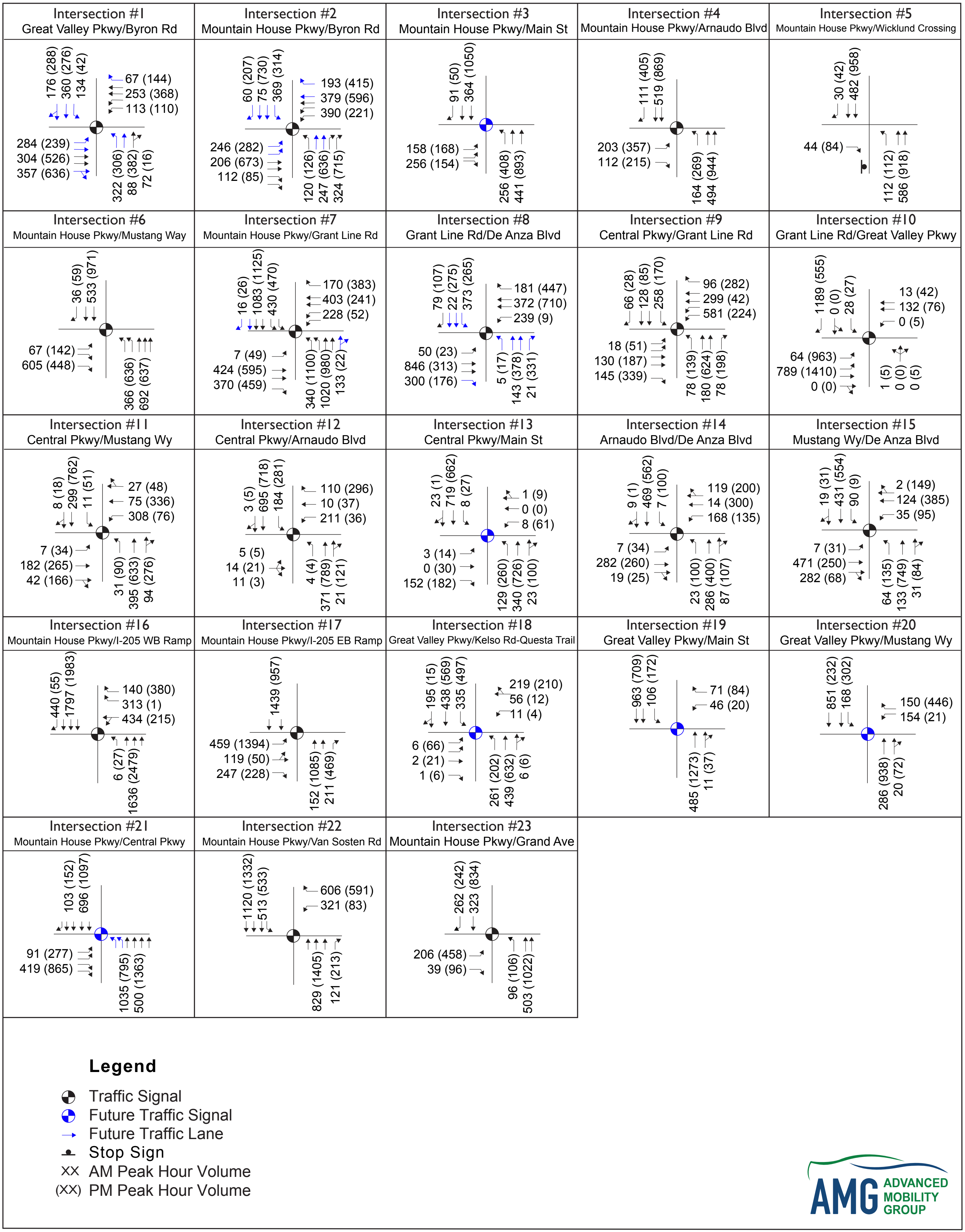
[5] *Highway Traffic Data for Urbanized Area Project Planning, NCHRP 255*

Mountain House CSD - Neighborhoods F & H Rezone Study

Cumulative No Project Peak Hour Volumes, Lane Geometry, and Controls

Figure 7



Rev 102723

The intersection will operate at LOS D if the intersection is restriped with one left-turn, one right and one shared through and right-turn lane. It is noted that more than 300 westbound through traffic at the off-ramp were counted under existing conditions. These are likely cut-through traffic.

Intersection 17 - Mountain House Parkway/I-205 Eastbound (EB) Ramp

The intersection is estimated to operate at LOS E during the PM peak hour. Currently the EB Off-Ramp is striped with one left-turn, one shared through and left-turn lane and one right and.

The left-turn traffic was projected to be approximately 1,215 during the PM peak hour. Due to the very high left-turn volumes, the intersection would operate at LOS D if it were restriped to two left-turn lanes and a shared through and right-turn lane.

A more comprehensive and detailed analysis of the whole interchange should be conducted to determine what improvements would best serve future traffic.

Table 6: Cumulative No Project Intersection LOS

#	Intersection	Traffic Control	Cumulative NP			
			AM		PM	
			Delay	LOS	Delay	LOS
1	Great Valley Pkwy/Byron Rd	Signal	42.6	D	42.6	D
2	Mountain House Pkwy/Byron Rd	Signal	36.1	D	53.3	D
3	Mountain House Pkwy/Main St	**Signal**	15.0	B	22.9	C
4	Mountain House Pkwy/Arnaudo Blvd	Signal	11.5	B	28.2	C
5	Mountain House Pkwy/Wicklund Crossing	OWSC	10.5	B	14.7	B
6	Mountain House Pkwy/Mustang Way	Signal	13.7	B	23.7	C
7	Mountain House Pkwy/Grant Line Rd	Signal	54.1	D	58.3	E
8	Grant Line Rd/De Anza Blvd	Signal	42.6	D	34.9	C
9	Central Pkwy/Grant Line Rd	Signal	36.1	D	53.7	D
10	Grant Line Rd/Great Valley Pkwy*	Signal	8.1	A	21.8	C
11	Central Pkwy/Mustang Wy	Signal	39.2	D	32.6	C
12	Central Pkwy/Arnaudo Blvd	Signal	25.4	C	31.1	C
13	Central Pkwy/Main St	**Signal**	33.0	C	37.6	D
14	Arnaudo Blvd/De Anza Blvd	Signal	49.5	D	38.9	D
15	Mustang Wy/De Anza Blvd	Signal	50.2	D	54.5	D
16	Mountain House Pkwy/I-205 WB Ramp	Signal	71.3	E	54.9	D
17	Mountain House Pkwy/I-205 EB Ramp*	Signal	17.7	B	67.1	E
18	Great Valley Pkwy/Kelso Rd-Questa Trail	**Signal**	49.4	D	54.2	D
19	Great Valley Pkwy/Main St	**Signal**	5.9	A	11.0	B
20	Great Valley Pkwy/Mustang Wy	**Signal**	9.3	A	30.3	C
21	Mountain House Pkwy/Central Pkwy	**Signal**	17.9	B	18.3	B
22	Mountain House Pkwy/Van Sosten Rd	Signal	41.7	D	41.2	D
23	Mountain House Pkwy/Grand Ave	Signal	11.1	B	19.1	B

Note:
Signal - **Bold Signal** Font - Assumed Future Signal

** - HCM 2000 used; HCM 2010 supports maximum three lanes*

9.0 CUMULATIVE PLUS PROJECT TRAFFIC CONDITION

This section presents the assessment of potential transportation impacts of Cumulative plus Project Condition. The proposed project consists of 330 single-family dwelling units to be developed on three (3) separate parcels. It is estimated that the project will generate approximately 233 and 328 trips during the AM and PM peak hours respectively. Traffic distribution is based on the SJCOG model which showed the cumulative effect of future regional land use and future transportation networks.

INTERSECTION LEVEL OF SERVICE ANALYSIS

The National Cooperative Highway Research Program (NCHRP) NCHRP 255 Difference Method[6] was applied to calculate the travel demand forecasts for the existing conditions (2015) and the future cumulative conditions (2040). As appropriate, volumes were adjusted at several intersections to more reasonably reflect planned future driveways and traffic distributions.

Figure 8 shows the Cumulative plus Project peak hour turning movement volumes and lane geometry. The approved Master Plan future intersection control and lane configuration are assumed in the analysis.

Table 8 shows the LOS under the Cumulative plus Project Peak Hour LOS Conditions. Detailed level of service worksheets is provided in **Appendix E**.

The following two intersections are estimated to operate at LOS E:
Intersection 16 - Mountain House Parkway/I-205 Westbound (WB) Ramp
The intersection is estimated to operate at LOS E during the AM and PM peak hour. As indicated earlier, currently the WB Off-Ramp is striped as one shared left-through lane and two right-turn lanes. The left-turn traffic is more than 400 vehicles and would operate more effectively if it had its own lane.

The intersection will operate at LOS D if the intersection is restriped with one left-turn, one right and one shared through and right-turn lane.

Intersection 17 - Mountain House Parkway/I-205 Eastbound (EB) Ramp
The intersection is estimated to operate at LOS E during the PM peak hour. Currently the EB Off-Ramp is striped with one left-turn, one shared through and left-turn lane and one right and.

The left-turn traffic was projected to be approximately 1,220 during the PM peak hour. Due to the very high left-turn volumes, the intersection would operate at LOS D if it is restriped to two left-turn lanes and a shared through and right-turn lane.

A more comprehensive and detailed analysis of the whole interchange should be conducted to determine what improvements would best serve future traffic.

---

[6] *Highway Traffic Data for Urbanized Area Project Planning, NCHRP 255*

Table 7: Cumulative plus Project Intersection LOS

#	Intersection	Traffic Control	Cumulative PP			
			AM		PM	
			Delay	LOS	Delay	LOS
1	Great Valley Pkwy/Byron Rd	Signal	46.5	D	41.7	D
2	Mountain House Pkwy/Byron Rd	Signal	32.0	C	36.6	D
3	Mountain House Pkwy/Main St	**Signal**	13.9	B	28.8	C
4	Mountain House Pkwy/Arnaudo Blvd	Signal	11.7	B	22.4	C
5	Mountain House Pkwy/Wicklund Crossing	OWSC	10.2	B	15.1	C
6	Mountain House Pkwy/Mustang Way	Signal	12.0	B	15.2	B
7	Mountain House Pkwy/Grant Line Rd	Signal	50.9	D	52.8	D
8	Grant Line Rd/De Anza Blvd	Signal	45.7	D	39.3	D
9	Central Pkwy/Grant Line Rd	Signal	38.8	D	47.9	D
10	Grant Line Rd/Great Valley Pkwy*	Signal	8.3	A	17.8	B
11	Central Pkwy/Mustang Wy	Signal	36.8	D	24.7	C
12	Central Pkwy/Arnaudo Blvd	Signal	25.9	C	25.1	C
13	Central Pkwy/Main St	**Signal**	42.2	D	34.0	C
14	Arnaudo Blvd/De Anza Blvd	Signal	47.6	D	40.3	D
15	Mustang Wy/De Anza Blvd	Signal	42.9	D	44.7	D
16	Mountain House Pkwy/I-205 WB Ramp	Signal	63.4	E	59.0	E
17	Mountain House Pkwy/I-205 EB Ramp*	Signal	35.1	D	67.5	E
18	Great Valley Pkwy/Kelso Rd-Questa Trail	**Signal**	49.6	D	34.2	C
19	Great Valley Pkwy/Main St	**Signal**	5.9	A	7.3	A
20	Great Valley Pkwy/Mustang Wy	**Signal**	9.1	A	33.2	C
21	Mountain House Pkwy/Central Pkwy	**Signal**	18.5	B	29.4	C
22	Mountain House Pkwy/Van Sosten Rd	Signal	42.6	D	44.7	D
23	Mountain House Pkwy/Grand Ave	Signal	11.6	B	30.2	C

Note:
Signal - **Bold Signal** Font - Assumed Future Signal

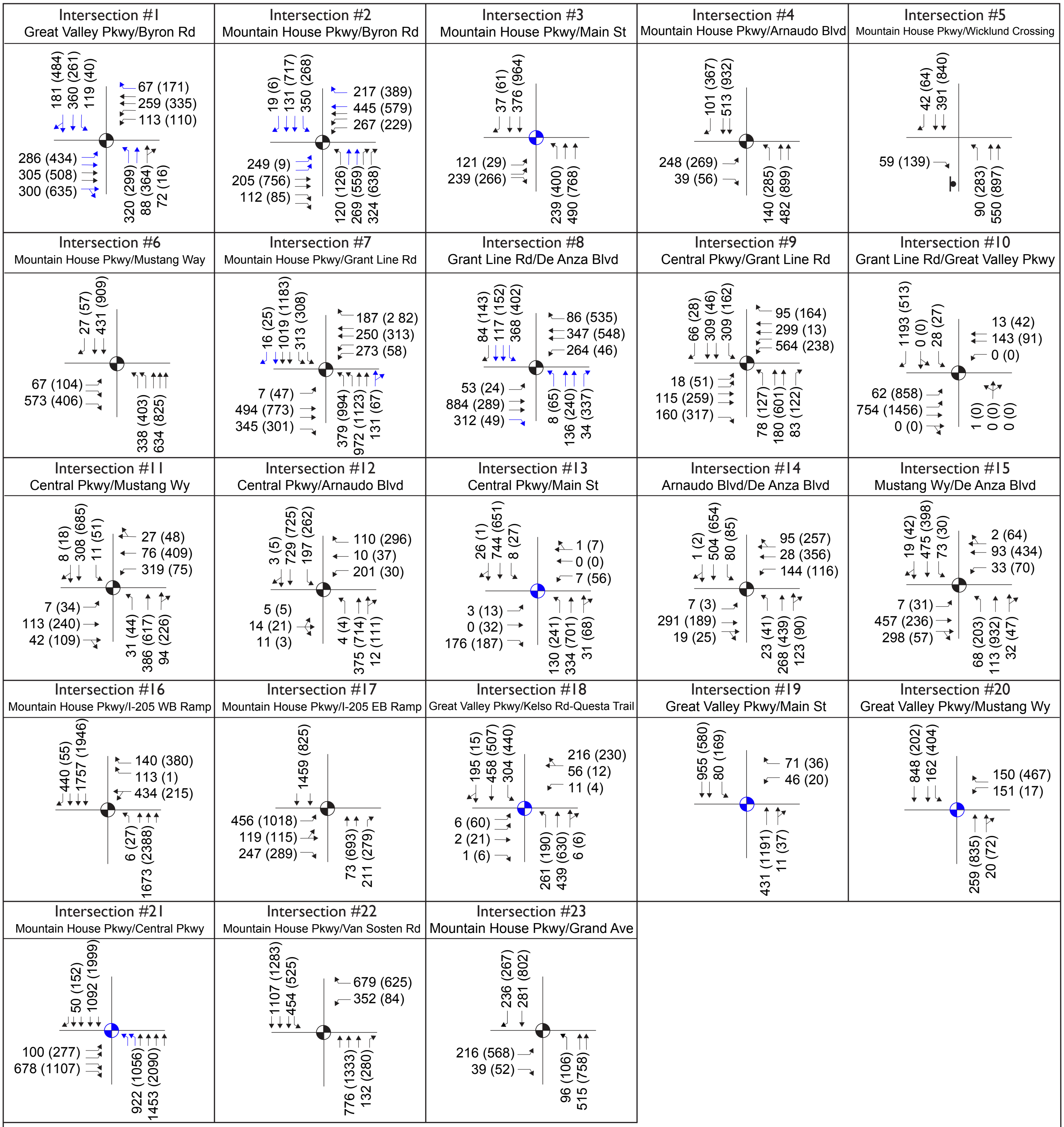
** - HCM 2000 used; HCM 2010 supports maximum three*

Detailed level of service worksheets is provided in **Appendix E.**

Mountain House CSD - Neighborhoods F & H Rezone Study

Cumulative Plus Project Peak Hour Volumes, Lane Geometry, and Controls

Figure 8



Legend

- ◐ Traffic Signal
- ◐ Future Traffic Signal
- → Future Traffic Lane
- ┴ Stop Sign
- XX AM Peak Hour Volume
- (XX) PM Peak Hour Volume

10.0 VMT ANALYSIS

The SB743 VMT analysis for this project was conducted in accordance with the Technical Advisory of the Governor's Office of Planning and Research (OPR)[7].

Based on the OPR Technical Advisory, the VMT metric for redevelopment projects, such as the proposed zone change, is the net change of the overall VMT. VMT Analysis for the project was completed using the buildout scenario of the San Joaquin Council of Government (SJCOG) model.

Based on the ITE Trip Generation, the estimated daily trips generated by the proposed rezone project is approximately 3,112 daily trips as shown in Table 4. The estimated daily trip of the current zoning is approximately 19,067 trips. Therefore, the daily trip generation due to the proposed zone change is estimated to result in a reduction of 15,955 trips.

The next step is to estimate the net change of overall VMT due to the proposed rezone projects. The estimated daily project trips were assigned to the Model network. The resulting net change of overall VMT between current zoning and proposed rezone scenarios is a reduction of approximately 33,690 vehicle-miles, as shown in **Table 9**.

Table 8: VMT Summary

	Existing Zoning	Proposed Rezone Project	Change in VMT
Total VMT	7,375,762	7,342,072	-33,690

Based on the VMT analysis, this project will result in less than significant transportation impact since the proposed zone change led to a net overall decrease in VMT.

---

[7] *OPR 20190122-743 Technical Advisory*

11.0 CONCLUSION

Based on the results of the analysis, the following is a summary of our findings:

Existing Zoning and Proposed Project Trip Generation

- The three parcels of existing community commercial and commercial office zoning land use are estimated to generate approximately 450 and 1,036 trips during the AM and PM peak hours respectively.
- It is estimated that the proposed 330 residential land use project will generate approximately 233 and 328 total trips during the AM and PM peak hours, respectively.

Existing Traffic Conditions

- All the intersections operate at LOS D or better, except for Mountain House Parkway/I-205 WB Ramp intersection that operates at LOS E during the AM Peak.

Existing plus Project Traffic Conditions

- Similar to the Existing Traffic Conditions, the signalized intersection at Mountain House Parkway and I-205 WB ramp will continue to operate at LOS E during the AM Peak. All the other intersections are estimated to operate at LOS D or better.

Cumulative (No Project) Traffic Conditions

- All the intersections operate at LOS D or better, except for the following three intersections:
    - Intersection 7 - Mountain House Parkway/Grant Line
    - Intersection 16 - Mountain House Parkway/I-205 Westbound (WB) Ramp
    - Intersection 17 - Mountain House Parkway/I-205 Eastbound (EB) Ramp

Potential Intersection Improvements:
Mountain House Parkway/I-205 Westbound (WB) Ramp - The intersection would operate at LOS D if the intersection were restriped with one left-turn, one right and one shared through and right-turn lane.

Mountain House Parkway/I-205 Eastbound (EB) Ramp - The intersection would operate at LOS D if it were restriped to two left-turn lanes and a shared through and right-turn lane.

A more comprehensive and detailed analysis of the whole interchange should be conducted to determine what improvements would best serve future traffic.

Cumulative plus Proposed Project Traffic Conditions

- All the intersections operate at LOS D or better, except for the following two intersections:
    - Intersection 16 - Mountain House Parkway/I-205 Westbound (WB) Ramp
    - Intersection 17 - Mountain House Parkway/I-205 Eastbound (EB) Ramp

Similar to the Cumulative No Project Condition, potential intersection improvements include:
Mountain House Parkway/I-205 Westbound (WB) Ramp - The intersection would operate at LOS D if the intersection were restriped with one left-turn, one right and one shared through and right-turn lane.

Mountain House Parkway/I-205 Eastbound (EB) Ramp - The intersection would operate at LOS D if it were restriped to two left-turn lanes and a shared through and right-turn lane.

VMT Analysis

- VMT Analysis for the project was completed using the buildout scenario of the San Joaquin Council of Government (SJCOG) model.
- It is estimated there is a reduction of 15,955 daily trips due to the proposed rezone from current commercial and office zoning to residential zoning.
- Results of the model run indicated a reduction of approximately 33,690 VMT due to the change between current commercial and office zoning to residential zoning.
- Based on the VMT analysis, this project will result in less than significant transportation impact since the proposed zone change led to a net overall decrease in VMT.

REFERENCES

1. *Transportation Impact Analysis Guidelines, December 2021*
2. *Mountain House CSD, Bicycle Master Plan*
3. *Highway Traffic Data for Urbanized Area Project Planning, NCHRP 255*
4. *Greig Harvey and Elizabeth Deakin (1997), "The STEP Analysis Package: Description and Application Examples," Appendix B, in Apogee Research, Guidance on the Use of Market Mechanisms to Reduce Transportation Emissions, USEPA*
5. *Office of Planning and Research (OPR) 20190122-743 Technical Advisory*

Advanced Mobility Group Team

Christopher Thnay, PE, AICP	Project Manager
Andrea Flores, EIT	Project Staff
Lawrence Liao	ETG

Persons Consulted

David James, AICP	Director Community Development, CSD

Appendix A TRAFFIC VOLUME COUNTS

Appendixes for
Final Report Traffic Impact Study for the Proposed Rezone of Three Parcels in NH F & H from Commercial/Office to Residential, Mountain House, CA

February 2, 2024

Prepared by National Data & Surveying Services

Great Valley Pkwy & Byron Rd

Peak Hour Turning Movement Count

ID: 21-080043-018
City: Mountain House

Day: Tuesday
Date: 3/23/2021

PEAK HOURS		**COUNT PERIODS**
AM	07:15 AM - 08:15 AM	7:00 AM - 09:00 AM
NOON	NONE	NONE
PM	04:45 PM - 05:45 PM	4:00 PM - 06:00 PM

Great Valley Pkwy

SOUTHBOUND

	↲	↓	↳	↶	⇧
AM	0	0	0	0	0
NOON	0	0	0	0	0
PM	0	0	0	0	0
	0	0	0	0	

Byron Rd

EASTBOUND

	AM	NOON	PM	
⇦	459	0	463	
↷	0	0	0	0
↱	0	0	0	0
→	371	0	432	0
↴	42	0	50	0

Byron Rd

WESTBOUND

		PM	NOON	AM
0	↰	0	0	0
0	←	425	0	419
0	↙	110	0	113
0	↶	0	0	0
	⇨	548	0	443

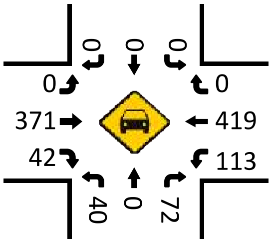
CONTROL			
Signalized			
TEV	1057	0	1171
	AM	NOON	PM
PHF	0.95		0.92

NORTHBOUND

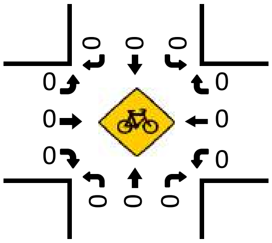
Great Valley Pkwy

	⇩	↶	↰	↑	↱
		0	0	0	0
PM	160	0	38	0	116
NOON	0	0	0	0	0
AM	155	0	40	0	72

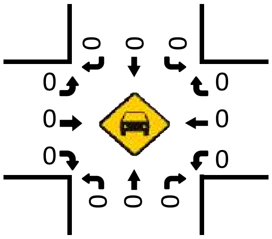
Totals (AM)



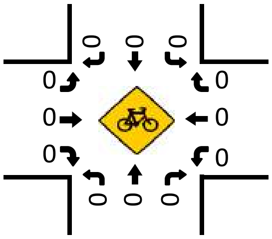
Total Bikes (AM)



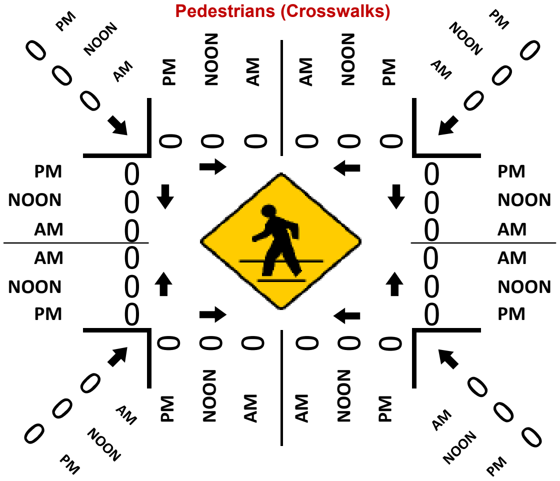
Totals (NOON)



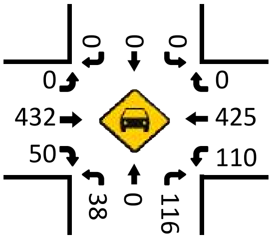
Total Bikes (NOON)



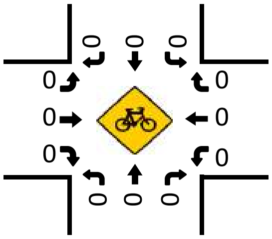
Pedestrians (Crosswalks)



Totals (PM)



Total Bikes (PM)



TRAFFIC COUNTS PLUS
mietekm@comcast.net
925.305.4358

MOUNTAIN HOUSE
Mtn. House Pkwy. & Byron Rd.
Latitude:37.782274
Longitude: -121.530680

File Name : mt. house-byron-a
Site Code : 1
Start Date : 10/26/2022
Page No : 1

Groups Printed- Vehicles Only

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Start Time	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	U-turn	App. Total	RT	TH	LT	App. Total	Int. Total
07:00	0	0	0	0	0	122	52	174	8	0	28	0	36	27	80	0	107	317
07:15	0	0	0	0	0	123	59	182	17	0	29	0	46	24	76	0	100	328
07:30	0	0	0	0	0	124	59	183	37	0	29	0	66	31	108	0	139	388
07:45	0	0	0	0	0	117	89	206	24	0	37	0	61	31	103	0	134	401
Total	0	0	0	0	0	486	259	745	86	0	123	0	209	113	367	0	480	1434
08:00	0	0	0	0	0	106	35	141	32	0	25	1	58	26	122	0	148	347
08:15	0	0	0	0	0	94	37	131	30	0	30	1	61	28	104	0	132	324
08:30	0	0	0	0	0	99	36	135	43	0	25	0	68	25	80	0	105	308
08:45	0	0	0	0	0	87	40	127	38	0	26	0	64	26	86	0	112	303
Total	0	0	0	0	0	386	148	534	143	0	106	2	251	105	392	0	497	1282
Grand Total	0	0	0	0	0	872	407	1279	229	0	229	2	460	218	759	0	977	2716
Apprch %	0	0	0		0	68.2	31.8		49.8	0	49.8	0.4		22.3	77.7	0		
Total %	0	0	0	0	0	32.1	15	47.1	8.4	0	8.4	0.1	16.9	8	27.9	0	36	

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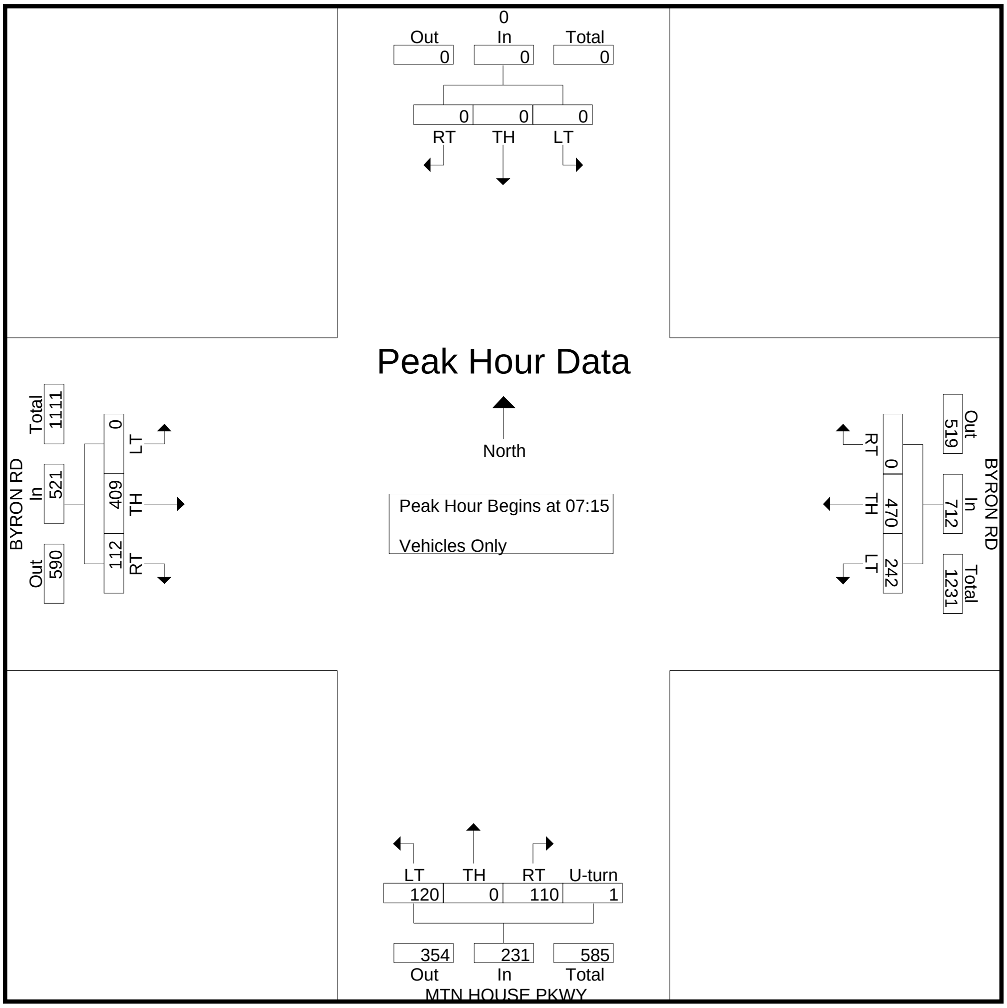
Peak Hour Analysis From 07:00 to 08:45 - Peak 1 of 1																		
Peak Hour for Entire Intersection Begins at 07:15																		
07:15	0	0	0	0	0	123	59	182	17	0	29	0	46	24	76	0	100	328
07:30	0	0	0	0	0	**124**	59	183	**37**	0	29	0	**66**	**31**	108	0	139	388
07:45	0	0	0	0	0	117	**89**	**206**	24	0	**37**	0	61	31	103	0	134	**401**
08:00	0	0	0	0	0	106	35	141	32	0	25	**1**	58	26	**122**	0	**148**	347
Total Volume	0	0	0	0	0	470	242	712	110	0	120	1	231	112	409	0	521	1464
% App. Total	0	0	0		0	66	34		47.6	0	51.9	0.4		21.5	78.5	0		
PHF	.000	.000	.000	.000	.000	.948	.680	.864	.743	.000	.811	.250	.875	.903	.838	.000	.880	.913



MOUNTAIN HOUSE
Mtn. House Pkwy. & Byron Rd.
Latitude:37.782274
Longitude: -121.530680

File Name : mt. house-byron-p
Site Code : 1
Start Date : 10/26/2022
Page No : 1

Groups Printed- Vehicles Only

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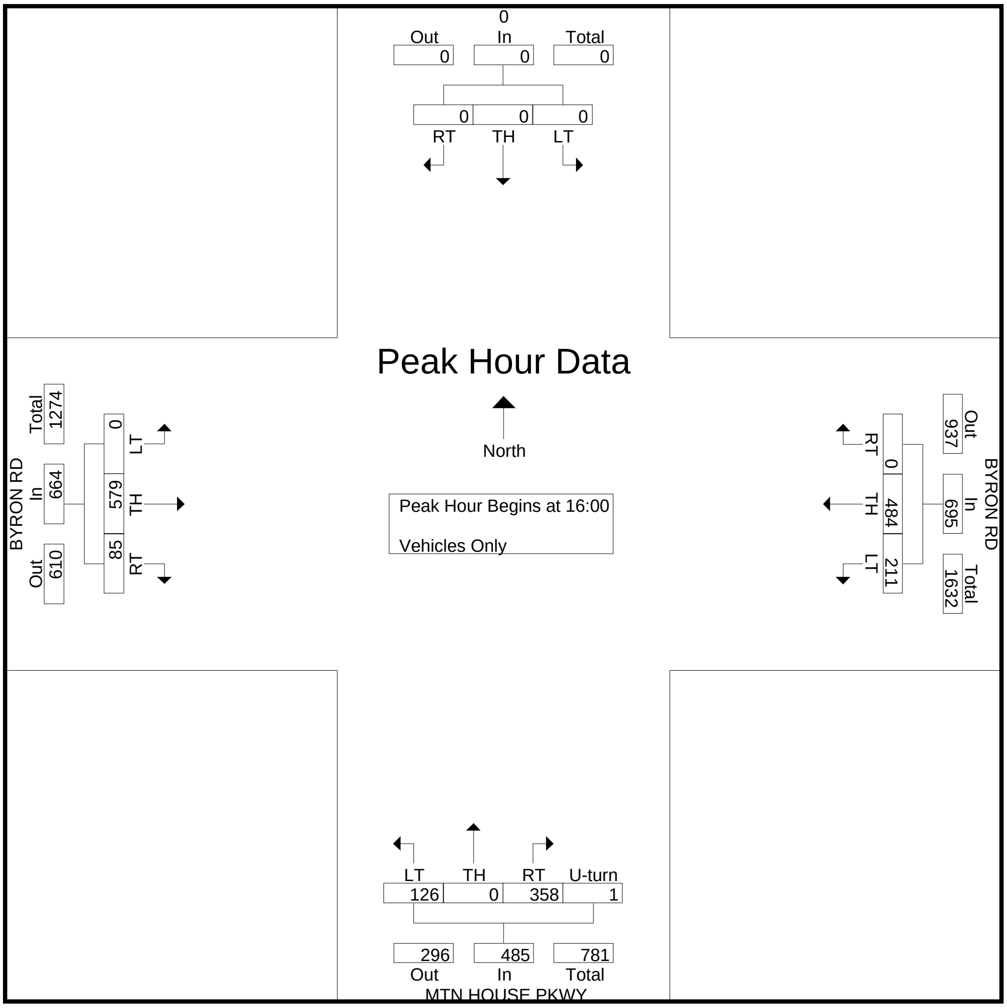
Start Time	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	U-turn	App. Total	RT	TH	LT	App. Total	Int. Total
16:00	0	0	0	0	0	122	52	174	104	0	35	1	140	20	132	0	152	466
16:15	0	0	0	0	0	120	42	162	72	0	25	0	97	28	163	0	191	450
16:30	0	0	0	0	0	130	60	190	88	0	27	0	115	19	144	0	163	468
16:45	0	0	0	0	0	112	57	169	94	0	39	0	133	18	140	0	158	460
Total	0	0	0	0	0	484	211	695	358	0	126	1	485	85	579	0	664	1844
17:00	0	0	0	0	0	102	63	165	75	0	20	0	95	18	148	0	166	426
17:15	0	0	0	0	0	125	71	196	75	0	31	1	107	30	128	0	158	461
17:30	0	0	0	0	0	115	64	179	71	0	36	0	107	20	122	0	142	428
17:45	0	0	0	0	0	100	65	165	60	0	29	0	89	21	126	0	147	401
Total	0	0	0	0	0	442	263	705	281	0	116	1	398	89	524	0	613	1716
Grand Total	0	0	0	0	0	926	474	1400	639	0	242	2	883	174	1103	0	1277	3560
Apprch %	0	0	0		0	66.1	33.9		72.4	0	27.4	0.2		13.6	86.4	0		
Total %	0	0	0	0	0	26	13.3	39.3	17.9	0	6.8	0.1	24.8	4.9	31	0	35.9	

	0 Southbound				**BYRON RD Westbound**				**MTN HOUSE PKWY Northbound**					**BYRON RD Eastbound**				
Start Time	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	U-turn	App. Total	RT	TH	LT	App. Total	Int. Total
Peak Hour Analysis From 16:00 to 17:45 - Peak 1 of 1																		
Peak Hour for Entire Intersection Begins at 16:00																		
16:00	0	0	0	0	0	122	52	174	**104**	0	35	**1**	**140**	20	132	0	152	466
16:15	0	0	0	0	0	120	42	162	72	0	25	0	97	**28**	**163**	0	**191**	450
16:30	0	0	0	0	0	**130**	**60**	**190**	88	0	27	0	115	19	144	0	163	**468**
16:45	0	0	0	0	0	112	57	169	94	0	**39**	0	133	18	140	0	158	460
Total Volume	0	0	0	0	0	484	211	695	358	0	126	1	485	85	579	0	664	1844
% App. Total	0	0	0		0	69.6	30.4		73.8	0	26	0.2		12.8	87.2	0		
PHF	.000	.000	.000	.000	.000	.931	.879	.914	.861	.000	.808	.250	.866	.759	.888	.000	.869	.985



TRAFFIC COUNTS PLUS
mietekm@comcast.net
925.305.4358

MOUNTAIN HOUSE
Mtn. House Pkwy. & Arnaudo Blvd.
Latitude:37.775808
Longitude: -121.531632

File Name : mt. house-arnaudo-a
Site Code : 4
Start Date : 10/26/2022
Page No : 1

Groups Printed- Vehicles Only

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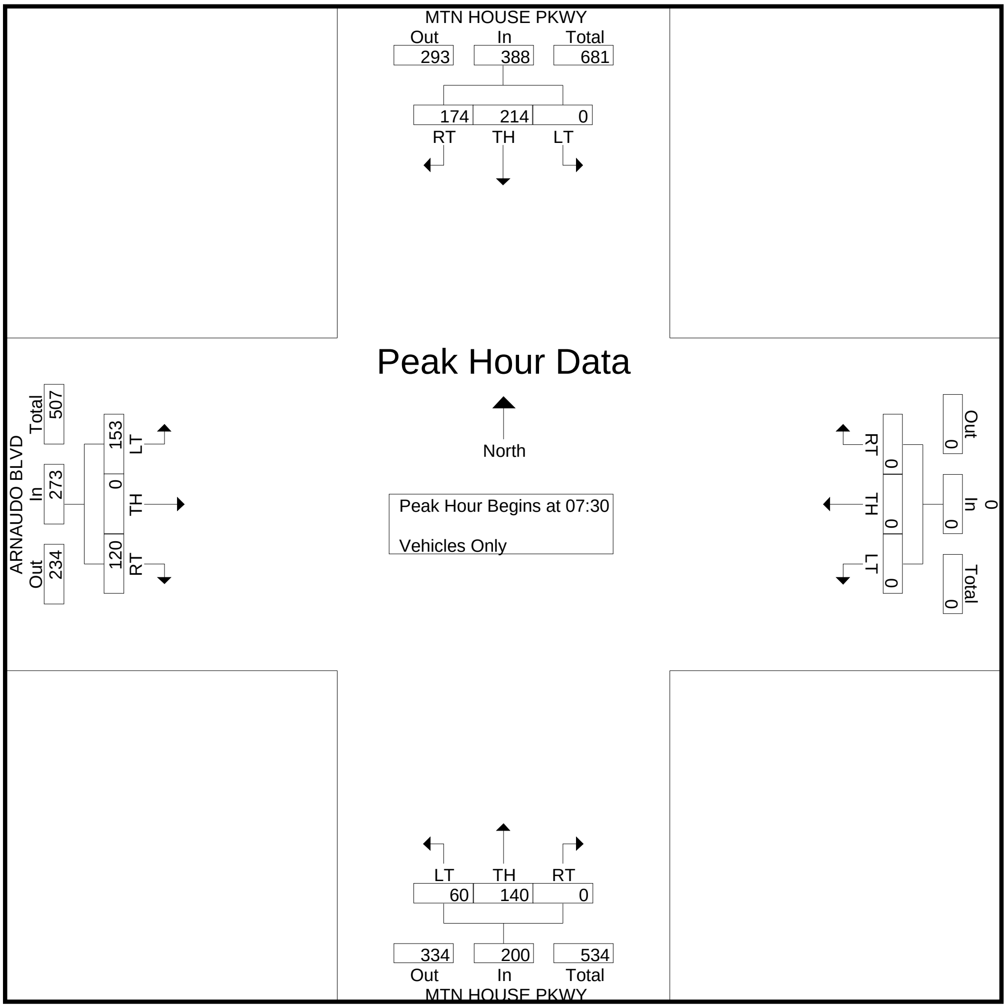
07:15	39	51	0	90	0	0	0	0	0	30	4	34	21	0	21	42	166
07:30	42	53	0	95	0	0	0	0	0	32	13	45	21	0	39	60	200
07:45	63	61	0	124	0	0	0	0	0	31	20	51	33	0	32	65	240
Total	170	220	0	390	0	0	0	0	0	119	42	161	99	0	105	204	755
08:00	32	47	0	79	0	0	0	0	0	34	13	47	41	0	54	95	221
08:15	37	53	0	90	0	0	0	0	0	43	14	57	25	0	28	53	200
08:30	22	61	0	83	0	0	0	0	0	40	9	49	15	0	34	49	181
08:45	36	44	0	80	0	0	0	0	0	41	14	55	15	0	35	50	185
Total	127	205	0	332	0	0	0	0	0	158	50	208	96	0	151	247	787
Grand Total	297	425	0	722	0	0	0	0	0	277	92	369	195	0	256	451	1542
Apprch %	41.1	58.9	0		0	0	0		0	75.1	24.9		43.2	0	56.8		
Total %	19.3	27.6	0	46.8	0	0	0	0	0	18	6	23.9	12.6	0	16.6	29.2	

	MTN HOUSE PKWY Southbound				**0 Westbound**				**MTN HOUSE PKWY Northbound**				**ARNAUDO BLVD Eastbound**				
Start Time	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	Int. Total
Peak Hour Analysis From 07:00 to 08:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30																	
07:30	42	53	0	95	0	0	0	0	0	32	13	45	21	0	39	60	200
07:45	**63**	**61**	0	**124**	0	0	0	0	0	31	**20**	51	33	0	32	65	**240**
08:00	32	47	0	79	0	0	0	0	0	34	13	47	**41**	0	**54**	**95**	221
08:15	37	53	0	90	0	0	0	0	0	**43**	14	**57**	25	0	28	53	200
Total Volume	174	214	0	388	0	0	0	0	0	140	60	200	120	0	153	273	861
% App. Total	44.8	55.2	0		0	0	0		0	70	30		44	0	56		
PHF	.690	.877	.000	.782	.000	.000	.000	.000	.000	.814	.750	.877	.732	.000	.708	.718	.897



TRAFFIC COUNTS PLUS
mietekm@comcast.net
925.305.4358

MOUNTAIN HOUSE
Mtn. House Pkwy. & Arnaudo Blvd.
Latitude:37.775808
Longitude: -121.531632

File Name : mt. house-arnaudo-p
Site Code : 4
Start Date : 10/26/2022
Page No : 1

Groups Printed- Vehicles Only

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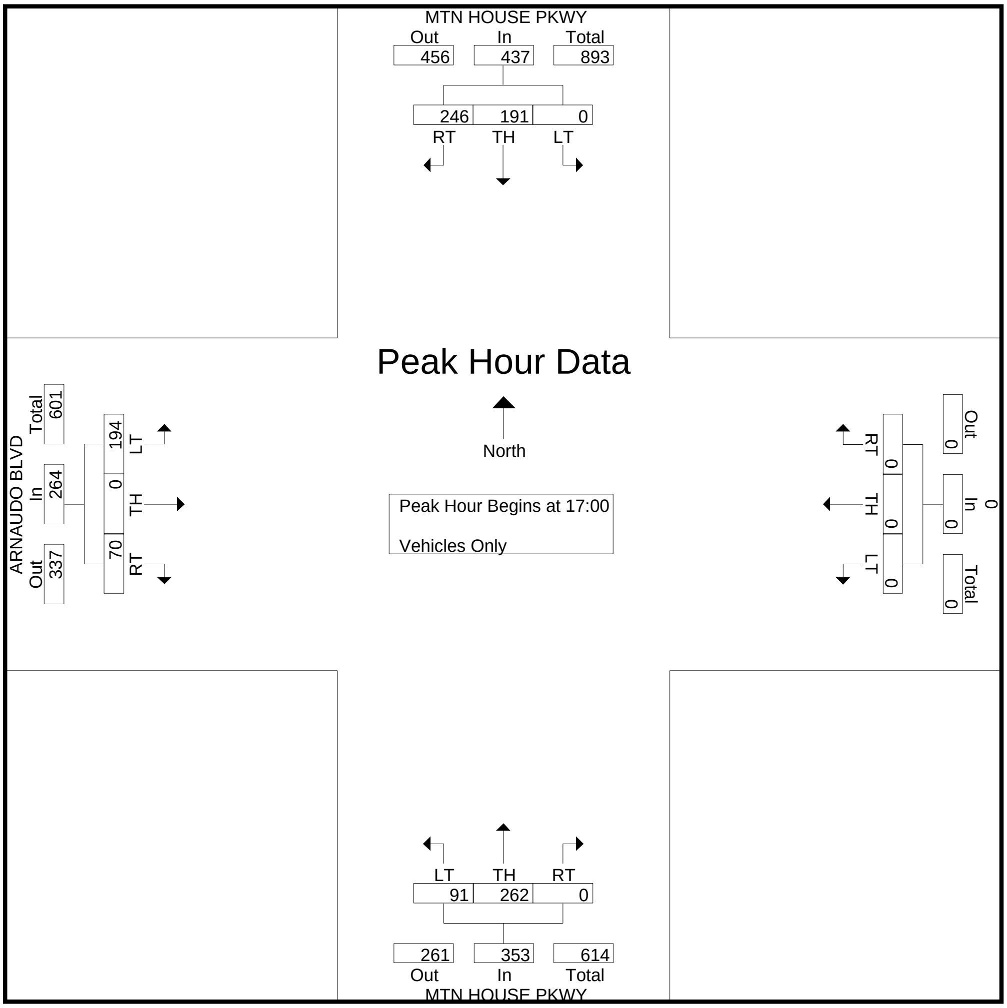
16:15	43	41	0	84	0	0	0	0	0	59	16	75	14	0	55	69	228
16:30	44	48	0	92	0	0	0	0	0	74	20	94	19	0	55	74	260
16:45	49	45	0	94	0	0	0	0	0	73	16	89	19	0	53	72	255
Total	185	180	0	365	0	0	0	0	0	295	70	365	70	0	222	292	1022
17:00	56	45	0	101	0	0	0	0	0	55	20	75	21	0	49	70	246
17:15	72	54	0	126	0	0	0	0	0	72	20	92	14	0	45	59	277
17:30	55	45	0	100	0	0	0	0	0	66	23	89	15	0	55	70	259
17:45	63	47	0	110	0	0	0	0	0	69	28	97	20	0	45	65	272
Total	246	191	0	437	0	0	0	0	0	262	91	353	70	0	194	264	1054
Grand Total	431	371	0	802	0	0	0	0	0	557	161	718	140	0	416	556	2076
Apprch %	53.7	46.3	0		0	0	0		0	77.6	22.4		25.2	0	74.8		
Total %	20.8	17.9	0	38.6	0	0	0	0	0	26.8	7.8	34.6	6.7	0	20	26.8	

	MTN HOUSE PKWY Southbound				**0 Westbound**				**MTN HOUSE PKWY Northbound**				**ARNAUDO BLVD Eastbound**				
Start Time	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	Int. Total
Peak Hour Analysis From 16:00 to 17:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 17:00																	
17:00	56	45	0	101	0	0	0	0	0	55	20	75	**21**	0	49	**70**	246
17:15	**72**	**54**	0	**126**	0	0	0	0	0	**72**	20	92	14	0	45	59	**277**
17:30	55	45	0	100	0	0	0	0	0	66	23	89	15	0	**55**	70	259
17:45	63	47	0	110	0	0	0	0	0	69	**28**	**97**	20	0	45	65	272
Total Volume	246	191	0	437	0	0	0	0	0	262	91	353	70	0	194	264	1054
% App. Total	56.3	43.7	0		0	0	0		0	74.2	25.8		26.5	0	73.5		
PHF	.854	.884	.000	.867	.000	.000	.000	.000	.000	.910	.813	.910	.833	.000	.882	.943	.951



Prepared by National Data & Surveying Services

Mountain House Pkwy & Wicklund Crossing

Peak Hour Turning Movement Count

ID: 21-080043-003
City: Mountain House

Day: Tuesday
Date: 3/23/2021

PEAK HOURS		COUNT PERIODS
07:30 AM - 08:30 AM	AM	7:00 AM - 09:00 AM
NONE	NOON	NONE
04:00 PM - 05:00 PM	PM	4:00 PM - 06:00 PM

Mountain House Pkwy
SOUTHBOUND

AM	7	208	0	0	133
NOON	0	0	0	0	0
PM	19	157	0	0	384
	↲	↓	↳	↶	⇧
	0	0	0	0	

Wicklund Crossing
EASTBOUND

AM	NOON	PM		
59	0	83	⇦	
0	0	1	↶	0
0	0	0	↱	0
0	0	0	→	0
50	0	54	↴	0
AM	NOON	PM		

Wicklund Crossing
WESTBOUND

		PM	NOON	AM
0	↰	0	0	0
0	←	0	0	0
0	↙	0	0	0
0	↷	0	0	0
	⇨	0	0	0
		PM	NOON	AM

CONTROL

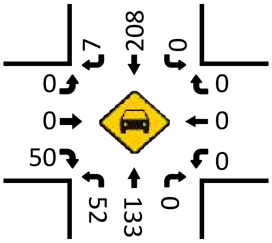
2-Way Stop(NB/EB)

	AM	NOON	PM
TEV	450	0	678
PHF	0.92		0.88

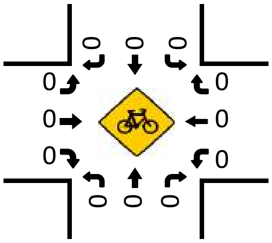
NORTHBOUND
Mountain House Pkwy

	⇩	↶	↰	↑	↱
		0	0	0	0
PM	211	0	63	384	0
NOON	0	0	0	0	0
AM	258	0	52	133	0

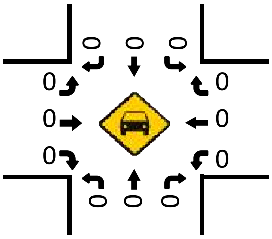
Totals (AM)



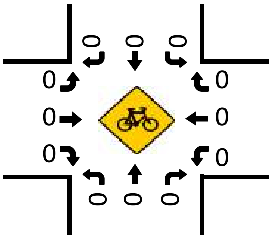
Total Bikes (AM)



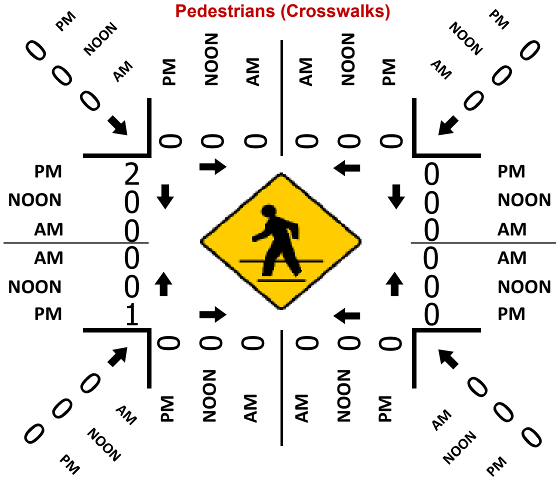
Totals (NOON)



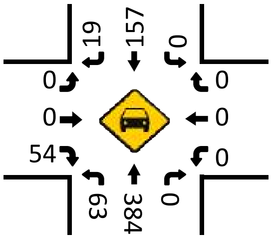
Total Bikes (NOON)



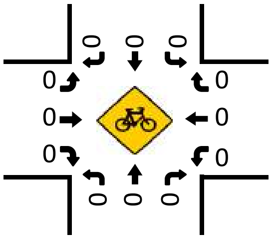
Pedestrians (Crosswalks)



Totals (PM)



Total Bikes (PM)



TRAFFIC COUNTS PLUS

mietekm@comcast.net
925.305.4358

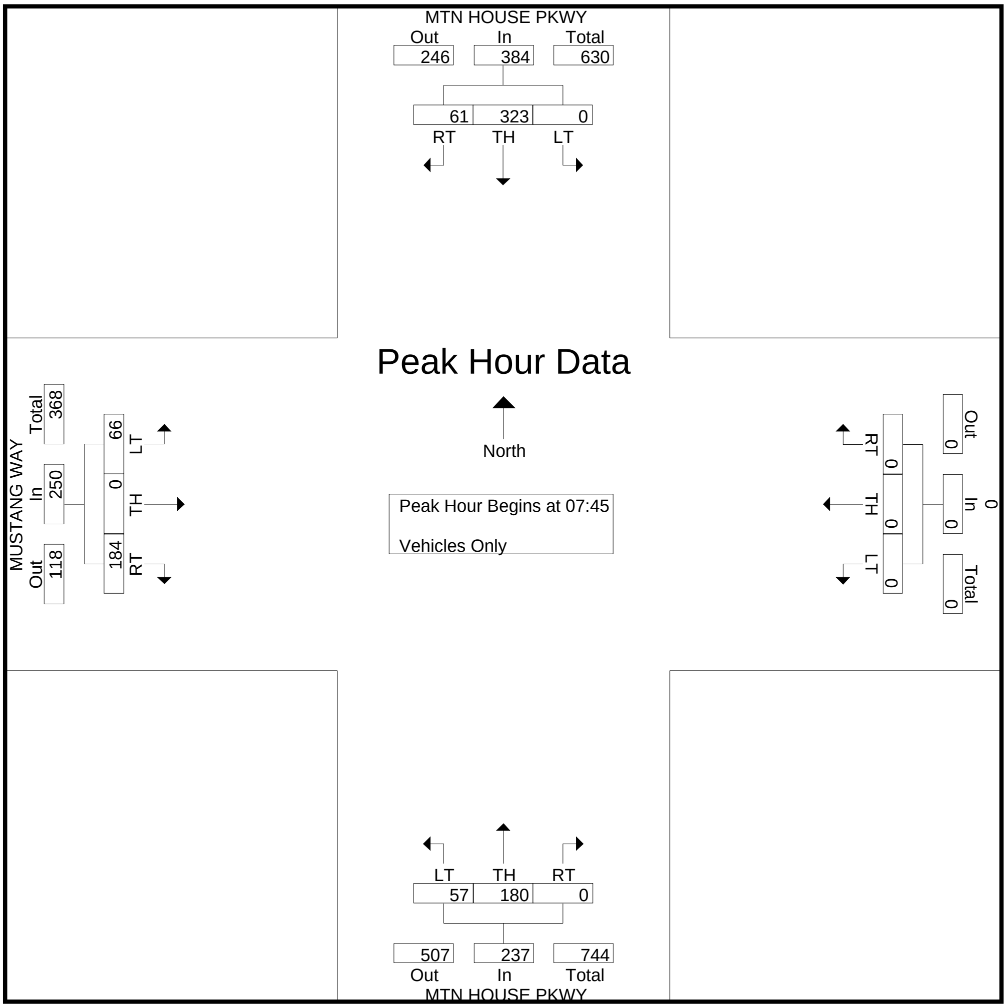
MOUNTAIN HOUSE
Mtn. House Pkwy. & Mustang Way
Latitude:37.767013
Longitude: -121.531632

File Name : mt. house-mustang-a
Site Code : 5
Start Date : 10/26/2022
Page No : 1

Groups Printed- Vehicles Only

	MTN HOUSE PKWY Southbound				0 Westbound				MTN HOUSE PKWY Northbound				MUSTANG WAY Eastbound				
Start Time	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	Int. Total
07:00	11	71	0	82	0	0	0	0	0	29	6	35	21	0	5	26	143
07:15	6	72	0	78	0	0	0	0	0	37	4	41	26	0	5	31	150
07:30	14	72	0	86	0	0	0	0	0	50	11	61	29	0	2	31	178
07:45	20	79	0	99	0	0	0	0	0	53	15	68	32	0	15	47	214
Total	51	294	0	345	0	0	0	0	0	169	36	205	108	0	27	135	685
08:00	13	97	0	110	0	0	0	0	0	47	14	61	49	0	13	62	233
08:15	15	75	0	90	0	0	0	0	0	39	16	55	68	0	20	88	233
08:30	13	72	0	85	0	0	0	0	0	41	12	53	35	0	18	53	191
08:45	7	48	0	55	0	0	0	0	0	54	17	71	25	0	9	34	160
Total	48	292	0	340	0	0	0	0	0	181	59	240	177	0	60	237	817
Grand Total	99	586	0	685	0	0	0	0	0	350	95	445	285	0	87	372	1502
Apprch %	14.5	85.5	0		0	0	0		0	78.7	21.3		76.6	0	23.4		
Total %	6.6	39	0	45.6	0	0	0	0	0	23.3	6.3	29.6	19	0	5.8	24.8	

	MTN HOUSE PKWY Southbound				0 Westbound				MTN HOUSE PKWY Northbound				MUSTANG WAY Eastbound				
Start Time	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	Int. Total
Peak Hour Analysis From 07:00 to 08:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:45																	
07:45	**20**	79	0	99	0	0	0	0	0	**53**	15	**68**	32	0	15	47	214
08:00	13	**97**	0	**110**	0	0	0	0	0	47	14	61	49	0	13	62	**233**
08:15	15	75	0	90	0	0	0	0	0	39	**16**	55	**68**	0	**20**	**88**	233
08:30	13	72	0	85	0	0	0	0	0	41	12	53	35	0	18	53	191
Total Volume	61	323	0	384	0	0	0	0	0	180	57	237	184	0	66	250	871
% App. Total	15.9	84.1	0		0	0	0		0	75.9	24.1		73.6	0	26.4		
PHF	.763	.832	.000	.873	.000	.000	.000	.000	.000	.849	.891	.871	.676	.000	.825	.710	.935



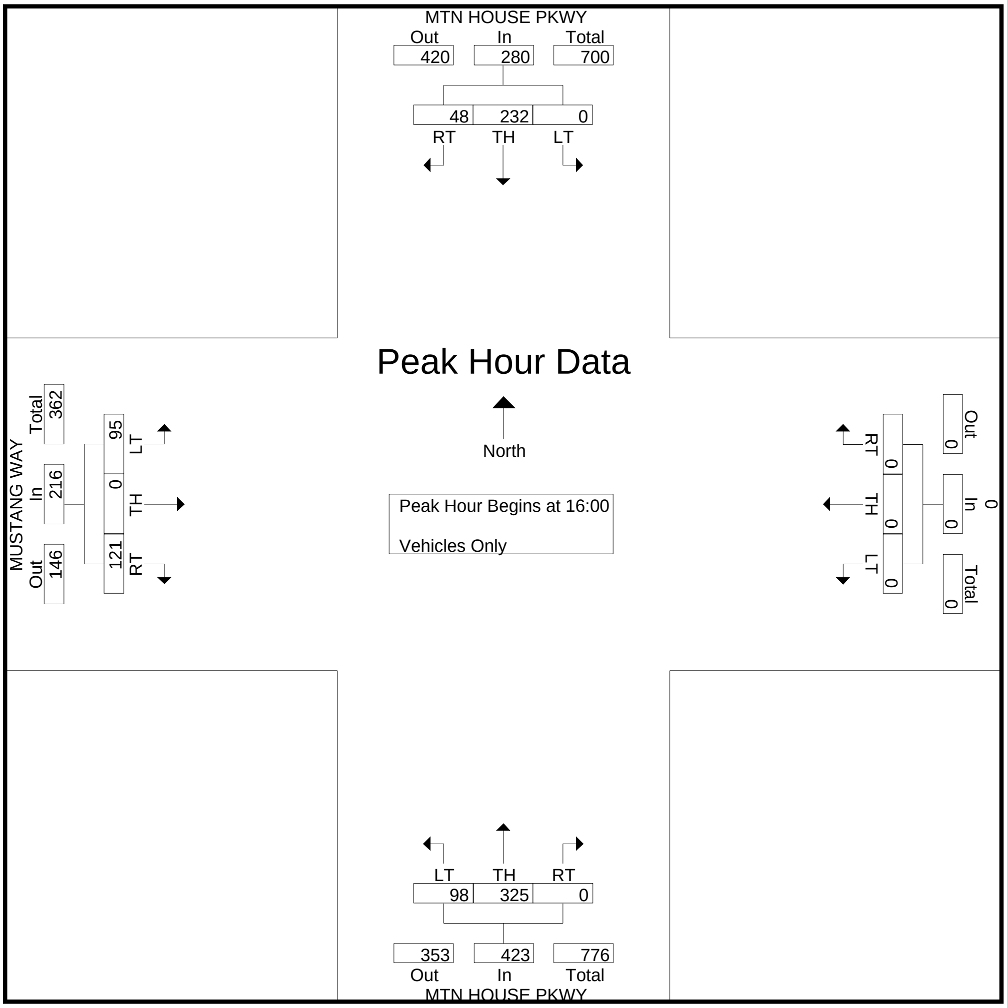
MOUNTAIN HOUSE
Mtn. House Pkwy. & Mustang Way
Latitude:37.767013
Longitude: -121.531632

File Name : mt. house-mustang-p
Site Code : 5
Start Date : 10/26/2022
Page No : 1

Groups Printed- Vehicles Only

	MTN HOUSE PKWY Southbound				**0 Westbound**				**MTN HOUSE PKWY Northbound**				**MUSTANG WAY Eastbound**				
Start Time	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	Int. Total
16:00	15	50	0	65	0	0	0	0	0	87	24	111	45	0	28	73	249
16:15	11	53	0	64	0	0	0	0	0	71	17	88	36	0	17	53	205
16:30	9	77	0	86	0	0	0	0	0	94	31	125	19	0	22	41	252
16:45	13	52	0	65	0	0	0	0	0	73	26	99	21	0	28	49	213
Total	48	232	0	280	0	0	0	0	0	325	98	423	121	0	95	216	919
17:00	21	47	0	68	0	0	0	0	0	66	22	88	27	0	16	43	199
17:15	17	48	0	65	0	0	0	0	0	82	37	119	25	0	20	45	229
17:30	12	47	0	59	0	0	0	0	0	81	23	104	30	0	18	48	211
17:45	15	63	0	78	0	0	0	0	0	88	22	110	20	0	22	42	230
Total	65	205	0	270	0	0	0	0	0	317	104	421	102	0	76	178	869
Grand Total	113	437	0	550	0	0	0	0	0	642	202	844	223	0	171	394	1788
Apprch %	20.5	79.5	0		0	0	0		0	76.1	23.9		56.6	0	43.4		
Total %	6.3	24.4	0	30.8	0	0	0	0	0	35.9	11.3	47.2	12.5	0	9.6	22	

	MTN HOUSE PKWY Southbound				**0 Westbound**				**MTN HOUSE PKWY Northbound**				**MUSTANG WAY Eastbound**				
Start Time	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	Int. Total
Peak Hour Analysis From 16:00 to 17:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 16:00																	
16:00	**15**	50	0	65	0	0	0	0	0	87	24	111	**45**	0	**28**	**73**	249
16:15	11	53	0	64	0	0	0	0	0	71	17	88	36	0	17	53	205
16:30	9	**77**	0	**86**	0	0	0	0	0	**94**	**31**	**125**	19	0	22	41	**252**
16:45	13	52	0	65	0	0	0	0	0	73	26	99	21	0	28	49	213
Total Volume	48	232	0	280	0	0	0	0	0	325	98	423	121	0	95	216	919
% App. Total	17.1	82.9	0		0	0	0		0	76.8	23.2		56	0	44		
PHF	.800	.753	.000	.814	.000	.000	.000	.000	.000	.864	.790	.846	.672	.000	.848	.740	.912



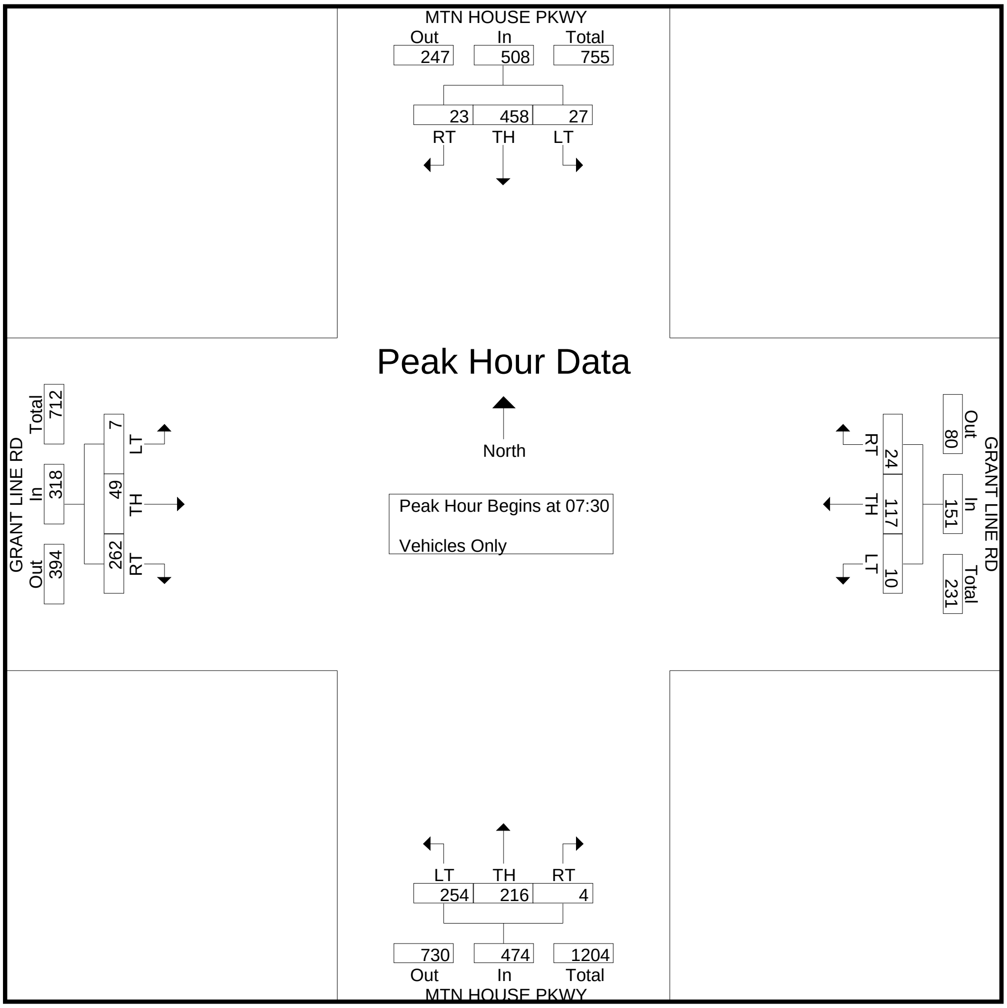
MOUNTAIN HOUSE
Mtn. House Pkwy. & Grant Line Rd.
Latitude:37.757945
Longitude: -121.531617

File Name : mt. house-grant line-a
Site Code : 6
Start Date : 10/26/2022
Page No : 1

Groups Printed- Vehicles Only

	MTN HOUSE PKWY Southbound				**GRANT LINE RD Westbound**				**MTN HOUSE PKWY Northbound**				**GRANT LINE RD Eastbound**				
Start Time	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	Int. Total
07:00	5	70	1	76	1	25	7	33	0	33	23	56	26	4	3	33	198
07:15	7	96	6	109	7	23	11	41	0	34	38	72	47	6	1	54	276
07:30	6	94	1	101	6	28	6	40	0	52	50	102	47	8	2	57	300
07:45	6	101	5	112	11	35	2	48	1	63	70	134	48	13	0	61	355
Total	24	361	13	398	25	111	26	162	1	182	181	364	168	31	6	205	1129
08:00	6	128	8	142	4	30	2	36	1	48	80	129	86	17	4	107	414
08:15	5	135	13	153	3	24	0	27	2	53	54	109	81	11	1	93	382
08:30	13	83	8	104	1	12	2	15	0	46	36	82	46	11	3	60	261
08:45	4	65	3	72	4	19	1	24	0	68	26	94	37	10	0	47	237
Total	28	411	32	471	12	85	5	102	3	215	196	414	250	49	8	307	1294
Grand Total	52	772	45	869	37	196	31	264	4	397	377	778	418	80	14	512	2423
Apprch %	6	88.8	5.2		14	74.2	11.7		0.5	51	48.5		81.6	15.6	2.7		
Total %	2.1	31.9	1.9	35.9	1.5	8.1	1.3	10.9	0.2	16.4	15.6	32.1	17.3	3.3	0.6	21.1	

	MTN HOUSE PKWY Southbound				**GRANT LINE RD Westbound**				**MTN HOUSE PKWY Northbound**				**GRANT LINE RD Eastbound**				
Start Time	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	Int. Total
Peak Hour Analysis From 07:00 to 08:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30																	
07:30	**6**	94	1	101	6	28	**6**	40	0	52	50	102	47	8	2	57	300
07:45	6	101	5	112	**11**	**35**	2	**48**	1	**63**	70	**134**	48	13	0	61	355
08:00	6	128	8	142	4	30	2	36	1	48	**80**	129	**86**	**17**	**4**	**107**	**414**
08:15	5	**135**	**13**	**153**	3	24	0	27	**2**	53	54	109	81	11	1	93	382
Total Volume	23	458	27	508	24	117	10	151	4	216	254	474	262	49	7	318	1451
% App. Total	4.5	90.2	5.3		15.9	77.5	6.6		0.8	45.6	53.6		82.4	15.4	2.2		
PHF	.958	.848	.519	.830	.545	.836	.417	.786	.500	.857	.794	.884	.762	.721	.438	.743	.876



TRAFFIC COUNTS PLUS

mietekm@comcast.net
925.305.4358

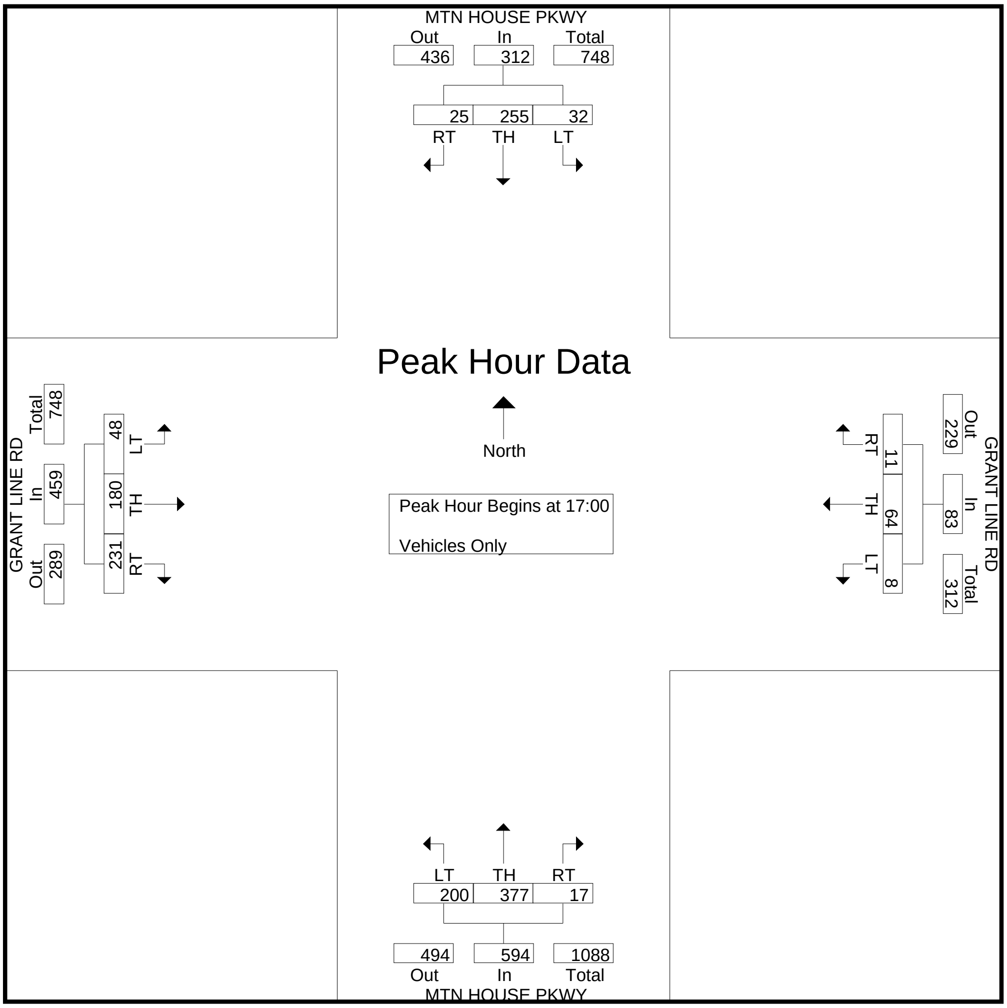
MOUNTAIN HOUSE
Mtn. House Pkwy. & Grant Line Rd.
Latitude:37.757945
Longitude: -121.531617

File Name : mt. house-grant line-p
Site Code : 6
Start Date : 10/26/2022
Page No : 1

Groups Printed- Vehicles Only

	MTN HOUSE PKWY Southbound				**GRANT LINE RD Westbound**				**MTN HOUSE PKWY Northbound**				**GRANT LINE RD Eastbound**				
Start Time	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	Int. Total
16:00	3	78	20	101	5	12	0	17	0	77	49	126	66	49	23	138	382
16:15	1	72	12	85	3	14	0	17	2	73	44	119	58	44	12	114	335
16:30	10	86	7	103	7	15	3	25	2	96	23	121	43	38	21	102	351
16:45	3	67	4	74	3	9	1	13	3	76	42	121	48	38	17	103	311
Total	17	303	43	363	18	50	4	72	7	322	158	487	215	169	73	457	1379
17:00	5	66	7	78	5	15	2	22	5	89	39	133	58	55	10	123	356
17:15	4	61	9	74	4	16	4	24	5	100	52	157	60	45	14	119	374
17:30	9	59	12	80	1	16	0	17	3	84	50	137	52	42	13	107	341
17:45	7	69	4	80	1	17	2	20	4	104	59	167	61	38	11	110	377
Total	25	255	32	312	11	64	8	83	17	377	200	594	231	180	48	459	1448
Grand Total	42	558	75	675	29	114	12	155	24	699	358	1081	446	349	121	916	2827
Apprch %	6.2	82.7	11.1		18.7	73.5	7.7		2.2	64.7	33.1		48.7	38.1	13.2		
Total %	1.5	19.7	2.7	23.9	1	4	0.4	5.5	0.8	24.7	12.7	38.2	15.8	12.3	4.3	32.4	

	MTN HOUSE PKWY Southbound				**GRANT LINE RD Westbound**				**MTN HOUSE PKWY Northbound**				**GRANT LINE RD Eastbound**				
Start Time	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	Int. Total
Peak Hour Analysis From 16:00 to 17:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 17:00																	
17:00	5	66	7	78	**5**	15	2	22	**5**	89	39	133	58	**55**	10	**123**	356
17:15	4	61	9	74	4	16	**4**	**24**	5	100	52	157	60	45	**14**	119	374
17:30	**9**	59	**12**	**80**	1	16	0	17	3	84	50	137	52	42	13	107	341
17:45	7	**69**	4	80	1	**17**	2	20	4	**104**	**59**	**167**	**61**	38	11	110	**377**
Total Volume	25	255	32	312	11	64	8	83	17	377	200	594	231	180	48	459	1448
% App. Total	8	81.7	10.3		13.3	77.1	9.6		2.9	63.5	33.7		50.3	39.2	10.5		
PHF	.694	.924	.667	.975	.550	.941	.500	.865	.850	.906	.847	.889	.947	.818	.857	.933	.960



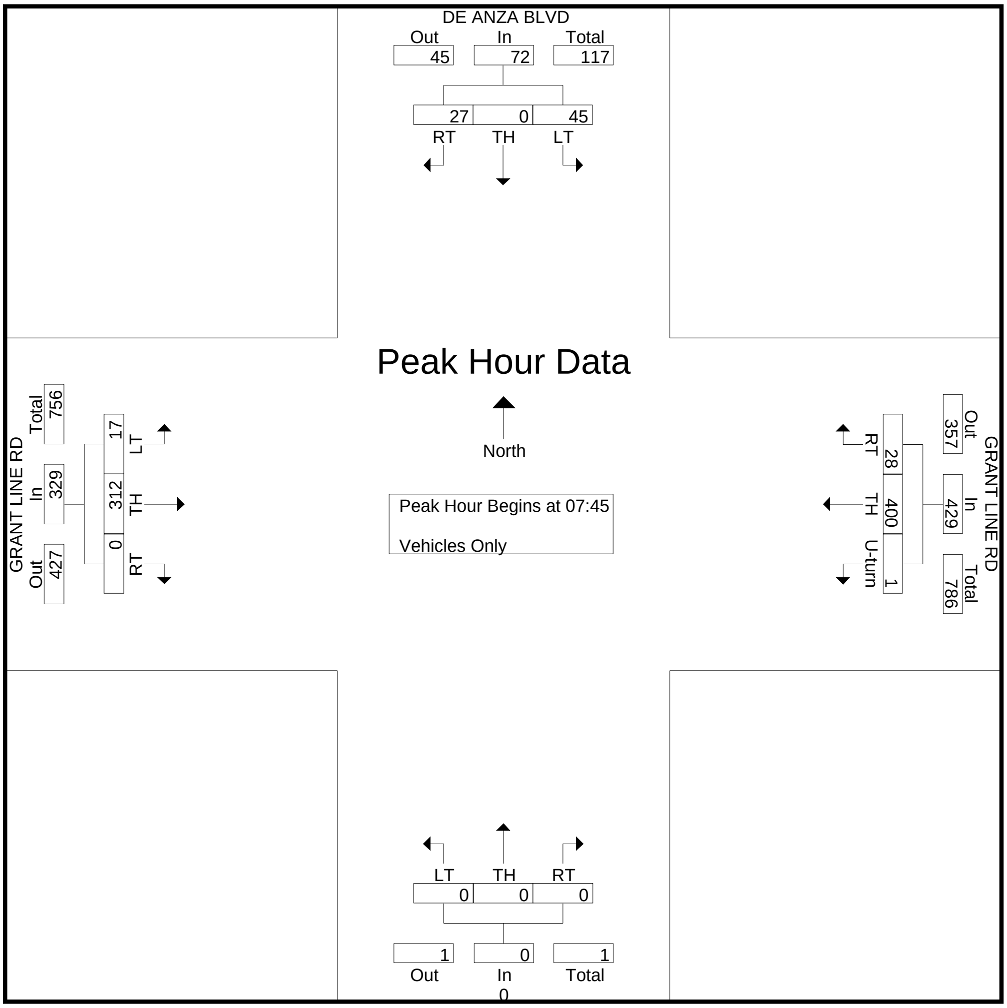
MOUNTAIN HOUSE
De Anza Blvd. & GRANT LINE RD
Latitude: 37.757777
Longitude: -121.534416

File Name : de anza-grant line-a
Site Code : 8
Start Date : 4/25/2023
Page No : 1

Groups Printed- Vehicles Only

	DE ANZA BLVD Southbound				**GRANT LINE RD Westbound**				**0 Northbound**				**GRANT LINE RD Eastbound**				
Start Time	RT	TH	LT	App. Total	RT	TH	U-turn	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	Int. Total
07:00	3	0	11	14	2	92	1	95	0	0	0	0	0	61	1	62	171
07:15	0	0	9	9	7	71	1	79	0	0	0	0	0	64	3	67	155
07:30	3	0	10	13	2	68	0	70	0	0	0	0	0	72	2	74	157
07:45	3	0	12	15	3	93	0	96	0	0	0	0	0	78	9	87	198
Total	9	0	42	51	14	324	2	340	0	0	0	0	0	275	15	290	681
08:00	15	0	13	28	11	127	0	138	0	0	0	0	0	95	7	102	268
08:15	7	0	7	14	6	103	0	109	0	0	0	0	0	81	1	82	205
08:30	2	0	13	15	8	77	1	86	0	0	0	0	0	58	0	58	159
08:45	6	0	7	13	7	88	0	95	0	0	0	0	0	43	1	44	152
Total	30	0	40	70	32	395	1	428	0	0	0	0	0	277	9	286	784
Grand Total	39	0	82	121	46	719	3	768	0	0	0	0	0	552	24	576	1465
Apprch %	32.2	0	67.8		6	93.6	0.4		0	0	0		0	95.8	4.2		
Total %	2.7	0	5.6	8.3	3.1	49.1	0.2	52.4	0	0	0	0	0	37.7	1.6	39.3	

	DE ANZA BLVD Southbound				**GRANT LINE RD Westbound**				**0 Northbound**				**GRANT LINE RD Eastbound**				
Start Time	RT	TH	LT	App. Total	RT	TH	U-turn	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	Int. Total
Peak Hour Analysis From 07:00 to 08:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:45																	
07:45	3	0	12	15	3	93	0	96	0	0	0	0	0	78	**9**	87	198
08:00	**15**	0	**13**	**28**	**11**	**127**	0	**138**	0	0	0	0	0	**95**	7	**102**	**268**
08:15	7	0	7	14	6	103	0	109	0	0	0	0	0	81	1	82	205
08:30	2	0	13	15	8	77	**1**	86	0	0	0	0	0	58	0	58	159
Total Volume	27	0	45	72	28	400	1	429	0	0	0	0	0	312	17	329	830
% App. Total	37.5	0	62.5		6.5	93.2	0.2		0	0	0		0	94.8	5.2		
PHF	.450	.000	.865	.643	.636	.787	.250	.777	.000	.000	.000	.000	.000	.821	.472	.806	.774



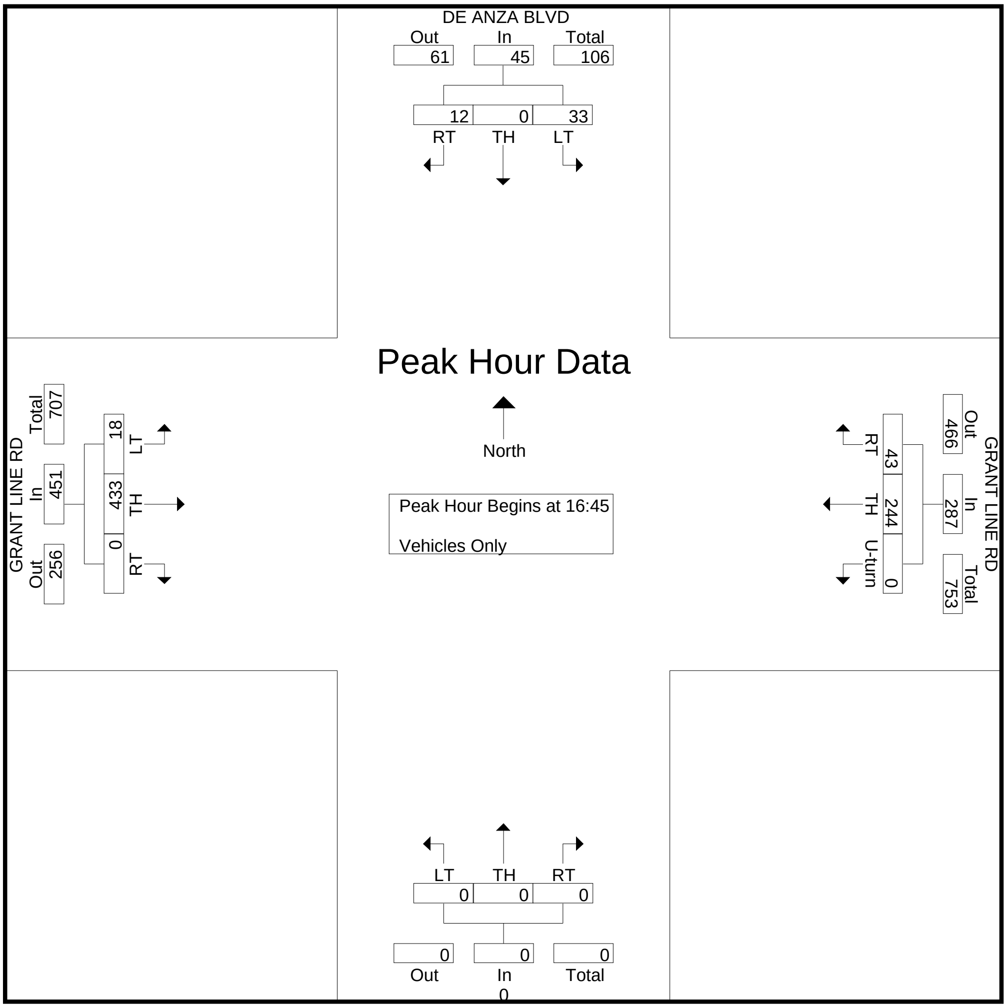
MOUNTAIN HOUSE
De Anza Blvd. & GRANT LINE RD
Latitude: 37.757777
Longitude: -121.534416

File Name : de anza-grant line-p
Site Code : 8
Start Date : 4/25/2023
Page No : 1

Groups Printed- Vehicles Only

	DE ANZA BLVD Southbound				GRANT LINE RD Westbound				0 Northbound				GRANT LINE RD Eastbound				
Start Time	RT	TH	LT	App. Total	RT	TH	U-turn	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	Int. Total
16:00	4	0	12	16	5	52	0	57	0	0	0	0	0	132	5	137	210
16:15	5	0	4	9	9	46	0	55	0	0	0	0	0	103	6	109	173
16:30	2	0	12	14	6	39	0	45	0	0	0	0	0	115	1	116	175
16:45	2	0	4	6	10	68	0	78	0	0	0	0	0	119	3	122	206
Total	13	0	32	45	30	205	0	235	0	0	0	0	0	469	15	484	764
17:00	3	0	10	13	8	54	0	62	0	0	0	0	0	100	8	108	183
17:15	3	0	7	10	13	56	0	69	0	0	0	0	0	109	2	111	190
17:30	4	0	12	16	12	66	0	78	0	0	0	0	0	105	5	110	204
17:45	3	0	12	15	7	81	0	88	0	0	0	0	0	93	5	98	201
Total	13	0	41	54	40	257	0	297	0	0	0	0	0	407	20	427	778
Grand Total	26	0	73	99	70	462	0	532	0	0	0	0	0	876	35	911	1542
Apprch %	26.3	0	73.7		13.2	86.8	0		0	0	0		0	96.2	3.8		
Total %	1.7	0	4.7	6.4	4.5	30	0	34.5	0	0	0	0	0	56.8	2.3	59.1	

	DE ANZA BLVD Southbound				GRANT LINE RD Westbound				0 Northbound				GRANT LINE RD Eastbound				
Start Time	RT	TH	LT	App. Total	RT	TH	U-turn	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	Int. Total
Peak Hour Analysis From 16:00 to 17:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 16:45																	
16:45	2	0	4	6	10	**68**	0	**78**	0	0	0	0	0	**119**	3	**122**	**206**
17:00	3	0	10	13	8	54	0	62	0	0	0	0	0	100	**8**	108	183
17:15	3	0	7	10	**13**	56	0	69	0	0	0	0	0	109	2	111	190
17:30	**4**	0	**12**	**16**	12	66	0	78	0	0	0	0	0	105	5	110	204
Total Volume	12	0	33	45	43	244	0	287	0	0	0	0	0	433	18	451	783
% App. Total	26.7	0	73.3		15	85	0		0	0	0		0	96	4		
PHF	.750	.000	.688	.703	.827	.897	.000	.920	.000	.000	.000	.000	.000	.910	.563	.924	.950



Prepared by National Data & Surveying Services

Central Pkwy & W Grant Line Rd

Peak Hour Turning Movement Count

ID: 21-080043-006
City: Mountain House

Day: Tuesday
Date: 3/23/2021

PEAK HOURS

AM	07:00 AM - 08:00 AM
NOON	NONE
PM	05:00 PM - 06:00 PM

COUNT PERIODS

AM	7:00 AM - 09:00 AM
NOON	NONE
PM	4:00 PM - 06:00 PM

Central Pkwy

SOUTHBOUND

	↲	↓	↳	↶	⇧
AM	66	7	63	0	108
NOON	0	0	0	0	0
PM	28	10	98	1	148
	0	0	0	0	

W Grant Line Rd

EASTBOUND

	AM	NOON	PM	
⇦	428	0	110	
⮌	0	0	0	0
↱	18	0	51	0
→	40	0	341	0
↴	36	0	10	0

CONTROL

4-Way Stop

	AM	NOON	PM
TEV	760	0	774
PHF	0.78		0.92

W Grant Line Rd

WESTBOUND

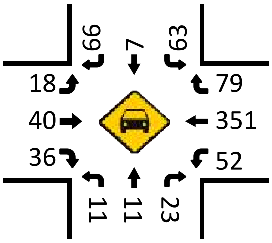
		PM	NOON	AM
0	↰	81	0	79
0	←	67	0	351
0	↙	22	0	52
0	↷	0	0	3
	⇨	473	0	129

NORTHBOUND

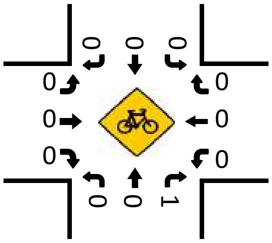
Central Pkwy

	⇩	↶	↰	↑	↱
		0	0	0	0
PM	43	1	15	15	34
NOON	0	0	0	0	0
AM	95	0	11	11	23

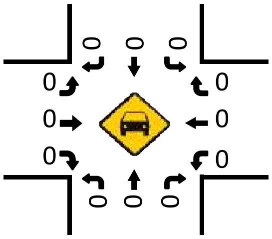
Totals (AM)



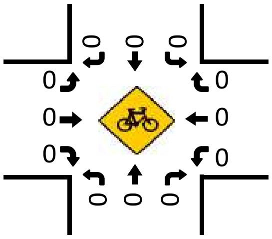
Total Bikes (AM)



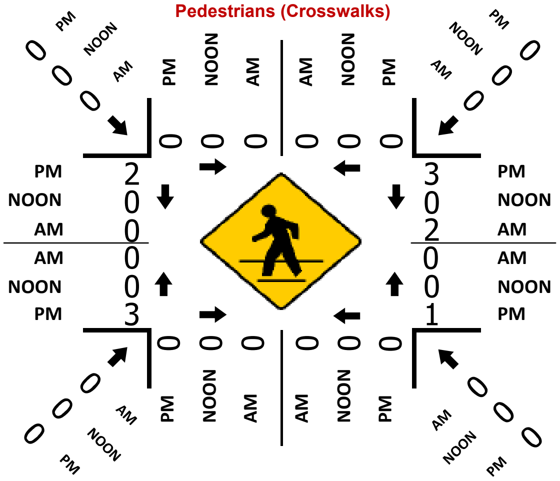
Totals (NOON)



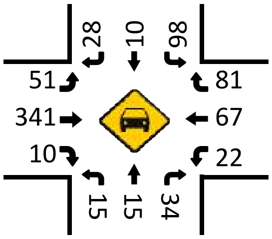
Total Bikes (NOON)



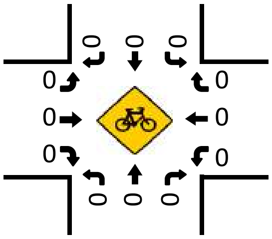
Pedestrians (Crosswalks)



Totals (PM)



Total Bikes (PM)



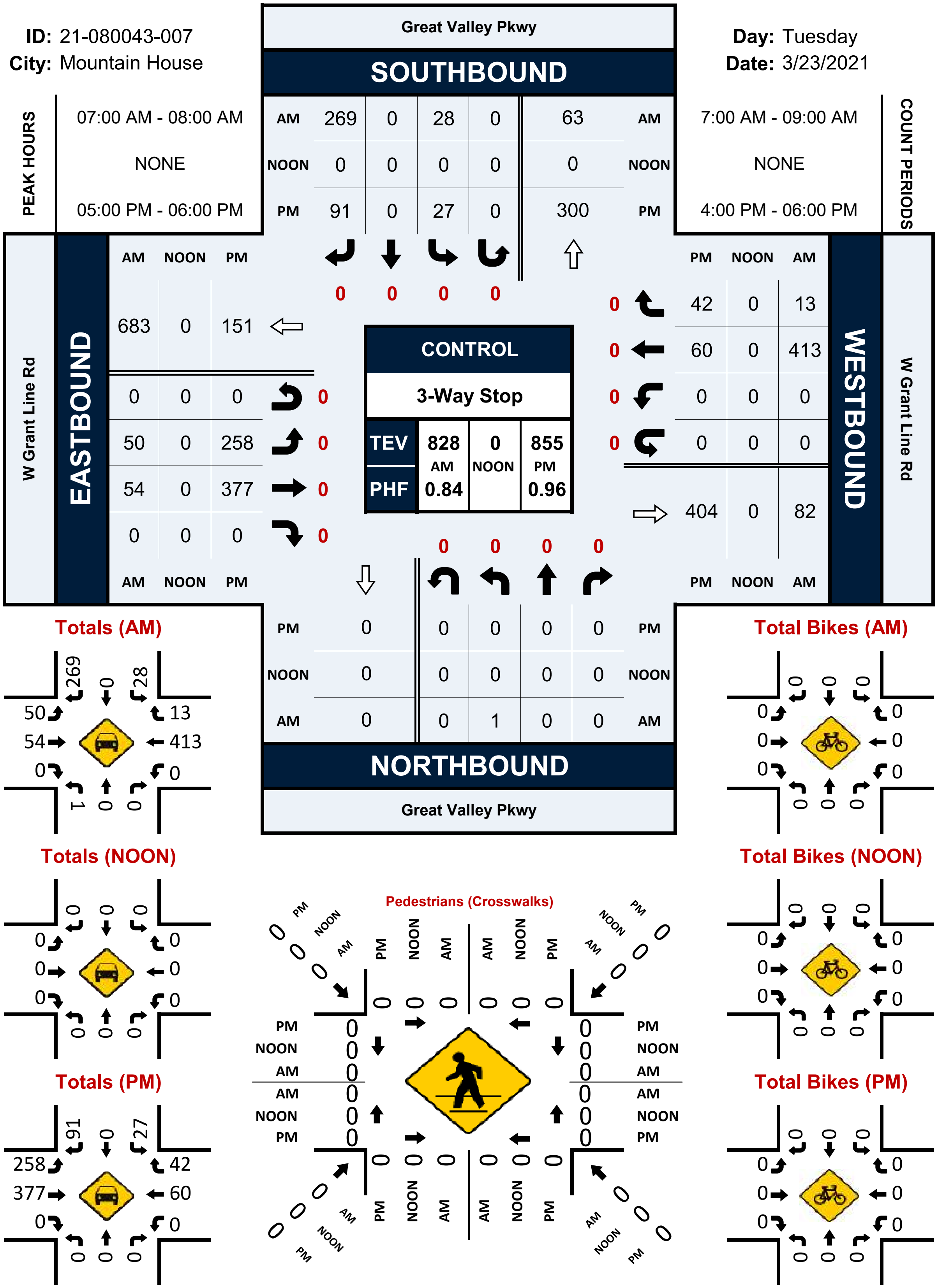
Prepared by National Data & Surveying Services

Great Valley Pkwy & W Grant Line Rd

Peak Hour Turning Movement Count

ID: 21-080043-007
City: Mountain House

Day: Tuesday
Date: 3/23/2021



PEAK HOURS	
AM	07:00 AM - 08:00 AM
NOON	NONE
PM	05:00 PM - 06:00 PM

COUNT PERIODS	
AM	7:00 AM - 09:00 AM
NOON	NONE
PM	4:00 PM - 06:00 PM

Great Valley Pkwy

SOUTHBOUND

	↲	↓	↳	U-turn	⇧
AM	269	0	28	0	63
NOON	0	0	0	0	0
PM	91	0	27	0	300
	0	0	0	0	

W Grant Line Rd

EASTBOUND

	AM	NOON	PM	
⇦	683	0	151	
U-turn	0	0	0	0
↱	50	0	258	0
→	54	0	377	0
↴	0	0	0	0

W Grant Line Rd

WESTBOUND

		PM	NOON	AM
0	↰	42	0	13
0	←	60	0	413
0	↙	0	0	0
0	U-turn	0	0	0
	⇨	404	0	82

CONTROL

3-Way Stop

	AM	NOON	PM
TEV	828	0	855
PHF	0.84		0.96

NORTHBOUND

Great Valley Pkwy

	⇩	U-turn	↰	↑	↱
		0	0	0	0
PM	0	0	0	0	0
NOON	0	0	0	0	0
AM	0	0	1	0	0

Totals (AM)

Totals (NOON)

Totals (PM)

Total Bikes (AM)

Total Bikes (NOON)

Total Bikes (PM)

Pedestrians (Crosswalks)

Prepared by National Data & Surveying Services

Central Pkwy & Mustang Way

Peak Hour Turning Movement Count

ID: 21-080043-009
City: Mountain House

Day: Tuesday
Date: 3/23/2021

PEAK HOURS		COUNT PERIODS
07:45 AM - 08:45 AM	AM	7:00 AM - 09:00 AM
NONE	NOON	NONE
05:00 PM - 06:00 PM	PM	4:00 PM - 06:00 PM

Central Pkwy — SOUTHBOUND

	↲	↓	↳	U	⇧
AM	8	51	11	0	101
NOON	0	0	0	0	0
PM	18	78	51	0	180
	0	0	0	0	

Mustang Way — EASTBOUND

	AM	NOON	PM	
⇦	90	0	122	
U	0	0	0	0
↰	7	0	34	0
→	52	0	107	0
↱	18	0	11	0

CONTROL

Signalized

	AM	NOON	PM
TEV	375	0	585
PHF	0.71		0.84

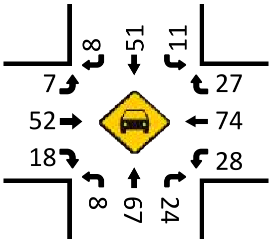
Mustang Way — WESTBOUND

		PM	NOON	AM
0	↱	48	0	27
0	←	83	0	74
0	↰	13	0	28
0	U	0	0	0
	⇨	181	0	87

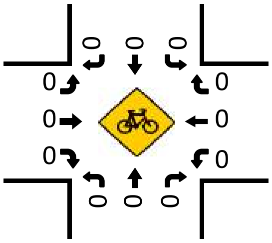
Central Pkwy — NORTHBOUND

	⇩	U	↰	↑	↱
		0	0	0	0
PM	102	0	21	98	23
NOON	0	0	0	0	0
AM	97	0	8	67	24

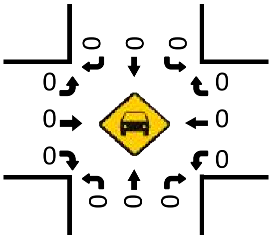
Totals (AM)



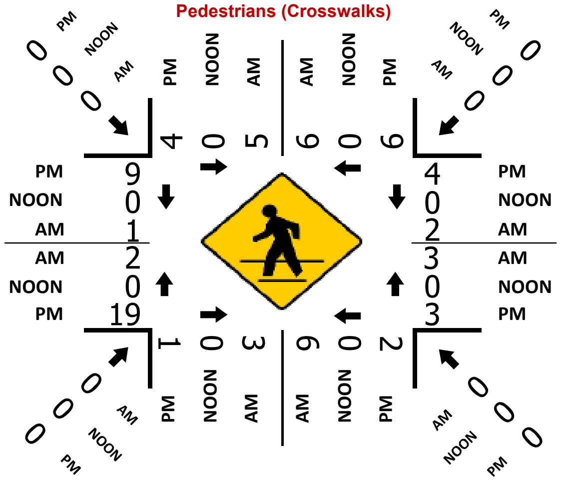
Total Bikes (AM)



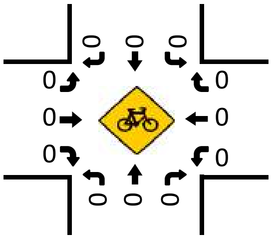
Totals (NOON)



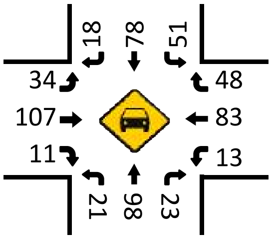
Pedestrians (Crosswalks)



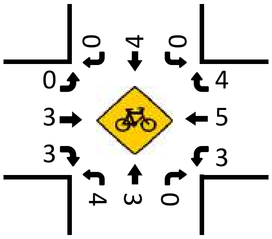
Total Bikes (NOON)



Totals (PM)



Total Bikes (PM)



Prepared by National Data & Surveying Services

Central Pkwy & Arnaudo Blvd

Peak Hour Turning Movement Count

ID: 21-080043-010
City: Mountain House

Day: Tuesday
Date: 3/23/2021

PEAK HOURS		COUNT PERIODS
AM	07:45 AM - 08:45 AM	7:00 AM - 09:00 AM
NOON	NONE	NONE
PM	04:45 PM - 05:45 PM	4:00 PM - 06:00 PM

Central Pkwy

SOUTHBOUND

AM	3	55	143	0	144	AM
NOON	0	0	0	0	0	NOON
PM	5	85	142	0	281	PM
	0	0	0	0		

Arnaudo Blvd

EASTBOUND

AM	NOON	PM		
17	0	46	⇦	
0	0	0	⮌	0
5	0	5	⮥	0
14	0	21	➡	0
11	0	3	⮧	0
AM	NOON	PM		

CONTROL

Signalized

	AM	NOON	PM
TEV	410	0	620
PHF	0.78		0.93

Arnaudo Blvd

WESTBOUND

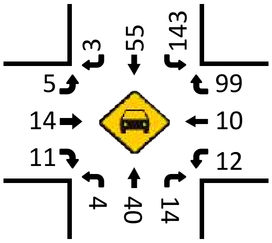
		PM	NOON	AM
0	⮤	188	0	99
0	⬅	37	0	10
0	⮢	18	0	12
0	⮎	0	0	0
	⇨	187	0	171
		PM	NOON	AM

NORTHBOUND

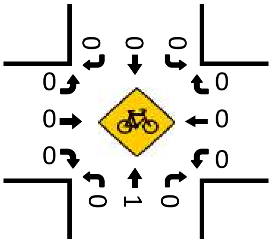
Central Pkwy

		0	0	0	0	
PM	106	0	4	88	24	PM
NOON	0	0	0	0	0	NOON
AM	78	0	4	40	14	AM

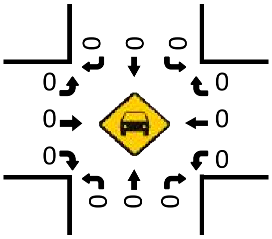
Totals (AM)



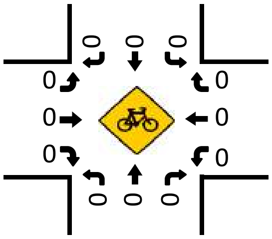
Total Bikes (AM)



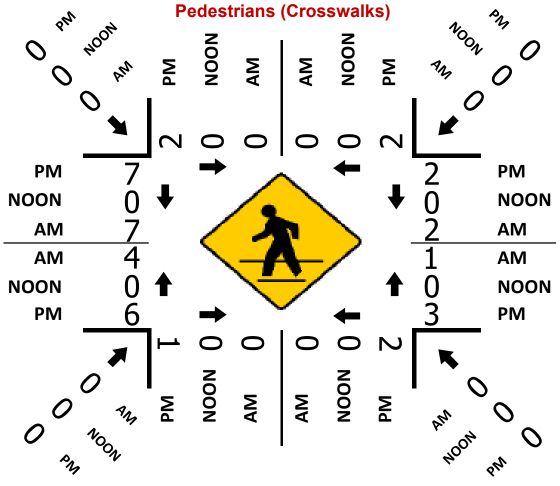
Totals (NOON)



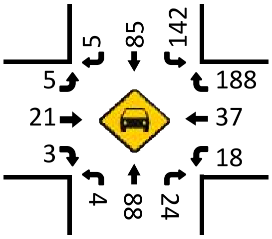
Total Bikes (NOON)



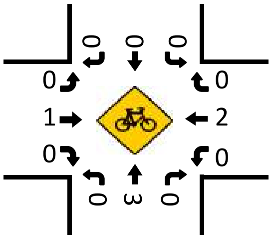
Pedestrians (Crosswalks)



Totals (PM)



Total Bikes (PM)



Prepared by National Data & Surveying Services

Central Pkwy & Main St

Peak Hour Turning Movement Count

ID: 21-080043-011
City: Mountain House

Day: Tuesday
Date: 3/23/2021

PEAK HOURS		COUNT PERIODS
07:45 AM - 08:45 AM	AM	7:00 AM - 09:00 AM
NONE	NOON	NONE
04:45 PM - 05:45 PM	PM	4:00 PM - 06:00 PM

Central Pkwy — SOUTHBOUND

	↲	↓	↳	↶	⇧
AM	1	74	1	0	65
NOON	0	0	0	0	0
PM	0	83	4	1	105
	0	0	0	0	

Main St — EASTBOUND

	AM	NOON	PM	
⇦	81	0	157	
⤺	0	0	0	0
⬏	3	0	3	0
➡	0	0	9	0
⬎	117	0	120	0

Main St — WESTBOUND

		PM	NOON	AM
0	⬑	1	0	1
0	⬅	3	0	0
0	⬐	26	0	7
0	⤹	0	0	0
	⇨	36	0	9

CONTROL

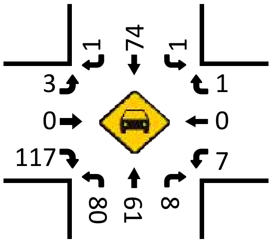
4-Way Stop

	AM	NOON	PM
TEV	353	0	529
PHF	0.74		0.88

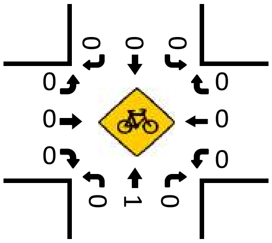
Central Pkwy — NORTHBOUND

	⇩	⤺	↰	↑	↱
		0	0	0	0
PM	231	2	154	100	23
NOON	0	0	0	0	0
AM	198	0	80	61	8

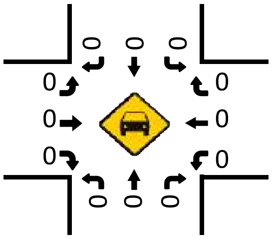
Totals (AM)



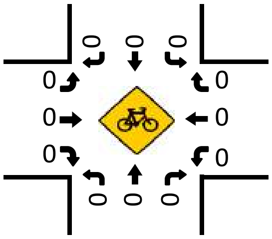
Total Bikes (AM)



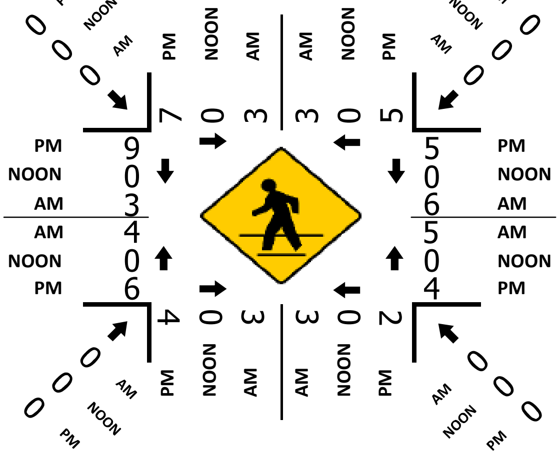
Totals (NOON)



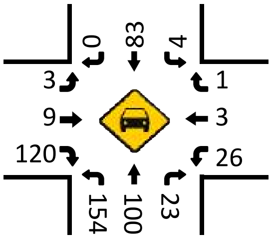
Total Bikes (NOON)



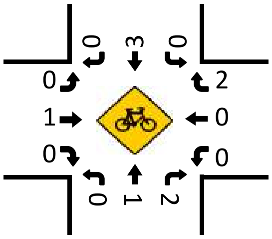
Pedestrians (Crosswalks)



Totals (PM)



Total Bikes (PM)



TRAFFIC COUNTS PLUS
mietekm@comcast.net
925.305.4358

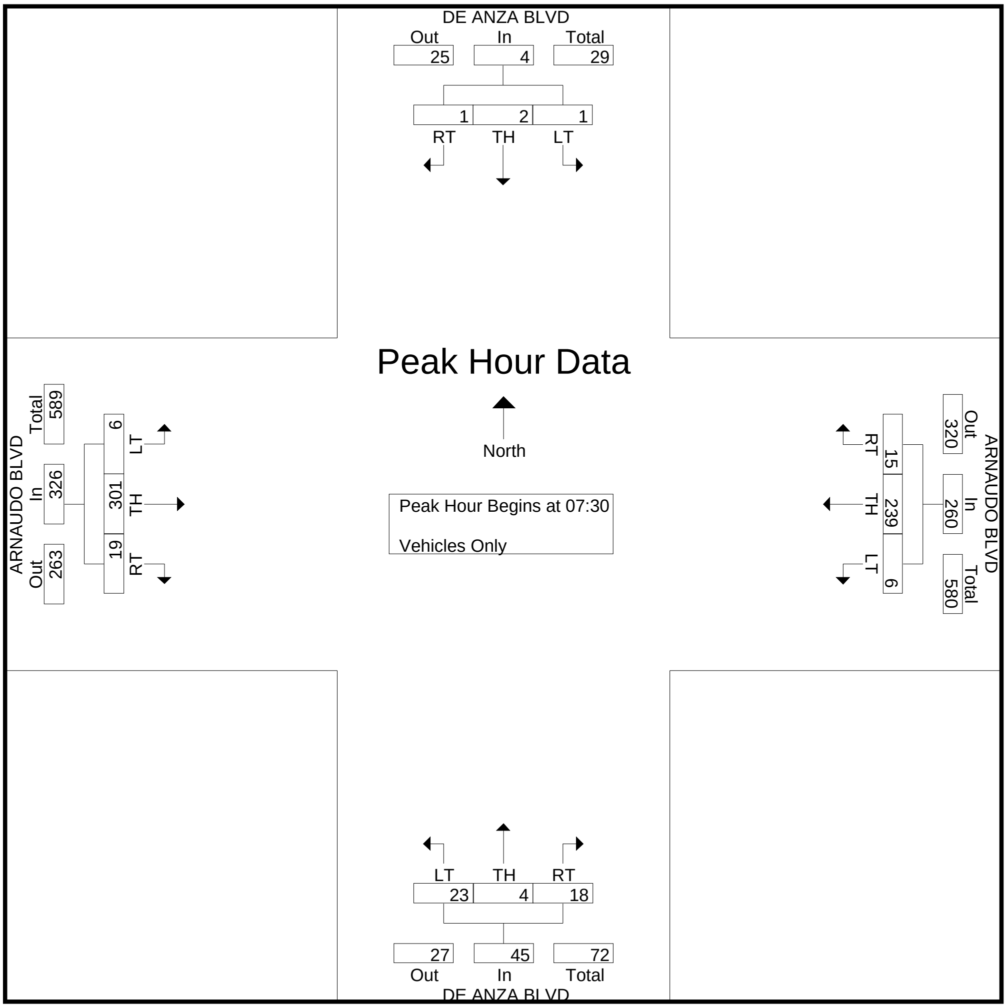
MOUNTAIN HOUSE
De Anza Blvd. & Arnaudo Blvd.
Latitude: 37.775817
Longitude: -121.534616

File Name : de anza-arnaudo-a
Site Code : 14
Start Date : 4/25/2023
Page No : 1

Groups Printed- Vehicles Only

	DE ANZA BLVD Southbound				ARNAUDO BLVD Westbound				DE ANZA BLVD Northbound				ARNAUDO BLVD Eastbound				
Start Time	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	Int. Total
07:00	0	0	0	0	0	46	1	47	2	0	0	2	1	31	1	33	82
07:15	0	0	1	1	1	40	1	42	2	1	1	4	1	52	0	53	100
07:30	0	0	0	0	7	61	0	68	2	1	1	4	0	60	1	61	133
07:45	1	0	0	1	5	66	0	71	4	0	10	14	2	84	1	87	173
Total	1	0	1	2	13	213	2	228	10	2	12	24	4	227	3	234	488
08:00	0	2	1	3	2	66	2	70	9	3	11	23	11	86	3	100	196
08:15	0	0	0	0	1	46	4	51	3	0	1	4	6	71	1	78	133
08:30	0	0	0	0	2	43	3	48	3	0	2	5	2	48	1	51	104
08:45	0	0	2	2	2	50	1	53	2	0	4	6	3	58	0	61	122
Total	0	2	3	5	7	205	10	222	17	3	18	38	22	263	5	290	555
Grand Total	1	2	4	7	20	418	12	450	27	5	30	62	26	490	8	524	1043
Apprch %	14.3	28.6	57.1		4.4	92.9	2.7		43.5	8.1	48.4		5	93.5	1.5		
Total %	0.1	0.2	0.4	0.7	1.9	40.1	1.2	43.1	2.6	0.5	2.9	5.9	2.5	47	0.8	50.2	

	DE ANZA BLVD Southbound				ARNAUDO BLVD Westbound				DE ANZA BLVD Northbound				ARNAUDO BLVD Eastbound				
Start Time	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	Int. Total
Peak Hour Analysis From 07:00 to 08:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30																	
07:30	0	0	0	0	**7**	61	0	68	2	1	1	4	0	60	1	61	133
07:45	**1**	0	0	1	5	**66**	0	**71**	4	0	10	14	2	84	1	87	173
08:00	0	**2**	**1**	**3**	2	66	2	70	**9**	**3**	**11**	**23**	**11**	**86**	**3**	**100**	**196**
08:15	0	0	0	0	1	46	**4**	51	3	0	1	4	6	71	1	78	133
Total Volume	1	2	1	4	15	239	6	260	18	4	23	45	19	301	6	326	635
% App. Total	25	50	25		5.8	91.9	2.3		40	8.9	51.1		5.8	92.3	1.8		
PHF	.250	.250	.250	.333	.536	.905	.375	.915	.500	.333	.523	.489	.432	.875	.500	.815	.810



TRAFFIC COUNTS PLUS
mietekm@comcast.net
925.305.4358

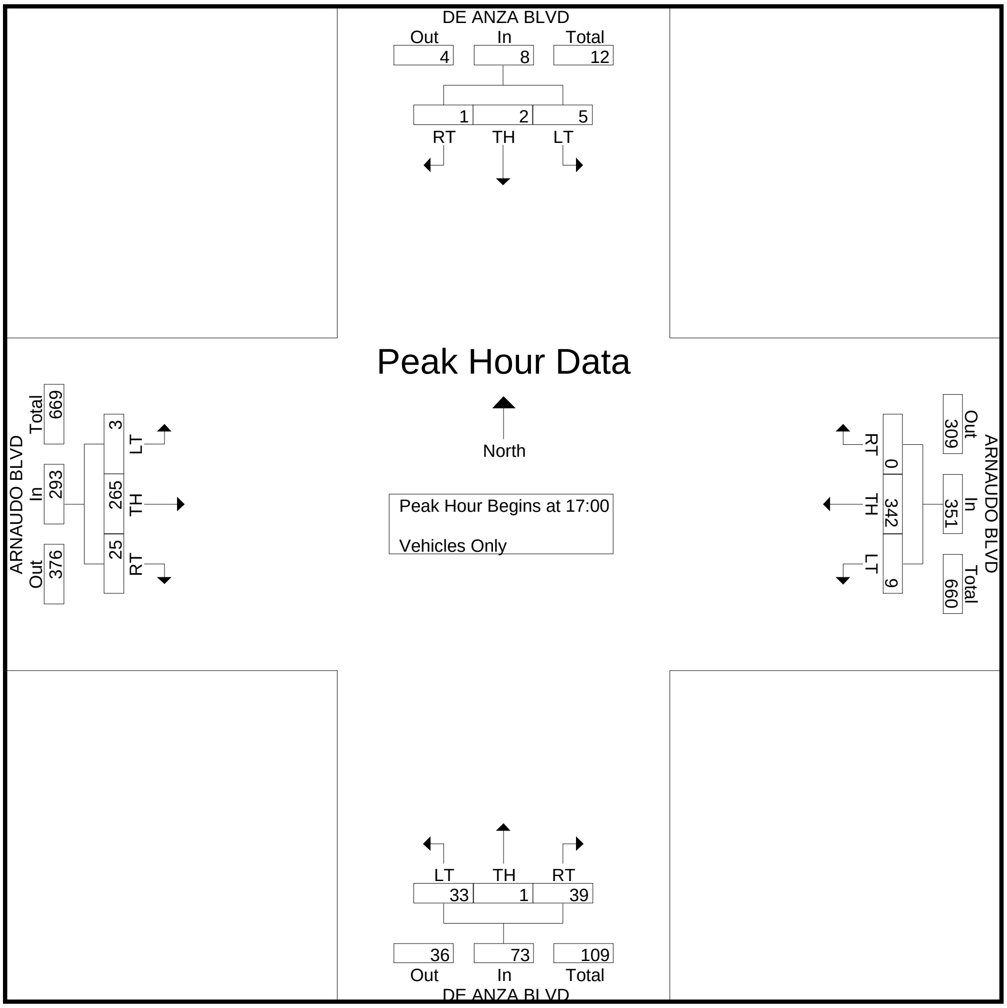
MOUNTAIN HOUSE
De Anza Blvd. & Arnaudo Blvd.
Latitude: 37.775817
Longitude: -121.534616

File Name : de anza-arnaudo-p
Site Code : 14
Start Date : 4/25/2023
Page No : 1

Groups Printed- Vehicles Only

	DE ANZA BLVD Southbound				ARNAUDO BLVD Westbound				DE ANZA BLVD Northbound				ARNAUDO BLVD Eastbound				
Start Time	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	Int. Total
16:00	0	1	6	7	0	61	4	65	11	0	10	21	13	96	1	110	203
16:15	1	1	4	6	1	69	2	72	6	0	3	9	3	64	1	68	155
16:30	2	0	5	7	0	78	4	82	4	0	5	9	11	60	0	71	169
16:45	1	1	2	4	0	55	5	60	7	0	4	11	6	71	1	78	153
Total	4	3	17	24	1	263	15	279	28	0	22	50	33	291	3	327	680
17:00	1	1	3	5	0	67	1	68	7	0	4	11	6	72	1	79	163
17:15	0	0	1	1	0	85	3	88	8	1	7	16	6	55	0	61	166
17:30	0	1	0	1	0	96	3	99	13	0	13	26	8	70	2	80	206
17:45	0	0	1	1	0	94	2	96	11	0	9	20	5	68	0	73	190
Total	1	2	5	8	0	342	9	351	39	1	33	73	25	265	3	293	725
Grand Total	5	5	22	32	1	605	24	630	67	1	55	123	58	556	6	620	1405
Apprch %	15.6	15.6	68.8		0.2	96	3.8		54.5	0.8	44.7		9.4	89.7	1		
Total %	0.4	0.4	1.6	2.3	0.1	43.1	1.7	44.8	4.8	0.1	3.9	8.8	4.1	39.6	0.4	44.1	

	DE ANZA BLVD Southbound				ARNAUDO BLVD Westbound				DE ANZA BLVD Northbound				ARNAUDO BLVD Eastbound				
Start Time	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	Int. Total
Peak Hour Analysis From 16:00 to 17:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 17:00																	
17:00	**1**	**1**	**3**	**5**	0	67	1	68	7	0	4	11	6	**72**	1	79	163
17:15	0	0	1	1	0	85	**3**	88	8	**1**	7	16	6	55	0	61	166
17:30	0	1	0	1	0	**96**	3	**99**	**13**	0	**13**	**26**	**8**	70	**2**	**80**	**206**
17:45	0	0	1	1	0	94	2	96	11	0	9	20	5	68	0	73	190
Total Volume	1	2	5	8	0	342	9	351	39	1	33	73	25	265	3	293	725
% App. Total	12.5	25	62.5		0	97.4	2.6		53.4	1.4	45.2		8.5	90.4	1		
PHF	.250	.500	.417	.400	.000	.891	.750	.886	.750	.250	.635	.702	.781	.920	.375	.916	.880



TRAFFIC COUNTS PLUS
mietekm@comcast.net
925.305.4358

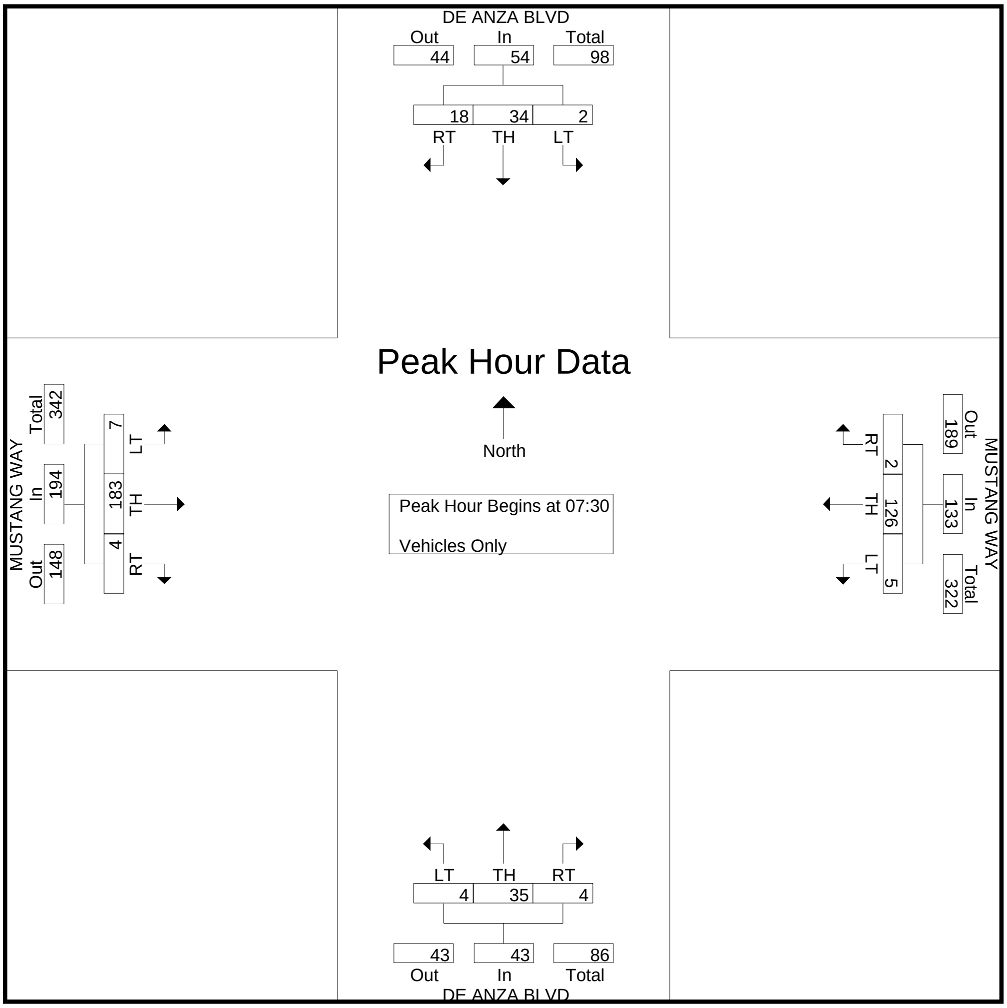
MOUNTAIN HOUSE
De Anza Blvd. & Mustang Way
Latitude: 37.766963
Longitude: -121.534503

File Name : de anza-mustang-a
Site Code : 15
Start Date : 4/25/2023
Page No : 1

Groups Printed- Vehicles Only

	DE ANZA BLVD Southbound				**MUSTANG WAY Westbound**				**DE ANZA BLVD Northbound**				**MUSTANG WAY Eastbound**				
Start Time	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	Int. Total
07:00	0	2	0	2	0	18	2	20	0	0	0	0	0	25	1	26	48
07:15	2	0	0	2	1	14	0	15	0	1	0	1	1	31	0	32	50
07:30	2	2	0	4	2	23	1	26	2	4	0	6	0	43	0	43	79
07:45	2	6	1	9	0	34	1	35	1	12	2	15	2	35	2	39	98
Total	6	10	1	17	3	89	4	96	3	17	2	22	3	134	3	140	275
08:00	9	20	1	30	0	35	1	36	0	18	0	18	1	60	3	64	148
08:15	5	6	0	11	0	34	2	36	1	1	2	4	1	45	2	48	99
08:30	0	1	0	1	1	23	0	24	1	1	2	4	0	42	2	44	73
08:45	1	4	1	6	2	28	3	33	0	2	4	6	2	29	0	31	76
Total	15	31	2	48	3	120	6	129	2	22	8	32	4	176	7	187	396
Grand Total	21	41	3	65	6	209	10	225	5	39	10	54	7	310	10	327	671
Apprch %	32.3	63.1	4.6		2.7	92.9	4.4		9.3	72.2	18.5		2.1	94.8	3.1		
Total %	3.1	6.1	0.4	9.7	0.9	31.1	1.5	33.5	0.7	5.8	1.5	8	1	46.2	1.5	48.7	

	DE ANZA BLVD Southbound				**MUSTANG WAY Westbound**				**DE ANZA BLVD Northbound**				**MUSTANG WAY Eastbound**				
Start Time	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	Int. Total
Peak Hour Analysis From 07:00 to 08:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30																	
07:30	2	2	0	4	**2**	23	1	26	**2**	4	0	6	0	43	0	43	79
07:45	2	6	**1**	9	0	34	1	35	1	12	**2**	15	**2**	35	2	39	98
08:00	**9**	**20**	1	**30**	0	**35**	1	**36**	0	**18**	0	**18**	1	**60**	**3**	**64**	**148**
08:15	5	6	0	11	0	34	**2**	36	1	1	2	4	1	45	2	48	99
Total Volume	18	34	2	54	2	126	5	133	4	35	4	43	4	183	7	194	424
% App. Total	33.3	63	3.7		1.5	94.7	3.8		9.3	81.4	9.3		2.1	94.3	3.6		
PHF	.500	.425	.500	.450	.250	.900	.625	.924	.500	.486	.500	.597	.500	.763	.583	.758	.716



TRAFFIC COUNTS PLUS

mietekm@comcast.net
925.305.4358

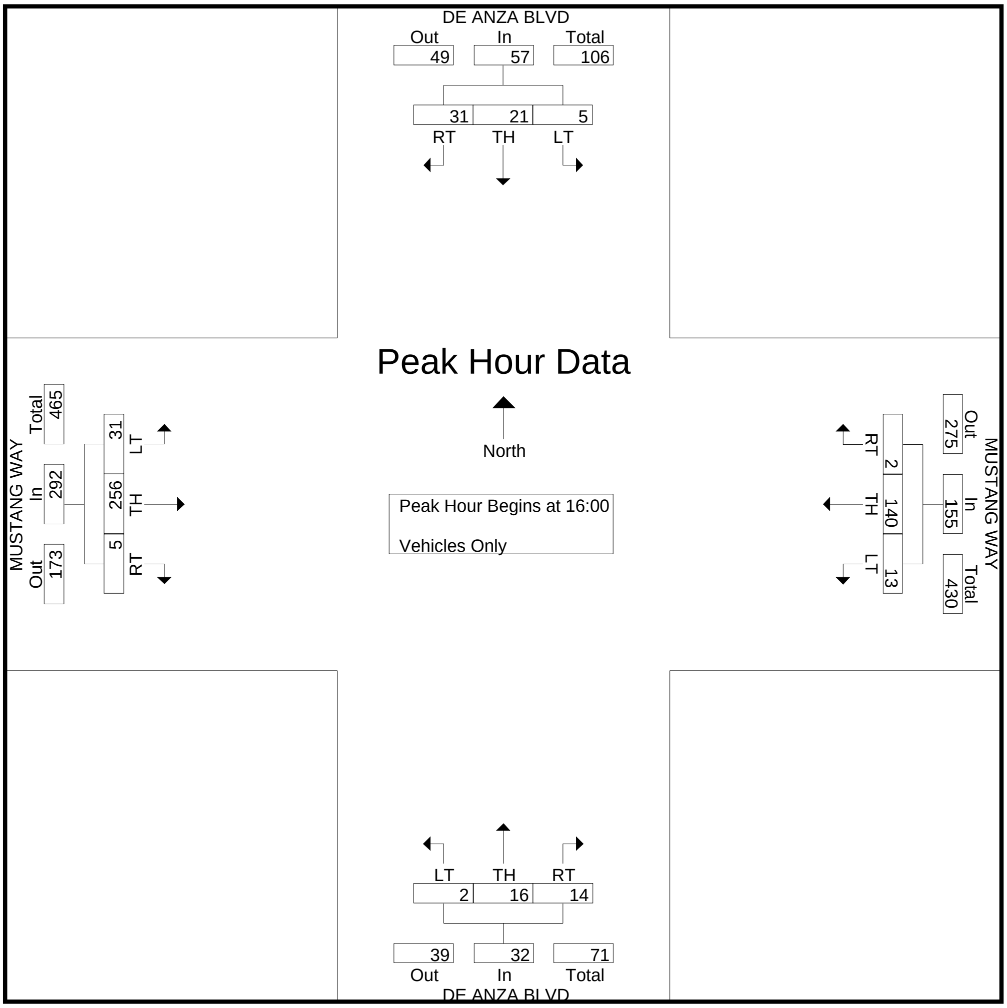
MOUNTAIN HOUSE
De Anza Blvd. & Mustang Way
Latitude: 37.766963
Longitude: -121.534503

File Name : de anza-mustang-p
Site Code : 15
Start Date : 4/25/2023
Page No : 1

Groups Printed- Vehicles Only

	DE ANZA BLVD Southbound				**MUSTANG WAY Westbound**				**DE ANZA BLVD Northbound**				**MUSTANG WAY Eastbound**				
Start Time	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	Int. Total
16:00	7	12	1	20	0	37	4	41	8	6	0	14	4	111	16	131	206
16:15	8	4	0	12	1	33	4	38	3	6	1	10	1	50	6	57	117
16:30	11	1	1	13	0	36	3	39	3	1	1	5	0	45	6	51	108
16:45	5	4	3	12	1	34	2	37	0	3	0	3	0	50	3	53	105
Total	31	21	5	57	2	140	13	155	14	16	2	32	5	256	31	292	536
17:00	9	6	1	16	1	35	3	39	3	7	2	12	1	41	13	55	122
17:15	11	5	1	17	1	41	3	45	0	4	1	5	1	49	3	53	120
17:30	5	6	1	12	1	44	5	50	0	5	0	5	0	44	4	48	115
17:45	8	4	0	12	1	59	8	68	1	9	1	11	0	41	9	50	141
Total	33	21	3	57	4	179	19	202	4	25	4	33	2	175	29	206	498
Grand Total	64	42	8	114	6	319	32	357	18	41	6	65	7	431	60	498	1034
Apprch %	56.1	36.8	7		1.7	89.4	9		27.7	63.1	9.2		1.4	86.5	12		
Total %	6.2	4.1	0.8	11	0.6	30.9	3.1	34.5	1.7	4	0.6	6.3	0.7	41.7	5.8	48.2	

	DE ANZA BLVD Southbound				**MUSTANG WAY Westbound**				**DE ANZA BLVD Northbound**				**MUSTANG WAY Eastbound**				
Start Time	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	Int. Total
Peak Hour Analysis From 16:00 to 17:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 16:00																	
16:00	7	**12**	1	**20**	0	**37**	**4**	**41**	**8**	**6**	0	**14**	**4**	**111**	**16**	**131**	**206**
16:15	8	4	0	12	**1**	33	4	38	3	6	**1**	10	1	50	6	57	117
16:30	**11**	1	1	13	0	36	3	39	3	1	1	5	0	45	6	51	108
16:45	5	4	**3**	12	1	34	2	37	0	3	0	3	0	50	3	53	105
Total Volume	31	21	5	57	2	140	13	155	14	16	2	32	5	256	31	292	536
% App. Total	54.4	36.8	8.8		1.3	90.3	8.4		43.8	50	6.2		1.7	87.7	10.6		
PHF	.705	.438	.417	.713	.500	.946	.813	.945	.438	.667	.500	.571	.313	.577	.484	.557	.650



TRAFFIC COUNTS PLUS

mietekm@comcast.net
925.305.4358

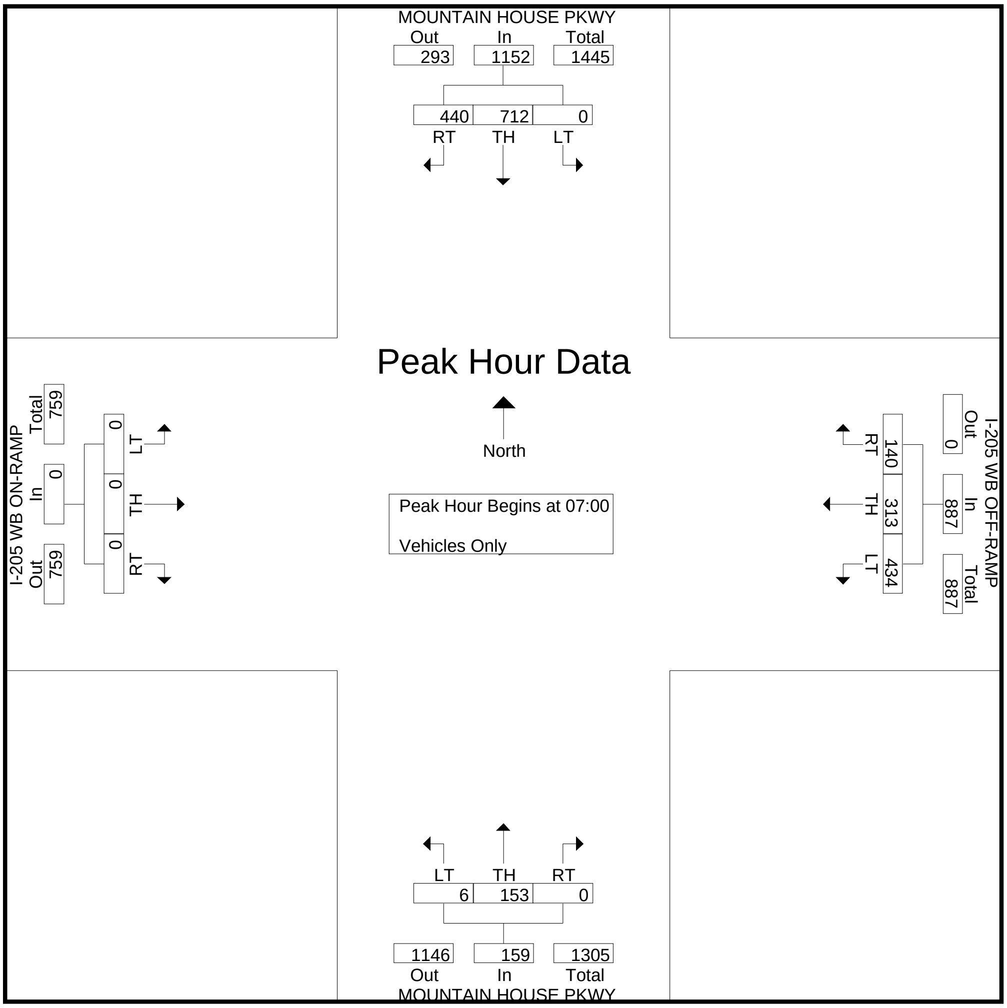
MOUNTAIN HOUSE
Mountain House Pkwy & I-205 WB ramps
Latitude: 37.743059
Longitude: -121.531648

File Name : mt house - 205 WB-a
Site Code : 16
Start Date : 4/25/2023
Page No : 1

Groups Printed- Vehicles Only

	MOUNTAIN HOUSE PKWY Southbound				I-205 WB OFF-RAMP Westbound				MOUNTAIN HOUSE PKWY Northbound				I-205 WB ON-RAMP Eastbound				
Start Time	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	Int. Total
07:00	129	189	0	318	30	91	102	223	0	38	2	40	0	0	0	0	581
07:15	140	199	0	339	31	61	103	195	0	34	2	36	0	0	0	0	570
07:30	113	153	0	266	35	75	131	241	0	35	1	36	0	0	0	0	543
07:45	58	171	0	229	44	86	98	228	0	46	1	47	0	0	0	0	504
Total	440	712	0	1152	140	313	434	887	0	153	6	159	0	0	0	0	2198
08:00	66	184	0	250	56	52	120	228	0	35	1	36	0	0	0	0	514
08:15	56	179	0	235	66	56	155	277	0	40	4	44	0	0	0	0	556
08:30	65	117	0	182	78	55	151	284	0	45	3	48	0	0	0	0	514
08:45	29	110	0	139	79	48	144	271	0	45	1	46	0	0	0	0	456
Total	216	590	0	806	279	211	570	1060	0	165	9	174	0	0	0	0	2040
Grand Total	656	1302	0	1958	419	524	1004	1947	0	318	15	333	0	0	0	0	4238
Apprch %	33.5	66.5	0		21.5	26.9	51.6		0	95.5	4.5		0	0	0		
Total %	15.5	30.7	0	46.2	9.9	12.4	23.7	45.9	0	7.5	0.4	7.9	0	0	0	0	

	MOUNTAIN HOUSE PKWY Southbound				I-205 WB OFF-RAMP Westbound				MOUNTAIN HOUSE PKWY Northbound				I-205 WB ON-RAMP Eastbound				
Start Time	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	Int. Total
Peak Hour Analysis From 07:00 to 08:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:00																	
07:00	129	189	0	318	30	**91**	102	223	0	38	**2**	40	0	0	0	0	**581**
07:15	**140**	**199**	0	**339**	31	61	103	195	0	34	2	36	0	0	0	0	570
07:30	113	153	0	266	35	75	**131**	**241**	0	35	1	36	0	0	0	0	543
07:45	58	171	0	229	**44**	86	98	228	0	**46**	1	**47**	0	0	0	0	504
Total Volume	440	712	0	1152	140	313	434	887	0	153	6	159	0	0	0	0	2198
% App. Total	38.2	61.8	0		15.8	35.3	48.9		0	96.2	3.8		0	0	0		
PHF	.786	.894	.000	.850	.795	.860	.828	.920	.000	.832	.750	.846	.000	.000	.000	.000	.946



TRAFFIC COUNTS PLUS

mietekm@comcast.net
925.305.4358

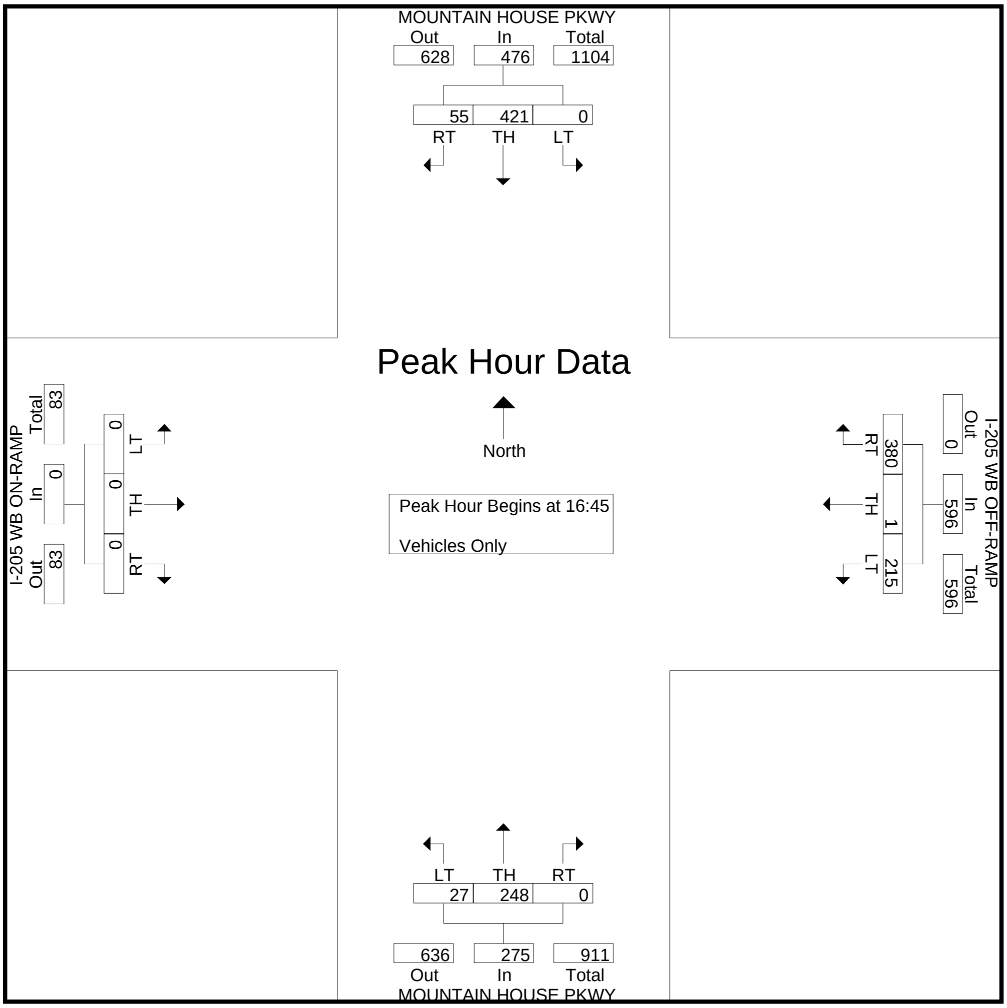
MOUNTAIN HOUSE
Mountain House Pkwy & I-205 WB ramps
Latitude: 37.743059
Longitude: -121.531648

File Name : mt house - 205 wb-p
Site Code : 16
Start Date : 4/25/2023
Page No : 1

Groups Printed- Vehicles Only

	MOUNTAIN HOUSE PKWY Southbound				I-205 WB OFF-RAMP Westbound				MOUNTAIN HOUSE PKWY Northbound				I-205 WB ON-RAMP Eastbound				
Start Time	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	Int. Total
16:00	18	164	0	182	72	0	55	127	0	49	3	52	0	0	0	0	361
16:15	8	99	0	107	77	0	49	126	0	42	1	43	0	0	0	0	276
16:30	12	112	0	124	81	1	50	132	0	56	7	63	0	0	0	0	319
16:45	11	110	0	121	95	0	48	143	0	55	5	60	0	0	0	0	324
Total	49	485	0	534	325	1	202	528	0	202	16	218	0	0	0	0	1280
17:00	10	106	0	116	79	1	46	126	0	60	5	65	0	0	0	0	307
17:15	21	103	0	124	103	0	58	161	0	69	13	82	0	0	0	0	367
17:30	13	102	0	115	103	0	63	166	0	64	4	68	0	0	0	0	349
17:45	11	80	0	91	108	0	61	169	0	57	3	60	0	0	0	0	320
Total	55	391	0	446	393	1	228	622	0	250	25	275	0	0	0	0	1343
Grand Total	104	876	0	980	718	2	430	1150	0	452	41	493	0	0	0	0	2623
Apprch %	10.6	89.4	0		62.4	0.2	37.4		0	91.7	8.3		0	0	0		
Total %	4	33.4	0	37.4	27.4	0.1	16.4	43.8	0	17.2	1.6	18.8	0	0	0	0	

	MOUNTAIN HOUSE PKWY Southbound				I-205 WB OFF-RAMP Westbound				MOUNTAIN HOUSE PKWY Northbound				I-205 WB ON-RAMP Eastbound				
Start Time	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	Int. Total
Peak Hour Analysis From 16:00 to 17:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 16:45																	
16:45	11	**110**	0	121	95	0	48	143	0	55	5	60	0	0	0	0	324
17:00	10	106	0	116	79	**1**	46	126	0	60	5	65	0	0	0	0	307
17:15	**21**	103	0	**124**	**103**	0	58	161	0	**69**	**13**	**82**	0	0	0	0	**367**
17:30	13	102	0	115	103	0	**63**	**166**	0	64	4	68	0	0	0	0	349
Total Volume	55	421	0	476	380	1	215	596	0	248	27	275	0	0	0	0	1347
% App. Total	11.6	88.4	0		63.8	0.2	36.1		0	90.2	9.8		0	0	0		
PHF	.655	.957	.000	.960	.922	.250	.853	.898	.000	.899	.519	.838	.000	.000	.000	.000	.918



TRAFFIC COUNTS PLUS
mietekm@comcast.net
925.305.4358

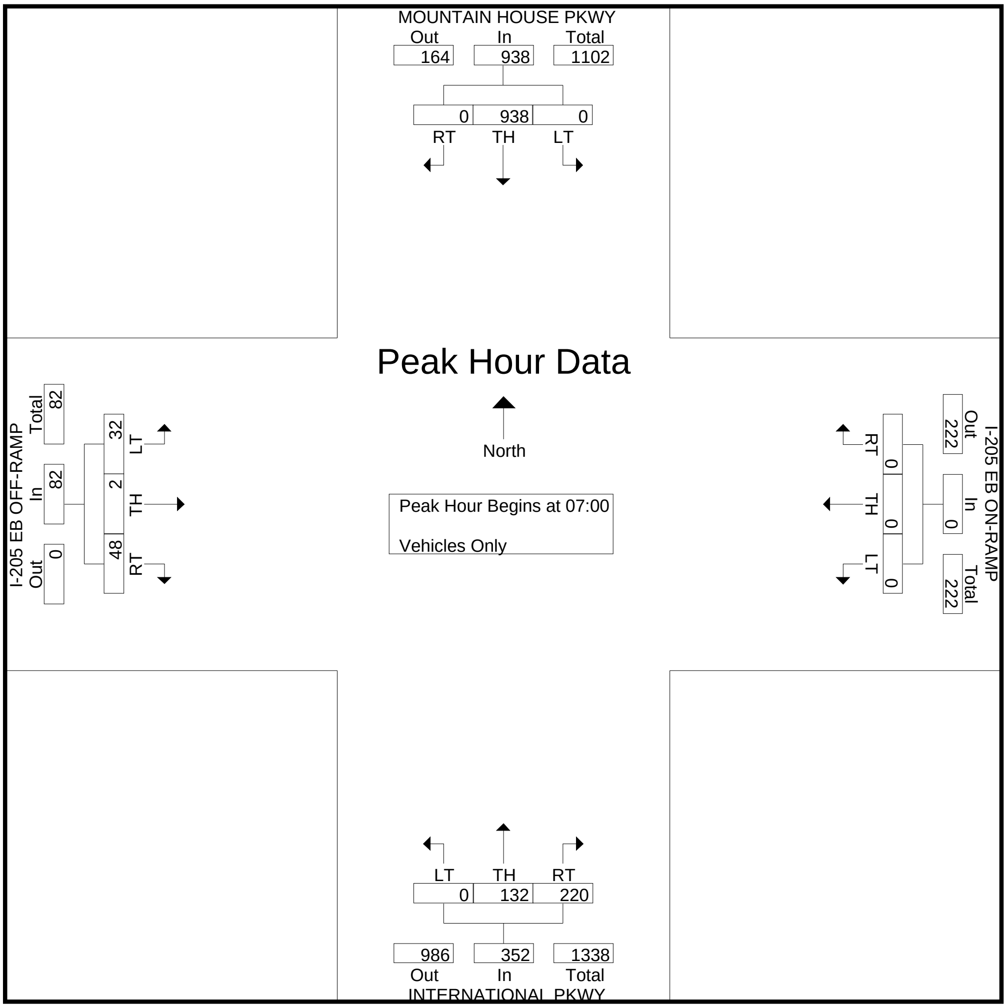
MOUNTAIN HOUSE
Mountain House Pkwy & I-205 EB ramps
Latitude: 37.741201
Longitude: -121.531618

File Name : mt house - 205 eb-a
Site Code : 17
Start Date : 4/25/2023
Page No : 1

Groups Printed- Vehicles Only

	MOUNTAIN HOUSE PKWY Southbound				**I-205 EB ON-RAMP Westbound**				**INTERNATIONAL PKWY Northbound**				**I-205 EB OFF-RAMP Eastbound**				
Start Time	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	Int. Total
07:00	0	279	0	279	0	0	0	0	73	30	0	103	18	2	11	31	413
07:15	0	236	0	236	0	0	0	0	45	28	0	73	8	0	8	16	325
07:30	0	247	0	247	0	0	0	0	48	29	0	77	8	0	6	14	338
07:45	0	176	0	176	0	0	0	0	54	45	0	99	14	0	7	21	296
Total	0	938	0	938	0	0	0	0	220	132	0	352	48	2	32	82	1372
08:00	0	182	0	182	0	0	0	0	62	29	0	91	10	0	8	18	291
08:15	0	226	0	226	0	0	0	0	52	32	0	84	10	2	11	23	333
08:30	0	204	0	204	0	0	0	0	114	35	0	149	14	1	10	25	378
08:45	0	188	0	188	0	0	0	0	91	38	0	129	13	0	8	21	338
Total	0	800	0	800	0	0	0	0	319	134	0	453	47	3	37	87	1340
Grand Total	0	1738	0	1738	0	0	0	0	539	266	0	805	95	5	69	169	2712
Apprch %	0	100	0		0	0	0		67	33	0		56.2	3	40.8		
Total %	0	64.1	0	64.1	0	0	0	0	19.9	9.8	0	29.7	3.5	0.2	2.5	6.2	

	MOUNTAIN HOUSE PKWY Southbound				**I-205 EB ON-RAMP Westbound**				**INTERNATIONAL PKWY Northbound**				**I-205 EB OFF-RAMP Eastbound**				
Start Time	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	Int. Total
Peak Hour Analysis From 07:00 to 08:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:00																	
07:00	0	**279**	0	**279**	0	0	0	0	**73**	30	0	**103**	**18**	**2**	**11**	**31**	**413**
07:15	0	236	0	236	0	0	0	0	45	28	0	73	8	0	8	16	325
07:30	0	247	0	247	0	0	0	0	48	29	0	77	8	0	6	14	338
07:45	0	176	0	176	0	0	0	0	54	**45**	0	99	14	0	7	21	296
Total Volume	0	938	0	938	0	0	0	0	220	132	0	352	48	2	32	82	1372
% App. Total	0	100	0		0	0	0		62.5	37.5	0		58.5	2.4	39		
PHF	.000	.841	.000	.841	.000	.000	.000	.000	.753	.733	.000	.854	.667	.250	.727	.661	.831



TRAFFIC COUNTS PLUS

mietekm@comcast.net
925.305.4358

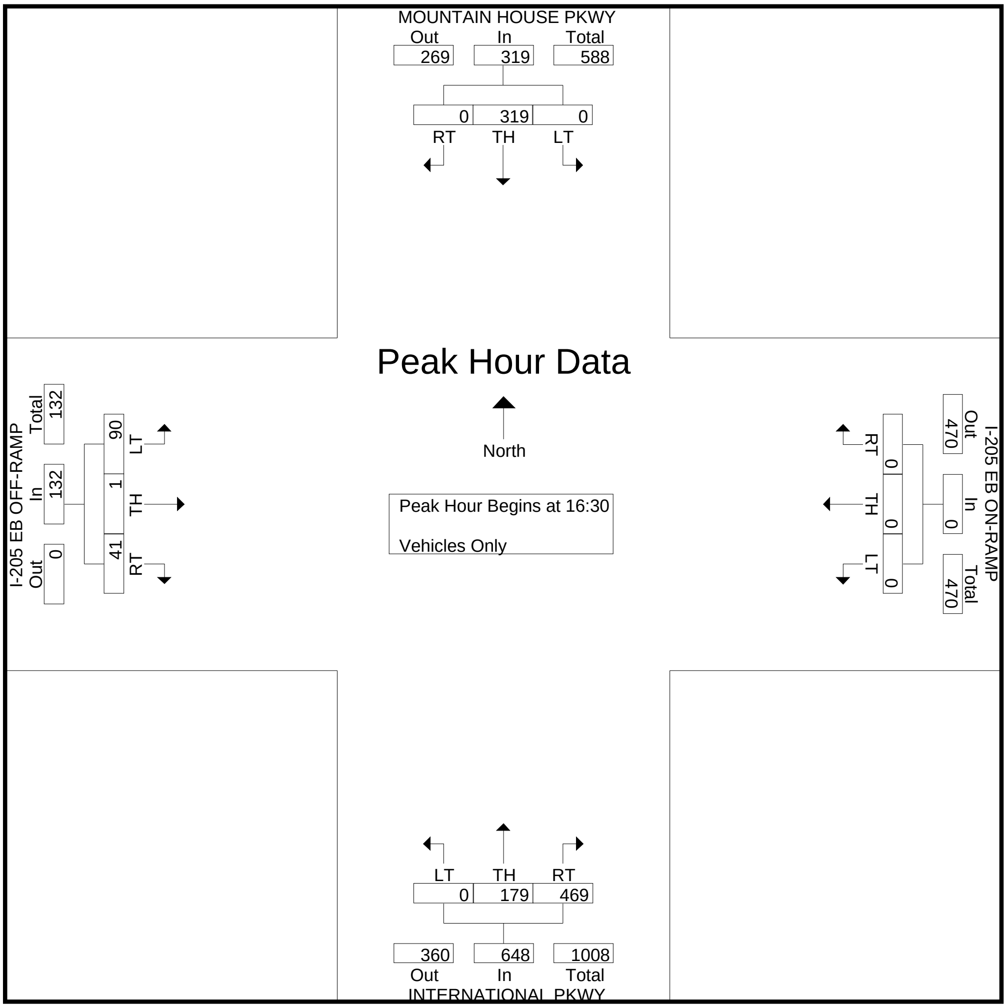
MOUNTAIN HOUSE
Mountain House Pkwy & I-205 EB ramps
Latitude: 37.741201
Longitude: -121.531618

File Name : mt house - 205 eb-p
Site Code : 17
Start Date : 4/25/2023
Page No : 1

Groups Printed- Vehicles Only

	MOUNTAIN HOUSE PKWY Southbound				I-205 EB ON-RAMP Westbound				INTERNATIONAL PKWY Northbound				I-205 EB OFF-RAMP Eastbound				
Start Time	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	Int. Total
16:00	0	101	0	101	0	0	0	0	119	31	0	150	4	1	18	23	274
16:15	0	77	0	77	0	0	0	0	94	25	0	119	3	2	21	26	222
16:30	0	88	0	88	0	0	0	0	152	45	0	197	8	0	18	26	311
16:45	0	82	0	82	0	0	0	0	108	38	0	146	11	0	23	34	262
Total	0	348	0	348	0	0	0	0	473	139	0	612	26	3	80	109	1069
17:00	0	72	0	72	0	0	0	0	100	43	0	143	11	1	24	36	251
17:15	0	77	0	77	0	0	0	0	109	53	0	162	11	0	25	36	275
17:30	0	81	0	81	0	0	0	0	136	47	0	183	7	0	24	31	295
17:45	0	91	0	91	0	0	0	0	97	32	0	129	9	1	25	35	255
Total	0	321	0	321	0	0	0	0	442	175	0	617	38	2	98	138	1076
Grand Total	0	669	0	669	0	0	0	0	915	314	0	1229	64	5	178	247	2145
Apprch %	0	100	0		0	0	0		74.5	25.5	0		25.9	2	72.1		
Total %	0	31.2	0	31.2	0	0	0	0	42.7	14.6	0	57.3	3	0.2	8.3	11.5	

	MOUNTAIN HOUSE PKWY Southbound				I-205 EB ON-RAMP Westbound				INTERNATIONAL PKWY Northbound				I-205 EB OFF-RAMP Eastbound				
Start Time	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	Int. Total
Peak Hour Analysis From 16:00 to 17:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 16:30																	
16:30	0	**88**	0	**88**	0	0	0	0	**152**	45	0	**197**	8	0	18	26	**311**
16:45	0	82	0	82	0	0	0	0	108	38	0	146	**11**	0	23	34	262
17:00	0	72	0	72	0	0	0	0	100	43	0	143	11	**1**	24	**36**	251
17:15	0	77	0	77	0	0	0	0	109	**53**	0	162	11	0	**25**	36	275
Total Volume	0	319	0	319	0	0	0	0	469	179	0	648	41	1	90	132	1099
% App. Total	0	100	0		0	0	0		72.4	27.6	0		31.1	0.8	68.2		
PHF	.000	.906	.000	.906	.000	.000	.000	.000	.771	.844	.000	.822	.932	.250	.900	.917	.883



TRAFFIC COUNTS PLUS
mietekm@comcast.net
925.305.4358

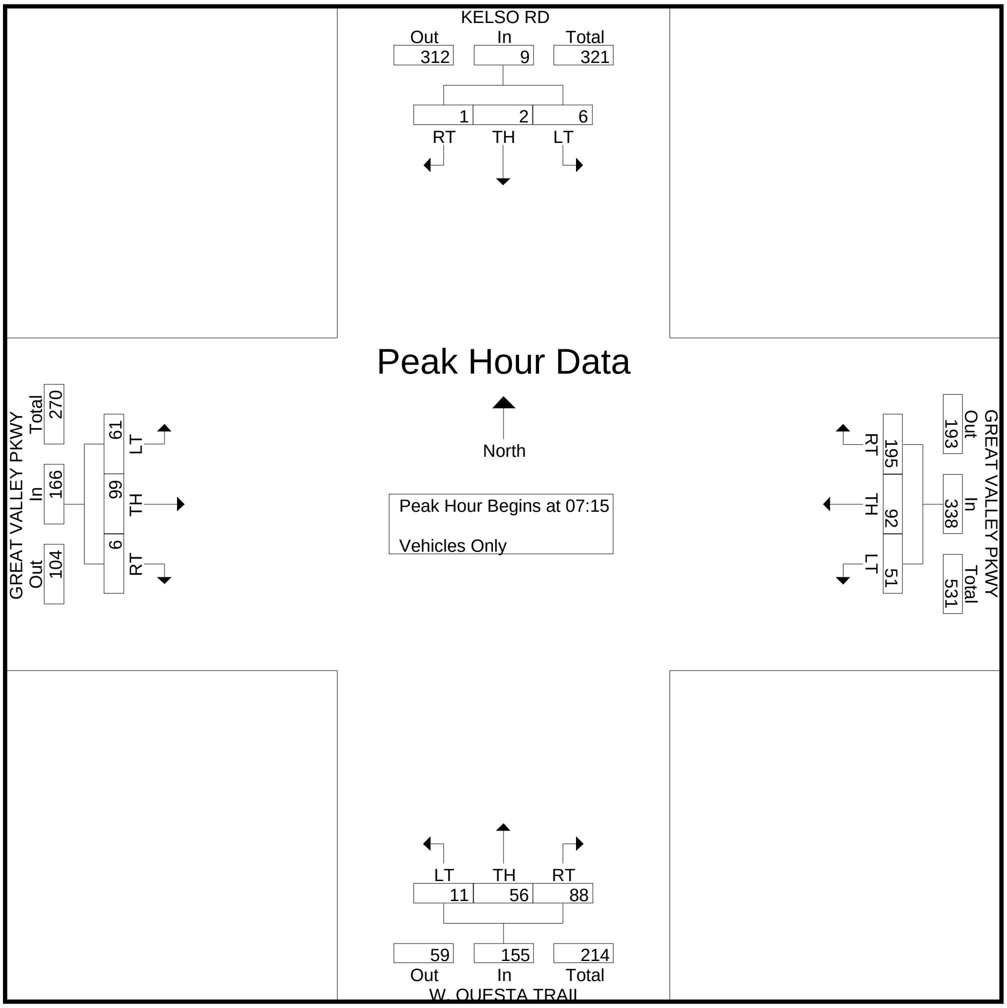
MOUNTAIN HOUSE
Kelso Rd. & Great Valley Pkwy.
Latitude: 37.793693
Longitude: -121.552638

File Name : kelso-g.valley-a
Site Code : 18
Start Date : 4/25/2023
Page No : 1

Groups Printed- Vehicles Only

	KELSO RD Southbound				GREAT VALLEY PKWY Westbound				W. QUESTA TRAIL Northbound				GREAT VALLEY PKWY Eastbound				
Start Time	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	Int. Total
07:00	0	1	2	3	44	14	10	68	12	17	1	30	0	13	9	22	123
07:15	0	1	3	4	34	9	11	54	12	21	2	35	0	13	7	20	113
07:30	0	0	0	0	44	22	13	79	24	8	0	32	0	22	19	41	152
07:45	0	0	0	0	68	35	12	115	21	8	4	33	0	26	21	47	195
Total	0	2	5	7	190	80	46	316	69	54	7	130	0	74	56	130	583
08:00	1	1	3	5	49	26	15	90	31	19	5	55	6	38	14	58	208
08:15	3	3	2	8	17	11	7	35	16	12	6	34	4	27	3	34	111
08:30	1	1	1	3	11	12	7	30	19	14	1	34	1	36	4	41	108
08:45	0	1	7	8	15	17	14	46	20	17	0	37	2	15	7	24	115
Total	5	6	13	24	92	66	43	201	86	62	12	160	13	116	28	157	542
Grand Total	5	8	18	31	282	146	89	517	155	116	19	290	13	190	84	287	1125
Apprch %	16.1	25.8	58.1		54.5	28.2	17.2		53.4	40	6.6		4.5	66.2	29.3		
Total %	0.4	0.7	1.6	2.8	25.1	13	7.9	46	13.8	10.3	1.7	25.8	1.2	16.9	7.5	25.5	

	KELSO RD Southbound				GREAT VALLEY PKWY Westbound				W. QUESTA TRAIL Northbound				GREAT VALLEY PKWY Eastbound				
Start Time	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	Int. Total
Peak Hour Analysis From 07:00 to 08:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:15																	
07:15	0	**1**	**3**	4	34	9	11	54	12	**21**	2	35	0	13	7	20	113
07:30	0	0	0	0	44	22	13	79	24	8	0	32	0	22	19	41	152
07:45	0	0	0	0	**68**	**35**	12	**115**	21	8	4	33	0	26	**21**	47	195
08:00	**1**	1	3	**5**	49	26	**15**	90	**31**	19	**5**	**55**	**6**	**38**	14	**58**	**208**
Total Volume	1	2	6	9	195	92	51	338	88	56	11	155	6	99	61	166	668
% App. Total	11.1	22.2	66.7		57.7	27.2	15.1		56.8	36.1	7.1		3.6	59.6	36.7		
PHF	.250	.500	.500	.450	.717	.657	.850	.735	.710	.667	.550	.705	.250	.651	.726	.716	.803



TRAFFIC COUNTS PLUS
mietekm@comcast.net
925.305.4358

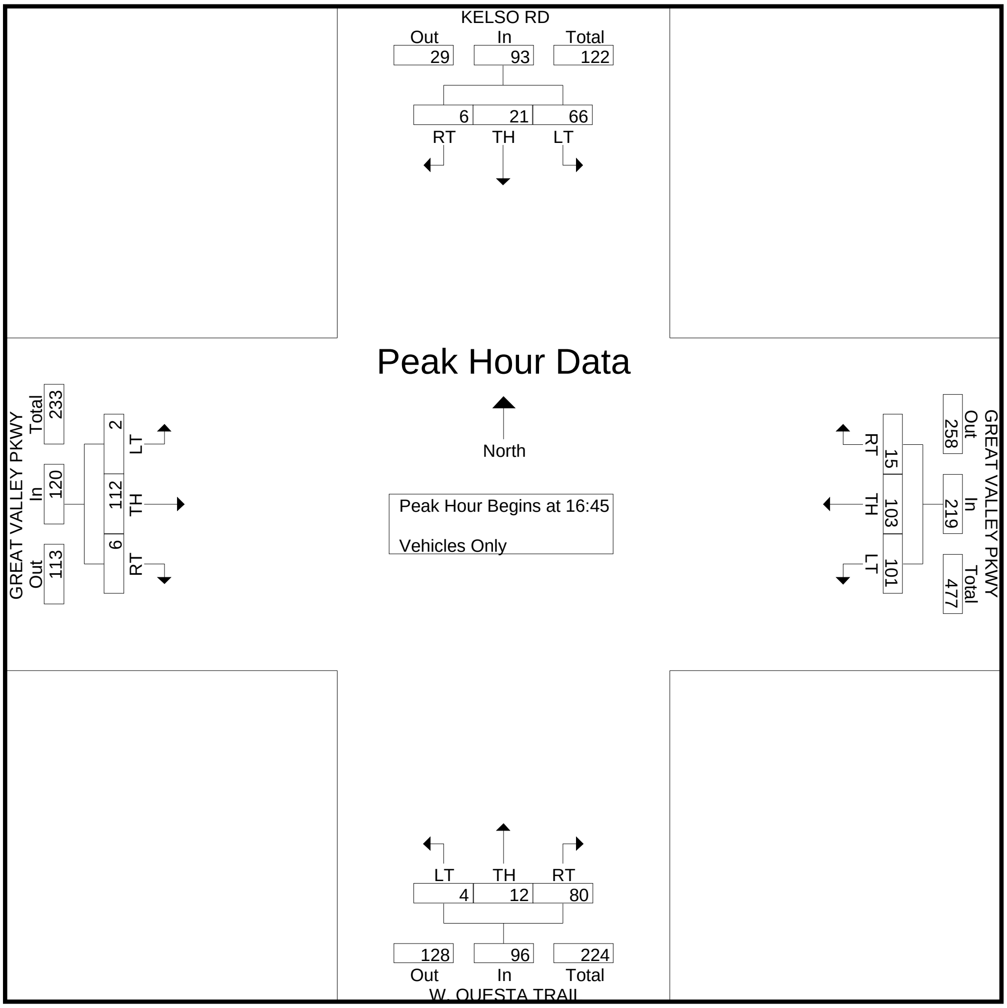
MOUNTAIN HOUSE
Kelso Rd. & Great Valley Pkwy.
Latitude: 37.793693
Longitude: -121.552638

File Name : kelso-g.valley-p
Site Code : 18
Start Date : 4/25/2023
Page No : 1

Groups Printed- Vehicles Only

	KELSO RD Southbound				**GREAT VALLEY PKWY Westbound**				**W. QUESTA TRAIL Northbound**				**GREAT VALLEY PKWY Eastbound**				
Start Time	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	Int. Total
16:00	5	4	26	35	6	18	17	41	24	3	2	29	1	30	3	34	139
16:15	0	5	11	16	0	18	18	36	22	2	1	25	0	25	3	28	105
16:30	2	5	33	40	3	20	19	42	23	1	1	25	0	19	1	20	127
16:45	2	4	19	25	6	32	26	64	15	5	2	22	3	26	0	29	140
Total	9	18	89	116	15	88	80	183	84	11	6	101	4	100	7	111	511
17:00	1	6	17	24	4	20	23	47	28	2	1	31	1	29	1	31	133
17:15	3	6	15	24	1	22	23	46	18	4	1	23	1	33	0	34	127
17:30	0	5	15	20	4	29	29	62	19	1	0	20	1	24	1	26	128
17:45	1	7	11	19	0	31	24	55	16	2	4	22	1	32	0	33	129
Total	5	24	58	87	9	102	99	210	81	9	6	96	4	118	2	124	517
Grand Total	14	42	147	203	24	190	179	393	165	20	12	197	8	218	9	235	1028
Apprch %	6.9	20.7	72.4		6.1	48.3	45.5		83.8	10.2	6.1		3.4	92.8	3.8		
Total %	1.4	4.1	14.3	19.7	2.3	18.5	17.4	38.2	16.1	1.9	1.2	19.2	0.8	21.2	0.9	22.9	

	KELSO RD Southbound				**GREAT VALLEY PKWY Westbound**				**W. QUESTA TRAIL Northbound**				**GREAT VALLEY PKWY Eastbound**				
Start Time	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	Int. Total
Peak Hour Analysis From 16:00 to 17:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 16:45																	
16:45	2	4	**19**	**25**	**6**	**32**	26	**64**	15	**5**	**2**	22	**3**	26	0	29	**140**
17:00	1	**6**	17	24	4	20	23	47	**28**	2	1	**31**	1	29	**1**	31	133
17:15	**3**	6	15	24	1	22	23	46	18	4	1	23	1	**33**	0	**34**	127
17:30	0	5	15	20	4	29	**29**	62	19	1	0	20	1	24	1	26	128
Total Volume	6	21	66	93	15	103	101	219	80	12	4	96	6	112	2	120	528
% App. Total	6.5	22.6	71		6.8	47	46.1		83.3	12.5	4.2		5	93.3	1.7		
PHF	.500	.875	.868	.930	.625	.805	.871	.855	.714	.600	.500	.774	.500	.848	.500	.882	.943



Prepared by National Data & Surveying Services

Great Valley Pkwy & Main St

Peak Hour Turning Movement Count

ID: 21-080043-012
City: Mountain House

Day: Tuesday
Date: 3/23/2021

PEAK HOURS		COUNT PERIODS
07:45 AM - 08:45 AM	AM	7:00 AM - 09:00 AM
NONE	NOON	NONE
04:45 PM - 05:45 PM	PM	4:00 PM - 06:00 PM

Great Valley Pkwy

SOUTHBOUND

	↲	↓	↳	⮌	⇧
AM	0	139	5	1	81
NOON	0	0	0	0	0
PM	0	89	9	1	130
	0	0	0	0	

Main St

EASTBOUND

	AM	NOON	PM	
⇦	0	0	0	
⮌	0	0	0	0
↱	0	0	0	0
→	0	0	0	0
↴	0	0	0	0

Main St

WESTBOUND

		PM	NOON	AM
0	↰	9	0	5
0	←	0	0	0
0	↙	20	0	46
0	⮍	0	0	1
	⇨	46	0	17

CONTROL

3-Way Stop

	AM	NOON	PM
TEV	283	0	286
PHF	0.86		0.97

NORTHBOUND

	⇩	⮍	↰	↑	↱
		0	0	0	0
PM	110	1	0	120	37
NOON	0	0	0	0	0
AM	185	0	0	75	11

Great Valley Pkwy

Totals (AM)

	Southbound	Westbound	Northbound	Eastbound
Right	0	5	11	0
Thru	139	0	75	0
Left	5	46	0	0

Totals (NOON)

	Southbound	Westbound	Northbound	Eastbound
Right	0	0	0	0
Thru	0	0	0	0
Left	0	0	0	0

Totals (PM)

	Southbound	Westbound	Northbound	Eastbound
Right	0	9	37	0
Thru	89	0	120	0
Left	9	20	0	0

Total Bikes (AM)

	Southbound	Westbound	Northbound	Eastbound
Right	0	0	0	0
Thru	1	0	0	0
Left	0	0	0	0

Total Bikes (NOON)

	Southbound	Westbound	Northbound	Eastbound
Right	0	0	0	0
Thru	0	0	0	0
Left	0	0	0	0

Total Bikes (PM)

	Southbound	Westbound	Northbound	Eastbound
Right	0	0	0	0
Thru	0	0	0	0
Left	0	1	0	0

Pedestrians (Crosswalks)

Crosswalk	→ AM	→ NOON	→ PM	← AM	← NOON	← PM
North	0	0	0	0	0	0
South	0	0	0	0	0	0

Crosswalk	↓ PM	↓ NOON	↓ AM	↑ AM	↑ NOON	↑ PM
West	0	0	0	0	0	0
East	6	0	11	7	0	6

Corner	PM	NOON	AM
NW	0	0	0
NE	0	0	0
SW	0	0	0
SE	0	0	0

Prepared by National Data & Surveying Services

Great Valley Pkwy & Mustang Way

Peak Hour Turning Movement Count

ID: 21-080043-008
City: Mountain House

Day: Tuesday
Date: 3/23/2021

PEAK HOURS		COUNT PERIODS
AM	07:30 AM - 08:30 AM	7:00 AM - 09:00 AM
NOON	NONE	NONE
PM	05:00 PM - 06:00 PM	4:00 PM - 06:00 PM

Great Valley Pkwy — SOUTHBOUND

	↲	↓	↳	U	⇧	
AM	0	207	20	0	96	AM
NOON	0	0	0	0	0	NOON
PM	0	83	46	0	243	PM
	0	0	0	0		

Mustang Way — EASTBOUND

	AM	NOON	PM	
⇦	0	0	0	
U	0	0	0	0
↱	0	0	0	0
→	0	0	0	0
↴	0	0	0	0
	AM	NOON	PM	

Mustang Way — WESTBOUND

		PM	NOON	AM
0	↰	50	0	33
0	←	0	0	0
0	↙	17	0	72
0	U	1	0	1
	⇨	119	0	41
		PM	NOON	AM

CONTROL

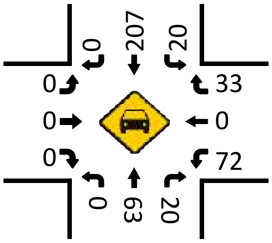
3-Way Stop

	AM	NOON	PM
TEV	416	0	462
PHF	0.87		0.94

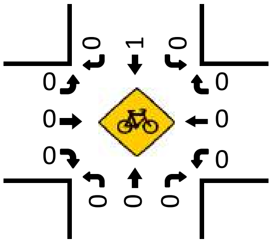
Great Valley Pkwy — NORTHBOUND

		0	0	0	0	
	⇩	U	↰	↑	↱	
PM	100	0	0	193	72	PM
NOON	0	0	0	0	0	NOON
AM	279	0	0	63	20	AM

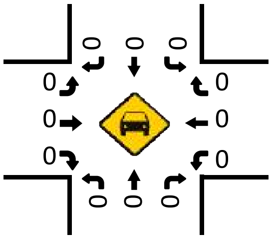
Totals (AM)



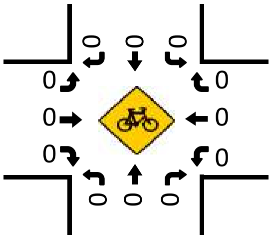
Total Bikes (AM)



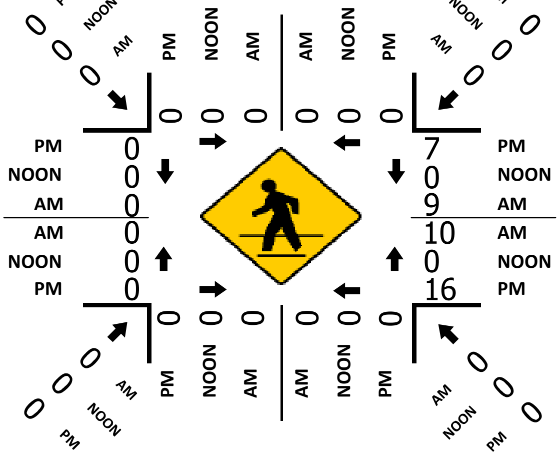
Totals (NOON)



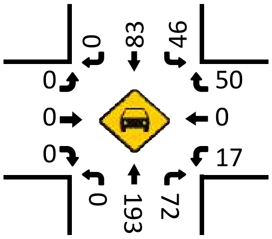
Total Bikes (NOON)



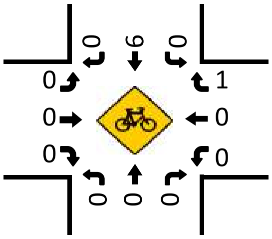
Pedestrians (Crosswalks)



Totals (PM)



Total Bikes (PM)



TRAFFIC COUNTS PLUS
mietekm@comcast.net
925.305.4358

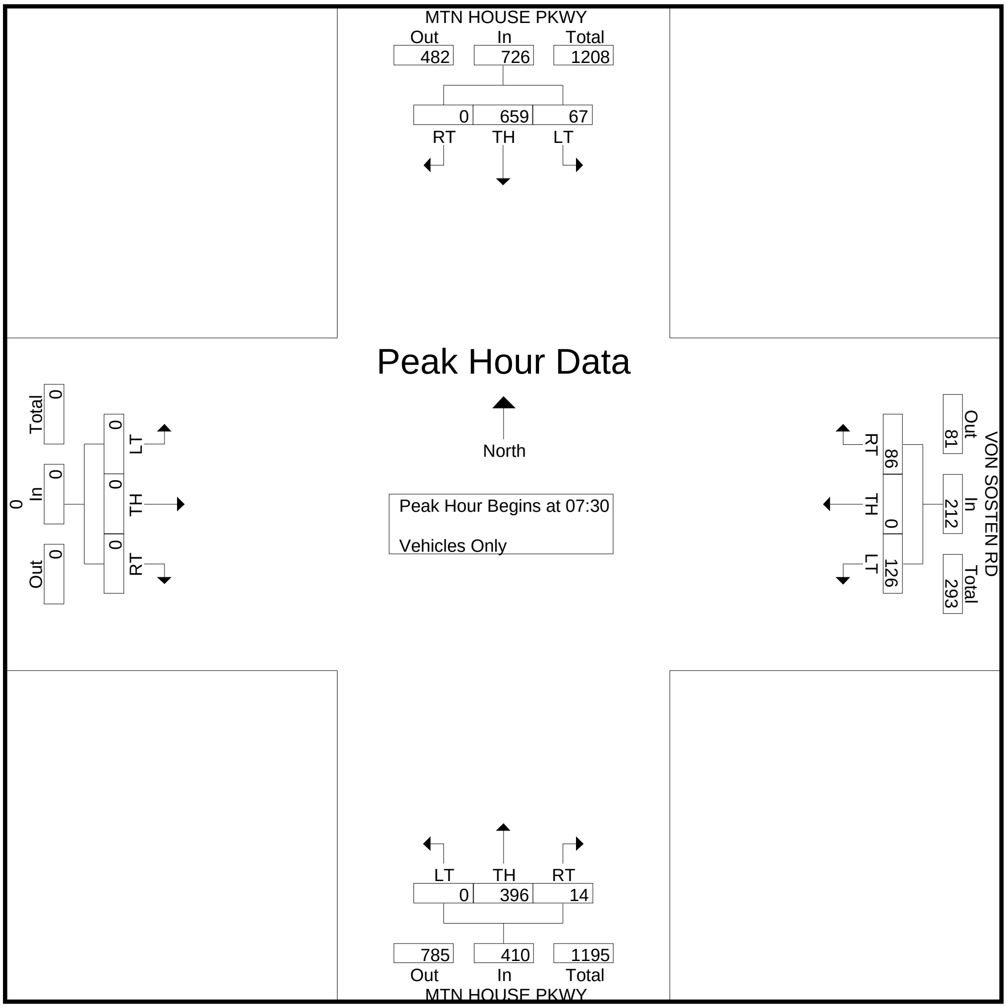
MOUNTAIN HOUSE
Mtn. House Pkwy. & Von Sosten Rd.
Latitude:37.751010
Longitude: -121.531632

File Name : mt. house-von sosten-a
Site Code : 7
Start Date : 10/26/2022
Page No : 1

Groups Printed- Vehicles Only

	MTN HOUSE PKWY Southbound				VON SOSTEN RD Westbound				MTN HOUSE PKWY Northbound				0 Eastbound				
Start Time	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	Int. Total
07:00	0	103	2	105	6	0	67	73	4	57	0	61	0	0	0	0	239
07:15	0	147	4	151	7	0	52	59	4	62	0	66	0	0	0	0	276
07:30	0	137	10	147	13	0	42	55	4	91	0	95	0	0	0	0	297
07:45	0	131	24	155	22	0	42	64	3	122	0	125	0	0	0	0	344
Total	0	518	40	558	48	0	203	251	15	332	0	347	0	0	0	0	1156
08:00	0	184	22	206	34	0	18	52	6	91	0	97	0	0	0	0	355
08:15	0	207	11	218	17	0	24	41	1	92	0	93	0	0	0	0	352
08:30	0	124	13	137	4	0	7	11	4	73	0	77	0	0	0	0	225
08:45	0	97	3	100	4	0	3	7	3	88	0	91	0	0	0	0	198
Total	0	612	49	661	59	0	52	111	14	344	0	358	0	0	0	0	1130
Grand Total	0	1130	89	1219	107	0	255	362	29	676	0	705	0	0	0	0	2286
Apprch %	0	92.7	7.3		29.6	0	70.4		4.1	95.9	0		0	0	0		
Total %	0	49.4	3.9	53.3	4.7	0	11.2	15.8	1.3	29.6	0	30.8	0	0	0	0	

	MTN HOUSE PKWY Southbound				VON SOSTEN RD Westbound				MTN HOUSE PKWY Northbound				0 Eastbound				
Start Time	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	Int. Total
Peak Hour Analysis From 07:00 to 08:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30																	
07:30	0	137	10	147	13	0	**42**	55	4	91	0	95	0	0	0	0	297
07:45	0	131	**24**	155	22	0	42	**64**	3	**122**	0	**125**	0	0	0	0	344
08:00	0	184	22	206	**34**	0	18	52	**6**	91	0	97	0	0	0	0	**355**
08:15	0	**207**	11	**218**	17	0	24	41	1	92	0	93	0	0	0	0	352
Total Volume	0	659	67	726	86	0	126	212	14	396	0	410	0	0	0	0	1348
% App. Total	0	90.8	9.2		40.6	0	59.4		3.4	96.6	0		0	0	0		
PHF	.000	.796	.698	.833	.632	.000	.750	.828	.583	.811	.000	.820	.000	.000	.000	.000	.949



TRAFFIC COUNTS PLUS
mietekm@comcast.net
925.305.4358

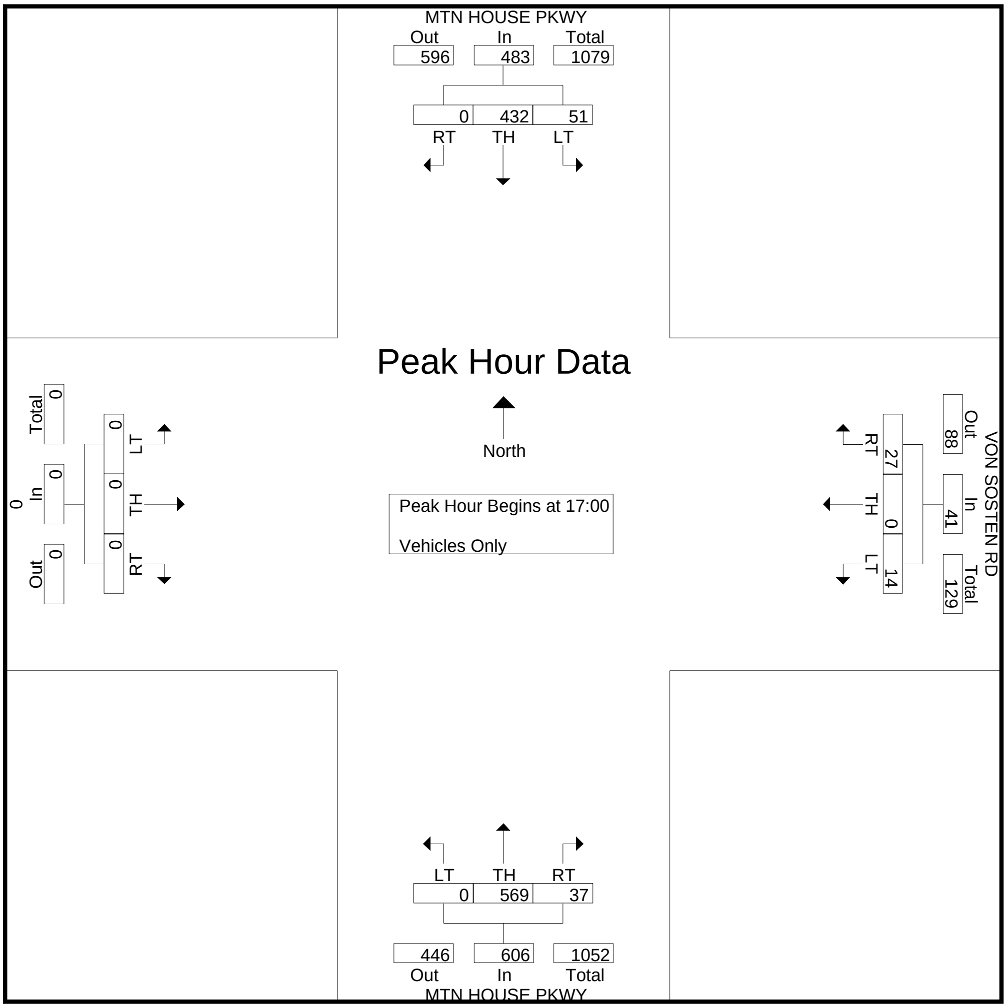
MOUNTAIN HOUSE
Mtn. House Pkwy. & Von Sosten Rd.
Latitude:37.751010
Longitude: -121.531632

File Name : mt. house-von sosten-p
Site Code : 7
Start Date : 10/26/2022
Page No : 1

Groups Printed- Vehicles Only

	MTN HOUSE PKWY Southbound				**VON SOSTEN RD Westbound**				**MTN HOUSE PKWY Northbound**				**0 Eastbound**				
Start Time	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	Int. Total
16:00	0	125	16	141	10	0	3	13	11	115	0	126	0	0	0	0	280
16:15	0	112	12	124	6	0	8	14	10	109	0	119	0	0	0	0	257
16:30	0	121	14	135	9	0	4	13	9	113	0	122	0	0	0	0	270
16:45	0	107	11	118	3	0	1	4	8	121	0	129	0	0	0	0	251
Total	0	465	53	518	28	0	16	44	38	458	0	496	0	0	0	0	1058
17:00	0	103	14	117	5	0	5	10	6	121	0	127	0	0	0	0	254
17:15	0	112	12	124	5	0	4	9	10	158	0	168	0	0	0	0	301
17:30	0	99	13	112	7	0	2	9	12	136	0	148	0	0	0	0	269
17:45	0	118	12	130	10	0	3	13	9	154	0	163	0	0	0	0	306
Total	0	432	51	483	27	0	14	41	37	569	0	606	0	0	0	0	1130
Grand Total	0	897	104	1001	55	0	30	85	75	1027	0	1102	0	0	0	0	2188
Apprch %	0	89.6	10.4		64.7	0	35.3		6.8	93.2	0		0	0	0		
Total %	0	41	4.8	45.7	2.5	0	1.4	3.9	3.4	46.9	0	50.4	0	0	0	0	

	MTN HOUSE PKWY Southbound				**VON SOSTEN RD Westbound**				**MTN HOUSE PKWY Northbound**				**0 Eastbound**				
Start Time	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	Int. Total
Peak Hour Analysis From 16:00 to 17:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 17:00																	
17:00	0	103	**14**	117	5	0	**5**	10	6	121	0	127	0	0	0	0	254
17:15	0	112	12	124	5	0	4	9	10	**158**	0	**168**	0	0	0	0	301
17:30	0	99	13	112	7	0	2	9	**12**	136	0	148	0	0	0	0	269
17:45	0	**118**	12	**130**	**10**	0	3	**13**	9	154	0	163	0	0	0	0	**306**
Total Volume	0	432	51	483	27	0	14	41	37	569	0	606	0	0	0	0	1130
% App. Total	0	89.4	10.6		65.9	0	34.1		6.1	93.9	0		0	0	0		
PHF	.000	.915	.911	.929	.675	.000	.700	.788	.771	.900	.000	.902	.000	.000	.000	.000	.923



TRAFFIC COUNTS PLUS
mietekm@comcast.net
925.305.4358

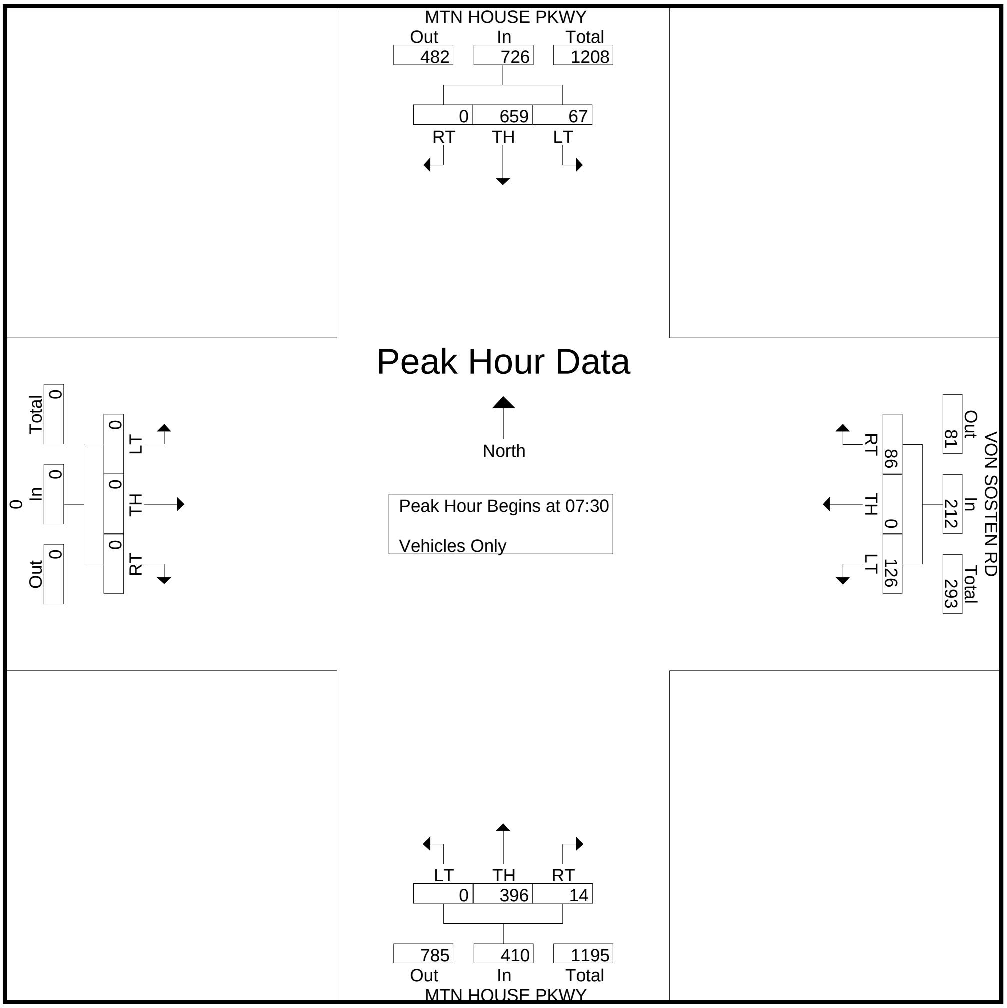
MOUNTAIN HOUSE
Mtn. House Pkwy. & Von Sosten Rd.
Latitude:37.751010
Longitude: -121.531632

File Name : mt. house-von sosten-a
Site Code : 7
Start Date : 10/26/2022
Page No : 1

Groups Printed- Vehicles Only

	MTN HOUSE PKWY Southbound				**VON SOSTEN RD Westbound**				**MTN HOUSE PKWY Northbound**				**0 Eastbound**				
Start Time	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	Int. Total
07:00	0	103	2	105	6	0	67	73	4	57	0	61	0	0	0	0	239
07:15	0	147	4	151	7	0	52	59	4	62	0	66	0	0	0	0	276
07:30	0	137	10	147	13	0	42	55	4	91	0	95	0	0	0	0	297
07:45	0	131	24	155	22	0	42	64	3	122	0	125	0	0	0	0	344
Total	0	518	40	558	48	0	203	251	15	332	0	347	0	0	0	0	1156
08:00	0	184	22	206	34	0	18	52	6	91	0	97	0	0	0	0	355
08:15	0	207	11	218	17	0	24	41	1	92	0	93	0	0	0	0	352
08:30	0	124	13	137	4	0	7	11	4	73	0	77	0	0	0	0	225
08:45	0	97	3	100	4	0	3	7	3	88	0	91	0	0	0	0	198
Total	0	612	49	661	59	0	52	111	14	344	0	358	0	0	0	0	1130
Grand Total	0	1130	89	1219	107	0	255	362	29	676	0	705	0	0	0	0	2286
Apprch %	0	92.7	7.3		29.6	0	70.4		4.1	95.9	0		0	0	0		
Total %	0	49.4	3.9	53.3	4.7	0	11.2	15.8	1.3	29.6	0	30.8	0	0	0	0	

	MTN HOUSE PKWY Southbound				**VON SOSTEN RD Westbound**				**MTN HOUSE PKWY Northbound**				**0 Eastbound**				
Start Time	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	Int. Total
Peak Hour Analysis From 07:00 to 08:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30																	
07:30	0	137	10	147	13	0	**42**	55	4	91	0	95	0	0	0	0	297
07:45	0	131	**24**	155	22	0	42	**64**	3	**122**	0	**125**	0	0	0	0	344
08:00	0	184	22	206	**34**	0	18	52	**6**	91	0	97	0	0	0	0	**355**
08:15	0	**207**	11	**218**	17	0	24	41	1	92	0	93	0	0	0	0	352
Total Volume	0	659	67	726	86	0	126	212	14	396	0	410	0	0	0	0	1348
% App. Total	0	90.8	9.2		40.6	0	59.4		3.4	96.6	0		0	0	0		
PHF	.000	.796	.698	.833	.632	.000	.750	.828	.583	.811	.000	.820	.000	.000	.000	.000	.949



TRAFFIC COUNTS PLUS
mietekm@comcast.net
925.305.4358

MOUNTAIN HOUSE
Mtn. House Pkwy. & Von Sosten Rd.
Latitude:37.751010
Longitude: -121.531632

File Name : mt. house-von sosten-p
Site Code : 7
Start Date : 10/26/2022
Page No : 1

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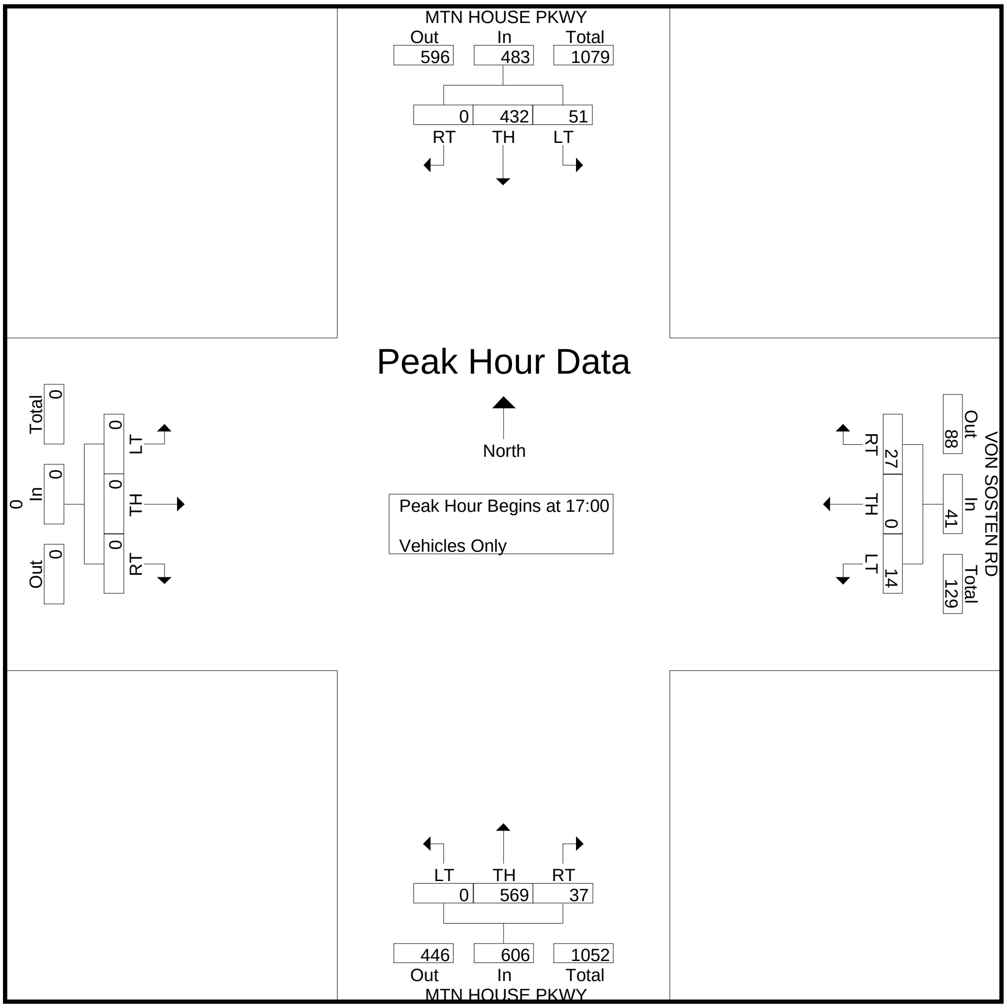
	MTN HOUSE PKWY Southbound				**VON SOSTEN RD Westbound**				**MTN HOUSE PKWY Northbound**				**0 Eastbound**				
Start Time	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	Int. Total
16:00	0	125	16	141	10	0	3	13	11	115	0	126	0	0	0	0	280
16:15	0	112	12	124	6	0	8	14	10	109	0	119	0	0	0	0	257
16:30	0	121	14	135	9	0	4	13	9	113	0	122	0	0	0	0	270
16:45	0	107	11	118	3	0	1	4	8	121	0	129	0	0	0	0	251
Total	0	465	53	518	28	0	16	44	38	458	0	496	0	0	0	0	1058
17:00	0	103	14	117	5	0	5	10	6	121	0	127	0	0	0	0	254
17:15	0	112	12	124	5	0	4	9	10	158	0	168	0	0	0	0	301
17:30	0	99	13	112	7	0	2	9	12	136	0	148	0	0	0	0	269
17:45	0	118	12	130	10	0	3	13	9	154	0	163	0	0	0	0	306
Total	0	432	51	483	27	0	14	41	37	569	0	606	0	0	0	0	1130
Grand Total	0	897	104	1001	55	0	30	85	75	1027	0	1102	0	0	0	0	2188
Apprch %	0	89.6	10.4		64.7	0	35.3		6.8	93.2	0		0	0	0		
Total %	0	41	4.8	45.7	2.5	0	1.4	3.9	3.4	46.9	0	50.4	0	0	0	0	

	MTN HOUSE PKWY Southbound				**VON SOSTEN RD Westbound**				**MTN HOUSE PKWY Northbound**				**0 Eastbound**				
Start Time	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	Int. Total
Peak Hour Analysis From 16:00 to 17:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 17:00																	
17:00	0	103	**14**	117	5	0	**5**	10	6	121	0	127	0	0	0	0	254
17:15	0	112	12	124	5	0	4	9	10	**158**	0	**168**	0	0	0	0	301
17:30	0	99	13	112	7	0	2	9	**12**	136	0	148	0	0	0	0	269
17:45	0	**118**	12	**130**	**10**	0	3	**13**	9	154	0	163	0	0	0	0	**306**
Total Volume	0	432	51	483	27	0	14	41	37	569	0	606	0	0	0	0	1130
% App. Total	0	89.4	10.6		65.9	0	34.1		6.1	93.9	0		0	0	0		
PHF	.000	.915	.911	.929	.675	.000	.700	.788	.771	.900	.000	.902	.000	.000	.000	.000	.923



TRAFFIC COUNTS PLUS
mietekm@comcast.net
925.305.4358

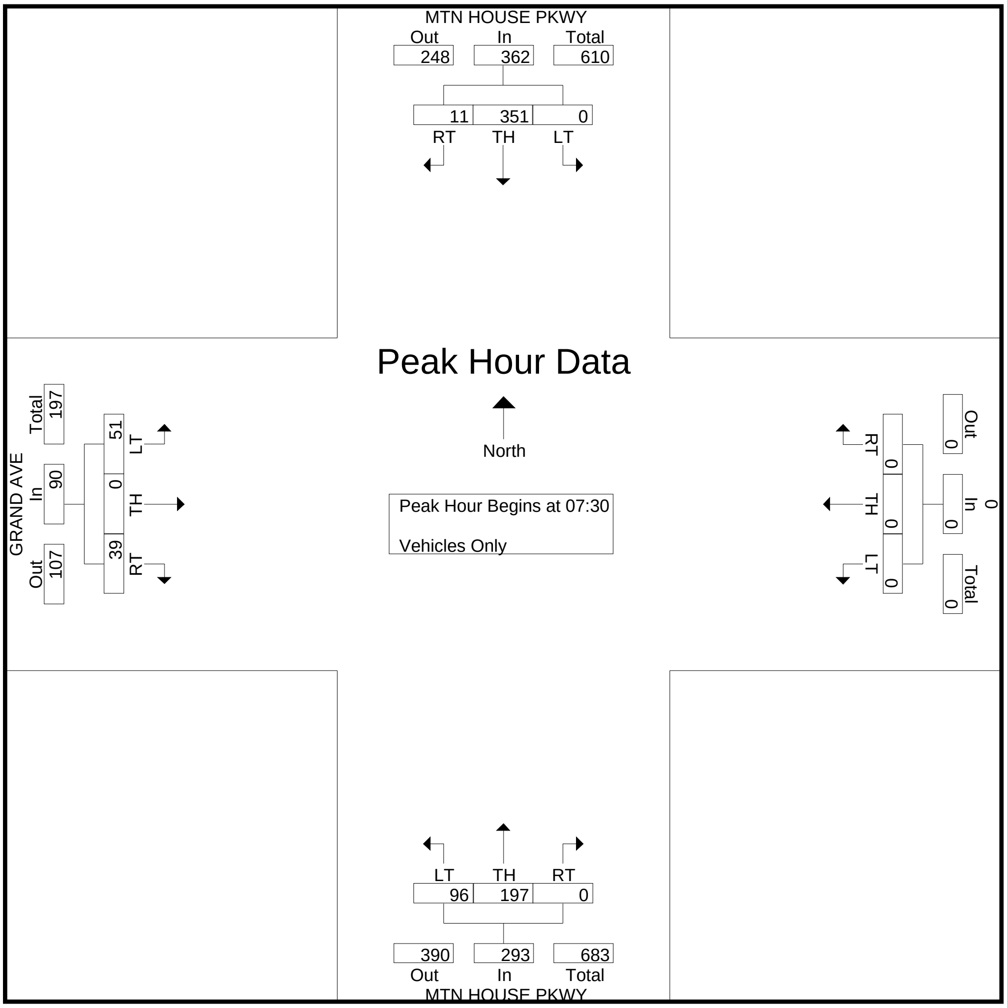
MOUNTAIN HOUSE
Mtn. House Pkwy. & Grand Ave.
Latitude:37.780650
Longitude: -121.531549

File Name : mt. house-grand-a
Site Code : 2
Start Date : 10/26/2022
Page No : 1

Groups Printed- Vehicles Only

	MTN HOUSE PKWY Southbound				**0 Westbound**				**MTN HOUSE PKWY Northbound**				**GRAND AVE Eastbound**				
Start Time	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	Int. Total
07:00	2	80	0	82	0	0	0	0	0	26	13	39	4	0	7	11	132
07:15	3	78	0	81	0	0	0	0	0	39	10	49	8	0	8	16	146
07:30	1	91	0	92	0	0	0	0	0	57	15	72	7	0	10	17	181
07:45	4	117	0	121	0	0	0	0	0	46	15	61	10	0	13	23	205
Total	10	366	0	376	0	0	0	0	0	168	53	221	29	0	38	67	664
08:00	3	67	0	70	0	0	0	0	0	49	41	90	7	0	13	20	180
08:15	3	76	0	79	0	0	0	0	0	45	25	70	15	0	15	30	179
08:30	2	67	0	69	0	0	0	0	0	52	20	72	18	0	14	32	173
08:45	0	69	0	69	0	0	0	0	0	54	24	78	11	0	7	18	165
Total	8	279	0	287	0	0	0	0	0	200	110	310	51	0	49	100	697
Grand Total	18	645	0	663	0	0	0	0	0	368	163	531	80	0	87	167	1361
Apprch %	2.7	97.3	0		0	0	0		0	69.3	30.7		47.9	0	52.1		
Total %	1.3	47.4	0	48.7	0	0	0	0	0	27	12	39	5.9	0	6.4	12.3	

	MTN HOUSE PKWY Southbound				**0 Westbound**				**MTN HOUSE PKWY Northbound**				**GRAND AVE Eastbound**				
Start Time	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	Int. Total
Peak Hour Analysis From 07:00 to 08:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30																	
07:30	1	91	0	92	0	0	0	0	0	**57**	15	72	7	0	10	17	181
07:45	**4**	**117**	0	**121**	0	0	0	0	0	46	15	61	10	0	13	23	**205**
08:00	3	67	0	70	0	0	0	0	0	49	**41**	**90**	7	0	13	20	180
08:15	3	76	0	79	0	0	0	0	0	45	25	70	**15**	0	**15**	**30**	179
Total Volume	11	351	0	362	0	0	0	0	0	197	96	293	39	0	51	90	745
% App. Total	3	97	0		0	0	0		0	67.2	32.8		43.3	0	56.7		
PHF	.688	.750	.000	.748	.000	.000	.000	.000	.000	.864	.585	.814	.650	.000	.850	.750	.909



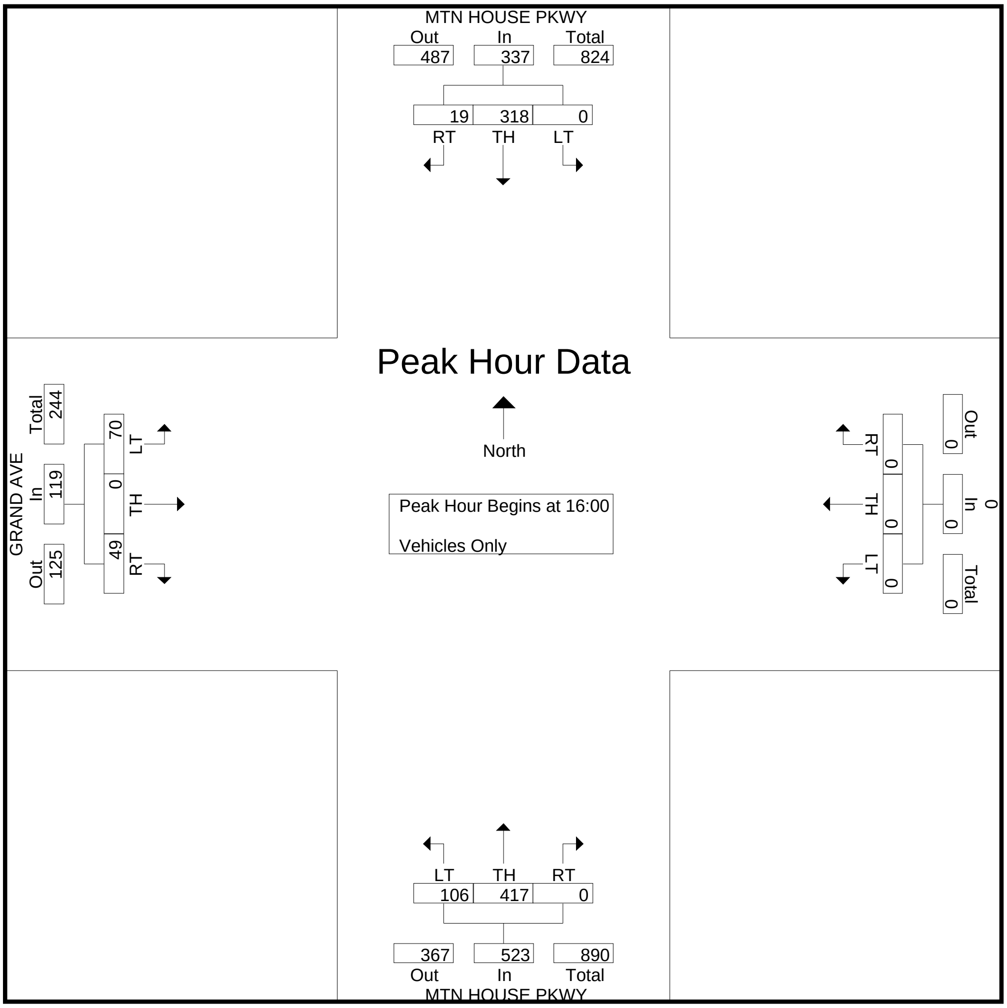
MOUNTAIN HOUSE
Mtn. House Pkwy. & Grand Ave.
Latitude:37.780650
Longitude: -121.531549

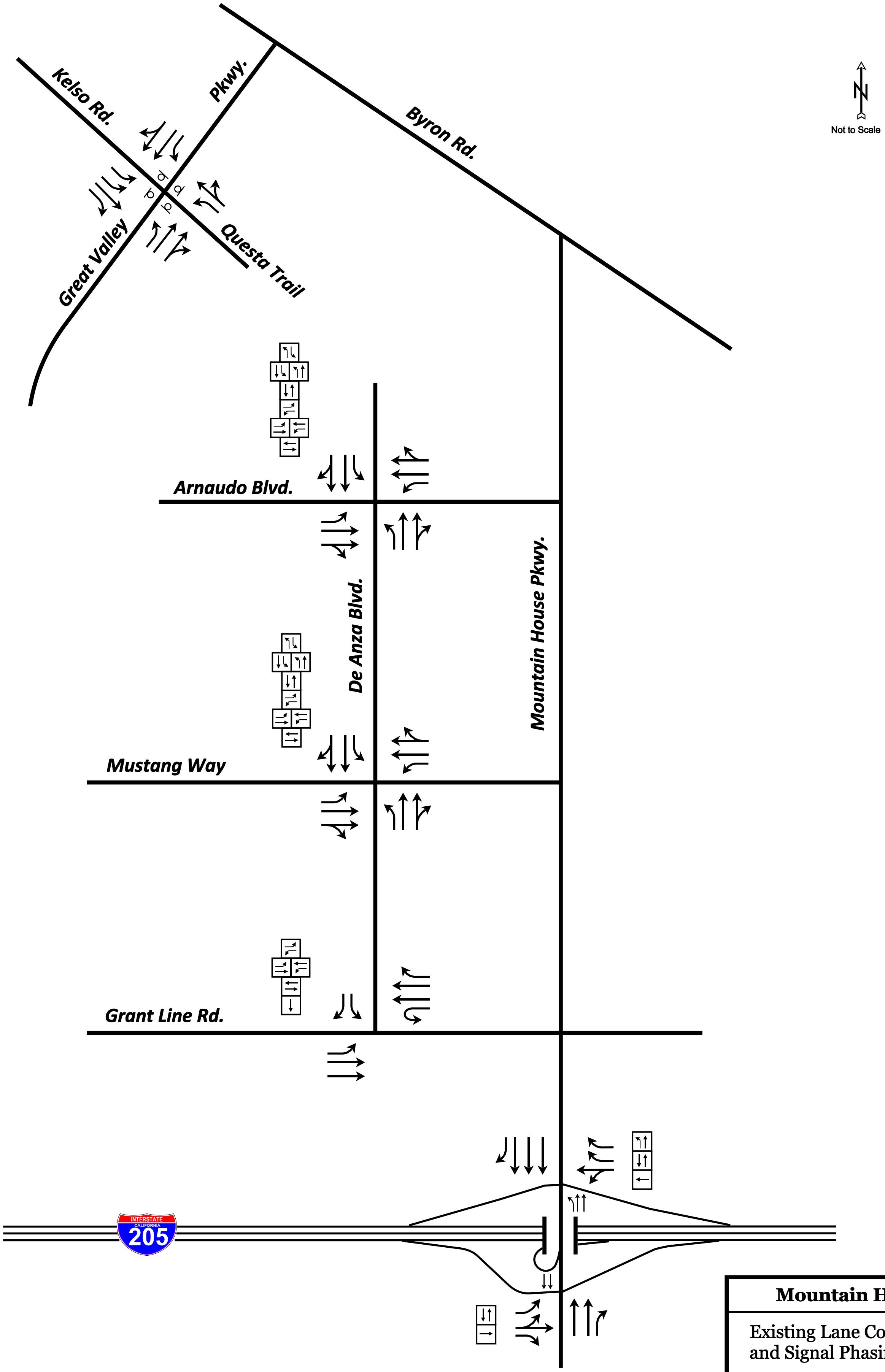
File Name : mt. house-grand-p
Site Code : 2
Start Date : 10/26/2022

Groups Printed- Vehicles Only

	MTN HOUSE PKWY Southbound				**0 Westbound**				**MTN HOUSE PKWY Northbound**				**GRAND AVE Eastbound**				
Start Time	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	Int. Total
16:00	4	87	0	91	0	0	0	0	0	120	29	149	11	0	18	29	269
16:15	4	71	0	75	0	0	0	0	0	84	29	113	12	0	15	27	215
16:30	5	87	0	92	0	0	0	0	0	103	25	128	13	0	17	30	250
16:45	6	73	0	79	0	0	0	0	0	110	23	133	13	0	20	33	245
Total	19	318	0	337	0	0	0	0	0	417	106	523	49	0	70	119	979
17:00	2	85	0	87	0	0	0	0	0	80	23	103	19	0	14	33	223
17:15	2	111	0	113	0	0	0	0	0	91	25	116	15	0	11	26	255
17:30	4	83	0	87	0	0	0	0	0	95	28	123	22	0	14	36	246
17:45	1	91	0	92	0	0	0	0	0	86	30	116	15	0	8	23	231
Total	9	370	0	379	0	0	0	0	0	352	106	458	71	0	47	118	955
Grand Total	28	688	0	716	0	0	0	0	0	769	212	981	120	0	117	237	1934
Apprch %	3.9	96.1	0		0	0	0		0	78.4	21.6		50.6	0	49.4		
Total %	1.4	35.6	0	37	0	0	0	0	0	39.8	11	50.7	6.2	0	6	12.3	

	MTN HOUSE PKWY Southbound				**0 Westbound**				**MTN HOUSE PKWY Northbound**				**GRAND AVE Eastbound**				
Start Time	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	Int. Total
Peak Hour Analysis From 16:00 to 17:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 16:00																	
16:00	4	**87**	0	91	0	0	0	0	0	**120**	**29**	**149**	11	0	18	29	**269**
16:15	4	71	0	75	0	0	0	0	0	84	29	113	12	0	15	27	215
16:30	5	87	0	**92**	0	0	0	0	0	103	25	128	**13**	0	17	30	250
16:45	**6**	73	0	79	0	0	0	0	0	110	23	133	13	0	**20**	**33**	245
Total Volume	19	318	0	337	0	0	0	0	0	417	106	523	49	0	70	119	979
% App. Total	5.6	94.4	0		0	0	0		0	79.7	20.3		41.2	0	58.8		
PHF	.792	.914	.000	.916	.000	.000	.000	.000	.000	.869	.914	.878	.942	.000	.875	.902	.910



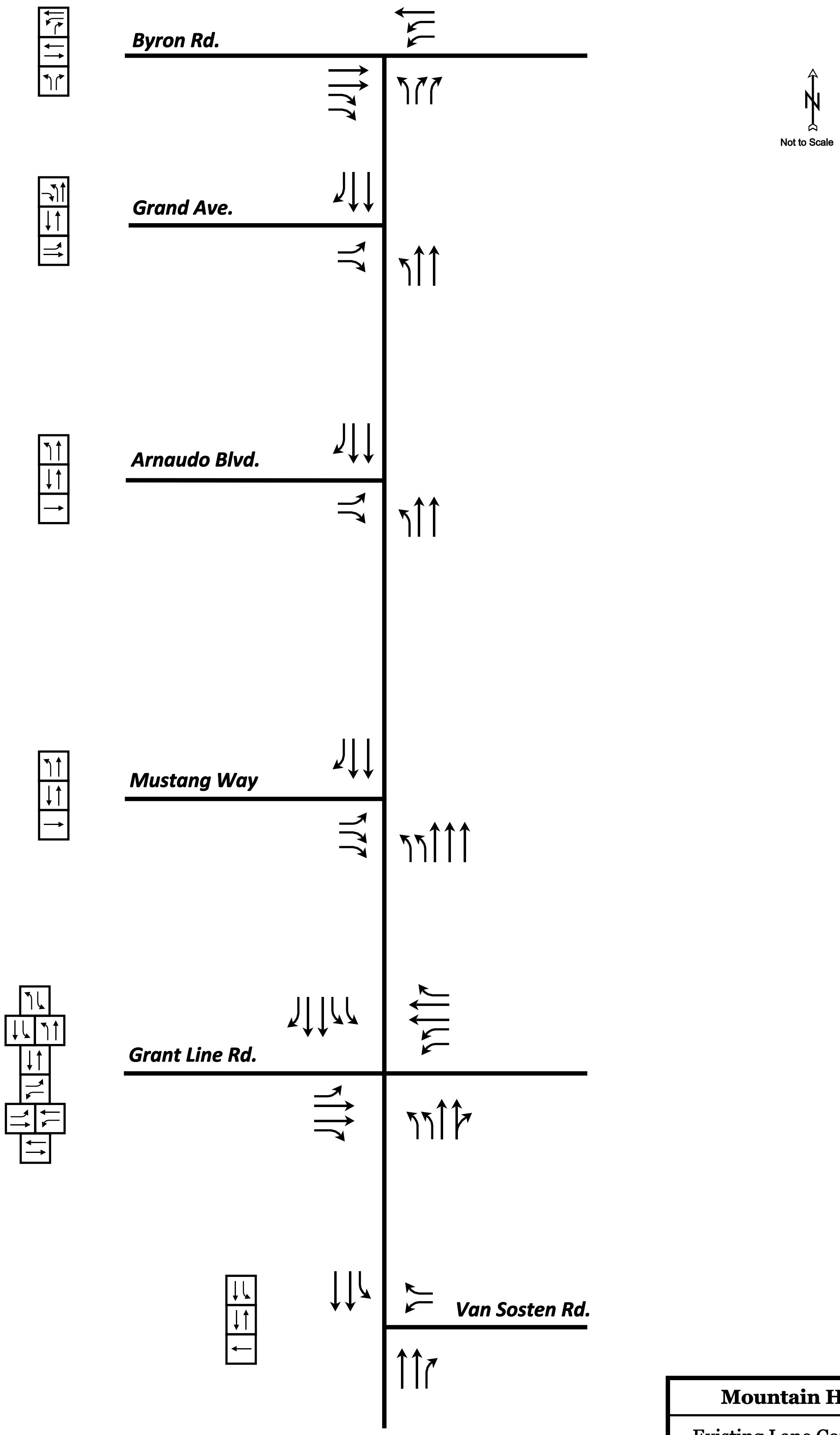


Mountain House

Existing Lane Configuration
and Signal Phasing

April 2023

Prepared by: TCP



Mountain House

Existing Lane Configuration
and Signal Phasing

October 2022

Prepared by: TCP

Appendix B INTERSECTION LOS ANALYSIS: EXISTING CONDITIONS LOS CALCULATION SHEETS

HCM 2010 Signalized Intersection Summary
1: Great Valley Pkwy & Byron Rd

Existing Conditions
AM Peak

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↱	↰	↑↑	↰	↱
Traffic Volume (veh/h)	371	42	113	419	40	72
Future Volume (veh/h)	371	42	113	419	40	72
Number	4	14	3	8	5	12
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1681	1681	1696	1696	1845	1845
Adj Flow Rate, veh/h	431	56	131	505	56	100
Adj No. of Lanes	1	1	1	2	1	1
Peak Hour Factor	0.86	0.75	0.86	0.83	0.71	0.72
Percent Heavy Veh, %	13	13	12	12	3	3
Cap, veh/h	580	493	166	1806	195	174
Arrive On Green	0.34	0.34	0.10	0.56	0.11	0.11
Sat Flow, veh/h	1681	1429	1616	3308	1757	1568
Grp Volume(v), veh/h	431	56	131	505	56	100
Grp Sat Flow(s),veh/h/ln	1681	1429	1616	1612	1757	1568
Q Serve(g_s), s	8.0	0.9	2.8	2.9	1.0	2.1
Cycle Q Clear(g_c), s	8.0	0.9	2.8	2.9	1.0	2.1
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	580	493	166	1806	195	174
V/C Ratio(X)	0.74	0.11	0.79	0.28	0.29	0.57
Avail Cap(c_a), veh/h	1262	1073	458	3698	393	351
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	10.2	7.9	15.5	4.0	14.4	14.9
Incr Delay (d2), s/veh	1.9	0.1	8.2	0.1	0.8	3.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.9	0.4	1.6	1.3	0.5	1.1
LnGrp Delay(d),s/veh	12.1	8.0	23.7	4.1	15.2	17.9
LnGrp LOS	B	A	C	A	B	B
Approach Vol, veh/h	487			636	156	
Approach Delay, s/veh	11.6			8.2	16.9	
Approach LOS	B			A	B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4				8
Phs Duration (G+Y+Rc), s		9.0	7.6	18.7				26.3
Change Period (Y+Rc), s		5.1	4.0	6.5				6.5
Max Green Setting (Gmax), s		7.9	10.0	26.5				40.5
Max Q Clear Time (g_c+I1), s		4.1	4.8	10.0				4.9
Green Ext Time (p_c), s		0.1	0.1	2.2				3.1

Intersection Summary	
HCM 2010 Ctrl Delay	10.5
HCM 2010 LOS	B

HCM 2010 Signalized Intersection Summary
2: Mountain House Pkwy & Byron Rd

Existing Conditions
AM Peak

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↱↱	↰↰	↑	↰	↱↱
Traffic Volume (veh/h)	409	112	242	470	120	110
Future Volume (veh/h)	409	112	242	470	120	110
Number	6	16	5	2	7	14
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1696	1696	1696	1696	1759	1759
Adj Flow Rate, veh/h	487	124	356	495	148	149
Adj No. of Lanes	2	2	2	1	1	2
Peak Hour Factor	0.84	0.90	0.68	0.95	0.81	0.74
Percent Heavy Veh, %	12	12	12	12	8	8
Cap, veh/h	956	753	616	987	326	1029
Arrive On Green	0.30	0.30	0.20	0.58	0.19	0.19
Sat Flow, veh/h	3308	2538	3134	1696	1675	2632
Grp Volume(v), veh/h	487	124	356	495	148	149
Grp Sat Flow(s),veh/h/ln	1612	1269	1567	1696	1675	1316
Q Serve(g_s), s	6.3	1.8	5.2	8.7	3.9	1.8
Cycle Q Clear(g_c), s	6.3	1.8	5.2	8.7	3.9	1.8
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	956	753	616	987	326	1029
V/C Ratio(X)	0.51	0.16	0.58	0.50	0.45	0.14
Avail Cap(c_a), veh/h	2485	1957	1890	1308	984	2062
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	14.7	13.2	18.4	6.2	18.0	9.9
Incr Delay (d2), s/veh	0.5	0.1	0.3	0.5	0.4	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.8	0.7	2.3	4.1	1.8	1.7
LnGrp Delay(d),s/veh	15.2	13.3	18.7	6.7	18.4	10.0
LnGrp LOS	B	B	B	A	B	A
Approach Vol, veh/h	611			851	297	
Approach Delay, s/veh	14.8			11.7	14.1	
Approach LOS	B			B	B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		35.4		15.1	14.4	21.0		
Change Period (Y+Rc), s		6.0		5.3	4.5	6.0		
Max Green Setting (Gmax), s		39.0		29.7	30.5	39.0		
Max Q Clear Time (g_c+I1), s		10.7		5.9	7.2	8.3		
Green Ext Time (p_c), s		3.8		0.3	0.4	4.6		

Intersection Summary			
HCM 2010 Ctrl Delay			13.2
HCM 2010 LOS			B

HCM 2010 Signalized Intersection Summary
3: Mountain House Pkwy & Main St

Existing Conditions
AM Peak

	↗	↘	↖	↑	↓	↙
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations				↑↑	↑↑	
Traffic Volume (veh/h)	0	0	0	293	388	0
Future Volume (veh/h)	0	0	0	293	388	0
Number			5	2	6	16
Initial Q (Qb), veh			0	0	0	0
Ped-Bike Adj(A_pbT)			1.00			1.00
Parking Bus, Adj			1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln			0	1727	1727	0
Adj Flow Rate, veh/h			0	318	422	0
Adj No. of Lanes			0	2	2	0
Peak Hour Factor			0.92	0.92	0.92	0.92
Percent Heavy Veh, %			0	10	10	0
Cap, veh/h			0	2344	2344	0
Arrive On Green			0.00	0.71	0.71	0.00
Sat Flow, veh/h			0	3455	3455	0
Grp Volume(v), veh/h			0	318	422	0
Grp Sat Flow(s),veh/h/ln			0	1641	1641	0
Q Serve(g_s), s			0.0	0.6	0.9	0.0
Cycle Q Clear(g_c), s			0.0	0.6	0.9	0.0
Prop In Lane			0.00			0.00
Lane Grp Cap(c), veh/h			0	2344	2344	0
V/C Ratio(X)			0.00	0.14	0.18	0.00
Avail Cap(c_a), veh/h			0	5313	5313	0
HCM Platoon Ratio			1.00	1.00	1.00	1.00
Upstream Filter(I)			0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh			0.0	0.9	1.0	0.0
Incr Delay (d2), s/veh			0.0	0.0	0.0	0.0
Initial Q Delay(d3),s/veh			0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln			0.0	0.3	0.4	0.0
LnGrp Delay(d),s/veh			0.0	1.0	1.0	0.0
LnGrp LOS				A	A	
Approach Vol, veh/h				318	422	
Approach Delay, s/veh				1.0	1.0	
Approach LOS				A	A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2				6		
Phs Duration (G+Y+Rc), s		21.0				21.0		
Change Period (Y+Rc), s		6.0				6.0		
Max Green Setting (Gmax), s		34.0				34.0		
Max Q Clear Time (g_c+I1), s		2.6				2.9		
Green Ext Time (p_c), s		1.6				2.2		

Intersection Summary	
HCM 2010 Ctrl Delay	1.0
HCM 2010 LOS	A

HCM 2010 Signalized Intersection Summary
4: Mountain House Pkwy & Arnaudo Blvd

	↗	↘	↖	↑	↓	↙
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↰	↱		↑↑	↑↑	
Traffic Volume (veh/h)	153	120	60	140	214	174
Future Volume (veh/h)	153	120	60	140	214	174
Number	7	14	5	2	6	16
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1900	1792	1743	1900
Adj Flow Rate, veh/h	215	164	80	173	243	252
Adj No. of Lanes	1	1	0	2	2	0
Peak Hour Factor	0.71	0.73	0.75	0.81	0.88	0.69
Percent Heavy Veh, %	3	3	6	6	9	9
Cap, veh/h	364	325	0	1263	614	549
Arrive On Green	0.21	0.21	0.00	0.37	0.37	0.37
Sat Flow, veh/h	1757	1568	0	3495	1743	1482
Grp Volume(v), veh/h	215	164	0	173	243	252
Grp Sat Flow(s),veh/h/ln	1757	1568	0	1703	1656	1482
Q Serve(g_s), s	2.4	2.0	0.0	0.7	2.3	2.7
Cycle Q Clear(g_c), s	2.4	2.0	0.0	0.7	2.3	2.7
Prop In Lane	1.00	1.00	0.00			1.00
Lane Grp Cap(c), veh/h	364	325	0	1263	614	549
V/C Ratio(X)	0.59	0.51	0.00	0.14	0.40	0.46
Avail Cap(c_a), veh/h	2308	2059	0	6390	3107	2780
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	7.6	7.5	0.0	4.4	4.9	5.1
Incr Delay (d2), s/veh	0.6	0.5	0.0	0.0	0.4	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.2	1.8	0.0	0.3	1.1	1.2
LnGrp Delay(d),s/veh	8.2	7.9	0.0	4.5	5.4	5.7
LnGrp LOS	A	A		A	A	A
Approach Vol, veh/h	379			173	495	
Approach Delay, s/veh	8.1			4.5	5.5	
Approach LOS	A			A	A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		12.9		8.4	0.0	12.9		
Change Period (Y+Rc), s		5.0		4.0	4.0	5.0		
Max Green Setting (Gmax), s		40.0		28.0	16.0	40.0		
Max Q Clear Time (g_c+I1), s		2.7		4.4	0.0	4.7		
Green Ext Time (p_c), s		1.1		0.6	0.0	3.2		

Intersection Summary			
HCM 2010 Ctrl Delay			6.3
HCM 2010 LOS			A

Intersection	
Int Delay, s/veh	2.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↱	↰	↑↑	↑↑	↱
Traffic Vol, veh/h	0	50	52	133	208	7
Future Vol, veh/h	0	50	52	133	208	7
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	130	-	-	90
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	66	66	65	92	88	58
Heavy Vehicles, %	2	2	5	5	8	8
Mvmt Flow	0	76	80	145	236	12

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	118	248	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	4.2	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	2.25	-	-	-
Pot Cap-1 Maneuver	0	912	1293	-	-	-
Stage 1	0	-	-	-	-	-
Stage 2	0	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	912	1293	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.3	2.8	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1293	-	912	-	-
HCM Lane V/C Ratio	0.062	-	0.083	-	-
HCM Control Delay (s)	8	-	9.3	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0.2	-	0.3	-	-

HCM 2010 Signalized Intersection Summary
6: Mountain House Pkwy & Mustand Wy

	↗	↘	↖	↑	↓	↙
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↰	↱↱	↰↰	↑↑↑	↑↑	↱
Traffic Volume (veh/h)	66	184	57	180	323	61
Future Volume (veh/h)	66	184	57	180	323	61
Number	7	14	5	2	6	16
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1881	1881	1827	1827	1810	1810
Adj Flow Rate, veh/h	80	271	64	212	389	80
Adj No. of Lanes	1	2	2	3	2	1
Peak Hour Factor	0.83	0.68	0.89	0.85	0.83	0.76
Percent Heavy Veh, %	1	1	4	4	5	5
Cap, veh/h	302	475	190	2337	919	410
Arrive On Green	0.17	0.17	0.06	0.47	0.27	0.27
Sat Flow, veh/h	1792	2814	3375	5152	3529	1535
Grp Volume(v), veh/h	80	271	64	212	389	80
Grp Sat Flow(s),veh/h/ln	1792	1407	1688	1663	1719	1535
Q Serve(g_s), s	1.1	2.4	0.5	0.7	2.6	1.1
Cycle Q Clear(g_c), s	1.1	2.4	0.5	0.7	2.6	1.1
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	302	475	190	2337	919	410
V/C Ratio(X)	0.26	0.57	0.34	0.09	0.42	0.19
Avail Cap(c_a), veh/h	1007	1582	1958	4792	3864	1725
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	10.0	10.5	12.5	4.1	8.3	7.8
Incr Delay (d2), s/veh	0.2	0.4	0.4	0.0	0.3	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	1.9	0.2	0.3	1.2	0.5
LnGrp Delay(d),s/veh	10.1	10.9	12.9	4.1	8.7	8.0
LnGrp LOS	B	B	B	A	A	A
Approach Vol, veh/h	351			276	469	
Approach Delay, s/veh	10.8			6.1	8.6	
Approach LOS	B			A	A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		18.4		9.2	5.6	12.9		
Change Period (Y+Rc), s		5.5		4.5	4.0	5.5		
Max Green Setting (Gmax), s		26.5		15.5	16.0	31.0		
Max Q Clear Time (g_c+I1), s		2.7		4.4	2.5	4.6		
Green Ext Time (p_c), s		1.2		0.6	0.1	2.7		

Intersection Summary	
HCM 2010 Ctrl Delay	8.6
HCM 2010 LOS	A

7: Mountain House Pkwy & Grant Line Rd

	↗	→	↘	↙	←	↖	↖	↑	↗	↘	↓	↙
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑↑	↱	↰↰	↑↑	↱	↰↰	↑↱		↰↰	↑↑	↱
Traffic Volume (veh/h)	7	49	262	10	117	24	254	216	4	27	458	23
Future Volume (veh/h)	7	49	262	10	117	24	254	216	4	27	458	23
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1792	1792	1792	1863	1863	1863	1810	1810	1900	1827	1827	1827
Adj Flow Rate, veh/h	16	68	345	24	139	44	322	251	8	52	539	24
Adj No. of Lanes	1	2	1	2	2	1	2	2	0	2	2	1
Peak Hour Factor	0.44	0.72	0.76	0.42	0.84	0.55	0.79	0.86	0.50	0.52	0.85	0.96
Percent Heavy Veh, %	6	6	6	2	2	2	5	5	5	4	4	4
Cap, veh/h	40	888	397	114	957	428	432	1105	35	197	881	394
Arrive On Green	0.02	0.26	0.26	0.03	0.27	0.27	0.13	0.32	0.32	0.06	0.25	0.25
Sat Flow, veh/h	1707	3406	1524	3442	3539	1583	3343	3401	108	3375	3471	1553
Grp Volume(v), veh/h	16	68	345	24	139	44	322	126	133	52	539	24
Grp Sat Flow(s),veh/h/ln	1707	1703	1524	1721	1770	1583	1672	1719	1790	1688	1736	1553
Q Serve(g_s), s	0.5	0.9	12.8	0.4	1.8	1.2	5.5	3.2	3.2	0.9	8.1	0.7
Cycle Q Clear(g_c), s	0.5	0.9	12.8	0.4	1.8	1.2	5.5	3.2	3.2	0.9	8.1	0.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.06	1.00		1.00
Lane Grp Cap(c), veh/h	40	888	397	114	957	428	432	558	582	197	881	394
V/C Ratio(X)	0.40	0.08	0.87	0.21	0.15	0.10	0.74	0.23	0.23	0.26	0.61	0.06
Avail Cap(c_a), veh/h	760	2287	1023	1531	2377	1063	1465	1134	1181	1479	2290	1025
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	28.5	16.5	20.9	27.8	16.4	16.2	24.8	14.5	14.5	26.6	19.5	16.7
Incr Delay (d2), s/veh	2.4	0.0	2.3	0.3	0.0	0.0	1.0	0.1	0.1	0.3	0.3	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.4	5.6	0.2	0.9	0.5	2.6	1.5	1.6	0.4	3.9	0.3
LnGrp Delay(d),s/veh	30.8	16.5	23.2	28.2	16.4	16.2	25.8	14.6	14.6	26.9	19.7	16.7
LnGrp LOS	C	B	C	C	B	B	C	B	B	C	B	B
Approach Vol, veh/h		429			207			581			615	
Approach Delay, s/veh		22.4			17.7			20.8			20.2	
Approach LOS		C			B			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.5	25.2	5.7	20.7	11.7	21.0	5.1	21.3
Change Period (Y+Rc), s	4.1	6.0	3.7	5.3	4.1	6.0	3.7	5.3
Max Green Setting (Gmax), s	25.9	39.0	26.3	39.7	25.9	39.0	26.3	39.7
Max Q Clear Time (g_c+I1), s	2.9	5.2	2.4	14.8	7.5	10.1	2.5	3.8
Green Ext Time (p_c), s	0.0	0.7	0.0	0.6	0.2	1.8	0.0	0.5

Intersection Summary	
HCM 2010 Ctrl Delay	20.6
HCM 2010 LOS	C

HCM 2010 Signalized Intersection Summary
8: Grant Line Rd & De Anza Blvd

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↰	↑↑	↑↑	↱	↰	↱
Traffic Volume (veh/h)	17	312	400	28	45	27
Future Volume (veh/h)	17	312	400	28	45	27
Number	7	4	8	18	1	16
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1792	1792	1792	1792	1792	1792
Adj Flow Rate, veh/h	36	380	506	44	52	60
Adj No. of Lanes	1	2	2	1	1	1
Peak Hour Factor	0.47	0.82	0.79	0.64	0.87	0.45
Percent Heavy Veh, %	6	6	6	6	6	6
Cap, veh/h	61	1838	1083	484	149	133
Arrive On Green	0.04	0.54	0.32	0.32	0.09	0.09
Sat Flow, veh/h	1707	3495	3495	1524	1707	1524
Grp Volume(v), veh/h	36	380	506	44	52	60
Grp Sat Flow(s),veh/h/ln	1707	1703	1703	1524	1707	1524
Q Serve(g_s), s	0.5	1.4	2.9	0.5	0.7	0.9
Cycle Q Clear(g_c), s	0.5	1.4	2.9	0.5	0.7	0.9
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	61	1838	1083	484	149	133
V/C Ratio(X)	0.59	0.21	0.47	0.09	0.35	0.45
Avail Cap(c_a), veh/h	353	2538	2538	1136	1272	1136
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	11.5	2.9	6.6	5.8	10.4	10.5
Incr Delay (d2), s/veh	8.9	0.1	0.3	0.1	1.4	2.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	0.6	1.4	0.2	0.4	0.9
LnGrp Delay(d),s/veh	20.4	2.9	6.9	5.9	11.8	12.8
LnGrp LOS	C	A	A	A	B	B
Approach Vol, veh/h		416	550		112	
Approach Delay, s/veh		4.4	6.8		12.3	
Approach LOS		A	A		B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs				4		6	7	8
Phs Duration (G+Y+Rc), s				17.5		6.6	5.4	12.2
Change Period (Y+Rc), s				4.5		4.5	4.5	4.5
Max Green Setting (Gmax), s				18.0		18.0	5.0	18.0
Max Q Clear Time (g_c+I1), s				3.4		2.9	2.5	4.9
Green Ext Time (p_c), s				2.0		0.2	0.0	2.8

Intersection Summary			
HCM 2010 Ctrl Delay			6.5
HCM 2010 LOS			A

HCM 2010 Signalized Intersection Summary
9: Central Pkwy & Grant Line Rd

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑↑	↱	↰	↑↑	↱	↰	↑↑	↱	↰	↑↑	↱
Traffic Volume (veh/h)	18	40	36	52	351	79	11	11	23	63	7	66
Future Volume (veh/h)	18	40	36	52	351	79	11	11	23	63	7	66
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1827	1827	1827	1792	1792	1792	1810	1810	1810	1827	1827	1827
Adj Flow Rate, veh/h	28	44	52	84	585	100	16	39	32	72	8	76
Adj No. of Lanes	1	2	1	1	2	1	1	2	1	1	2	1
Peak Hour Factor	0.64	0.91	0.69	0.62	0.60	0.79	0.69	0.28	0.72	0.88	0.88	0.87
Percent Heavy Veh, %	4	4	4	6	6	6	5	5	5	4	4	4
Cap, veh/h	364	1107	495	619	1086	486	36	582	259	130	774	346
Arrive On Green	0.32	0.32	0.32	0.32	0.32	0.32	0.02	0.17	0.17	0.07	0.22	0.22
Sat Flow, veh/h	739	3471	1553	1245	3406	1524	1723	3438	1533	1740	3471	1549
Grp Volume(v), veh/h	28	44	52	84	585	100	16	39	32	72	8	76
Grp Sat Flow(s),veh/h/ln	739	1736	1553	1245	1703	1524	1723	1719	1533	1740	1736	1549
Q Serve(g_s), s	1.0	0.3	0.7	1.5	4.4	1.5	0.3	0.3	0.5	1.2	0.1	1.2
Cycle Q Clear(g_c), s	5.4	0.3	0.7	1.8	4.4	1.5	0.3	0.3	0.5	1.2	0.1	1.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	364	1107	495	619	1086	486	36	582	259	130	774	346
V/C Ratio(X)	0.08	0.04	0.11	0.14	0.54	0.21	0.45	0.07	0.12	0.55	0.01	0.22
Avail Cap(c_a), veh/h	560	2024	905	949	1986	888	279	2005	894	282	2024	903
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	10.9	7.3	7.4	7.9	8.6	7.7	14.9	10.8	10.9	13.8	9.3	9.8
Incr Delay (d2), s/veh	0.1	0.0	0.1	0.1	0.4	0.2	8.5	0.0	0.2	3.7	0.0	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.1	0.3	0.5	2.1	0.6	0.2	0.1	0.2	0.7	0.0	0.6
LnGrp Delay(d),s/veh	10.9	7.3	7.5	8.0	9.1	7.9	23.4	10.8	11.1	17.5	9.3	10.1
LnGrp LOS	B	A	A	A	A	A	C	B	B	B	A	B
Approach Vol, veh/h		124			769			87			156	
Approach Delay, s/veh		8.2			8.8			13.2			13.5	
Approach LOS		A			A			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	6.8	9.7		14.3	5.1	11.4		14.3
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5
Max Green Setting (Gmax), s	5.0	18.0		18.0	5.0	18.0		18.0
Max Q Clear Time (g_c+I1), s	3.2	2.5		7.4	2.3	3.2		6.4
Green Ext Time (p_c), s	0.0	0.2		0.3	0.0	0.2		3.5

Intersection Summary	
HCM 2010 Ctrl Delay	9.7
HCM 2010 LOS	A

HCM Signalized Intersection Capacity Analysis
10: Grant Line Rd & Great Valley Pkwy

Existing Conditions
AM Peak

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰↰	↱		↰	↑	↱↱		✥			↰	↱
Traffic Volume (vph)	50	54	0	0	413	13	1	0	0	28	0	269
Future Volume (vph)	50	54	0	0	413	13	1	0	0	28	0	269
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.6			4.6	4.6		4.6			5.1	5.1
Lane Util. Factor	0.97	1.00			1.00	0.88		1.00			1.00	1.00
Frt	1.00	1.00			1.00	0.85		1.00			1.00	0.85
Flt Protected	0.95	1.00			1.00	1.00		0.95			0.95	1.00
Satd. Flow (prot)	3433	1863			1827	2733		1787			1770	1583
Flt Permitted	0.95	1.00			1.00	1.00		0.95			0.95	1.00
Satd. Flow (perm)	3433	1863			1827	2733		1787			1770	1583
Peak-hour factor, PHF	0.73	0.90	0.92	0.92	0.71	0.54	0.92	0.92	0.92	0.88	0.92	0.87
Adj. Flow (vph)	68	60	0	0	582	24	1	0	0	32	0	309
RTOR Reduction (vph)	0	0	0	0	0	15	0	0	0	0	0	265
Lane Group Flow (vph)	68	60	0	0	582	9	0	1	0	0	32	44
Heavy Vehicles (%)	2%	2%	2%	4%	4%	4%	1%	1%	1%	2%	2%	2%
Turn Type	Prot	NA		Prot	NA	Perm	Split	NA		Split	NA	Prot
Protected Phases	3	8		7	4		5	5		6	6	6
Permitted Phases						4						
Actuated Green, G (s)	2.1	25.8			19.7	19.7		4.2			7.3	7.3
Effective Green, g (s)	2.1	25.8			19.7	19.7		4.2			7.3	7.3
Actuated g/C Ratio	0.04	0.50			0.38	0.38		0.08			0.14	0.14
Clearance Time (s)	4.0	4.6			4.6	4.6		4.6			5.1	5.1
Vehicle Extension (s)	3.0	3.0			3.0	3.0		3.0			3.0	3.0
Lane Grp Cap (vph)	139	931			697	1043		145			250	223
v/s Ratio Prot	c0.02	0.03			c0.32			c0.00			0.02	c0.03
v/s Ratio Perm						0.00						
v/c Ratio	0.49	0.06			0.84	0.01		0.01			0.13	0.20
Uniform Delay, d1	24.2	6.7			14.5	9.9		21.8			19.4	19.6
Progression Factor	1.00	1.00			1.00	1.00		1.00			1.00	1.00
Incremental Delay, d2	2.7	0.0			8.5	0.0		0.0			0.2	0.4
Delay (s)	26.9	6.7			23.0	9.9		21.8			19.6	20.0
Level of Service	C	A			C	A		C			B	B
Approach Delay (s)		17.4			22.5			21.8			20.0	
Approach LOS		B			C			C			B	

Intersection Summary			
HCM 2000 Control Delay	21.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	51.6	Sum of lost time (s)	18.3
Intersection Capacity Utilization	53.6%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑↱		↰	↑↱		↰	↑↱		↰	↑↱	
Traffic Volume (veh/h)	7	52	18	28	74	27	8	67	24	11	51	8
Future Volume (veh/h)	7	52	18	28	74	27	8	67	24	11	51	8
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1881	1881	1900	1863	1863	1900	1881	1881	1900
Adj Flow Rate, veh/h	12	93	28	56	157	48	16	92	44	16	68	12
Adj No. of Lanes	1	2	0	1	2	0	1	2	0	1	2	0
Peak Hour Factor	0.58	0.56	0.64	0.50	0.47	0.56	0.50	0.73	0.55	0.69	0.75	0.67
Percent Heavy Veh, %	2	2	2	1	1	1	2	2	2	1	1	1
Cap, veh/h	23	557	161	89	660	195	30	343	154	30	442	76
Arrive On Green	0.01	0.21	0.21	0.05	0.24	0.24	0.02	0.14	0.14	0.02	0.14	0.14
Sat Flow, veh/h	1774	2702	781	1792	2713	801	1774	2367	1064	1792	3048	524
Grp Volume(v), veh/h	12	60	61	56	102	103	16	67	69	16	39	41
Grp Sat Flow(s),veh/h/ln	1774	1770	1713	1792	1787	1727	1774	1770	1662	1792	1787	1785
Q Serve(g_s), s	0.2	0.8	0.9	0.9	1.3	1.4	0.3	1.0	1.1	0.3	0.6	0.6
Cycle Q Clear(g_c), s	0.2	0.8	0.9	0.9	1.3	1.4	0.3	1.0	1.1	0.3	0.6	0.6
Prop In Lane	1.00		0.46	1.00		0.46	1.00		0.64	1.00		0.29
Lane Grp Cap(c), veh/h	23	365	353	89	435	420	30	256	241	30	259	259
V/C Ratio(X)	0.53	0.16	0.17	0.63	0.23	0.25	0.54	0.26	0.29	0.54	0.15	0.16
Avail Cap(c_a), veh/h	294	1798	1740	358	1815	1754	294	1798	1688	297	1658	1656
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	14.5	9.6	9.7	13.8	9.0	9.0	14.4	11.2	11.3	14.4	11.0	11.0
Incr Delay (d2), s/veh	7.1	0.2	0.2	2.7	0.3	0.3	5.6	0.5	0.6	5.4	0.3	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.4	0.4	0.5	0.7	0.7	0.2	0.5	0.5	0.2	0.3	0.3
LnGrp Delay(d),s/veh	21.6	9.8	9.9	16.4	9.2	9.3	20.0	11.8	11.9	19.9	11.3	11.3
LnGrp LOS	C	A	A	B	A	A	C	B	B	B	B	B
Approach Vol, veh/h		133			261			152			96	
Approach Delay, s/veh		10.9			10.8			12.7			12.7	
Approach LOS		B			B			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	4.6	8.8	5.6	10.6	4.6	8.8	4.5	11.7
Change Period (Y+Rc), s	4.1	4.5	4.1	4.5	4.1	4.5	4.1	4.5
Max Green Setting (Gmax), s	4.9	30.0	5.9	30.0	4.9	27.4	4.9	30.0
Max Q Clear Time (g_c+I1), s	2.3	3.1	2.9	2.9	2.3	2.6	2.2	3.4
Green Ext Time (p_c), s	0.0	0.7	0.0	0.6	0.0	0.4	0.0	1.2

Intersection Summary	
HCM 2010 Ctrl Delay	11.6
HCM 2010 LOS	B

HCM 2010 Signalized Intersection Summary
12: Central Pkwy & Arnaudo Blvd

Existing Conditions
AM Peak

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✥		↰	↑	↱	↰	↑↱		↰	↑↱	
Traffic Volume (veh/h)	5	14	11	12	10	99	4	40	14	143	55	3
Future Volume (veh/h)	5	14	11	12	10	99	4	40	14	143	55	3
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1900	1900	1863	1863	1863	1810	1810	1900	1863	1863	1900
Adj Flow Rate, veh/h	8	20	20	24	16	132	8	52	20	177	104	12
Adj No. of Lanes	0	1	0	1	1	1	1	2	0	1	2	0
Peak Hour Factor	0.63	0.70	0.55	0.50	0.63	0.75	0.50	0.77	0.70	0.81	0.53	0.25
Percent Heavy Veh, %	0	0	0	2	2	2	5	5	5	2	2	2
Cap, veh/h	164	82	75	43	502	427	15	445	162	231	966	110
Arrive On Green	0.11	0.11	0.11	0.02	0.27	0.27	0.01	0.18	0.18	0.13	0.30	0.30
Sat Flow, veh/h	210	765	696	1774	1863	1583	1723	2467	898	1774	3198	363
Grp Volume(v), veh/h	48	0	0	24	16	132	8	35	37	177	57	59
Grp Sat Flow(s),veh/h/ln	1670	0	0	1774	1863	1583	1723	1719	1646	1774	1770	1791
Q Serve(g_s), s	0.0	0.0	0.0	0.4	0.2	2.0	0.1	0.5	0.6	2.9	0.7	0.7
Cycle Q Clear(g_c), s	0.7	0.0	0.0	0.4	0.2	2.0	0.1	0.5	0.6	2.9	0.7	0.7
Prop In Lane	0.17		0.42	1.00		1.00	1.00		0.55	1.00		0.20
Lane Grp Cap(c), veh/h	321	0	0	43	502	427	15	310	297	231	535	541
V/C Ratio(X)	0.15	0.00	0.00	0.56	0.03	0.31	0.54	0.11	0.12	0.77	0.11	0.11
Avail Cap(c_a), veh/h	1742	0	0	1662	1814	1542	920	2349	2249	947	2418	2447
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	12.2	0.0	0.0	14.4	8.0	8.7	14.7	10.2	10.2	12.5	7.5	7.5
Incr Delay (d2), s/veh	0.1	0.0	0.0	4.2	0.0	0.2	10.9	0.2	0.2	2.0	0.1	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	0.0	0.0	0.2	0.1	0.9	0.1	0.2	0.3	1.5	0.3	0.4
LnGrp Delay(d),s/veh	12.3	0.0	0.0	18.6	8.0	8.8	25.6	10.4	10.4	14.5	7.6	7.6
LnGrp LOS	B			B	A	A	C	B	B	B	A	A
Approach Vol, veh/h		48			172			80			293	
Approach Delay, s/veh		12.3			10.1			11.9			11.8	
Approach LOS		B			B			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6		8
Phs Duration (G+Y+Rc), s	8.0	9.7	4.8	7.3	4.4	13.3		12.1
Change Period (Y+Rc), s	4.1	* 4.3	4.1	4.1	4.1	* 4.3		4.1
Max Green Setting (Gmax), s	15.9	* 41	27.9	29.0	15.9	* 41		29.0
Max Q Clear Time (g_c+I1), s	4.9	2.6	2.4	2.7	2.1	2.7		4.0
Green Ext Time (p_c), s	0.2	0.4	0.0	0.1	0.0	0.6		0.2

Intersection Summary	
HCM 2010 Ctrl Delay	11.4
HCM 2010 LOS	B

Notes

Intersection	
Intersection Delay, s/veh	9.1
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑	↱	↰	↑ ↑↱		↰	↑↱		↰	↑↱	
Traffic Vol, veh/h	3	0	117	7	0	1	80	61	8	1	74	1
Future Vol, veh/h	3	0	117	7	0	1	80	61	8	1	74	1
Peak Hour Factor	0.38	0.75	0.77	0.58	0.50	0.25	0.77	0.85	0.50	0.25	0.64	0.25
Heavy Vehicles, %	1	1	1	24	24	24	2	2	2	2	2	2
Mvmt Flow	8	0	152	12	0	4	104	72	16	4	116	4
Number of Lanes	1	1	1	1	2	0	1	1	0	1	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	3	2	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	2	3	3
Conflicting Approach Righ	NB	SB	WB	EB
Conflicting Lanes Right	2	2	3	3
HCM Control Delay	8.7	9.3	9.2	9.4
HCM LOS	A	A	A	A

Lane	NBLn1	NBLn2	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBLn1	SBLn2
Vol Left, %	100%	0%	100%	0%	0%	100%	0%	0%	100%	0%
Vol Thru, %	0%	88%	0%	100%	0%	0%	100%	0%	0%	99%
Vol Right, %	0%	12%	0%	0%	100%	0%	0%	100%	0%	1%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	80	69	3	0	117	7	0	1	1	75
LT Vol	80	0	3	0	0	7	0	0	1	0
Through Vol	0	61	0	0	0	0	0	0	0	74
RT Vol	0	8	0	0	117	0	0	1	0	1
Lane Flow Rate	104	88	8	0	152	12	0	4	4	120
Geometry Grp	8	8	8	8	8	8	8	8	8	8
Degree of Util (X)	0.167	0.127	0.013	0	0.202	0.022	0	0.006	0.007	0.18
Departure Headway (Hd)	5.779	5.195	5.981	5.478	4.774	6.643	6.139	5.433	5.926	5.414
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	619	687	597	0	749	536	0	654	602	660
Service Time	3.533	2.95	3.728	3.225	2.521	4.416	3.912	3.206	3.683	3.171
HCM Lane V/C Ratio	0.168	0.128	0.013	0	0.203	0.022	0	0.006	0.007	0.182
HCM Control Delay	9.7	8.7	8.8	8.2	8.7	9.6	8.9	8.2	8.7	9.4
HCM Lane LOS	A	A	A	N	A	A	N	A	A	A
HCM 95th-tile Q	0.6	0.4	0	0	0.8	0.1	0	0	0	0.7

HCM 2010 Signalized Intersection Summary
14: De Anza Blvd & Arnaudo Blvd

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑↱		↰	↑↱		↰	↑↱		↰	↑↱	
Traffic Volume (veh/h)	6	301	19	6	239	15	23	4	18	1	2	1
Future Volume (veh/h)	6	301	19	6	239	15	23	4	18	1	2	1
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1845	1845	1900	1863	1863	1900	1881	1881	1900
Adj Flow Rate, veh/h	12	342	44	16	263	28	44	12	36	4	8	4
Adj No. of Lanes	1	2	0	1	2	0	1	2	0	1	2	0
Peak Hour Factor	0.50	0.88	0.43	0.38	0.91	0.54	0.52	0.33	0.50	0.25	0.25	0.25
Percent Heavy Veh, %	2	2	2	3	3	3	2	2	2	1	1	1
Cap, veh/h	23	717	92	30	739	78	74	167	150	8	135	63
Arrive On Green	0.01	0.23	0.23	0.02	0.23	0.23	0.04	0.09	0.09	0.00	0.06	0.06
Sat Flow, veh/h	1774	3158	403	1757	3200	338	1774	1770	1583	1792	2376	1098
Grp Volume(v), veh/h	12	190	196	16	143	148	44	12	36	4	6	6
Grp Sat Flow(s),veh/h/ln	1774	1770	1792	1757	1752	1785	1774	1770	1583	1792	1787	1687
Q Serve(g_s), s	0.2	2.4	2.4	0.2	1.8	1.8	0.6	0.2	0.5	0.1	0.1	0.1
Cycle Q Clear(g_c), s	0.2	2.4	2.4	0.2	1.8	1.8	0.6	0.2	0.5	0.1	0.1	0.1
Prop In Lane	1.00		0.23	1.00		0.19	1.00		1.00	1.00		0.65
Lane Grp Cap(c), veh/h	23	402	407	30	405	413	74	167	150	8	102	96
V/C Ratio(X)	0.53	0.47	0.48	0.54	0.35	0.36	0.59	0.07	0.24	0.51	0.06	0.06
Avail Cap(c_a), veh/h	1097	1984	2009	1087	1965	2001	1097	2771	2479	1108	2798	2642
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	12.7	8.7	8.7	12.6	8.3	8.3	12.2	10.7	10.9	12.8	11.5	11.5
Incr Delay (d2), s/veh	6.9	0.3	0.3	5.6	0.2	0.2	2.8	0.2	0.8	17.7	0.2	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	1.2	1.2	0.2	0.9	0.9	0.4	0.1	0.3	0.1	0.0	0.0
LnGrp Delay(d),s/veh	19.6	9.0	9.0	18.3	8.5	8.5	14.9	10.9	11.7	30.5	11.8	11.8
LnGrp LOS	B	A	A	B	A	A	B	B	B	C	B	B
Approach Vol, veh/h		398			307			92			16	
Approach Delay, s/veh		9.3			9.0			13.1			16.5	
Approach LOS		A			A			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	4.1	6.9	4.4	10.4	5.1	6.0	4.3	10.5
Change Period (Y+Rc), s	4.0	4.5	4.0	4.5	4.0	4.5	4.0	4.5
Max Green Setting (Gmax), s	16.0	40.5	16.0	29.0	16.0	40.5	16.0	29.0
Max Q Clear Time (g_c+I1), s	2.1	2.5	2.2	4.4	2.6	2.1	2.2	3.8
Green Ext Time (p_c), s	0.0	0.2	0.0	1.5	0.0	0.0	0.0	1.1

Intersection Summary	
HCM 2010 Ctrl Delay	9.8
HCM 2010 LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑↱		↰	↑↱		↰	↑↱		↰	↱	
Traffic Volume (veh/h)	7	183	4	5	126	2	4	35	4	2	34	18
Future Volume (veh/h)	7	183	4	5	126	2	4	35	4	2	34	18
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1881	1881	1900	1881	1881	1900	1759	1759	1900	1863	1863	1900
Adj Flow Rate, veh/h	12	241	8	8	140	8	8	71	8	4	81	36
Adj No. of Lanes	1	2	0	1	2	0	1	2	0	1	1	0
Peak Hour Factor	0.58	0.76	0.50	0.62	0.90	0.25	0.50	0.49	0.50	0.50	0.42	0.50
Percent Heavy Veh, %	1	1	1	1	1	1	8	8	8	2	2	2
Cap, veh/h	28	1477	49	19	1421	81	18	378	42	10	146	65
Arrive On Green	0.02	0.42	0.42	0.01	0.41	0.41	0.01	0.12	0.12	0.01	0.12	0.12
Sat Flow, veh/h	1792	3531	117	1792	3439	195	1675	3035	337	1774	1223	544
Grp Volume(v), veh/h	12	122	127	8	72	76	8	39	40	4	0	117
Grp Sat Flow(s),veh/h/ln	1792	1787	1861	1792	1787	1847	1675	1671	1700	1774	0	1767
Q Serve(g_s), s	0.2	1.5	1.6	0.2	0.9	0.9	0.2	0.8	0.8	0.1	0.0	2.3
Cycle Q Clear(g_c), s	0.2	1.5	1.6	0.2	0.9	0.9	0.2	0.8	0.8	0.1	0.0	2.3
Prop In Lane	1.00		0.06	1.00		0.11	1.00		0.20	1.00		0.31
Lane Grp Cap(c), veh/h	28	748	778	19	739	763	18	208	212	10	0	211
V/C Ratio(X)	0.43	0.16	0.16	0.42	0.10	0.10	0.45	0.19	0.19	0.41	0.00	0.55
Avail Cap(c_a), veh/h	815	1748	1820	815	1748	1806	762	1405	1429	807	0	1485
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	17.7	6.6	6.6	17.8	6.5	6.5	17.8	14.2	14.2	18.0	0.0	15.1
Incr Delay (d2), s/veh	9.9	0.1	0.1	13.9	0.1	0.1	16.5	0.4	0.4	25.9	0.0	2.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.8	0.8	0.2	0.5	0.5	0.2	0.4	0.4	0.1	0.0	1.2
LnGrp Delay(d),s/veh	27.6	6.7	6.7	31.7	6.6	6.6	34.3	14.7	14.7	43.9	0.0	17.3
LnGrp LOS	C	A	A	C	A	A	C	B	B	D		B
Approach Vol, veh/h		261			156			87			121	
Approach Delay, s/veh		7.7			7.9			16.5			18.2	
Approach LOS		A			A			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	3.7	9.0	3.9	19.7	3.9	8.8	4.1	19.5
Change Period (Y+Rc), s	3.5	4.5	3.5	4.5	3.5	4.5	3.5	4.5
Max Green Setting (Gmax), s	16.5	30.5	16.5	35.5	16.5	30.5	16.5	35.5
Max Q Clear Time (g_c+I1), s	2.1	2.8	2.2	3.6	2.2	4.3	2.2	2.9
Green Ext Time (p_c), s	0.0	0.4	0.0	1.4	0.0	0.6	0.0	0.8

Intersection Summary	
HCM 2010 Ctrl Delay	11.0
HCM 2010 LOS	B

HCM 2010 Signalized Intersection Summary
16: Mountain House Pkwy & I-205 WB Off-Ramp

Existing Conditions
AM Peak

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↰	↱↱	↰	↑↑			↑↑↑	↱
Traffic Volume (veh/h)	0	0	0	434	313	140	6	153	0	0	712	440
Future Volume (veh/h)	0	0	0	434	313	140	6	153	0	0	712	440
Number				3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln				1900	1696	1696	1696	1696	0	0	1810	1810
Adj Flow Rate, veh/h				523	364	175	8	184	0	0	800	557
Adj No. of Lanes				0	1	2	1	2	0	0	3	1
Peak Hour Factor				0.83	0.86	0.80	0.75	0.83	0.92	0.92	0.89	0.79
Percent Heavy Veh, %				12	12	12	12	12	0	0	5	5
Cap, veh/h				397	276	1036	20	1476	0	0	1871	582
Arrive On Green				0.41	0.41	0.41	0.01	0.46	0.00	0.00	0.38	0.38
Sat Flow, veh/h				972	676	2538	1616	3308	0	0	5103	1538
Grp Volume(v), veh/h				887	0	175	8	184	0	0	800	557
Grp Sat Flow(s),veh/h/ln				1648	0	1269	1616	1612	0	0	1647	1538
Q Serve(g_s), s				27.5	0.0	3.0	0.3	2.2	0.0	0.0	8.1	23.8
Cycle Q Clear(g_c), s				27.5	0.0	3.0	0.3	2.2	0.0	0.0	8.1	23.8
Prop In Lane				0.59		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				673	0	1036	20	1476	0	0	1871	582
V/C Ratio(X)				1.32	0.00	0.17	0.40	0.12	0.00	0.00	0.43	0.96
Avail Cap(c_a), veh/h				673	0	1036	252	1939	0	0	1871	582
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	1.00	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				19.9	0.0	12.7	33.0	10.5	0.0	0.0	15.5	20.4
Incr Delay (d2), s/veh				153.4	0.0	0.1	12.4	0.0	0.0	0.0	0.2	26.7
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				41.0	0.0	1.0	0.2	1.0	0.0	0.0	3.7	14.4
LnGrp Delay(d),s/veh				173.3	0.0	12.7	45.4	10.5	0.0	0.0	15.7	47.1
LnGrp LOS				F		B	D	B			B	D
Approach Vol, veh/h					1062			192			1357	
Approach Delay, s/veh					146.9			12.0			28.6	
Approach LOS					F			B			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2			5	6		8
Phs Duration (G+Y+Rc), s		35.3			5.3	30.0		32.0
Change Period (Y+Rc), s		4.5			4.5	4.5		4.5
Max Green Setting (Gmax), s		40.5			10.5	25.5		27.5
Max Q Clear Time (g_c+I1), s		4.2			2.3	25.8		29.5
Green Ext Time (p_c), s		1.2			0.0	0.0		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	75.5
HCM 2010 LOS	E

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↰↑	↱					↑↑	↱		↑↑	
Traffic Volume (vph)	32	2	48	0	0	0	0	132	220	0	938	0
Future Volume (vph)	32	2	48	0	0	0	0	132	220	0	938	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5					4.5	4.5		4.5	
Lane Util. Factor	0.95	0.95	1.00					0.95	1.00		0.95	
Frt	1.00	1.00	0.85					1.00	0.85		1.00	
Flt Protected	0.95	0.97	1.00					1.00	1.00		1.00	
Satd. Flow (prot)	1618	1646	1524					3008	1346		3223	
Flt Permitted	0.95	0.97	1.00					1.00	1.00		1.00	
Satd. Flow (perm)	1618	1646	1524					3008	1346		3223	
Peak-hour factor, PHF	0.73	0.25	0.67	0.92	0.92	0.92	0.92	0.73	0.75	0.92	0.84	0.92
Adj. Flow (vph)	44	8	72	0	0	0	0	181	293	0	1117	0
RTOR Reduction (vph)	0	0	45	0	0	0	0	0	125	0	0	0
Lane Group Flow (vph)	26	26	27	0	0	0	0	181	168	0	1117	0
Heavy Vehicles (%)	6%	6%	6%	2%	2%	2%	20%	20%	20%	12%	12%	12%
Turn Type	Prot	NA	Perm					NA	Perm		NA	
Protected Phases	7	4						2			6	
Permitted Phases			4						2			
Actuated Green, G (s)	19.7	19.7	19.7					38.5	38.5		38.5	
Effective Green, g (s)	19.7	19.7	19.7					38.5	38.5		38.5	
Actuated g/C Ratio	0.29	0.29	0.29					0.57	0.57		0.57	
Clearance Time (s)	4.5	4.5	4.5					4.5	4.5		4.5	
Vehicle Extension (s)	3.0	3.0	3.0					3.0	3.0		3.0	
Lane Grp Cap (vph)	474	482	446					1723	771		1846	
v/s Ratio Prot	0.02	0.02						0.06			c0.35	
v/s Ratio Perm			c0.02						0.12			
v/c Ratio	0.05	0.05	0.06					0.11	0.22		0.61	
Uniform Delay, d1	17.1	17.1	17.1					6.5	7.0		9.4	
Progression Factor	1.00	1.00	1.00					1.00	1.00		1.00	
Incremental Delay, d2	0.0	0.0	0.1					0.0	0.1		0.6	
Delay (s)	17.1	17.1	17.1					6.5	7.1		9.9	
Level of Service	B	B	B					A	A		A	
Approach Delay (s)		17.1			0.0			6.9			9.9	
Approach LOS		B			A			A			A	

Intersection Summary			
HCM 2000 Control Delay	9.6	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.42		
Actuated Cycle Length (s)	67.2	Sum of lost time (s)	9.0
Intersection Capacity Utilization	84.0%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

ERROR: HCM 2010 supports maximum of three lanes.

Intersection	
Intersection Delay, s/veh	7.9
Intersection LOS	A

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↰	↱	↑↱		↰	↑↑
Traffic Vol, veh/h	46	5	75	11	5	139
Future Vol, veh/h	46	5	75	11	5	139
Peak Hour Factor	0.72	0.42	0.67	0.92	0.63	0.77
Heavy Vehicles, %	0	0	1	2	1	1
Mvmt Flow	64	12	112	12	8	181
Number of Lanes	1	1	2	0	1	2

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	3	2
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	2	0	2
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	3	2	0
HCM Control Delay	8.8	8.2	7.4
HCM LOS	A	A	A

Lane	NBLn1	NBLn2	WBLn1	WBLn2	SBLn1	SBLn2	SBLn3
Vol Left, %	0%	0%	100%	0%	100%	0%	0%
Vol Thru, %	100%	69%	0%	0%	0%	100%	100%
Vol Right, %	0%	31%	0%	100%	0%	0%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	50	36	46	5	5	70	70
LT Vol	0	0	46	0	5	0	0
Through Vol	50	25	0	0	0	70	70
RT Vol	0	11	0	5	0	0	0
Lane Flow Rate	75	49	64	12	8	90	90
Geometry Grp	8	8	8	8	8	8	8
Degree of Util (X)	0.105	0.067	0.102	0.015	0.012	0.126	0.083
Departure Headway (Hd)	5.072	4.874	5.736	4.536	5.509	5.007	3.304
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	707	736	625	789	651	718	1091
Service Time	2.794	2.597	3.462	2.262	3.228	2.726	1.004
HCM Lane V/C Ratio	0.106	0.067	0.102	0.015	0.012	0.125	0.082
HCM Control Delay	8.4	7.9	9.1	7.3	8.3	8.4	6.3
HCM Lane LOS	A	A	A	A	A	A	A
HCM 95th-tile Q	0.4	0.2	0.3	0	0	0.4	0.3

Intersection	
Intersection Delay, s/veh	8.4
Intersection LOS	A

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↰	↱	↑↱		↰	↑↑
Traffic Vol, veh/h	72	33	63	20	20	207
Future Vol, veh/h	72	33	63	20	20	207
Peak Hour Factor	0.86	0.64	0.66	0.63	0.71	0.81
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	84	52	95	32	28	256
Number of Lanes	1	1	2	0	1	2

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	3	2
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	2	0	2
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	3	2	0
HCM Control Delay	9	8.6	8
HCM LOS	A	A	A

Lane	NBLn1	NBLn2	WBLn1	WBLn2	SBLn1	SBLn2	SBLn3
Vol Left, %	0%	0%	100%	0%	100%	0%	0%
Vol Thru, %	100%	51%	0%	0%	0%	100%	100%
Vol Right, %	0%	49%	0%	100%	0%	0%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	42	41	72	33	20	104	104
LT Vol	0	0	72	0	20	0	0
Through Vol	42	21	0	0	0	104	104
RT Vol	0	20	0	33	0	0	0
Lane Flow Rate	64	64	84	52	28	128	128
Geometry Grp	8	8	8	8	8	8	8
Degree of Util (X)	0.096	0.09	0.14	0.069	0.045	0.185	0.123
Departure Headway (Hd)	5.437	5.094	6	4.799	5.72	5.218	3.475
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	657	701	596	743	626	687	1027
Service Time	3.185	2.842	3.753	2.552	3.455	2.953	1.21
HCM Lane V/C Ratio	0.097	0.091	0.141	0.07	0.045	0.186	0.125
HCM Control Delay	8.8	8.3	9.7	7.9	8.7	9.1	6.7
HCM Lane LOS	A	A	A	A	A	A	A
HCM 95th-tile Q	0.3	0.3	0.5	0.2	0.1	0.7	0.4

HCM 2010 Signalized Intersection Summary
21: Mountain House Pkwy & Central Pkwy

	↗	↘	↖	↑	↓	↙
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations				↑↑	↑↑	
Traffic Volume (veh/h)	0	0	0	293	785	0
Future Volume (veh/h)	0	0	0	293	785	0
Number			5	2	6	16
Initial Q (Qb), veh			0	0	0	0
Ped-Bike Adj(A_pbT)			1.00			1.00
Parking Bus, Adj			1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln			0	1810	1810	0
Adj Flow Rate, veh/h			0	318	853	0
Adj No. of Lanes			0	2	2	0
Peak Hour Factor			0.92	0.92	0.92	0.92
Percent Heavy Veh, %			0	5	5	0
Cap, veh/h			0	2750	2750	0
Arrive On Green			0.00	0.80	0.80	0.00
Sat Flow, veh/h			0	3619	3619	0
Grp Volume(v), veh/h			0	318	853	0
Grp Sat Flow(s),veh/h/ln			0	1719	1719	0
Q Serve(g_s), s			0.0	0.5	1.5	0.0
Cycle Q Clear(g_c), s			0.0	0.5	1.5	0.0
Prop In Lane			0.00			0.00
Lane Grp Cap(c), veh/h			0	2750	2750	0
V/C Ratio(X)			0.00	0.12	0.31	0.00
Avail Cap(c_a), veh/h			0	2750	2750	0
HCM Platoon Ratio			1.00	1.00	1.00	1.00
Upstream Filter(I)			0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh			0.0	0.5	0.6	0.0
Incr Delay (d2), s/veh			0.0	0.1	0.3	0.0
Initial Q Delay(d3),s/veh			0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln			0.0	0.2	0.7	0.0
LnGrp Delay(d),s/veh			0.0	0.6	0.9	0.0
LnGrp LOS				A	A	
Approach Vol, veh/h				318	853	
Approach Delay, s/veh				0.6	0.9	
Approach LOS				A	A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2				6		
Phs Duration (G+Y+Rc), s		22.5				22.5		
Change Period (Y+Rc), s		4.5				4.5		
Max Green Setting (Gmax), s		18.0				18.0		
Max Q Clear Time (g_c+I1), s		2.5				3.5		
Green Ext Time (p_c), s		1.8				5.2		

Intersection Summary	
HCM 2010 Ctrl Delay	0.8
HCM 2010 LOS	A

HCM 2010 Signalized Intersection Summary
22: Mountain House Pkwy & Von Sosten Rd

Existing Conditions
AM Peak

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↰	↱	↑↑	↱	↰	↑↑
Traffic Volume (veh/h)	126	86	396	14	67	659
Future Volume (veh/h)	126	86	396	14	67	659
Number	3	18	2	12	1	6
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1810	1810	1810	1810
Adj Flow Rate, veh/h	168	137	489	24	96	824
Adj No. of Lanes	1	1	2	1	1	2
Peak Hour Factor	0.75	0.63	0.81	0.58	0.70	0.80
Percent Heavy Veh, %	3	3	5	5	5	5
Cap, veh/h	297	265	1038	464	126	1736
Arrive On Green	0.17	0.17	0.30	0.30	0.07	0.51
Sat Flow, veh/h	1757	1568	3529	1538	1723	3529
Grp Volume(v), veh/h	168	137	489	24	96	824
Grp Sat Flow(s),veh/h/ln	1757	1568	1719	1538	1723	1719
Q Serve(g_s), s	2.7	2.4	3.6	0.3	1.7	4.8
Cycle Q Clear(g_c), s	2.7	2.4	3.6	0.3	1.7	4.8
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	297	265	1038	464	126	1736
V/C Ratio(X)	0.57	0.52	0.47	0.05	0.76	0.47
Avail Cap(c_a), veh/h	1574	1405	4425	1980	1123	4425
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	11.7	11.6	8.7	7.6	14.0	4.9
Incr Delay (d2), s/veh	1.7	1.6	0.3	0.0	3.6	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.4	1.2	1.7	0.1	0.9	2.2
LnGrp Delay(d),s/veh	13.4	13.2	9.1	7.6	17.6	5.1
LnGrp LOS	B	B	A	A	B	A
Approach Vol, veh/h	305		513			920
Approach Delay, s/veh	13.3		9.0			6.4
Approach LOS	B		A			A

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	6.2	14.8				21.0		9.7
Change Period (Y+Rc), s	4.0	5.5				5.5		4.5
Max Green Setting (Gmax), s	20.0	39.5				39.5		27.5
Max Q Clear Time (g_c+I1), s	3.7	5.6				6.8		4.7
Green Ext Time (p_c), s	0.1	3.7				6.8		0.9

Intersection Summary	
HCM 2010 Ctrl Delay	8.4
HCM 2010 LOS	A

HCM 2010 Signalized Intersection Summary
23: Mountain House Pkwy & Grand Ave

Existing Conditions
AM Peak

	↗	↘	↖	↑	↓	↙
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↰	↱		↑↑	↑↱	
Traffic Volume (veh/h)	51	39	96	197	351	11
Future Volume (veh/h)	51	39	96	197	351	11
Number	7	14	5	2	6	16
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1583	1583	1900	1727	1759	1900
Adj Flow Rate, veh/h	51	39	163	229	468	16
Adj No. of Lanes	1	1	0	2	2	0
Peak Hour Factor	0.85	0.65	0.59	0.86	0.75	0.69
Percent Heavy Veh, %	20	20	10	10	8	8
Cap, veh/h	161	0	0	1711	1719	59
Arrive On Green	0.11	0.11	0.00	0.52	0.52	0.52
Sat Flow, veh/h	1508	1346	0	3368	3386	113
Grp Volume(v), veh/h	51	39	0	229	237	247
Grp Sat Flow(s),veh/h/ln	1508	1346	0	1641	1671	1739
Q Serve(g_s), s	0.9	3.1	0.0	1.0	2.3	2.3
Cycle Q Clear(g_c), s	0.9	3.1	0.0	1.0	2.3	2.3
Prop In Lane	1.00	1.00	0.00			0.06
Lane Grp Cap(c), veh/h	161	-67	0	1711	871	907
V/C Ratio(X)	0.32	-0.59	0.00	0.13	0.27	0.27
Avail Cap(c_a), veh/h	1326	973	0	3877	1975	2055
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	11.9	0.0	0.0	3.5	3.8	3.8
Incr Delay (d2), s/veh	0.4	0.0	0.0	0.0	0.1	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	1.2	0.0	0.5	1.0	1.1
LnGrp Delay(d),s/veh	12.3	0.0	0.0	3.6	4.0	4.0
LnGrp LOS	B			A	A	A
Approach Vol, veh/h	90			229	484	
Approach Delay, s/veh	7.0			3.6	4.0	
Approach LOS	A			A	A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		21.0		7.8	0.0	21.0		
Change Period (Y+Rc), s		6.0		* 4.7	4.5	6.0		
Max Green Setting (Gmax), s		34.0		* 25	25.5	34.0		
Max Q Clear Time (g_c+I1), s		3.0		5.1	0.0	4.3		
Green Ext Time (p_c), s		1.1		0.1	0.0	2.2		

Intersection Summary			
HCM 2010 Ctrl Delay			4.2
HCM 2010 LOS			A

Notes

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↱	↰	↑↑	↰	↱
Traffic Volume (veh/h)	432	50	110	425	38	116
Future Volume (veh/h)	432	50	110	425	38	116
Number	4	14	3	8	5	12
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1681	1681	1696	1696	1845	1845
Adj Flow Rate, veh/h	527	52	136	462	52	143
Adj No. of Lanes	1	1	1	2	1	1
Peak Hour Factor	0.82	0.96	0.81	0.92	0.73	0.81
Percent Heavy Veh, %	13	13	12	12	3	3
Cap, veh/h	654	556	170	1909	219	195
Arrive On Green	0.39	0.39	0.11	0.59	0.12	0.12
Sat Flow, veh/h	1681	1429	1616	3308	1757	1568
Grp Volume(v), veh/h	527	52	136	462	52	143
Grp Sat Flow(s),veh/h/ln	1681	1429	1616	1612	1757	1568
Q Serve(g_s), s	11.4	0.9	3.4	2.8	1.1	3.6
Cycle Q Clear(g_c), s	11.4	0.9	3.4	2.8	1.1	3.6
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	654	556	170	1909	219	195
V/C Ratio(X)	0.81	0.09	0.80	0.24	0.24	0.73
Avail Cap(c_a), veh/h	1088	925	394	3187	339	302
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	11.1	7.9	17.9	4.0	16.2	17.3
Incr Delay (d2), s/veh	2.4	0.1	8.3	0.1	0.6	5.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.7	0.4	1.9	1.2	0.6	1.8
LnGrp Delay(d),s/veh	13.5	8.0	26.2	4.0	16.7	22.5
LnGrp LOS	B	A	C	A	B	C
Approach Vol, veh/h	579			598	195	
Approach Delay, s/veh	13.0			9.1	21.0	
Approach LOS	B			A	C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4				8
Phs Duration (G+Y+Rc), s		10.2	8.3	22.4				30.8
Change Period (Y+Rc), s		5.1	4.0	6.5				6.5
Max Green Setting (Gmax), s		7.9	10.0	26.5				40.5
Max Q Clear Time (g_c+I1), s		5.6	5.4	13.4				4.8
Green Ext Time (p_c), s		0.1	0.1	2.5				2.8

Intersection Summary			
HCM 2010 Ctrl Delay			12.4
HCM 2010 LOS			B

HCM 2010 Signalized Intersection Summary
2: Mountain House Pkwy & Byron Rd

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↱↱	↰↰	↑	↰	↱↱
Traffic Volume (veh/h)	579	85	211	484	126	358
Future Volume (veh/h)	579	85	211	484	126	358
Number	6	16	5	2	7	14
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1696	1696	1696	1696	1759	1759
Adj Flow Rate, veh/h	651	112	240	520	156	416
Adj No. of Lanes	2	2	2	1	1	2
Peak Hour Factor	0.89	0.76	0.88	0.93	0.81	0.86
Percent Heavy Veh, %	12	12	12	12	8	8
Cap, veh/h	1047	824	578	1009	319	986
Arrive On Green	0.32	0.32	0.18	0.59	0.19	0.19
Sat Flow, veh/h	3308	2538	3134	1696	1675	2632
Grp Volume(v), veh/h	651	112	240	520	156	416
Grp Sat Flow(s),veh/h/ln	1612	1269	1567	1696	1675	1316
Q Serve(g_s), s	9.0	1.6	3.6	9.4	4.4	6.2
Cycle Q Clear(g_c), s	9.0	1.6	3.6	9.4	4.4	6.2
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	1047	824	578	1009	319	986
V/C Ratio(X)	0.62	0.14	0.42	0.52	0.49	0.42
Avail Cap(c_a), veh/h	2391	1883	1818	1258	947	1972
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	15.0	12.5	18.9	6.2	19.0	12.2
Incr Delay (d2), s/veh	0.7	0.1	0.2	0.5	0.4	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.1	0.6	1.5	4.5	2.0	4.9
LnGrp Delay(d),s/veh	15.8	12.6	19.1	6.7	19.4	12.3
LnGrp LOS	B	B	B	A	B	B
Approach Vol, veh/h	763			760	572	
Approach Delay, s/veh	15.3			10.6	14.3	
Approach LOS	B			B	B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		37.3		15.3	14.2	23.1		
Change Period (Y+Rc), s		6.0		5.3	4.5	6.0		
Max Green Setting (Gmax), s		39.0		29.7	30.5	39.0		
Max Q Clear Time (g_c+I1), s		11.4		8.2	5.6	11.0		
Green Ext Time (p_c), s		4.1		0.7	0.3	6.1		

Intersection Summary			
HCM 2010 Ctrl Delay			13.3
HCM 2010 LOS			B

	↗	↘	↖	↑	↓	↙
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations				↑↑	↑↑	
Traffic Volume (veh/h)	0	0	0	456	367	0
Future Volume (veh/h)	0	0	0	456	367	0
Number			5	2	6	16
Initial Q (Qb), veh			0	0	0	0
Ped-Bike Adj(A_pbT)			1.00			1.00
Parking Bus, Adj			1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln			0	1727	1727	0
Adj Flow Rate, veh/h			0	496	399	0
Adj No. of Lanes			0	2	2	0
Peak Hour Factor			0.92	0.92	0.92	0.92
Percent Heavy Veh, %			0	10	10	0
Cap, veh/h			0	2344	2344	0
Arrive On Green			0.00	0.71	0.71	0.00
Sat Flow, veh/h			0	3455	3455	0
Grp Volume(v), veh/h			0	496	399	0
Grp Sat Flow(s),veh/h/ln			0	1641	1641	0
Q Serve(g_s), s			0.0	1.1	0.8	0.0
Cycle Q Clear(g_c), s			0.0	1.1	0.8	0.0
Prop In Lane			0.00			0.00
Lane Grp Cap(c), veh/h			0	2344	2344	0
V/C Ratio(X)			0.00	0.21	0.17	0.00
Avail Cap(c_a), veh/h			0	5313	5313	0
HCM Platoon Ratio			1.00	1.00	1.00	1.00
Upstream Filter(I)			0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh			0.0	1.0	1.0	0.0
Incr Delay (d2), s/veh			0.0	0.0	0.0	0.0
Initial Q Delay(d3),s/veh			0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln			0.0	0.4	0.3	0.0
LnGrp Delay(d),s/veh			0.0	1.0	1.0	0.0
LnGrp LOS				A	A	
Approach Vol, veh/h				496	399	
Approach Delay, s/veh				1.0	1.0	
Approach LOS				A	A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2				6		
Phs Duration (G+Y+Rc), s		21.0				21.0		
Change Period (Y+Rc), s		6.0				6.0		
Max Green Setting (Gmax), s		34.0				34.0		
Max Q Clear Time (g_c+I1), s		3.1				2.8		
Green Ext Time (p_c), s		2.7				2.1		

Intersection Summary	
HCM 2010 Ctrl Delay	1.0
HCM 2010 LOS	A

HCM 2010 Signalized Intersection Summary
4: Mountain House Pkwy & Arnaudo Blvd

	↗	↘	↖	↑	↓	↙
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↰	↱		↑↑	↑↑	
Traffic Volume (veh/h)	194	70	91	262	191	246
Future Volume (veh/h)	194	70	91	262	191	246
Number	7	14	5	2	6	16
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1900	1792	1743	1900
Adj Flow Rate, veh/h	220	84	112	288	217	289
Adj No. of Lanes	1	1	0	2	2	0
Peak Hour Factor	0.88	0.83	0.81	0.91	0.88	0.85
Percent Heavy Veh, %	3	3	6	6	9	9
Cap, veh/h	337	301	0	1333	648	580
Arrive On Green	0.19	0.19	0.00	0.39	0.39	0.39
Sat Flow, veh/h	1757	1568	0	3495	1743	1482
Grp Volume(v), veh/h	220	84	0	288	217	289
Grp Sat Flow(s),veh/h/ln	1757	1568	0	1703	1656	1482
Q Serve(g_s), s	2.5	1.0	0.0	1.2	2.0	3.2
Cycle Q Clear(g_c), s	2.5	1.0	0.0	1.2	2.0	3.2
Prop In Lane	1.00	1.00	0.00			1.00
Lane Grp Cap(c), veh/h	337	301	0	1333	648	580
V/C Ratio(X)	0.65	0.28	0.00	0.22	0.33	0.50
Avail Cap(c_a), veh/h	2277	2033	0	6307	3067	2744
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	8.1	7.5	0.0	4.4	4.6	5.0
Incr Delay (d2), s/veh	0.8	0.2	0.0	0.1	0.3	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.2	0.9	0.0	0.6	1.0	1.4
LnGrp Delay(d),s/veh	8.9	7.6	0.0	4.4	4.9	5.6
LnGrp LOS	A	A		A	A	A
Approach Vol, veh/h	304			288	506	
Approach Delay, s/veh	8.5			4.4	5.3	
Approach LOS	A			A	A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		13.5		8.1	0.0	13.5		
Change Period (Y+Rc), s		5.0		4.0	4.0	5.0		
Max Green Setting (Gmax), s		40.0		28.0	16.0	40.0		
Max Q Clear Time (g_c+I1), s		3.2		4.5	0.0	5.2		
Green Ext Time (p_c), s		1.8		0.4	0.0	3.3		

Intersection Summary	
HCM 2010 Ctrl Delay	6.0
HCM 2010 LOS	A

5: Mountain House Pkwy & Wicklund Crossing

Intersection	
Int Delay, s/veh	1.5

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↱	↰	↑↑	↑↑	↱
Traffic Vol, veh/h	0	54	63	384	157	19
Future Vol, veh/h	0	54	63	384	157	19
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	130	-	-	90
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	66	79	88	87	87	79
Heavy Vehicles, %	2	2	5	5	8	8
Mvmt Flow	0	68	72	441	180	24

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	90	204	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	4.2	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	2.25	-	-	-
Pot Cap-1 Maneuver	0	950	1343	-	-	-
Stage 1	0	-	-	-	-	-
Stage 2	0	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	950	1343	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.1	1.1	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1343	-	950	-	-
HCM Lane V/C Ratio	0.053	-	0.072	-	-
HCM Control Delay (s)	7.8	-	9.1	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0.2	-	0.2	-	-

6: Mountain House Pkwy & Mustand Wy

	↗	↘	↖	↑	↓	↙
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↰	↱↱	↰↰	↑↑↑	↑↑	↱
Traffic Volume (veh/h)	95	121	98	325	232	48
Future Volume (veh/h)	95	121	98	325	232	48
Number	7	14	5	2	6	16
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1881	1881	1827	1827	1810	1810
Adj Flow Rate, veh/h	112	181	124	378	309	60
Adj No. of Lanes	1	2	2	3	2	1
Peak Hour Factor	0.85	0.67	0.79	0.86	0.75	0.80
Percent Heavy Veh, %	1	1	4	4	5	5
Cap, veh/h	242	380	307	2397	811	362
Arrive On Green	0.14	0.14	0.09	0.48	0.24	0.24
Sat Flow, veh/h	1792	2814	3375	5152	3529	1535
Grp Volume(v), veh/h	112	181	124	378	309	60
Grp Sat Flow(s),veh/h/ln	1792	1407	1688	1663	1719	1535
Q Serve(g_s), s	1.5	1.5	0.9	1.1	2.0	0.8
Cycle Q Clear(g_c), s	1.5	1.5	0.9	1.1	2.0	0.8
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	242	380	307	2397	811	362
V/C Ratio(X)	0.46	0.48	0.40	0.16	0.38	0.17
Avail Cap(c_a), veh/h	1067	1676	2075	5077	4094	1828
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	10.4	10.4	11.2	3.8	8.3	7.9
Incr Delay (d2), s/veh	0.5	0.3	0.3	0.0	0.3	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	1.2	0.4	0.5	0.9	0.4
LnGrp Delay(d),s/veh	10.9	10.7	11.5	3.8	8.6	8.1
LnGrp LOS	B	B	B	A	A	A
Approach Vol, veh/h	293			502	369	
Approach Delay, s/veh	10.8			5.7	8.6	
Approach LOS	B			A	A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		18.0		8.0	6.4	11.6		
Change Period (Y+Rc), s		5.5		4.5	4.0	5.5		
Max Green Setting (Gmax), s		26.5		15.5	16.0	31.0		
Max Q Clear Time (g_c+I1), s		3.1		3.5	2.9	4.0		
Green Ext Time (p_c), s		2.4		0.4	0.1	2.1		

Intersection Summary			
HCM 2010 Ctrl Delay			7.9
HCM 2010 LOS			A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑↑	↱	↰↰	↑↑	↱	↰↰	↑↱		↰↰	↑↑	↱
Traffic Volume (veh/h)	48	180	231	8	64	11	200	377	17	32	255	25
Future Volume (veh/h)	48	180	231	8	64	11	200	377	17	32	255	25
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1792	1792	1863	1881	1881	1881	1810	1810	1900	1827	1827	1827
Adj Flow Rate, veh/h	56	220	243	16	68	20	225	414	20	48	277	36
Adj No. of Lanes	1	2	1	2	2	1	2	2	0	2	2	1
Peak Hour Factor	0.86	0.82	0.95	0.50	0.94	0.55	0.89	0.91	0.85	0.67	0.92	0.69
Percent Heavy Veh, %	6	6	2	1	1	1	5	5	5	4	4	4
Cap, veh/h	105	1001	466	82	916	410	334	1004	48	187	890	398
Arrive On Green	0.06	0.29	0.29	0.02	0.26	0.26	0.10	0.30	0.30	0.06	0.26	0.26
Sat Flow, veh/h	1707	3406	1583	3476	3574	1599	3343	3339	161	3375	3471	1553
Grp Volume(v), veh/h	56	220	243	16	68	20	225	213	221	48	277	36
Grp Sat Flow(s),veh/h/ln	1707	1703	1583	1738	1787	1599	1672	1719	1781	1688	1736	1553
Q Serve(g_s), s	1.9	2.9	7.5	0.3	0.8	0.6	3.8	5.8	5.8	0.8	3.8	1.0
Cycle Q Clear(g_c), s	1.9	2.9	7.5	0.3	0.8	0.6	3.8	5.8	5.8	0.8	3.8	1.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.09	1.00		1.00
Lane Grp Cap(c), veh/h	105	1001	466	82	916	410	334	517	535	187	890	398
V/C Ratio(X)	0.54	0.22	0.52	0.20	0.07	0.05	0.67	0.41	0.41	0.26	0.31	0.09
Avail Cap(c_a), veh/h	767	2310	1074	1562	2424	1085	1479	1145	1187	1494	2313	1035
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	26.7	15.6	17.2	28.0	16.5	16.4	25.4	16.3	16.3	26.5	17.6	16.6
Incr Delay (d2), s/veh	1.6	0.0	0.3	0.4	0.0	0.0	0.9	0.2	0.2	0.3	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	1.4	3.3	0.1	0.4	0.2	1.8	2.7	2.9	0.4	1.8	0.4
LnGrp Delay(d),s/veh	28.2	15.6	17.6	28.5	16.5	16.4	26.3	16.5	16.5	26.7	17.7	16.6
LnGrp LOS	C	B	B	C	B	B	C	B	B	C	B	B
Approach Vol, veh/h		519			104			659			361	
Approach Delay, s/veh		17.9			18.3			19.9			18.8	
Approach LOS		B			B			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.4	23.6	5.1	22.5	9.9	21.0	7.3	20.3
Change Period (Y+Rc), s	4.1	6.0	3.7	5.3	4.1	6.0	3.7	5.3
Max Green Setting (Gmax), s	25.9	39.0	26.3	39.7	25.9	39.0	26.3	39.7
Max Q Clear Time (g_c+I1), s	2.8	7.8	2.3	9.5	5.8	5.8	3.9	2.8
Green Ext Time (p_c), s	0.0	1.2	0.0	1.0	0.1	0.9	0.0	0.2

Intersection Summary	
HCM 2010 Ctrl Delay	18.9
HCM 2010 LOS	B

HCM 2010 Signalized Intersection Summary
8: Grant Line Rd & De Anza Blvd

	↗	→	←	↖	↘	↙
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↰	↑↑	↑↑	↱	↰	↱
Traffic Volume (veh/h)	18	433	244	43	33	12
Future Volume (veh/h)	18	433	244	43	33	12
Number	7	4	8	18	1	16
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1792	1792	1792	1792	1792	1792
Adj Flow Rate, veh/h	32	476	271	52	48	16
Adj No. of Lanes	1	2	2	1	1	1
Peak Hour Factor	0.56	0.91	0.90	0.83	0.69	0.75
Percent Heavy Veh, %	6	6	6	6	6	6
Cap, veh/h	56	1687	818	366	102	91
Arrive On Green	0.03	0.50	0.24	0.24	0.06	0.06
Sat Flow, veh/h	1707	3495	3495	1524	1707	1524
Grp Volume(v), veh/h	32	476	271	52	48	16
Grp Sat Flow(s),veh/h/ln	1707	1703	1703	1524	1707	1524
Q Serve(g_s), s	0.4	1.7	1.3	0.5	0.6	0.2
Cycle Q Clear(g_c), s	0.4	1.7	1.3	0.5	0.6	0.2
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	56	1687	818	366	102	91
V/C Ratio(X)	0.58	0.28	0.33	0.14	0.47	0.18
Avail Cap(c_a), veh/h	422	3031	3031	1356	1519	1356
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	9.6	3.0	6.3	6.0	9.2	9.0
Incr Delay (d2), s/veh	9.1	0.1	0.2	0.2	3.3	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.7	0.6	0.2	0.3	0.2
LnGrp Delay(d),s/veh	18.7	3.1	6.6	6.2	12.5	9.9
LnGrp LOS	B	A	A	A	B	A
Approach Vol, veh/h		508	323		64	
Approach Delay, s/veh		4.1	6.5		11.9	
Approach LOS		A	A		B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs				4		6	7	8
Phs Duration (G+Y+Rc), s				14.5		5.7	5.2	9.4
Change Period (Y+Rc), s				4.5		4.5	4.5	4.5
Max Green Setting (Gmax), s				18.0		18.0	5.0	18.0
Max Q Clear Time (g_c+I1), s				3.7		2.6	2.4	3.3
Green Ext Time (p_c), s				2.6		0.1	0.0	1.5

Intersection Summary	
HCM 2010 Ctrl Delay	5.5
HCM 2010 LOS	A

	↗	→	↘	↙	←	↖	↖	↑	↗	↘	↓	↙
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑↑	↱	↰	↑↑	↱	↰	↑↑	↱	↰	↑↑	↱
Traffic Volume (veh/h)	51	341	10	22	67	81	15	15	34	98	10	28
Future Volume (veh/h)	51	341	10	22	67	81	15	15	34	98	10	28
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1827	1827	1827	1792	1792	1792	1810	1810	1810	1827	1827	1827
Adj Flow Rate, veh/h	68	379	16	32	108	112	28	24	56	124	20	48
Adj No. of Lanes	1	2	1	1	2	1	1	2	1	1	2	1
Peak Hour Factor	0.75	0.90	0.62	0.69	0.62	0.72	0.54	0.62	0.61	0.79	0.50	0.58
Percent Heavy Veh, %	4	4	4	6	6	6	5	5	5	4	4	4
Cap, veh/h	494	831	372	389	816	365	60	623	278	190	888	396
Arrive On Green	0.24	0.24	0.24	0.24	0.24	0.24	0.03	0.18	0.18	0.11	0.26	0.26
Sat Flow, veh/h	1134	3471	1553	948	3406	1524	1723	3438	1533	1740	3471	1549
Grp Volume(v), veh/h	68	379	16	32	108	112	28	24	56	124	20	48
Grp Sat Flow(s),veh/h/ln	1134	1736	1553	948	1703	1524	1723	1719	1533	1740	1736	1549
Q Serve(g_s), s	1.4	2.7	0.2	0.9	0.7	1.7	0.5	0.2	0.9	2.0	0.1	0.7
Cycle Q Clear(g_c), s	2.2	2.7	0.2	3.5	0.7	1.7	0.5	0.2	0.9	2.0	0.1	0.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	494	831	372	389	816	365	60	623	278	190	888	396
V/C Ratio(X)	0.14	0.46	0.04	0.08	0.13	0.31	0.47	0.04	0.20	0.65	0.02	0.12
Avail Cap(c_a), veh/h	933	2175	973	756	2134	954	300	2154	960	303	2175	971
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	9.4	9.3	8.4	10.8	8.6	9.0	13.6	9.7	10.0	12.3	8.0	8.2
Incr Delay (d2), s/veh	0.1	0.4	0.0	0.1	0.1	0.5	5.5	0.0	0.4	3.7	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	1.3	0.1	0.2	0.3	0.8	0.3	0.1	0.4	1.1	0.1	0.3
LnGrp Delay(d),s/veh	9.6	9.7	8.4	10.9	8.7	9.4	19.1	9.7	10.3	16.0	8.0	8.3
LnGrp LOS	A	A	A	B	A	A	B	A	B	B	A	A
Approach Vol, veh/h		463			252			108			192	
Approach Delay, s/veh		9.7			9.3			12.5			13.3	
Approach LOS		A			A			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	7.6	9.7		11.4	5.5	11.9		11.4
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5
Max Green Setting (Gmax), s	5.0	18.0		18.0	5.0	18.0		18.0
Max Q Clear Time (g_c+I1), s	4.0	2.9		4.7	2.5	2.7		5.5
Green Ext Time (p_c), s	0.0	0.2		2.2	0.0	0.2		0.9

Intersection Summary	
HCM 2010 Ctrl Delay	10.5
HCM 2010 LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰↰	↱		↰	↑	↱↱		✥			↰	↱
Traffic Volume (vph)	258	377	0	0	60	42	0	0	0	27	0	91
Future Volume (vph)	258	377	0	0	60	42	0	0	0	27	0	91
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.6			4.6	4.6					5.1	5.1
Lane Util. Factor	0.97	1.00			1.00	0.88					1.00	1.00
Frt	1.00	1.00			1.00	0.85					1.00	0.85
Flt Protected	0.95	1.00			1.00	1.00					0.95	1.00
Satd. Flow (prot)	3433	1863			1827	2733					1770	1583
Flt Permitted	0.95	1.00			1.00	1.00					0.95	1.00
Satd. Flow (perm)	3433	1863			1827	2733					1770	1583
Peak-hour factor, PHF	0.79	0.87	0.92	0.92	0.88	0.75	0.92	0.92	0.92	0.61	0.92	0.81
Adj. Flow (vph)	327	433	0	0	68	56	0	0	0	44	0	112
RTOR Reduction (vph)	0	0	0	0	0	49	0	0	0	0	0	94
Lane Group Flow (vph)	327	433	0	0	68	7	0	0	0	0	44	18
Heavy Vehicles (%)	2%	2%	2%	4%	4%	4%	1%	1%	1%	2%	2%	2%
Turn Type	Prot	NA		Prot	NA	Perm				Split	NA	Prot
Protected Phases	3	8		7	4		5	5		6	6	6
Permitted Phases						4						
Actuated Green, G (s)	7.3	16.7			5.4	5.4					6.6	6.6
Effective Green, g (s)	7.3	16.7			5.4	5.4					6.6	6.6
Actuated g/C Ratio	0.18	0.40			0.13	0.13					0.16	0.16
Clearance Time (s)	4.0	4.6			4.6	4.6					5.1	5.1
Vehicle Extension (s)	3.0	3.0			3.0	3.0					3.0	3.0
Lane Grp Cap (vph)	600	746			236	353					280	250
v/s Ratio Prot	0.10	c0.23			0.04						c0.02	0.01
v/s Ratio Perm						0.00						
v/c Ratio	0.55	0.58			0.29	0.02					0.16	0.07
Uniform Delay, d1	15.7	9.8			16.4	15.8					15.1	14.9
Progression Factor	1.00	1.00			1.00	1.00					1.00	1.00
Incremental Delay, d2	1.0	1.2			0.7	0.0					0.3	0.1
Delay (s)	16.7	10.9			17.1	15.9					15.4	15.1
Level of Service	B	B			B	B					B	B
Approach Delay (s)		13.4			16.5			0.0			15.2	
Approach LOS		B			B			A			B	

Intersection Summary			
HCM 2000 Control Delay	14.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.46		
Actuated Cycle Length (s)	41.7	Sum of lost time (s)	18.3
Intersection Capacity Utilization	31.3%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

	↗	→	↘	↙	←	↖	↖	↑	↗	↘	↓	↙
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑↱		↰	↑↱		↰	↑↱		↰	↑↱	
Traffic Volume (veh/h)	34	107	11	13	83	48	21	98	23	51	78	18
Future Volume (veh/h)	34	107	11	13	83	48	21	98	23	51	78	18
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.98	1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1881	1881	1900	1863	1863	1900	1881	1881	1900
Adj Flow Rate, veh/h	48	149	16	20	100	68	36	108	24	100	100	32
Adj No. of Lanes	1	2	0	1	2	0	1	2	0	1	2	0
Peak Hour Factor	0.71	0.72	0.69	0.65	0.83	0.71	0.58	0.91	0.96	0.51	0.78	0.56
Percent Heavy Veh, %	2	2	2	1	1	1	2	2	2	1	1	1
Cap, veh/h	77	734	78	36	429	268	61	419	90	132	496	152
Arrive On Green	0.04	0.23	0.23	0.02	0.20	0.20	0.03	0.14	0.14	0.07	0.18	0.18
Sat Flow, veh/h	1774	3225	342	1792	2098	1313	1774	2891	624	1792	2691	827
Grp Volume(v), veh/h	48	81	84	20	84	84	36	65	67	100	65	67
Grp Sat Flow(s),veh/h/ln	1774	1770	1798	1792	1787	1624	1774	1770	1745	1792	1787	1730
Q Serve(g_s), s	0.9	1.2	1.2	0.4	1.3	1.4	0.6	1.0	1.1	1.8	1.0	1.1
Cycle Q Clear(g_c), s	0.9	1.2	1.2	0.4	1.3	1.4	0.6	1.0	1.1	1.8	1.0	1.1
Prop In Lane	1.00		0.19	1.00		0.81	1.00		0.36	1.00		0.48
Lane Grp Cap(c), veh/h	77	402	409	36	365	332	61	256	253	132	329	319
V/C Ratio(X)	0.62	0.20	0.21	0.55	0.23	0.25	0.59	0.25	0.27	0.76	0.20	0.21
Avail Cap(c_a), veh/h	270	1648	1674	328	1664	1512	270	1648	1625	272	1520	1472
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	15.2	10.1	10.1	15.6	10.7	10.8	15.3	12.2	12.2	14.6	11.1	11.2
Incr Delay (d2), s/veh	3.1	0.2	0.2	4.7	0.3	0.4	3.4	0.5	0.6	3.4	0.3	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	0.6	0.6	0.2	0.6	0.7	0.4	0.5	0.6	1.0	0.5	0.5
LnGrp Delay(d),s/veh	18.2	10.3	10.3	20.3	11.0	11.1	18.7	12.7	12.8	18.0	11.4	11.5
LnGrp LOS	B	B	B	C	B	B	B	B	B	B	B	B
Approach Vol, veh/h		213			188			168			232	
Approach Delay, s/veh		12.1			12.1			14.1			14.3	
Approach LOS		B			B			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	6.5	9.2	4.8	11.8	5.2	10.4	5.5	11.1
Change Period (Y+Rc), s	4.1	4.5	4.1	4.5	4.1	4.5	4.1	4.5
Max Green Setting (Gmax), s	4.9	30.0	5.9	30.0	4.9	27.4	4.9	30.0
Max Q Clear Time (g_c+I1), s	3.8	3.1	2.4	3.2	2.6	3.1	2.9	3.4
Green Ext Time (p_c), s	0.0	0.7	0.0	0.9	0.0	0.7	0.0	0.9

Intersection Summary	
HCM 2010 Ctrl Delay	13.1
HCM 2010 LOS	B

HCM 2010 Signalized Intersection Summary
12: Central Pkwy & Arnaudo Blvd

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✥		↰	↑	↱	↰	↑↱		↰	↑↱	
Traffic Volume (veh/h)	5	21	3	18	37	188	4	88	24	142	85	5
Future Volume (veh/h)	5	21	3	18	37	188	4	88	24	142	85	5
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1900	1900	1863	1863	1863	1810	1810	1900	1863	1863	1900
Adj Flow Rate, veh/h	12	32	8	24	44	224	8	121	36	160	104	8
Adj No. of Lanes	0	1	0	1	1	1	1	2	0	1	2	0
Peak Hour Factor	0.42	0.66	0.38	0.75	0.84	0.84	0.50	0.73	0.67	0.89	0.82	0.63
Percent Heavy Veh, %	0	0	0	2	2	2	5	5	5	2	2	2
Cap, veh/h	180	142	32	43	530	450	15	482	138	208	970	74
Arrive On Green	0.12	0.12	0.12	0.02	0.28	0.28	0.01	0.18	0.18	0.12	0.29	0.29
Sat Flow, veh/h	267	1149	257	1774	1863	1583	1723	2634	756	1774	3329	253
Grp Volume(v), veh/h	52	0	0	24	44	224	8	77	80	160	55	57
Grp Sat Flow(s),veh/h/ln	1673	0	0	1774	1863	1583	1723	1719	1672	1774	1770	1812
Q Serve(g_s), s	0.0	0.0	0.0	0.4	0.5	3.5	0.1	1.2	1.2	2.6	0.7	0.7
Cycle Q Clear(g_c), s	0.8	0.0	0.0	0.4	0.5	3.5	0.1	1.2	1.2	2.6	0.7	0.7
Prop In Lane	0.23		0.15	1.00		1.00	1.00		0.45	1.00		0.14
Lane Grp Cap(c), veh/h	354	0	0	43	530	450	15	314	306	208	516	528
V/C Ratio(X)	0.15	0.00	0.00	0.56	0.08	0.50	0.54	0.25	0.26	0.77	0.11	0.11
Avail Cap(c_a), veh/h	1702	0	0	1646	1796	1527	911	2326	2262	938	2395	2452
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	11.9	0.0	0.0	14.5	7.9	9.0	14.9	10.5	10.5	12.9	7.8	7.8
Incr Delay (d2), s/veh	0.1	0.0	0.0	4.2	0.0	0.3	10.9	0.4	0.4	2.3	0.1	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	0.0	0.0	0.2	0.3	1.6	0.1	0.6	0.6	1.4	0.3	0.4
LnGrp Delay(d),s/veh	11.9	0.0	0.0	18.7	7.9	9.3	25.7	10.9	11.0	15.1	7.9	7.9
LnGrp LOS	B			B	A	A	C	B	B	B	A	A
Approach Vol, veh/h		52			292			165			272	
Approach Delay, s/veh		11.9			9.9			11.7			12.2	
Approach LOS		B			A			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6		8
Phs Duration (G+Y+Rc), s	7.6	9.8	4.8	7.8	4.4	13.1		12.7
Change Period (Y+Rc), s	4.1	* 4.3	4.1	4.1	4.1	* 4.3		4.1
Max Green Setting (Gmax), s	15.9	* 41	27.9	29.0	15.9	* 41		29.0
Max Q Clear Time (g_c+I1), s	4.6	3.2	2.4	2.8	2.1	2.7		5.5
Green Ext Time (p_c), s	0.2	0.9	0.0	0.2	0.0	0.6		0.5

Intersection Summary	
HCM 2010 Ctrl Delay	11.2
HCM 2010 LOS	B

Notes

Intersection	
Intersection Delay, s/veh	9.4
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑	↱	↰	↑↱		↰	↱		↰	↱	
Traffic Vol, veh/h	3	9	120	10	0	1	154	100	23	26	3	1
Future Vol, veh/h	3	9	120	10	0	1	154	100	23	26	3	1
Peak Hour Factor	0.38	0.32	0.79	0.50	0.50	0.50	0.96	0.96	0.58	0.81	0.75	0.25
Heavy Vehicles, %	1	1	1	24	24	24	2	2	2	2	2	2
Mvmt Flow	8	28	152	20	0	2	160	104	40	32	4	4
Number of Lanes	1	1	1	1	2	0	1	1	0	1	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	3	2	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	2	3	3
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	2	3	3
HCM Control Delay	8.9	9.7	9.8	9.2
HCM LOS	A	A	A	A

Lane	NBLn1	NBLn2	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBLn1	SBLn2
Vol Left, %	100%	0%	100%	0%	0%	100%	0%	0%	100%	0%
Vol Thru, %	0%	81%	0%	100%	0%	0%	100%	0%	0%	75%
Vol Right, %	0%	19%	0%	0%	100%	0%	0%	100%	0%	25%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	154	123	3	9	120	10	0	1	26	4
LT Vol	154	0	3	0	0	10	0	0	26	0
Through Vol	0	100	0	9	0	0	0	0	0	3
RT Vol	0	23	0	0	120	0	0	1	0	1
Lane Flow Rate	160	144	8	28	152	20	0	2	32	8
Geometry Grp	8	8	8	8	8	8	8	8	8	8
Degree of Util (X)	0.254	0.202	0.013	0.043	0.205	0.038	0	0.003	0.056	0.012
Departure Headway (Hd)	5.69	5.058	6.062	5.559	4.855	6.772	6.268	5.561	6.231	5.552
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	629	706	589	642	737	526	0	639	572	640
Service Time	3.442	2.81	3.81	3.307	2.603	4.546	4.041	3.334	4.002	3.323
HCM Lane V/C Ratio	0.254	0.204	0.014	0.044	0.206	0.038	0	0.003	0.056	0.013
HCM Control Delay	10.4	9.1	8.9	8.6	8.9	9.8	9	8.4	9.4	8.4
HCM Lane LOS	B	A	A	A	A	A	N	A	A	A
HCM 95th-tile Q	1	0.8	0	0.1	0.8	0.1	0	0	0.2	0

HCM 2010 Signalized Intersection Summary
14: De Anza Blvd & Arnaudo Blvd

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑↱		↰	↑↱		↰	↑↱		↰	↑↱	
Traffic Volume (veh/h)	3	265	25	9	342	0	33	1	39	5	2	1
Future Volume (veh/h)	3	265	25	9	342	0	33	1	39	5	2	1
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1845	1845	1900	1863	1863	1900	1881	1881	1900
Adj Flow Rate, veh/h	8	288	32	12	384	0	52	4	52	12	4	4
Adj No. of Lanes	1	2	0	1	2	0	1	2	0	1	2	0
Peak Hour Factor	0.38	0.92	0.78	0.75	0.89	0.92	0.64	0.25	0.75	0.42	0.50	0.25
Percent Heavy Veh, %	2	2	2	3	3	3	2	2	2	1	1	1
Cap, veh/h	15	738	81	22	818	0	85	177	158	23	118	101
Arrive On Green	0.01	0.23	0.23	0.01	0.23	0.00	0.05	0.10	0.10	0.01	0.06	0.06
Sat Flow, veh/h	1774	3216	354	1757	3597	0	1774	1770	1583	1792	1825	1567
Grp Volume(v), veh/h	8	157	163	12	384	0	52	4	52	12	4	4
Grp Sat Flow(s),veh/h/ln	1774	1770	1800	1757	1752	0	1774	1770	1583	1792	1787	1605
Q Serve(g_s), s	0.1	2.0	2.0	0.2	2.5	0.0	0.8	0.1	0.8	0.2	0.1	0.1
Cycle Q Clear(g_c), s	0.1	2.0	2.0	0.2	2.5	0.0	0.8	0.1	0.8	0.2	0.1	0.1
Prop In Lane	1.00		0.20	1.00		0.00	1.00		1.00	1.00		0.98
Lane Grp Cap(c), veh/h	15	406	413	22	818	0	85	177	158	23	116	104
V/C Ratio(X)	0.52	0.39	0.39	0.54	0.47	0.00	0.61	0.02	0.33	0.52	0.03	0.04
Avail Cap(c_a), veh/h	1077	1947	1981	1067	3857	0	1077	2719	2433	1088	2746	2466
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	13.0	8.6	8.6	12.9	8.7	0.0	12.3	10.7	11.0	12.9	11.6	11.6
Incr Delay (d2), s/veh	9.9	0.2	0.2	7.2	0.2	0.0	2.6	0.1	1.2	6.8	0.1	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	1.0	1.0	0.1	1.2	0.0	0.4	0.0	0.4	0.1	0.0	0.0
LnGrp Delay(d),s/veh	22.9	8.8	8.8	20.1	8.9	0.0	14.9	10.7	12.2	19.7	11.7	11.7
LnGrp LOS	C	A	A	C	A		B	B	B	B	B	B
Approach Vol, veh/h		328			396			108			20	
Approach Delay, s/veh		9.2			9.2			13.5			16.5	
Approach LOS		A			A			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	4.3	7.1	4.3	10.5	5.3	6.2	4.2	10.7
Change Period (Y+Rc), s	4.0	4.5	4.0	4.5	4.0	4.5	4.0	4.5
Max Green Setting (Gmax), s	16.0	40.5	16.0	29.0	16.0	40.5	16.0	29.0
Max Q Clear Time (g_c+I1), s	2.2	2.8	2.2	4.0	2.8	2.1	2.1	4.5
Green Ext Time (p_c), s	0.0	0.3	0.0	1.2	0.0	0.0	0.0	1.7

Intersection Summary	
HCM 2010 Ctrl Delay	9.9
HCM 2010 LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑↱		↰	↑↱		↰	↑↱		↰	↱	
Traffic Volume (veh/h)	31	256	5	13	140	2	2	16	14	5	21	31
Future Volume (veh/h)	31	256	5	13	140	2	2	16	14	5	21	31
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1881	1881	1900	1881	1881	1900	1759	1759	1900	1863	1863	1900
Adj Flow Rate, veh/h	65	441	16	16	147	4	4	24	32	12	48	44
Adj No. of Lanes	1	2	0	1	2	0	1	2	0	1	1	0
Peak Hour Factor	0.48	0.58	0.31	0.81	0.95	0.50	0.50	0.67	0.44	0.42	0.44	0.71
Percent Heavy Veh, %	1	1	1	1	1	1	8	8	8	2	2	2
Cap, veh/h	117	1544	56	37	1400	38	9	175	157	28	103	95
Arrive On Green	0.07	0.44	0.44	0.02	0.39	0.39	0.01	0.10	0.10	0.02	0.12	0.12
Sat Flow, veh/h	1792	3518	127	1792	3555	96	1675	1671	1495	1774	896	822
Grp Volume(v), veh/h	65	224	233	16	74	77	4	24	32	12	0	92
Grp Sat Flow(s),veh/h/ln	1792	1787	1859	1792	1787	1864	1675	1671	1495	1774	0	1718
Q Serve(g_s), s	1.3	3.1	3.1	0.3	1.0	1.0	0.1	0.5	0.7	0.3	0.0	1.9
Cycle Q Clear(g_c), s	1.3	3.1	3.1	0.3	1.0	1.0	0.1	0.5	0.7	0.3	0.0	1.9
Prop In Lane	1.00		0.07	1.00		0.05	1.00		1.00	1.00		0.48
Lane Grp Cap(c), veh/h	117	784	815	37	704	734	9	175	157	28	0	198
V/C Ratio(X)	0.56	0.29	0.29	0.44	0.10	0.11	0.44	0.14	0.20	0.43	0.00	0.46
Avail Cap(c_a), veh/h	776	1666	1733	776	1666	1738	726	1339	1198	769	0	1376
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	17.3	6.9	6.9	18.4	7.3	7.3	18.9	15.5	15.6	18.6	0.0	15.7
Incr Delay (d2), s/veh	4.1	0.2	0.2	8.0	0.1	0.1	29.8	0.4	0.6	10.2	0.0	1.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	1.5	1.6	0.2	0.5	0.5	0.1	0.2	0.3	0.2	0.0	1.0
LnGrp Delay(d),s/veh	21.3	7.1	7.1	26.4	7.4	7.4	48.7	15.8	16.2	28.8	0.0	17.4
LnGrp LOS	C	A	A	C	A	A	D	B	B	C		B
Approach Vol, veh/h		522			167			60			104	
Approach Delay, s/veh		8.8			9.2			18.2			18.8	
Approach LOS		A			A			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	4.1	8.5	4.3	21.2	3.7	8.9	6.0	19.5
Change Period (Y+Rc), s	3.5	4.5	3.5	4.5	3.5	4.5	3.5	4.5
Max Green Setting (Gmax), s	16.5	30.5	16.5	35.5	16.5	30.5	16.5	35.5
Max Q Clear Time (g_c+I1), s	2.3	2.7	2.3	5.1	2.1	3.9	3.3	3.0
Green Ext Time (p_c), s	0.0	0.3	0.0	2.7	0.0	0.5	0.1	0.8

Intersection Summary			
HCM 2010 Ctrl Delay			10.8
HCM 2010 LOS			B

	↗	→	↘	↙	←	↖	↖	↑	↗	↘	↓	↙
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↰	↱↱	↰	↑↑			↑↑↑	↱
Traffic Volume (veh/h)	0	0	0	215	1	380	27	248	0	0	421	55
Future Volume (veh/h)	0	0	0	215	1	380	27	248	0	0	421	55
Number				3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln				1900	1696	1696	1696	1696	0	0	1810	1810
Adj Flow Rate, veh/h				253	4	413	52	276	0	0	439	83
Adj No. of Lanes				0	1	2	1	2	0	0	3	1
Peak Hour Factor				0.85	0.25	0.92	0.52	0.90	0.92	0.92	0.96	0.66
Percent Heavy Veh, %				12	12	12	12	12	0	0	5	5
Cap, veh/h				423	7	675	105	1684	0	0	1740	542
Arrive On Green				0.27	0.27	0.27	0.06	0.52	0.00	0.00	0.35	0.35
Sat Flow, veh/h				1592	25	2538	1616	3308	0	0	5103	1538
Grp Volume(v), veh/h				257	0	413	52	276	0	0	439	83
Grp Sat Flow(s),veh/h/ln				1617	0	1269	1616	1612	0	0	1647	1538
Q Serve(g_s), s				5.9	0.0	6.1	1.3	1.9	0.0	0.0	2.7	1.6
Cycle Q Clear(g_c), s				5.9	0.0	6.1	1.3	1.9	0.0	0.0	2.7	1.6
Prop In Lane				0.98		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				430	0	675	105	1684	0	0	1740	542
V/C Ratio(X)				0.60	0.00	0.61	0.50	0.16	0.00	0.00	0.25	0.15
Avail Cap(c_a), veh/h				1044	0	1639	398	3065	0	0	2958	921
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	1.00	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				13.6	0.0	13.7	19.2	5.3	0.0	0.0	9.8	9.4
Incr Delay (d2), s/veh				1.3	0.0	0.9	3.6	0.0	0.0	0.0	0.1	0.1
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				2.8	0.0	2.2	0.7	0.9	0.0	0.0	1.2	0.7
LnGrp Delay(d),s/veh				15.0	0.0	14.6	22.9	5.4	0.0	0.0	9.9	9.6
LnGrp LOS				B		B	C	A			A	A
Approach Vol, veh/h					670			328			522	
Approach Delay, s/veh					14.7			8.1			9.8	
Approach LOS					B			A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2			5	6		8
Phs Duration (G+Y+Rc), s		26.8			7.3	19.5		15.8
Change Period (Y+Rc), s		4.5			4.5	4.5		4.5
Max Green Setting (Gmax), s		40.5			10.5	25.5		27.5
Max Q Clear Time (g_c+I1), s		3.9			3.3	4.7		8.1
Green Ext Time (p_c), s		2.0			0.0	3.2		3.3

Intersection Summary	
HCM 2010 Ctrl Delay	11.6
HCM 2010 LOS	B

	↗	→	↘	↙	←	↖	↖	↑	↗	↘	↓	↙
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↰	↱					↑↑	↱		↑↑	
Traffic Volume (vph)	90	1	41	0	0	0	0	179	469	0	319	0
Future Volume (vph)	90	1	41	0	0	0	0	179	469	0	319	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5					4.5	4.5		4.5	
Lane Util. Factor	0.95	0.95	1.00					0.95	1.00		0.95	
Frt	1.00	1.00	0.85					1.00	0.85		1.00	
Flt Protected	0.95	0.96	1.00					1.00	1.00		1.00	
Satd. Flow (prot)	1618	1628	1524					3008	1346		3223	
Flt Permitted	0.95	0.96	1.00					1.00	1.00		1.00	
Satd. Flow (perm)	1618	1628	1524					3008	1346		3223	
Peak-hour factor, PHF	0.90	0.25	0.93	0.92	0.92	0.92	0.92	0.84	0.77	0.92	0.91	0.92
Adj. Flow (vph)	100	4	44	0	0	0	0	213	609	0	351	0
RTOR Reduction (vph)	0	0	31	0	0	0	0	0	287	0	0	0
Lane Group Flow (vph)	52	52	13	0	0	0	0	213	322	0	351	0
Heavy Vehicles (%)	6%	6%	6%	2%	2%	2%	20%	20%	20%	12%	12%	12%
Turn Type	Prot	NA	Perm					NA	Perm		NA	
Protected Phases	7	4						2			6	
Permitted Phases			4						2			
Actuated Green, G (s)	14.1	14.1	14.1					26.0	26.0		26.0	
Effective Green, g (s)	14.1	14.1	14.1					26.0	26.0		26.0	
Actuated g/C Ratio	0.29	0.29	0.29					0.53	0.53		0.53	
Clearance Time (s)	4.5	4.5	4.5					4.5	4.5		4.5	
Vehicle Extension (s)	3.0	3.0	3.0					3.0	3.0		3.0	
Lane Grp Cap (vph)	464	467	437					1592	712		1706	
v/s Ratio Prot	c0.03	0.03						0.07			0.11	
v/s Ratio Perm			0.01						c0.24			
v/c Ratio	0.11	0.11	0.03					0.13	0.45		0.21	
Uniform Delay, d1	12.9	12.9	12.6					5.8	7.1		6.1	
Progression Factor	1.00	1.00	1.00					1.00	1.00		1.00	
Incremental Delay, d2	0.1	0.1	0.0					0.0	0.5		0.1	
Delay (s)	13.0	13.0	12.6					5.9	7.6		6.2	
Level of Service	B	B	B					A	A		A	
Approach Delay (s)		12.9			0.0			7.2			6.2	
Approach LOS		B			A			A			A	

Intersection Summary			
HCM 2000 Control Delay	7.5	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.33		
Actuated Cycle Length (s)	49.1	Sum of lost time (s)	9.0
Intersection Capacity Utilization	41.5%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

19: Great Valley Pkwy & Main St

Intersection	
Intersection Delay, s/veh	7.9
Intersection LOS	A

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↰	↱	↑↱		↰	↑↑
Traffic Vol, veh/h	20	9	120	37	9	89
Future Vol, veh/h	20	9	120	37	9	89
Peak Hour Factor	0.63	0.75	0.83	0.93	0.56	0.89
Heavy Vehicles, %	0	0	1	1	1	1
Mvmt Flow	32	12	145	40	16	100
Number of Lanes	1	1	2	0	1	2

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	3	2
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	2	0	2
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	3	2	0
HCM Control Delay	8.3	8.1	7.3
HCM LOS	A	A	A

Lane	NBLn1	NBLn2	WBLn1	WBLn2	SBLn1	SBLn2	SBLn3
Vol Left, %	0%	0%	100%	0%	100%	0%	0%
Vol Thru, %	100%	52%	0%	0%	0%	100%	100%
Vol Right, %	0%	48%	0%	100%	0%	0%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	80	77	20	9	9	45	45
LT Vol	0	0	20	0	9	0	0
Through Vol	80	40	0	0	0	45	45
RT Vol	0	37	0	9	0	0	0
Lane Flow Rate	96	88	32	12	16	50	50
Geometry Grp	8	8	8	8	8	8	8
Degree of Util (X)	0.13	0.111	0.05	0.015	0.025	0.069	0.044
Departure Headway (Hd)	4.852	4.524	5.718	4.518	5.502	5.001	3.2
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	742	797	628	794	653	719	1095
Service Time	2.561	2.224	3.435	2.234	3.215	2.714	0.992
HCM Lane V/C Ratio	0.129	0.11	0.051	0.015	0.025	0.07	0.046
HCM Control Delay	8.3	7.8	8.7	7.3	8.4	8.1	6.1
HCM Lane LOS	A	A	A	A	A	A	A
HCM 95th-tile Q	0.4	0.4	0.2	0	0.1	0.2	0.1

Intersection	
Intersection Delay, s/veh	8.5
Intersection LOS	A

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↰	↱	↑↱		↰	↑↑
Traffic Vol, veh/h	17	50	193	72	46	83
Future Vol, veh/h	17	50	193	72	46	83
Peak Hour Factor	0.61	0.96	0.95	0.75	0.77	0.80
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	28	52	203	96	60	104
Number of Lanes	1	1	2	0	1	2

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	3	2
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	2	0	2
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	3	2	0
HCM Control Delay	8.5	8.8	8.1
HCM LOS	A	A	A

Lane	NBLn1	NBLn2	WBLn1	WBLn2	SBLn1	SBLn2	SBLn3
Vol Left, %	0%	0%	100%	0%	100%	0%	0%
Vol Thru, %	100%	47%	0%	0%	0%	100%	100%
Vol Right, %	0%	53%	0%	100%	0%	0%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	129	136	17	50	46	42	42
LT Vol	0	0	17	0	46	0	0
Through Vol	129	64	0	0	0	42	42
RT Vol	0	72	0	50	0	0	0
Lane Flow Rate	135	164	28	52	60	52	52
Geometry Grp	8	8	8	8	8	8	8
Degree of Util (X)	0.191	0.214	0.048	0.072	0.097	0.077	0.052
Departure Headway (Hd)	5.086	4.715	6.17	4.968	5.842	5.34	3.598
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	706	761	580	719	613	670	991
Service Time	2.82	2.449	3.916	2.714	3.58	3.078	1.336
HCM Lane V/C Ratio	0.191	0.216	0.048	0.072	0.098	0.078	0.052
HCM Control Delay	9	8.7	9.2	8.1	9.2	8.5	6.5
HCM Lane LOS	A	A	A	A	A	A	A
HCM 95th-tile Q	0.7	0.8	0.2	0.2	0.3	0.2	0.2

	↗	↘	↖	↑	↓	↙
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations				↑↑	↑↑	
Traffic Volume (veh/h)	0	0	0	628	446	0
Future Volume (veh/h)	0	0	0	628	446	0
Number			5	2	6	16
Initial Q (Qb), veh			0	0	0	0
Ped-Bike Adj(A_pbT)			1.00			1.00
Parking Bus, Adj			1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln			0	1810	1810	0
Adj Flow Rate, veh/h			0	683	485	0
Adj No. of Lanes			0	2	2	0
Peak Hour Factor			0.92	0.92	0.92	0.92
Percent Heavy Veh, %			0	5	5	0
Cap, veh/h			0	2750	2750	0
Arrive On Green			0.00	0.80	0.80	0.00
Sat Flow, veh/h			0	3619	3619	0
Grp Volume(v), veh/h			0	683	485	0
Grp Sat Flow(s),veh/h/ln			0	1719	1719	0
Q Serve(g_s), s			0.0	1.1	0.7	0.0
Cycle Q Clear(g_c), s			0.0	1.1	0.7	0.0
Prop In Lane			0.00			0.00
Lane Grp Cap(c), veh/h			0	2750	2750	0
V/C Ratio(X)			0.00	0.25	0.18	0.00
Avail Cap(c_a), veh/h			0	2750	2750	0
HCM Platoon Ratio			1.00	1.00	1.00	1.00
Upstream Filter(I)			0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh			0.0	0.6	0.5	0.0
Incr Delay (d2), s/veh			0.0	0.2	0.1	0.0
Initial Q Delay(d3),s/veh			0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln			0.0	0.6	0.4	0.0
LnGrp Delay(d),s/veh			0.0	0.8	0.7	0.0
LnGrp LOS				A	A	
Approach Vol, veh/h				683	485	
Approach Delay, s/veh				0.8	0.7	
Approach LOS				A	A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2				6		
Phs Duration (G+Y+Rc), s		22.5				22.5		
Change Period (Y+Rc), s		4.5				4.5		
Max Green Setting (Gmax), s		18.0				18.0		
Max Q Clear Time (g_c+I1), s		3.1				2.7		
Green Ext Time (p_c), s		4.1				2.8		

Intersection Summary	
HCM 2010 Ctrl Delay	0.7
HCM 2010 LOS	A

	↙	↖	↑	↗	↘	↓
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↰	↱	↑↑	↱	↰	↑↑
Traffic Volume (veh/h)	14	27	569	37	51	432
Future Volume (veh/h)	14	27	569	37	51	432
Number	3	18	2	12	1	6
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1810	1810	1810	1810
Adj Flow Rate, veh/h	20	40	632	48	56	470
Adj No. of Lanes	1	1	2	1	1	2
Peak Hour Factor	0.70	0.68	0.90	0.77	0.91	0.92
Percent Heavy Veh, %	3	3	5	5	5	5
Cap, veh/h	94	84	1347	603	87	2016
Arrive On Green	0.05	0.05	0.39	0.39	0.05	0.59
Sat Flow, veh/h	1757	1568	3529	1538	1723	3529
Grp Volume(v), veh/h	20	40	632	48	56	470
Grp Sat Flow(s),veh/h/ln	1757	1568	1719	1538	1723	1719
Q Serve(g_s), s	0.3	0.7	3.8	0.5	0.9	1.8
Cycle Q Clear(g_c), s	0.3	0.7	3.8	0.5	0.9	1.8
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	94	84	1347	603	87	2016
V/C Ratio(X)	0.21	0.48	0.47	0.08	0.64	0.23
Avail Cap(c_a), veh/h	1740	1553	4891	2188	1241	4891
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	12.6	12.8	6.3	5.3	12.9	2.7
Incr Delay (d2), s/veh	1.1	4.2	0.3	0.1	2.9	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.4	1.8	0.2	0.5	0.9
LnGrp Delay(d),s/veh	13.7	16.9	6.5	5.4	15.9	2.8
LnGrp LOS	B	B	A	A	B	A
Approach Vol, veh/h	60		680			526
Approach Delay, s/veh	15.9		6.5			4.2
Approach LOS	B		A			A

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	5.4	16.4				21.8		6.0
Change Period (Y+Rc), s	4.0	5.5				5.5		4.5
Max Green Setting (Gmax), s	20.0	39.5				39.5		27.5
Max Q Clear Time (g_c+I1), s	2.9	5.8				3.8		2.7
Green Ext Time (p_c), s	0.0	5.1				3.5		0.1

Intersection Summary	
HCM 2010 Ctrl Delay	6.0
HCM 2010 LOS	A

	↗	↘	↖	↑	↓	↙
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↰	↱		↑↑	↑↱	
Traffic Volume (veh/h)	70	49	106	417	318	19
Future Volume (veh/h)	70	49	106	417	318	19
Number	7	14	5	2	6	16
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1583	1583	1900	1727	1759	1900
Adj Flow Rate, veh/h	80	52	116	479	349	24
Adj No. of Lanes	1	1	0	2	2	0
Peak Hour Factor	0.88	0.94	0.91	0.87	0.91	0.79
Percent Heavy Veh, %	20	20	10	10	8	8
Cap, veh/h	220	0	0	1636	1583	108
Arrive On Green	0.15	0.15	0.00	0.50	0.50	0.50
Sat Flow, veh/h	1508	1346	0	3368	3263	217
Grp Volume(v), veh/h	80	52	0	479	183	190
Grp Sat Flow(s),veh/h/ln	1508	1346	0	1641	1671	1721
Q Serve(g_s), s	1.4	4.4	0.0	2.6	1.9	1.9
Cycle Q Clear(g_c), s	1.4	4.4	0.0	2.6	1.9	1.9
Prop In Lane	1.00	1.00	0.00			0.13
Lane Grp Cap(c), veh/h	220	-5	0	1636	833	858
V/C Ratio(X)	0.36	-10.31	0.00	0.29	0.22	0.22
Avail Cap(c_a), veh/h	1268	930	0	3709	1889	1945
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	11.6	0.0	0.0	4.4	4.2	4.3
Incr Delay (d2), s/veh	0.4	0.0	0.0	0.1	0.1	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	1.6	0.0	1.1	0.8	0.9
LnGrp Delay(d),s/veh	12.0	0.0	0.0	4.5	4.3	4.3
LnGrp LOS	B			A	A	A
Approach Vol, veh/h	132			479	373	
Approach Delay, s/veh	7.3			4.5	4.3	
Approach LOS	A			A	A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		21.0		9.1	0.0	21.0		
Change Period (Y+Rc), s		6.0		* 4.7	4.5	6.0		
Max Green Setting (Gmax), s		34.0		* 25	25.5	34.0		
Max Q Clear Time (g_c+I1), s		4.6		6.4	0.0	3.9		
Green Ext Time (p_c), s		2.6		0.2	0.0	1.7		

Intersection Summary			
HCM 2010 Ctrl Delay			4.8
HCM 2010 LOS			A

Notes

Appendix C INTERSECTION ANALYSIS: EXISTING PLUS PROJECT CONDITIONS LOS CALCULATION SHEETS

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↱	↰	↑↑	↰	↱
Traffic Volume (veh/h)	375	47	115	430	54	79
Future Volume (veh/h)	375	47	115	430	54	79
Number	4	14	3	8	5	12
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1681	1681	1696	1696	1845	1845
Adj Flow Rate, veh/h	436	63	134	518	76	110
Adj No. of Lanes	1	1	1	2	1	1
Peak Hour Factor	0.86	0.75	0.86	0.83	0.71	0.72
Percent Heavy Veh, %	13	13	12	12	3	3
Cap, veh/h	582	495	167	1808	206	184
Arrive On Green	0.35	0.35	0.10	0.56	0.12	0.12
Sat Flow, veh/h	1681	1429	1616	3308	1757	1568
Grp Volume(v), veh/h	436	63	134	518	76	110
Grp Sat Flow(s),veh/h/ln	1681	1429	1616	1612	1757	1568
Q Serve(g_s), s	8.2	1.1	2.9	3.0	1.4	2.4
Cycle Q Clear(g_c), s	8.2	1.1	2.9	3.0	1.4	2.4
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	582	495	167	1808	206	184
V/C Ratio(X)	0.75	0.13	0.80	0.29	0.37	0.60
Avail Cap(c_a), veh/h	1237	1051	448	3624	385	344
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	10.4	8.1	15.8	4.1	14.7	15.1
Incr Delay (d2), s/veh	2.0	0.1	8.6	0.1	1.1	3.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.1	0.4	1.7	1.3	0.8	1.2
LnGrp Delay(d),s/veh	12.3	8.2	24.4	4.2	15.8	18.2
LnGrp LOS	B	A	C	A	B	B
Approach Vol, veh/h	499			652	186	
Approach Delay, s/veh	11.8			8.4	17.2	
Approach LOS	B			A	B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4				8
Phs Duration (G+Y+Rc), s		9.3	7.7	19.0				26.7
Change Period (Y+Rc), s		5.1	4.0	6.5				6.5
Max Green Setting (Gmax), s		7.9	10.0	26.5				40.5
Max Q Clear Time (g_c+I1), s		4.4	4.9	10.2				5.0
Green Ext Time (p_c), s		0.2	0.1	2.2				3.2

Intersection Summary			
HCM 2010 Ctrl Delay			10.9
HCM 2010 LOS			B

2: Mountain House Pkwy & Byron Rd

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↱↱	↰↰	↑	↰	↱↱
Traffic Volume (veh/h)	416	116	249	472	131	131
Future Volume (veh/h)	416	116	249	472	131	131
Number	6	16	5	2	7	14
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1696	1696	1696	1696	1759	1759
Adj Flow Rate, veh/h	495	129	366	497	162	177
Adj No. of Lanes	2	2	2	1	1	2
Peak Hour Factor	0.84	0.90	0.68	0.95	0.81	0.74
Percent Heavy Veh, %	12	12	12	12	8	8
Cap, veh/h	954	751	615	986	328	1032
Arrive On Green	0.30	0.30	0.20	0.58	0.20	0.20
Sat Flow, veh/h	3308	2538	3134	1696	1675	2632
Grp Volume(v), veh/h	495	129	366	497	162	177
Grp Sat Flow(s),veh/h/ln	1612	1269	1567	1696	1675	1316
Q Serve(g_s), s	6.5	1.9	5.4	8.8	4.4	2.2
Cycle Q Clear(g_c), s	6.5	1.9	5.4	8.8	4.4	2.2
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	954	751	615	986	328	1032
V/C Ratio(X)	0.52	0.17	0.59	0.50	0.49	0.17
Avail Cap(c_a), veh/h	2481	1954	1887	1306	982	2060
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	14.8	13.2	18.5	6.3	18.1	10.0
Incr Delay (d2), s/veh	0.5	0.1	0.3	0.5	0.4	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.9	0.7	2.4	4.1	2.1	2.0
LnGrp Delay(d),s/veh	15.4	13.4	18.9	6.8	18.6	10.1
LnGrp LOS	B	B	B	A	B	B
Approach Vol, veh/h	624			863	339	
Approach Delay, s/veh	14.9			11.9	14.1	
Approach LOS	B			B	B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		35.4		15.2	14.4	21.0		
Change Period (Y+Rc), s		6.0		5.3	4.5	6.0		
Max Green Setting (Gmax), s		39.0		29.7	30.5	39.0		
Max Q Clear Time (g_c+I1), s		10.8		6.4	7.4	8.5		
Green Ext Time (p_c), s		3.9		0.4	0.4	4.7		

Intersection Summary				
HCM 2010 Ctrl Delay			13.4	
HCM 2010 LOS			B	

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations				↑↑	↑↑	
Traffic Volume (veh/h)	0	0	0	325	399	0
Future Volume (veh/h)	0	0	0	325	399	0
Number			5	2	6	16
Initial Q (Qb), veh			0	0	0	0
Ped-Bike Adj(A_pbT)			1.00			1.00
Parking Bus, Adj			1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln			0	1727	1727	0
Adj Flow Rate, veh/h			0	353	434	0
Adj No. of Lanes			0	2	2	0
Peak Hour Factor			0.92	0.92	0.92	0.92
Percent Heavy Veh, %			0	10	10	0
Cap, veh/h			0	2344	2344	0
Arrive On Green			0.00	0.71	0.71	0.00
Sat Flow, veh/h			0	3455	3455	0
Grp Volume(v), veh/h			0	353	434	0
Grp Sat Flow(s),veh/h/ln			0	1641	1641	0
Q Serve(g_s), s			0.0	0.7	0.9	0.0
Cycle Q Clear(g_c), s			0.0	0.7	0.9	0.0
Prop In Lane			0.00			0.00
Lane Grp Cap(c), veh/h			0	2344	2344	0
V/C Ratio(X)			0.00	0.15	0.19	0.00
Avail Cap(c_a), veh/h			0	5313	5313	0
HCM Platoon Ratio			1.00	1.00	1.00	1.00
Upstream Filter(I)			0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh			0.0	1.0	1.0	0.0
Incr Delay (d2), s/veh			0.0	0.0	0.0	0.0
Initial Q Delay(d3),s/veh			0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln			0.0	0.3	0.4	0.0
LnGrp Delay(d),s/veh			0.0	1.0	1.0	0.0
LnGrp LOS				A	A	
Approach Vol, veh/h				353	434	
Approach Delay, s/veh				1.0	1.0	
Approach LOS				A	A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2				6		
Phs Duration (G+Y+Rc), s		21.0				21.0		
Change Period (Y+Rc), s		6.0				6.0		
Max Green Setting (Gmax), s		34.0				34.0		
Max Q Clear Time (g_c+I1), s		2.7				2.9		
Green Ext Time (p_c), s		1.8				2.3		

Intersection Summary	
HCM 2010 Ctrl Delay	1.0
HCM 2010 LOS	A

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↰	↱		↑↑	↑↑	
Traffic Volume (veh/h)	185	180	80	140	214	185
Future Volume (veh/h)	185	180	80	140	214	185
Number	7	14	5	2	6	16
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1900	1792	1743	1900
Adj Flow Rate, veh/h	261	247	107	173	243	268
Adj No. of Lanes	1	1	0	2	2	0
Peak Hour Factor	0.71	0.73	0.75	0.81	0.88	0.69
Percent Heavy Veh, %	3	3	6	6	9	9
Cap, veh/h	440	393	0	1245	605	541
Arrive On Green	0.25	0.25	0.00	0.37	0.37	0.37
Sat Flow, veh/h	1757	1568	0	3495	1743	1482
Grp Volume(v), veh/h	261	247	0	173	243	268
Grp Sat Flow(s),veh/h/ln	1757	1568	0	1703	1656	1482
Q Serve(g_s), s	3.1	3.3	0.0	0.8	2.6	3.3
Cycle Q Clear(g_c), s	3.1	3.3	0.0	0.8	2.6	3.3
Prop In Lane	1.00	1.00	0.00			1.00
Lane Grp Cap(c), veh/h	440	393	0	1245	605	541
V/C Ratio(X)	0.59	0.63	0.00	0.14	0.40	0.49
Avail Cap(c_a), veh/h	2100	1874	0	5815	2828	2530
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	7.7	7.8	0.0	5.0	5.5	5.8
Incr Delay (d2), s/veh	0.5	0.6	0.0	0.1	0.4	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.5	2.9	0.0	0.4	1.2	1.4
LnGrp Delay(d),s/veh	8.2	8.4	0.0	5.0	6.0	6.5
LnGrp LOS	A	A		A	A	A
Approach Vol, veh/h	508			173	511	
Approach Delay, s/veh	8.3			5.0	6.2	
Approach LOS	A			A	A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		13.6		9.9	0.0	13.6		
Change Period (Y+Rc), s		5.0		4.0	4.0	5.0		
Max Green Setting (Gmax), s		40.0		28.0	16.0	40.0		
Max Q Clear Time (g_c+I1), s		2.8		5.3	0.0	5.3		
Green Ext Time (p_c), s		1.1		0.8	0.0	3.3		

Intersection Summary	
HCM 2010 Ctrl Delay	6.9
HCM 2010 LOS	A

Intersection	
Int Delay, s/veh	2.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↱	↰	↑↑	↑↑	↱
Traffic Vol, veh/h	0	50	52	153	268	7
Future Vol, veh/h	0	50	52	153	268	7
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	130	-	-	90
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	66	66	65	92	88	58
Heavy Vehicles, %	2	2	5	5	8	8
Mvmt Flow	0	76	80	166	305	12

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	153	317	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	4.2	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	2.25	-	-	-
Pot Cap-1 Maneuver	0	866	1218	-	-	-
Stage 1	0	-	-	-	-	-
Stage 2	0	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	866	1218	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.6	2.7	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1218	-	866	-	-
HCM Lane V/C Ratio	0.066	-	0.087	-	-
HCM Control Delay (s)	8.2	-	9.6	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0.2	-	0.3	-	-

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↰	↱↱	↰↰	↑↑↑	↑↑	↱
Traffic Volume (veh/h)	66	184	57	200	383	61
Future Volume (veh/h)	66	184	57	200	383	61
Number	7	14	5	2	6	16
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1881	1881	1827	1827	1810	1810
Adj Flow Rate, veh/h	80	271	64	235	461	80
Adj No. of Lanes	1	2	2	3	2	1
Peak Hour Factor	0.83	0.68	0.89	0.85	0.83	0.76
Percent Heavy Veh, %	1	1	4	4	5	5
Cap, veh/h	298	469	188	2430	1008	450
Arrive On Green	0.17	0.17	0.06	0.49	0.29	0.29
Sat Flow, veh/h	1792	2814	3375	5152	3529	1535
Grp Volume(v), veh/h	80	271	64	235	461	80
Grp Sat Flow(s),veh/h/ln	1792	1407	1688	1663	1719	1535
Q Serve(g_s), s	1.1	2.6	0.5	0.7	3.2	1.1
Cycle Q Clear(g_c), s	1.1	2.6	0.5	0.7	3.2	1.1
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	298	469	188	2430	1008	450
V/C Ratio(X)	0.27	0.58	0.34	0.10	0.46	0.18
Avail Cap(c_a), veh/h	962	1510	1870	4576	3690	1648
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	10.5	11.1	13.1	4.0	8.3	7.6
Incr Delay (d2), s/veh	0.2	0.4	0.4	0.0	0.3	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	2.0	0.3	0.3	1.5	0.5
LnGrp Delay(d),s/veh	10.7	11.5	13.5	4.0	8.7	7.8
LnGrp LOS	B	B	B	A	A	A
Approach Vol, veh/h	351			299	541	
Approach Delay, s/veh	11.3			6.0	8.5	
Approach LOS	B			A	A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		19.6		9.3	5.6	14.0		
Change Period (Y+Rc), s		5.5		4.5	4.0	5.5		
Max Green Setting (Gmax), s		26.5		15.5	16.0	31.0		
Max Q Clear Time (g_c+I1), s		2.7		4.6	2.5	5.2		
Green Ext Time (p_c), s		1.4		0.6	0.1	3.2		

Intersection Summary	
HCM 2010 Ctrl Delay	8.7
HCM 2010 LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑↑	↱	↰↰	↑↑	↱	↰↰	↑↱		↰↰	↑↑	↱
Traffic Volume (veh/h)	7	56	275	10	119	31	259	229	4	47	498	23
Future Volume (veh/h)	7	56	275	10	119	31	259	229	4	47	498	23
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1792	1792	1792	1863	1863	1863	1810	1810	1900	1827	1827	1827
Adj Flow Rate, veh/h	16	78	362	24	142	56	328	266	8	90	586	24
Adj No. of Lanes	1	2	1	2	2	1	2	2	0	2	2	1
Peak Hour Factor	0.44	0.72	0.76	0.42	0.84	0.55	0.79	0.86	0.50	0.52	0.85	0.96
Percent Heavy Veh, %	6	6	6	2	2	2	5	5	5	4	4	4
Cap, veh/h	40	924	413	113	994	445	437	1028	31	261	863	386
Arrive On Green	0.02	0.27	0.27	0.03	0.28	0.28	0.13	0.30	0.30	0.08	0.25	0.25
Sat Flow, veh/h	1707	3406	1524	3442	3539	1583	3343	3408	102	3375	3471	1553
Grp Volume(v), veh/h	16	78	362	24	142	56	328	134	140	90	586	24
Grp Sat Flow(s),veh/h/ln	1707	1703	1524	1721	1770	1583	1672	1719	1791	1688	1736	1553
Q Serve(g_s), s	0.6	1.0	13.7	0.4	1.8	1.6	5.7	3.6	3.6	1.5	9.2	0.7
Cycle Q Clear(g_c), s	0.6	1.0	13.7	0.4	1.8	1.6	5.7	3.6	3.6	1.5	9.2	0.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.06	1.00		1.00
Lane Grp Cap(c), veh/h	40	924	413	113	994	445	437	519	541	261	863	386
V/C Ratio(X)	0.40	0.08	0.88	0.21	0.14	0.13	0.75	0.26	0.26	0.34	0.68	0.06
Avail Cap(c_a), veh/h	744	2241	1002	1500	2329	1042	1435	1111	1158	1449	2244	1004
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	29.0	16.4	21.0	28.4	16.3	16.2	25.3	16.0	16.0	26.4	20.5	17.3
Incr Delay (d2), s/veh	2.4	0.0	2.4	0.3	0.0	0.0	1.0	0.1	0.1	0.3	0.4	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.5	6.0	0.2	0.9	0.7	2.7	1.7	1.8	0.7	4.4	0.3
LnGrp Delay(d),s/veh	31.4	16.4	23.4	28.8	16.3	16.2	26.3	16.0	16.1	26.7	20.8	17.3
LnGrp LOS	C	B	C	C	B	B	C	B	B	C	C	B
Approach Vol, veh/h		456			222			602			700	
Approach Delay, s/veh		22.5			17.6			21.6			21.5	
Approach LOS		C			B			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.8	24.2	5.7	21.7	12.0	21.0	5.1	22.2
Change Period (Y+Rc), s	4.1	6.0	3.7	5.3	4.1	6.0	3.7	5.3
Max Green Setting (Gmax), s	25.9	39.0	26.3	39.7	25.9	39.0	26.3	39.7
Max Q Clear Time (g_c+I1), s	3.5	5.6	2.4	15.7	7.7	11.2	2.6	3.8
Green Ext Time (p_c), s	0.0	0.7	0.0	0.7	0.2	2.0	0.0	0.5

Intersection Summary	
HCM 2010 Ctrl Delay	21.3
HCM 2010 LOS	C

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↰	↑↑	↑↑	↱	↰	↱
Traffic Volume (veh/h)	23	332	407	28	45	46
Future Volume (veh/h)	23	332	407	28	45	46
Number	7	4	8	18	1	16
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1792	1792	1792	1792	1792	1792
Adj Flow Rate, veh/h	49	405	515	44	52	102
Adj No. of Lanes	1	2	2	1	1	1
Peak Hour Factor	0.47	0.82	0.79	0.64	0.87	0.45
Percent Heavy Veh, %	6	6	6	6	6	6
Cap, veh/h	79	1834	1069	478	179	159
Arrive On Green	0.05	0.54	0.31	0.31	0.10	0.10
Sat Flow, veh/h	1707	3495	3495	1524	1707	1524
Grp Volume(v), veh/h	49	405	515	44	52	102
Grp Sat Flow(s),veh/h/ln	1707	1703	1703	1524	1707	1524
Q Serve(g_s), s	0.7	1.6	3.1	0.5	0.7	1.6
Cycle Q Clear(g_c), s	0.7	1.6	3.1	0.5	0.7	1.6
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	79	1834	1069	478	179	159
V/C Ratio(X)	0.62	0.22	0.48	0.09	0.29	0.64
Avail Cap(c_a), veh/h	338	2431	2431	1087	1218	1087
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	11.8	3.0	7.0	6.1	10.4	10.8
Incr Delay (d2), s/veh	7.8	0.1	0.3	0.1	0.9	4.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	0.7	1.5	0.2	0.4	1.5
LnGrp Delay(d),s/veh	19.6	3.1	7.3	6.2	11.3	15.1
LnGrp LOS	B	A	A	A	B	B
Approach Vol, veh/h		454	559		154	
Approach Delay, s/veh		4.9	7.2		13.8	
Approach LOS		A	A		B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs				4		6	7	8
Phs Duration (G+Y+Rc), s				18.1		7.1	5.7	12.4
Change Period (Y+Rc), s				4.5		4.5	4.5	4.5
Max Green Setting (Gmax), s				18.0		18.0	5.0	18.0
Max Q Clear Time (g_c+I1), s				3.6		3.6	2.7	5.1
Green Ext Time (p_c), s				2.2		0.4	0.0	2.8

Intersection Summary	
HCM 2010 Ctrl Delay	7.2
HCM 2010 LOS	A

	↰	→	↘	↙	←	↖	↖	↑	↗	↘	↓	↙
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑↑	↱	↰	↑↑	↱	↰	↑↑	↱	↰	↑↑	↱
Traffic Volume (veh/h)	18	66	36	52	377	79	11	11	23	63	7	66
Future Volume (veh/h)	18	66	36	52	377	79	11	11	23	63	7	66
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1827	1827	1827	1792	1792	1792	1810	1810	1810	1827	1827	1827
Adj Flow Rate, veh/h	28	73	52	84	628	100	16	39	32	72	8	76
Adj No. of Lanes	1	2	1	1	2	1	1	2	1	1	2	1
Peak Hour Factor	0.64	0.91	0.69	0.62	0.60	0.79	0.69	0.28	0.72	0.88	0.88	0.87
Percent Heavy Veh, %	4	4	4	6	6	6	5	5	5	4	4	4
Cap, veh/h	356	1149	514	613	1127	504	36	571	255	129	762	340
Arrive On Green	0.33	0.33	0.33	0.33	0.33	0.33	0.02	0.17	0.17	0.07	0.22	0.22
Sat Flow, veh/h	710	3471	1553	1213	3406	1524	1723	3438	1533	1740	3471	1549
Grp Volume(v), veh/h	28	73	52	84	628	100	16	39	32	72	8	76
Grp Sat Flow(s),veh/h/ln	710	1736	1553	1213	1703	1524	1723	1719	1533	1740	1736	1549
Q Serve(g_s), s	1.1	0.5	0.7	1.6	4.8	1.5	0.3	0.3	0.6	1.3	0.1	1.3
Cycle Q Clear(g_c), s	5.8	0.5	0.7	2.1	4.8	1.5	0.3	0.3	0.6	1.3	0.1	1.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	356	1149	514	613	1127	504	36	571	255	129	762	340
V/C Ratio(X)	0.08	0.06	0.10	0.14	0.56	0.20	0.45	0.07	0.13	0.56	0.01	0.22
Avail Cap(c_a), veh/h	527	1984	888	905	1947	871	274	1965	876	276	1984	885
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	11.0	7.2	7.3	7.9	8.6	7.5	15.2	11.1	11.2	14.1	9.6	10.1
Incr Delay (d2), s/veh	0.1	0.0	0.1	0.1	0.4	0.2	8.5	0.0	0.2	3.7	0.0	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.2	0.3	0.6	2.2	0.6	0.2	0.1	0.2	0.7	0.0	0.6
LnGrp Delay(d),s/veh	11.1	7.2	7.4	8.0	9.1	7.7	23.8	11.1	11.4	17.8	9.6	10.4
LnGrp LOS	B	A	A	A	A	A	C	B	B	B	A	B
Approach Vol, veh/h		153			812			87			156	
Approach Delay, s/veh		8.0			8.8			13.6			13.8	
Approach LOS		A			A			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	6.8	9.7		14.9	5.2	11.4		14.9
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5
Max Green Setting (Gmax), s	5.0	18.0		18.0	5.0	18.0		18.0
Max Q Clear Time (g_c+I1), s	3.3	2.6		7.8	2.3	3.3		6.8
Green Ext Time (p_c), s	0.0	0.2		0.5	0.0	0.2		3.7

Intersection Summary	
HCM 2010 Ctrl Delay	9.7
HCM 2010 LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰↰	↱		↰	↑	↱↱		✥			↰	↱
Traffic Volume (vph)	59	60	0	0	432	20	1	0	0	48	0	294
Future Volume (vph)	59	60	0	0	432	20	1	0	0	48	0	294
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.6			4.6	4.6		4.6			5.1	5.1
Lane Util. Factor	0.97	1.00			1.00	0.88		1.00			1.00	1.00
Frt	1.00	1.00			1.00	0.85		1.00			1.00	0.85
Flt Protected	0.95	1.00			1.00	1.00		0.95			0.95	1.00
Satd. Flow (prot)	3433	1863			1827	2733		1787			1770	1583
Flt Permitted	0.95	1.00			1.00	1.00		0.95			0.95	1.00
Satd. Flow (perm)	3433	1863			1827	2733		1787			1770	1583
Peak-hour factor, PHF	0.73	0.90	0.92	0.92	0.71	0.54	0.92	0.92	0.92	0.88	0.92	0.87
Adj. Flow (vph)	81	67	0	0	608	37	1	0	0	55	0	338
RTOR Reduction (vph)	0	0	0	0	0	23	0	0	0	0	0	290
Lane Group Flow (vph)	81	67	0	0	608	14	0	1	0	0	55	48
Heavy Vehicles (%)	2%	2%	2%	4%	4%	4%	1%	1%	1%	2%	2%	2%
Turn Type	Prot	NA		Prot	NA	Perm	Split	NA		Split	NA	Prot
Protected Phases	3	8		7	4		5	5		6	6	6
Permitted Phases						4						
Actuated Green, G (s)	2.1	26.7			20.6	20.6		4.1			7.5	7.5
Effective Green, g (s)	2.1	26.7			20.6	20.6		4.1			7.5	7.5
Actuated g/C Ratio	0.04	0.51			0.39	0.39		0.08			0.14	0.14
Clearance Time (s)	4.0	4.6			4.6	4.6		4.6			5.1	5.1
Vehicle Extension (s)	3.0	3.0			3.0	3.0		3.0			3.0	3.0
Lane Grp Cap (vph)	137	945			715	1070		139			252	225
v/s Ratio Prot	c0.02	0.04			c0.33			c0.00			c0.03	0.03
v/s Ratio Perm						0.01						
v/c Ratio	0.59	0.07			0.85	0.01		0.01			0.22	0.21
Uniform Delay, d1	24.8	6.6			14.6	9.8		22.4			20.0	19.9
Progression Factor	1.00	1.00			1.00	1.00		1.00			1.00	1.00
Incremental Delay, d2	6.7	0.0			9.5	0.0		0.0			0.4	0.5
Delay (s)	31.5	6.6			24.1	9.8		22.4			20.4	20.4
Level of Service	C	A			C	A		C			C	C
Approach Delay (s)		20.3			23.3			22.4			20.4	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM 2000 Control Delay	22.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	52.6	Sum of lost time (s)	18.3
Intersection Capacity Utilization	56.2%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑↱		↰	↑↱		↰	↑↱		↰	↑↱	
Traffic Volume (veh/h)	12	52	18	28	74	27	8	67	24	11	51	22
Future Volume (veh/h)	12	52	18	28	74	27	8	67	24	11	51	22
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1881	1881	1900	1863	1863	1900	1881	1881	1900
Adj Flow Rate, veh/h	21	93	28	56	157	48	16	92	44	16	68	33
Adj No. of Lanes	1	2	0	1	2	0	1	2	0	1	2	0
Peak Hour Factor	0.58	0.56	0.64	0.50	0.47	0.56	0.50	0.73	0.55	0.69	0.75	0.67
Percent Heavy Veh, %	2	2	2	1	1	1	2	2	2	1	1	1
Cap, veh/h	38	555	160	89	635	187	30	350	157	30	352	160
Arrive On Green	0.02	0.21	0.21	0.05	0.23	0.23	0.02	0.15	0.15	0.02	0.15	0.15
Sat Flow, veh/h	1774	2702	781	1792	2712	801	1774	2367	1065	1792	2385	1084
Grp Volume(v), veh/h	21	60	61	56	102	103	16	67	69	16	50	51
Grp Sat Flow(s),veh/h/ln	1774	1770	1713	1792	1787	1726	1774	1770	1662	1792	1787	1682
Q Serve(g_s), s	0.3	0.8	0.9	0.9	1.4	1.4	0.3	1.0	1.1	0.3	0.7	0.8
Cycle Q Clear(g_c), s	0.3	0.8	0.9	0.9	1.4	1.4	0.3	1.0	1.1	0.3	0.7	0.8
Prop In Lane	1.00		0.46	1.00		0.46	1.00		0.64	1.00		0.64
Lane Grp Cap(c), veh/h	38	364	352	89	418	404	30	261	245	30	264	248
V/C Ratio(X)	0.55	0.16	0.17	0.63	0.24	0.26	0.54	0.26	0.28	0.54	0.19	0.21
Avail Cap(c_a), veh/h	293	1791	1733	357	1809	1747	293	1791	1682	296	1652	1555
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	14.4	9.7	9.7	13.8	9.2	9.3	14.5	11.2	11.2	14.5	11.1	11.1
Incr Delay (d2), s/veh	4.6	0.2	0.2	2.7	0.3	0.3	5.6	0.5	0.6	5.5	0.3	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.4	0.4	0.5	0.7	0.7	0.2	0.5	0.5	0.2	0.4	0.4
LnGrp Delay(d),s/veh	18.9	9.9	9.9	16.5	9.5	9.6	20.1	11.7	11.8	19.9	11.4	11.5
LnGrp LOS	B	A	A	B	A	A	C	B	B	B	B	B
Approach Vol, veh/h		142			261			152			117	
Approach Delay, s/veh		11.2			11.0			12.7			12.6	
Approach LOS		B			B			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	4.6	8.9	5.6	10.6	4.6	8.9	4.7	11.4
Change Period (Y+Rc), s	4.1	4.5	4.1	4.5	4.1	4.5	4.1	4.5
Max Green Setting (Gmax), s	4.9	30.0	5.9	30.0	4.9	27.4	4.9	30.0
Max Q Clear Time (g_c+I1), s	2.3	3.1	2.9	2.9	2.3	2.8	2.3	3.4
Green Ext Time (p_c), s	0.0	0.7	0.0	0.6	0.0	0.5	0.0	1.2

Intersection Summary	
HCM 2010 Ctrl Delay	11.7
HCM 2010 LOS	B

	↗	→	↘	↙	←	↖	↖	↑	↗	↘	↓	↙
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✥		↰	↑	↱	↰	↑↱		↰	↑↱	
Traffic Volume (veh/h)	5	14	11	26	10	107	4	40	19	146	55	3
Future Volume (veh/h)	5	14	11	26	10	107	4	40	19	146	55	3
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1900	1900	1863	1863	1863	1810	1810	1900	1863	1863	1900
Adj Flow Rate, veh/h	8	20	20	52	16	143	8	52	27	180	104	12
Adj No. of Lanes	0	1	0	1	1	1	1	2	0	1	2	0
Peak Hour Factor	0.63	0.70	0.55	0.50	0.63	0.75	0.50	0.77	0.70	0.81	0.53	0.25
Percent Heavy Veh, %	0	0	0	2	2	2	5	5	5	2	2	2
Cap, veh/h	158	83	75	83	535	454	15	395	191	235	958	109
Arrive On Green	0.11	0.11	0.11	0.05	0.29	0.29	0.01	0.18	0.18	0.13	0.30	0.30
Sat Flow, veh/h	204	770	696	1774	1863	1583	1723	2247	1084	1774	3198	363
Grp Volume(v), veh/h	48	0	0	52	16	143	8	39	40	180	57	59
Grp Sat Flow(s),veh/h/ln	1670	0	0	1774	1863	1583	1723	1719	1612	1774	1770	1791
Q Serve(g_s), s	0.0	0.0	0.0	0.9	0.2	2.2	0.1	0.6	0.7	3.0	0.7	0.7
Cycle Q Clear(g_c), s	0.8	0.0	0.0	0.9	0.2	2.2	0.1	0.6	0.7	3.0	0.7	0.7
Prop In Lane	0.17		0.42	1.00		1.00	1.00		0.67	1.00		0.20
Lane Grp Cap(c), veh/h	316	0	0	83	535	454	15	302	283	235	530	536
V/C Ratio(X)	0.15	0.00	0.00	0.63	0.03	0.31	0.54	0.13	0.14	0.77	0.11	0.11
Avail Cap(c_a), veh/h	1677	0	0	1603	1750	1487	888	2266	2125	914	2333	2361
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	12.6	0.0	0.0	14.5	7.9	8.6	15.2	10.7	10.8	12.9	7.8	7.8
Incr Delay (d2), s/veh	0.1	0.0	0.0	2.9	0.0	0.1	10.9	0.2	0.2	2.0	0.1	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	0.0	0.0	0.5	0.1	1.0	0.1	0.3	0.3	1.6	0.4	0.4
LnGrp Delay(d),s/veh	12.7	0.0	0.0	17.4	7.9	8.8	26.1	10.9	11.0	14.9	7.9	7.9
LnGrp LOS	B			B	A	A	C	B	B	B	A	A
Approach Vol, veh/h		48			211			87			296	
Approach Delay, s/veh		12.7			10.8			12.3			12.2	
Approach LOS		B			B			B			B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6		8				
Phs Duration (G+Y+Rc), s	8.2	9.7	5.5	7.4	4.4	13.5		13.0				
Change Period (Y+Rc), s	4.1	* 4.3	4.1	4.1	4.1	* 4.3		4.1				
Max Green Setting (Gmax), s	15.9	* 41	27.9	29.0	15.9	* 41		29.0				
Max Q Clear Time (g_c+I1), s	5.0	2.7	2.9	2.8	2.1	2.7		4.2				
Green Ext Time (p_c), s	0.2	0.4	0.0	0.1	0.0	0.6		0.3				
Intersection Summary												
HCM 2010 Ctrl Delay			11.8									
HCM 2010 LOS			B									
Notes												

Intersection	
Intersection Delay, s/veh	9.2
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑	↱	↰	↑↱		↰	↱		↰	↱	
Traffic Vol, veh/h	3	0	120	7	0	1	88	61	8	1	74	1
Future Vol, veh/h	3	0	120	7	0	1	88	61	8	1	74	1
Peak Hour Factor	0.38	0.75	0.77	0.58	0.50	0.25	0.77	0.85	0.50	0.25	0.64	0.25
Heavy Vehicles, %	1	1	1	24	24	24	2	2	2	2	2	2
Mvmt Flow	8	0	156	12	0	4	114	72	16	4	116	4
Number of Lanes	1	1	1	1	2	0	1	1	0	1	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	3	2	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	2	3	3
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	2	3	3
HCM Control Delay	8.8	9.3	9.4	9.4
HCM LOS	A	A	A	A

Lane	NBLn1	NBLn2	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBLn1	SBLn2
Vol Left, %	100%	0%	100%	0%	0%	100%	0%	0%	100%	0%
Vol Thru, %	0%	88%	0%	100%	0%	0%	100%	0%	0%	99%
Vol Right, %	0%	12%	0%	0%	100%	0%	0%	100%	0%	1%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	88	69	3	0	120	7	0	1	1	75
LT Vol	88	0	3	0	0	7	0	0	1	0
Through Vol	0	61	0	0	0	0	0	0	0	74
RT Vol	0	8	0	0	120	0	0	1	0	1
Lane Flow Rate	114	88	8	0	156	12	0	4	4	120
Geometry Grp	8	8	8	8	8	8	8	8	8	8
Degree of Util (X)	0.184	0.127	0.013	0	0.208	0.022	0	0.006	0.007	0.181
Departure Headway (Hd)	5.793	5.209	6.013	5.51	4.806	6.685	6.181	5.475	5.962	5.45
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	617	685	594	0	743	533	0	649	598	656
Service Time	3.548	2.964	3.762	3.259	2.555	4.459	3.955	3.249	3.72	3.208
HCM Lane V/C Ratio	0.185	0.128	0.013	0	0.21	0.023	0	0.006	0.007	0.183
HCM Control Delay	9.9	8.7	8.8	8.3	8.8	9.6	9	8.3	8.8	9.4
HCM Lane LOS	A	A	A	N	A	A	N	A	A	A
HCM 95th-tile Q	0.7	0.4	0	0	0.8	0.1	0	0	0	0.7

	↗	→	↘	↙	←	↖	↖	↑	↗	↘	↓	↙
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑↱		↰	↑↱		↰	↑↱		↰	↑↱	
Traffic Volume (veh/h)	6	335	19	25	250	15	23	4	24	1	2	1
Future Volume (veh/h)	6	335	19	25	250	15	23	4	24	1	2	1
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1845	1845	1900	1863	1863	1900	1881	1881	1900
Adj Flow Rate, veh/h	12	381	44	66	275	28	44	12	48	4	8	4
Adj No. of Lanes	1	2	0	1	2	0	1	2	0	1	2	0
Peak Hour Factor	0.50	0.88	0.43	0.38	0.91	0.54	0.52	0.33	0.50	0.25	0.25	0.25
Percent Heavy Veh, %	2	2	2	3	3	3	2	2	2	1	1	1
Cap, veh/h	23	745	85	101	892	90	73	178	159	8	151	70
Arrive On Green	0.01	0.23	0.23	0.06	0.28	0.28	0.04	0.10	0.10	0.00	0.06	0.06
Sat Flow, veh/h	1774	3200	367	1757	3215	325	1774	1770	1583	1792	2376	1098
Grp Volume(v), veh/h	12	210	215	66	149	154	44	12	48	4	6	6
Grp Sat Flow(s),veh/h/ln	1774	1770	1798	1757	1752	1787	1774	1770	1583	1792	1787	1687
Q Serve(g_s), s	0.2	2.9	2.9	1.0	1.9	1.9	0.7	0.2	0.8	0.1	0.1	0.1
Cycle Q Clear(g_c), s	0.2	2.9	2.9	1.0	1.9	1.9	0.7	0.2	0.8	0.1	0.1	0.1
Prop In Lane	1.00		0.20	1.00		0.18	1.00		1.00	1.00		0.65
Lane Grp Cap(c), veh/h	23	412	418	101	486	496	73	178	159	8	114	107
V/C Ratio(X)	0.53	0.51	0.51	0.66	0.31	0.31	0.60	0.07	0.30	0.51	0.05	0.06
Avail Cap(c_a), veh/h	1010	1826	1855	1000	1808	1844	1010	2550	2282	1020	2575	2432
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	13.8	9.4	9.4	13.0	8.0	8.0	13.2	11.4	11.7	14.0	12.4	12.4
Incr Delay (d2), s/veh	7.0	0.4	0.4	2.7	0.1	0.1	2.9	0.2	1.0	17.8	0.2	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	1.4	1.5	0.6	0.9	1.0	0.4	0.1	0.4	0.1	0.0	0.1
LnGrp Delay(d),s/veh	20.8	9.7	9.8	15.7	8.2	8.2	16.1	11.6	12.8	31.7	12.5	12.6
LnGrp LOS	C	A	A	B	A	A	B	B	B	C	B	B
Approach Vol, veh/h		437			369			104			16	
Approach Delay, s/veh		10.1			9.5			14.1			17.4	
Approach LOS		B			A			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	4.1	7.3	5.6	11.0	5.2	6.3	4.4	12.3
Change Period (Y+Rc), s	4.0	4.5	4.0	4.5	4.0	4.5	4.0	4.5
Max Green Setting (Gmax), s	16.0	40.5	16.0	29.0	16.0	40.5	16.0	29.0
Max Q Clear Time (g_c+I1), s	2.1	2.8	3.0	4.9	2.7	2.1	2.2	3.9
Green Ext Time (p_c), s	0.0	0.3	0.0	1.6	0.0	0.0	0.0	1.1

Intersection Summary	
HCM 2010 Ctrl Delay	10.4
HCM 2010 LOS	B

15: De Anza Blvd & Mustand Wy/Mustang Wy

	↗	→	↘	↙	←	↖	↖	↑	↗	↘	↓	↙
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑↱		↰	↑↱		↰	↑↱		↰	↱	
Traffic Volume (veh/h)	7	183	4	5	126	2	4	41	4	2	53	18
Future Volume (veh/h)	7	183	4	5	126	2	4	41	4	2	53	18
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1881	1881	1900	1881	1881	1900	1759	1759	1900	1863	1863	1900
Adj Flow Rate, veh/h	12	241	8	8	140	8	8	84	8	4	126	36
Adj No. of Lanes	1	2	0	1	2	0	1	2	0	1	1	0
Peak Hour Factor	0.58	0.76	0.50	0.62	0.90	0.25	0.50	0.49	0.50	0.50	0.42	0.50
Percent Heavy Veh, %	1	1	1	1	1	1	8	8	8	2	2	2
Cap, veh/h	28	1424	47	19	1370	78	18	480	45	10	210	60
Arrive On Green	0.02	0.40	0.40	0.01	0.40	0.40	0.01	0.16	0.16	0.01	0.15	0.15
Sat Flow, veh/h	1792	3531	117	1792	3439	195	1675	3089	290	1774	1394	398
Grp Volume(v), veh/h	12	122	127	8	72	76	8	45	47	4	0	162
Grp Sat Flow(s),veh/h/ln	1792	1787	1861	1792	1787	1847	1675	1671	1708	1774	0	1792
Q Serve(g_s), s	0.2	1.6	1.7	0.2	1.0	1.0	0.2	0.9	0.9	0.1	0.0	3.2
Cycle Q Clear(g_c), s	0.2	1.6	1.7	0.2	1.0	1.0	0.2	0.9	0.9	0.1	0.0	3.2
Prop In Lane	1.00		0.06	1.00		0.11	1.00		0.17	1.00		0.22
Lane Grp Cap(c), veh/h	28	721	751	19	712	736	18	260	266	10	0	269
V/C Ratio(X)	0.43	0.17	0.17	0.42	0.10	0.10	0.45	0.17	0.18	0.41	0.00	0.60
Avail Cap(c_a), veh/h	785	1685	1754	785	1685	1741	734	1354	1384	777	0	1452
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	18.4	7.2	7.2	18.5	7.1	7.1	18.5	13.8	13.8	18.7	0.0	14.9
Incr Delay (d2), s/veh	10.0	0.1	0.1	13.9	0.1	0.1	16.6	0.3	0.3	26.0	0.0	2.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.8	0.9	0.2	0.5	0.5	0.2	0.4	0.4	0.1	0.0	1.7
LnGrp Delay(d),s/veh	28.3	7.3	7.3	32.4	7.2	7.2	35.1	14.1	14.1	44.6	0.0	17.1
LnGrp LOS	C	A	A	C	A	A	D	B	B	D		B
Approach Vol, veh/h		261			156			100			166	
Approach Delay, s/veh		8.3			8.5			15.8			17.8	
Approach LOS		A			A			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	3.7	10.4	3.9	19.7	3.9	10.2	4.1	19.5
Change Period (Y+Rc), s	3.5	4.5	3.5	4.5	3.5	4.5	3.5	4.5
Max Green Setting (Gmax), s	16.5	30.5	16.5	35.5	16.5	30.5	16.5	35.5
Max Q Clear Time (g_c+I1), s	2.1	2.9	2.2	3.7	2.2	5.2	2.2	3.0
Green Ext Time (p_c), s	0.0	0.4	0.0	1.4	0.0	0.9	0.0	0.8

Intersection Summary	
HCM 2010 Ctrl Delay	11.7
HCM 2010 LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↰	↱↱	↰	↑↑			↑↑↑	↱
Traffic Volume (veh/h)	0	0	0	434	313	142	6	163	0	0	720	467
Future Volume (veh/h)	0	0	0	434	313	142	6	163	0	0	720	467
Number				3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln				1900	1696	1696	1696	1696	0	0	1810	1810
Adj Flow Rate, veh/h				523	364	178	8	196	0	0	809	591
Adj No. of Lanes				0	1	2	1	2	0	0	3	1
Peak Hour Factor				0.83	0.86	0.80	0.75	0.83	0.92	0.92	0.89	0.79
Percent Heavy Veh, %				12	12	12	12	12	0	0	5	5
Cap, veh/h				397	276	1036	20	1476	0	0	1871	582
Arrive On Green				0.41	0.41	0.41	0.01	0.46	0.00	0.00	0.38	0.38
Sat Flow, veh/h				972	676	2538	1616	3308	0	0	5103	1538
Grp Volume(v), veh/h				887	0	178	8	196	0	0	809	591
Grp Sat Flow(s),veh/h/ln				1648	0	1269	1616	1612	0	0	1647	1538
Q Serve(g_s), s				27.5	0.0	3.0	0.3	2.4	0.0	0.0	8.2	25.5
Cycle Q Clear(g_c), s				27.5	0.0	3.0	0.3	2.4	0.0	0.0	8.2	25.5
Prop In Lane				0.59		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				673	0	1036	20	1476	0	0	1871	582
V/C Ratio(X)				1.32	0.00	0.17	0.40	0.13	0.00	0.00	0.43	1.01
Avail Cap(c_a), veh/h				673	0	1036	252	1939	0	0	1871	582
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	1.00	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				19.9	0.0	12.7	33.0	10.5	0.0	0.0	15.5	20.9
Incr Delay (d2), s/veh				153.4	0.0	0.1	12.4	0.0	0.0	0.0	0.2	41.0
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				41.0	0.0	1.0	0.2	1.0	0.0	0.0	3.7	17.3
LnGrp Delay(d),s/veh				173.3	0.0	12.7	45.4	10.6	0.0	0.0	15.7	61.9
LnGrp LOS				F		B	D	B			B	F
Approach Vol, veh/h					1065			204			1400	
Approach Delay, s/veh					146.5			11.9			35.2	
Approach LOS					F			B			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2			5	6		8
Phs Duration (G+Y+Rc), s		35.3			5.3	30.0		32.0
Change Period (Y+Rc), s		4.5			4.5	4.5		4.5
Max Green Setting (Gmax), s		40.5			10.5	25.5		27.5
Max Q Clear Time (g_c+I1), s		4.4			2.3	27.5		29.5
Green Ext Time (p_c), s		1.3			0.0	0.0		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	77.8
HCM 2010 LOS	E

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↰↑	↱					↑↑	↱		↑↑	
Traffic Volume (vph)	42	2	48	0	0	0	0	132	220	0	938	0
Future Volume (vph)	42	2	48	0	0	0	0	132	220	0	938	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5					4.5	4.5		4.5	
Lane Util. Factor	0.95	0.95	1.00					0.95	1.00		0.95	
Frt	1.00	1.00	0.85					1.00	0.85		1.00	
Flt Protected	0.95	0.96	1.00					1.00	1.00		1.00	
Satd. Flow (prot)	1618	1641	1524					3008	1346		3223	
Flt Permitted	0.95	0.96	1.00					1.00	1.00		1.00	
Satd. Flow (perm)	1618	1641	1524					3008	1346		3223	
Peak-hour factor, PHF	0.73	0.25	0.67	0.92	0.92	0.92	0.92	0.73	0.75	0.92	0.84	0.92
Adj. Flow (vph)	58	8	72	0	0	0	0	181	293	0	1117	0
RTOR Reduction (vph)	0	0	45	0	0	0	0	0	126	0	0	0
Lane Group Flow (vph)	33	33	27	0	0	0	0	181	167	0	1117	0
Heavy Vehicles (%)	6%	6%	6%	2%	2%	2%	20%	20%	20%	12%	12%	12%
Turn Type	Prot	NA	Perm					NA	Perm		NA	
Protected Phases	7	4						2			6	
Permitted Phases			4						2			
Actuated Green, G (s)	19.7	19.7	19.7					37.9	37.9		37.9	
Effective Green, g (s)	19.7	19.7	19.7					37.9	37.9		37.9	
Actuated g/C Ratio	0.30	0.30	0.30					0.57	0.57		0.57	
Clearance Time (s)	4.5	4.5	4.5					4.5	4.5		4.5	
Vehicle Extension (s)	3.0	3.0	3.0					3.0	3.0		3.0	
Lane Grp Cap (vph)	478	485	450					1711	765		1834	
v/s Ratio Prot	c0.02	0.02						0.06			c0.35	
v/s Ratio Perm			0.02						0.12			
v/c Ratio	0.07	0.07	0.06					0.11	0.22		0.61	
Uniform Delay, d1	16.9	16.9	16.8					6.6	7.1		9.5	
Progression Factor	1.00	1.00	1.00					1.00	1.00		1.00	
Incremental Delay, d2	0.1	0.1	0.1					0.0	0.1		0.6	
Delay (s)	16.9	16.9	16.9					6.6	7.2		10.0	
Level of Service	B	B	B					A	A		B	
Approach Delay (s)		16.9			0.0			7.0			10.0	
Approach LOS		B			A			A			B	

Intersection Summary			
HCM 2000 Control Delay	9.7	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.42		
Actuated Cycle Length (s)	66.6	Sum of lost time (s)	9.0
Intersection Capacity Utilization	85.7%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

ERROR: HCM 2010 supports maximum of three lanes.

Intersection	
Intersection Delay, s/veh	8.1
Intersection LOS	A

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↰	↱	↑↱		↰	↑↑
Traffic Vol, veh/h	46	13	86	11	8	170
Future Vol, veh/h	46	13	86	11	8	170
Peak Hour Factor	0.72	0.42	0.67	0.92	0.63	0.77
Heavy Vehicles, %	0	0	1	2	1	1
Mvmt Flow	64	31	128	12	13	221
Number of Lanes	1	1	2	0	1	2

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	3	2
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	2	0	2
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	3	2	0
HCM Control Delay	8.7	8.5	7.7
HCM LOS	A	A	A

Lane	NBLn1	NBLn2	WBLn1	WBLn2	SBLn1	SBLn2	SBLn3
Vol Left, %	0%	0%	100%	0%	100%	0%	0%
Vol Thru, %	100%	72%	0%	0%	0%	100%	100%
Vol Right, %	0%	28%	0%	100%	0%	0%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	57	40	46	13	8	85	85
LT Vol	0	0	46	0	8	0	0
Through Vol	57	29	0	0	0	85	85
RT Vol	0	11	0	13	0	0	0
Lane Flow Rate	86	55	64	31	13	110	110
Geometry Grp	8	8	8	8	8	8	8
Degree of Util (X)	0.124	0.076	0.104	0.04	0.02	0.156	0.103
Departure Headway (Hd)	5.202	5.024	5.882	4.681	5.6	5.098	3.375
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	690	713	610	764	640	704	1061
Service Time	2.931	2.753	3.618	2.417	3.325	2.823	1.099
HCM Lane V/C Ratio	0.125	0.077	0.105	0.041	0.02	0.156	0.104
HCM Control Delay	8.7	8.2	9.3	7.6	8.4	8.8	6.5
HCM Lane LOS	A	A	A	A	A	A	A
HCM 95th-tile Q	0.4	0.2	0.3	0.1	0.1	0.6	0.3

Intersection	
Intersection Delay, s/veh	8.8
Intersection LOS	A

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↰	↱	↑↱		↰	↑↑
Traffic Vol, veh/h	86	33	74	25	20	238
Future Vol, veh/h	86	33	74	25	20	238
Peak Hour Factor	0.86	0.64	0.66	0.63	0.71	0.81
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	100	52	112	40	28	294
Number of Lanes	1	1	2	0	1	2

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	3	2
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	2	0	2
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	3	2	0
HCM Control Delay	9.5	8.8	8.4
HCM LOS	A	A	A

Lane	NBLn1	NBLn2	WBLn1	WBLn2	SBLn1	SBLn2	SBLn3
Vol Left, %	0%	0%	100%	0%	100%	0%	0%
Vol Thru, %	100%	50%	0%	0%	0%	100%	100%
Vol Right, %	0%	50%	0%	100%	0%	0%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	49	50	86	33	20	119	119
LT Vol	0	0	86	0	20	0	0
Through Vol	49	25	0	0	0	119	119
RT Vol	0	25	0	33	0	0	0
Lane Flow Rate	75	77	100	52	28	147	147
Geometry Grp	8	8	8	8	8	8	8
Degree of Util (X)	0.115	0.111	0.171	0.071	0.046	0.218	0.147
Departure Headway (Hd)	5.562	5.207	6.149	4.947	5.836	5.333	3.59
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	640	683	580	718	612	671	993
Service Time	3.334	2.979	3.924	2.722	3.582	3.079	1.335
HCM Lane V/C Ratio	0.117	0.113	0.172	0.072	0.046	0.219	0.148
HCM Control Delay	9.1	8.6	10.2	8.1	8.9	9.6	7
HCM Lane LOS	A	A	B	A	A	A	A
HCM 95th-tile Q	0.4	0.4	0.6	0.2	0.1	0.8	0.5

	↗	↘	↖	↑	↓	↙
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations				↑↑	↑↑	
Traffic Volume (veh/h)	0	0	0	305	820	0
Future Volume (veh/h)	0	0	0	305	820	0
Number			5	2	6	16
Initial Q (Qb), veh			0	0	0	0
Ped-Bike Adj(A_pbT)			1.00			1.00
Parking Bus, Adj			1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln			0	1810	1810	0
Adj Flow Rate, veh/h			0	332	891	0
Adj No. of Lanes			0	2	2	0
Peak Hour Factor			0.92	0.92	0.92	0.92
Percent Heavy Veh, %			0	5	5	0
Cap, veh/h			0	2750	2750	0
Arrive On Green			0.00	0.80	0.80	0.00
Sat Flow, veh/h			0	3619	3619	0
Grp Volume(v), veh/h			0	332	891	0
Grp Sat Flow(s),veh/h/ln			0	1719	1719	0
Q Serve(g_s), s			0.0	0.5	1.6	0.0
Cycle Q Clear(g_c), s			0.0	0.5	1.6	0.0
Prop In Lane			0.00			0.00
Lane Grp Cap(c), veh/h			0	2750	2750	0
V/C Ratio(X)			0.00	0.12	0.32	0.00
Avail Cap(c_a), veh/h			0	2750	2750	0
HCM Platoon Ratio			1.00	1.00	1.00	1.00
Upstream Filter(I)			0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh			0.0	0.5	0.6	0.0
Incr Delay (d2), s/veh			0.0	0.1	0.3	0.0
Initial Q Delay(d3),s/veh			0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln			0.0	0.2	0.7	0.0
LnGrp Delay(d),s/veh			0.0	0.6	0.9	0.0
LnGrp LOS				A	A	
Approach Vol, veh/h				332	891	
Approach Delay, s/veh				0.6	0.9	
Approach LOS				A	A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2				6		
Phs Duration (G+Y+Rc), s		22.5				22.5		
Change Period (Y+Rc), s		4.5				4.5		
Max Green Setting (Gmax), s		18.0				18.0		
Max Q Clear Time (g_c+I1), s		2.5				3.6		
Green Ext Time (p_c), s		1.9				5.5		

Intersection Summary	
HCM 2010 Ctrl Delay	0.8
HCM 2010 LOS	A

HCM 2010 Signalized Intersection Summary
22: Mountain House Pkwy & Von Sosten Rd

Existing Plus Project Conditions
AM Peak

	↙	↖	↑	↗	↘	↓
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↰	↱	↑↑	↱	↰	↑↑
Traffic Volume (veh/h)	126	92	408	14	85	694
Future Volume (veh/h)	126	92	408	14	85	694
Number	3	18	2	12	1	6
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1810	1810	1810	1810
Adj Flow Rate, veh/h	168	146	504	24	121	868
Adj No. of Lanes	1	1	2	1	1	2
Peak Hour Factor	0.75	0.63	0.81	0.58	0.70	0.80
Percent Heavy Veh, %	3	3	5	5	5	5
Cap, veh/h	297	265	1041	466	154	1779
Arrive On Green	0.17	0.17	0.30	0.30	0.09	0.52
Sat Flow, veh/h	1757	1568	3529	1538	1723	3529
Grp Volume(v), veh/h	168	146	504	24	121	868
Grp Sat Flow(s),veh/h/ln	1757	1568	1719	1538	1723	1719
Q Serve(g_s), s	2.8	2.7	3.8	0.4	2.2	5.2
Cycle Q Clear(g_c), s	2.8	2.7	3.8	0.4	2.2	5.2
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	297	265	1041	466	154	1779
V/C Ratio(X)	0.57	0.55	0.48	0.05	0.79	0.49
Avail Cap(c_a), veh/h	1515	1352	4259	1905	1081	4259
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	12.2	12.1	9.1	7.9	14.2	5.0
Incr Delay (d2), s/veh	1.7	1.8	0.4	0.0	3.4	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.5	1.3	1.8	0.2	1.2	2.5
LnGrp Delay(d),s/veh	13.9	13.9	9.4	7.9	17.6	5.2
LnGrp LOS	B	B	A	A	B	A
Approach Vol, veh/h	314		528			989
Approach Delay, s/veh	13.9		9.4			6.7
Approach LOS	B		A			A

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	6.8	15.2				22.0		9.9
Change Period (Y+Rc), s	4.0	5.5				5.5		4.5
Max Green Setting (Gmax), s	20.0	39.5				39.5		27.5
Max Q Clear Time (g_c+I1), s	4.2	5.8				7.2		4.8
Green Ext Time (p_c), s	0.1	3.8				7.2		0.9

Intersection Summary		
HCM 2010 Ctrl Delay		8.7
HCM 2010 LOS		A

23: Mountain House Pkwy & Grand Ave

AM Peak

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↰	↱		↑↑	↑↱	
Traffic Volume (veh/h)	51	39	96	29	362	11
Future Volume (veh/h)	51	39	96	29	362	11
Number	7	14	5	2	6	16
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1583	1583	1900	1727	1759	1900
Adj Flow Rate, veh/h	51	39	163	34	483	16
Adj No. of Lanes	1	1	0	2	2	0
Peak Hour Factor	0.85	0.65	0.59	0.86	0.75	0.69
Percent Heavy Veh, %	20	20	10	10	8	8
Cap, veh/h	161	0	0	1711	1721	57
Arrive On Green	0.11	0.11	0.00	0.52	0.52	0.52
Sat Flow, veh/h	1508	1346	0	3368	3390	109
Grp Volume(v), veh/h	51	39	0	34	244	255
Grp Sat Flow(s),veh/h/ln	1508	1346	0	1641	1671	1740
Q Serve(g_s), s	0.9	3.1	0.0	0.1	2.4	2.4
Cycle Q Clear(g_c), s	0.9	3.1	0.0	0.1	2.4	2.4
Prop In Lane	1.00	1.00	0.00			0.06
Lane Grp Cap(c), veh/h	161	-67	0	1711	871	907
V/C Ratio(X)	0.32	-0.59	0.00	0.02	0.28	0.28
Avail Cap(c_a), veh/h	1326	973	0	3877	1975	2056
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	11.9	0.0	0.0	3.3	3.9	3.9
Incr Delay (d2), s/veh	0.4	0.0	0.0	0.0	0.1	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	1.2	0.0	0.1	1.0	1.1
LnGrp Delay(d),s/veh	12.3	0.0	0.0	3.3	4.0	4.0
LnGrp LOS	B			A	A	A
Approach Vol, veh/h	90			34	499	
Approach Delay, s/veh	7.0			3.3	4.0	
Approach LOS	A			A	A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		21.0		7.8	0.0	21.0		
Change Period (Y+Rc), s		6.0		* 4.7	4.5	6.0		
Max Green Setting (Gmax), s		34.0		* 25	25.5	34.0		
Max Q Clear Time (g_c+I1), s		2.1		5.1	0.0	4.4		
Green Ext Time (p_c), s		0.1		0.1	0.0	2.3		

Intersection Summary	
HCM 2010 Ctrl Delay	4.4
HCM 2010 LOS	A

Notes

HCM 2010 Signalized Intersection Summary
1: Great Valley Pkwy & Byron Rd

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↱	↰	↑↑	↰	↱
Traffic Volume (veh/h)	446	68	118	433	48	121
Future Volume (veh/h)	446	68	118	433	48	121
Number	4	14	3	8	5	12
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1681	1681	1696	1696	1845	1845
Adj Flow Rate, veh/h	544	71	146	471	66	149
Adj No. of Lanes	1	1	1	2	1	1
Peak Hour Factor	0.82	0.96	0.81	0.92	0.73	0.81
Percent Heavy Veh, %	13	13	12	12	3	3
Cap, veh/h	664	565	183	1938	228	204
Arrive On Green	0.40	0.40	0.11	0.60	0.13	0.13
Sat Flow, veh/h	1681	1429	1616	3308	1757	1568
Grp Volume(v), veh/h	544	71	146	471	66	149
Grp Sat Flow(s),veh/h/ln	1681	1429	1616	1612	1757	1568
Q Serve(g_s), s	12.5	1.4	3.8	2.9	1.5	3.9
Cycle Q Clear(g_c), s	12.5	1.4	3.8	2.9	1.5	3.9
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	664	565	183	1938	228	204
V/C Ratio(X)	0.82	0.13	0.80	0.24	0.29	0.73
Avail Cap(c_a), veh/h	1033	878	374	3026	322	287
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	11.7	8.3	18.6	4.0	17.0	18.0
Incr Delay (d2), s/veh	3.0	0.1	7.7	0.1	0.7	5.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.3	0.5	2.1	1.3	0.8	2.0
LnGrp Delay(d),s/veh	14.7	8.4	26.3	4.1	17.7	23.7
LnGrp LOS	B	A	C	A	B	C
Approach Vol, veh/h	615			617	215	
Approach Delay, s/veh	14.0			9.3	21.8	
Approach LOS	B			A	C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4				8
Phs Duration (G+Y+Rc), s		10.7	8.9	23.5				32.4
Change Period (Y+Rc), s		5.1	4.0	6.5				6.5
Max Green Setting (Gmax), s		7.9	10.0	26.5				40.5
Max Q Clear Time (g_c+I1), s		5.9	5.8	14.5				4.9
Green Ext Time (p_c), s		0.1	0.1	2.6				2.9

Intersection Summary			
HCM 2010 Ctrl Delay			13.2
HCM 2010 LOS			B

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↱↱	↰↰	↑	↰	↱↱
Traffic Volume (veh/h)	584	99	235	472	134	372
Future Volume (veh/h)	584	99	235	472	134	372
Number	6	16	5	2	7	14
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1696	1696	1696	1696	1759	1759
Adj Flow Rate, veh/h	656	130	267	508	165	433
Adj No. of Lanes	2	2	2	1	1	2
Peak Hour Factor	0.89	0.76	0.88	0.93	0.81	0.86
Percent Heavy Veh, %	12	12	12	12	8	8
Cap, veh/h	1056	831	580	1014	316	984
Arrive On Green	0.33	0.33	0.19	0.60	0.19	0.19
Sat Flow, veh/h	3308	2538	3134	1696	1675	2632
Grp Volume(v), veh/h	656	130	267	508	165	433
Grp Sat Flow(s),veh/h/ln	1612	1269	1567	1696	1675	1316
Q Serve(g_s), s	9.1	1.9	4.0	9.1	4.7	6.5
Cycle Q Clear(g_c), s	9.1	1.9	4.0	9.1	4.7	6.5
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	1056	831	580	1014	316	984
V/C Ratio(X)	0.62	0.16	0.46	0.50	0.52	0.44
Avail Cap(c_a), veh/h	2374	1869	1806	1250	940	1964
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	15.0	12.6	19.2	6.1	19.3	12.4
Incr Delay (d2), s/veh	0.7	0.1	0.2	0.5	0.5	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.1	0.7	1.8	4.2	2.2	5.1
LnGrp Delay(d),s/veh	15.8	12.7	19.4	6.6	19.8	12.5
LnGrp LOS	B	B	B	A	B	B
Approach Vol, veh/h	786			775	598	
Approach Delay, s/veh	15.3			11.0	14.5	
Approach LOS	B			B	B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		37.6		15.3	14.3	23.3		
Change Period (Y+Rc), s		6.0		5.3	4.5	6.0		
Max Green Setting (Gmax), s		39.0		29.7	30.5	39.0		
Max Q Clear Time (g_c+I1), s		11.1		8.5	6.0	11.1		
Green Ext Time (p_c), s		4.0		0.8	0.3	6.2		

Intersection Summary			
HCM 2010 Ctrl Delay			13.5
HCM 2010 LOS			B

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations				↑↑	↑↑	
Traffic Volume (veh/h)	0	0	0	478	405	0
Future Volume (veh/h)	0	0	0	478	405	0
Number			5	2	6	16
Initial Q (Qb), veh			0	0	0	0
Ped-Bike Adj(A_pbT)			1.00			1.00
Parking Bus, Adj			1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln			0	1727	1727	0
Adj Flow Rate, veh/h			0	520	440	0
Adj No. of Lanes			0	2	2	0
Peak Hour Factor			0.92	0.92	0.92	0.92
Percent Heavy Veh, %			0	10	10	0
Cap, veh/h			0	2344	2344	0
Arrive On Green			0.00	0.71	0.71	0.00
Sat Flow, veh/h			0	3455	3455	0
Grp Volume(v), veh/h			0	520	440	0
Grp Sat Flow(s),veh/h/ln			0	1641	1641	0
Q Serve(g_s), s			0.0	1.1	0.9	0.0
Cycle Q Clear(g_c), s			0.0	1.1	0.9	0.0
Prop In Lane			0.00			0.00
Lane Grp Cap(c), veh/h			0	2344	2344	0
V/C Ratio(X)			0.00	0.22	0.19	0.00
Avail Cap(c_a), veh/h			0	5313	5313	0
HCM Platoon Ratio			1.00	1.00	1.00	1.00
Upstream Filter(I)			0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh			0.0	1.0	1.0	0.0
Incr Delay (d2), s/veh			0.0	0.0	0.0	0.0
Initial Q Delay(d3),s/veh			0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln			0.0	0.4	0.4	0.0
LnGrp Delay(d),s/veh			0.0	1.1	1.0	0.0
LnGrp LOS				A	A	
Approach Vol, veh/h				520	440	
Approach Delay, s/veh				1.1	1.0	
Approach LOS				A	A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2				6		
Phs Duration (G+Y+Rc), s		21.0				21.0		
Change Period (Y+Rc), s		6.0				6.0		
Max Green Setting (Gmax), s		34.0				34.0		
Max Q Clear Time (g_c+I1), s		3.1				2.9		
Green Ext Time (p_c), s		2.8				2.4		

Intersection Summary	
HCM 2010 Ctrl Delay	1.0
HCM 2010 LOS	A

HCM 2010 Signalized Intersection Summary
4: Mountain House Pkwy & Arnaudo Blvd

Existing Plus Project Conditions
PM Peak

	↗	↘	↖	↑	↓	↙
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↰	↱		↑↑	↑↑	
Traffic Volume (veh/h)	216	111	124	262	191	284
Future Volume (veh/h)	216	111	124	262	191	284
Number	7	14	5	2	6	16
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1900	1792	1743	1900
Adj Flow Rate, veh/h	245	134	153	288	217	334
Adj No. of Lanes	1	1	0	2	2	0
Peak Hour Factor	0.88	0.83	0.81	0.91	0.88	0.85
Percent Heavy Veh, %	3	3	6	6	9	9
Cap, veh/h	379	338	0	1389	676	604
Arrive On Green	0.22	0.22	0.00	0.41	0.41	0.41
Sat Flow, veh/h	1757	1568	0	3495	1743	1482
Grp Volume(v), veh/h	245	134	0	288	217	334
Grp Sat Flow(s),veh/h/ln	1757	1568	0	1703	1656	1482
Q Serve(g_s), s	3.0	1.8	0.0	1.3	2.1	4.1
Cycle Q Clear(g_c), s	3.0	1.8	0.0	1.3	2.1	4.1
Prop In Lane	1.00	1.00	0.00			1.00
Lane Grp Cap(c), veh/h	379	338	0	1389	676	604
V/C Ratio(X)	0.65	0.40	0.00	0.21	0.32	0.55
Avail Cap(c_a), veh/h	2057	1836	0	5698	2770	2479
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	8.5	8.0	0.0	4.6	4.8	5.4
Incr Delay (d2), s/veh	0.7	0.3	0.0	0.1	0.3	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.5	1.6	0.0	0.6	1.0	1.8
LnGrp Delay(d),s/veh	9.2	8.3	0.0	4.7	5.1	6.2
LnGrp LOS	A	A		A	A	A
Approach Vol, veh/h	379			288	551	
Approach Delay, s/veh	8.9			4.7	5.8	
Approach LOS	A			A	A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		14.8		9.2	0.0	14.8		
Change Period (Y+Rc), s		5.0		4.0	4.0	5.0		
Max Green Setting (Gmax), s		40.0		28.0	16.0	40.0		
Max Q Clear Time (g_c+I1), s		3.3		5.0	0.0	6.1		
Green Ext Time (p_c), s		1.8		0.6	0.0	3.6		

Intersection Summary	
HCM 2010 Ctrl Delay	6.5
HCM 2010 LOS	A

Intersection						
Int Delay, s/veh	1.7					

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↱	↰	↑↑	↑↑	↱
Traffic Vol, veh/h	0	54	100	417	198	19
Future Vol, veh/h	0	54	100	417	198	19
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	130	-	-	90
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	66	79	88	87	87	79
Heavy Vehicles, %	2	2	5	5	8	8
Mvmt Flow	0	68	114	479	228	24

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	114	252	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	4.2	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	2.25	-	-	-
Pot Cap-1 Maneuver	0	917	1289	-	-	-
Stage 1	0	-	-	-	-	-
Stage 2	0	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	917	1289	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB		NB		SB	
HCM Control Delay, s	9.2		1.5		0	
HCM LOS	A					

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1289	-	917	-	-
HCM Lane V/C Ratio	0.088	-	0.075	-	-
HCM Control Delay (s)	8.1	-	9.2	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0.3	-	0.2	-	-

6: Mountain House Pkwy & Mustand Wy

	↗	↘	↖	↑	↓	↙
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↰	↱↱	↰↰	↑↑↑	↑↑	↱
Traffic Volume (veh/h)	95	121	98	395	273	48
Future Volume (veh/h)	95	121	98	395	273	48
Number	7	14	5	2	6	16
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1881	1881	1827	1827	1810	1810
Adj Flow Rate, veh/h	112	181	124	459	364	60
Adj No. of Lanes	1	2	2	3	2	1
Peak Hour Factor	0.85	0.67	0.79	0.86	0.75	0.80
Percent Heavy Veh, %	1	1	4	4	5	5
Cap, veh/h	238	374	303	2471	884	395
Arrive On Green	0.13	0.13	0.09	0.50	0.26	0.26
Sat Flow, veh/h	1792	2814	3375	5152	3529	1535
Grp Volume(v), veh/h	112	181	124	459	364	60
Grp Sat Flow(s),veh/h/ln	1792	1407	1688	1663	1719	1535
Q Serve(g_s), s	1.6	1.6	0.9	1.4	2.4	0.8
Cycle Q Clear(g_c), s	1.6	1.6	0.9	1.4	2.4	0.8
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	238	374	303	2471	884	395
V/C Ratio(X)	0.47	0.48	0.41	0.19	0.41	0.15
Avail Cap(c_a), veh/h	1031	1620	2006	4909	3959	1768
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	10.8	10.8	11.6	3.8	8.3	7.7
Incr Delay (d2), s/veh	0.5	0.4	0.3	0.0	0.3	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	1.3	0.4	0.6	1.1	0.4
LnGrp Delay(d),s/veh	11.3	11.2	11.9	3.8	8.6	7.9
LnGrp LOS	B	B	B	A	A	A
Approach Vol, veh/h	293			583	424	
Approach Delay, s/veh	11.2			5.5	8.5	
Approach LOS	B			A	A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		18.8		8.1	6.4	12.4		
Change Period (Y+Rc), s		5.5		4.5	4.0	5.5		
Max Green Setting (Gmax), s		26.5		15.5	16.0	31.0		
Max Q Clear Time (g_c+I1), s		3.4		3.6	2.9	4.4		
Green Ext Time (p_c), s		2.9		0.4	0.1	2.5		

Intersection Summary			
HCM 2010 Ctrl Delay			7.8
HCM 2010 LOS			A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑↑	↱	↰↰	↑↑	↱	↰↰	↑↱		↰↰	↑↑	↱
Traffic Volume (veh/h)	48	185	240	8	72	35	215	423	17	46	282	25
Future Volume (veh/h)	48	185	240	8	72	35	215	423	17	46	282	25
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1792	1792	1863	1881	1881	1881	1810	1810	1900	1827	1827	1827
Adj Flow Rate, veh/h	56	226	253	16	77	64	242	465	20	69	307	36
Adj No. of Lanes	1	2	1	2	2	1	2	2	0	2	2	1
Peak Hour Factor	0.86	0.82	0.95	0.50	0.94	0.55	0.89	0.91	0.85	0.67	0.92	0.69
Percent Heavy Veh, %	6	6	2	1	1	1	5	5	5	4	4	4
Cap, veh/h	104	997	463	82	911	408	349	975	42	233	885	396
Arrive On Green	0.06	0.29	0.29	0.02	0.25	0.25	0.10	0.29	0.29	0.07	0.25	0.25
Sat Flow, veh/h	1707	3406	1583	3476	3574	1599	3343	3359	144	3375	3471	1553
Grp Volume(v), veh/h	56	226	253	16	77	64	242	238	247	69	307	36
Grp Sat Flow(s),veh/h/ln	1707	1703	1583	1738	1787	1599	1672	1719	1784	1688	1736	1553
Q Serve(g_s), s	1.9	3.0	7.9	0.3	1.0	1.8	4.1	6.7	6.7	1.1	4.3	1.0
Cycle Q Clear(g_c), s	1.9	3.0	7.9	0.3	1.0	1.8	4.1	6.7	6.7	1.1	4.3	1.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.08	1.00		1.00
Lane Grp Cap(c), veh/h	104	997	463	82	911	408	349	499	518	233	885	396
V/C Ratio(X)	0.54	0.23	0.55	0.20	0.08	0.16	0.69	0.48	0.48	0.30	0.35	0.09
Avail Cap(c_a), veh/h	763	2298	1068	1554	2412	1079	1472	1139	1183	1486	2301	1029
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	26.8	15.8	17.5	28.2	16.7	17.0	25.4	17.2	17.2	26.0	17.9	16.7
Incr Delay (d2), s/veh	1.6	0.0	0.4	0.4	0.0	0.1	0.9	0.3	0.3	0.3	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	1.4	3.5	0.1	0.5	0.8	1.9	3.2	3.3	0.5	2.1	0.5
LnGrp Delay(d),s/veh	28.4	15.8	17.9	28.6	16.7	17.1	26.4	17.5	17.5	26.3	18.0	16.8
LnGrp LOS	C	B	B	C	B	B	C	B	B	C	B	B
Approach Vol, veh/h		535			157			727			412	
Approach Delay, s/veh		18.1			18.1			20.4			19.3	
Approach LOS		B			B			C			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.2	23.1	5.1	22.5	10.2	21.0	7.3	20.3
Change Period (Y+Rc), s	4.1	6.0	3.7	5.3	4.1	6.0	3.7	5.3
Max Green Setting (Gmax), s	25.9	39.0	26.3	39.7	25.9	39.0	26.3	39.7
Max Q Clear Time (g_c+I1), s	3.1	8.7	2.3	9.9	6.1	6.3	3.9	3.8
Green Ext Time (p_c), s	0.0	1.3	0.0	1.0	0.1	1.0	0.0	0.3

Intersection Summary	
HCM 2010 Ctrl Delay	19.3
HCM 2010 LOS	B

	↗	→	←	↖	↘	↙
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↰	↑↑	↑↑	↱	↰	↱
Traffic Volume (veh/h)	23	447	267	43	33	25
Future Volume (veh/h)	23	447	267	43	33	25
Number	7	4	8	18	1	16
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1792	1792	1792	1792	1792	1792
Adj Flow Rate, veh/h	41	491	297	52	48	33
Adj No. of Lanes	1	2	2	1	1	1
Peak Hour Factor	0.56	0.91	0.90	0.83	0.69	0.75
Percent Heavy Veh, %	6	6	6	6	6	6
Cap, veh/h	69	1706	840	376	122	109
Arrive On Green	0.04	0.50	0.25	0.25	0.07	0.07
Sat Flow, veh/h	1707	3495	3495	1524	1707	1524
Grp Volume(v), veh/h	41	491	297	52	48	33
Grp Sat Flow(s),veh/h/ln	1707	1703	1703	1524	1707	1524
Q Serve(g_s), s	0.5	1.8	1.5	0.6	0.6	0.4
Cycle Q Clear(g_c), s	0.5	1.8	1.5	0.6	0.6	0.4
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	69	1706	840	376	122	109
V/C Ratio(X)	0.59	0.29	0.35	0.14	0.39	0.30
Avail Cap(c_a), veh/h	405	2911	2911	1302	1459	1302
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	9.9	3.1	6.5	6.2	9.3	9.3
Incr Delay (d2), s/veh	7.9	0.1	0.3	0.2	2.0	1.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	0.8	0.7	0.2	0.3	0.4
LnGrp Delay(d),s/veh	17.8	3.2	6.8	6.4	11.4	10.8
LnGrp LOS	B	A	A	A	B	B
Approach Vol, veh/h		532	349		81	
Approach Delay, s/veh		4.3	6.7		11.1	
Approach LOS		A	A		B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs				4		6	7	8
Phs Duration (G+Y+Rc), s				15.0		6.0	5.4	9.7
Change Period (Y+Rc), s				4.5		4.5	4.5	4.5
Max Green Setting (Gmax), s				18.0		18.0	5.0	18.0
Max Q Clear Time (g_c+I1), s				3.8		2.6	2.5	3.5
Green Ext Time (p_c), s				2.7		0.2	0.0	1.7

Intersection Summary			
HCM 2010 Ctrl Delay			5.7
HCM 2010 LOS			A

9: Central Pkwy & Grant Line Rd

PM Peak

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑↑	↱	↰	↑↑	↱	↰	↑↑	↱	↰	↑↑	↱
Traffic Volume (veh/h)	51	377	10	22	103	81	15	15	34	98	10	28
Future Volume (veh/h)	51	377	10	22	103	81	15	15	34	98	10	28
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1827	1827	1827	1792	1792	1792	1810	1810	1810	1827	1827	1827
Adj Flow Rate, veh/h	68	419	16	32	166	112	28	24	56	124	20	48
Adj No. of Lanes	1	2	1	1	2	1	1	2	1	1	2	1
Peak Hour Factor	0.75	0.90	0.62	0.69	0.62	0.72	0.54	0.62	0.61	0.79	0.50	0.58
Percent Heavy Veh, %	4	4	4	6	6	6	5	5	5	4	4	4
Cap, veh/h	477	881	394	384	864	387	60	611	272	189	872	389
Arrive On Green	0.25	0.25	0.25	0.25	0.25	0.25	0.03	0.18	0.18	0.11	0.25	0.25
Sat Flow, veh/h	1076	3471	1553	914	3406	1524	1723	3438	1533	1740	3471	1549
Grp Volume(v), veh/h	68	419	16	32	166	112	28	24	56	124	20	48
Grp Sat Flow(s),veh/h/ln	1076	1736	1553	914	1703	1524	1723	1719	1533	1740	1736	1549
Q Serve(g_s), s	1.6	3.0	0.2	0.9	1.1	1.7	0.5	0.2	0.9	2.0	0.1	0.7
Cycle Q Clear(g_c), s	2.7	3.0	0.2	3.9	1.1	1.7	0.5	0.2	0.9	2.0	0.1	0.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	477	881	394	384	864	387	60	611	272	189	872	389
V/C Ratio(X)	0.14	0.48	0.04	0.08	0.19	0.29	0.47	0.04	0.21	0.66	0.02	0.12
Avail Cap(c_a), veh/h	864	2129	953	712	2089	935	294	2109	940	297	2129	950
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	9.6	9.3	8.3	10.9	8.6	8.8	13.9	10.0	10.3	12.6	8.3	8.5
Incr Delay (d2), s/veh	0.1	0.4	0.0	0.1	0.1	0.4	5.6	0.0	0.4	3.9	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	1.4	0.1	0.2	0.5	0.8	0.3	0.1	0.4	1.2	0.1	0.3
LnGrp Delay(d),s/veh	9.8	9.7	8.3	11.0	8.7	9.2	19.5	10.0	10.7	16.4	8.3	8.6
LnGrp LOS	A	A	A	B	A	A	B	B	B	B	A	A
Approach Vol, veh/h		503			310			108			192	
Approach Delay, s/veh		9.7			9.1			12.8			13.6	
Approach LOS		A			A			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	7.7	9.7		11.9	5.5	11.9		11.9
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5
Max Green Setting (Gmax), s	5.0	18.0		18.0	5.0	18.0		18.0
Max Q Clear Time (g_c+I1), s	4.0	2.9		5.0	2.5	2.7		5.9
Green Ext Time (p_c), s	0.0	0.2		2.5	0.0	0.2		1.2

Intersection Summary	
HCM 2010 Ctrl Delay	10.5
HCM 2010 LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰↰	↱		↰	↑	↱↱		✥			↰	↱
Traffic Volume (vph)	288	399	0	0	73	65	0	0	0	41	0	108
Future Volume (vph)	288	399	0	0	73	65	0	0	0	41	0	108
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.6			4.6	4.6					5.1	5.1
Lane Util. Factor	0.97	1.00			1.00	0.88					1.00	1.00
Frt	1.00	1.00			1.00	0.85					1.00	0.85
Flt Protected	0.95	1.00			1.00	1.00					0.95	1.00
Satd. Flow (prot)	3433	1863			1827	2733					1770	1583
Flt Permitted	0.95	1.00			1.00	1.00					0.95	1.00
Satd. Flow (perm)	3433	1863			1827	2733					1770	1583
Peak-hour factor, PHF	0.79	0.87	0.92	0.92	0.88	0.75	0.92	0.92	0.92	0.61	0.92	0.81
Adj. Flow (vph)	365	459	0	0	83	87	0	0	0	67	0	133
RTOR Reduction (vph)	0	0	0	0	0	72	0	0	0	0	0	111
Lane Group Flow (vph)	365	459	0	0	83	15	0	0	0	0	67	22
Heavy Vehicles (%)	2%	2%	2%	4%	4%	4%	1%	1%	1%	2%	2%	2%
Turn Type	Prot	NA		Prot	NA	Perm				Split	NA	Prot
Protected Phases	3	8		7	4		5	5		6	6	6
Permitted Phases						4						
Actuated Green, G (s)	5.6	17.0			7.4	7.4					7.2	7.2
Effective Green, g (s)	5.6	17.0			7.4	7.4					7.2	7.2
Actuated g/C Ratio	0.13	0.40			0.17	0.17					0.17	0.17
Clearance Time (s)	4.0	4.6			4.6	4.6					5.1	5.1
Vehicle Extension (s)	3.0	3.0			3.0	3.0					3.0	3.0
Lane Grp Cap (vph)	451	743			317	474					299	267
v/s Ratio Prot	c0.11	c0.25			0.05						c0.04	0.01
v/s Ratio Perm						0.01						
v/c Ratio	0.81	0.62			0.26	0.03					0.22	0.08
Uniform Delay, d1	18.0	10.2			15.2	14.6					15.3	14.9
Progression Factor	1.00	1.00			1.00	1.00					1.00	1.00
Incremental Delay, d2	10.3	1.5			0.4	0.0					0.4	0.1
Delay (s)	28.3	11.7			15.7	14.7					15.7	15.1
Level of Service	C	B			B	B					B	B
Approach Delay (s)		19.1			15.2			0.0			15.3	
Approach LOS		B			B			A			B	

Intersection Summary			
HCM 2000 Control Delay	17.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	42.6	Sum of lost time (s)	18.3
Intersection Capacity Utilization	32.4%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑↱		↰	↑↱		↰	↑↱		↰	↑↱	
Traffic Volume (veh/h)	51	107	11	13	83	48	21	98	23	51	78	28
Future Volume (veh/h)	51	107	11	13	83	48	21	98	23	51	78	28
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.98	1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1881	1881	1900	1863	1863	1900	1881	1881	1900
Adj Flow Rate, veh/h	72	149	16	20	100	68	36	108	24	100	100	50
Adj No. of Lanes	1	2	0	1	2	0	1	2	0	1	2	0
Peak Hour Factor	0.71	0.72	0.69	0.65	0.83	0.71	0.58	0.91	0.96	0.51	0.78	0.56
Percent Heavy Veh, %	2	2	2	1	1	1	2	2	2	1	1	1
Cap, veh/h	104	776	82	36	425	266	60	416	90	130	431	203
Arrive On Green	0.06	0.24	0.24	0.02	0.20	0.20	0.03	0.14	0.14	0.07	0.18	0.18
Sat Flow, veh/h	1774	3226	342	1792	2098	1313	1774	2891	624	1792	2357	1110
Grp Volume(v), veh/h	72	81	84	20	84	84	36	65	67	100	74	76
Grp Sat Flow(s),veh/h/ln	1774	1770	1798	1792	1787	1624	1774	1770	1745	1792	1787	1679
Q Serve(g_s), s	1.3	1.2	1.2	0.4	1.3	1.4	0.7	1.1	1.1	1.8	1.2	1.3
Cycle Q Clear(g_c), s	1.3	1.2	1.2	0.4	1.3	1.4	0.7	1.1	1.1	1.8	1.2	1.3
Prop In Lane	1.00		0.19	1.00		0.81	1.00		0.36	1.00		0.66
Lane Grp Cap(c), veh/h	104	426	433	36	362	329	60	255	251	130	327	307
V/C Ratio(X)	0.69	0.19	0.19	0.55	0.23	0.26	0.60	0.25	0.27	0.77	0.23	0.25
Avail Cap(c_a), veh/h	264	1612	1638	321	1628	1479	264	1612	1589	267	1487	1397
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	15.2	9.9	10.0	16.0	11.0	11.0	15.7	12.5	12.5	15.0	11.5	11.5
Incr Delay (d2), s/veh	3.1	0.2	0.2	4.7	0.3	0.4	3.5	0.5	0.6	3.5	0.4	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	0.6	0.6	0.2	0.7	0.7	0.4	0.6	0.6	1.0	0.6	0.6
LnGrp Delay(d),s/veh	18.3	10.2	10.2	20.7	11.3	11.5	19.1	13.0	13.1	18.5	11.8	11.9
LnGrp LOS	B	B	B	C	B	B	B	B	B	B	B	B
Approach Vol, veh/h		237			188			168			250	
Approach Delay, s/veh		12.6			12.4			14.4			14.5	
Approach LOS		B			B			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	6.5	9.2	4.8	12.4	5.2	10.5	6.0	11.2
Change Period (Y+Rc), s	4.1	4.5	4.1	4.5	4.1	4.5	4.1	4.5
Max Green Setting (Gmax), s	4.9	30.0	5.9	30.0	4.9	27.4	4.9	30.0
Max Q Clear Time (g_c+I1), s	3.8	3.1	2.4	3.2	2.7	3.3	3.3	3.4
Green Ext Time (p_c), s	0.0	0.7	0.0	0.9	0.0	0.8	0.0	0.9

Intersection Summary	
HCM 2010 Ctrl Delay	13.5
HCM 2010 LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✥		↰	↑	↱	↰	↑↱		↰	↑↱	
Traffic Volume (veh/h)	5	21	3	28	37	194	4	88	41	152	85	5
Future Volume (veh/h)	5	21	3	28	37	194	4	88	41	152	85	5
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1900	1900	1863	1863	1863	1810	1810	1900	1863	1863	1900
Adj Flow Rate, veh/h	12	32	8	37	44	231	8	121	61	171	104	8
Adj No. of Lanes	0	1	0	1	1	1	1	2	0	1	2	0
Peak Hour Factor	0.42	0.66	0.38	0.75	0.84	0.84	0.50	0.73	0.67	0.89	0.82	0.63
Percent Heavy Veh, %	0	0	0	2	2	2	5	5	5	2	2	2
Cap, veh/h	173	138	31	62	532	452	15	431	206	223	1026	78
Arrive On Green	0.12	0.12	0.12	0.04	0.29	0.29	0.01	0.19	0.19	0.13	0.31	0.31
Sat Flow, veh/h	265	1148	257	1774	1863	1583	1723	2257	1076	1774	3329	253
Grp Volume(v), veh/h	52	0	0	37	44	231	8	91	91	171	55	57
Grp Sat Flow(s),veh/h/ln	1671	0	0	1774	1863	1583	1723	1719	1614	1774	1770	1813
Q Serve(g_s), s	0.0	0.0	0.0	0.6	0.5	3.8	0.1	1.4	1.5	2.9	0.7	0.7
Cycle Q Clear(g_c), s	0.8	0.0	0.0	0.6	0.5	3.8	0.1	1.4	1.5	2.9	0.7	0.7
Prop In Lane	0.23		0.15	1.00		1.00	1.00		0.67	1.00		0.14
Lane Grp Cap(c), veh/h	341	0	0	62	532	452	15	328	308	223	545	559
V/C Ratio(X)	0.15	0.00	0.00	0.59	0.08	0.51	0.54	0.28	0.30	0.77	0.10	0.10
Avail Cap(c_a), veh/h	1626	0	0	1575	1719	1461	872	2226	2090	898	2292	2347
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	12.5	0.0	0.0	14.9	8.2	9.4	15.5	10.9	10.9	13.3	7.8	7.8
Incr Delay (d2), s/veh	0.1	0.0	0.0	3.3	0.0	0.3	10.9	0.4	0.5	2.1	0.1	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	0.0	0.0	0.4	0.3	1.7	0.1	0.7	0.7	1.6	0.3	0.4
LnGrp Delay(d),s/veh	12.6	0.0	0.0	18.3	8.2	9.7	26.4	11.3	11.4	15.4	7.8	7.8
LnGrp LOS	B			B	A	A	C	B	B	B	A	A
Approach Vol, veh/h		52			312			190			283	
Approach Delay, s/veh		12.6			10.5			12.0			12.4	
Approach LOS		B			B			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6		8
Phs Duration (G+Y+Rc), s	8.0	10.3	5.2	7.9	4.4	14.0		13.1
Change Period (Y+Rc), s	4.1	* 4.3	4.1	4.1	4.1	* 4.3		4.1
Max Green Setting (Gmax), s	15.9	* 41	27.9	29.0	15.9	* 41		29.0
Max Q Clear Time (g_c+I1), s	4.9	3.5	2.6	2.8	2.1	2.7		5.8
Green Ext Time (p_c), s	0.2	1.1	0.0	0.2	0.0	0.6		0.5

Intersection Summary	
HCM 2010 Ctrl Delay	11.6
HCM 2010 LOS	B

Notes

Intersection	
Intersection Delay, s/veh	9.5
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑	↱	↰	↑↱		↰	↱		↰	↱	
Traffic Vol, veh/h	3	9	130	10	0	1	160	100	23	26	3	1
Future Vol, veh/h	3	9	130	10	0	1	160	100	23	26	3	1
Peak Hour Factor	0.38	0.32	0.79	0.50	0.50	0.50	0.96	0.96	0.58	0.81	0.75	0.25
Heavy Vehicles, %	1	1	1	24	24	24	2	2	2	2	2	2
Mvmt Flow	8	28	165	20	0	2	167	104	40	32	4	4
Number of Lanes	1	1	1	1	2	0	1	1	0	1	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	3	2	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	2	3	3
Conflicting Approach Righ	NB	SB	WB	EB
Conflicting Lanes Right	2	2	3	3
HCM Control Delay	8.9	9.8	9.9	9.2
HCM LOS	A	A	A	A

Lane	NBLn1	NBLn2	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBLn1	SBLn2
Vol Left, %	100%	0%	100%	0%	0%	100%	0%	0%	100%	0%
Vol Thru, %	0%	81%	0%	100%	0%	0%	100%	0%	0%	75%
Vol Right, %	0%	19%	0%	0%	100%	0%	0%	100%	0%	25%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	160	123	3	9	130	10	0	1	26	4
LT Vol	160	0	3	0	0	10	0	0	26	0
Through Vol	0	100	0	9	0	0	0	0	0	3
RT Vol	0	23	0	0	130	0	0	1	0	1
Lane Flow Rate	167	144	8	28	165	20	0	2	32	8
Geometry Grp	8	8	8	8	8	8	8	8	8	8
Degree of Util (X)	0.265	0.203	0.013	0.044	0.223	0.038	0	0.003	0.056	0.012
Departure Headway (Hd)	5.721	5.09	6.082	5.579	4.875	6.817	6.312	5.605	6.278	5.6
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	625	702	587	640	734	522	0	633	567	634
Service Time	3.479	2.847	3.832	3.329	2.625	4.597	4.091	3.384	4.056	3.378
HCM Lane V/C Ratio	0.267	0.205	0.014	0.044	0.225	0.038	0	0.003	0.056	0.013
HCM Control Delay	10.5	9.2	8.9	8.6	9	9.9	9.1	8.4	9.4	8.4
HCM Lane LOS	B	A	A	A	A	A	N	A	A	A
HCM 95th-tile Q	1.1	0.8	0	0.1	0.9	0.1	0	0	0.2	0

HCM 2010 Signalized Intersection Summary
14: De Anza Blvd & Arnaudo Blvd

	↗	→	↘	↙	←	↖	↖	↑	↗	↘	↓	↙
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑↱		↰	↑↱		↰	↑↱		↰	↑↱	
Traffic Volume (veh/h)	3	288	25	22	381	0	33	1	61	5	2	1
Future Volume (veh/h)	3	288	25	22	381	0	33	1	61	5	2	1
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1845	1845	1900	1863	1863	1900	1881	1881	1900
Adj Flow Rate, veh/h	8	313	32	29	428	0	52	4	81	12	4	4
Adj No. of Lanes	1	2	0	1	2	0	1	2	0	1	2	0
Peak Hour Factor	0.38	0.92	0.78	0.75	0.89	0.92	0.64	0.25	0.75	0.42	0.50	0.25
Percent Heavy Veh, %	2	2	2	3	3	3	2	2	2	1	1	1
Cap, veh/h	15	734	75	51	864	0	85	204	182	23	146	126
Arrive On Green	0.01	0.23	0.23	0.03	0.25	0.00	0.05	0.12	0.12	0.01	0.08	0.08
Sat Flow, veh/h	1774	3245	329	1757	3597	0	1774	1770	1583	1792	1825	1567
Grp Volume(v), veh/h	8	170	175	29	428	0	52	4	81	12	4	4
Grp Sat Flow(s),veh/h/ln	1774	1770	1805	1757	1752	0	1774	1770	1583	1792	1787	1605
Q Serve(g_s), s	0.1	2.3	2.3	0.4	2.9	0.0	0.8	0.1	1.3	0.2	0.1	0.1
Cycle Q Clear(g_c), s	0.1	2.3	2.3	0.4	2.9	0.0	0.8	0.1	1.3	0.2	0.1	0.1
Prop In Lane	1.00		0.18	1.00		0.00	1.00		1.00	1.00		0.98
Lane Grp Cap(c), veh/h	15	400	408	51	864	0	85	204	182	23	143	129
V/C Ratio(X)	0.52	0.42	0.43	0.57	0.50	0.00	0.61	0.02	0.44	0.53	0.03	0.03
Avail Cap(c_a), veh/h	1030	1863	1900	1020	3689	0	1030	2601	2328	1040	2627	2359
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	13.6	9.1	9.1	13.2	8.9	0.0	12.9	10.8	11.4	13.5	11.7	11.7
Incr Delay (d2), s/veh	9.9	0.3	0.3	3.7	0.2	0.0	2.7	0.0	1.7	6.8	0.1	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	1.1	1.2	0.3	1.4	0.0	0.4	0.0	0.6	0.1	0.0	0.0
LnGrp Delay(d),s/veh	23.5	9.4	9.4	16.9	9.1	0.0	15.6	10.8	13.1	20.3	11.8	11.8
LnGrp LOS	C	A	A	B	A		B	B	B	C	B	B
Approach Vol, veh/h		353			457			137			20	
Approach Delay, s/veh		9.7			9.6			13.9			16.9	
Approach LOS		A			A			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	4.4	7.7	4.8	10.7	5.3	6.7	4.2	11.3
Change Period (Y+Rc), s	4.0	4.5	4.0	4.5	4.0	4.5	4.0	4.5
Max Green Setting (Gmax), s	16.0	40.5	16.0	29.0	16.0	40.5	16.0	29.0
Max Q Clear Time (g_c+I1), s	2.2	3.3	2.4	4.3	2.8	2.1	2.1	4.9
Green Ext Time (p_c), s	0.0	0.5	0.0	1.3	0.0	0.0	0.0	1.9

Intersection Summary	
HCM 2010 Ctrl Delay	10.4
HCM 2010 LOS	B

15: De Anza Blvd & Mustand Wy/Mustang Wy

PM Peak

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑↱		↰	↑↱		↰	↑↱		↰	↱	
Traffic Volume (veh/h)	31	256	5	13	140	2	2	38	14	5	34	31
Future Volume (veh/h)	31	256	5	13	140	2	2	38	14	5	34	31
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1881	1881	1900	1881	1881	1900	1759	1759	1900	1863	1863	1900
Adj Flow Rate, veh/h	65	441	16	16	147	4	4	57	32	12	77	44
Adj No. of Lanes	1	2	0	1	2	0	1	2	0	1	1	0
Peak Hour Factor	0.48	0.58	0.31	0.81	0.95	0.50	0.50	0.67	0.44	0.42	0.44	0.71
Percent Heavy Veh, %	1	1	1	1	1	1	8	8	8	2	2	2
Cap, veh/h	116	1524	55	37	1381	37	9	248	129	28	141	81
Arrive On Green	0.07	0.43	0.43	0.02	0.39	0.39	0.01	0.12	0.12	0.02	0.13	0.13
Sat Flow, veh/h	1792	3518	127	1792	3555	96	1675	2127	1108	1774	1114	637
Grp Volume(v), veh/h	65	224	233	16	74	77	4	44	45	12	0	121
Grp Sat Flow(s),veh/h/ln	1792	1787	1859	1792	1787	1864	1675	1671	1564	1774	0	1750
Q Serve(g_s), s	1.4	3.1	3.1	0.3	1.0	1.0	0.1	0.9	1.0	0.3	0.0	2.5
Cycle Q Clear(g_c), s	1.4	3.1	3.1	0.3	1.0	1.0	0.1	0.9	1.0	0.3	0.0	2.5
Prop In Lane	1.00		0.07	1.00		0.05	1.00		0.71	1.00		0.36
Lane Grp Cap(c), veh/h	116	774	805	37	694	724	9	195	182	28	0	222
V/C Ratio(X)	0.56	0.29	0.29	0.44	0.11	0.11	0.44	0.23	0.25	0.43	0.00	0.55
Avail Cap(c_a), veh/h	766	1643	1709	766	1643	1714	716	1320	1235	758	0	1383
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	17.5	7.1	7.1	18.7	7.5	7.5	19.1	15.5	15.5	18.8	0.0	15.8
Incr Delay (d2), s/veh	4.1	0.2	0.2	8.0	0.1	0.1	29.9	0.6	0.7	10.3	0.0	2.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	1.5	1.6	0.2	0.5	0.5	0.1	0.5	0.5	0.2	0.0	1.3
LnGrp Delay(d),s/veh	21.6	7.3	7.3	26.7	7.6	7.6	49.0	16.1	16.2	29.1	0.0	17.9
LnGrp LOS	C	A	A	C	A	A	D	B	B	C		B
Approach Vol, veh/h		522			167			93			133	
Approach Delay, s/veh		9.1			9.4			17.6			18.9	
Approach LOS		A			A			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	4.1	9.0	4.3	21.2	3.7	9.4	6.0	19.5
Change Period (Y+Rc), s	3.5	4.5	3.5	4.5	3.5	4.5	3.5	4.5
Max Green Setting (Gmax), s	16.5	30.5	16.5	35.5	16.5	30.5	16.5	35.5
Max Q Clear Time (g_c+I1), s	2.3	3.0	2.3	5.1	2.1	4.5	3.4	3.0
Green Ext Time (p_c), s	0.0	0.4	0.0	2.7	0.0	0.6	0.1	0.8

Intersection Summary			
HCM 2010 Ctrl Delay			11.4
HCM 2010 LOS			B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↰↑	↱↱	↰	↑↑			↑↑↑	↱
Traffic Volume (veh/h)	0	0	0	215	1	389	27	280	0	0	426	74
Future Volume (veh/h)	0	0	0	215	1	389	27	280	0	0	426	74
Number				3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln				1900	1696	1696	1696	1696	0	0	1810	1810
Adj Flow Rate, veh/h				253	4	423	52	311	0	0	444	112
Adj No. of Lanes				0	1	2	1	2	0	0	3	1
Peak Hour Factor				0.85	0.25	0.92	0.52	0.90	0.92	0.92	0.96	0.66
Percent Heavy Veh, %				12	12	12	12	12	0	0	5	5
Cap, veh/h				429	7	685	104	1676	0	0	1731	539
Arrive On Green				0.27	0.27	0.27	0.06	0.52	0.00	0.00	0.35	0.35
Sat Flow, veh/h				1592	25	2538	1616	3308	0	0	5103	1538
Grp Volume(v), veh/h				257	0	423	52	311	0	0	444	112
Grp Sat Flow(s),veh/h/ln				1617	0	1269	1616	1612	0	0	1647	1538
Q Serve(g_s), s				5.9	0.0	6.3	1.3	2.2	0.0	0.0	2.7	2.2
Cycle Q Clear(g_c), s				5.9	0.0	6.3	1.3	2.2	0.0	0.0	2.7	2.2
Prop In Lane				0.98		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				436	0	685	104	1676	0	0	1731	539
V/C Ratio(X)				0.59	0.00	0.62	0.50	0.19	0.00	0.00	0.26	0.21
Avail Cap(c_a), veh/h				1038	0	1630	396	3049	0	0	2942	916
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	1.00	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				13.6	0.0	13.7	19.4	5.5	0.0	0.0	9.9	9.7
Incr Delay (d2), s/veh				1.3	0.0	0.9	3.6	0.1	0.0	0.0	0.1	0.2
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				2.8	0.0	2.3	0.7	1.0	0.0	0.0	1.2	1.0
LnGrp Delay(d),s/veh				14.8	0.0	14.6	23.0	5.5	0.0	0.0	10.0	9.9
LnGrp LOS				B		B	C	A			B	A
Approach Vol, veh/h					680			363			556	
Approach Delay, s/veh					14.7			8.0			10.0	
Approach LOS					B			A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2			5	6		8
Phs Duration (G+Y+Rc), s		26.8			7.3	19.5		16.0
Change Period (Y+Rc), s		4.5			4.5	4.5		4.5
Max Green Setting (Gmax), s		40.5			10.5	25.5		27.5
Max Q Clear Time (g_c+I1), s		4.2			3.3	4.7		8.3
Green Ext Time (p_c), s		2.2			0.0	3.3		3.3

Intersection Summary	
HCM 2010 Ctrl Delay	11.5
HCM 2010 LOS	B

	↗	→	↘	↙	←	↖	↖	↑	↗	↘	↓	↙
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↰	↱					↑↑	↱		↑↑	
Traffic Volume (vph)	122	1	41	0	0	0	0	179	469	0	319	0
Future Volume (vph)	122	1	41	0	0	0	0	179	469	0	319	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5					4.5	4.5		4.5	
Lane Util. Factor	0.95	0.95	1.00					0.95	1.00		0.95	
Frt	1.00	1.00	0.85					1.00	0.85		1.00	
Flt Protected	0.95	0.95	1.00					1.00	1.00		1.00	
Satd. Flow (prot)	1618	1626	1524					3008	1346		3223	
Flt Permitted	0.95	0.95	1.00					1.00	1.00		1.00	
Satd. Flow (perm)	1618	1626	1524					3008	1346		3223	
Peak-hour factor, PHF	0.90	0.25	0.93	0.92	0.92	0.92	0.92	0.84	0.77	0.92	0.91	0.92
Adj. Flow (vph)	136	4	44	0	0	0	0	213	609	0	351	0
RTOR Reduction (vph)	0	0	31	0	0	0	0	0	290	0	0	0
Lane Group Flow (vph)	69	71	13	0	0	0	0	213	319	0	351	0
Heavy Vehicles (%)	6%	6%	6%	2%	2%	2%	20%	20%	20%	12%	12%	12%
Turn Type	Prot	NA	Perm					NA	Perm		NA	
Protected Phases	7	4						2			6	
Permitted Phases			4						2			
Actuated Green, G (s)	13.8	13.8	13.8					25.0	25.0		25.0	
Effective Green, g (s)	13.8	13.8	13.8					25.0	25.0		25.0	
Actuated g/C Ratio	0.29	0.29	0.29					0.52	0.52		0.52	
Clearance Time (s)	4.5	4.5	4.5					4.5	4.5		4.5	
Vehicle Extension (s)	3.0	3.0	3.0					3.0	3.0		3.0	
Lane Grp Cap (vph)	467	469	439					1573	703		1685	
v/s Ratio Prot	0.04	c0.04						0.07			0.11	
v/s Ratio Perm			0.01						c0.24			
v/c Ratio	0.15	0.15	0.03					0.14	0.45		0.21	
Uniform Delay, d1	12.6	12.6	12.2					5.9	7.1		6.1	
Progression Factor	1.00	1.00	1.00					1.00	1.00		1.00	
Incremental Delay, d2	0.1	0.2	0.0					0.0	0.5		0.1	
Delay (s)	12.8	12.8	12.2					5.9	7.6		6.2	
Level of Service	B	B	B					A	A		A	
Approach Delay (s)		12.7			0.0			7.2			6.2	
Approach LOS		B			A			A			A	

Intersection Summary			
HCM 2000 Control Delay	7.6	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.35		
Actuated Cycle Length (s)	47.8	Sum of lost time (s)	9.0
Intersection Capacity Utilization	41.5%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Intersection	
Intersection Delay, s/veh	8.1
Intersection LOS	A

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↰	↱	↑↱		↰	↑↑
Traffic Vol, veh/h	20	15	156	37	19	110
Future Vol, veh/h	20	15	156	37	19	110
Peak Hour Factor	0.63	0.75	0.83	0.93	0.56	0.89
Heavy Vehicles, %	0	0	1	1	1	1
Mvmt Flow	32	20	188	40	34	124
Number of Lanes	1	1	2	0	1	2

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	3	2
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	2	0	2
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	3	2	0
HCM Control Delay	8.5	8.4	7.6
HCM LOS	A	A	A

Lane	NBLn1	NBLn2	WBLn1	WBLn2	SBLn1	SBLn2	SBLn3
Vol Left, %	0%	0%	100%	0%	100%	0%	0%
Vol Thru, %	100%	58%	0%	0%	0%	100%	100%
Vol Right, %	0%	42%	0%	100%	0%	0%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	104	89	20	15	19	55	55
LT Vol	0	0	20	0	19	0	0
Through Vol	104	52	0	0	0	55	55
RT Vol	0	37	0	15	0	0	0
Lane Flow Rate	125	102	32	20	34	62	62
Geometry Grp	8	8	8	8	8	8	8
Degree of Util (X)	0.172	0.133	0.052	0.026	0.053	0.088	0.058
Departure Headway (Hd)	4.956	4.664	5.931	4.73	5.616	5.115	3.392
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	725	770	604	757	640	702	1057
Service Time	2.675	2.383	3.661	2.46	3.334	2.833	1.11
HCM Lane V/C Ratio	0.172	0.132	0.053	0.026	0.053	0.088	0.059
HCM Control Delay	8.7	8.1	9	7.6	8.6	8.3	6.3
HCM Lane LOS	A	A	A	A	A	A	A
HCM 95th-tile Q	0.6	0.5	0.2	0.1	0.2	0.3	0.2

Intersection	
Intersection Delay, s/veh	9
Intersection LOS	A

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↰	↱	↑↱		↰	↑↑
Traffic Vol, veh/h	27	50	229	89	46	104
Future Vol, veh/h	27	50	229	89	46	104
Peak Hour Factor	0.61	0.96	0.95	0.75	0.77	0.80
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	44	52	241	119	60	130
Number of Lanes	1	1	2	0	1	2

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	3	2
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	2	0	2
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	3	2	0
HCM Control Delay	9	9.4	8.4
HCM LOS	A	A	A

Lane	NBLn1	NBLn2	WBLn1	WBLn2	SBLn1	SBLn2	SBLn3
Vol Left, %	0%	0%	100%	0%	100%	0%	0%
Vol Thru, %	100%	46%	0%	0%	0%	100%	100%
Vol Right, %	0%	54%	0%	100%	0%	0%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	153	165	27	50	46	52	52
LT Vol	0	0	27	0	46	0	0
Through Vol	153	76	0	0	0	52	52
RT Vol	0	89	0	50	0	0	0
Lane Flow Rate	161	199	44	52	60	65	65
Geometry Grp	8	8	8	8	8	8	8
Degree of Util (X)	0.232	0.267	0.078	0.075	0.1	0.1	0.068
Departure Headway (Hd)	5.2	4.821	6.376	5.174	6.023	5.52	3.777
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	688	742	559	688	593	647	941
Service Time	2.948	2.569	4.144	2.942	3.777	3.274	1.53
HCM Lane V/C Ratio	0.234	0.268	0.079	0.076	0.101	0.1	0.069
HCM Control Delay	9.5	9.3	9.7	8.4	9.5	8.9	6.8
HCM Lane LOS	A	A	A	A	A	A	A
HCM 95th-tile Q	0.9	1.1	0.3	0.2	0.3	0.3	0.2

	↗	↘	↖	↑	↓	↙
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations				↑↑	↑↑	
Traffic Volume (veh/h)	0	0	0	669	470	0
Future Volume (veh/h)	0	0	0	669	470	0
Number			5	2	6	16
Initial Q (Qb), veh			0	0	0	0
Ped-Bike Adj(A_pbT)			1.00			1.00
Parking Bus, Adj			1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln			0	1810	1810	0
Adj Flow Rate, veh/h			0	727	511	0
Adj No. of Lanes			0	2	2	0
Peak Hour Factor			0.92	0.92	0.92	0.92
Percent Heavy Veh, %			0	5	5	0
Cap, veh/h			0	2750	2750	0
Arrive On Green			0.00	0.80	0.80	0.00
Sat Flow, veh/h			0	3619	3619	0
Grp Volume(v), veh/h			0	727	511	0
Grp Sat Flow(s),veh/h/ln			0	1719	1719	0
Q Serve(g_s), s			0.0	1.2	0.8	0.0
Cycle Q Clear(g_c), s			0.0	1.2	0.8	0.0
Prop In Lane			0.00			0.00
Lane Grp Cap(c), veh/h			0	2750	2750	0
V/C Ratio(X)			0.00	0.26	0.19	0.00
Avail Cap(c_a), veh/h			0	2750	2750	0
HCM Platoon Ratio			1.00	1.00	1.00	1.00
Upstream Filter(I)			0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh			0.0	0.6	0.5	0.0
Incr Delay (d2), s/veh			0.0	0.2	0.1	0.0
Initial Q Delay(d3),s/veh			0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln			0.0	0.6	0.4	0.0
LnGrp Delay(d),s/veh			0.0	0.8	0.7	0.0
LnGrp LOS				A	A	
Approach Vol, veh/h				727	511	
Approach Delay, s/veh				0.8	0.7	
Approach LOS				A	A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2				6		
Phs Duration (G+Y+Rc), s		22.5				22.5		
Change Period (Y+Rc), s		4.5				4.5		
Max Green Setting (Gmax), s		18.0				18.0		
Max Q Clear Time (g_c+I1), s		3.2				2.8		
Green Ext Time (p_c), s		4.4				3.0		

Intersection Summary	
HCM 2010 Ctrl Delay	0.8
HCM 2010 LOS	A

	↙	↖	↑	↗	↘	↓
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↰	↱	↑↑	↱	↰	↑↑
Traffic Volume (veh/h)	14	47	610	37	63	456
Future Volume (veh/h)	14	47	610	37	63	456
Number	3	18	2	12	1	6
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1810	1810	1810	1810
Adj Flow Rate, veh/h	20	69	678	48	69	496
Adj No. of Lanes	1	1	2	1	1	2
Peak Hour Factor	0.70	0.68	0.90	0.77	0.91	0.92
Percent Heavy Veh, %	3	3	5	5	5	5
Cap, veh/h	123	110	1375	615	101	2040
Arrive On Green	0.07	0.07	0.40	0.40	0.06	0.59
Sat Flow, veh/h	1757	1568	3529	1538	1723	3529
Grp Volume(v), veh/h	20	69	678	48	69	496
Grp Sat Flow(s),veh/h/ln	1757	1568	1719	1538	1723	1719
Q Serve(g_s), s	0.3	1.3	4.4	0.6	1.2	2.0
Cycle Q Clear(g_c), s	0.3	1.3	4.4	0.6	1.2	2.0
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	123	110	1375	615	101	2040
V/C Ratio(X)	0.16	0.63	0.49	0.08	0.68	0.24
Avail Cap(c_a), veh/h	1627	1452	4573	2046	1161	4573
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	13.0	13.4	6.7	5.5	13.7	2.9
Incr Delay (d2), s/veh	0.6	5.8	0.3	0.1	3.1	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.7	2.1	0.2	0.6	0.9
LnGrp Delay(d),s/veh	13.6	19.2	6.9	5.6	16.8	2.9
LnGrp LOS	B	B	A	A	B	A
Approach Vol, veh/h	89		726			565
Approach Delay, s/veh	18.0		6.8			4.6
Approach LOS	B		A			A

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	5.7	17.4				23.1		6.6
Change Period (Y+Rc), s	4.0	5.5				5.5		4.5
Max Green Setting (Gmax), s	20.0	39.5				39.5		27.5
Max Q Clear Time (g_c+I1), s	3.2	6.4				4.0		3.3
Green Ext Time (p_c), s	0.1	5.5				3.7		0.2

Intersection Summary	
HCM 2010 Ctrl Delay	6.6
HCM 2010 LOS	A

HCM 2010 Signalized Intersection Summary
23: Mountain House Pkwy & Grand Ave

	↗	↘	↖	↑	↓	↙
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↰	↱		↑↑	↑↱	
Traffic Volume (veh/h)	70	49	106	439	356	19
Future Volume (veh/h)	70	49	106	439	356	19
Number	7	14	5	2	6	16
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1583	1583	1900	1727	1759	1900
Adj Flow Rate, veh/h	80	52	116	505	391	24
Adj No. of Lanes	1	1	0	2	2	0
Peak Hour Factor	0.88	0.94	0.91	0.87	0.91	0.79
Percent Heavy Veh, %	20	20	10	10	8	8
Cap, veh/h	220	0	0	1636	1595	98
Arrive On Green	0.15	0.15	0.00	0.50	0.50	0.50
Sat Flow, veh/h	1508	1346	0	3368	3288	196
Grp Volume(v), veh/h	80	52	0	505	204	211
Grp Sat Flow(s),veh/h/ln	1508	1346	0	1641	1671	1725
Q Serve(g_s), s	1.4	4.4	0.0	2.7	2.1	2.1
Cycle Q Clear(g_c), s	1.4	4.4	0.0	2.7	2.1	2.1
Prop In Lane	1.00	1.00	0.00			0.11
Lane Grp Cap(c), veh/h	220	-5	0	1636	833	860
V/C Ratio(X)	0.36	-10.31	0.00	0.31	0.24	0.25
Avail Cap(c_a), veh/h	1268	930	0	3709	1889	1949
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	11.6	0.0	0.0	4.5	4.3	4.3
Incr Delay (d2), s/veh	0.4	0.0	0.0	0.1	0.1	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	1.6	0.0	1.2	1.0	1.0
LnGrp Delay(d),s/veh	12.0	0.0	0.0	4.5	4.4	4.4
LnGrp LOS	B			A	A	A
Approach Vol, veh/h	132			505	415	
Approach Delay, s/veh	7.3			4.5	4.4	
Approach LOS	A			A	A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		21.0		9.1	0.0	21.0		
Change Period (Y+Rc), s		6.0		* 4.7	4.5	6.0		
Max Green Setting (Gmax), s		34.0		* 25	25.5	34.0		
Max Q Clear Time (g_c+I1), s		4.7		6.4	0.0	4.1		
Green Ext Time (p_c), s		2.7		0.2	0.0	1.9		

Intersection Summary				
HCM 2010 Ctrl Delay			4.8	
HCM 2010 LOS			A	

Notes

Peak Hour Signal Warrant Analysis

Intersection: Central Parkway (major) & Main Street (minor)
Scenario: Existing Plus Project Conditions

WARRANT 3 – PEAK HOURS

PART A or PART B SATISFIED? **No**

Part A

(Criteria 1, 2 and 3, below, must all be satisfied)

	AM Satisfied?	**PM Satisfied?**
	No	No

Part A Criteria	AM Satisfied?	PM Satisfied?
1. The total delay experienced for traffic on one minor street approach controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach and five vehicle-hours for a two-lane approach; AND	No	No
2. The volume on the same minor street approach equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND	Yes	Yes
3. The total entering volume services during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 for intersections with three approaches.	No	No

Part B

	AM Satisfied?	**PM Satisfied?**
	No	**No**

Approach Lanes	AM Peak Hour Volume	PM Peak Hour Volume
Both Approaches – Major Street	233	313
Highest Approach – Minor Street	123	142

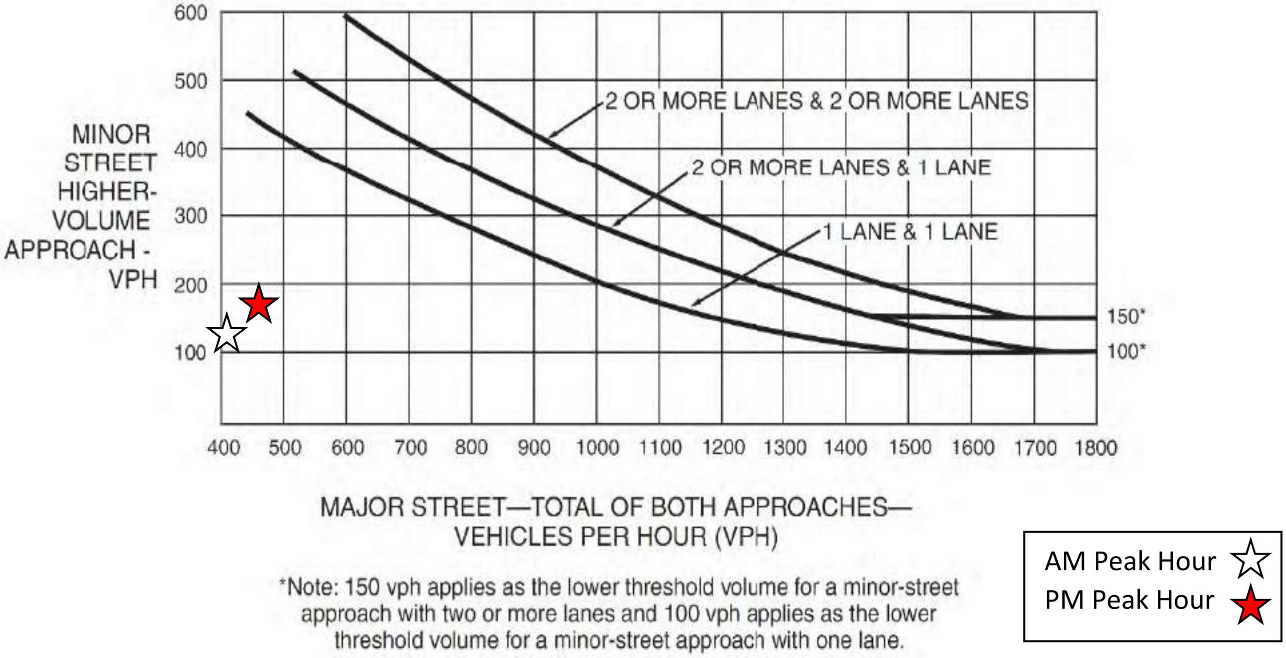
Source:

Note: The plotted points for vehicles per hour on major street (both approaches) and corresponding per hour higher vehicle volume minor street approach (one direction only) for one hour (any consecutive 15-minute intervals) must fall above the applicable curve in MUTCD Figure 4C-4 for a traffic signal to be warranted.

Intersection: Great Valley Parkway (major) & Kelso Road/Questa Trail (minor)

Scenario: Existing Conditions

Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

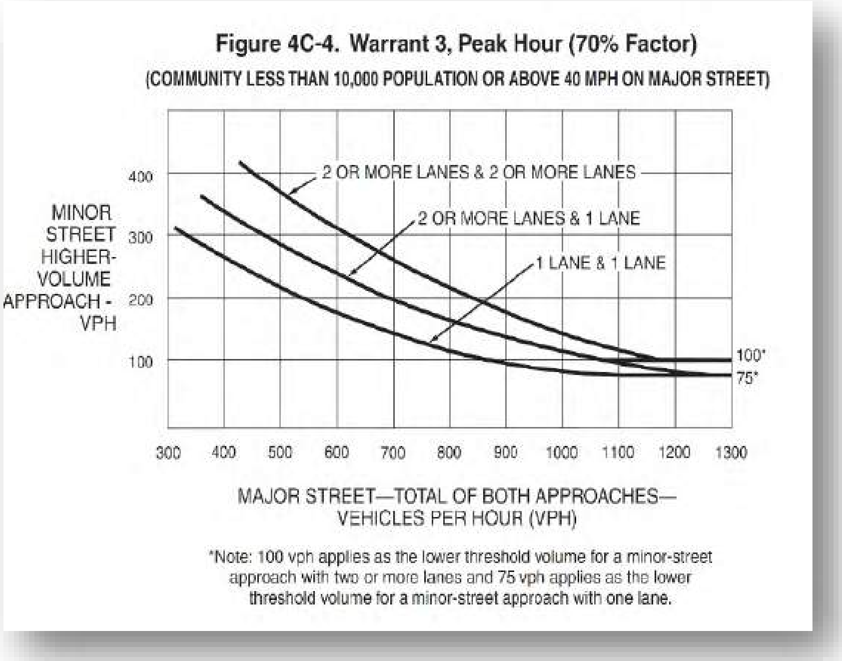


Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)

*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Peak Hour Signal Warrant Analysis

Intersection: **Great Valley Parkway (major) & Kelso Road/Questa Trail (minor)**
Scenario: **Existing Plus Project Conditions**

WARRANT 3 – PEAK HOURS

PART A or PART B SATISFIED? **No**

	AM Satisfied?	PM Satisfied?
Part A (Criteria 1, 2 and 3, below, must all be satisfied)	No	No

Part A Criteria	AM Satisfied?	PM Satisfied?
1. The total delay experienced for traffic on one minor street approach controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach and five vehicle-hours for a two-lane approach; AND	No	No
2. The volume on the same minor street approach equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND	Yes	Yes
3. The total entering volume services during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 for intersections with three approaches.	No	No

	AM Satisfied?	PM Satisfied?
Part B	No	**No**

Approach Lanes	AM Peak Hour Volume	PM Peak Hour Volume
Both Approaches – Major Street	530	407
Highest Approach – Minor Street	155	123

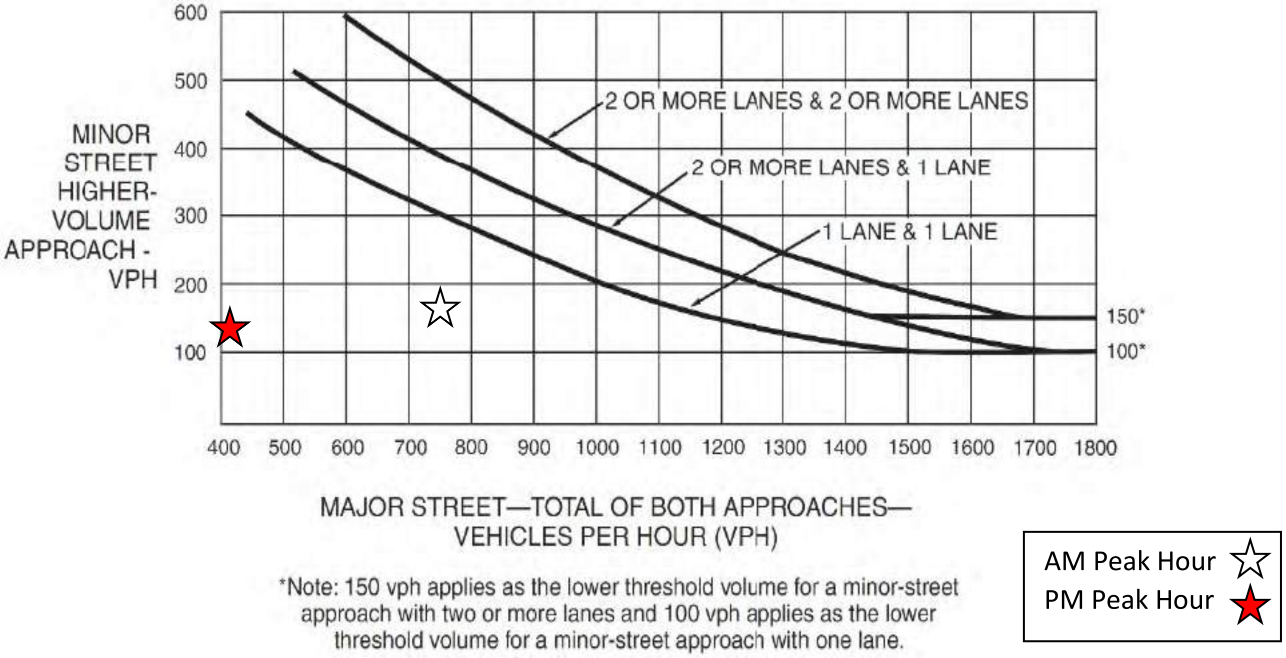
Source:

Note: The plotted points for vehicles per hour on major street (both approaches) and corresponding per hour higher vehicle volume minor street approach (one direction only) for one hour (any consecutive 15-minute intervals) must fall above the applicable curve in MUTCD Figure 4C-4 for a traffic signal to be warranted.

Intersection: Great Valley Parkway (major) & Kelso Road/Questa Trail (minor)

Scenario: Existing Conditions

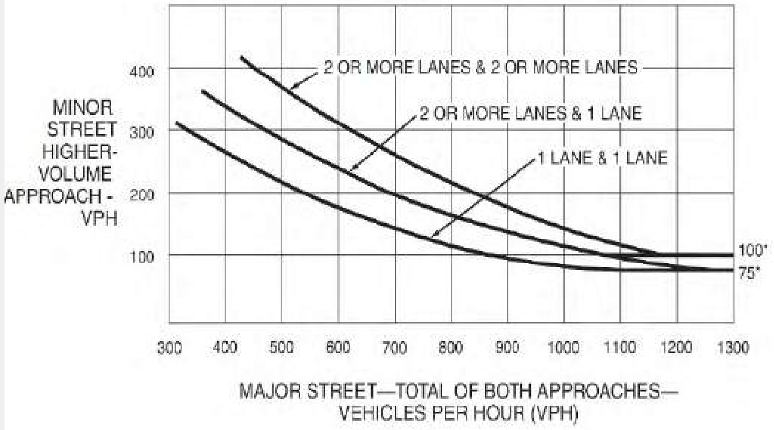
Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Appendix D INTERSECTION ANALYSIS: CUMULATIVE NO PROJECT CONDITIONS LOS CALCULATION SHEETS

HCM 6th Signalized Intersection Summary

1: Great Valley Pkwy & Byron Rd

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑↑	↱	↰↰	↑↑	↱	↰	↑↱		↰	↑↱	
Traffic Volume (veh/h)	284	304	357	113	253	67	322	88	72	134	360	176
Future Volume (veh/h)	284	304	357	113	253	67	322	88	72	134	360	176
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1707	1707	1722	1722	1870	1856	1870	1856	1870	1870	1870
Adj Flow Rate, veh/h	309	353	476	131	305	73	454	96	100	146	391	191
Peak Hour Factor	0.92	0.86	0.75	0.86	0.83	0.92	0.71	0.92	0.72	0.92	0.92	0.92
Percent Heavy Veh, %	2	13	13	12	12	2	3	2	3	2	2	2
Cap, veh/h	336	768	746	304	398	350	493	693	619	177	479	231
Arrive On Green	0.19	0.24	0.24	0.10	0.12	0.12	0.28	0.39	0.39	0.10	0.21	0.21
Sat Flow, veh/h	1781	3244	1447	3182	3272	1585	1767	1777	1585	1781	2325	1121
Grp Volume(v), veh/h	309	353	476	131	305	73	454	96	100	146	298	284
Grp Sat Flow(s),veh/h/ln	1781	1622	1447	1591	1636	1585	1767	1777	1585	1781	1777	1669
Q Serve(g_s), s	19.3	10.6	7.3	4.4	10.2	2.4	28.3	3.9	4.7	9.1	18.1	18.5
Cycle Q Clear(g_c), s	19.3	10.6	7.3	4.4	10.2	2.4	28.3	3.9	4.7	9.1	18.1	18.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.67
Lane Grp Cap(c), veh/h	336	768	746	304	398	350	493	693	619	177	366	344
V/C Ratio(X)	0.92	0.46	0.64	0.43	0.77	0.21	0.92	0.14	0.16	0.83	0.81	0.83
Avail Cap(c_a), veh/h	346	1059	876	309	751	521	770	950	847	333	508	477
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	45.1	37.0	6.8	48.4	48.2	14.8	39.6	22.3	22.5	50.1	42.9	43.1
Incr Delay (d2), s/veh	28.6	0.4	1.2	1.0	3.1	0.3	11.5	0.1	0.1	9.3	6.9	8.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	10.7	4.0	3.0	1.7	4.1	1.0	13.5	1.7	1.7	4.5	8.6	8.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	73.7	37.5	8.0	49.3	51.3	15.1	51.1	22.4	22.6	59.4	49.8	51.3
LnGrp LOS	E	D	A	D	D	B	D	C	C	E	D	D
Approach Vol, veh/h		1138			509			650			728	
Approach Delay, s/veh		35.0			45.6			42.5			52.3	
Approach LOS		C			D			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	15.8	49.3	14.8	33.3	36.7	28.5	27.9	20.3
Change Period (Y+Rc), s	4.6	5.1	4.0	6.5	5.1	* 5.1	6.5	* 6.5
Max Green Setting (Gmax), s	21.2	60.6	11.0	37.0	49.4	* 32	22.0	* 26
Max Q Clear Time (g_c+I1), s	11.1	6.7	6.4	12.6	30.3	20.5	21.3	12.2
Green Ext Time (p_c), s	0.2	1.2	0.1	3.8	1.4	2.9	0.1	1.6

Intersection Summary	
HCM 6th Ctrl Delay	42.6
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 2010 Signalized Intersection Summary
2: Mountain House Pkwy & Byron Rd

Cumulative No Project
AM Peak

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰↰	↑↑	↱↱	↰↰	↑↑	↱	↰	↑↑	↱↱	↰	↑↑	↱
Traffic Volume (veh/h)	246	206	112	390	379	193	120	247	324	369	75	60
Future Volume (veh/h)	246	206	112	390	379	193	120	247	324	369	75	60
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1696	1696	1696	1696	1863	1759	1863	1759	1863	1863	1863
Adj Flow Rate, veh/h	267	245	124	574	399	210	162	268	400	401	82	65
Adj No. of Lanes	2	2	2	2	2	1	1	2	2	1	2	1
Peak Hour Factor	0.92	0.84	0.90	0.68	0.95	0.92	0.74	0.92	0.81	0.92	0.92	0.92
Percent Heavy Veh, %	2	12	12	12	12	2	8	2	8	2	2	2
Cap, veh/h	363	505	398	683	867	426	193	598	1018	434	1055	639
Arrive On Green	0.11	0.16	0.16	0.22	0.27	0.27	0.12	0.17	0.17	0.24	0.30	0.30
Sat Flow, veh/h	3442	3223	2538	3134	3223	1583	1675	3539	2632	1774	3539	1583
Grp Volume(v), veh/h	267	245	124	574	399	210	162	268	400	401	82	65
Grp Sat Flow(s),veh/h/ln	1721	1612	1269	1567	1612	1583	1675	1770	1316	1774	1770	1583
Q Serve(g_s), s	7.2	6.6	4.1	16.8	9.9	10.7	9.1	6.5	10.5	21.1	1.6	2.4
Cycle Q Clear(g_c), s	7.2	6.6	4.1	16.8	9.9	10.7	9.1	6.5	10.5	21.1	1.6	2.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	363	505	398	683	867	426	193	598	1018	434	1055	639
V/C Ratio(X)	0.74	0.49	0.31	0.84	0.46	0.49	0.84	0.45	0.39	0.93	0.08	0.10
Avail Cap(c_a), veh/h	1456	1313	1034	1326	1313	645	534	1098	1390	565	1098	658
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	41.5	36.8	35.8	35.8	29.2	29.5	41.5	35.8	21.2	35.3	24.1	17.7
Incr Delay (d2), s/veh	2.9	0.9	0.5	2.9	0.5	1.1	3.7	0.6	0.3	16.1	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.6	3.0	1.5	7.5	4.4	4.8	4.4	3.3	3.9	12.3	0.8	1.1
LnGrp Delay(d),s/veh	44.4	37.7	36.3	38.7	29.6	30.6	45.2	36.4	21.5	51.4	24.2	17.8
LnGrp LOS	D	D	D	D	C	C	D	D	C	D	C	B
Approach Vol, veh/h		636			1183			830			548	
Approach Delay, s/veh		40.3			34.2			30.9			43.4	
Approach LOS		D			C			C			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	14.6	31.8	27.9	21.5	25.4	21.0	15.5	33.8
Change Period (Y+Rc), s	4.5	6.0	4.5	5.3	4.5	6.0	4.5	5.3
Max Green Setting (Gmax), s	40.5	39.0	30.5	29.7	40.5	39.0	30.5	29.7
Max Q Clear Time (g_c+I1), s	9.2	12.7	23.1	12.5	18.8	8.6	11.1	4.4
Green Ext Time (p_c), s	0.9	4.0	0.3	3.7	2.1	2.5	0.1	0.8

Intersection Summary	
HCM 2010 Ctrl Delay	36.1
HCM 2010 LOS	D

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↰↰	↱	↰	↑↑	↑↑	↱
Traffic Volume (veh/h)	158	266	256	441	364	91
Future Volume (veh/h)	158	266	256	441	364	91
Number	7	14	5	2	6	16
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1727	1727	1863
Adj Flow Rate, veh/h	172	289	278	479	396	99
Adj No. of Lanes	2	1	1	2	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	10	10	2
Cap, veh/h	821	378	348	1823	956	461
Arrive On Green	0.24	0.24	0.20	0.56	0.29	0.29
Sat Flow, veh/h	3442	1583	1774	3368	3368	1583
Grp Volume(v), veh/h	172	289	278	479	396	99
Grp Sat Flow(s),veh/h/ln	1721	1583	1774	1641	1641	1583
Q Serve(g_s), s	2.1	8.8	7.7	3.9	5.0	2.4
Cycle Q Clear(g_c), s	2.1	8.8	7.7	3.9	5.0	2.4
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	821	378	348	1823	956	461
V/C Ratio(X)	0.21	0.77	0.80	0.26	0.41	0.21
Avail Cap(c_a), veh/h	2032	935	741	2167	2167	1045
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	15.7	18.3	19.7	6.0	14.7	13.8
Incr Delay (d2), s/veh	0.1	3.3	4.2	0.1	0.2	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	7.6	4.1	1.7	2.3	1.1
LnGrp Delay(d),s/veh	15.8	21.5	23.9	6.0	14.9	14.0
LnGrp LOS	B	C	C	A	B	B
Approach Vol, veh/h	461			757	495	
Approach Delay, s/veh	19.4			12.6	14.7	
Approach LOS	B			B	B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		34.6		16.9	13.6	21.0		
Change Period (Y+Rc), s		6.0		4.6	3.5	6.0		
Max Green Setting (Gmax), s		34.0		30.4	21.5	34.0		
Max Q Clear Time (g_c+I1), s		5.9		10.8	9.7	7.0		
Green Ext Time (p_c), s		2.6		1.5	0.6	2.3		

Intersection Summary			
HCM 2010 Ctrl Delay			15.0
HCM 2010 LOS			B

HCM 2010 Signalized Intersection Summary
4: Mountain House Pkwy & Arnaudo Blvd

	↗	↘	↖	↑	↓	↙
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↰	↱	↰	↑↑	↑↑	↱
Traffic Volume (veh/h)	203	112	164	494	519	111
Future Volume (veh/h)	203	112	164	494	519	111
Number	7	14	5	2	6	16
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1792	1792	1743	1743
Adj Flow Rate, veh/h	286	153	219	610	590	161
Adj No. of Lanes	1	1	1	2	2	1
Peak Hour Factor	0.71	0.73	0.75	0.81	0.88	0.69
Percent Heavy Veh, %	3	3	6	6	9	9
Cap, veh/h	378	337	277	1936	1027	460
Arrive On Green	0.22	0.22	0.16	0.57	0.31	0.31
Sat Flow, veh/h	1757	1568	1707	3495	3399	1482
Grp Volume(v), veh/h	286	153	219	610	590	161
Grp Sat Flow(s),veh/h/ln	1757	1568	1707	1703	1656	1482
Q Serve(g_s), s	6.3	3.5	5.1	3.9	6.2	3.5
Cycle Q Clear(g_c), s	6.3	3.5	5.1	3.9	6.2	3.5
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	378	337	277	1936	1027	460
V/C Ratio(X)	0.76	0.45	0.79	0.32	0.57	0.35
Avail Cap(c_a), veh/h	1182	1055	657	3274	3184	1425
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	15.3	14.2	16.8	4.7	12.0	11.1
Incr Delay (d2), s/veh	1.2	0.4	1.9	0.1	0.5	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.1	3.2	2.5	1.8	2.9	1.5
LnGrp Delay(d),s/veh	16.5	14.6	18.7	4.8	12.6	11.6
LnGrp LOS	B	B	B	A	B	B
Approach Vol, veh/h	439			829	751	
Approach Delay, s/veh	15.8			8.5	12.3	
Approach LOS	B			A	B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		28.7		13.0	10.7	17.9		
Change Period (Y+Rc), s		5.0		4.0	4.0	5.0		
Max Green Setting (Gmax), s		40.0		28.0	16.0	40.0		
Max Q Clear Time (g_c+I1), s		5.9		8.3	7.1	8.2		
Green Ext Time (p_c), s		4.3		0.7	0.2	4.7		

Intersection Summary		
HCM 2010 Ctrl Delay		11.5
HCM 2010 LOS		B

Intersection	
Int Delay, s/veh	1.6

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↱	↰	↑↑	↑↑	↱
Traffic Vol, veh/h	0	44	112	586	482	30
Future Vol, veh/h	0	44	112	586	482	30
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	130	-	-	90
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	66	66	65	92	88	58
Heavy Vehicles, %	2	2	5	5	8	8
Mvmt Flow	0	67	172	637	548	52

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	274	600	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	4.2	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	2.25	-	-	-
Pot Cap-1 Maneuver	0	724	953	-	-	-
Stage 1	0	-	-	-	-	-
Stage 2	0	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	724	953	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB		NB		SB
HCM Control Delay, s	10.5		2		0
HCM LOS	B				

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	953	-	724	-	-
HCM Lane V/C Ratio	0.181	-	0.092	-	-
HCM Control Delay (s)	9.6	-	10.5	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q(veh)	0.7	-	0.3	-	-

	↗	↘	↖	↑	↓	↙
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↰	↱↱	↰↰	↑↑↑	↑↑	↱
Traffic Volume (veh/h)	67	605	366	692	533	36
Future Volume (veh/h)	67	605	366	692	533	36
Number	7	14	5	2	6	16
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1881	1881	1827	1827	1810	1810
Adj Flow Rate, veh/h	81	890	411	814	701	43
Adj No. of Lanes	1	2	2	3	2	1
Peak Hour Factor	0.83	0.68	0.89	0.85	0.76	0.83
Percent Heavy Veh, %	1	1	4	4	5	5
Cap, veh/h	367	1058	578	2891	1108	495
Arrive On Green	0.20	0.20	0.17	0.58	0.32	0.32
Sat Flow, veh/h	1792	2814	3375	5152	3529	1536
Grp Volume(v), veh/h	81	890	411	814	701	43
Grp Sat Flow(s),veh/h/ln	1792	1407	1688	1663	1719	1536
Q Serve(g_s), s	1.7	9.5	5.3	3.8	8.1	0.9
Cycle Q Clear(g_c), s	1.7	9.5	5.3	3.8	8.1	0.9
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	367	1058	578	2891	1108	495
V/C Ratio(X)	0.22	0.84	0.71	0.28	0.63	0.09
Avail Cap(c_a), veh/h	367	1058	1455	6127	2445	1092
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	15.4	13.2	18.1	4.9	13.4	11.0
Incr Delay (d2), s/veh	0.1	5.9	0.6	0.1	0.6	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	10.1	2.5	1.7	3.9	0.4
LnGrp Delay(d),s/veh	15.5	19.1	18.8	4.9	14.0	11.0
LnGrp LOS	B	B	B	A	B	B
Approach Vol, veh/h	971			1225	744	
Approach Delay, s/veh	18.8			9.6	13.8	
Approach LOS	B			A	B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		32.4		14.0	11.9	20.5		
Change Period (Y+Rc), s		5.5		4.5	4.0	5.5		
Max Green Setting (Gmax), s		57.0		9.5	20.0	33.0		
Max Q Clear Time (g_c+I1), s		5.8		11.5	7.3	10.1		
Green Ext Time (p_c), s		6.3		0.0	0.6	4.8		

Intersection Summary			
HCM 2010 Ctrl Delay			13.7
HCM 2010 LOS			B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑↑	↱	↰↰	↑↑	↱	↰↰	↑↑↑	↱	↰↰	↑↑↑	↱
Traffic Volume (vph)	7	424	370	228	403	170	340	1020	133	430	1083	16
Future Volume (vph)	7	424	370	228	403	170	340	1020	133	430	1083	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.7	5.3	4.1	3.7	5.3	5.3	4.1	6.0	6.0	4.1	6.0	6.0
Lane Util. Factor	1.00	0.95	1.00	0.97	0.95	1.00	0.97	0.91	1.00	0.97	0.91	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)	1703	3406	1583	3467	3574	1599	3335	4940	1538	3367	4988	1553
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)	1703	3406	1583	3467	3574	1599	3335	4940	1538	3367	4988	1553
Peak-hour factor, PHF	0.44	0.72	0.76	0.42	0.84	0.55	0.79	0.86	0.50	0.52	0.85	0.96
Adj. Flow (vph)	16	589	487	543	480	309	430	1186	266	827	1274	17
RTOR Reduction (vph)	0	0	96	0	0	59	0	0	195	0	0	12
Lane Group Flow (vph)	16	589	391	543	480	250	430	1186	71	827	1274	5
Heavy Vehicles (%)	6%	6%	2%	1%	1%	1%	5%	5%	5%	4%	4%	4%
Turn Type	Prot	NA	pm+ov	Prot	NA	pt+ov	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4	5	3	8	8 1	5	2		1	6	
Permitted Phases			4						2			6
Actuated Green, G (s)	2.5	21.4	44.5	17.3	36.2	63.1	23.1	31.0	31.0	26.9	34.8	34.8
Effective Green, g (s)	2.5	21.4	44.5	17.3	36.2	63.1	23.1	31.0	31.0	26.9	34.8	34.8
Actuated g/C Ratio	0.02	0.18	0.38	0.15	0.31	0.55	0.20	0.27	0.27	0.23	0.30	0.30
Clearance Time (s)	3.7	5.3	4.1	3.7	5.3		4.1	6.0	6.0	4.1	6.0	6.0
Vehicle Extension (s)	1.0	1.6	1.0	1.0	1.6		1.0	1.6	1.6	1.0	1.6	1.6
Lane Grp Cap (vph)	36	629	608	518	1118	872	665	1323	412	782	1500	467
v/s Ratio Prot	0.01	c0.17	0.13	c0.16	0.13	0.16	0.13	0.24		c0.25	c0.26	
v/s Ratio Perm			0.12						0.05			0.00
v/c Ratio	0.44	0.94	0.64	1.05	0.43	0.29	0.65	0.90	0.17	1.06	0.85	0.01
Uniform Delay, d1	55.9	46.5	29.1	49.2	31.6	14.2	42.5	40.8	32.5	44.4	38.0	28.4
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	3.2	21.2	1.8	52.8	0.1	0.1	1.6	8.1	0.1	48.5	4.5	0.0
Delay (s)	59.1	67.6	30.9	102.0	31.6	14.2	44.2	48.9	32.6	92.9	42.5	28.4
Level of Service	E	E	C	F	C	B	D	D	C	F	D	C
Approach Delay (s)		51.1			56.3			45.5			62.1	
Approach LOS		D			E			D			E	

Intersection Summary			
HCM 2000 Control Delay	54.1	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.99		
Actuated Cycle Length (s)	115.7	Sum of lost time (s)	19.1
Intersection Capacity Utilization	67.1%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

8: Grant Line Rd & De Anza Blvd

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑↑	↱	↰	↑↑	↱	↰	↑↑	↱	↰	↑↑	↱
Traffic Volume (veh/h)	50	846	300	239	372	181	5	143	21	373	22	79
Future Volume (veh/h)	50	846	300	239	372	181	5	143	21	373	22	79
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1792	1792	1863	1863	1792	1792	1863	1863	1863	1792	1863	1792
Adj Flow Rate, veh/h	106	1032	326	260	471	283	5	155	23	429	24	176
Adj No. of Lanes	1	2	1	1	2	1	1	2	1	1	2	1
Peak Hour Factor	0.47	0.82	0.92	0.92	0.79	0.64	0.92	0.92	0.92	0.87	0.92	0.45
Percent Heavy Veh, %	6	6	2	2	6	6	2	2	2	6	2	6
Cap, veh/h	137	1169	566	286	1445	1058	25	262	372	461	1169	503
Arrive On Green	0.08	0.34	0.34	0.16	0.42	0.42	0.01	0.07	0.07	0.27	0.33	0.33
Sat Flow, veh/h	1707	3406	1583	1774	3406	1524	1774	3539	1583	1707	3539	1524
Grp Volume(v), veh/h	106	1032	326	260	471	283	5	155	23	429	24	176
Grp Sat Flow(s),veh/h/ln	1707	1703	1583	1774	1703	1524	1774	1770	1583	1707	1770	1524
Q Serve(g_s), s	7.4	34.7	20.3	17.5	11.2	8.5	0.3	5.2	1.4	29.8	0.6	10.6
Cycle Q Clear(g_c), s	7.4	34.7	20.3	17.5	11.2	8.5	0.3	5.2	1.4	29.8	0.6	10.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	137	1169	566	286	1445	1058	25	262	372	461	1169	503
V/C Ratio(X)	0.78	0.88	0.58	0.91	0.33	0.27	0.20	0.59	0.06	0.93	0.02	0.35
Avail Cap(c_a), veh/h	236	1266	611	295	1445	1058	289	539	496	600	1206	519
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	54.8	37.6	31.6	50.1	23.4	7.0	59.2	54.5	36.1	43.2	27.4	30.8
Incr Delay (d2), s/veh	9.1	7.2	1.2	29.9	0.1	0.1	3.9	2.1	0.1	18.1	0.0	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.8	17.5	9.0	11.0	5.3	3.6	0.2	2.6	0.6	16.4	0.3	4.5
LnGrp Delay(d),s/veh	63.9	44.8	32.8	80.1	23.5	7.1	63.1	56.6	36.2	61.4	27.4	31.2
LnGrp LOS	E	D	C	F	C	A	E	E	D	E	C	C
Approach Vol, veh/h		1464			1014			183			629	
Approach Delay, s/veh		43.5			33.4			54.2			51.6	
Approach LOS		D			C			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	36.9	13.7	24.2	46.8	5.7	44.8	14.3	56.7
Change Period (Y+Rc), s	4.0	* 4.7	4.6	5.1	4.0	* 4.7	4.6	5.1
Max Green Setting (Gmax), s	42.7	* 19	20.2	45.2	19.8	* 41	16.8	48.6
Max Q Clear Time (g_c+I1), s	31.8	7.2	19.5	36.7	2.3	12.6	9.4	13.2
Green Ext Time (p_c), s	1.1	0.7	0.1	5.0	0.0	0.7	0.1	4.4

Intersection Summary	
HCM 2010 Ctrl Delay	42.6
HCM 2010 LOS	D

Notes

HCM 2010 Signalized Intersection Summary
9: Central Pkwy & Grant Line Rd

Cumulative No Project
AM Peak

	↗	→	↘	↙	←	↖	↖	↑	↗	↘	↓	↙
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰↰	↑↑	↱	↰↰	↑↑	↱	↰	↑↑	↱	↰	↑↑	↱
Traffic Volume (veh/h)	18	130	145	581	299	96	78	180	78	258	128	66
Future Volume (veh/h)	18	130	145	581	299	96	78	180	78	258	128	66
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1827	1827	1827	1792	1792	1792	1810	1810	1810	1827	1827	1827
Adj Flow Rate, veh/h	28	143	210	937	490	122	113	643	108	293	145	76
Adj No. of Lanes	2	2	1	2	2	1	1	2	1	1	2	1
Peak Hour Factor	0.64	0.91	0.69	0.62	0.61	0.79	0.69	0.28	0.72	0.88	0.88	0.87
Percent Heavy Veh, %	4	4	4	6	6	6	5	5	5	4	4	4
Cap, veh/h	696	1528	812	960	1499	958	143	746	333	328	1120	500
Arrive On Green	0.44	0.44	0.44	0.44	0.44	0.44	0.08	0.22	0.22	0.19	0.32	0.32
Sat Flow, veh/h	1534	3471	1553	1911	3406	1524	1723	3438	1534	1740	3471	1550
Grp Volume(v), veh/h	28	143	210	937	490	122	113	643	108	293	145	76
Grp Sat Flow(s),veh/h/ln	767	1736	1553	956	1703	1524	1723	1719	1534	1740	1736	1550
Q Serve(g_s), s	1.1	2.1	6.5	36.4	8.2	2.8	5.6	15.8	5.2	14.4	2.6	3.1
Cycle Q Clear(g_c), s	9.3	2.1	6.5	38.5	8.2	2.8	5.6	15.8	5.2	14.4	2.6	3.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	696	1528	812	960	1499	958	143	746	333	328	1120	500
V/C Ratio(X)	0.04	0.09	0.26	0.98	0.33	0.13	0.79	0.86	0.32	0.89	0.13	0.15
Avail Cap(c_a), veh/h	696	1528	812	960	1499	958	250	806	360	348	1120	500
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	19.0	14.3	11.5	28.3	16.0	6.6	39.4	33.0	28.8	34.6	20.9	21.1
Incr Delay (d2), s/veh	0.0	0.0	0.2	23.2	0.1	0.1	9.5	9.0	0.6	23.4	0.1	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	1.0	2.8	14.3	3.9	1.2	3.0	8.4	2.2	9.0	1.2	1.3
LnGrp Delay(d),s/veh	19.1	14.3	11.7	51.5	16.1	6.6	48.8	42.0	29.4	58.0	21.0	21.2
LnGrp LOS	B	B	B	D	B	A	D	D	C	E	C	C
Approach Vol, veh/h		381			1549			864			514	
Approach Delay, s/veh		13.2			36.8			41.3			42.1	
Approach LOS		B			D			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	21.0	23.5		43.0	11.7	32.7		43.0
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5
Max Green Setting (Gmax), s	17.5	20.5		38.5	12.7	25.3		38.5
Max Q Clear Time (g_c+I1), s	16.4	17.8		11.3	7.6	5.1		40.5
Green Ext Time (p_c), s	0.1	1.2		1.8	0.1	1.0		0.0

Intersection Summary			
HCM 2010 Ctrl Delay			36.1
HCM 2010 LOS			D

HCM Signalized Intersection Capacity Analysis
10: Grant Line Rd & Great Valley Pkwy

Cumulative No Project
AM Peak

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰↰	↑↱		↰	↑↑	↱		✥		↰	↰	↱
Traffic Volume (vph)	64	789	0	0	132	13	1	0	0	28	0	1189
Future Volume (vph)	64	789	0	0	132	13	1	0	0	28	0	1189
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.6			4.6	4.6		4.6		5.1	5.1	4.0
Lane Util. Factor	0.97	0.95			0.95	1.00		1.00		0.95	0.95	1.00
Frt	1.00	1.00			1.00	0.85		1.00		1.00	1.00	0.85
Flt Protected	0.95	1.00			1.00	1.00		0.95		0.95	0.95	1.00
Satd. Flow (prot)	3433	3539			3471	1553		1787		1681	1681	1583
Flt Permitted	0.95	1.00			1.00	1.00		0.95		0.95	0.95	1.00
Satd. Flow (perm)	3433	3539			3471	1553		1787		1681	1681	1583
Peak-hour factor, PHF	0.74	0.90	0.92	0.92	0.71	0.54	0.25	0.92	0.92	0.88	0.92	0.87
Adj. Flow (vph)	86	877	0	0	186	24	4	0	0	32	0	1367
RTOR Reduction (vph)	0	0	0	0	0	16	0	0	0	0	0	0
Lane Group Flow (vph)	86	877	0	0	186	8	0	4	0	16	16	1367
Heavy Vehicles (%)	2%	2%	2%	4%	4%	4%	1%	1%	1%	2%	2%	2%
Turn Type	Prot	NA		Prot	NA	Perm	Split	NA		Split	NA	Free
Protected Phases	3	8		7	4		5	5		6	6	
Permitted Phases						4						Free
Actuated Green, G (s)	5.9	26.6			16.7	16.7		4.0		6.1	6.1	51.0
Effective Green, g (s)	5.9	26.6			16.7	16.7		4.0		6.1	6.1	51.0
Actuated g/C Ratio	0.12	0.52			0.33	0.33		0.08		0.12	0.12	1.00
Clearance Time (s)	4.0	4.6			4.6	4.6		4.6		5.1	5.1	
Vehicle Extension (s)	3.0	3.0			3.0	3.0		3.0		3.0	3.0	
Lane Grp Cap (vph)	397	1845			1136	508		140		201	201	1583
v/s Ratio Prot	0.03	0.25			0.05			0.00		0.01	0.01	
v/s Ratio Perm						0.01						c0.86
v/c Ratio	0.22	0.48			0.16	0.02		0.03		0.08	0.08	0.86
Uniform Delay, d1	20.5	7.8			12.2	11.6		21.7		20.0	20.0	0.0
Progression Factor	1.00	1.00			1.00	1.00		1.00		1.00	1.00	1.00
Incremental Delay, d2	0.3	0.2			0.1	0.0		0.1		0.2	0.2	6.5
Delay (s)	20.7	8.0			12.3	11.6		21.8		20.1	20.1	6.5
Level of Service	C	A			B	B		C		C	C	A
Approach Delay (s)		9.1			12.2			21.8			6.8	
Approach LOS		A			B			C			A	

Intersection Summary			
HCM 2000 Control Delay	8.1	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	1.35		
Actuated Cycle Length (s)	51.0	Sum of lost time (s)	18.3
Intersection Capacity Utilization	38.8%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

	↗	→	↘	↙	←	↖	↖	↑	↗	↘	↓	↙
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑↱		↰	↑↱		↰	↑↱		↰	↑↱	
Traffic Volume (veh/h)	7	182	42	308	75	27	31	395	94	11	299	8
Future Volume (veh/h)	7	182	42	308	75	27	31	395	94	11	299	8
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1881	1881	1900	1863	1863	1900	1881	1881	1900
Adj Flow Rate, veh/h	12	319	66	616	160	48	62	541	174	16	399	12
Adj No. of Lanes	1	2	0	1	2	0	1	2	0	1	2	0
Peak Hour Factor	0.58	0.57	0.64	0.50	0.47	0.56	0.50	0.73	0.54	0.69	0.75	0.67
Percent Heavy Veh, %	2	2	2	1	1	1	2	2	2	1	1	1
Cap, veh/h	20	540	110	647	1460	424	80	671	215	26	809	24
Arrive On Green	0.01	0.19	0.19	0.36	0.53	0.53	0.04	0.25	0.25	0.01	0.23	0.23
Sat Flow, veh/h	1774	2921	596	1792	2729	793	1774	2634	844	1792	3543	106
Grp Volume(v), veh/h	12	192	193	616	103	105	62	363	352	16	201	210
Grp Sat Flow(s),veh/h/ln	1774	1770	1747	1792	1787	1735	1774	1770	1708	1792	1787	1862
Q Serve(g_s), s	0.6	9.4	9.7	31.9	2.7	2.9	3.3	18.3	18.5	0.8	9.3	9.4
Cycle Q Clear(g_c), s	0.6	9.4	9.7	31.9	2.7	2.9	3.3	18.3	18.5	0.8	9.3	9.4
Prop In Lane	1.00		0.34	1.00		0.46	1.00		0.49	1.00		0.06
Lane Grp Cap(c), veh/h	20	327	323	647	956	928	80	451	435	26	408	425
V/C Ratio(X)	0.59	0.58	0.60	0.95	0.11	0.11	0.78	0.81	0.81	0.62	0.49	0.49
Avail Cap(c_a), veh/h	91	557	550	712	1181	1147	128	557	538	92	525	547
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	46.9	35.5	35.6	29.6	10.9	11.0	45.0	33.3	33.4	46.7	32.0	32.0
Incr Delay (d2), s/veh	9.8	1.7	1.8	21.0	0.0	0.1	6.0	6.9	7.5	8.5	0.9	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	4.8	4.8	19.5	1.4	1.4	1.8	9.8	9.6	0.5	4.7	4.9
LnGrp Delay(d),s/veh	56.7	37.2	37.4	50.6	11.0	11.0	51.1	40.2	40.8	55.2	32.9	32.9
LnGrp LOS	E	D	D	D	B	B	D	D	D	E	C	C
Approach Vol, veh/h		397			824			777			427	
Approach Delay, s/veh		37.8			40.6			41.4			33.7	
Approach LOS		D			D			D			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	5.9	28.8	38.5	22.1	8.4	26.3	5.2	55.5
Change Period (Y+Rc), s	4.5	* 4.5	4.1	4.5	4.1	4.5	4.1	4.5
Max Green Setting (Gmax), s	4.9	* 30	37.9	30.0	6.9	28.0	4.9	63.0
Max Q Clear Time (g_c+I1), s	2.8	20.5	33.9	11.7	5.3	11.4	2.6	4.9
Green Ext Time (p_c), s	0.0	3.2	0.5	2.1	0.0	2.2	0.0	1.3

Intersection Summary	
HCM 2010 Ctrl Delay	39.2
HCM 2010 LOS	D

Notes

HCM 2010 Signalized Intersection Summary
12: Central Pkwy & Arnaudo Blvd

Cumulative No Project
AM Peak

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✥		↰	↑	↱	↰	↑↱		↰	↑↱	
Traffic Volume (veh/h)	5	14	11	211	10	110	4	371	21	184	695	3
Future Volume (veh/h)	5	14	11	211	10	110	4	371	21	184	695	3
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1900	1900	1863	1863	1863	1810	1810	1900	1863	1863	1900
Adj Flow Rate, veh/h	8	20	20	422	16	147	8	482	30	227	1311	12
Adj No. of Lanes	0	1	0	1	1	1	1	2	0	1	2	0
Peak Hour Factor	0.63	0.70	0.55	0.50	0.63	0.75	0.50	0.77	0.70	0.81	0.53	0.25
Percent Heavy Veh, %	0	0	0	2	2	2	5	5	5	2	2	2
Cap, veh/h	68	43	39	467	697	592	14	1003	62	270	1613	15
Arrive On Green	0.06	0.06	0.06	0.26	0.37	0.37	0.01	0.31	0.31	0.15	0.45	0.45
Sat Flow, veh/h	199	776	697	1774	1863	1583	1723	3288	204	1774	3593	33
Grp Volume(v), veh/h	48	0	0	422	16	147	8	251	261	227	646	677
Grp Sat Flow(s),veh/h/ln	1672	0	0	1774	1863	1583	1723	1719	1773	1774	1770	1856
Q Serve(g_s), s	0.9	0.0	0.0	17.0	0.4	4.7	0.3	8.8	8.9	9.2	23.4	23.4
Cycle Q Clear(g_c), s	2.0	0.0	0.0	17.0	0.4	4.7	0.3	8.8	8.9	9.2	23.4	23.4
Prop In Lane	0.17		0.42	1.00		1.00	1.00		0.12	1.00		0.02
Lane Grp Cap(c), veh/h	149	0	0	467	697	592	14	524	541	270	794	833
V/C Ratio(X)	0.32	0.00	0.00	0.90	0.02	0.25	0.57	0.48	0.48	0.84	0.81	0.81
Avail Cap(c_a), veh/h	699	0	0	669	730	620	370	945	975	381	973	1021
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	34.0	0.0	0.0	26.4	14.6	16.0	36.6	20.9	21.0	30.5	17.7	17.7
Incr Delay (d2), s/veh	0.5	0.0	0.0	9.5	0.0	0.1	12.5	0.7	0.7	8.2	4.4	4.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	0.0	0.0	9.6	0.2	2.1	0.2	4.3	4.4	5.1	12.3	12.8
LnGrp Delay(d),s/veh	34.4	0.0	0.0	35.8	14.6	16.1	49.1	21.6	21.6	38.7	22.1	21.9
LnGrp LOS	C			D	B	B	D	C	C	D	C	C
Approach Vol, veh/h		48			585			520			1550	
Approach Delay, s/veh		34.4			30.3			22.0			24.5	
Approach LOS		C			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6		8
Phs Duration (G+Y+Rc), s	15.3	26.9	23.6	8.2	4.7	37.5		31.8
Change Period (Y+Rc), s	4.1	* 4.3	4.1	4.1	4.1	* 4.3		4.1
Max Green Setting (Gmax), s	15.9	* 41	27.9	29.0	15.9	* 41		29.0
Max Q Clear Time (g_c+I1), s	11.2	10.9	19.0	4.0	2.3	25.4		6.7
Green Ext Time (p_c), s	0.1	3.1	0.5	0.1	0.0	7.8		0.3

Intersection Summary			
HCM 2010 Ctrl Delay			25.4
HCM 2010 LOS			C

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑	↱	↰	↑↱		↰	↑↱		↰	↑↱	
Traffic Volume (veh/h)	3	0	152	8	0	1	129	340	23	8	719	23
Future Volume (veh/h)	3	0	152	8	0	1	129	340	23	8	719	23
Number	3	8	18	7	4	14	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1881	1881	1881	1532	1532	1900	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	8	0	197	14	0	4	168	400	46	32	1123	92
Adj No. of Lanes	1	1	1	1	2	0	1	2	0	1	2	0
Peak Hour Factor	0.38	0.92	0.77	0.58	0.92	0.25	0.77	0.85	0.50	0.25	0.64	0.25
Percent Heavy Veh, %	1	1	1	24	24	24	2	2	2	2	2	2
Cap, veh/h	33	328	276	45	272	241	264	1410	161	120	1191	97
Arrive On Green	0.02	0.00	0.17	0.03	0.00	0.19	0.15	0.44	0.44	0.07	0.36	0.36
Sat Flow, veh/h	1792	1881	1582	1459	1456	1290	1774	3199	366	1774	3311	271
Grp Volume(v), veh/h	8	0	197	14	0	4	168	220	226	32	600	615
Grp Sat Flow(s),veh/h/ln	1792	1881	1582	1459	1456	1290	1774	1770	1795	1774	1770	1812
Q Serve(g_s), s	0.3	0.0	7.5	0.6	0.0	0.2	5.7	5.1	5.1	1.1	20.9	21.0
Cycle Q Clear(g_c), s	0.3	0.0	7.5	0.6	0.0	0.2	5.7	5.1	5.1	1.1	20.9	21.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.20	1.00		0.15
Lane Grp Cap(c), veh/h	33	328	276	45	272	241	264	780	791	120	637	652
V/C Ratio(X)	0.24	0.00	0.71	0.31	0.00	0.02	0.64	0.28	0.29	0.27	0.94	0.94
Avail Cap(c_a), veh/h	253	706	594	206	524	464	279	780	791	279	637	652
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	30.8	0.0	24.8	30.2	0.0	21.1	25.5	11.4	11.4	28.2	19.7	19.8
Incr Delay (d2), s/veh	3.6	0.0	3.4	3.8	0.0	0.0	4.4	0.2	0.2	1.2	22.5	22.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.0	3.5	0.3	0.0	0.1	3.1	2.5	2.6	0.6	14.1	14.5
LnGrp Delay(d),s/veh	34.4	0.0	28.2	34.0	0.0	21.1	29.8	11.6	11.6	29.3	42.2	42.2
LnGrp LOS	C		C	C		C	C	B	B	C	D	D
Approach Vol, veh/h		205			18			614			1247	
Approach Delay, s/veh		28.5			31.1			16.6			41.9	
Approach LOS		C			C			B			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	13.5	28.0	5.2	17.0	8.3	33.2	6.0	16.2
Change Period (Y+Rc), s	4.0	5.1	4.0	5.1	4.0	5.1	4.0	5.1
Max Green Setting (Gmax), s	10.0	22.9	9.0	22.9	10.0	22.9	9.0	23.9
Max Q Clear Time (g_c+I1), s	7.7	23.0	2.3	2.2	3.1	7.1	2.6	9.5
Green Ext Time (p_c), s	0.1	0.0	0.0	0.0	0.0	2.3	0.0	0.5

Intersection Summary	
HCM 2010 Ctrl Delay	33.0
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑↱		↰	↑↱		↰	↑↱		↰	↑↱	
Traffic Volume (veh/h)	7	282	19	168	14	119	23	286	87	7	469	9
Future Volume (veh/h)	7	282	19	168	14	119	23	286	87	7	469	9
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1845	1845	1900	1863	1863	1900	1881	1881	1900
Adj Flow Rate, veh/h	14	320	44	442	15	220	44	867	174	28	1876	36
Adj No. of Lanes	1	2	0	1	2	0	1	2	0	1	2	0
Peak Hour Factor	0.50	0.88	0.43	0.38	0.91	0.54	0.52	0.33	0.50	0.25	0.25	0.25
Percent Heavy Veh, %	2	2	2	3	3	3	2	2	2	1	1	1
Cap, veh/h	224	395	54	381	496	444	111	1608	323	289	1945	37
Arrive On Green	0.01	0.13	0.13	0.17	0.28	0.28	0.03	0.55	0.55	0.02	0.54	0.54
Sat Flow, veh/h	1774	3130	427	1757	1752	1568	1774	2939	590	1792	3588	69
Grp Volume(v), veh/h	14	180	184	442	15	220	44	522	519	28	932	980
Grp Sat Flow(s),veh/h/ln	1774	1770	1787	1757	1752	1568	1774	1770	1759	1792	1787	1869
Q Serve(g_s), s	0.8	12.2	12.5	21.0	0.8	14.5	1.4	23.5	23.5	0.9	61.8	62.6
Cycle Q Clear(g_c), s	0.8	12.2	12.5	21.0	0.8	14.5	1.4	23.5	23.5	0.9	61.8	62.6
Prop In Lane	1.00		0.24	1.00		1.00	1.00		0.34	1.00		0.04
Lane Grp Cap(c), veh/h	224	223	226	381	496	444	111	969	963	289	969	1013
V/C Ratio(X)	0.06	0.80	0.82	1.16	0.03	0.50	0.39	0.54	0.54	0.10	0.96	0.97
Avail Cap(c_a), veh/h	282	414	418	381	628	562	145	969	963	334	973	1018
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	46.4	52.7	52.8	39.9	32.1	37.0	29.7	18.0	18.0	14.3	27.2	27.3
Incr Delay (d2), s/veh	0.0	2.6	2.8	96.8	0.0	0.3	0.8	0.6	0.6	0.1	20.1	20.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	6.1	6.3	21.4	0.4	6.3	0.8	11.6	11.6	0.4	35.7	37.9
LnGrp Delay(d),s/veh	46.4	55.3	55.5	136.7	32.1	37.4	30.5	18.6	18.6	14.3	47.3	48.0
LnGrp LOS	D	E	E	F	C	D	C	B	B	B	D	D
Approach Vol, veh/h		378			677			1085			1940	
Approach Delay, s/veh		55.1			102.1			19.1			47.2	
Approach LOS		E			F			B			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	6.5	72.4	25.0	20.1	7.1	71.7	5.5	39.6
Change Period (Y+Rc), s	4.0	4.5	4.0	4.5	4.0	4.5	4.0	4.5
Max Green Setting (Gmax), s	5.6	67.4	21.0	29.0	5.5	67.5	5.6	44.4
Max Q Clear Time (g_c+I1), s	2.9	25.5	23.0	14.5	3.4	64.6	2.8	16.5
Green Ext Time (p_c), s	0.0	8.8	0.0	1.2	0.0	2.6	0.0	1.0

Intersection Summary	
HCM 2010 Ctrl Delay	49.5
HCM 2010 LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑↱		↰	↑↱		↰	↑↱		↰	↑↱	
Traffic Volume (veh/h)	7	471	282	35	124	2	64	133	31	90	431	19
Future Volume (veh/h)	7	471	282	35	124	2	64	133	31	90	431	19
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1881	1881	1900	1881	1881	1900	1759	1759	1900	1863	1863	1900
Adj Flow Rate, veh/h	12	620	564	56	138	8	128	271	62	180	1002	38
Adj No. of Lanes	1	2	0	1	2	0	1	2	0	1	2	0
Peak Hour Factor	0.58	0.76	0.50	0.63	0.90	0.25	0.50	0.49	0.50	0.50	0.43	0.50
Percent Heavy Veh, %	1	1	1	1	1	1	8	8	8	2	2	2
Cap, veh/h	26	627	561	77	1303	75	157	351	79	492	1089	41
Arrive On Green	0.01	0.35	0.35	0.04	0.38	0.38	0.09	0.13	0.13	0.28	0.31	0.31
Sat Flow, veh/h	1792	1787	1599	1792	3436	198	1675	2712	610	1774	3477	132
Grp Volume(v), veh/h	12	620	564	56	71	75	128	165	168	180	510	530
Grp Sat Flow(s),veh/h/ln	1792	1787	1599	1792	1787	1846	1675	1671	1652	1774	1770	1839
Q Serve(g_s), s	0.6	29.4	29.9	2.6	2.2	2.2	6.4	8.1	8.4	7.0	23.7	23.7
Cycle Q Clear(g_c), s	0.6	29.4	29.9	2.6	2.2	2.2	6.4	8.1	8.4	7.0	23.7	23.7
Prop In Lane	1.00		1.00	1.00		0.11	1.00		0.37	1.00		0.07
Lane Grp Cap(c), veh/h	26	627	561	77	678	700	157	216	214	492	554	576
V/C Ratio(X)	0.46	0.99	1.01	0.73	0.11	0.11	0.82	0.76	0.79	0.37	0.92	0.92
Avail Cap(c_a), veh/h	126	627	561	128	678	700	163	520	513	492	596	619
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	41.7	27.5	27.7	40.3	17.1	17.1	37.9	35.9	36.0	24.8	28.3	28.3
Incr Delay (d2), s/veh	4.7	33.1	39.4	4.7	0.1	0.1	25.7	2.1	2.4	0.5	18.3	17.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	20.2	19.2	1.4	1.1	1.2	4.1	3.9	4.0	3.5	14.3	14.8
LnGrp Delay(d),s/veh	46.3	60.6	67.1	45.0	17.2	17.2	63.6	38.0	38.4	25.2	46.5	46.0
LnGrp LOS	D	E	F	D	B	B	E	D	D	C	D	D
Approach Vol, veh/h		1196			202			461			1220	
Approach Delay, s/veh		63.5			24.9			45.2			43.2	
Approach LOS		E			C			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	28.1	15.5	7.2	34.4	12.5	31.2	4.7	36.8
Change Period (Y+Rc), s	4.5	4.5	3.5	4.5	4.5	4.5	3.5	4.5
Max Green Setting (Gmax), s	10.5	26.5	6.1	29.9	8.3	28.7	6.0	30.0
Max Q Clear Time (g_c+I1), s	9.0	10.4	4.6	31.9	8.4	25.7	2.6	4.2
Green Ext Time (p_c), s	0.1	0.6	0.0	0.0	0.0	1.0	0.0	0.9

Intersection Summary	
HCM 2010 Ctrl Delay	50.2
HCM 2010 LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↰	↱↱	↰	↑↑↑			↑↑↑	↱
Traffic Volume (veh/h)	0	0	0	434	313	641	6	1138	0	0	2095	301
Future Volume (veh/h)	0	0	0	434	313	641	6	1138	0	0	2095	301
Number				3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln				1900	1696	1696	1696	1696	0	0	1810	1810
Adj Flow Rate, veh/h				523	364	801	8	1371	0	0	2354	381
Adj No. of Lanes				0	1	2	1	3	0	0	3	1
Peak Hour Factor				0.83	0.86	0.80	0.75	0.83	0.92	0.92	0.89	0.79
Percent Heavy Veh, %				12	12	12	12	12	0	0	5	5
Cap, veh/h				323	224	842	19	2655	0	0	2538	790
Arrive On Green				0.33	0.33	0.33	0.01	0.57	0.00	0.00	0.51	0.51
Sat Flow, veh/h				972	676	2538	1616	4784	0	0	5103	1538
Grp Volume(v), veh/h				887	0	801	8	1371	0	0	2354	381
Grp Sat Flow(s),veh/h/ln				1648	0	1269	1616	1544	0	0	1647	1538
Q Serve(g_s), s				31.5	0.0	29.2	0.5	17.0	0.0	0.0	42.0	15.2
Cycle Q Clear(g_c), s				31.5	0.0	29.2	0.5	17.0	0.0	0.0	42.0	15.2
Prop In Lane				0.59		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				547	0	842	19	2655	0	0	2538	790
V/C Ratio(X)				1.62	0.00	0.95	0.41	0.52	0.00	0.00	0.93	0.48
Avail Cap(c_a), veh/h				547	0	842	102	2904	0	0	2551	794
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	1.00	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				31.7	0.0	30.9	46.5	12.3	0.0	0.0	21.4	14.9
Incr Delay (d2), s/veh				288.0	0.0	20.0	13.4	0.2	0.0	0.0	6.6	0.5
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				57.9	0.0	12.6	0.3	7.3	0.0	0.0	20.5	6.6
LnGrp Delay(d),s/veh				319.7	0.0	51.0	59.9	12.4	0.0	0.0	28.1	15.4
LnGrp LOS				F		D	E	B			C	B
Approach Vol, veh/h					1688			1379			2735	
Approach Delay, s/veh					192.2			12.7			26.3	
Approach LOS					F			B			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2			5	6		8
Phs Duration (G+Y+Rc), s		58.9			5.6	53.3		36.0
Change Period (Y+Rc), s		4.5			4.5	4.5		4.5
Max Green Setting (Gmax), s		59.5			6.0	49.0		31.5
Max Q Clear Time (g_c+I1), s		19.0			2.5	44.0		33.5
Green Ext Time (p_c), s		14.1			0.0	4.7		0.0

Intersection Summary		
HCM 2010 Ctrl Delay		71.3
HCM 2010 LOS		E

HCM Signalized Intersection Capacity Analysis
17: Mountain House Pkwy & I-205 EB Off-Ramp

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↰↑	↱					↑↑	↱		↑↑	
Traffic Volume (vph)	459	50	247	0	0	0	0	103	211	0	1176	0
Future Volume (vph)	459	50	247	0	0	0	0	103	211	0	1176	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5					4.5	4.5		4.5	
Lane Util. Factor	0.95	0.95	1.00					0.95	1.00		0.95	
Frt	1.00	1.00	0.85					1.00	0.85		1.00	
Flt Protected	0.95	0.97	1.00					1.00	1.00		1.00	
Satd. Flow (prot)	1618	1659	1524					3008	1346		3223	
Flt Permitted	0.95	0.97	1.00					1.00	1.00		1.00	
Satd. Flow (perm)	1618	1659	1524					3008	1346		3223	
Peak-hour factor, PHF	0.73	0.25	0.67	0.92	0.92	0.92	0.92	0.73	0.75	0.92	0.84	0.92
Adj. Flow (vph)	629	200	369	0	0	0	0	141	281	0	1400	0
RTOR Reduction (vph)	0	0	19	0	0	0	0	0	137	0	0	0
Lane Group Flow (vph)	409	420	350	0	0	0	0	141	144	0	1400	0
Heavy Vehicles (%)	6%	6%	6%	2%	2%	2%	20%	20%	20%	12%	12%	12%
Turn Type	Prot	NA	Perm					NA	Perm		NA	
Protected Phases	7	4						2			6	
Permitted Phases			4						2			
Actuated Green, G (s)	19.7	19.7	19.7					30.1	30.1		30.1	
Effective Green, g (s)	19.7	19.7	19.7					30.1	30.1		30.1	
Actuated g/C Ratio	0.34	0.34	0.34					0.51	0.51		0.51	
Clearance Time (s)	4.5	4.5	4.5					4.5	4.5		4.5	
Vehicle Extension (s)	3.0	3.0	3.0					3.0	3.0		3.0	
Lane Grp Cap (vph)	542	555	510					1539	689		1649	
v/s Ratio Prot	0.25	c0.25						0.05			c0.43	
v/s Ratio Perm			0.23						0.11			
v/c Ratio	0.75	0.76	0.69					0.09	0.21		0.85	
Uniform Delay, d1	17.4	17.4	16.9					7.3	7.8		12.4	
Progression Factor	1.00	1.00	1.00					1.00	1.00		1.00	
Incremental Delay, d2	5.9	5.8	3.8					0.0	0.2		4.3	
Delay (s)	23.3	23.3	20.7					7.4	8.0		16.7	
Level of Service	C	C	C					A	A		B	
Approach Delay (s)		22.5			0.0			7.8			16.7	
Approach LOS		C			A			A			B	

Intersection Summary			
HCM 2000 Control Delay	17.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	58.8	Sum of lost time (s)	9.0
Intersection Capacity Utilization	97.2%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

18: Great Valley Pkwy & Kelso Rd/Questa Trail

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰↰	↑	↱	↰	↱		↰	↑↱		↰	↑↱	
Traffic Volume (veh/h)	6	2	1	11	56	219	261	439	6	335	483	195
Future Volume (veh/h)	6	2	1	11	56	219	261	439	6	335	483	195
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1159	1159	1159	1856	1856	1856	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	12	4	4	20	84	308	358	675	24	394	732	271
Peak Hour Factor	0.50	0.50	0.25	0.55	0.67	0.71	0.73	0.65	0.25	0.85	0.66	0.72
Percent Heavy Veh, %	50	50	50	3	3	3	2	2	2	2	2	2
Cap, veh/h	54	276	234	75	89	326	392	1063	38	431	825	306
Arrive On Green	0.03	0.24	0.24	0.04	0.26	0.26	0.22	0.30	0.30	0.24	0.33	0.33
Sat Flow, veh/h	2141	1159	982	1767	348	1277	1781	3499	124	1781	2534	938
Grp Volume(v), veh/h	12	4	4	20	0	392	358	343	356	394	513	490
Grp Sat Flow(s),veh/h/ln	1071	1159	982	1767	0	1626	1781	1777	1847	1781	1777	1695
Q Serve(g_s), s	0.6	0.3	0.3	1.1	0.0	24.1	20.0	17.0	17.0	21.9	27.9	27.9
Cycle Q Clear(g_c), s	0.6	0.3	0.3	1.1	0.0	24.1	20.0	17.0	17.0	21.9	27.9	27.9
Prop In Lane	1.00		1.00	1.00		0.79	1.00		0.07	1.00		0.55
Lane Grp Cap(c), veh/h	54	276	234	75	0	415	392	540	561	431	579	552
V/C Ratio(X)	0.22	0.01	0.02	0.27	0.00	0.95	0.91	0.63	0.64	0.91	0.89	0.89
Avail Cap(c_a), veh/h	189	284	241	173	0	415	454	546	567	542	633	604
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	48.7	29.7	29.7	47.3	0.0	37.3	38.8	30.6	30.6	37.6	32.6	32.6
Incr Delay (d2), s/veh	2.0	0.0	0.0	1.9	0.0	30.6	21.0	2.4	2.3	17.4	13.6	14.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.1	0.1	0.5	0.0	13.0	10.8	7.4	7.7	11.4	13.7	13.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	50.7	29.7	29.7	49.1	0.0	67.9	59.7	33.0	32.9	55.0	46.2	46.7
LnGrp LOS	D	C	C	D	A	E	E	C	C	D	D	D
Approach Vol, veh/h		20			412			1057			1397	
Approach Delay, s/veh		42.3			67.0			42.0			48.8	
Approach LOS		D			E			D			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	26.4	38.3	6.6	30.6	28.7	36.1	8.3	28.9				
Change Period (Y+Rc), s	4.0	5.1	4.0	4.6	4.0	5.1	4.0	4.6				
Max Green Setting (Gmax), s	26.0	36.3	9.0	26.0	31.0	31.3	10.0	25.0				
Max Q Clear Time (g_c+I1), s	22.0	29.9	2.6	26.1	23.9	19.0	3.1	2.3				
Green Ext Time (p_c), s	0.4	3.3	0.0	0.0	0.7	3.3	0.0	0.0				
Intersection Summary												
HCM 6th Ctrl Delay			48.9									
HCM 6th LOS			D									

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↰	↱	↑↱		↰	↑↑
Traffic Volume (veh/h)	46	71	458	11	106	963
Future Volume (veh/h)	46	71	458	11	106	963
Number	3	18	2	12	1	6
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		0.98	0.99	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1900	1881	1900	1881	1881
Adj Flow Rate, veh/h	64	169	684	12	168	1251
Adj No. of Lanes	1	1	2	0	1	2
Peak Hour Factor	0.72	0.42	0.67	0.92	0.63	0.77
Percent Heavy Veh, %	0	0	1	1	1	1
Cap, veh/h	286	255	1929	34	565	1919
Arrive On Green	0.16	0.16	0.54	0.54	0.54	0.54
Sat Flow, veh/h	1810	1615	3687	63	749	3668
Grp Volume(v), veh/h	64	169	340	356	168	1251
Grp Sat Flow(s),veh/h/ln	1810	1615	1787	1869	749	1787
Q Serve(g_s), s	0.9	2.9	3.2	3.2	4.9	7.4
Cycle Q Clear(g_c), s	0.9	2.9	3.2	3.2	8.1	7.4
Prop In Lane	1.00	1.00		0.03	1.00	
Lane Grp Cap(c), veh/h	286	255	960	1003	565	1919
V/C Ratio(X)	0.22	0.66	0.35	0.35	0.30	0.65
Avail Cap(c_a), veh/h	1105	986	1091	1141	620	2182
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	10.8	11.7	3.9	3.9	6.2	4.9
Incr Delay (d2), s/veh	0.4	2.9	0.2	0.2	0.3	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	1.5	1.6	1.6	1.0	3.6
LnGrp Delay(d),s/veh	11.2	14.6	4.1	4.1	6.5	5.4
LnGrp LOS	B	B	A	A	A	A
Approach Vol, veh/h	233		696			1419
Approach Delay, s/veh	13.7		4.1			5.6
Approach LOS	B		A			A

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2				6		8
Phs Duration (G+Y+Rc), s		20.3				20.3		9.2
Change Period (Y+Rc), s		4.5				4.5		4.5
Max Green Setting (Gmax), s		18.0				18.0		18.0
Max Q Clear Time (g_c+I1), s		5.2				10.1		4.9
Green Ext Time (p_c), s		3.4				5.4		0.6

Intersection Summary	
HCM 2010 Ctrl Delay	5.9
HCM 2010 LOS	A

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↰	↱	↑↱		↰	↑↑
Traffic Volume (veh/h)	154	150	286	20	168	851
Future Volume (veh/h)	154	150	286	20	168	851
Number	3	18	2	12	1	6
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		0.97	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1900	1863	1863
Adj Flow Rate, veh/h	179	234	433	32	237	1051
Adj No. of Lanes	1	1	2	0	1	2
Peak Hour Factor	0.86	0.64	0.66	0.63	0.71	0.81
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	334	580	921	68	316	2029
Arrive On Green	0.19	0.19	0.28	0.28	0.18	0.57
Sat Flow, veh/h	1774	1583	3427	245	1774	3632
Grp Volume(v), veh/h	179	234	229	236	237	1051
Grp Sat Flow(s),veh/h/ln	1774	1583	1770	1809	1774	1770
Q Serve(g_s), s	3.4	4.2	4.1	4.1	4.8	6.8
Cycle Q Clear(g_c), s	3.4	4.2	4.1	4.1	4.8	6.8
Prop In Lane	1.00	1.00		0.14	1.00	
Lane Grp Cap(c), veh/h	334	580	489	500	316	2029
V/C Ratio(X)	0.54	0.40	0.47	0.47	0.75	0.52
Avail Cap(c_a), veh/h	850	1041	1307	1336	963	4956
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	13.8	8.9	11.4	11.4	14.7	4.9
Incr Delay (d2), s/veh	1.3	0.5	0.7	0.7	3.6	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.8	1.8	2.1	2.1	2.6	3.3
LnGrp Delay(d),s/veh	15.2	9.4	12.1	12.1	18.3	5.1
LnGrp LOS	B	A	B	B	B	A
Approach Vol, veh/h	413		465			1288
Approach Delay, s/veh	11.9		12.1			7.5
Approach LOS	B		B			A

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	11.2	14.9				26.2		11.6
Change Period (Y+Rc), s	4.5	4.5				4.5		4.5
Max Green Setting (Gmax), s	20.5	27.9				52.9		18.1
Max Q Clear Time (g_c+I1), s	6.8	6.1				8.8		6.2
Green Ext Time (p_c), s	0.5	2.6				9.4		1.1

Intersection Summary	
HCM 2010 Ctrl Delay	9.3
HCM 2010 LOS	A

HCM 2010 Signalized Intersection Summary
21: Mountain House Pkwy & Central Pkwy

Cumulative No Project
AM Peak

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↰↰	↱↱	↰↰	↑↑↑↑	↑↑↑↑	↱
Traffic Volume (veh/h)	91	619	1035	500	696	103
Future Volume (veh/h)	91	619	1035	500	696	103
Number	7	14	5	2	6	16
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1810	1810	1810	1810
Adj Flow Rate, veh/h	99	673	1125	543	757	112
Adj No. of Lanes	2	2	2	4	4	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	5	5	5	5
Cap, veh/h	649	1608	1299	4116	1388	343
Arrive On Green	0.19	0.19	0.39	0.66	0.22	0.22
Sat Flow, veh/h	3442	2787	3343	6478	6478	1538
Grp Volume(v), veh/h	99	673	1125	543	757	112
Grp Sat Flow(s),veh/h/ln	1721	1393	1672	1556	1556	1538
Q Serve(g_s), s	1.7	9.5	21.9	2.3	7.6	4.3
Cycle Q Clear(g_c), s	1.7	9.5	21.9	2.3	7.6	4.3
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	649	1608	1299	4116	1388	343
V/C Ratio(X)	0.15	0.42	0.87	0.13	0.55	0.33
Avail Cap(c_a), veh/h	849	1770	1598	6357	3072	759
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	23.9	8.3	19.9	4.4	24.2	23.0
Incr Delay (d2), s/veh	0.1	0.2	4.5	0.0	0.3	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	9.4	10.8	1.0	3.3	1.9
LnGrp Delay(d),s/veh	24.0	8.5	24.3	4.4	24.6	23.5
LnGrp LOS	C	A	C	A	C	C
Approach Vol, veh/h	772			1668	869	
Approach Delay, s/veh	10.5			17.9	24.4	
Approach LOS	B			B	C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		52.6		17.9	30.9	21.7		
Change Period (Y+Rc), s		6.0		4.6	3.5	6.0		
Max Green Setting (Gmax), s		72.0		17.4	33.7	34.8		
Max Q Clear Time (g_c+I1), s		4.3		11.5	23.9	9.6		
Green Ext Time (p_c), s		4.3		1.8	3.5	6.1		

Intersection Summary	
HCM 2010 Ctrl Delay	17.9
HCM 2010 LOS	B

	↙	↖	↑	↗	↘	↓
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↰	↱	↑↑↑	↱	↰	↑↑↑
Traffic Volume (veh/h)	321	606	829	121	513	1120
Future Volume (veh/h)	321	606	829	121	513	1120
Number	3	18	2	12	1	6
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1810	1810	1810	1810
Adj Flow Rate, veh/h	428	962	1023	209	733	1400
Adj No. of Lanes	1	1	3	1	1	3
Peak Hour Factor	0.75	0.63	0.81	0.58	0.70	0.80
Percent Heavy Veh, %	3	3	5	5	5	5
Cap, veh/h	404	1050	1093	694	757	3419
Arrive On Green	0.23	0.23	0.22	0.22	0.44	0.69
Sat Flow, veh/h	1757	1568	5103	1538	1723	5103
Grp Volume(v), veh/h	428	962	1023	209	733	1400
Grp Sat Flow(s),veh/h/ln	1757	1568	1647	1538	1723	1647
Q Serve(g_s), s	29.5	29.5	26.1	11.1	53.2	15.6
Cycle Q Clear(g_c), s	29.5	29.5	26.1	11.1	53.2	15.6
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	404	1050	1093	694	757	3419
V/C Ratio(X)	1.06	0.92	0.94	0.30	0.97	0.41
Avail Cap(c_a), veh/h	404	1050	1098	696	914	3871
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	49.4	18.1	49.0	22.3	35.1	8.5
Incr Delay (d2), s/veh	61.3	12.3	14.3	0.2	19.4	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	21.1	32.3	13.3	6.7	29.3	7.0
LnGrp Delay(d),s/veh	110.7	30.4	63.3	22.6	54.5	8.6
LnGrp LOS	F	C	E	C	D	A
Approach Vol, veh/h	1390		1232			2133
Approach Delay, s/veh	55.1		56.4			24.3
Approach LOS	E		E			C

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	60.4	33.9				94.3		34.0
Change Period (Y+Rc), s	4.0	5.5				5.5		4.5
Max Green Setting (Gmax), s	68.0	28.5				100.5		29.5
Max Q Clear Time (g_c+I1), s	55.2	28.1				17.6		31.5
Green Ext Time (p_c), s	1.2	0.3				16.3		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	41.7
HCM 2010 LOS	D

HCM 2010 Signalized Intersection Summary
23: Mountain House Pkwy & Grand Ave

Cumulative No Project
AM Peak

	↗	↘	↖	↑	↓	↙
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↰	↱		↑↑	↑↑	↱
Traffic Volume (veh/h)	206	39	96	503	323	262
Future Volume (veh/h)	206	39	96	503	323	262
Number	7	14	5	2	6	16
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1583	1583	1900	1727	1759	1759
Adj Flow Rate, veh/h	242	60	163	585	431	380
Adj No. of Lanes	1	1	0	2	2	1
Peak Hour Factor	0.85	0.65	0.59	0.86	0.75	0.69
Percent Heavy Veh, %	20	20	10	10	8	8
Cap, veh/h	353	134	0	1467	1495	669
Arrive On Green	0.23	0.23	0.00	0.45	0.45	0.45
Sat Flow, veh/h	1508	1346	0	3368	3431	1495
Grp Volume(v), veh/h	242	60	0	585	431	380
Grp Sat Flow(s),veh/h/ln	1508	1346	0	1641	1671	1495
Q Serve(g_s), s	4.9	5.9	0.0	4.0	2.7	6.3
Cycle Q Clear(g_c), s	4.9	5.9	0.0	4.0	2.7	6.3
Prop In Lane	1.00	1.00	0.00			1.00
Lane Grp Cap(c), veh/h	353	134	0	1467	1495	669
V/C Ratio(X)	0.69	0.45	0.00	0.40	0.29	0.57
Avail Cap(c_a), veh/h	1137	834	0	3326	3388	1516
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	11.7	111.6	0.0	6.2	5.9	6.9
Incr Delay (d2), s/veh	0.9	0.9	0.0	0.1	0.1	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.1	2.7	0.0	1.8	1.3	2.6
LnGrp Delay(d),s/veh	12.6	112.4	0.0	6.4	6.0	7.4
LnGrp LOS	B	F		A	A	A
Approach Vol, veh/h	302			585	811	
Approach Delay, s/veh	32.4			6.4	6.7	
Approach LOS	C			A	A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		21.0		12.5	0.0	21.0		
Change Period (Y+Rc), s		6.0		* 4.7	4.5	6.0		
Max Green Setting (Gmax), s		34.0		* 25	25.5	34.0		
Max Q Clear Time (g_c+I1), s		6.0		7.9	0.0	8.3		
Green Ext Time (p_c), s		3.2		0.4	0.0	3.3		

Intersection Summary			
HCM 2010 Ctrl Delay			11.1
HCM 2010 LOS			B

Notes

	↗	→	↘	↙	←	↖	↖	↑	↗	↘	↓	↙
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑↑	↱	↰↰	↑↑	↱	↰	↑↱		↰	↑↱	
Traffic Volume (veh/h)	239	526	636	110	368	144	306	382	16	42	276	288
Future Volume (veh/h)	239	526	636	110	368	144	306	382	16	42	276	288
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1707	1707	1722	1722	1870	1856	1870	1856	1870	1870	1870
Adj Flow Rate, veh/h	260	641	662	136	400	157	419	415	20	46	300	313
Peak Hour Factor	0.92	0.82	0.96	0.81	0.92	0.92	0.73	0.92	0.81	0.92	0.92	0.92
Percent Heavy Veh, %	2	13	13	12	12	2	3	2	3	2	2	2
Cap, veh/h	293	795	729	296	498	357	457	1438	69	130	403	359
Arrive On Green	0.16	0.25	0.25	0.09	0.15	0.15	0.26	0.42	0.42	0.07	0.23	0.23
Sat Flow, veh/h	1781	3244	1447	3182	3272	1585	1767	3451	166	1781	1777	1585
Grp Volume(v), veh/h	260	641	662	136	400	157	419	213	222	46	300	313
Grp Sat Flow(s),veh/h/ln	1781	1622	1447	1591	1636	1585	1767	1777	1840	1781	1777	1585
Q Serve(g_s), s	16.7	21.8	12.5	4.7	13.8	5.9	27.0	9.3	9.4	2.9	18.4	22.3
Cycle Q Clear(g_c), s	16.7	21.8	12.5	4.7	13.8	5.9	27.0	9.3	9.4	2.9	18.4	22.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.09	1.00		1.00
Lane Grp Cap(c), veh/h	293	795	729	296	498	357	457	740	767	130	403	359
V/C Ratio(X)	0.89	0.81	0.91	0.46	0.80	0.44	0.92	0.29	0.29	0.35	0.74	0.87
Avail Cap(c_a), veh/h	304	970	807	299	727	468	791	1105	1145	167	477	425
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	47.8	41.6	9.6	50.3	47.9	16.9	42.2	22.6	22.7	51.6	42.1	43.6
Incr Delay (d2), s/veh	25.1	4.2	13.3	1.1	4.1	0.9	9.2	0.2	0.2	1.6	5.2	15.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	9.1	8.7	8.5	1.9	5.7	2.5	12.7	3.9	4.0	1.3	8.6	10.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	73.0	45.8	22.9	51.4	52.1	17.7	51.4	22.8	22.9	53.3	47.3	59.2
LnGrp LOS	E	D	C	D	D	B	D	C	C	D	D	E
Approach Vol, veh/h		1563			693			854			659	
Approach Delay, s/veh		40.6			44.2			36.8			53.4	
Approach LOS		D			D			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	13.1	53.8	14.9	35.2	35.3	31.6	25.7	24.3
Change Period (Y+Rc), s	4.6	5.1	4.0	6.5	5.1	* 5.1	6.5	* 6.5
Max Green Setting (Gmax), s	11.0	72.8	11.0	35.0	52.4	* 31	20.0	* 26
Max Q Clear Time (g_c+I1), s	4.9	11.4	6.7	23.8	29.0	24.3	18.7	15.8
Green Ext Time (p_c), s	0.0	2.7	0.1	4.9	1.3	2.3	0.1	2.0

Intersection Summary			
HCM 6th Ctrl Delay			42.6
HCM 6th LOS			D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 2010 Signalized Intersection Summary
2: Mountain House Pkwy & Byron Rd

Cumulative No Project
PM Peak

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰↰	↑↑	↱↱	↰↰	↑↑	↱	↰	↑↑	↱↱	↰	↑↑	↱
Traffic Volume (veh/h)	282	673	85	221	596	415	126	636	715	314	730	207
Future Volume (veh/h)	282	673	85	221	596	415	126	636	715	314	730	207
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1696	1696	1696	1696	1863	1759	1863	1759	1863	1863	1863
Adj Flow Rate, veh/h	307	756	112	251	641	451	156	691	831	341	793	225
Adj No. of Lanes	2	2	2	2	2	1	1	2	2	1	2	1
Peak Hour Factor	0.92	0.89	0.76	0.88	0.93	0.92	0.81	0.92	0.86	0.92	0.92	0.92
Percent Heavy Veh, %	2	12	12	12	12	2	8	2	8	2	2	2
Cap, veh/h	380	995	784	314	962	473	180	810	866	365	1157	693
Arrive On Green	0.11	0.31	0.31	0.10	0.30	0.30	0.11	0.23	0.23	0.21	0.33	0.33
Sat Flow, veh/h	3442	3223	2538	3134	3223	1583	1675	3539	2632	1774	3539	1583
Grp Volume(v), veh/h	307	756	112	251	641	451	156	691	831	341	793	225
Grp Sat Flow(s),veh/h/ln	1721	1612	1269	1567	1612	1583	1675	1770	1316	1774	1770	1583
Q Serve(g_s), s	11.3	27.5	4.1	10.2	22.6	36.3	11.9	24.3	29.7	24.5	25.2	12.1
Cycle Q Clear(g_c), s	11.3	27.5	4.1	10.2	22.6	36.3	11.9	24.3	29.7	24.5	25.2	12.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	380	995	784	314	962	473	180	810	866	365	1157	693
V/C Ratio(X)	0.81	0.76	0.14	0.80	0.67	0.95	0.87	0.85	0.96	0.93	0.69	0.32
Avail Cap(c_a), veh/h	1074	995	784	978	969	476	394	810	866	417	1157	693
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	56.4	40.5	32.4	57.1	39.8	44.6	57.0	47.9	42.7	50.7	37.9	23.9
Incr Delay (d2), s/veh	4.1	3.6	0.1	4.7	1.8	29.8	4.8	8.9	21.3	25.3	1.8	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.6	12.7	1.5	4.6	10.3	19.7	5.7	12.9	17.1	14.6	12.6	5.3
LnGrp Delay(d),s/veh	60.5	44.1	32.5	61.8	41.7	74.5	61.8	56.9	64.0	76.0	39.7	24.3
LnGrp LOS	E	D	C	E	D	E	E	E	E	E	D	C
Approach Vol, veh/h		1175			1343			1678			1359	
Approach Delay, s/veh		47.2			56.4			60.8			46.2	
Approach LOS		D			E			E			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	18.8	44.8	31.2	35.0	17.5	46.1	18.4	47.7
Change Period (Y+Rc), s	4.5	6.0	4.5	5.3	4.5	6.0	4.5	5.3
Max Green Setting (Gmax), s	40.5	39.0	30.5	29.7	40.5	39.0	30.5	29.7
Max Q Clear Time (g_c+I1), s	13.3	38.3	26.5	31.7	12.2	29.5	13.9	27.2
Green Ext Time (p_c), s	1.0	0.5	0.1	0.0	0.9	4.2	0.1	1.6

Intersection Summary	
HCM 2010 Ctrl Delay	53.3
HCM 2010 LOS	D

	↗	↘	↖	↑	↓	↙
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↰↰	↱	↰	↑↑	↑↑	↱
Traffic Volume (veh/h)	168	154	408	893	1050	50
Future Volume (veh/h)	168	154	408	893	1050	50
Number	7	14	5	2	6	16
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1727	1727	1863
Adj Flow Rate, veh/h	183	167	443	971	1141	54
Adj No. of Lanes	2	1	1	2	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	10	10	2
Cap, veh/h	491	226	482	2354	1310	632
Arrive On Green	0.14	0.14	0.27	0.72	0.40	0.40
Sat Flow, veh/h	3442	1583	1774	3368	3368	1583
Grp Volume(v), veh/h	183	167	443	971	1141	54
Grp Sat Flow(s),veh/h/ln	1721	1583	1774	1641	1641	1583
Q Serve(g_s), s	3.6	7.6	18.3	9.0	24.2	1.6
Cycle Q Clear(g_c), s	3.6	7.6	18.3	9.0	24.2	1.6
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	491	226	482	2354	1310	632
V/C Ratio(X)	0.37	0.74	0.92	0.41	0.87	0.09
Avail Cap(c_a), veh/h	1384	637	505	2354	1476	712
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	29.3	31.1	26.7	4.3	20.9	14.1
Incr Delay (d2), s/veh	0.5	4.7	21.6	0.1	5.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.8	6.8	11.9	3.9	11.9	0.7
LnGrp Delay(d),s/veh	29.8	35.8	48.4	4.4	26.2	14.2
LnGrp LOS	C	D	D	A	C	B
Approach Vol, veh/h	350			1414	1195	
Approach Delay, s/veh	32.7			18.2	25.6	
Approach LOS	C			B	C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		60.2		15.4	24.0	36.2		
Change Period (Y+Rc), s		6.0		4.6	3.5	6.0		
Max Green Setting (Gmax), s		34.0		30.4	21.5	34.0		
Max Q Clear Time (g_c+I1), s		11.0		9.6	20.3	26.2		
Green Ext Time (p_c), s		5.7		1.1	0.2	4.0		

Intersection Summary			
HCM 2010 Ctrl Delay			22.9
HCM 2010 LOS			C

	↗	↘	↖	↑	↓	↙
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↰	↱	↰	↑↑	↑↑	↱
Traffic Volume (veh/h)	357	215	269	944	869	405
Future Volume (veh/h)	357	215	269	944	869	405
Number	7	14	5	2	6	16
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1792	1792	1743	1743
Adj Flow Rate, veh/h	406	259	332	1037	988	476
Adj No. of Lanes	1	1	1	2	2	1
Peak Hour Factor	0.88	0.83	0.81	0.91	0.88	0.85
Percent Heavy Veh, %	3	3	6	6	9	9
Cap, veh/h	452	403	327	2163	1311	587
Arrive On Green	0.26	0.26	0.19	0.64	0.40	0.40
Sat Flow, veh/h	1757	1568	1707	3495	3399	1482
Grp Volume(v), veh/h	406	259	332	1037	988	476
Grp Sat Flow(s),veh/h/ln	1757	1568	1707	1703	1656	1482
Q Serve(g_s), s	18.7	12.3	16.0	13.3	21.5	23.9
Cycle Q Clear(g_c), s	18.7	12.3	16.0	13.3	21.5	23.9
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	452	403	327	2163	1311	587
V/C Ratio(X)	0.90	0.64	1.02	0.48	0.75	0.81
Avail Cap(c_a), veh/h	589	525	327	2163	1586	709
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	30.0	27.6	33.8	8.0	21.7	22.5
Incr Delay (d2), s/veh	12.0	0.6	53.8	0.2	1.7	6.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.1	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	10.5	10.5	12.3	6.2	10.1	10.6
LnGrp Delay(d),s/veh	42.0	28.3	87.6	8.2	23.4	28.4
LnGrp LOS	D	C	F	A	C	C
Approach Vol, veh/h	665			1369	1464	
Approach Delay, s/veh	36.7			27.4	25.1	
Approach LOS	D			C	C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		58.1		25.5	20.0	38.1		
Change Period (Y+Rc), s		5.0		4.0	4.0	5.0		
Max Green Setting (Gmax), s		40.0		28.0	16.0	40.0		
Max Q Clear Time (g_c+I1), s		15.3		20.7	18.0	25.9		
Green Ext Time (p_c), s		7.7		0.8	0.0	7.2		

Intersection Summary			
HCM 2010 Ctrl Delay			28.2
HCM 2010 LOS			C

Intersection	
Int Delay, s/veh	1.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↱	↰	↑↑	↑↑	↱
Traffic Vol, veh/h	0	84	112	918	958	42
Future Vol, veh/h	0	84	112	918	958	42
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	130	-	-	90
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	66	79	88	87	87	79
Heavy Vehicles, %	2	2	5	5	8	8
Mvmt Flow	0	106	127	1055	1101	53

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	551	1154	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	4.2	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	2.25	-	-	-
Pot Cap-1 Maneuver	0	478	584	-	-	-
Stage 1	0	-	-	-	-	-
Stage 2	0	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	478	584	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	14.7	1.4	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	584	-	478	-	-
HCM Lane V/C Ratio	0.218	-	0.222	-	-
HCM Control Delay (s)	12.9	-	14.7	-	-
HCM Lane LOS	B	-	B	-	-
HCM 95th %tile Q(veh)	0.8	-	0.8	-	-

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↰	↱↱	↰↰	↑↑↑	↑↑	↱
Traffic Volume (veh/h)	142	448	636	637	971	59
Future Volume (veh/h)	142	448	636	637	971	59
Number	7	14	5	2	6	16
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1881	1881	1827	1827	1810	1810
Adj Flow Rate, veh/h	167	669	805	741	1295	74
Adj No. of Lanes	1	2	2	3	2	1
Peak Hour Factor	0.85	0.67	0.79	0.86	0.75	0.80
Percent Heavy Veh, %	1	1	4	4	5	5
Cap, veh/h	229	1094	882	3680	1454	650
Arrive On Green	0.13	0.13	0.26	0.74	0.42	0.42
Sat Flow, veh/h	1792	2814	3375	5152	3529	1536
Grp Volume(v), veh/h	167	669	805	741	1295	74
Grp Sat Flow(s),veh/h/ln	1792	1407	1688	1663	1719	1536
Q Serve(g_s), s	6.7	9.5	17.2	3.4	25.9	2.2
Cycle Q Clear(g_c), s	6.7	9.5	17.2	3.4	25.9	2.2
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	229	1094	882	3680	1454	650
V/C Ratio(X)	0.73	0.61	0.91	0.20	0.89	0.11
Avail Cap(c_a), veh/h	229	1094	908	3823	1526	682
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	31.2	18.2	26.7	3.0	19.9	13.0
Incr Delay (d2), s/veh	9.9	0.7	12.8	0.0	6.8	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.9	11.2	9.5	1.5	13.6	0.9
LnGrp Delay(d),s/veh	41.1	18.9	39.5	3.0	26.6	13.1
LnGrp LOS	D	B	D	A	C	B
Approach Vol, veh/h	836			1546	1369	
Approach Delay, s/veh	23.4			22.0	25.9	
Approach LOS	C			C	C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		60.4		14.0	23.4	36.9		
Change Period (Y+Rc), s		5.5		4.5	4.0	5.5		
Max Green Setting (Gmax), s		57.0		9.5	20.0	33.0		
Max Q Clear Time (g_c+I1), s		5.4		11.5	19.2	27.9		
Green Ext Time (p_c), s		5.6		0.0	0.2	3.5		

Intersection Summary	
HCM 2010 Ctrl Delay	23.7
HCM 2010 LOS	C

7: Mountain House Pkwy & Grant Line Rd

	↗	→	↘	↙	←	↖	↖	↑	↗	↘	↓	↙
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑↑	↱	↰↰	↑↑	↱	↰↰	↑↑↱		↰↰	↑↑↑	↱
Traffic Volume (veh/h)	49	595	459	52	241	383	1100	980	22	470	1125	26
Future Volume (veh/h)	49	595	459	52	241	383	1100	980	22	470	1125	26
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1792	1792	1863	1881	1881	1881	1810	1810	1900	1827	1827	1827
Adj Flow Rate, veh/h	57	726	483	104	256	696	1236	1077	26	701	1223	38
Adj No. of Lanes	1	2	1	2	2	1	2	3	0	2	3	1
Peak Hour Factor	0.86	0.82	0.95	0.50	0.94	0.55	0.89	0.91	0.85	0.67	0.92	0.69
Percent Heavy Veh, %	6	6	2	1	1	1	5	5	5	4	4	4
Cap, veh/h	72	710	898	152	750	885	1199	1230	30	1160	1232	384
Arrive On Green	0.04	0.21	0.21	0.04	0.21	0.21	0.36	0.25	0.25	0.34	0.25	0.25
Sat Flow, veh/h	1707	3406	1583	3476	3574	1599	3343	4962	120	3375	4988	1553
Grp Volume(v), veh/h	57	726	483	104	256	696	1236	715	388	701	1223	38
Grp Sat Flow(s),veh/h/ln	1707	1703	1583	1738	1787	1599	1672	1647	1788	1688	1663	1553
Q Serve(g_s), s	4.4	28.0	25.5	4.0	8.2	7.2	48.2	28.0	28.0	23.1	32.9	2.5
Cycle Q Clear(g_c), s	4.4	28.0	25.5	4.0	8.2	7.2	48.2	28.0	28.0	23.1	32.9	2.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.07	1.00		1.00
Lane Grp Cap(c), veh/h	72	710	898	152	750	885	1199	816	443	1160	1232	384
V/C Ratio(X)	0.79	1.02	0.54	0.68	0.34	0.79	1.03	0.88	0.88	0.60	0.99	0.10
Avail Cap(c_a), veh/h	83	710	898	168	750	885	1199	1069	580	1160	1232	384
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	63.8	53.2	18.1	63.3	45.2	10.8	43.1	48.5	48.5	36.5	50.5	39.0
Incr Delay (d2), s/veh	30.5	39.8	0.3	7.3	0.1	4.3	34.2	5.5	9.6	0.6	23.7	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.7	17.0	11.2	2.1	4.1	14.2	27.8	13.3	15.0	10.9	17.8	1.1
LnGrp Delay(d),s/veh	94.3	92.9	18.5	70.6	45.3	15.1	77.3	54.0	58.1	37.2	74.2	39.1
LnGrp LOS	F	F	B	E	D	B	F	D	E	D	E	D
Approach Vol, veh/h		1266			1056			2339			1962	
Approach Delay, s/veh		64.6			27.9			67.0			60.3	
Approach LOS		E			C			E			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	52.2	39.3	9.6	33.3	52.3	39.2	9.4	33.5
Change Period (Y+Rc), s	6.0	* 6	3.7	5.3	4.1	6.0	3.7	5.3
Max Green Setting (Gmax), s	37.8	* 44	6.5	28.0	48.2	33.2	6.5	28.0
Max Q Clear Time (g_c+I1), s	25.1	30.0	6.0	30.0	50.2	34.9	6.4	10.2
Green Ext Time (p_c), s	0.5	3.3	0.0	0.0	0.0	0.0	0.0	1.7

Intersection Summary	
HCM 2010 Ctrl Delay	58.3
HCM 2010 LOS	E

Notes

	↗	→	↘	↙	←	↖	↖	↑	↗	↘	↓	↙
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑↑	↱	↰	↑↑	↱	↰	↑↑	↱	↰	↑↑	↱
Traffic Volume (veh/h)	23	313	176	9	710	447	17	378	331	265	275	107
Future Volume (veh/h)	23	313	176	9	710	447	17	378	331	265	275	107
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1792	1792	1863	1863	1792	1792	1863	1863	1863	1792	1863	1792
Adj Flow Rate, veh/h	41	344	191	10	789	539	18	411	360	384	299	143
Adj No. of Lanes	1	2	1	1	2	1	1	2	1	1	2	1
Peak Hour Factor	0.56	0.91	0.92	0.92	0.90	0.83	0.92	0.92	0.92	0.69	0.92	0.75
Percent Heavy Veh, %	6	6	2	2	6	6	2	2	2	6	2	6
Cap, veh/h	118	1128	593	47	985	822	77	717	363	428	1449	624
Arrive On Green	0.07	0.33	0.33	0.03	0.29	0.29	0.04	0.20	0.20	0.25	0.41	0.41
Sat Flow, veh/h	1707	3406	1583	1774	3406	1524	1774	3539	1583	1707	3539	1524
Grp Volume(v), veh/h	41	344	191	10	789	539	18	411	360	384	299	143
Grp Sat Flow(s),veh/h/ln	1707	1703	1583	1774	1703	1524	1774	1770	1583	1707	1770	1524
Q Serve(g_s), s	2.2	7.3	8.3	0.5	20.9	24.5	1.0	10.2	19.7	21.2	5.3	6.0
Cycle Q Clear(g_c), s	2.2	7.3	8.3	0.5	20.9	24.5	1.0	10.2	19.7	21.2	5.3	6.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	118	1128	593	47	985	822	77	717	363	428	1449	624
V/C Ratio(X)	0.35	0.31	0.32	0.21	0.80	0.66	0.23	0.57	0.99	0.90	0.21	0.23
Avail Cap(c_a), veh/h	175	1128	593	201	1012	834	213	717	363	842	2037	877
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	43.2	24.2	21.6	46.3	32.0	16.0	45.0	35.0	37.4	35.3	18.5	18.7
Incr Delay (d2), s/veh	1.8	0.2	0.3	2.2	4.6	1.8	1.5	1.1	44.9	7.0	0.1	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	3.5	3.7	0.3	10.4	10.6	0.5	5.1	14.1	10.7	2.6	2.5
LnGrp Delay(d),s/veh	45.0	24.4	21.9	48.5	36.6	17.8	46.5	36.1	82.3	42.2	18.6	18.9
LnGrp LOS	D	C	C	D	D	B	D	D	F	D	B	B
Approach Vol, veh/h		576			1338			789			826	
Approach Delay, s/veh		25.0			29.1			57.4			29.6	
Approach LOS		C			C			E			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	28.4	24.4	7.2	37.3	8.2	44.5	11.3	33.2
Change Period (Y+Rc), s	4.0	* 4.7	4.6	5.1	4.0	* 4.7	4.6	5.1
Max Green Setting (Gmax), s	48.0	* 20	11.0	27.9	11.7	* 56	10.0	28.9
Max Q Clear Time (g_c+I1), s	23.2	21.7	2.5	10.3	3.0	8.0	4.2	26.5
Green Ext Time (p_c), s	1.2	0.0	0.0	2.6	0.0	2.6	0.0	1.6

Intersection Summary	
HCM 2010 Ctrl Delay	34.9
HCM 2010 LOS	C

Notes

	↗	→	↘	↙	←	↖	↖	↑	↗	↘	↓	↙
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰↰	↑↑	↱	↰↰	↑↑	↱	↰	↑↑	↱	↰	↑↑	↱
Traffic Volume (veh/h)	51	187	339	224	42	282	139	624	198	170	85	28
Future Volume (veh/h)	51	187	339	224	42	282	139	624	198	170	85	28
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1827	1827	1827	1792	1792	1792	1810	1810	1810	1827	1827	1827
Adj Flow Rate, veh/h	68	208	547	325	68	392	257	1006	325	215	170	48
Adj No. of Lanes	2	2	1	2	2	1	1	2	1	1	2	1
Peak Hour Factor	0.75	0.90	0.62	0.69	0.62	0.72	0.54	0.62	0.61	0.79	0.50	0.58
Percent Heavy Veh, %	4	4	4	6	6	6	5	5	5	4	4	4
Cap, veh/h	827	1151	658	646	1130	646	159	1126	503	160	1137	508
Arrive On Green	0.33	0.33	0.33	0.33	0.33	0.33	0.09	0.33	0.33	0.09	0.33	0.33
Sat Flow, veh/h	1766	3471	1553	1318	3406	1524	1723	3438	1535	1740	3471	1550
Grp Volume(v), veh/h	68	208	547	325	68	392	257	1006	325	215	170	48
Grp Sat Flow(s),veh/h/ln	883	1736	1553	659	1703	1524	1723	1719	1535	1740	1736	1550
Q Serve(g_s), s	1.5	2.3	17.0	12.6	0.7	10.8	5.0	15.1	9.8	5.0	1.9	1.2
Cycle Q Clear(g_c), s	2.2	2.3	17.0	14.9	0.7	10.8	5.0	15.1	9.8	5.0	1.9	1.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	827	1151	658	646	1130	646	159	1126	503	160	1137	508
V/C Ratio(X)	0.08	0.18	0.83	0.50	0.06	0.61	1.62	0.89	0.65	1.34	0.15	0.09
Avail Cap(c_a), veh/h	827	1151	658	646	1130	646	159	1140	509	160	1151	514
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	13.1	12.9	13.9	18.2	12.4	12.1	24.6	17.4	15.6	24.6	12.9	12.7
Incr Delay (d2), s/veh	0.0	0.1	8.9	0.6	0.0	1.6	305.4	9.2	2.8	189.3	0.1	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	1.1	8.8	2.3	0.4	4.8	15.8	8.6	4.5	10.8	0.9	0.5
LnGrp Delay(d),s/veh	13.2	13.0	22.8	18.8	12.4	13.8	330.1	26.5	18.4	214.0	13.0	12.7
LnGrp LOS	B	B	C	B	B	B	F	C	B	F	B	B
Approach Vol, veh/h		823			785			1588			433	
Approach Delay, s/veh		19.5			15.7			74.0			112.8	
Approach LOS		B			B			E			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	9.5	22.3		22.5	9.5	22.3		22.5
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5
Max Green Setting (Gmax), s	5.0	18.0		18.0	5.0	18.0		18.0
Max Q Clear Time (g_c+I1), s	7.0	17.1		19.0	7.0	3.9		16.9
Green Ext Time (p_c), s	0.0	0.7		0.0	0.0	0.9		0.5

Intersection Summary	
HCM 2010 Ctrl Delay	53.7
HCM 2010 LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰↰	↑↱		↰	↑↑	↱		✥		↰	↰	↱
Traffic Volume (vph)	963	1410	0	5	76	42	5	0	5	27	0	555
Future Volume (vph)	963	1410	0	5	76	42	5	0	5	27	0	555
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.6		4.0	4.6	4.6		4.6		5.1	5.1	5.1
Lane Util. Factor	0.97	0.95		1.00	0.95	1.00		1.00		0.95	0.95	1.00
Frt	1.00	1.00		1.00	1.00	0.85		0.93		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00		0.98		0.95	0.95	1.00
Satd. Flow (prot)	3433	3539		1736	3471	1553		1711		1681	1681	1583
Flt Permitted	0.95	1.00		0.95	1.00	1.00		0.98		0.95	0.95	1.00
Satd. Flow (perm)	3433	3539		1736	3471	1553		1711		1681	1681	1583
Peak-hour factor, PHF	0.79	0.87	0.92	0.92	0.88	0.75	0.92	0.92	0.92	0.61	0.92	0.81
Adj. Flow (vph)	1219	1621	0	5	86	56	5	0	5	44	0	685
RTOR Reduction (vph)	0	0	0	0	0	49	0	9	0	0	0	587
Lane Group Flow (vph)	1219	1621	0	5	86	7	0	1	0	22	22	98
Heavy Vehicles (%)	2%	2%	2%	4%	4%	4%	1%	1%	1%	2%	2%	2%
Turn Type	Prot	NA		Prot	NA	Perm	Split	NA		Split	NA	Prot
Protected Phases	3	8		7	4		5	5		6	6	6
Permitted Phases						4						
Actuated Green, G (s)	33.3	41.7		0.6	9.0	9.0		4.1		10.8	10.8	10.8
Effective Green, g (s)	33.3	41.7		0.6	9.0	9.0		4.1		10.8	10.8	10.8
Actuated g/C Ratio	0.44	0.55		0.01	0.12	0.12		0.05		0.14	0.14	0.14
Clearance Time (s)	4.0	4.6		4.0	4.6	4.6		4.6		5.1	5.1	5.1
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0		3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	1514	1954		13	413	185		92		240	240	226
v/s Ratio Prot	c0.36	c0.46		0.00	0.02			c0.00		0.01	0.01	c0.06
v/s Ratio Perm						0.00						
v/c Ratio	0.81	0.83		0.38	0.21	0.04		0.01		0.09	0.09	0.43
Uniform Delay, d1	18.3	14.0		37.3	30.0	29.4		33.8		28.1	28.1	29.6
Progression Factor	1.00	1.00		1.00	1.00	1.00		1.00		1.00	1.00	1.00
Incremental Delay, d2	3.2	3.1		17.9	0.3	0.1		0.0		0.2	0.2	1.3
Delay (s)	21.5	17.0		55.1	30.3	29.5		33.8		28.3	28.3	30.9
Level of Service	C	B		E	C	C		C		C	C	C
Approach Delay (s)		19.0			30.8			33.8			30.7	
Approach LOS		B			C			C			C	

Intersection Summary			
HCM 2000 Control Delay	21.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	75.5	Sum of lost time (s)	18.3
Intersection Capacity Utilization	52.9%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

	↗	→	↘	↙	←	↖	↖	↑	↗	↘	↓	↙
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑↱		↰	↑↱		↰	↑↱		↰	↑↱	
Traffic Volume (veh/h)	34	265	166	76	336	48	90	633	276	51	762	18
Future Volume (veh/h)	34	265	166	76	336	48	90	633	276	51	762	18
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1881	1881	1900	1863	1863	1900	1881	1881	1900
Adj Flow Rate, veh/h	48	368	241	117	405	68	155	696	288	100	977	32
Adj No. of Lanes	1	2	0	1	2	0	1	2	0	1	2	0
Peak Hour Factor	0.71	0.72	0.69	0.65	0.83	0.71	0.58	0.91	0.96	0.51	0.78	0.56
Percent Heavy Veh, %	2	2	2	1	1	1	2	2	2	1	1	1
Cap, veh/h	60	549	354	139	950	158	184	844	349	142	1154	38
Arrive On Green	0.03	0.27	0.27	0.08	0.31	0.31	0.10	0.35	0.35	0.08	0.33	0.33
Sat Flow, veh/h	1774	2057	1325	1792	3062	510	1774	2440	1009	1792	3532	116
Grp Volume(v), veh/h	48	316	293	117	235	238	155	505	479	100	494	515
Grp Sat Flow(s),veh/h/ln	1774	1770	1613	1792	1787	1785	1774	1770	1679	1792	1787	1860
Q Serve(g_s), s	2.1	12.1	12.4	4.9	8.0	8.1	6.5	19.9	19.9	4.2	19.6	19.6
Cycle Q Clear(g_c), s	2.1	12.1	12.4	4.9	8.0	8.1	6.5	19.9	19.9	4.2	19.6	19.6
Prop In Lane	1.00		0.82	1.00		0.29	1.00		0.60	1.00		0.06
Lane Grp Cap(c), veh/h	60	472	431	139	555	554	184	612	581	142	584	608
V/C Ratio(X)	0.80	0.67	0.68	0.84	0.42	0.43	0.84	0.83	0.83	0.70	0.85	0.85
Avail Cap(c_a), veh/h	114	730	666	139	761	760	184	707	671	142	644	670
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	36.6	25.0	25.1	34.8	20.9	20.9	33.6	22.9	22.9	34.3	23.9	23.9
Incr Delay (d2), s/veh	8.7	1.6	1.9	34.0	0.5	0.5	27.2	7.0	7.4	12.5	9.5	9.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	6.1	5.8	3.7	4.0	4.0	4.6	10.9	10.4	2.5	11.2	11.6
LnGrp Delay(d),s/veh	45.3	26.6	27.0	68.7	21.4	21.5	60.9	29.9	30.2	46.8	33.4	33.1
LnGrp LOS	D	C	C	E	C	C	E	C	C	D	C	C
Approach Vol, veh/h		657			590			1139			1109	
Approach Delay, s/veh		28.1			30.8			34.2			34.5	
Approach LOS		C			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.6	30.9	10.0	24.9	12.0	29.4	6.7	28.2
Change Period (Y+Rc), s	4.5	* 4.5	4.1	4.5	4.1	4.5	4.1	4.5
Max Green Setting (Gmax), s	4.9	* 31	5.9	31.5	7.9	27.5	4.9	32.5
Max Q Clear Time (g_c+I1), s	6.2	21.9	6.9	14.4	8.5	21.6	4.1	10.1
Green Ext Time (p_c), s	0.0	4.1	0.0	3.6	0.0	3.1	0.0	2.9

Intersection Summary	
HCM 2010 Ctrl Delay	32.6
HCM 2010 LOS	C

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✢		↰	↑	↱	↰	↑↑↱		↰	↑↑↱	
Traffic Volume (veh/h)	5	21	3	36	37	296	4	789	121	281	718	5
Future Volume (veh/h)	5	21	3	36	37	296	4	789	121	281	718	5
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1900	1900	1863	1863	1863	1810	1810	1900	1863	1863	1900
Adj Flow Rate, veh/h	12	32	8	48	44	352	8	1081	181	316	876	8
Adj No. of Lanes	0	1	0	1	1	1	1	2	0	1	2	0
Peak Hour Factor	0.42	0.66	0.38	0.75	0.84	0.84	0.50	0.73	0.67	0.89	0.82	0.63
Percent Heavy Veh, %	0	0	0	2	2	2	5	5	5	2	2	2
Cap, veh/h	86	195	42	61	457	389	14	1250	209	328	2159	20
Arrive On Green	0.16	0.16	0.16	0.03	0.25	0.25	0.01	0.42	0.42	0.19	0.60	0.60
Sat Flow, veh/h	213	1195	256	1774	1863	1583	1723	2948	492	1774	3593	33
Grp Volume(v), veh/h	52	0	0	48	44	352	8	629	633	316	431	453
Grp Sat Flow(s),veh/h/ln	1664	0	0	1774	1863	1583	1723	1719	1721	1774	1770	1857
Q Serve(g_s), s	0.0	0.0	0.0	2.3	1.6	18.5	0.4	28.6	28.8	15.2	11.0	11.0
Cycle Q Clear(g_c), s	2.1	0.0	0.0	2.3	1.6	18.5	0.4	28.6	28.8	15.2	11.0	11.0
Prop In Lane	0.23		0.15	1.00		1.00	1.00		0.29	1.00		0.02
Lane Grp Cap(c), veh/h	323	0	0	61	457	389	14	729	730	328	1063	1116
V/C Ratio(X)	0.16	0.00	0.00	0.78	0.10	0.91	0.57	0.86	0.87	0.96	0.41	0.41
Avail Cap(c_a), veh/h	592	0	0	576	629	535	319	815	816	328	1063	1116
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	30.9	0.0	0.0	41.1	25.0	31.4	42.4	22.5	22.5	34.7	9.0	9.0
Incr Delay (d2), s/veh	0.1	0.0	0.0	7.9	0.0	12.7	13.0	8.8	9.1	39.2	0.2	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	0.0	0.0	1.3	0.8	9.5	0.2	15.2	15.4	11.0	5.5	5.7
LnGrp Delay(d),s/veh	31.0	0.0	0.0	49.0	25.1	44.2	55.5	31.3	31.6	73.9	9.3	9.3
LnGrp LOS	C			D	C	D	E	C	C	E	A	A
Approach Vol, veh/h		52			444			1270			1200	
Approach Delay, s/veh		31.0			42.8			31.6			26.3	
Approach LOS		C			D			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6		8
Phs Duration (G+Y+Rc), s	20.0	40.7	7.1	18.1	4.8	55.9		25.2
Change Period (Y+Rc), s	4.1	* 4.3	4.1	4.1	4.1	* 4.3		4.1
Max Green Setting (Gmax), s	15.9	* 41	27.9	29.0	15.9	* 41		29.0
Max Q Clear Time (g_c+I1), s	17.2	30.8	4.3	4.1	2.4	13.0		20.5
Green Ext Time (p_c), s	0.0	5.6	0.0	0.2	0.0	6.0		0.6

Intersection Summary	
HCM 2010 Ctrl Delay	31.1
HCM 2010 LOS	C

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑	↱	↰	↑↱		↰	↑↱		↰	↑↱	
Traffic Volume (veh/h)	14	30	182	61	0	9	260	726	100	27	662	1
Future Volume (veh/h)	14	30	182	61	0	9	260	726	100	27	662	1
Number	3	8	18	7	4	14	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1881	1881	1881	1532	1532	1900	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	37	94	230	122	0	18	271	756	172	33	883	4
Adj No. of Lanes	1	1	1	1	2	0	1	2	0	1	2	0
Peak Hour Factor	0.38	0.32	0.79	0.50	0.50	0.50	0.96	0.96	0.58	0.81	0.75	0.25
Percent Heavy Veh, %	1	1	1	24	24	24	2	2	2	2	2	2
Cap, veh/h	118	367	309	168	356	316	249	1049	239	119	1060	5
Arrive On Green	0.07	0.20	0.20	0.12	0.00	0.24	0.14	0.37	0.37	0.07	0.29	0.29
Sat Flow, veh/h	1792	1881	1584	1459	1456	1293	1774	2860	651	1774	3613	16
Grp Volume(v), veh/h	37	94	230	122	0	18	271	468	460	33	432	455
Grp Sat Flow(s),veh/h/ln	1792	1881	1584	1459	1456	1293	1774	1770	1741	1774	1770	1860
Q Serve(g_s), s	1.4	3.0	9.7	5.7	0.0	0.8	10.0	16.2	16.2	1.3	16.3	16.3
Cycle Q Clear(g_c), s	1.4	3.0	9.7	5.7	0.0	0.8	10.0	16.2	16.2	1.3	16.3	16.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.37	1.00		0.01
Lane Grp Cap(c), veh/h	118	367	309	168	356	316	249	649	638	119	519	546
V/C Ratio(X)	0.31	0.26	0.74	0.73	0.00	0.06	1.09	0.72	0.72	0.28	0.83	0.83
Avail Cap(c_a), veh/h	227	632	532	185	468	416	249	649	638	249	569	598
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	31.7	24.3	27.0	30.4	0.0	20.6	30.6	19.4	19.4	31.5	23.5	23.5
Incr Delay (d2), s/veh	1.5	0.4	3.5	12.1	0.0	0.1	82.2	3.9	4.0	1.2	9.5	9.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	1.6	4.5	2.9	0.0	0.3	10.5	8.5	8.4	0.7	9.3	9.7
LnGrp Delay(d),s/veh	33.2	24.6	30.5	42.5	0.0	20.7	112.8	23.3	23.4	32.8	33.0	32.6
LnGrp LOS	C	C	C	D		C	F	C	C	C	C	C
Approach Vol, veh/h		361			140			1199			920	
Approach Delay, s/veh		29.3			39.7			43.6			32.8	
Approach LOS		C			D			D			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	14.0	26.0	8.7	22.5	8.8	31.2	12.2	19.0
Change Period (Y+Rc), s	4.0	5.1	4.0	5.1	4.0	5.1	4.0	5.1
Max Green Setting (Gmax), s	10.0	22.9	9.0	22.9	10.0	22.9	9.0	23.9
Max Q Clear Time (g_c+I1), s	12.0	18.3	3.4	2.8	3.3	18.2	7.7	11.7
Green Ext Time (p_c), s	0.0	2.4	0.0	0.0	0.0	2.4	0.0	1.0

Intersection Summary	
HCM 2010 Ctrl Delay	37.6
HCM 2010 LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑↱		↰	↑↱		↰	↑↱		↰	↑↱	
Traffic Volume (veh/h)	34	260	25	135	300	200	100	400	107	100	562	1
Future Volume (veh/h)	34	260	25	135	300	200	100	400	107	100	562	1
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1845	1845	1900	1863	1863	1900	1881	1881	1900
Adj Flow Rate, veh/h	89	283	32	180	337	217	156	1600	143	238	1124	4
Adj No. of Lanes	1	2	0	1	2	0	1	2	0	1	2	0
Peak Hour Factor	0.38	0.92	0.78	0.75	0.89	0.92	0.64	0.25	0.75	0.42	0.50	0.25
Percent Heavy Veh, %	2	2	2	3	3	3	2	2	2	1	1	1
Cap, veh/h	143	584	65	237	383	242	355	1818	161	261	2181	8
Arrive On Green	0.04	0.18	0.18	0.04	0.19	0.19	0.05	0.55	0.55	0.10	0.60	0.60
Sat Flow, veh/h	1774	3209	360	1757	2064	1303	1774	3290	291	1792	3653	13
Grp Volume(v), veh/h	89	155	160	180	285	269	156	854	889	238	550	578
Grp Sat Flow(s),veh/h/ln	1774	1770	1799	1757	1752	1615	1774	1770	1811	1792	1787	1879
Q Serve(g_s), s	5.5	10.8	10.9	6.0	21.7	22.3	5.2	57.2	59.1	11.3	24.6	24.6
Cycle Q Clear(g_c), s	5.5	10.8	10.9	6.0	21.7	22.3	5.2	57.2	59.1	11.3	24.6	24.6
Prop In Lane	1.00		0.20	1.00		0.81	1.00		0.16	1.00		0.01
Lane Grp Cap(c), veh/h	143	322	328	237	325	300	355	978	1001	261	1067	1122
V/C Ratio(X)	0.62	0.48	0.49	0.76	0.88	0.90	0.44	0.87	0.89	0.91	0.52	0.52
Avail Cap(c_a), veh/h	143	374	381	237	377	348	434	1084	1110	269	1103	1160
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	46.0	50.3	50.3	52.4	54.3	54.5	13.5	26.5	26.9	41.0	16.1	16.1
Incr Delay (d2), s/veh	6.0	0.4	0.4	12.1	16.6	21.0	0.3	7.5	8.4	31.4	0.4	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.0	5.3	5.5	6.3	12.0	11.7	2.5	29.8	31.7	11.2	12.2	12.8
LnGrp Delay(d),s/veh	52.1	50.7	50.8	64.6	70.9	75.5	13.8	34.0	35.4	72.4	16.5	16.4
LnGrp LOS	D	D	D	E	E	E	B	C	D	E	B	B
Approach Vol, veh/h		404			734			1899			1366	
Approach Delay, s/veh		51.0			71.0			33.0			26.2	
Approach LOS		D			E			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	17.4	80.3	10.0	29.5	11.3	86.3	9.5	30.0
Change Period (Y+Rc), s	4.0	4.5	4.0	4.5	4.0	4.5	4.0	4.5
Max Green Setting (Gmax), s	14.0	84.0	6.0	29.0	13.4	84.6	5.5	29.5
Max Q Clear Time (g_c+I1), s	13.3	61.1	8.0	12.9	7.2	26.6	7.5	24.3
Green Ext Time (p_c), s	0.0	14.6	0.0	1.0	0.1	10.1	0.0	1.1

Intersection Summary	
HCM 2010 Ctrl Delay	38.9
HCM 2010 LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑↱		↰	↑↱		↰	↑↱		↰	↑↱	
Traffic Volume (veh/h)	31	250	68	95	385	149	135	749	84	9	554	31
Future Volume (veh/h)	31	250	68	95	385	149	135	749	84	9	554	31
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1881	1881	1900	1881	1881	1900	1759	1759	1900	1863	1863	1900
Adj Flow Rate, veh/h	65	431	219	117	405	298	270	1118	191	21	1259	44
Adj No. of Lanes	1	2	0	1	2	0	1	2	0	1	2	0
Peak Hour Factor	0.48	0.58	0.31	0.81	0.95	0.50	0.50	0.67	0.44	0.42	0.44	0.71
Percent Heavy Veh, %	1	1	1	1	1	1	8	8	8	2	2	2
Cap, veh/h	84	484	244	141	479	349	291	1205	205	233	1323	46
Arrive On Green	0.05	0.21	0.21	0.08	0.24	0.24	0.17	0.42	0.42	0.13	0.38	0.38
Sat Flow, veh/h	1792	2304	1160	1792	1975	1439	1675	2858	487	1774	3489	122
Grp Volume(v), veh/h	65	333	317	117	366	337	270	652	657	21	638	665
Grp Sat Flow(s),veh/h/ln	1792	1787	1677	1792	1787	1627	1675	1671	1673	1774	1770	1841
Q Serve(g_s), s	3.9	19.5	19.8	6.9	21.0	21.3	17.1	39.9	40.2	1.1	37.7	37.8
Cycle Q Clear(g_c), s	3.9	19.5	19.8	6.9	21.0	21.3	17.1	39.9	40.2	1.1	37.7	37.8
Prop In Lane	1.00		0.69	1.00		0.88	1.00		0.29	1.00		0.07
Lane Grp Cap(c), veh/h	84	376	352	141	433	394	291	705	706	233	671	698
V/C Ratio(X)	0.78	0.89	0.90	0.83	0.85	0.85	0.93	0.93	0.93	0.09	0.95	0.95
Avail Cap(c_a), veh/h	105	392	367	141	433	394	291	866	867	233	694	722
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	50.8	41.3	41.4	48.9	38.9	39.0	43.8	29.5	29.6	41.1	32.4	32.5
Incr Delay (d2), s/veh	19.0	21.0	23.7	30.0	14.5	16.7	34.3	12.6	13.3	0.2	22.1	21.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.4	11.8	11.5	4.6	12.1	11.4	10.6	20.8	21.0	0.6	22.6	23.4
LnGrp Delay(d),s/veh	69.8	62.2	65.1	78.8	53.4	55.7	78.1	42.1	43.0	41.3	54.5	54.2
LnGrp LOS	E	E	E	E	D	E	E	D	D	D	D	D
Approach Vol, veh/h		715			820			1579			1324	
Approach Delay, s/veh		64.2			58.0			48.6			54.2	
Approach LOS		E			E			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	18.6	49.9	12.0	27.1	23.2	45.3	8.5	30.6
Change Period (Y+Rc), s	4.5	4.5	3.5	4.5	4.5	4.5	3.5	4.5
Max Green Setting (Gmax), s	15.1	55.8	8.5	23.6	18.7	42.2	6.3	25.8
Max Q Clear Time (g_c+I1), s	3.1	42.2	8.9	21.8	19.1	39.8	5.9	23.3
Green Ext Time (p_c), s	0.0	3.2	0.0	0.8	0.0	1.1	0.0	1.2

Intersection Summary	
HCM 2010 Ctrl Delay	54.5
HCM 2010 LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↰	↱↱	↰	↑↑↑			↑↑↑	↱
Traffic Volume (veh/h)	0	0	0	215	55	805	27	1610	0	0	2652	595
Future Volume (veh/h)	0	0	0	215	55	805	27	1610	0	0	2652	595
Number				3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln				1900	1696	1696	1696	1696	0	0	1810	1810
Adj Flow Rate, veh/h				253	220	875	52	1789	0	0	2762	902
Adj No. of Lanes				0	1	2	1	3	0	0	3	1
Peak Hour Factor				0.85	0.25	0.92	0.52	0.90	0.92	0.92	0.96	0.66
Percent Heavy Veh, %				12	12	12	12	12	0	0	5	5
Cap, veh/h				262	228	753	65	2979	0	0	2832	882
Arrive On Green				0.30	0.30	0.30	0.04	0.64	0.00	0.00	0.57	0.57
Sat Flow, veh/h				884	768	2538	1616	4784	0	0	5103	1538
Grp Volume(v), veh/h				473	0	875	52	1789	0	0	2762	902
Grp Sat Flow(s),veh/h/ln				1652	0	1269	1616	1544	0	0	1647	1538
Q Serve(g_s), s				42.3	0.0	44.5	4.8	33.7	0.0	0.0	81.2	86.0
Cycle Q Clear(g_c), s				42.3	0.0	44.5	4.8	33.7	0.0	0.0	81.2	86.0
Prop In Lane				0.53		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				490	0	753	65	2979	0	0	2832	882
V/C Ratio(X)				0.96	0.00	1.16	0.80	0.60	0.00	0.00	0.98	1.02
Avail Cap(c_a), veh/h				490	0	753	65	2979	0	0	2832	882
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	1.00	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				52.0	0.0	52.8	71.4	15.5	0.0	0.0	31.0	32.0
Incr Delay (d2), s/veh				31.7	0.0	87.3	50.5	0.3	0.0	0.0	11.7	36.2
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				23.6	0.0	24.7	3.0	14.3	0.0	0.0	39.6	45.1
LnGrp Delay(d),s/veh				83.7	0.0	140.1	121.9	15.9	0.0	0.0	42.7	68.2
LnGrp LOS				F		F	F	B			D	F
Approach Vol, veh/h					1348			1841			3664	
Approach Delay, s/veh					120.3			18.9			49.0	
Approach LOS					F			B			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2			5	6		8
Phs Duration (G+Y+Rc), s		101.0			10.5	90.5		49.0
Change Period (Y+Rc), s		4.5			4.5	4.5		4.5
Max Green Setting (Gmax), s		96.5			6.0	86.0		44.5
Max Q Clear Time (g_c+I1), s		35.7			6.8	88.0		46.5
Green Ext Time (p_c), s		24.6			0.0	0.0		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	54.9
HCM 2010 LOS	D

17: Mountain House Pkwy & I-205 EB Off-Ramp

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↰↑	↱					↑↑	↱		↑↑	
Traffic Volume (vph)	1215	100	228	0	0	0	0	385	469	0	1357	0
Future Volume (vph)	1215	100	228	0	0	0	0	385	469	0	1357	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5					4.5	4.5		4.5	
Lane Util. Factor	0.95	0.95	1.00					0.95	1.00		0.95	
Frt	1.00	1.00	0.85					1.00	0.85		1.00	
Flt Protected	0.95	0.97	1.00					1.00	1.00		1.00	
Satd. Flow (prot)	1618	1657	1524					3008	1346		3223	
Flt Permitted	0.95	0.97	1.00					1.00	1.00		1.00	
Satd. Flow (perm)	1618	1657	1524					3008	1346		3223	
Peak-hour factor, PHF	0.90	0.25	0.93	0.92	0.92	0.92	0.92	0.84	0.77	0.92	0.91	0.92
Adj. Flow (vph)	1350	400	245	0	0	0	0	458	609	0	1491	0
RTOR Reduction (vph)	0	0	7	0	0	0	0	0	220	0	0	0
Lane Group Flow (vph)	864	886	238	0	0	0	0	458	389	0	1491	0
Heavy Vehicles (%)	6%	6%	6%	2%	2%	2%	20%	20%	20%	12%	12%	12%
Turn Type	Prot	NA	Perm					NA	Perm		NA	
Protected Phases	7	4						2			6	
Permitted Phases			4						2			
Actuated Green, G (s)	59.5	59.5	59.5					51.5	51.5		51.5	
Effective Green, g (s)	59.5	59.5	59.5					51.5	51.5		51.5	
Actuated g/C Ratio	0.50	0.50	0.50					0.43	0.43		0.43	
Clearance Time (s)	4.5	4.5	4.5					4.5	4.5		4.5	
Vehicle Extension (s)	3.0	3.0	3.0					3.0	3.0		3.0	
Lane Grp Cap (vph)	802	821	755					1290	577		1383	
v/s Ratio Prot	0.53	c0.53						0.15			c0.46	
v/s Ratio Perm			0.16						0.29			
v/c Ratio	1.08	1.08	0.32					0.36	0.67		1.08	
Uniform Delay, d1	30.2	30.2	18.1					23.1	27.5		34.2	
Progression Factor	1.00	1.00	1.00					1.00	1.00		1.00	
Incremental Delay, d2	54.7	55.0	0.2					0.2	3.1		48.2	
Delay (s)	84.9	85.2	18.3					23.2	30.6		82.5	
Level of Service	F	F	B					C	C		F	
Approach Delay (s)		76.9			0.0			27.5			82.5	
Approach LOS		E			A			C			F	

Intersection Summary			
HCM 2000 Control Delay	67.1	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.08		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	82.3%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

18: Great Valley Pkwy & Kelso Rd/Questa Trail

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰↰	↑	↱	↰	↱		↰	↑↱		↰	↑↱	
Traffic Volume (veh/h)	66	21	6	4	12	210	202	632	6	497	569	15
Future Volume (veh/h)	66	21	6	4	12	210	202	632	6	497	569	15
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1159	1159	1159	1856	1856	1856	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	76	24	12	8	20	296	404	744	12	571	702	24
Peak Hour Factor	0.87	0.88	0.50	0.50	0.60	0.71	0.50	0.85	0.50	0.87	0.81	0.63
Percent Heavy Veh, %	50	50	50	3	3	3	2	2	2	2	2	2
Cap, veh/h	143	296	251	34	21	309	439	871	14	607	1185	41
Arrive On Green	0.07	0.26	0.26	0.02	0.21	0.21	0.25	0.24	0.24	0.34	0.34	0.34
Sat Flow, veh/h	2141	1159	982	1767	100	1487	1781	3579	58	1781	3505	120
Grp Volume(v), veh/h	76	24	12	8	0	316	404	369	387	571	356	370
Grp Sat Flow(s),veh/h/ln	1071	1159	982	1767	0	1588	1781	1777	1859	1781	1777	1848
Q Serve(g_s), s	4.3	2.0	1.2	0.6	0.0	24.7	27.8	24.9	24.9	39.0	20.8	20.8
Cycle Q Clear(g_c), s	4.3	2.0	1.2	0.6	0.0	24.7	27.8	24.9	24.9	39.0	20.8	20.8
Prop In Lane	1.00		1.00	1.00		0.94	1.00		0.03	1.00		0.06
Lane Grp Cap(c), veh/h	143	296	251	34	0	330	439	433	453	607	601	625
V/C Ratio(X)	0.53	0.08	0.05	0.23	0.00	0.96	0.92	0.85	0.85	0.94	0.59	0.59
Avail Cap(c_a), veh/h	154	296	251	141	0	330	681	555	581	823	696	724
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	56.7	35.6	35.3	60.6	0.0	49.2	46.1	45.3	45.4	40.1	34.4	34.4
Incr Delay (d2), s/veh	3.1	0.1	0.1	3.4	0.0	38.2	12.7	10.0	9.6	15.4	1.0	1.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.2	0.6	0.3	0.3	0.0	13.3	13.7	12.0	12.6	19.3	9.0	9.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	59.8	35.7	35.3	64.1	0.0	87.4	58.9	55.4	55.0	55.5	35.4	35.4
LnGrp LOS	E	D	D	E	A	F	E	E	E	E	D	D
Approach Vol, veh/h		112			324			1160			1297	
Approach Delay, s/veh		52.0			86.8			56.5			44.2	
Approach LOS		D			F			E			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	34.9	47.6	12.4	30.7	46.8	35.7	6.4	36.6
Change Period (Y+Rc), s	4.0	5.1	4.0	4.6	4.0	5.1	4.0	4.6
Max Green Setting (Gmax), s	48.0	49.2	9.0	26.1	58.0	39.2	10.0	25.1
Max Q Clear Time (g_c+I1), s	29.8	22.8	6.3	26.7	41.0	26.9	2.6	4.0
Green Ext Time (p_c), s	1.2	4.6	0.0	0.0	1.8	3.6	0.0	0.1

Intersection Summary	
HCM 6th Ctrl Delay	54.2
HCM 6th LOS	D

HCM 2010 Signalized Intersection Summary
19: Great Valley Pkwy & Main St

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↰	↱	↑↱		↰	↑↑
Traffic Volume (veh/h)	20	84	1273	37	172	709
Future Volume (veh/h)	20	84	1273	37	172	709
Number	3	18	2	12	1	6
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		0.98	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1900	1881	1900	1881	1881
Adj Flow Rate, veh/h	32	112	1534	40	307	797
Adj No. of Lanes	1	1	2	0	1	2
Peak Hour Factor	0.63	0.75	0.83	0.93	0.56	0.89
Percent Heavy Veh, %	0	0	1	1	1	1
Cap, veh/h	209	187	2098	55	327	2108
Arrive On Green	0.12	0.12	0.59	0.59	0.59	0.59
Sat Flow, veh/h	1810	1615	3652	93	327	3668
Grp Volume(v), veh/h	32	112	769	805	307	797
Grp Sat Flow(s),veh/h/ln	1810	1615	1787	1863	327	1787
Q Serve(g_s), s	0.5	2.0	9.5	9.5	8.5	3.6
Cycle Q Clear(g_c), s	0.5	2.0	9.5	9.5	18.0	3.6
Prop In Lane	1.00	1.00		0.05	1.00	
Lane Grp Cap(c), veh/h	209	187	1054	1099	327	2108
V/C Ratio(X)	0.15	0.60	0.73	0.73	0.94	0.38
Avail Cap(c_a), veh/h	1067	952	1054	1099	327	2108
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	12.2	12.8	4.5	4.5	14.0	3.3
Incr Delay (d2), s/veh	0.3	3.1	2.6	2.6	34.3	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	1.0	5.2	5.5	5.6	1.7
LnGrp Delay(d),s/veh	12.5	15.9	7.1	7.1	48.3	3.4
LnGrp LOS	B	B	A	A	D	A
Approach Vol, veh/h	144		1574			1104
Approach Delay, s/veh	15.2		7.1			15.9
Approach LOS	B		A			B

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2				6		8
Phs Duration (G+Y+Rc), s		22.5				22.5		8.0
Change Period (Y+Rc), s		4.5				4.5		4.5
Max Green Setting (Gmax), s		18.0				18.0		18.0
Max Q Clear Time (g_c+I1), s		11.5				20.0		4.0
Green Ext Time (p_c), s		4.8				0.0		0.3

Intersection Summary	
HCM 2010 Ctrl Delay	11.0
HCM 2010 LOS	B

HCM 2010 Signalized Intersection Summary
20: Great Valley Pkwy & Mustang Wy

Cumulative No Project
PM Peak

	↙	↖	↑	↗	↘	↓
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↰	↱	↑↱		↰	↑↑
Traffic Volume (veh/h)	21	446	938	72	302	232
Future Volume (veh/h)	21	446	938	72	302	232
Number	3	18	2	12	1	6
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		0.97	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1900	1863	1863
Adj Flow Rate, veh/h	34	465	987	96	392	290
Adj No. of Lanes	1	1	2	0	1	2
Peak Hour Factor	0.61	0.96	0.95	0.75	0.77	0.80
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	419	761	1116	108	433	2287
Arrive On Green	0.24	0.24	0.34	0.34	0.24	0.65
Sat Flow, veh/h	1774	1583	3343	316	1774	3632
Grp Volume(v), veh/h	34	465	537	546	392	290
Grp Sat Flow(s),veh/h/ln	1774	1583	1770	1796	1774	1770
Q Serve(g_s), s	1.1	16.5	21.9	21.9	16.4	2.4
Cycle Q Clear(g_c), s	1.1	16.5	21.9	21.9	16.4	2.4
Prop In Lane	1.00	1.00		0.18	1.00	
Lane Grp Cap(c), veh/h	419	761	607	617	433	2287
V/C Ratio(X)	0.08	0.61	0.88	0.88	0.90	0.13
Avail Cap(c_a), veh/h	419	761	645	654	475	2444
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	22.8	14.6	23.7	23.7	28.1	5.2
Incr Delay (d2), s/veh	0.1	1.4	13.4	13.2	19.7	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	7.5	12.9	13.0	10.4	1.2
LnGrp Delay(d),s/veh	22.9	16.1	37.1	37.0	47.7	5.2
LnGrp LOS	C	B	D	D	D	A
Approach Vol, veh/h	499		1083			682
Approach Delay, s/veh	16.5		37.0			29.7
Approach LOS	B		D			C

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	23.2	30.8				54.0		22.6
Change Period (Y+Rc), s	4.5	4.5				4.5		4.5
Max Green Setting (Gmax), s	20.5	27.9				52.9		18.1
Max Q Clear Time (g_c+I1), s	18.4	23.9				4.4		18.5
Green Ext Time (p_c), s	0.3	2.3				2.0		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	30.3
HCM 2010 LOS	C

21: Mountain House Pkwy & Central Pkwy

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↰↰	↱↱	↰↰	↑↑↑↑	↑↑↑↑	↱
Traffic Volume (veh/h)	277	865	795	1363	1097	152
Future Volume (veh/h)	277	865	795	1363	1097	152
Number	7	14	5	2	6	16
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1810	1810	1810	1810
Adj Flow Rate, veh/h	301	940	864	1482	1192	165
Adj No. of Lanes	2	2	2	4	4	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	5	5	5	5
Cap, veh/h	745	1449	1015	4057	1897	469
Arrive On Green	0.22	0.22	0.30	0.65	0.30	0.30
Sat Flow, veh/h	3442	2787	3343	6478	6478	1538
Grp Volume(v), veh/h	301	940	864	1482	1192	165
Grp Sat Flow(s),veh/h/ln	1721	1393	1672	1556	1556	1538
Q Serve(g_s), s	6.0	17.4	19.5	8.7	13.2	6.7
Cycle Q Clear(g_c), s	6.0	17.4	19.5	8.7	13.2	6.7
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	745	1449	1015	4057	1897	469
V/C Ratio(X)	0.40	0.65	0.85	0.37	0.63	0.35
Avail Cap(c_a), veh/h	745	1449	1401	5573	2694	666
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	27.1	14.0	26.3	6.4	24.0	21.8
Incr Delay (d2), s/veh	0.4	1.0	3.8	0.1	0.3	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.9	15.7	9.5	3.7	5.8	2.9
LnGrp Delay(d),s/veh	27.4	15.0	30.1	6.5	24.4	22.2
LnGrp LOS	C	B	C	A	C	C
Approach Vol, veh/h	1241			2346	1357	
Approach Delay, s/veh	18.0			15.2	24.1	
Approach LOS	B			B	C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		58.4		22.0	27.9	30.5		
Change Period (Y+Rc), s		6.0		4.6	3.5	6.0		
Max Green Setting (Gmax), s		72.0		17.4	33.7	34.8		
Max Q Clear Time (g_c+I1), s		10.7		19.4	21.5	15.2		
Green Ext Time (p_c), s		17.4		0.0	2.9	9.3		

Intersection Summary			
HCM 2010 Ctrl Delay			18.3
HCM 2010 LOS			B

22: Mountain House Pkwy & Von Sosten Rd

PM Peak

	↙	↖	↑	↗	↘	↓
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↰	↱	↑↑↑	↱	↰	↑↑↑
Traffic Volume (veh/h)	83	591	1405	213	533	1332
Future Volume (veh/h)	83	591	1405	213	533	1332
Number	3	18	2	12	1	6
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1810	1810	1810	1810
Adj Flow Rate, veh/h	119	869	1561	277	586	1448
Adj No. of Lanes	1	1	3	1	1	3
Peak Hour Factor	0.70	0.68	0.90	0.77	0.91	0.92
Percent Heavy Veh, %	3	3	5	5	5	5
Cap, veh/h	380	860	1603	832	572	3422
Arrive On Green	0.22	0.22	0.32	0.32	0.33	0.69
Sat Flow, veh/h	1757	1568	5103	1538	1723	5103
Grp Volume(v), veh/h	119	869	1561	277	586	1448
Grp Sat Flow(s),veh/h/ln	1757	1568	1647	1538	1723	1647
Q Serve(g_s), s	6.3	23.8	34.3	11.1	36.5	14.0
Cycle Q Clear(g_c), s	6.3	23.8	34.3	11.1	36.5	14.0
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	380	860	1603	832	572	3422
V/C Ratio(X)	0.31	1.01	0.97	0.33	1.02	0.42
Avail Cap(c_a), veh/h	380	860	1603	832	572	3422
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	36.2	24.8	36.7	14.1	36.7	7.3
Incr Delay (d2), s/veh	0.5	33.4	16.6	0.2	44.1	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.1	33.9	18.1	7.0	24.3	6.3
LnGrp Delay(d),s/veh	36.7	58.3	53.3	14.4	80.8	7.4
LnGrp LOS	D	F	D	B	F	A
Approach Vol, veh/h	988		1838			2034
Approach Delay, s/veh	55.7		47.4			28.6
Approach LOS	E		D			C

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	40.5	41.2				81.7		28.3
Change Period (Y+Rc), s	4.0	5.5				5.5		4.5
Max Green Setting (Gmax), s	36.5	35.7				76.2		23.8
Max Q Clear Time (g_c+I1), s	38.5	36.3				16.0		25.8
Green Ext Time (p_c), s	0.0	0.0				16.7		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	41.2
HCM 2010 LOS	D

23: Mountain House Pkwy & Grand Ave

	↗	↘	↖	↑	↓	↙
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↰	↱		↑↑	↑↑	↱
Traffic Volume (veh/h)	458	96	106	1022	834	242
Future Volume (veh/h)	458	96	106	1022	834	242
Number	7	14	5	2	6	16
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1583	1583	1900	1727	1759	1759
Adj Flow Rate, veh/h	520	102	116	1175	916	306
Adj No. of Lanes	1	1	0	2	2	1
Peak Hour Factor	0.88	0.94	0.91	0.87	0.91	0.79
Percent Heavy Veh, %	20	20	10	10	8	8
Cap, veh/h	563	399	0	1456	1483	663
Arrive On Green	0.37	0.37	0.00	0.44	0.44	0.44
Sat Flow, veh/h	1508	1346	0	3368	3431	1495
Grp Volume(v), veh/h	520	102	0	1175	916	306
Grp Sat Flow(s),veh/h/ln	1508	1346	0	1641	1671	1495
Q Serve(g_s), s	19.3	7.9	0.0	18.2	12.3	8.4
Cycle Q Clear(g_c), s	19.3	7.9	0.0	18.2	12.3	8.4
Prop In Lane	1.00	1.00	0.00			1.00
Lane Grp Cap(c), veh/h	563	399	0	1456	1483	663
V/C Ratio(X)	0.92	0.26	0.00	0.81	0.62	0.46
Avail Cap(c_a), veh/h	652	478	0	1907	1943	869
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	17.5	59.5	0.0	14.1	12.5	11.4
Incr Delay (d2), s/veh	16.4	0.1	0.0	1.8	0.3	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	10.5	4.4	0.0	8.5	5.7	3.5
LnGrp Delay(d),s/veh	33.9	59.7	0.0	15.9	12.8	11.8
LnGrp LOS	C	E		B	B	B
Approach Vol, veh/h	622			1175	1222	
Approach Delay, s/veh	38.1			15.9	12.5	
Approach LOS	D			B	B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		32.0		26.5	0.0	32.0		
Change Period (Y+Rc), s		6.0		* 4.7	4.5	6.0		
Max Green Setting (Gmax), s		34.0		* 25	25.5	34.0		
Max Q Clear Time (g_c+I1), s		20.2		21.3	0.0	14.3		
Green Ext Time (p_c), s		5.8		0.6	0.0	5.9		

Intersection Summary	
HCM 2010 Ctrl Delay	19.1
HCM 2010 LOS	B

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				↰	↱	↱	↰	↑↑↑			↑↑↑	↱
Traffic Volume (vph)	0	0	0	434	313	641	6	1138	0	0	2095	301
Future Volume (vph)	0	0	0	434	313	641	6	1138	0	0	2095	301
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				4.5	4.5	4.5	4.5	4.5			4.5	4.5
Lane Util. Factor				1.00	0.95	0.95	1.00	0.91			0.91	1.00
Frt				1.00	0.94	0.85	1.00	1.00			1.00	0.85
Flt Protected				0.95	1.00	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)				1612	1514	1370	1612	4631			4940	1538
Flt Permitted				0.95	1.00	1.00	0.95	1.00			1.00	1.00
Satd. Flow (perm)				1612	1514	1370	1612	4631			4940	1538
Peak-hour factor, PHF	0.92	0.92	0.92	0.83	0.86	0.80	0.75	0.83	0.92	0.92	0.89	0.79
Adj. Flow (vph)	0	0	0	523	364	801	8	1371	0	0	2354	381
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	121
Lane Group Flow (vph)	0	0	0	523	612	553	8	1371	0	0	2354	260
Heavy Vehicles (%)	2%	2%	2%	12%	12%	12%	12%	12%	12%	5%	5%	5%
Turn Type				Prot	NA	Perm	Prot	NA			NA	Perm
Protected Phases				3	8		5	2			6	
Permitted Phases						8						6
Actuated Green, G (s)				54.9	54.9	54.9	1.1	71.4			65.8	65.8
Effective Green, g (s)				54.9	54.9	54.9	1.1	71.4			65.8	65.8
Actuated g/C Ratio				0.41	0.41	0.41	0.01	0.53			0.49	0.49
Clearance Time (s)				4.5	4.5	4.5	4.5	4.5			4.5	4.5
Vehicle Extension (s)				3.0	3.0	3.0	3.0	3.0			3.0	3.0
Lane Grp Cap (vph)				654	614	555	13	2443			2402	747
v/s Ratio Prot				0.32	c0.40		0.00	c0.30			c0.48	
v/s Ratio Perm						0.40						0.17
v/c Ratio				0.80	1.00	1.00	0.62	0.56			0.98	0.35
Uniform Delay, d1				35.4	40.1	40.1	66.9	21.4			34.1	21.5
Progression Factor				1.00	1.00	1.00	1.00	1.00			1.00	1.00
Incremental Delay, d2				6.8	35.2	37.0	64.0	0.3			13.9	0.3
Delay (s)				42.2	75.4	77.1	130.9	21.7			48.1	21.8
Level of Service				D	E	E	F	C			D	C
Approach Delay (s)		0.0			65.7			22.4			44.4	
Approach LOS		A			E			C			D	

Intersection Summary			
HCM 2000 Control Delay	45.3	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.99		
Actuated Cycle Length (s)	135.3	Sum of lost time (s)	13.5
Intersection Capacity Utilization	86.2%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
17: Mountain House Pkwy & I-205 EB Off-Ramp

Cumulative No Project (MITG)
PM Peak

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰↰	↱						↑↑	↱		↑↑	
Traffic Volume (vph)	1215	100	228	0	0	0	0	385	469	0	1357	0
Future Volume (vph)	1215	100	228	0	0	0	0	385	469	0	1357	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5						4.5	4.5		4.5	
Lane Util. Factor	0.97	1.00						0.95	1.00		0.95	
Frt	1.00	0.94						1.00	0.85		1.00	
Flt Protected	0.95	1.00						1.00	1.00		1.00	
Satd. Flow (prot)	3303	1690						3008	1346		3223	
Flt Permitted	0.95	1.00						1.00	1.00		1.00	
Satd. Flow (perm)	3303	1690						3008	1346		3223	
Peak-hour factor, PHF	0.90	0.25	0.93	0.92	0.92	0.92	0.92	0.84	0.77	0.92	0.91	0.92
Adj. Flow (vph)	1350	400	245	0	0	0	0	458	609	0	1491	0
RTOR Reduction (vph)	0	9	0	0	0	0	0	0	165	0	0	0
Lane Group Flow (vph)	1350	636	0	0	0	0	0	458	444	0	1491	0
Heavy Vehicles (%)	6%	6%	6%	2%	2%	2%	20%	20%	20%	12%	12%	12%
Turn Type	Prot	NA						NA	Perm		NA	
Protected Phases	7	4						2			6	
Permitted Phases									2			
Actuated Green, G (s)	37.8	37.8						43.2	43.2		43.2	
Effective Green, g (s)	37.8	37.8						43.2	43.2		43.2	
Actuated g/C Ratio	0.42	0.42						0.48	0.48		0.48	
Clearance Time (s)	4.5	4.5						4.5	4.5		4.5	
Vehicle Extension (s)	3.0	3.0						3.0	3.0		3.0	
Lane Grp Cap (vph)	1387	709						1443	646		1547	
v/s Ratio Prot	c0.41	0.38						0.15			c0.46	
v/s Ratio Perm									0.33			
v/c Ratio	0.97	0.90						0.32	0.69		0.96	
Uniform Delay, d1	25.6	24.3						14.4	18.2		22.6	
Progression Factor	1.00	1.00						1.00	1.00		1.00	
Incremental Delay, d2	18.0	14.0						0.1	3.0		15.1	
Delay (s)	43.6	38.2						14.5	21.2		37.7	
Level of Service	D	D						B	C		D	
Approach Delay (s)		41.9			0.0			18.3			37.7	
Approach LOS		D			A			B			D	

Intersection Summary			
HCM 2000 Control Delay	35.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.97		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	86.9%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Appendix E INTERSECTION ANALYSIS: CUMULATIVE PLUS PROJECT CONDITIONS LOS CALCULATION SHEETS

HCM 6th Signalized Intersection Summary
1: Great Valley Pkwy & Byron Rd

Cumulative Plus Project
AM Peak

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑↑	↱	↰↰	↑↑	↱	↰	↑↱		↰	↑↱	
Traffic Volume (veh/h)	284	304	357	113	253	67	322	88	72	134	360	176
Future Volume (veh/h)	284	304	357	113	253	67	322	88	72	134	360	176
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1707	1707	1722	1722	1870	1856	1870	1856	1870	1870	1870
Adj Flow Rate, veh/h	309	353	476	131	305	73	454	96	100	146	391	191
Peak Hour Factor	0.92	0.86	0.75	0.86	0.83	0.92	0.71	0.92	0.72	0.92	0.92	0.92
Percent Heavy Veh, %	2	13	13	12	12	2	3	2	3	2	2	2
Cap, veh/h	336	768	746	304	398	350	493	693	619	177	479	231
Arrive On Green	0.19	0.24	0.24	0.10	0.12	0.12	0.28	0.39	0.39	0.10	0.21	0.21
Sat Flow, veh/h	1781	3244	1447	3182	3272	1585	1767	1777	1585	1781	2325	1121
Grp Volume(v), veh/h	309	353	476	131	305	73	454	96	100	146	298	284
Grp Sat Flow(s),veh/h/ln	1781	1622	1447	1591	1636	1585	1767	1777	1585	1781	1777	1669
Q Serve(g_s), s	19.3	10.6	7.3	4.4	10.2	2.4	28.3	3.9	4.7	9.1	18.1	18.5
Cycle Q Clear(g_c), s	19.3	10.6	7.3	4.4	10.2	2.4	28.3	3.9	4.7	9.1	18.1	18.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.67
Lane Grp Cap(c), veh/h	336	768	746	304	398	350	493	693	619	177	366	344
V/C Ratio(X)	0.92	0.46	0.64	0.43	0.77	0.21	0.92	0.14	0.16	0.83	0.81	0.83
Avail Cap(c_a), veh/h	346	1059	876	309	751	521	770	950	847	333	508	477
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	45.1	37.0	6.8	48.4	48.2	14.8	39.6	22.3	22.5	50.1	42.9	43.1
Incr Delay (d2), s/veh	28.6	0.4	1.2	1.0	3.1	0.3	11.5	0.1	0.1	9.3	6.9	8.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	10.7	4.0	3.0	1.7	4.1	1.0	13.5	1.7	1.7	4.5	8.6	8.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	73.7	37.5	8.0	49.3	51.3	15.1	51.1	22.4	22.6	59.4	49.8	51.3
LnGrp LOS	E	D	A	D	D	B	D	C	C	E	D	D
Approach Vol, veh/h		1138			509			650			728	
Approach Delay, s/veh		35.0			45.6			42.5			52.3	
Approach LOS		C			D			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	15.8	49.3	14.8	33.3	36.7	28.5	27.9	20.3
Change Period (Y+Rc), s	4.6	5.1	4.0	6.5	5.1	* 5.1	6.5	* 6.5
Max Green Setting (Gmax), s	21.2	60.6	11.0	37.0	49.4	* 32	22.0	* 26
Max Q Clear Time (g_c+I1), s	11.1	6.7	6.4	12.6	30.3	20.5	21.3	12.2
Green Ext Time (p_c), s	0.2	1.2	0.1	3.8	1.4	2.9	0.1	1.6

Intersection Summary	
HCM 6th Ctrl Delay	42.6
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

	↗	→	↘	↙	←	↖	↖	↑	↗	↘	↓	↙
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰↰	↑↑↑	↱↱	↰↰	↑↑↑	↱	↰	↑↑	↱↱	↰	↑↑	↱
Traffic Volume (veh/h)	249	205	112	267	445	217	120	269	324	350	131	19
Future Volume (veh/h)	249	205	112	267	445	217	120	269	324	350	131	19
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1696	1696	1696	1696	1863	1759	1863	1759	1863	1863	1863
Adj Flow Rate, veh/h	271	244	124	393	468	236	162	292	400	380	142	21
Adj No. of Lanes	2	3	2	2	3	1	1	2	2	1	2	1
Peak Hour Factor	0.92	0.84	0.90	0.68	0.95	0.92	0.74	0.92	0.81	0.92	0.92	0.92
Percent Heavy Veh, %	2	12	12	12	12	2	8	2	8	2	2	2
Cap, veh/h	406	821	450	503	1018	348	196	661	914	418	1080	670
Arrive On Green	0.12	0.18	0.18	0.16	0.22	0.22	0.12	0.19	0.19	0.24	0.31	0.31
Sat Flow, veh/h	3442	4631	2538	3134	4631	1583	1675	3539	2632	1774	3539	1583
Grp Volume(v), veh/h	271	244	124	393	468	236	162	292	400	380	142	21
Grp Sat Flow(s),veh/h/ln	1721	1544	1269	1567	1544	1583	1675	1770	1316	1774	1770	1583
Q Serve(g_s), s	6.4	3.9	3.6	10.2	7.4	11.6	8.0	6.2	9.9	17.6	2.5	0.7
Cycle Q Clear(g_c), s	6.4	3.9	3.6	10.2	7.4	11.6	8.0	6.2	9.9	17.6	2.5	0.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	406	821	450	503	1018	348	196	661	914	418	1080	670
V/C Ratio(X)	0.67	0.30	0.28	0.78	0.46	0.68	0.83	0.44	0.44	0.91	0.13	0.03
Avail Cap(c_a), veh/h	1648	2136	1170	1501	2136	730	604	1243	1347	640	1243	743
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	35.7	30.2	30.1	34.1	28.6	30.2	36.5	30.5	21.3	31.5	21.3	14.3
Incr Delay (d2), s/veh	1.9	0.2	0.4	2.7	0.4	2.8	3.4	0.6	0.4	9.0	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.1	1.7	1.3	4.6	3.2	5.3	3.9	3.1	3.6	9.7	1.2	0.3
LnGrp Delay(d),s/veh	37.6	30.4	30.5	36.8	29.0	33.0	39.9	31.1	21.7	40.4	21.3	14.3
LnGrp LOS	D	C	C	D	C	C	D	C	C	D	C	B
Approach Vol, veh/h		639			1097			854			543	
Approach Delay, s/veh		33.5			32.7			28.3			34.4	
Approach LOS		C			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	14.5	24.6	24.4	21.1	18.1	21.0	14.4	31.1
Change Period (Y+Rc), s	4.5	6.0	4.5	5.3	4.5	6.0	4.5	5.3
Max Green Setting (Gmax), s	40.5	39.0	30.5	29.7	40.5	39.0	30.5	29.7
Max Q Clear Time (g_c+I1), s	8.4	13.6	19.6	11.9	12.2	5.9	10.0	4.5
Green Ext Time (p_c), s	0.9	4.8	0.3	3.9	1.4	2.6	0.1	1.1

Intersection Summary	
HCM 2010 Ctrl Delay	32.0
HCM 2010 LOS	C

	↗	↘	↖	↑	↓	↙
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↰↰	↱	↰	↑↑	↑↑	↱
Traffic Volume (veh/h)	121	239	239	490	376	37
Future Volume (veh/h)	121	239	239	490	376	37
Number	7	14	5	2	6	16
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1727	1727	1863
Adj Flow Rate, veh/h	132	260	260	533	409	40
Adj No. of Lanes	2	1	1	2	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	10	10	2
Cap, veh/h	756	348	331	1851	1004	484
Arrive On Green	0.22	0.22	0.19	0.56	0.31	0.31
Sat Flow, veh/h	3442	1583	1774	3368	3368	1583
Grp Volume(v), veh/h	132	260	260	533	409	40
Grp Sat Flow(s),veh/h/ln	1721	1583	1774	1641	1641	1583
Q Serve(g_s), s	1.5	7.5	6.8	4.1	4.8	0.9
Cycle Q Clear(g_c), s	1.5	7.5	6.8	4.1	4.8	0.9
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	756	348	331	1851	1004	484
V/C Ratio(X)	0.17	0.75	0.78	0.29	0.41	0.08
Avail Cap(c_a), veh/h	2134	982	778	2276	2276	1098
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	15.5	17.9	19.0	5.6	13.5	12.1
Incr Delay (d2), s/veh	0.1	3.2	4.1	0.1	0.2	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	6.6	3.7	1.9	2.2	0.4
LnGrp Delay(d),s/veh	15.6	21.1	23.1	5.6	13.7	12.2
LnGrp LOS	B	C	C	A	B	B
Approach Vol, veh/h	392			793	449	
Approach Delay, s/veh	19.2			11.4	13.6	
Approach LOS	B			B	B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		33.7		15.4	12.7	21.0		
Change Period (Y+Rc), s		6.0		4.6	3.5	6.0		
Max Green Setting (Gmax), s		34.0		30.4	21.5	34.0		
Max Q Clear Time (g_c+I1), s		6.1		9.5	8.8	6.8		
Green Ext Time (p_c), s		2.9		1.3	0.6	2.2		

Intersection Summary			
HCM 2010 Ctrl Delay			13.9
HCM 2010 LOS			B

HCM 2010 Signalized Intersection Summary
4: Mountain House Pkwy & Arnaudo Blvd

Cumulative Plus Project
AM Peak

	↗	↘	↖	↑	↓	↙
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↰	↱	↰	↑↑	↑↑	↱
Traffic Volume (veh/h)	248	39	140	482	513	101
Future Volume (veh/h)	248	39	140	482	513	101
Number	7	14	5	2	6	16
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1792	1792	1743	1743
Adj Flow Rate, veh/h	349	53	187	595	583	146
Adj No. of Lanes	1	1	1	2	2	1
Peak Hour Factor	0.71	0.73	0.75	0.81	0.88	0.69
Percent Heavy Veh, %	3	3	6	6	9	9
Cap, veh/h	432	386	238	1838	1010	452
Arrive On Green	0.25	0.25	0.14	0.54	0.30	0.30
Sat Flow, veh/h	1757	1568	1707	3495	3399	1482
Grp Volume(v), veh/h	349	53	187	595	583	146
Grp Sat Flow(s),veh/h/ln	1757	1568	1707	1703	1656	1482
Q Serve(g_s), s	7.9	1.1	4.4	4.1	6.2	3.2
Cycle Q Clear(g_c), s	7.9	1.1	4.4	4.1	6.2	3.2
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	432	386	238	1838	1010	452
V/C Ratio(X)	0.81	0.14	0.78	0.32	0.58	0.32
Avail Cap(c_a), veh/h	1171	1045	650	3243	3154	1411
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	14.9	12.4	17.5	5.4	12.3	11.3
Incr Delay (d2), s/veh	1.4	0.1	2.2	0.1	0.5	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.9	1.1	2.2	1.9	2.9	1.3
LnGrp Delay(d),s/veh	16.3	12.4	19.6	5.5	12.8	11.7
LnGrp LOS	B	B	B	A	B	B
Approach Vol, veh/h	402			782	729	
Approach Delay, s/veh	15.8			8.9	12.6	
Approach LOS	B			A	B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		27.7		14.3	9.9	17.8		
Change Period (Y+Rc), s		5.0		4.0	4.0	5.0		
Max Green Setting (Gmax), s		40.0		28.0	16.0	40.0		
Max Q Clear Time (g_c+I1), s		6.1		9.9	6.4	8.2		
Green Ext Time (p_c), s		4.2		0.6	0.2	4.6		

Intersection Summary	
HCM 2010 Ctrl Delay	11.7
HCM 2010 LOS	B

Intersection	
Int Delay, s/veh	1.6

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↱	↰	↑↑	↑↑	↱
Traffic Vol, veh/h	0	59	90	550	391	42
Future Vol, veh/h	0	59	90	550	391	42
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	130	-	-	90
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	66	66	65	92	88	58
Heavy Vehicles, %	2	2	5	5	8	8
Mvmt Flow	0	89	138	598	444	72

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	222	516	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	4.2	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	2.25	-	-	-
Pot Cap-1 Maneuver	0	782	1025	-	-	-
Stage 1	0	-	-	-	-	-
Stage 2	0	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	782	1025	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	10.2	1.7	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1025	-	782	-	-
HCM Lane V/C Ratio	0.135	-	0.114	-	-
HCM Control Delay (s)	9.1	-	10.2	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q(veh)	0.5	-	0.4	-	-

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↰	↱↱	↰↰	↑↑↑	↑↑	↱
Traffic Volume (veh/h)	67	573	338	634	431	27
Future Volume (veh/h)	67	573	338	634	431	27
Number	7	14	5	2	6	16
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1881	1881	1827	1827	1810	1810
Adj Flow Rate, veh/h	81	843	380	746	567	33
Adj No. of Lanes	1	2	2	3	2	1
Peak Hour Factor	0.83	0.68	0.89	0.85	0.76	0.83
Percent Heavy Veh, %	1	1	4	4	5	5
Cap, veh/h	401	1094	558	2698	968	432
Arrive On Green	0.22	0.22	0.17	0.54	0.28	0.28
Sat Flow, veh/h	1792	2814	3375	5152	3529	1535
Grp Volume(v), veh/h	81	843	380	746	567	33
Grp Sat Flow(s),veh/h/ln	1792	1407	1688	1663	1719	1535
Q Serve(g_s), s	1.6	9.5	4.5	3.4	6.0	0.7
Cycle Q Clear(g_c), s	1.6	9.5	4.5	3.4	6.0	0.7
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	401	1094	558	2698	968	432
V/C Ratio(X)	0.20	0.77	0.68	0.28	0.59	0.08
Avail Cap(c_a), veh/h	401	1094	1589	6692	2671	1193
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	13.4	11.3	16.7	5.3	13.1	11.2
Incr Delay (d2), s/veh	0.1	3.1	0.6	0.1	0.6	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	8.4	2.1	1.5	2.9	0.3
LnGrp Delay(d),s/veh	13.5	14.4	17.2	5.3	13.7	11.3
LnGrp LOS	B	B	B	A	B	B
Approach Vol, veh/h	924			1126	600	
Approach Delay, s/veh	14.3			9.3	13.6	
Approach LOS	B			A	B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		28.5		14.0	11.0	17.5		
Change Period (Y+Rc), s		5.5		4.5	4.0	5.5		
Max Green Setting (Gmax), s		57.0		9.5	20.0	33.0		
Max Q Clear Time (g_c+I1), s		5.4		11.5	6.5	8.0		
Green Ext Time (p_c), s		5.7		0.0	0.6	3.8		

Intersection Summary			
HCM 2010 Ctrl Delay			12.0
HCM 2010 LOS			B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑↑↑	↱	↰↰	↑↑	↱	↰↰	↑↑↱		↰↰	↑↑↑	↱
Traffic Volume (veh/h)	7	494	345	273	250	187	379	972	131	313	1019	16
Future Volume (veh/h)	7	494	345	273	250	187	379	972	131	313	1019	16
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1792	1792	1863	1881	1881	1881	1810	1810	1900	1827	1827	1827
Adj Flow Rate, veh/h	16	686	454	650	298	340	480	1130	262	602	1199	17
Adj No. of Lanes	1	3	1	2	2	1	2	3	0	2	3	1
Peak Hour Factor	0.44	0.72	0.76	0.42	0.84	0.55	0.79	0.86	0.50	0.52	0.85	0.96
Percent Heavy Veh, %	6	6	2	1	1	1	5	5	5	4	4	4
Cap, veh/h	36	794	581	661	1184	824	685	1185	275	621	1370	427
Arrive On Green	0.02	0.16	0.16	0.19	0.33	0.33	0.20	0.30	0.30	0.18	0.27	0.27
Sat Flow, veh/h	1707	4893	1583	3476	3574	1599	3343	4009	929	3375	4988	1553
Grp Volume(v), veh/h	16	686	454	650	298	340	480	928	464	602	1199	17
Grp Sat Flow(s),veh/h/ln	1707	1631	1583	1738	1787	1599	1672	1647	1646	1688	1663	1553
Q Serve(g_s), s	1.1	15.5	10.2	21.2	6.9	1.6	15.1	31.4	31.4	20.1	26.1	0.8
Cycle Q Clear(g_c), s	1.1	15.5	10.2	21.2	6.9	1.6	15.1	31.4	31.4	20.1	26.1	0.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.56	1.00		1.00
Lane Grp Cap(c), veh/h	36	794	581	661	1184	824	685	974	487	621	1370	427
V/C Ratio(X)	0.45	0.86	0.78	0.98	0.25	0.41	0.70	0.95	0.95	0.97	0.88	0.04
Avail Cap(c_a), veh/h	98	848	599	661	1184	824	685	977	488	621	1593	496
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	55.0	46.4	12.5	45.8	27.7	9.0	41.9	39.2	39.2	46.0	39.3	22.0
Incr Delay (d2), s/veh	3.2	8.3	5.8	30.7	0.0	0.1	2.7	18.3	28.9	28.4	4.6	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	7.6	7.4	12.9	3.4	4.7	7.3	16.8	18.2	11.8	12.6	0.4
LnGrp Delay(d),s/veh	58.2	54.6	18.3	76.6	27.8	9.1	44.6	57.5	68.2	74.4	44.0	22.0
LnGrp LOS	E	D	B	E	C	A	D	E	E	E	D	C
Approach Vol, veh/h		1156			1288			1872			1818	
Approach Delay, s/veh		40.4			47.5			56.9			53.8	
Approach LOS		D			D			E			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	25.0	39.6	25.3	23.7	27.4	37.2	6.1	42.9
Change Period (Y+Rc), s	4.1	6.0	3.7	5.3	4.1	6.0	3.7	5.3
Max Green Setting (Gmax), s	20.9	33.7	21.6	19.7	18.3	36.3	6.5	34.8
Max Q Clear Time (g_c+I1), s	22.1	33.4	23.2	17.5	17.1	28.1	3.1	8.9
Green Ext Time (p_c), s	0.0	0.2	0.0	0.9	0.1	3.1	0.0	1.4

Intersection Summary		
HCM 2010 Ctrl Delay		50.9
HCM 2010 LOS		D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑↑	↱	↰	↑↑	↱	↰	↑↑	↱	↰	↑↑	↱
Traffic Volume (veh/h)	53	884	312	246	347	86	8	136	34	368	117	84
Future Volume (veh/h)	53	884	312	246	347	86	8	136	34	368	117	84
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1792	1792	1863	1863	1792	1792	1863	1863	1863	1792	1863	1792
Adj Flow Rate, veh/h	113	1078	339	267	439	134	9	148	37	423	127	187
Adj No. of Lanes	1	2	1	1	2	1	1	2	1	1	2	1
Peak Hour Factor	0.47	0.82	0.92	0.92	0.79	0.64	0.92	0.92	0.92	0.87	0.92	0.45
Percent Heavy Veh, %	6	6	2	2	6	6	2	2	2	6	2	6
Cap, veh/h	138	1196	593	297	1491	1064	42	257	380	445	1096	472
Arrive On Green	0.08	0.35	0.35	0.17	0.44	0.44	0.02	0.07	0.07	0.26	0.31	0.31
Sat Flow, veh/h	1707	3406	1583	1774	3406	1524	1774	3539	1583	1707	3539	1524
Grp Volume(v), veh/h	113	1078	339	267	439	134	9	148	37	423	127	187
Grp Sat Flow(s),veh/h/ln	1707	1703	1583	1774	1703	1524	1774	1770	1583	1707	1770	1524
Q Serve(g_s), s	8.1	37.3	21.1	18.3	10.3	3.6	0.6	5.0	2.3	30.2	3.2	12.0
Cycle Q Clear(g_c), s	8.1	37.3	21.1	18.3	10.3	3.6	0.6	5.0	2.3	30.2	3.2	12.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	138	1196	593	297	1491	1064	42	257	380	445	1096	472
V/C Ratio(X)	0.82	0.90	0.57	0.90	0.29	0.13	0.21	0.58	0.10	0.95	0.12	0.40
Avail Cap(c_a), veh/h	248	1259	623	406	1545	1088	213	550	511	454	1096	472
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	56.2	38.2	30.9	50.6	22.5	6.2	59.5	55.7	36.7	45.1	30.7	33.7
Incr Delay (d2), s/veh	11.3	8.9	1.1	17.9	0.1	0.1	2.5	2.0	0.1	29.7	0.0	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.3	19.0	9.4	10.4	4.8	1.5	0.3	2.5	1.0	17.9	1.6	5.1
LnGrp Delay(d),s/veh	67.4	47.1	32.0	68.5	22.6	6.2	62.0	57.8	36.8	74.8	30.7	34.3
LnGrp LOS	E	D	C	E	C	A	E	E	D	E	C	C
Approach Vol, veh/h		1530			840			194			737	
Approach Delay, s/veh		45.3			34.6			54.0			56.9	
Approach LOS		D			C			D			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	36.4	13.7	25.4	48.7	6.9	43.1	14.6	59.4
Change Period (Y+Rc), s	4.0	* 4.7	4.6	5.1	4.0	* 4.7	4.6	5.1
Max Green Setting (Gmax), s	33.0	* 19	28.4	45.9	14.9	* 37	18.0	56.3
Max Q Clear Time (g_c+I1), s	32.2	7.0	20.3	39.3	2.6	14.0	10.1	12.3
Green Ext Time (p_c), s	0.1	0.7	0.5	4.3	0.0	1.4	0.1	3.6

Intersection Summary	
HCM 2010 Ctrl Delay	45.7
HCM 2010 LOS	D

Notes

9: Central Pkwy & Grant Line Rd

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰↰	↑↑	↱	↰↰	↑↑	↱	↰	↑↑	↱	↰	↑↑	↱
Traffic Volume (veh/h)	18	115	160	564	299	95	78	180	83	309	309	66
Future Volume (veh/h)	18	115	160	564	299	95	78	180	83	309	309	66
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1827	1827	1827	1792	1792	1792	1810	1810	1810	1827	1827	1827
Adj Flow Rate, veh/h	28	126	232	910	490	120	113	643	115	351	351	76
Adj No. of Lanes	2	2	1	2	2	1	1	2	1	1	2	1
Peak Hour Factor	0.64	0.91	0.69	0.62	0.61	0.79	0.69	0.28	0.72	0.88	0.88	0.87
Percent Heavy Veh, %	4	4	4	6	6	6	5	5	5	4	4	4
Cap, veh/h	644	1430	768	904	1403	963	142	742	331	382	1225	547
Arrive On Green	0.41	0.41	0.41	0.41	0.41	0.41	0.08	0.22	0.22	0.22	0.35	0.35
Sat Flow, veh/h	1537	3471	1553	1903	3406	1524	1723	3438	1534	1740	3471	1550
Grp Volume(v), veh/h	28	126	232	910	490	120	113	643	115	351	351	76
Grp Sat Flow(s),veh/h/ln	769	1736	1553	951	1703	1524	1723	1719	1534	1740	1736	1550
Q Serve(g_s), s	1.1	2.0	7.9	34.5	8.8	2.8	5.7	16.0	5.6	17.5	6.4	3.0
Cycle Q Clear(g_c), s	9.9	2.0	7.9	36.5	8.8	2.8	5.7	16.0	5.6	17.5	6.4	3.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	644	1430	768	904	1403	963	142	742	331	382	1225	547
V/C Ratio(X)	0.04	0.09	0.30	1.01	0.35	0.12	0.79	0.87	0.35	0.92	0.29	0.14
Avail Cap(c_a), veh/h	644	1430	768	904	1403	963	247	796	355	383	1225	547
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	21.3	15.9	13.3	30.1	17.9	6.5	39.9	33.5	29.4	33.8	20.6	19.5
Incr Delay (d2), s/veh	0.0	0.0	0.2	31.5	0.1	0.1	9.5	9.5	0.6	26.6	0.1	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	1.0	3.4	14.9	4.1	1.2	3.1	8.6	2.5	11.2	3.1	1.3
LnGrp Delay(d),s/veh	21.3	15.9	13.5	61.6	18.0	6.6	49.4	43.0	30.1	60.4	20.8	19.6
LnGrp LOS	C	B	B	F	B	A	D	D	C	E	C	B
Approach Vol, veh/h		386			1520			871			778	
Approach Delay, s/veh		14.9			43.2			42.1			38.5	
Approach LOS		B			D			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	24.0	23.6		41.0	11.8	35.8		41.0
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5
Max Green Setting (Gmax), s	19.5	20.5		36.5	12.7	27.3		36.5
Max Q Clear Time (g_c+I1), s	19.5	18.0		11.9	7.7	8.4		38.5
Green Ext Time (p_c), s	0.0	1.1		1.7	0.1	2.3		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	38.8
HCM 2010 LOS	D

HCM Signalized Intersection Capacity Analysis
10: Grant Line Rd & Great Valley Pkwy

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰↰	↑↑↱		↰	↑↑	↱		✥		↰	↰	↱
Traffic Volume (vph)	64	789	0	0	132	13	1	0	0	28	0	1189
Future Volume (vph)	64	789	0	0	132	13	1	0	0	28	0	1189
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.6			4.6	4.6		4.6		5.1	5.1	4.0
Lane Util. Factor	0.97	0.95			0.95	1.00		1.00		0.95	0.95	1.00
Frt	1.00	1.00			1.00	0.85		1.00		1.00	1.00	0.85
Flt Protected	0.95	1.00			1.00	1.00		0.95		0.95	0.95	1.00
Satd. Flow (prot)	3433	3539			3471	1553		1787		1681	1681	1583
Flt Permitted	0.95	1.00			1.00	1.00		0.95		0.95	0.95	1.00
Satd. Flow (perm)	3433	3539			3471	1553		1787		1681	1681	1583
Peak-hour factor, PHF	0.74	0.90	0.92	0.92	0.71	0.54	0.25	0.92	0.92	0.88	0.92	0.87
Adj. Flow (vph)	86	877	0	0	186	24	4	0	0	32	0	1367
RTOR Reduction (vph)	0	0	0	0	0	16	0	0	0	0	0	0
Lane Group Flow (vph)	86	877	0	0	186	8	0	4	0	16	16	1367
Heavy Vehicles (%)	2%	2%	2%	4%	4%	4%	1%	1%	1%	2%	2%	2%
Turn Type	Prot	NA		Prot	NA	Perm	Split	NA		Split	NA	Free
Protected Phases	3	8		7	4		5	5		6	6	
Permitted Phases						4						Free
Actuated Green, G (s)	5.9	26.6			16.7	16.7		4.0		6.1	6.1	51.0
Effective Green, g (s)	5.9	26.6			16.7	16.7		4.0		6.1	6.1	51.0
Actuated g/C Ratio	0.12	0.52			0.33	0.33		0.08		0.12	0.12	1.00
Clearance Time (s)	4.0	4.6			4.6	4.6		4.6		5.1	5.1	
Vehicle Extension (s)	3.0	3.0			3.0	3.0		3.0		3.0	3.0	
Lane Grp Cap (vph)	397	1845			1136	508		140		201	201	1583
v/s Ratio Prot	0.03	0.25			0.05			0.00		0.01	0.01	
v/s Ratio Perm						0.01						c0.86
v/c Ratio	0.22	0.48			0.16	0.02		0.03		0.08	0.08	0.86
Uniform Delay, d1	20.5	7.8			12.2	11.6		21.7		20.0	20.0	0.0
Progression Factor	1.00	1.00			1.00	1.00		1.00		1.00	1.00	1.00
Incremental Delay, d2	0.3	0.2			0.1	0.0		0.1		0.2	0.2	6.5
Delay (s)	20.7	8.0			12.3	11.6		21.8		20.1	20.1	6.5
Level of Service	C	A			B	B		C		C	C	A
Approach Delay (s)		9.1			12.2			21.8			6.8	
Approach LOS		A			B			C			A	

Intersection Summary			
HCM 2000 Control Delay	8.1	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	1.35		
Actuated Cycle Length (s)	51.0	Sum of lost time (s)	18.3
Intersection Capacity Utilization	38.8%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑↱		↰	↑↱		↰	↑↱		↰	↑↱	
Traffic Volume (veh/h)	7	113	42	319	76	27	31	386	94	11	308	8
Future Volume (veh/h)	7	113	42	319	76	27	31	386	94	11	308	8
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.99	1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1881	1881	1900	1863	1863	1900	1881	1881	1900
Adj Flow Rate, veh/h	12	198	66	638	162	48	62	529	174	16	411	12
Adj No. of Lanes	1	2	0	1	2	0	1	2	0	1	2	0
Peak Hour Factor	0.58	0.57	0.64	0.50	0.47	0.56	0.50	0.73	0.54	0.69	0.75	0.67
Percent Heavy Veh, %	2	2	2	1	1	1	2	2	2	1	1	1
Cap, veh/h	20	419	135	671	1431	411	80	672	220	26	818	24
Arrive On Green	0.01	0.16	0.16	0.37	0.52	0.52	0.04	0.26	0.26	0.01	0.23	0.23
Sat Flow, veh/h	1774	2620	846	1792	2738	786	1774	2618	857	1792	3546	103
Grp Volume(v), veh/h	12	132	132	638	104	106	62	357	346	16	207	216
Grp Sat Flow(s),veh/h/ln	1774	1770	1696	1792	1787	1737	1774	1770	1706	1792	1787	1862
Q Serve(g_s), s	0.6	6.1	6.4	31.3	2.7	2.8	3.1	17.0	17.1	0.8	9.1	9.1
Cycle Q Clear(g_c), s	0.6	6.1	6.4	31.3	2.7	2.8	3.1	17.0	17.1	0.8	9.1	9.1
Prop In Lane	1.00		0.50	1.00		0.45	1.00		0.50	1.00		0.06
Lane Grp Cap(c), veh/h	20	283	271	671	934	908	80	454	438	26	412	430
V/C Ratio(X)	0.59	0.47	0.49	0.95	0.11	0.12	0.78	0.79	0.79	0.61	0.50	0.50
Avail Cap(c_a), veh/h	96	587	562	750	1244	1209	135	587	565	97	553	576
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	44.5	34.5	34.7	27.5	10.9	11.0	42.8	31.3	31.4	44.3	30.3	30.3
Incr Delay (d2), s/veh	9.6	1.2	1.4	19.8	0.1	0.1	6.1	5.3	5.8	8.2	0.9	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	3.1	3.1	19.1	1.3	1.3	1.7	9.0	8.8	0.5	4.6	4.8
LnGrp Delay(d),s/veh	54.1	35.7	36.0	47.3	11.0	11.0	48.8	36.7	37.1	52.6	31.2	31.2
LnGrp LOS	D	D	D	D	B	B	D	D	D	D	C	C
Approach Vol, veh/h		276			848			765			439	
Approach Delay, s/veh		36.7			38.3			37.9			32.0	
Approach LOS		D			D			D			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	5.8	27.7	38.0	19.0	8.2	25.4	5.1	51.8
Change Period (Y+Rc), s	4.5	* 4.5	4.1	4.5	4.1	4.5	4.1	4.5
Max Green Setting (Gmax), s	4.9	* 30	37.9	30.0	6.9	28.0	4.9	63.0
Max Q Clear Time (g_c+I1), s	2.8	19.1	33.3	8.4	5.1	11.1	2.6	4.8
Green Ext Time (p_c), s	0.0	3.4	0.6	1.5	0.0	2.3	0.0	1.3

Intersection Summary	
HCM 2010 Ctrl Delay	36.8
HCM 2010 LOS	D

Notes

	↗	→	↘	↙	←	↖	↖	↑	↗	↘	↓	↙
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✥		↰	↑	↱	↰	↑↑↱		↰	↑↑↱	
Traffic Volume (veh/h)	5	14	11	201	10	110	4	375	12	197	729	3
Future Volume (veh/h)	5	14	11	201	10	110	4	375	12	197	729	3
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1900	1900	1863	1863	1863	1810	1810	1900	1863	1863	1900
Adj Flow Rate, veh/h	8	20	20	402	16	147	8	487	17	243	1375	12
Adj No. of Lanes	0	1	0	1	1	1	1	2	0	1	2	0
Peak Hour Factor	0.63	0.70	0.55	0.50	0.63	0.75	0.50	0.77	0.70	0.81	0.53	0.25
Percent Heavy Veh, %	0	0	0	2	2	2	5	5	5	2	2	2
Cap, veh/h	67	43	38	447	674	573	14	1051	37	285	1663	15
Arrive On Green	0.06	0.06	0.06	0.25	0.36	0.36	0.01	0.31	0.31	0.16	0.46	0.46
Sat Flow, veh/h	198	777	697	1774	1863	1583	1723	3389	118	1774	3595	31
Grp Volume(v), veh/h	48	0	0	402	16	147	8	247	257	243	677	710
Grp Sat Flow(s),veh/h/ln	1672	0	0	1774	1863	1583	1723	1719	1788	1774	1770	1857
Q Serve(g_s), s	0.9	0.0	0.0	16.4	0.4	4.9	0.3	8.6	8.7	10.0	24.9	24.9
Cycle Q Clear(g_c), s	2.0	0.0	0.0	16.4	0.4	4.9	0.3	8.6	8.7	10.0	24.9	24.9
Prop In Lane	0.17		0.42	1.00		1.00	1.00		0.07	1.00		0.02
Lane Grp Cap(c), veh/h	148	0	0	447	674	573	14	533	555	285	819	859
V/C Ratio(X)	0.32	0.00	0.00	0.90	0.02	0.26	0.57	0.46	0.46	0.85	0.83	0.83
Avail Cap(c_a), veh/h	692	0	0	662	722	614	366	936	973	377	963	1011
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	34.3	0.0	0.0	27.0	15.4	16.8	37.0	20.8	20.8	30.5	17.5	17.5
Incr Delay (d2), s/veh	0.5	0.0	0.0	8.4	0.0	0.1	12.6	0.6	0.6	10.8	5.2	5.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	0.0	0.0	9.1	0.2	2.1	0.2	4.2	4.4	5.7	13.2	13.8
LnGrp Delay(d),s/veh	34.8	0.0	0.0	35.5	15.4	16.9	49.5	21.4	21.4	41.3	22.7	22.5
LnGrp LOS	C			D	B	B	D	C	C	D	C	C
Approach Vol, veh/h		48			565			512			1630	
Approach Delay, s/veh		34.8			30.0			21.8			25.4	
Approach LOS		C			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6		8
Phs Duration (G+Y+Rc), s	16.1	27.5	22.9	8.2	4.7	38.9		31.2
Change Period (Y+Rc), s	4.1	* 4.3	4.1	4.1	4.1	* 4.3		4.1
Max Green Setting (Gmax), s	15.9	* 41	27.9	29.0	15.9	* 41		29.0
Max Q Clear Time (g_c+I1), s	12.0	10.7	18.4	4.0	2.3	26.9		6.9
Green Ext Time (p_c), s	0.1	3.1	0.5	0.1	0.0	7.7		0.3

Intersection Summary	
HCM 2010 Ctrl Delay	25.9
HCM 2010 LOS	C

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑	↱	↰	↑↱		↰	↑↱		↰	↑↱	
Traffic Volume (veh/h)	3	0	176	7	0	1	130	334	31	8	744	26
Future Volume (veh/h)	3	0	176	7	0	1	130	334	31	8	744	26
Number	3	8	18	7	4	14	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1881	1881	1881	1532	1532	1900	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	8	0	229	12	0	4	169	393	62	32	1162	104
Adj No. of Lanes	1	1	1	1	2	0	1	2	0	1	2	0
Peak Hour Factor	0.38	0.92	0.77	0.58	0.92	0.25	0.77	0.85	0.50	0.25	0.64	0.25
Percent Heavy Veh, %	1	1	1	24	24	24	2	2	2	2	2	2
Cap, veh/h	33	363	305	39	293	260	260	1324	207	120	1159	104
Arrive On Green	0.02	0.00	0.19	0.03	0.00	0.20	0.15	0.43	0.43	0.07	0.35	0.35
Sat Flow, veh/h	1792	1881	1584	1459	1456	1291	1774	3064	480	1774	3284	293
Grp Volume(v), veh/h	8	0	229	12	0	4	169	226	229	32	625	641
Grp Sat Flow(s),veh/h/ln	1792	1881	1584	1459	1456	1291	1774	1770	1774	1774	1770	1808
Q Serve(g_s), s	0.3	0.0	8.9	0.5	0.0	0.2	5.8	5.4	5.5	1.1	22.9	22.9
Cycle Q Clear(g_c), s	0.3	0.0	8.9	0.5	0.0	0.2	5.8	5.4	5.5	1.1	22.9	22.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.27	1.00		0.16
Lane Grp Cap(c), veh/h	33	363	305	39	293	260	260	765	767	120	625	638
V/C Ratio(X)	0.24	0.00	0.75	0.30	0.00	0.02	0.65	0.30	0.30	0.27	1.00	1.00
Avail Cap(c_a), veh/h	248	693	583	202	514	456	273	765	767	273	625	638
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	31.4	0.0	24.7	31.0	0.0	20.8	26.1	12.0	12.0	28.7	21.0	21.0
Incr Delay (d2), s/veh	3.6	0.0	3.7	4.3	0.0	0.0	5.0	0.2	0.2	1.2	36.4	36.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.0	4.2	0.3	0.0	0.1	3.2	2.7	2.7	0.6	17.2	17.7
LnGrp Delay(d),s/veh	35.0	0.0	28.4	35.2	0.0	20.8	31.1	12.2	12.2	29.9	57.4	57.6
LnGrp LOS	D		C	D		C	C	B	B	C	F	F
Approach Vol, veh/h		237			16			624			1298	
Approach Delay, s/veh		28.6			31.6			17.3			56.8	
Approach LOS		C			C			B			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	13.5	28.0	5.2	18.2	8.4	33.1	5.8	17.6
Change Period (Y+Rc), s	4.0	5.1	4.0	5.1	4.0	5.1	4.0	5.1
Max Green Setting (Gmax), s	10.0	22.9	9.0	22.9	10.0	22.9	9.0	23.9
Max Q Clear Time (g_c+I1), s	7.8	24.9	2.3	2.2	3.1	7.5	2.5	10.9
Green Ext Time (p_c), s	0.1	0.0	0.0	0.0	0.0	2.3	0.0	0.6

Intersection Summary	
HCM 2010 Ctrl Delay	42.2
HCM 2010 LOS	D

HCM 2010 Signalized Intersection Summary
14: De Anza Blvd & Arnaudo Blvd

Cumulative Plus Project
AM Peak

	↗	→	↘	↙	←	↖	↖	↑	↗	↘	↓	↙
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑↱		↰	↑↱		↰	↑↱		↰	↑↱	
Traffic Volume (veh/h)	7	291	19	144	28	95	23	268	123	80	504	1
Future Volume (veh/h)	7	291	19	144	28	95	23	268	123	80	504	1
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1845	1845	1900	1863	1863	1900	1881	1881	1900
Adj Flow Rate, veh/h	14	331	44	379	31	176	44	812	246	320	2016	4
Adj No. of Lanes	1	2	0	1	2	0	1	2	0	1	2	0
Peak Hour Factor	0.50	0.88	0.43	0.38	0.91	0.54	0.52	0.33	0.50	0.25	0.25	0.25
Percent Heavy Veh, %	2	2	2	3	3	3	2	2	2	1	1	1
Cap, veh/h	224	400	53	329	454	406	109	1346	407	387	2120	4
Arrive On Green	0.01	0.13	0.13	0.14	0.26	0.26	0.02	0.50	0.50	0.10	0.58	0.58
Sat Flow, veh/h	1774	3145	415	1757	1752	1568	1774	2678	811	1792	3660	7
Grp Volume(v), veh/h	14	185	190	379	31	176	44	536	522	320	984	1036
Grp Sat Flow(s),veh/h/ln	1774	1770	1790	1757	1752	1568	1774	1770	1720	1792	1787	1880
Q Serve(g_s), s	0.9	13.8	14.0	19.4	1.8	12.7	1.6	29.2	29.2	11.2	69.6	69.7
Cycle Q Clear(g_c), s	0.9	13.8	14.0	19.4	1.8	12.7	1.6	29.2	29.2	11.2	69.6	69.7
Prop In Lane	1.00		0.23	1.00		1.00	1.00		0.47	1.00		0.00
Lane Grp Cap(c), veh/h	224	225	228	329	454	406	109	889	864	387	1035	1089
V/C Ratio(X)	0.06	0.82	0.83	1.15	0.07	0.43	0.40	0.60	0.60	0.83	0.95	0.95
Avail Cap(c_a), veh/h	274	380	384	329	557	498	139	889	864	542	1047	1102
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	50.4	57.4	57.5	45.2	37.8	41.8	31.3	24.0	24.0	20.8	26.6	26.6
Incr Delay (d2), s/veh	0.0	2.9	3.1	97.2	0.0	0.3	0.9	1.2	1.2	5.1	17.1	16.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	6.9	7.1	19.3	0.9	5.5	0.8	14.4	14.2	6.7	39.1	41.0
LnGrp Delay(d),s/veh	50.4	60.3	60.6	142.5	37.8	42.0	32.2	25.1	25.2	25.9	43.7	43.3
LnGrp LOS	D	E	E	F	D	D	C	C	C	C	D	D
Approach Vol, veh/h		389			586			1102			2340	
Approach Delay, s/veh		60.1			106.8			25.4			41.1	
Approach LOS		E			F			C			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	17.6	72.3	23.4	21.7	7.2	82.7	5.6	39.4				
Change Period (Y+Rc), s	4.0	4.5	4.0	4.5	4.0	4.5	4.0	4.5				
Max Green Setting (Gmax), s	25.3	59.3	19.4	29.0	5.5	79.1	5.5	42.9				
Max Q Clear Time (g_c+I1), s	13.2	31.2	21.4	16.0	3.6	71.7	2.9	14.7				
Green Ext Time (p_c), s	0.4	8.3	0.0	1.2	0.0	6.5	0.0	0.9				
Intersection Summary												
HCM 2010 Ctrl Delay			47.6									
HCM 2010 LOS			D									

	↗	→	↘	↙	←	↖	↖	↑	↗	↘	↓	↙
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑↱		↰	↑↱		↰	↑↱		↰	↑↱	
Traffic Volume (veh/h)	7	457	298	33	93	2	68	113	32	73	475	19
Future Volume (veh/h)	7	457	298	33	93	2	68	113	32	73	475	19
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1881	1881	1900	1881	1881	1900	1759	1759	1900	1863	1863	1900
Adj Flow Rate, veh/h	12	601	596	52	103	8	136	231	64	146	1105	38
Adj No. of Lanes	1	2	0	1	2	0	1	2	0	1	2	0
Peak Hour Factor	0.58	0.76	0.50	0.63	0.90	0.25	0.50	0.49	0.50	0.50	0.43	0.50
Percent Heavy Veh, %	1	1	1	1	1	1	8	8	8	2	2	2
Cap, veh/h	26	580	519	74	1183	91	166	307	83	566	1180	41
Arrive On Green	0.01	0.32	0.32	0.04	0.35	0.35	0.10	0.12	0.12	0.32	0.34	0.34
Sat Flow, veh/h	1792	1787	1599	1792	3364	259	1675	2601	705	1774	3491	120
Grp Volume(v), veh/h	12	601	596	52	54	57	136	147	148	146	560	583
Grp Sat Flow(s),veh/h/ln	1792	1787	1599	1792	1787	1836	1675	1671	1635	1774	1770	1842
Q Serve(g_s), s	0.6	28.0	28.0	2.5	1.7	1.8	6.9	7.3	7.6	5.3	26.4	26.4
Cycle Q Clear(g_c), s	0.6	28.0	28.0	2.5	1.7	1.8	6.9	7.3	7.6	5.3	26.4	26.4
Prop In Lane	1.00		1.00	1.00		0.14	1.00		0.43	1.00		0.07
Lane Grp Cap(c), veh/h	26	580	519	74	628	645	166	197	193	566	598	622
V/C Ratio(X)	0.46	1.04	1.15	0.70	0.09	0.09	0.82	0.74	0.77	0.26	0.94	0.94
Avail Cap(c_a), veh/h	125	580	519	127	628	645	169	539	527	566	620	645
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	42.2	29.1	29.1	40.8	18.7	18.7	38.1	36.8	36.9	21.8	27.6	27.6
Incr Delay (d2), s/veh	4.7	46.9	87.1	4.5	0.1	0.1	26.1	2.1	2.4	0.2	21.0	20.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	21.3	24.8	1.3	0.9	0.9	4.4	3.5	3.6	2.6	16.4	17.0
LnGrp Delay(d),s/veh	46.8	76.0	116.2	45.3	18.8	18.8	64.2	38.9	39.3	22.0	48.6	48.1
LnGrp LOS	D	F	F	D	B	B	E	D	D	C	D	D
Approach Vol, veh/h		1209			163			431			1289	
Approach Delay, s/veh		95.5			27.2			47.0			45.4	
Approach LOS		F			C			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	32.0	14.7	7.1	32.5	13.0	33.6	4.7	34.8
Change Period (Y+Rc), s	4.5	4.5	3.5	4.5	4.5	4.5	3.5	4.5
Max Green Setting (Gmax), s	11.1	27.8	6.1	28.0	8.7	30.2	6.0	28.1
Max Q Clear Time (g_c+I1), s	7.3	9.6	4.5	30.0	8.9	28.4	2.6	3.8
Green Ext Time (p_c), s	0.1	0.6	0.0	0.0	0.0	0.7	0.0	0.7

Intersection Summary	
HCM 2010 Ctrl Delay	64.3
HCM 2010 LOS	E

	↗	→	↘	↙	←	↖	↖	↑	↗	↘	↓	↙
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↰	↱↱	↰	↑↑↑			↑↑↑	↱
Traffic Volume (veh/h)	0	0	0	434	313	643	6	1148	0	0	2103	328
Future Volume (veh/h)	0	0	0	434	313	643	6	1148	0	0	2103	328
Number				3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln				1900	1696	1696	1696	1696	0	0	1810	1810
Adj Flow Rate, veh/h				523	364	804	8	1383	0	0	2363	415
Adj No. of Lanes				0	1	2	1	3	0	0	3	1
Peak Hour Factor				0.83	0.86	0.80	0.75	0.83	0.92	0.92	0.89	0.79
Percent Heavy Veh, %				12	12	12	12	12	0	0	5	5
Cap, veh/h				397	276	1037	18	2453	0	0	2408	750
Arrive On Green				0.41	0.41	0.41	0.01	0.53	0.00	0.00	0.49	0.49
Sat Flow, veh/h				972	676	2538	1616	4784	0	0	5103	1538
Grp Volume(v), veh/h				887	0	804	8	1383	0	0	2363	415
Grp Sat Flow(s),veh/h/ln				1648	0	1269	1616	1544	0	0	1647	1538
Q Serve(g_s), s				59.5	0.0	39.9	0.7	29.2	0.0	0.0	68.5	27.6
Cycle Q Clear(g_c), s				59.5	0.0	39.9	0.7	29.2	0.0	0.0	68.5	27.6
Prop In Lane				0.59		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				673	0	1037	18	2453	0	0	2408	750
V/C Ratio(X)				1.32	0.00	0.78	0.43	0.56	0.00	0.00	0.98	0.55
Avail Cap(c_a), veh/h				673	0	1037	67	2592	0	0	2408	750
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	1.00	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				43.1	0.0	37.3	71.5	23.0	0.0	0.0	36.7	26.2
Incr Delay (d2), s/veh				153.3	0.0	3.7	15.3	0.3	0.0	0.0	14.2	0.9
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				55.6	0.0	14.5	0.4	12.5	0.0	0.0	34.2	11.8
LnGrp Delay(d),s/veh				196.3	0.0	41.0	86.9	23.2	0.0	0.0	50.9	27.1
LnGrp LOS				F		D	F	C			D	C
Approach Vol, veh/h					1691			1391			2778	
Approach Delay, s/veh					122.5			23.6			47.3	
Approach LOS					F			C			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2			5	6		8
Phs Duration (G+Y+Rc), s		81.6			6.2	75.5		64.0
Change Period (Y+Rc), s		4.5			4.5	4.5		4.5
Max Green Setting (Gmax), s		81.5			6.0	71.0		59.5
Max Q Clear Time (g_c+I1), s		31.2			2.7	70.5		61.5
Green Ext Time (p_c), s		15.1			0.0	0.5		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	63.4
HCM 2010 LOS	E

17: Mountain House Pkwy & I-205 EB Off-Ramp

AM Peak

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↰↑	↱					↑↑	↱		↑↑	
Traffic Volume (vph)	459	50	247	0	0	0	0	103	211	0	1176	0
Future Volume (vph)	459	50	247	0	0	0	0	103	211	0	1176	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5					4.5	4.5		4.5	
Lane Util. Factor	0.95	0.95	1.00					0.95	1.00		0.95	
Frt	1.00	1.00	0.85					1.00	0.85		1.00	
Flt Protected	0.95	0.97	1.00					1.00	1.00		1.00	
Satd. Flow (prot)	1618	1659	1524					3008	1346		3223	
Flt Permitted	0.95	0.97	1.00					1.00	1.00		1.00	
Satd. Flow (perm)	1618	1659	1524					3008	1346		3223	
Peak-hour factor, PHF	0.73	0.25	0.67	0.92	0.92	0.92	0.92	0.73	0.75	0.92	0.84	0.92
Adj. Flow (vph)	629	200	369	0	0	0	0	141	281	0	1400	0
RTOR Reduction (vph)	0	0	19	0	0	0	0	0	137	0	0	0
Lane Group Flow (vph)	409	420	350	0	0	0	0	141	144	0	1400	0
Heavy Vehicles (%)	6%	6%	6%	2%	2%	2%	20%	20%	20%	12%	12%	12%
Turn Type	Prot	NA	Perm					NA	Perm		NA	
Protected Phases	7	4						2			6	
Permitted Phases			4						2			
Actuated Green, G (s)	19.7	19.7	19.7					30.1	30.1		30.1	
Effective Green, g (s)	19.7	19.7	19.7					30.1	30.1		30.1	
Actuated g/C Ratio	0.34	0.34	0.34					0.51	0.51		0.51	
Clearance Time (s)	4.5	4.5	4.5					4.5	4.5		4.5	
Vehicle Extension (s)	3.0	3.0	3.0					3.0	3.0		3.0	
Lane Grp Cap (vph)	542	555	510					1539	689		1649	
v/s Ratio Prot	0.25	c0.25						0.05			c0.43	
v/s Ratio Perm			0.23						0.11			
v/c Ratio	0.75	0.76	0.69					0.09	0.21		0.85	
Uniform Delay, d1	17.4	17.4	16.9					7.3	7.8		12.4	
Progression Factor	1.00	1.00	1.00					1.00	1.00		1.00	
Incremental Delay, d2	5.9	5.8	3.8					0.0	0.2		4.3	
Delay (s)	23.3	23.3	20.7					7.4	8.0		16.7	
Level of Service	C	C	C					A	A		B	
Approach Delay (s)		22.5			0.0			7.8			16.7	
Approach LOS		C			A			A			B	

Intersection Summary

HCM 2000 Control Delay	17.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	58.8	Sum of lost time (s)	9.0
Intersection Capacity Utilization	97.2%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

18: Great Valley Pkwy & Kelso Rd/Questa Trail

AM Peak

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰↰	↑	↱	↰	↑↱		↰	↑↑↱		↰	↑↑↱	
Traffic Volume (veh/h)	6	2	1	11	56	219	261	439	6	335	483	195
Future Volume (veh/h)	6	2	1	11	56	219	261	439	6	335	483	195
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1159	1159	1159	1856	1856	1856	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	12	4	4	20	84	308	358	675	24	394	732	271
Peak Hour Factor	0.50	0.50	0.25	0.55	0.67	0.71	0.73	0.65	0.25	0.85	0.66	0.72
Percent Heavy Veh, %	50	50	50	3	3	3	2	2	2	2	2	2
Cap, veh/h	54	276	234	75	89	326	392	1063	38	431	825	306
Arrive On Green	0.03	0.24	0.24	0.04	0.26	0.26	0.22	0.30	0.30	0.24	0.33	0.33
Sat Flow, veh/h	2141	1159	982	1767	348	1277	1781	3499	124	1781	2534	938
Grp Volume(v), veh/h	12	4	4	20	0	392	358	343	356	394	513	490
Grp Sat Flow(s),veh/h/ln	1071	1159	982	1767	0	1626	1781	1777	1847	1781	1777	1695
Q Serve(g_s), s	0.6	0.3	0.3	1.1	0.0	24.1	20.0	17.0	17.0	21.9	27.9	27.9
Cycle Q Clear(g_c), s	0.6	0.3	0.3	1.1	0.0	24.1	20.0	17.0	17.0	21.9	27.9	27.9
Prop In Lane	1.00		1.00	1.00		0.79	1.00		0.07	1.00		0.55
Lane Grp Cap(c), veh/h	54	276	234	75	0	415	392	540	561	431	579	552
V/C Ratio(X)	0.22	0.01	0.02	0.27	0.00	0.95	0.91	0.63	0.64	0.91	0.89	0.89
Avail Cap(c_a), veh/h	189	284	241	173	0	415	454	546	567	542	633	604
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	48.7	29.7	29.7	47.3	0.0	37.3	38.8	30.6	30.6	37.6	32.6	32.6
Incr Delay (d2), s/veh	2.0	0.0	0.0	1.9	0.0	30.6	21.0	2.4	2.3	17.4	13.6	14.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.1	0.1	0.5	0.0	13.0	10.8	7.4	7.7	11.4	13.7	13.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	50.7	29.7	29.7	49.1	0.0	67.9	59.7	33.0	32.9	55.0	46.2	46.7
LnGrp LOS	D	C	C	D	A	E	E	C	C	D	D	D
Approach Vol, veh/h		20			412			1057			1397	
Approach Delay, s/veh		42.3			67.0			42.0			48.8	
Approach LOS		D			E			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	26.4	38.3	6.6	30.6	28.7	36.1	8.3	28.9
Change Period (Y+Rc), s	4.0	5.1	4.0	4.6	4.0	5.1	4.0	4.6
Max Green Setting (Gmax), s	26.0	36.3	9.0	26.0	31.0	31.3	10.0	25.0
Max Q Clear Time (g_c+I1), s	22.0	29.9	2.6	26.1	23.9	19.0	3.1	2.3
Green Ext Time (p_c), s	0.4	3.3	0.0	0.0	0.7	3.3	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	48.9
HCM 6th LOS	D

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↰	↱	↑↑↱		↰	↑↑
Traffic Volume (veh/h)	46	71	431	11	80	955
Future Volume (veh/h)	46	71	431	11	80	955
Number	3	18	2	12	1	6
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		0.98	0.99	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1900	1881	1900	1881	1881
Adj Flow Rate, veh/h	64	169	643	12	127	1240
Adj No. of Lanes	1	1	2	0	1	2
Peak Hour Factor	0.72	0.42	0.67	0.92	0.63	0.77
Percent Heavy Veh, %	0	0	1	1	1	1
Cap, veh/h	286	256	1903	35	582	1895
Arrive On Green	0.16	0.16	0.53	0.53	0.53	0.53
Sat Flow, veh/h	1810	1615	3682	67	778	3668
Grp Volume(v), veh/h	64	169	320	335	127	1240
Grp Sat Flow(s),veh/h/ln	1810	1615	1787	1868	778	1787
Q Serve(g_s), s	0.9	2.8	3.0	3.0	3.2	7.2
Cycle Q Clear(g_c), s	0.9	2.8	3.0	3.0	6.2	7.2
Prop In Lane	1.00	1.00		0.04	1.00	
Lane Grp Cap(c), veh/h	286	256	948	990	582	1895
V/C Ratio(X)	0.22	0.66	0.34	0.34	0.22	0.65
Avail Cap(c_a), veh/h	1127	1006	1114	1164	654	2227
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	10.6	11.4	3.9	3.9	5.7	4.9
Incr Delay (d2), s/veh	0.4	2.9	0.2	0.2	0.2	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	1.5	1.5	1.5	0.7	3.6
LnGrp Delay(d),s/veh	11.0	14.3	4.1	4.1	5.8	5.4
LnGrp LOS	B	B	A	A	A	A
Approach Vol, veh/h	233		655			1367
Approach Delay, s/veh	13.4		4.1			5.5
Approach LOS	B		A			A

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2				6		8
Phs Duration (G+Y+Rc), s		19.8				19.8		9.1
Change Period (Y+Rc), s		4.5				4.5		4.5
Max Green Setting (Gmax), s		18.0				18.0		18.0
Max Q Clear Time (g_c+I1), s		5.0				9.2		4.8
Green Ext Time (p_c), s		3.2				5.7		0.6

Intersection Summary			
HCM 2010 Ctrl Delay			5.9
HCM 2010 LOS			A

	↙	↖	↑	↗	↘	↓
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↰	↱	↑↱		↰	↑↑
Traffic Volume (veh/h)	151	150	259	20	162	848
Future Volume (veh/h)	151	150	259	20	162	848
Number	3	18	2	12	1	6
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		0.96	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1900	1863	1863
Adj Flow Rate, veh/h	176	234	392	32	228	1047
Adj No. of Lanes	1	1	2	0	1	2
Peak Hour Factor	0.86	0.64	0.66	0.63	0.71	0.81
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	339	575	885	72	306	1993
Arrive On Green	0.19	0.19	0.27	0.27	0.17	0.56
Sat Flow, veh/h	1774	1583	3398	268	1774	3632
Grp Volume(v), veh/h	176	234	209	215	228	1047
Grp Sat Flow(s),veh/h/ln	1774	1583	1770	1804	1774	1770
Q Serve(g_s), s	3.3	4.0	3.6	3.6	4.5	6.7
Cycle Q Clear(g_c), s	3.3	4.0	3.6	3.6	4.5	6.7
Prop In Lane	1.00	1.00		0.15	1.00	
Lane Grp Cap(c), veh/h	339	575	474	483	306	1993
V/C Ratio(X)	0.52	0.41	0.44	0.45	0.75	0.53
Avail Cap(c_a), veh/h	878	1056	1350	1376	994	5119
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	13.3	8.7	11.1	11.1	14.4	5.0
Incr Delay (d2), s/veh	1.2	0.5	0.6	0.6	3.6	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.7	1.8	1.8	1.9	2.5	3.3
LnGrp Delay(d),s/veh	14.5	9.2	11.8	11.8	18.0	5.2
LnGrp LOS	B	A	B	B	B	A
Approach Vol, veh/h	410		424			1275
Approach Delay, s/veh	11.5		11.8			7.5
Approach LOS	B		B			A

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	10.8	14.3				25.1		11.5
Change Period (Y+Rc), s	4.5	4.5				4.5		4.5
Max Green Setting (Gmax), s	20.5	27.9				52.9		18.1
Max Q Clear Time (g_c+I1), s	6.5	5.6				8.7		6.0
Green Ext Time (p_c), s	0.5	2.4				9.4		1.1

Intersection Summary	
HCM 2010 Ctrl Delay	9.1
HCM 2010 LOS	A

21: Mountain House Pkwy & Central Pkwy

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↰↰	↱↱	↰↰	↑↑↑↑	↑↑↑↑	↱
Traffic Volume (veh/h)	100	678	922	1453	1092	50
Future Volume (veh/h)	100	678	922	1453	1092	50
Number	7	14	5	2	6	16
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1810	1810	1810	1810
Adj Flow Rate, veh/h	109	737	1002	1579	1187	54
Adj No. of Lanes	2	2	2	4	4	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	5	5	5	5
Cap, veh/h	681	1498	1135	4204	1829	452
Arrive On Green	0.20	0.20	0.34	0.68	0.29	0.29
Sat Flow, veh/h	3442	2787	3343	6478	6478	1538
Grp Volume(v), veh/h	109	737	1002	1579	1187	54
Grp Sat Flow(s),veh/h/ln	1721	1393	1672	1556	1556	1538
Q Serve(g_s), s	2.2	13.9	23.6	9.2	13.9	2.1
Cycle Q Clear(g_c), s	2.2	13.9	23.6	9.2	13.9	2.1
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	681	1498	1135	4204	1829	452
V/C Ratio(X)	0.16	0.49	0.88	0.38	0.65	0.12
Avail Cap(c_a), veh/h	716	1526	1348	5361	2591	640
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	27.8	12.2	26.0	5.9	25.8	21.6
Incr Delay (d2), s/veh	0.1	0.3	6.4	0.1	0.4	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	12.5	11.9	4.0	6.0	0.9
LnGrp Delay(d),s/veh	27.9	12.4	32.4	6.0	26.1	21.7
LnGrp LOS	C	B	C	A	C	C
Approach Vol, veh/h	846			2581	1241	
Approach Delay, s/veh	14.4			16.2	26.0	
Approach LOS	B			B	C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		62.5		21.1	31.9	30.6		
Change Period (Y+Rc), s		6.0		4.6	3.5	6.0		
Max Green Setting (Gmax), s		72.0		17.4	33.7	34.8		
Max Q Clear Time (g_c+I1), s		11.2		15.9	25.6	15.9		
Green Ext Time (p_c), s		19.4		0.6	2.8	8.7		

Intersection Summary	
HCM 2010 Ctrl Delay	18.5
HCM 2010 LOS	B

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↰	↱	↑↑↑	↱	↰	↑↑↑
Traffic Volume (veh/h)	352	679	776	132	454	1107
Future Volume (veh/h)	352	679	776	132	454	1107
Number	3	18	2	12	1	6
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1810	1810	1810	1810
Adj Flow Rate, veh/h	469	1078	958	228	649	1384
Adj No. of Lanes	1	1	3	1	1	3
Peak Hour Factor	0.75	0.63	0.81	0.58	0.70	0.80
Percent Heavy Veh, %	3	3	5	5	5	5
Cap, veh/h	469	1035	1074	745	678	3189
Arrive On Green	0.27	0.27	0.22	0.22	0.39	0.65
Sat Flow, veh/h	1757	1568	5103	1538	1723	5103
Grp Volume(v), veh/h	469	1078	958	228	649	1384
Grp Sat Flow(s),veh/h/ln	1757	1568	1647	1538	1723	1647
Q Serve(g_s), s	30.5	30.5	21.5	10.3	41.9	15.8
Cycle Q Clear(g_c), s	30.5	30.5	21.5	10.3	41.9	15.8
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	469	1035	1074	745	678	3189
V/C Ratio(X)	1.00	1.04	0.89	0.31	0.96	0.43
Avail Cap(c_a), veh/h	469	1035	1102	754	905	3869
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	41.9	19.4	43.4	17.8	33.8	10.0
Incr Delay (d2), s/veh	41.6	39.4	9.2	0.2	15.8	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	20.1	43.5	10.7	6.6	22.8	7.1
LnGrp Delay(d),s/veh	83.5	58.9	52.6	18.1	49.6	10.1
LnGrp LOS	F	F	D	B	D	B
Approach Vol, veh/h	1547		1186			2033
Approach Delay, s/veh	66.3		46.0			22.7
Approach LOS	E		D			C

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	48.9	30.4				79.3		35.0
Change Period (Y+Rc), s	4.0	5.5				5.5		4.5
Max Green Setting (Gmax), s	60.0	25.5				89.5		30.5
Max Q Clear Time (g_c+I1), s	43.9	23.5				17.8		32.5
Green Ext Time (p_c), s	1.0	1.3				15.8		0.0

Intersection Summary			
HCM 2010 Ctrl Delay			42.6
HCM 2010 LOS			D

HCM 2010 Signalized Intersection Summary
23: Mountain House Pkwy & Grand Ave

Cumulative Plus Project
AM Peak

	↗	↘	↖	↑	↓	↙
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↰	↱		↑↑	↑↱	
Traffic Volume (veh/h)	216	39	96	515	281	236
Future Volume (veh/h)	216	39	96	515	281	236
Number	7	14	5	2	6	16
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1583	1583	1900	1727	1759	1900
Adj Flow Rate, veh/h	254	60	163	599	375	342
Adj No. of Lanes	1	1	0	2	2	0
Peak Hour Factor	0.85	0.65	0.59	0.86	0.75	0.69
Percent Heavy Veh, %	20	20	10	10	8	8
Cap, veh/h	355	137	0	1464	746	667
Arrive On Green	0.24	0.24	0.00	0.45	0.45	0.45
Sat Flow, veh/h	1508	1346	0	3368	1759	1495
Grp Volume(v), veh/h	254	60	0	599	375	342
Grp Sat Flow(s),veh/h/ln	1508	1346	0	1641	1671	1495
Q Serve(g_s), s	5.2	5.9	0.0	4.2	5.4	5.5
Cycle Q Clear(g_c), s	5.2	5.9	0.0	4.2	5.4	5.5
Prop In Lane	1.00	1.00	0.00			1.00
Lane Grp Cap(c), veh/h	355	137	0	1464	746	667
V/C Ratio(X)	0.71	0.44	0.00	0.41	0.50	0.51
Avail Cap(c_a), veh/h	1135	833	0	3319	1690	1512
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	11.8	111.3	0.0	6.3	6.6	6.7
Incr Delay (d2), s/veh	1.0	0.8	0.0	0.1	0.4	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.2	2.7	0.0	1.9	2.5	2.3
LnGrp Delay(d),s/veh	12.8	112.1	0.0	6.4	7.0	7.1
LnGrp LOS	B	F		A	A	A
Approach Vol, veh/h	314			599	717	
Approach Delay, s/veh	31.8			6.4	7.1	
Approach LOS	C			A	A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		21.0		12.6	0.0	21.0		
Change Period (Y+Rc), s		6.0		* 4.7	4.5	6.0		
Max Green Setting (Gmax), s		34.0		* 25	25.5	34.0		
Max Q Clear Time (g_c+I1), s		6.2		7.9	0.0	7.5		
Green Ext Time (p_c), s		3.3		0.5	0.0	3.7		

Intersection Summary	
HCM 2010 Ctrl Delay	11.6
HCM 2010 LOS	B

Notes

1: Great Valley Pkwy & Byron Rd

PM Peak

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑↑	↱	↰↰	↑↑	↱	↰	↑↱		↰	↑↑	↱
Traffic Volume (vph)	334	508	635	110	335	171	299	364	16	40	261	284
Future Volume (vph)	334	508	635	110	335	171	299	364	16	40	261	284
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.5	6.5	4.0	6.5	4.6	4.6	5.1		4.6	5.1	5.1
Lane Util. Factor	1.00	0.95	1.00	0.97	0.95	1.00	1.00	0.95		1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	3195	1429	3127	3223	1583	1752	3512		1770	3539	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1770	3195	1429	3127	3223	1583	1752	3512		1770	3539	1583
Peak-hour factor, PHF	0.92	0.82	0.96	0.81	0.92	0.92	0.73	0.92	0.81	0.92	0.92	0.92
Adj. Flow (vph)	363	620	661	136	364	186	410	396	20	43	284	309
RTOR Reduction (vph)	0	0	338	0	0	137	0	3	0	0	0	266
Lane Group Flow (vph)	363	620	323	136	364	49	410	413	0	43	284	43
Heavy Vehicles (%)	2%	13%	13%	12%	12%	2%	3%	2%	3%	2%	2%	2%
Turn Type	Prot	NA	Perm	Prot	NA	pm+ov	Prot	NA		Prot	NA	Perm
Protected Phases	7	4		3	8	1	5	2		1	6	
Permitted Phases			4			8						6
Actuated Green, G (s)	26.8	33.1	33.1	11.1	17.4	28.5	28.6	32.7		11.1	15.2	15.2
Effective Green, g (s)	26.8	33.1	33.1	11.1	17.4	28.5	28.6	32.7		11.1	15.2	15.2
Actuated g/C Ratio	0.25	0.31	0.31	0.10	0.16	0.26	0.26	0.30		0.10	0.14	0.14
Clearance Time (s)	4.0	6.5	6.5	4.0	6.5	4.6	4.6	5.1		4.6	5.1	5.1
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
Lane Grp Cap (vph)	438	977	437	320	518	416	463	1061		181	497	222
v/s Ratio Prot	c0.21	0.19		0.04	c0.11	0.01	c0.23	c0.12		0.02	c0.08	
v/s Ratio Perm			c0.23			0.02						0.03
v/c Ratio	0.83	0.63	0.74	0.42	0.70	0.12	0.89	0.39		0.24	0.57	0.20
Uniform Delay, d1	38.5	32.3	33.7	45.6	43.0	30.3	38.2	29.9		44.7	43.5	41.1
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	12.2	1.4	6.4	0.9	4.3	0.1	18.0	0.2		0.7	1.6	0.4
Delay (s)	50.8	33.7	40.1	46.5	47.3	30.4	56.2	30.1		45.3	45.0	41.5
Level of Service	D	C	D	D	D	C	E	C		D	D	D
Approach Delay (s)		40.0			42.5			43.1			43.4	
Approach LOS		D			D			D			D	

Intersection Summary			
HCM 2000 Control Delay	41.7	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	108.2	Sum of lost time (s)	20.2
Intersection Capacity Utilization	69.0%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

HCM 2010 Signalized Intersection Summary
2: Mountain House Pkwy & Byron Rd

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰↰	↑↑↑	↱↱	↰↰	↑↑↑	↱	↰	↑↑	↱↱	↰	↑↑	↱
Traffic Volume (veh/h)	9	765	85	227	579	389	126	559	638	268	717	6
Future Volume (veh/h)	9	765	85	227	579	389	126	559	638	268	717	6
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1696	1696	1696	1696	1863	1759	1863	1759	1863	1863	1863
Adj Flow Rate, veh/h	10	860	112	258	623	423	156	608	742	291	779	7
Adj No. of Lanes	2	3	2	2	3	1	1	2	2	1	2	1
Peak Hour Factor	0.92	0.89	0.76	0.88	0.93	0.92	0.81	0.92	0.86	0.92	0.92	0.92
Percent Heavy Veh, %	2	12	12	12	12	2	8	2	8	2	2	2
Cap, veh/h	83	1173	643	335	1556	532	184	960	995	321	1213	580
Arrive On Green	0.02	0.25	0.25	0.11	0.34	0.34	0.11	0.27	0.27	0.18	0.34	0.34
Sat Flow, veh/h	3442	4631	2538	3134	4631	1583	1675	3539	2632	1774	3539	1583
Grp Volume(v), veh/h	10	860	112	258	623	423	156	608	742	291	779	7
Grp Sat Flow(s),veh/h/ln	1721	1544	1269	1567	1544	1583	1675	1770	1316	1774	1770	1583
Q Serve(g_s), s	0.3	18.4	3.7	8.7	11.2	26.2	9.9	16.4	26.4	17.4	20.1	0.3
Cycle Q Clear(g_c), s	0.3	18.4	3.7	8.7	11.2	26.2	9.9	16.4	26.4	17.4	20.1	0.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	83	1173	643	335	1556	532	184	960	995	321	1213	580
V/C Ratio(X)	0.12	0.73	0.17	0.77	0.40	0.80	0.85	0.63	0.75	0.91	0.64	0.01
Avail Cap(c_a), veh/h	1288	1669	914	1173	1669	571	472	971	1003	500	1213	580
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	51.7	37.1	31.6	47.1	27.6	32.6	47.3	34.7	29.1	43.4	30.0	21.8
Incr Delay (d2), s/veh	0.6	1.2	0.2	3.8	0.2	7.5	4.1	1.4	3.2	10.1	1.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	8.0	1.3	3.9	4.8	12.5	4.8	8.2	10.1	9.4	10.1	0.1
LnGrp Delay(d),s/veh	52.3	38.2	31.7	50.8	27.8	40.1	51.4	36.1	32.3	53.5	31.2	21.8
LnGrp LOS	D	D	C	D	C	D	D	D	C	D	C	C
Approach Vol, veh/h		982			1304			1506			1077	
Approach Delay, s/veh		37.6			36.3			35.8			37.2	
Approach LOS		D			D			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.1	42.4	24.1	34.7	16.1	33.4	16.4	42.4
Change Period (Y+Rc), s	4.5	6.0	4.5	5.3	4.5	6.0	4.5	5.3
Max Green Setting (Gmax), s	40.5	39.0	30.5	29.7	40.5	39.0	30.5	29.7
Max Q Clear Time (g_c+I1), s	2.3	28.2	19.4	28.4	10.7	20.4	11.9	22.1
Green Ext Time (p_c), s	0.0	4.9	0.2	0.9	0.9	7.0	0.1	3.5

Intersection Summary	
HCM 2010 Ctrl Delay	36.6
HCM 2010 LOS	D

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↰↰	↱	↰	↑↑	↑↑	↱
Traffic Volume (veh/h)	29	266	400	768	964	61
Future Volume (veh/h)	29	266	400	768	964	61
Number	7	14	5	2	6	16
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1727	1727	1863
Adj Flow Rate, veh/h	32	289	435	835	1048	66
Adj No. of Lanes	2	1	1	2	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	10	10	2
Cap, veh/h	726	334	456	2174	1193	575
Arrive On Green	0.21	0.21	0.26	0.66	0.36	0.36
Sat Flow, veh/h	3442	1583	1774	3368	3368	1583
Grp Volume(v), veh/h	32	289	435	835	1048	66
Grp Sat Flow(s),veh/h/ln	1721	1583	1774	1641	1641	1583
Q Serve(g_s), s	0.6	14.7	20.2	9.6	25.0	2.3
Cycle Q Clear(g_c), s	0.6	14.7	20.2	9.6	25.0	2.3
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	726	334	456	2174	1193	575
V/C Ratio(X)	0.04	0.87	0.95	0.38	0.88	0.11
Avail Cap(c_a), veh/h	1251	575	456	2174	1334	644
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	26.3	31.9	30.6	6.4	24.9	17.7
Incr Delay (d2), s/veh	0.0	6.8	30.6	0.1	6.3	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	12.6	13.8	4.3	12.2	1.0
LnGrp Delay(d),s/veh	26.3	38.7	61.2	6.5	31.2	17.7
LnGrp LOS	C	D	E	A	C	B
Approach Vol, veh/h	321			1270	1114	
Approach Delay, s/veh	37.4			25.2	30.4	
Approach LOS	D			C	C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		61.4		22.2	25.0	36.4		
Change Period (Y+Rc), s		6.0		4.6	3.5	6.0		
Max Green Setting (Gmax), s		34.0		30.4	21.5	34.0		
Max Q Clear Time (g_c+I1), s		11.6		16.7	22.2	27.0		
Green Ext Time (p_c), s		4.7		0.9	0.0	3.4		

Intersection Summary			
HCM 2010 Ctrl Delay			28.8
HCM 2010 LOS			C

HCM 2010 Signalized Intersection Summary
4: Mountain House Pkwy & Arnaudo Blvd

Cumulative Plus Project
PM Peak

	↗	↘	↖	↑	↓	↙
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↰	↱	↰	↑↑	↑↑	↱
Traffic Volume (veh/h)	269	56	285	899	932	367
Future Volume (veh/h)	269	56	285	899	932	367
Number	7	14	5	2	6	16
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1792	1792	1743	1743
Adj Flow Rate, veh/h	306	67	352	988	1059	432
Adj No. of Lanes	1	1	1	2	2	1
Peak Hour Factor	0.88	0.83	0.81	0.91	0.88	0.85
Percent Heavy Veh, %	3	3	6	6	9	9
Cap, veh/h	354	316	363	2312	1369	613
Arrive On Green	0.20	0.20	0.21	0.68	0.41	0.41
Sat Flow, veh/h	1757	1568	1707	3495	3399	1482
Grp Volume(v), veh/h	306	67	352	988	1059	432
Grp Sat Flow(s),veh/h/ln	1757	1568	1707	1703	1656	1482
Q Serve(g_s), s	12.7	2.7	15.4	9.9	20.8	18.2
Cycle Q Clear(g_c), s	12.7	2.7	15.4	9.9	20.8	18.2
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	354	316	363	2312	1369	613
V/C Ratio(X)	0.86	0.21	0.97	0.43	0.77	0.71
Avail Cap(c_a), veh/h	653	583	363	2312	1759	787
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	29.1	25.1	29.4	5.5	19.0	18.3
Incr Delay (d2), s/veh	2.5	0.1	39.1	0.1	1.7	2.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.4	2.5	11.2	4.6	9.7	7.7
LnGrp Delay(d),s/veh	31.6	25.2	68.6	5.6	20.7	20.3
LnGrp LOS	C	C	E	A	C	C
Approach Vol, veh/h	373			1340	1491	
Approach Delay, s/veh	30.4			22.1	20.6	
Approach LOS	C			C	C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		56.1		19.2	20.0	36.1		
Change Period (Y+Rc), s		5.0		4.0	4.0	5.0		
Max Green Setting (Gmax), s		40.0		28.0	16.0	40.0		
Max Q Clear Time (g_c+I1), s		11.9		14.7	17.4	22.8		
Green Ext Time (p_c), s		7.5		0.5	0.0	8.4		

Intersection Summary	
HCM 2010 Ctrl Delay	22.4
HCM 2010 LOS	C

Intersection	
Int Delay, s/veh	3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↱	↰	↑↑	↑↑	↱
Traffic Vol, veh/h	0	139	283	897	840	64
Future Vol, veh/h	0	139	283	897	840	64
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	130	-	-	90
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	66	79	88	87	87	79
Heavy Vehicles, %	2	2	5	5	8	8
Mvmt Flow	0	176	322	1031	966	81

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	483	1047	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	4.2	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	2.25	-	-	-
Pot Cap-1 Maneuver	0	530	643	-	-	-
Stage 1	0	-	-	-	-	-
Stage 2	0	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	530	643	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	15.1	3.8	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	643	-	530	-	-
HCM Lane V/C Ratio	0.5	-	0.332	-	-
HCM Control Delay (s)	16.1	-	15.1	-	-
HCM Lane LOS	C	-	C	-	-
HCM 95th %tile Q(veh)	2.8	-	1.4	-	-

6: Mountain House Pkwy & Mustand Wy

PM Peak

	↗	↘	↖	↑	↓	↙
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↰	↱↱	↰↰	↑↑↑	↑↑	↱
Traffic Volume (veh/h)	104	406	403	825	909	57
Future Volume (veh/h)	104	406	403	825	909	57
Number	7	14	5	2	6	16
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1881	1881	1827	1827	1810	1810
Adj Flow Rate, veh/h	122	606	510	959	1212	71
Adj No. of Lanes	1	2	2	3	2	1
Peak Hour Factor	0.85	0.67	0.79	0.86	0.75	0.80
Percent Heavy Veh, %	1	1	4	4	5	5
Cap, veh/h	270	953	634	3444	1510	675
Arrive On Green	0.15	0.15	0.19	0.69	0.44	0.44
Sat Flow, veh/h	1792	2814	3375	5152	3529	1536
Grp Volume(v), veh/h	122	606	510	959	1212	71
Grp Sat Flow(s),veh/h/ln	1792	1407	1688	1663	1719	1536
Q Serve(g_s), s	3.9	9.5	9.1	4.6	19.2	1.7
Cycle Q Clear(g_c), s	3.9	9.5	9.1	4.6	19.2	1.7
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	270	953	634	3444	1510	675
V/C Ratio(X)	0.45	0.64	0.80	0.28	0.80	0.11
Avail Cap(c_a), veh/h	270	953	1071	4511	1800	804
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	24.4	17.6	24.5	3.7	15.3	10.4
Incr Delay (d2), s/veh	0.4	1.1	0.9	0.0	2.3	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.0	9.0	4.3	2.1	9.6	0.7
LnGrp Delay(d),s/veh	24.8	18.6	25.4	3.8	17.6	10.5
LnGrp LOS	C	B	C	A	B	B
Approach Vol, veh/h	728			1469	1283	
Approach Delay, s/veh	19.7			11.3	17.2	
Approach LOS	B			B	B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		49.0		14.0	15.8	33.2		
Change Period (Y+Rc), s		5.5		4.5	4.0	5.5		
Max Green Setting (Gmax), s		57.0		9.5	20.0	33.0		
Max Q Clear Time (g_c+I1), s		6.6		11.5	11.1	21.2		
Green Ext Time (p_c), s		7.8		0.0	0.7	6.4		

Intersection Summary	
HCM 2010 Ctrl Delay	15.2
HCM 2010 LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑↑↑	↱	↰↰	↑↑	↱	↰↰	↑↑↑↱		↰↰	↑↑↑	↱
Traffic Volume (veh/h)	47	773	301	58	313	282	994	1123	67	308	1183	25
Future Volume (veh/h)	47	773	301	58	313	282	994	1123	67	308	1183	25
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1792	1792	1863	1881	1881	1881	1810	1810	1900	1827	1827	1827
Adj Flow Rate, veh/h	55	943	317	116	333	513	1117	1234	79	460	1286	36
Adj No. of Lanes	1	3	1	2	2	1	2	3	0	2	3	1
Peak Hour Factor	0.86	0.82	0.95	0.50	0.94	0.55	0.89	0.91	0.85	0.67	0.92	0.69
Percent Heavy Veh, %	6	6	2	1	1	1	5	5	5	4	4	4
Cap, veh/h	70	947	829	167	717	785	1103	1417	91	980	1368	426
Arrive On Green	0.04	0.19	0.19	0.05	0.20	0.20	0.33	0.30	0.30	0.29	0.27	0.27
Sat Flow, veh/h	1707	4893	1583	3476	3574	1599	3343	4746	304	3375	4988	1553
Grp Volume(v), veh/h	55	943	317	116	333	513	1117	856	457	460	1286	36
Grp Sat Flow(s),veh/h/ln	1707	1631	1583	1738	1787	1599	1672	1647	1756	1688	1663	1553
Q Serve(g_s), s	4.0	23.9	14.8	4.1	10.2	4.2	40.9	30.5	30.6	13.9	31.3	2.1
Cycle Q Clear(g_c), s	4.0	23.9	14.8	4.1	10.2	4.2	40.9	30.5	30.6	13.9	31.3	2.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.17	1.00		1.00
Lane Grp Cap(c), veh/h	70	947	829	167	717	785	1103	984	524	980	1368	426
V/C Ratio(X)	0.78	1.00	0.38	0.69	0.46	0.65	1.01	0.87	0.87	0.47	0.94	0.08
Avail Cap(c_a), veh/h	134	947	829	182	717	785	1103	1342	715	980	1388	432
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	58.9	49.9	17.6	58.1	43.7	11.5	41.5	41.2	41.2	36.2	44.0	33.4
Incr Delay (d2), s/veh	6.9	28.0	0.1	7.6	0.2	1.6	30.2	3.9	6.9	0.1	12.3	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.0	13.2	6.5	2.1	5.1	9.2	23.5	14.4	15.9	6.5	15.8	0.9
LnGrp Delay(d),s/veh	65.8	77.9	17.7	65.7	43.8	13.0	71.8	45.1	48.1	36.3	56.3	33.5
LnGrp LOS	E	E	B	E	D	B	F	D	D	D	E	C
Approach Vol, veh/h		1315			962			2430			1782	
Approach Delay, s/veh		62.9			30.0			57.9			50.7	
Approach LOS		E			C			E			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	42.0	43.0	9.7	29.3	45.0	40.0	8.8	30.2
Change Period (Y+Rc), s	6.0	* 6	3.7	5.3	4.1	6.0	3.7	5.3
Max Green Setting (Gmax), s	24.9	* 51	6.5	24.0	40.9	34.5	9.7	20.8
Max Q Clear Time (g_c+I1), s	15.9	32.6	6.1	25.9	42.9	33.3	6.0	12.2
Green Ext Time (p_c), s	0.3	4.5	0.0	0.0	0.0	0.7	0.0	1.4

Intersection Summary	
HCM 2010 Ctrl Delay	52.8
HCM 2010 LOS	D

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑↑	↱	↰	↑↑	↱	↰	↑↑	↱	↰	↑↑	↱
Traffic Volume (veh/h)	24	289	49	46	548	535	65	240	337	402	152	143
Future Volume (veh/h)	24	289	49	46	548	535	65	240	337	402	152	143
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1792	1792	1863	1863	1792	1792	1863	1863	1863	1792	1863	1792
Adj Flow Rate, veh/h	43	318	53	50	609	645	71	261	366	583	165	191
Adj No. of Lanes	1	2	1	1	2	1	1	2	1	1	2	1
Peak Hour Factor	0.56	0.91	0.92	0.92	0.90	0.83	0.92	0.92	0.92	0.69	0.92	0.75
Percent Heavy Veh, %	6	6	2	2	6	6	2	2	2	6	2	6
Cap, veh/h	115	689	463	141	730	877	160	653	418	617	1612	694
Arrive On Green	0.07	0.20	0.20	0.08	0.21	0.21	0.09	0.18	0.18	0.36	0.46	0.46
Sat Flow, veh/h	1707	3406	1583	1774	3406	1524	1774	3539	1583	1707	3539	1524
Grp Volume(v), veh/h	43	318	53	50	609	645	71	261	366	583	165	191
Grp Sat Flow(s),veh/h/ln	1707	1703	1583	1774	1703	1524	1774	1770	1583	1707	1770	1524
Q Serve(g_s), s	2.6	8.8	2.6	2.9	18.3	22.9	4.1	6.9	19.7	35.4	2.8	8.3
Cycle Q Clear(g_c), s	2.6	8.8	2.6	2.9	18.3	22.9	4.1	6.9	19.7	35.4	2.8	8.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	115	689	463	141	730	877	160	653	418	617	1612	694
V/C Ratio(X)	0.37	0.46	0.11	0.35	0.83	0.74	0.44	0.40	0.88	0.94	0.10	0.28
Avail Cap(c_a), veh/h	160	698	468	183	730	877	191	653	418	703	1730	745
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	47.6	37.5	27.6	46.6	40.1	16.7	46.0	38.4	37.6	33.1	16.6	18.1
Incr Delay (d2), s/veh	2.0	0.5	0.1	1.5	8.3	3.2	1.9	0.4	18.3	20.2	0.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	4.2	1.2	1.5	9.5	14.6	2.1	3.4	12.5	20.1	1.4	3.6
LnGrp Delay(d),s/veh	49.6	38.0	27.8	48.1	48.4	19.9	47.9	38.8	56.0	53.2	16.6	18.3
LnGrp LOS	D	D	C	D	D	B	D	D	E	D	B	B
Approach Vol, veh/h		414			1304			698			939	
Approach Delay, s/veh		37.9			34.3			48.7			39.7	
Approach LOS		D			C			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	42.6	24.4	13.1	26.7	13.7	53.3	11.8	28.0
Change Period (Y+Rc), s	4.0	* 4.7	4.6	5.1	4.0	* 4.7	4.6	5.1
Max Green Setting (Gmax), s	44.0	* 20	11.0	21.9	11.5	* 52	10.0	22.9
Max Q Clear Time (g_c+I1), s	37.4	21.7	4.9	10.8	6.1	10.3	4.6	24.9
Green Ext Time (p_c), s	1.2	0.0	0.0	1.6	0.1	1.8	0.0	0.0

Intersection Summary	
HCM 2010 Ctrl Delay	39.3
HCM 2010 LOS	D

Notes

	↗	→	↘	↙	←	↖	↖	↑	↗	↘	↓	↙
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰↰	↑↑	↱	↰↰	↑↑	↱	↰	↑↑	↱	↰	↑↑	↱
Traffic Volume (veh/h)	51	259	317	238	13	164	127	601	122	162	46	28
Future Volume (veh/h)	51	259	317	238	13	164	127	601	122	162	46	28
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1827	1827	1827	1792	1792	1792	1810	1810	1810	1827	1827	1827
Adj Flow Rate, veh/h	68	288	511	345	21	228	235	969	200	205	92	48
Adj No. of Lanes	2	2	1	2	2	1	1	2	1	1	2	1
Peak Hour Factor	0.75	0.90	0.62	0.69	0.62	0.72	0.54	0.62	0.61	0.79	0.50	0.58
Percent Heavy Veh, %	4	4	4	6	6	6	5	5	5	4	4	4
Cap, veh/h	973	1158	662	612	1136	649	160	1113	497	161	1123	502
Arrive On Green	0.33	0.33	0.33	0.33	0.33	0.33	0.09	0.32	0.32	0.09	0.32	0.32
Sat Flow, veh/h	2143	3471	1553	1265	3406	1524	1723	3438	1535	1740	3471	1550
Grp Volume(v), veh/h	68	288	511	345	21	228	235	969	200	205	92	48
Grp Sat Flow(s),veh/h/ln	1071	1736	1553	632	1703	1524	1723	1719	1535	1740	1736	1550
Q Serve(g_s), s	1.2	3.3	15.2	14.7	0.2	5.4	5.0	14.3	5.5	5.0	1.0	1.2
Cycle Q Clear(g_c), s	1.4	3.3	15.2	18.0	0.2	5.4	5.0	14.3	5.5	5.0	1.0	1.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	973	1158	662	612	1136	649	160	1113	497	161	1123	502
V/C Ratio(X)	0.07	0.25	0.77	0.56	0.02	0.35	1.47	0.87	0.40	1.27	0.08	0.10
Avail Cap(c_a), veh/h	973	1158	662	612	1136	649	160	1147	512	161	1158	517
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	12.5	13.1	13.2	19.6	12.1	10.4	24.5	17.2	14.2	24.5	12.7	12.7
Incr Delay (d2), s/veh	0.0	0.1	5.6	1.2	0.0	0.3	243.0	7.3	0.5	161.8	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	1.6	7.4	2.6	0.1	2.3	13.1	7.9	2.4	9.6	0.5	0.5
LnGrp Delay(d),s/veh	12.6	13.2	18.9	20.8	12.1	10.8	267.5	24.5	14.7	186.2	12.7	12.8
LnGrp LOS	B	B	B	C	B	B	F	C	B	F	B	B
Approach Vol, veh/h		867			594			1404			345	
Approach Delay, s/veh		16.5			16.6			63.8			115.8	
Approach LOS		B			B			E			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	9.5	22.0		22.5	9.5	22.0		22.5
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5
Max Green Setting (Gmax), s	5.0	18.0		18.0	5.0	18.0		18.0
Max Q Clear Time (g_c+I1), s	7.0	16.3		17.2	7.0	3.2		20.0
Green Ext Time (p_c), s	0.0	1.1		0.4	0.0	0.5		0.0

Intersection Summary			
HCM 2010 Ctrl Delay			47.9
HCM 2010 LOS			D

10: Grant Line Rd & Great Valley Pkwy

PM Peak

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰↰	↑↱		↰	↑↑	↱↱		✥		↰	↰	↱
Traffic Volume (vph)	858	1456	0	0	91	42	0	0	0	27	0	513
Future Volume (vph)	858	1456	0	0	91	42	0	0	0	27	0	513
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.6			4.6	4.6				5.1	5.1	5.1
Lane Util. Factor	0.97	0.95			0.95	0.88				0.95	0.95	1.00
Frt	1.00	1.00			1.00	0.85				1.00	1.00	0.85
Flt Protected	0.95	1.00			1.00	1.00				0.95	0.95	1.00
Satd. Flow (prot)	3433	3539			3471	2733				1681	1681	1583
Flt Permitted	0.95	1.00			1.00	1.00				0.95	0.95	1.00
Satd. Flow (perm)	3433	3539			3471	2733				1681	1681	1583
Peak-hour factor, PHF	0.79	0.87	0.92	0.92	0.88	0.75	0.92	0.92	0.92	0.61	0.92	0.81
Adj. Flow (vph)	1086	1674	0	0	103	56	0	0	0	44	0	633
RTOR Reduction (vph)	0	0	0	0	0	50	0	0	0	0	0	547
Lane Group Flow (vph)	1086	1674	0	0	103	6	0	0	0	22	22	86
Heavy Vehicles (%)	2%	2%	2%	4%	4%	4%	1%	1%	1%	2%	2%	2%
Turn Type	Prot	NA		Prot	NA	Perm				Split	NA	Prot
Protected Phases	3	8		7	4		5	5		6	6	6
Permitted Phases						4						
Actuated Green, G (s)	29.4	40.3			6.9	6.9				9.2	9.2	9.2
Effective Green, g (s)	29.4	40.3			6.9	6.9				9.2	9.2	9.2
Actuated g/C Ratio	0.43	0.59			0.10	0.10				0.14	0.14	0.14
Clearance Time (s)	4.0	4.6			4.6	4.6				5.1	5.1	5.1
Vehicle Extension (s)	3.0	3.0			3.0	3.0				3.0	3.0	3.0
Lane Grp Cap (vph)	1488	2103			353	278				228	228	214
v/s Ratio Prot	0.32	c0.47			0.03					0.01	0.01	c0.05
v/s Ratio Perm						0.00						
v/c Ratio	0.73	0.80			0.29	0.02				0.10	0.10	0.40
Uniform Delay, d1	15.9	10.6			28.2	27.4				25.7	25.7	26.8
Progression Factor	1.00	1.00			1.00	1.00				1.00	1.00	1.00
Incremental Delay, d2	1.8	2.2			0.5	0.0				0.2	0.2	1.2
Delay (s)	17.7	12.8			28.6	27.4				25.8	25.8	28.0
Level of Service	B	B			C	C				C	C	C
Approach Delay (s)		14.7			28.2			0.0			27.9	
Approach LOS		B			C			A			C	

Intersection Summary			
HCM 2000 Control Delay	17.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	67.8	Sum of lost time (s)	18.3
Intersection Capacity Utilization	51.7%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑↱		↰	↑↱		↰	↑↱		↰	↑↱	
Traffic Volume (veh/h)	34	240	109	75	409	48	44	617	226	51	685	18
Future Volume (veh/h)	34	240	109	75	409	48	44	617	226	51	685	18
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1881	1881	1900	1863	1863	1900	1881	1881	1900
Adj Flow Rate, veh/h	48	333	158	115	493	68	76	678	235	100	878	32
Adj No. of Lanes	1	2	0	1	2	0	1	2	0	1	2	0
Peak Hour Factor	0.71	0.72	0.69	0.65	0.83	0.71	0.58	0.91	0.96	0.51	0.78	0.56
Percent Heavy Veh, %	2	2	2	1	1	1	2	2	2	1	1	1
Cap, veh/h	62	571	265	147	917	126	97	885	307	128	1287	47
Arrive On Green	0.04	0.24	0.24	0.08	0.29	0.29	0.05	0.34	0.34	0.07	0.37	0.37
Sat Flow, veh/h	1774	2339	1087	1792	3153	433	1774	2577	893	1792	3517	128
Grp Volume(v), veh/h	48	250	241	115	278	283	76	466	447	100	446	464
Grp Sat Flow(s),veh/h/ln	1774	1770	1657	1792	1787	1799	1774	1770	1701	1792	1787	1858
Q Serve(g_s), s	1.8	8.5	8.7	4.3	8.9	9.0	2.9	15.9	15.9	3.7	14.3	14.3
Cycle Q Clear(g_c), s	1.8	8.5	8.7	4.3	8.9	9.0	2.9	15.9	15.9	3.7	14.3	14.3
Prop In Lane	1.00		0.66	1.00		0.24	1.00		0.53	1.00		0.07
Lane Grp Cap(c), veh/h	62	432	404	147	520	523	97	608	584	128	654	680
V/C Ratio(X)	0.77	0.58	0.60	0.78	0.54	0.54	0.78	0.77	0.77	0.78	0.68	0.68
Avail Cap(c_a), veh/h	128	821	768	156	855	861	206	795	763	129	723	752
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	32.5	22.6	22.7	30.6	20.2	20.3	31.7	19.9	19.9	31.0	18.2	18.2
Incr Delay (d2), s/veh	7.3	1.2	1.4	19.3	0.9	0.9	5.0	3.3	3.4	23.5	2.3	2.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	4.2	4.1	2.9	4.5	4.5	1.6	8.3	8.0	2.7	7.5	7.8
LnGrp Delay(d),s/veh	39.8	23.8	24.1	49.9	21.1	21.1	36.7	23.2	23.3	54.5	20.5	20.4
LnGrp LOS	D	C	C	D	C	C	D	C	C	D	C	C
Approach Vol, veh/h		539			676			989			1010	
Approach Delay, s/veh		25.4			26.0			24.3			23.8	
Approach LOS		C			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.4	27.8	9.7	21.1	7.8	29.4	6.5	24.3
Change Period (Y+Rc), s	4.5	* 4.5	4.1	4.5	4.1	4.5	4.1	4.5
Max Green Setting (Gmax), s	4.9	* 31	5.9	31.5	7.9	27.5	4.9	32.5
Max Q Clear Time (g_c+I1), s	5.7	17.9	6.3	10.7	4.9	16.3	3.8	11.0
Green Ext Time (p_c), s	0.0	4.9	0.0	3.0	0.0	4.4	0.0	3.4

Intersection Summary	
HCM 2010 Ctrl Delay	24.7
HCM 2010 LOS	C

Notes

HCM 2010 Signalized Intersection Summary
12: Central Pkwy & Arnaudo Blvd

Cumulative Plus Project

PM Peak

	↗	→	↘	↙	←	↖	↖	↑	↗	↘	↓	↙
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		←↑→		↰	↑	↱	↰	↑↱		↰	↑↱	
Traffic Volume (veh/h)	5	21	3	30	37	296	4	714	111	262	725	5
Future Volume (veh/h)	5	21	3	30	37	296	4	714	111	262	725	5
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1900	1900	1863	1863	1863	1810	1810	1900	1863	1863	1900
Adj Flow Rate, veh/h	12	32	8	40	44	352	8	978	166	294	884	8
Adj No. of Lanes	0	1	0	1	1	1	1	2	0	1	2	0
Peak Hour Factor	0.42	0.66	0.38	0.75	0.84	0.84	0.50	0.73	0.67	0.89	0.82	0.63
Percent Heavy Veh, %	0	0	0	2	2	2	5	5	5	2	2	2
Cap, veh/h	91	201	43	52	462	393	14	1195	203	332	2104	19
Arrive On Green	0.17	0.17	0.17	0.03	0.25	0.25	0.01	0.41	0.41	0.19	0.59	0.59
Sat Flow, veh/h	207	1205	257	1774	1863	1583	1723	2941	499	1774	3594	33
Grp Volume(v), veh/h	52	0	0	40	44	352	8	571	573	294	435	457
Grp Sat Flow(s),veh/h/ln	1670	0	0	1774	1863	1583	1723	1719	1720	1774	1770	1857
Q Serve(g_s), s	0.0	0.0	0.0	1.8	1.4	17.0	0.4	23.3	23.4	12.7	10.7	10.7
Cycle Q Clear(g_c), s	1.9	0.0	0.0	1.8	1.4	17.0	0.4	23.3	23.4	12.7	10.7	10.7
Prop In Lane	0.23		0.15	1.00		1.00	1.00		0.29	1.00		0.02
Lane Grp Cap(c), veh/h	334	0	0	52	462	393	14	699	699	332	1036	1087
V/C Ratio(X)	0.16	0.00	0.00	0.76	0.10	0.90	0.57	0.82	0.82	0.88	0.42	0.42
Avail Cap(c_a), veh/h	644	0	0	627	684	582	347	886	887	357	1036	1087
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	28.2	0.0	0.0	38.0	22.9	28.7	39.0	20.8	20.8	31.3	9.0	9.0
Incr Delay (d2), s/veh	0.1	0.0	0.0	8.2	0.0	9.1	12.8	4.8	4.9	20.2	0.3	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	0.0	0.0	1.0	0.7	8.4	0.2	11.9	11.9	8.1	5.3	5.5
LnGrp Delay(d),s/veh	28.3	0.0	0.0	46.2	22.9	37.8	51.8	25.7	25.7	51.4	9.3	9.2
LnGrp LOS	C			D	C	D	D	C	C	D	A	A
Approach Vol, veh/h		52			436			1152			1186	
Approach Delay, s/veh		28.3			37.1			25.9			19.7	
Approach LOS		C			D			C			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6		8
Phs Duration (G+Y+Rc), s	18.9	36.4	6.4	17.2	4.7	50.5		23.7
Change Period (Y+Rc), s	4.1	* 4.3	4.1	4.1	4.1	* 4.3		4.1
Max Green Setting (Gmax), s	15.9	* 41	27.9	29.0	15.9	* 41		29.0
Max Q Clear Time (g_c+I1), s	14.7	25.4	3.8	3.9	2.4	12.7		19.0
Green Ext Time (p_c), s	0.1	6.7	0.0	0.2	0.0	6.1		0.6

Intersection Summary	
HCM 2010 Ctrl Delay	25.1
HCM 2010 LOS	C

Notes

HCM 2010 Signalized Intersection Summary
13: Central Pkwy & Main St

Cumulative Plus Project
PM Peak

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑	↱	↰	↑↱		↰	↑↱		↰	↑↱	
Traffic Volume (veh/h)	13	32	187	56	0	7	241	701	68	27	651	1
Future Volume (veh/h)	13	32	187	56	0	7	241	701	68	27	651	1
Number	3	8	18	7	4	14	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1881	1881	1881	1532	1532	1900	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	34	100	237	112	0	14	251	730	117	33	868	4
Adj No. of Lanes	1	1	1	1	2	0	1	2	0	1	2	0
Peak Hour Factor	0.38	0.32	0.79	0.50	0.50	0.50	0.96	0.96	0.58	0.81	0.75	0.25
Percent Heavy Veh, %	1	1	1	24	24	24	2	2	2	2	2	2
Cap, veh/h	111	375	316	165	364	323	250	1113	178	119	1052	5
Arrive On Green	0.06	0.20	0.20	0.11	0.00	0.25	0.14	0.36	0.36	0.07	0.29	0.29
Sat Flow, veh/h	1792	1881	1585	1459	1456	1293	1774	3052	489	1774	3613	17
Grp Volume(v), veh/h	34	100	237	112	0	14	251	423	424	33	425	447
Grp Sat Flow(s),veh/h/ln	1792	1881	1585	1459	1456	1293	1774	1770	1771	1774	1770	1860
Q Serve(g_s), s	1.3	3.2	10.0	5.2	0.0	0.6	10.0	14.2	14.2	1.3	15.9	15.9
Cycle Q Clear(g_c), s	1.3	3.2	10.0	5.2	0.0	0.6	10.0	14.2	14.2	1.3	15.9	15.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.28	1.00		0.01
Lane Grp Cap(c), veh/h	111	375	316	165	364	323	250	645	646	119	515	542
V/C Ratio(X)	0.31	0.27	0.75	0.68	0.00	0.04	1.01	0.66	0.66	0.28	0.83	0.83
Avail Cap(c_a), veh/h	227	632	533	185	469	417	250	645	646	250	570	599
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	31.9	24.1	26.8	30.3	0.0	20.2	30.5	18.9	18.9	31.5	23.5	23.5
Incr Delay (d2), s/veh	1.5	0.4	3.6	8.4	0.0	0.1	58.4	2.4	2.4	1.2	8.9	8.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	1.7	4.7	2.5	0.0	0.2	8.9	7.4	7.4	0.7	9.1	9.5
LnGrp Delay(d),s/veh	33.4	24.4	30.4	38.7	0.0	20.3	89.0	21.3	21.3	32.7	32.4	32.0
LnGrp LOS	C	C	C	D		C	F	C	C	C	C	C
Approach Vol, veh/h		371			126			1098			905	
Approach Delay, s/veh		29.1			36.7			36.8			32.2	
Approach LOS		C			D			D			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	14.0	25.8	8.4	22.9	8.8	31.0	12.0	19.3
Change Period (Y+Rc), s	4.0	5.1	4.0	5.1	4.0	5.1	4.0	5.1
Max Green Setting (Gmax), s	10.0	22.9	9.0	22.9	10.0	22.9	9.0	23.9
Max Q Clear Time (g_c+I1), s	12.0	17.9	3.3	2.6	3.3	16.2	7.2	12.0
Green Ext Time (p_c), s	0.0	2.4	0.0	0.0	0.0	2.8	0.0	1.0

Intersection Summary	
HCM 2010 Ctrl Delay	34.0
HCM 2010 LOS	C

HCM 2010 Signalized Intersection Summary
14: De Anza Blvd & Arnaudo Blvd

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑↑↱		↰	↑↑↱		↰	↑↑↱		↰	↑↑↱	
Traffic Volume (veh/h)	3	189	25	116	356	257	41	439	90	85	654	2
Future Volume (veh/h)	3	189	25	116	356	257	41	439	90	85	654	2
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1845	1845	1900	1863	1863	1900	1881	1881	1900
Adj Flow Rate, veh/h	8	205	32	155	400	279	64	1756	120	202	1308	8
Adj No. of Lanes	1	2	0	1	2	0	1	2	0	1	2	0
Peak Hour Factor	0.38	0.92	0.78	0.75	0.89	0.92	0.64	0.25	0.75	0.42	0.50	0.25
Percent Heavy Veh, %	2	2	2	3	3	3	2	2	2	1	1	1
Cap, veh/h	81	563	87	267	430	297	272	1923	130	213	2257	14
Arrive On Green	0.01	0.18	0.18	0.04	0.22	0.22	0.03	0.57	0.57	0.08	0.62	0.62
Sat Flow, veh/h	1774	3076	473	1757	1985	1370	1774	3365	228	1792	3642	22
Grp Volume(v), veh/h	8	117	120	155	353	326	64	915	961	202	642	674
Grp Sat Flow(s),veh/h/ln	1774	1770	1779	1757	1752	1603	1774	1770	1823	1792	1787	1877
Q Serve(g_s), s	0.5	7.6	7.8	5.5	26.1	26.5	2.0	60.8	63.2	9.1	28.2	28.2
Cycle Q Clear(g_c), s	0.5	7.6	7.8	5.5	26.1	26.5	2.0	60.8	63.2	9.1	28.2	28.2
Prop In Lane	1.00		0.27	1.00		0.85	1.00		0.12	1.00		0.01
Lane Grp Cap(c), veh/h	81	324	325	267	380	347	272	1011	1042	213	1107	1163
V/C Ratio(X)	0.10	0.36	0.37	0.58	0.93	0.94	0.24	0.91	0.92	0.95	0.58	0.58
Avail Cap(c_a), veh/h	141	388	390	267	384	351	307	1050	1081	213	1112	1168
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	45.4	47.3	47.4	46.6	50.8	51.0	13.2	25.2	25.7	41.2	14.9	14.9
Incr Delay (d2), s/veh	0.2	0.3	0.3	2.1	27.9	32.1	0.2	10.8	12.5	47.0	0.8	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	3.7	3.9	4.6	15.6	14.8	1.0	32.5	35.1	10.1	14.1	14.8
LnGrp Delay(d),s/veh	45.6	47.5	47.6	48.7	78.7	83.0	13.3	36.0	38.2	88.2	15.7	15.6
LnGrp LOS	D	D	D	D	E	F	B	D	D	F	B	B
Approach Vol, veh/h		245			834			1940			1518	
Approach Delay, s/veh		47.5			74.8			36.3			25.3	
Approach LOS		D			E			D			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	14.0	80.1	9.5	28.7	7.6	86.5	5.0	33.2
Change Period (Y+Rc), s	4.0	4.5	4.0	4.5	4.0	4.5	4.0	4.5
Max Green Setting (Gmax), s	10.0	78.5	5.5	29.0	6.2	82.3	5.5	29.0
Max Q Clear Time (g_c+I1), s	11.1	65.2	7.5	9.8	4.0	30.2	2.5	28.5
Green Ext Time (p_c), s	0.0	10.4	0.0	0.8	0.0	13.0	0.0	0.2

Intersection Summary			
HCM 2010 Ctrl Delay			40.3
HCM 2010 LOS			D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑↱		↰	↑↱		↰	↑↱		↰	↑↱	
Traffic Volume (veh/h)	31	236	57	70	434	64	203	932	47	30	398	42
Future Volume (veh/h)	31	236	57	70	434	64	203	932	47	30	398	42
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1881	1881	1900	1881	1881	1900	1759	1759	1900	1863	1863	1900
Adj Flow Rate, veh/h	65	407	184	86	457	128	406	1391	107	71	905	59
Adj No. of Lanes	1	2	0	1	2	0	1	2	0	1	2	0
Peak Hour Factor	0.48	0.58	0.31	0.81	0.95	0.50	0.50	0.67	0.44	0.42	0.44	0.71
Percent Heavy Veh, %	1	1	1	1	1	1	8	8	8	2	2	2
Cap, veh/h	84	495	221	110	609	169	424	1494	114	131	996	65
Arrive On Green	0.05	0.21	0.21	0.06	0.22	0.22	0.25	0.47	0.47	0.07	0.30	0.30
Sat Flow, veh/h	1792	2404	1074	1792	2764	768	1675	3147	241	1774	3374	220
Grp Volume(v), veh/h	65	301	290	86	294	291	406	736	762	71	475	489
Grp Sat Flow(s),veh/h/ln	1792	1787	1692	1792	1787	1746	1675	1671	1717	1774	1770	1824
Q Serve(g_s), s	3.3	14.8	15.1	4.4	14.2	14.3	22.0	38.1	38.6	3.6	23.8	23.8
Cycle Q Clear(g_c), s	3.3	14.8	15.1	4.4	14.2	14.3	22.0	38.1	38.6	3.6	23.8	23.8
Prop In Lane	1.00		0.64	1.00		0.44	1.00		0.14	1.00		0.12
Lane Grp Cap(c), veh/h	84	368	348	110	394	385	424	793	815	131	523	539
V/C Ratio(X)	0.78	0.82	0.83	0.78	0.75	0.76	0.96	0.93	0.93	0.54	0.91	0.91
Avail Cap(c_a), veh/h	119	429	406	119	429	419	424	898	923	131	605	624
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	43.4	34.9	35.1	42.6	33.5	33.6	33.9	22.7	22.8	41.2	31.2	31.2
Incr Delay (d2), s/veh	11.3	11.1	12.8	23.4	6.9	7.5	32.9	13.8	14.4	4.5	15.1	14.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.9	8.4	8.3	2.9	7.7	7.7	14.0	20.4	21.5	1.9	13.8	14.2
LnGrp Delay(d),s/veh	54.7	46.0	47.8	66.0	40.4	41.1	66.9	36.5	37.3	45.7	46.3	46.0
LnGrp LOS	D	D	D	E	D	D	E	D	D	D	D	D
Approach Vol, veh/h		656			671			1904			1035	
Approach Delay, s/veh		47.7			44.0			43.3			46.1	
Approach LOS		D			D			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.3	48.2	9.2	23.4	27.8	31.7	7.8	24.8
Change Period (Y+Rc), s	4.5	4.5	3.5	4.5	4.5	4.5	3.5	4.5
Max Green Setting (Gmax), s	5.3	49.5	6.1	22.1	23.3	31.5	6.1	22.1
Max Q Clear Time (g_c+I1), s	5.6	40.6	6.4	17.1	24.0	25.8	5.3	16.3
Green Ext Time (p_c), s	0.0	3.1	0.0	1.8	0.0	1.4	0.0	2.1

Intersection Summary	
HCM 2010 Ctrl Delay	44.7
HCM 2010 LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↰	↱↱	↰	↑↑↑			↑↑↑	↱
Traffic Volume (veh/h)	0	0	0	215	55	810	27	1620	0	0	2655	590
Future Volume (veh/h)	0	0	0	215	55	810	27	1620	0	0	2655	590
Number				3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln				1900	1696	1696	1696	1696	0	0	1810	1810
Adj Flow Rate, veh/h				253	220	880	52	1800	0	0	2766	894
Adj No. of Lanes				0	1	2	1	3	0	0	3	1
Peak Hour Factor				0.85	0.25	0.92	0.52	0.90	0.92	0.92	0.96	0.66
Percent Heavy Veh, %				12	12	12	12	12	0	0	5	5
Cap, veh/h				292	254	837	65	2825	0	0	2668	831
Arrive On Green				0.33	0.33	0.33	0.04	0.61	0.00	0.00	0.54	0.54
Sat Flow, veh/h				884	768	2538	1616	4784	0	0	5103	1538
Grp Volume(v), veh/h				473	0	880	52	1800	0	0	2766	894
Grp Sat Flow(s),veh/h/ln				1652	0	1269	1616	1544	0	0	1647	1538
Q Serve(g_s), s				40.3	0.0	49.5	4.8	37.2	0.0	0.0	81.0	81.0
Cycle Q Clear(g_c), s				40.3	0.0	49.5	4.8	37.2	0.0	0.0	81.0	81.0
Prop In Lane				0.53		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				545	0	837	65	2825	0	0	2668	831
V/C Ratio(X)				0.87	0.00	1.05	0.80	0.64	0.00	0.00	1.04	1.08
Avail Cap(c_a), veh/h				545	0	837	65	2825	0	0	2668	831
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	1.00	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				47.2	0.0	50.2	71.4	18.7	0.0	0.0	34.5	34.5
Incr Delay (d2), s/veh				13.9	0.0	45.3	50.5	0.5	0.0	0.0	27.9	53.9
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				20.5	0.0	22.6	3.0	16.0	0.0	0.0	43.4	46.6
LnGrp Delay(d),s/veh				61.1	0.0	95.5	121.9	19.1	0.0	0.0	62.4	88.4
LnGrp LOS				E		F	F	B			F	F
Approach Vol, veh/h					1353			1852			3660	
Approach Delay, s/veh					83.5			22.0			68.7	
Approach LOS					F			C			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2			5	6		8
Phs Duration (G+Y+Rc), s		96.0			10.5	85.5		54.0
Change Period (Y+Rc), s		4.5			4.5	4.5		4.5
Max Green Setting (Gmax), s		91.5			6.0	81.0		49.5
Max Q Clear Time (g_c+I1), s		39.2			6.8	83.0		51.5
Green Ext Time (p_c), s		23.5			0.0	0.0		0.0

Intersection Summary			
HCM 2010 Ctrl Delay			59.0
HCM 2010 LOS			E

	↗	→	↘	↙	←	↖	↖	↑	↗	↘	↓	↙
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↰↑	↱					↑↑	↱		↑↑	
Traffic Volume (vph)	1220	100	239	0	0	0	0	385	469	0	1357	0
Future Volume (vph)	1220	100	239	0	0	0	0	385	469	0	1357	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5					4.5	4.5		4.5	
Lane Util. Factor	0.95	0.95	1.00					0.95	1.00		0.95	
Frt	1.00	1.00	0.85					1.00	0.85		1.00	
Flt Protected	0.95	0.97	1.00					1.00	1.00		1.00	
Satd. Flow (prot)	1618	1657	1524					3008	1346		3223	
Flt Permitted	0.95	0.97	1.00					1.00	1.00		1.00	
Satd. Flow (perm)	1618	1657	1524					3008	1346		3223	
Peak-hour factor, PHF	0.90	0.25	0.93	0.92	0.92	0.92	0.92	0.84	0.77	0.92	0.91	0.92
Adj. Flow (vph)	1356	400	257	0	0	0	0	458	609	0	1491	0
RTOR Reduction (vph)	0	0	7	0	0	0	0	0	216	0	0	0
Lane Group Flow (vph)	868	888	250	0	0	0	0	458	393	0	1491	0
Heavy Vehicles (%)	6%	6%	6%	2%	2%	2%	20%	20%	20%	12%	12%	12%
Turn Type	Prot	NA	Perm					NA	Perm		NA	
Protected Phases	7	4						2			6	
Permitted Phases			4						2			
Actuated Green, G (s)	58.9	58.9	58.9					52.1	52.1		52.1	
Effective Green, g (s)	58.9	58.9	58.9					52.1	52.1		52.1	
Actuated g/C Ratio	0.49	0.49	0.49					0.43	0.43		0.43	
Clearance Time (s)	4.5	4.5	4.5					4.5	4.5		4.5	
Vehicle Extension (s)	3.0	3.0	3.0					3.0	3.0		3.0	
Lane Grp Cap (vph)	794	813	748					1305	584		1399	
v/s Ratio Prot	c0.54	0.54						0.15			c0.46	
v/s Ratio Perm			0.16						0.29			
v/c Ratio	1.09	1.09	0.33					0.35	0.67		1.07	
Uniform Delay, d1	30.6	30.6	18.6					22.7	27.2		34.0	
Progression Factor	1.00	1.00	1.00					1.00	1.00		1.00	
Incremental Delay, d2	60.4	59.7	0.3					0.2	3.1		43.7	
Delay (s)	91.0	90.3	18.9					22.8	30.2		77.7	
Level of Service	F	F	B					C	C		E	
Approach Delay (s)		81.5			0.0			27.0			77.7	
Approach LOS		F			A			C			E	

Intersection Summary			
HCM 2000 Control Delay	67.5	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.08		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	82.3%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
18: Great Valley Pkwy & Kelso Rd/Questa Trail

Cumulative Plus Project
PM Peak

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰↰	↑	↱	↰	↱		↰	↑↱		↰	↑↱	
Traffic Volume (vph)	60	21	6	4	12	230	190	630	6	440	507	15
Future Volume (vph)	60	21	6	4	12	230	190	630	6	440	507	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.6	4.6	4.0	4.6		4.0	5.1		4.0	5.1	
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	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	
Frt	1.00	1.00	0.85	1.00	0.86		1.00	1.00		1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	3400	1845	1568	1752	1584		1770	3529		1770	3520	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	3400	1845	1568	1752	1584		1770	3529		1770	3520	
Peak-hour factor, PHF	0.87	0.88	0.50	0.50	0.60	0.71	0.50	0.85	0.50	0.87	0.81	0.63
Adj. Flow (vph)	69	24	12	8	20	324	380	741	12	506	626	24
RTOR Reduction (vph)	0	0	10	0	286	0	0	1	0	0	2	0
Lane Group Flow (vph)	69	24	2	8	58	0	380	752	0	506	648	0
Confl. Peds. (#/hr)									4	4		
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	2%	2%	2%	2%	2%	2%
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA		Prot	NA	
Protected Phases	3	8		7	4		1	6		5	2	
Permitted Phases			8									
Actuated Green, G (s)	6.6	15.8	15.8	1.7	10.9		25.5	26.1		32.7	33.3	
Effective Green, g (s)	6.6	15.8	15.8	1.7	10.9		25.5	26.1		32.7	33.3	
Actuated g/C Ratio	0.07	0.17	0.17	0.02	0.12		0.27	0.28		0.35	0.35	
Clearance Time (s)	4.0	4.6	4.6	4.0	4.6		4.0	5.1		4.0	5.1	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	238	310	263	31	183		480	979		615	1246	
v/s Ratio Prot	c0.02	0.01		0.00	c0.04		0.21	c0.21		c0.29	0.18	
v/s Ratio Perm			0.00									
v/c Ratio	0.29	0.08	0.01	0.26	0.31		0.79	0.77		0.82	0.52	
Uniform Delay, d1	41.5	33.0	32.6	45.5	38.1		31.8	31.2		28.0	24.0	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.7	0.1	0.0	4.4	1.0		8.7	3.7		8.7	0.4	
Delay (s)	42.2	33.1	32.6	49.9	39.1		40.5	34.9		36.7	24.4	
Level of Service	D	C	C	D	D		D	C		D	C	
Approach Delay (s)		39.0			39.4			36.7			29.8	
Approach LOS		D			D			D			C	

Intersection Summary			
HCM 2000 Control Delay	34.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	94.0	Sum of lost time (s)	17.7
Intersection Capacity Utilization	78.8%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

	↙	↖	↑	↗	↘	↓
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↰	↱	↑↱		↰	↑↑
Traffic Volume (veh/h)	20	36	1191	37	169	580
Future Volume (veh/h)	20	36	1191	37	169	580
Number	3	18	2	12	1	6
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		0.99	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1900	1881	1900	1881	1881
Adj Flow Rate, veh/h	32	48	1435	40	302	652
Adj No. of Lanes	1	1	2	0	1	2
Peak Hour Factor	0.63	0.75	0.83	0.93	0.56	0.89
Percent Heavy Veh, %	0	0	1	1	1	1
Cap, veh/h	148	132	2174	61	370	2188
Arrive On Green	0.08	0.08	0.61	0.61	0.61	0.61
Sat Flow, veh/h	1810	1615	3644	99	360	3668
Grp Volume(v), veh/h	32	48	721	754	302	652
Grp Sat Flow(s),veh/h/ln	1810	1615	1787	1862	360	1787
Q Serve(g_s), s	0.5	0.8	7.7	7.8	10.2	2.5
Cycle Q Clear(g_c), s	0.5	0.8	7.7	7.8	18.0	2.5
Prop In Lane	1.00	1.00		0.05	1.00	
Lane Grp Cap(c), veh/h	148	132	1094	1140	370	2188
V/C Ratio(X)	0.22	0.36	0.66	0.66	0.82	0.30
Avail Cap(c_a), veh/h	1108	989	1094	1140	370	2188
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	12.6	12.8	3.7	3.7	12.6	2.7
Incr Delay (d2), s/veh	0.7	1.7	1.5	1.4	13.2	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.4	4.1	4.2	3.7	1.2
LnGrp Delay(d),s/veh	13.3	14.5	5.2	5.1	25.7	2.8
LnGrp LOS	B	B	A	A	C	A
Approach Vol, veh/h	80		1475			954
Approach Delay, s/veh	14.0		5.2			10.0
Approach LOS	B		A			B

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2				6		8
Phs Duration (G+Y+Rc), s		22.5				22.5		6.9
Change Period (Y+Rc), s		4.5				4.5		4.5
Max Green Setting (Gmax), s		18.0				18.0		18.0
Max Q Clear Time (g_c+I1), s		9.8				20.0		2.8
Green Ext Time (p_c), s		5.6				0.0		0.1

Intersection Summary	
HCM 2010 Ctrl Delay	7.3
HCM 2010 LOS	A

HCM 2010 Signalized Intersection Summary
20: Great Valley Pkwy & Mustang Wy

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↰	↱	↑↱		↰	↑↑
Traffic Volume (veh/h)	17	467	835	72	404	202
Future Volume (veh/h)	17	467	835	72	404	202
Number	3	18	2	12	1	6
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		0.97	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1900	1863	1863
Adj Flow Rate, veh/h	28	486	879	96	525	252
Adj No. of Lanes	1	1	2	0	1	2
Peak Hour Factor	0.61	0.96	0.95	0.75	0.77	0.80
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	378	843	990	108	566	2409
Arrive On Green	0.21	0.21	0.31	0.31	0.32	0.68
Sat Flow, veh/h	1774	1583	3300	350	1774	3632
Grp Volume(v), veh/h	28	486	485	490	525	252
Grp Sat Flow(s),veh/h/ln	1774	1583	1770	1788	1774	1770
Q Serve(g_s), s	1.1	17.6	22.1	22.1	24.3	2.1
Cycle Q Clear(g_c), s	1.1	17.6	22.1	22.1	24.3	2.1
Prop In Lane	1.00	1.00		0.20	1.00	
Lane Grp Cap(c), veh/h	378	843	546	552	566	2409
V/C Ratio(X)	0.07	0.58	0.89	0.89	0.93	0.10
Avail Cap(c_a), veh/h	378	843	582	588	638	2624
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	26.7	13.4	27.9	27.9	28.0	4.7
Incr Delay (d2), s/veh	0.1	1.0	14.9	14.8	18.8	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	7.9	13.0	13.2	14.8	1.0
LnGrp Delay(d),s/veh	26.8	14.4	42.8	42.7	46.7	4.7
LnGrp LOS	C	B	D	D	D	A
Approach Vol, veh/h	514		975			777
Approach Delay, s/veh	15.0		42.8			33.1
Approach LOS	B		D			C

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	31.6	30.7				62.3		22.6
Change Period (Y+Rc), s	4.5	4.5				4.5		4.5
Max Green Setting (Gmax), s	30.5	27.9				62.9		18.1
Max Q Clear Time (g_c+I1), s	26.3	24.1				4.1		19.6
Green Ext Time (p_c), s	0.8	2.0				1.7		0.0

Intersection Summary			
HCM 2010 Ctrl Delay			33.2
HCM 2010 LOS			C

	↗	↘	↖	↑	↓	↙
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↰↰	↱↱	↰↰	↑↑↑↑	↑↑↑↑	↱
Traffic Volume (veh/h)	277	1107	1056	2090	1999	152
Future Volume (veh/h)	277	1107	1056	2090	1999	152
Number	7	14	5	2	6	16
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1810	1810	1810	1810
Adj Flow Rate, veh/h	301	1203	1148	2272	2173	165
Adj No. of Lanes	2	2	2	4	4	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	5	5	5	5
Cap, veh/h	475	1387	1203	4631	2148	531
Arrive On Green	0.14	0.14	0.36	0.74	0.35	0.35
Sat Flow, veh/h	3442	2787	3343	6478	6478	1538
Grp Volume(v), veh/h	301	1203	1148	2272	2173	165
Grp Sat Flow(s),veh/h/ln	1721	1393	1672	1556	1556	1538
Q Serve(g_s), s	7.4	12.4	30.1	13.2	31.0	7.1
Cycle Q Clear(g_c), s	7.4	12.4	30.1	13.2	31.0	7.1
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	475	1387	1203	4631	2148	531
V/C Ratio(X)	0.63	0.87	0.95	0.49	1.01	0.31
Avail Cap(c_a), veh/h	475	1387	1210	4643	2148	531
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	36.6	19.9	28.0	4.6	29.4	21.6
Incr Delay (d2), s/veh	2.7	6.1	16.1	0.1	22.3	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.7	23.6	16.6	5.5	16.5	3.0
LnGrp Delay(d),s/veh	39.3	26.0	44.1	4.7	51.7	21.9
LnGrp LOS	D	C	D	A	F	C
Approach Vol, veh/h	1504			3420	2338	
Approach Delay, s/veh	28.7			18.0	49.6	
Approach LOS	C			B	D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		72.8		17.0	35.8	37.0		
Change Period (Y+Rc), s		6.0		4.6	3.5	6.0		
Max Green Setting (Gmax), s		67.0		12.4	32.5	31.0		
Max Q Clear Time (g_c+I1), s		15.2		14.4	32.1	33.0		
Green Ext Time (p_c), s		33.5		0.0	0.3	0.0		

Intersection Summary			
HCM 2010 Ctrl Delay			30.4
HCM 2010 LOS			C

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↰	↱	↑↑↑	↱	↰	↑↑↑
Traffic Volume (veh/h)	84	625	1333	280	525	1283
Future Volume (veh/h)	84	625	1333	280	525	1283
Number	3	18	2	12	1	6
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1810	1810	1810	1810
Adj Flow Rate, veh/h	120	919	1481	364	577	1395
Adj No. of Lanes	1	1	3	1	1	3
Peak Hour Factor	0.70	0.68	0.90	0.77	0.91	0.92
Percent Heavy Veh, %	3	3	5	5	5	5
Cap, veh/h	400	847	1504	819	538	3266
Arrive On Green	0.23	0.23	0.30	0.30	0.31	0.66
Sat Flow, veh/h	1757	1568	5103	1538	1723	5103
Grp Volume(v), veh/h	120	919	1481	364	577	1395
Grp Sat Flow(s),veh/h/ln	1757	1568	1647	1538	1723	1647
Q Serve(g_s), s	5.1	20.5	26.8	13.1	28.1	12.0
Cycle Q Clear(g_c), s	5.1	20.5	26.8	13.1	28.1	12.0
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	400	847	1504	819	538	3266
V/C Ratio(X)	0.30	1.09	0.98	0.44	1.07	0.43
Avail Cap(c_a), veh/h	400	847	1504	819	538	3266
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	28.8	20.7	31.1	12.9	31.0	7.2
Incr Delay (d2), s/veh	0.4	56.7	19.6	0.4	59.6	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.5	34.1	14.8	8.3	22.2	5.5
LnGrp Delay(d),s/veh	29.2	77.4	50.7	13.3	90.6	7.3
LnGrp LOS	C	F	D	B	F	A
Approach Vol, veh/h	1039		1845			1972
Approach Delay, s/veh	71.9		43.3			31.7
Approach LOS	E		D			C

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	32.1	32.9				65.0		25.0
Change Period (Y+Rc), s	4.0	5.5				5.5		4.5
Max Green Setting (Gmax), s	28.1	27.4				59.5		20.5
Max Q Clear Time (g_c+I1), s	30.1	28.8				14.0		22.5
Green Ext Time (p_c), s	0.0	0.0				14.8		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	44.7
HCM 2010 LOS	D

	↗	↘	↖	↑	↓	↙
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↰	↱		↑↑	↑↱	
Traffic Volume (veh/h)	568	52	106	758	802	267
Future Volume (veh/h)	568	52	106	758	802	267
Number	7	14	5	2	6	16
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1583	1583	1900	1727	1759	1900
Adj Flow Rate, veh/h	645	55	116	871	881	338
Adj No. of Lanes	1	1	0	2	2	0
Peak Hour Factor	0.88	0.94	0.91	0.87	0.91	0.79
Percent Heavy Veh, %	20	20	10	10	8	8
Cap, veh/h	676	533	0	1402	1011	386
Arrive On Green	0.45	0.45	0.00	0.43	0.43	0.43
Sat Flow, veh/h	1508	1346	0	3368	2455	904
Grp Volume(v), veh/h	645	55	0	871	621	598
Grp Sat Flow(s),veh/h/ln	1508	1346	0	1641	1671	1600
Q Serve(g_s), s	35.5	6.7	0.0	17.8	29.2	29.4
Cycle Q Clear(g_c), s	35.5	6.7	0.0	17.8	29.2	29.4
Prop In Lane	1.00	1.00	0.00			0.57
Lane Grp Cap(c), veh/h	676	533	0	1402	714	683
V/C Ratio(X)	0.95	0.10	0.00	0.62	0.87	0.87
Avail Cap(c_a), veh/h	881	716	0	2248	854	817
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	22.9	85.6	0.0	19.2	22.5	22.6
Incr Delay (d2), s/veh	15.8	0.0	0.0	0.3	8.0	8.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	17.7	3.7	0.0	8.0	15.0	14.6
LnGrp Delay(d),s/veh	38.7	85.6	0.0	19.6	30.5	31.3
LnGrp LOS	D	F		B	C	C
Approach Vol, veh/h	700			871	1219	
Approach Delay, s/veh	42.4			19.6	30.9	
Approach LOS	D			B	C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		42.8		43.3	0.0	42.8		
Change Period (Y+Rc), s		6.0		* 4.7	4.5	6.0		
Max Green Setting (Gmax), s		59.0		* 50	10.5	44.0		
Max Q Clear Time (g_c+I1), s		19.8		37.5	0.0	31.4		
Green Ext Time (p_c), s		5.5		1.1	0.0	5.4		

Intersection Summary			
HCM 2010 Ctrl Delay			30.2
HCM 2010 LOS			C

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				↰	↱	↱	↰	↑↑↑			↑↑↑	↱
Traffic Volume (vph)	0	0	0	434	313	643	6	1148	0	0	2103	328
Future Volume (vph)	0	0	0	434	313	643	6	1148	0	0	2103	328
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				4.5	4.5	4.5	4.5	4.5			4.5	4.5
Lane Util. Factor				1.00	0.95	0.95	1.00	0.91			0.91	1.00
Frt				1.00	0.94	0.85	1.00	1.00			1.00	0.85
Flt Protected				0.95	1.00	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)				1612	1513	1370	1612	4631			4940	1538
Flt Permitted				0.95	1.00	1.00	0.95	1.00			1.00	1.00
Satd. Flow (perm)				1612	1513	1370	1612	4631			4940	1538
Peak-hour factor, PHF	0.92	0.92	0.92	0.83	0.86	0.80	0.75	0.83	0.92	0.92	0.89	0.79
Adj. Flow (vph)	0	0	0	523	364	804	8	1383	0	0	2363	415
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	131
Lane Group Flow (vph)	0	0	0	523	613	555	8	1383	0	0	2363	284
Heavy Vehicles (%)	2%	2%	2%	12%	12%	12%	12%	12%	12%	5%	5%	5%
Turn Type				Prot	NA	Perm	Prot	NA			NA	Prot
Protected Phases				3	8		5	2			6	6
Permitted Phases						8						
Actuated Green, G (s)				55.0	55.0	55.0	1.1	71.3			65.7	65.7
Effective Green, g (s)				55.0	55.0	55.0	1.1	71.3			65.7	65.7
Actuated g/C Ratio				0.41	0.41	0.41	0.01	0.53			0.49	0.49
Clearance Time (s)				4.5	4.5	4.5	4.5	4.5			4.5	4.5
Vehicle Extension (s)				3.0	3.0	3.0	3.0	3.0			3.0	3.0
Lane Grp Cap (vph)				655	615	556	13	2440			2398	746
v/s Ratio Prot				0.32	c0.41		0.00	c0.30			c0.48	0.18
v/s Ratio Perm						0.41						
v/c Ratio				0.80	1.00	1.00	0.62	0.57			0.99	0.38
Uniform Delay, d1				35.3	40.1	40.1	66.9	21.6			34.3	22.0
Progression Factor				1.00	1.00	1.00	1.00	1.00			1.00	1.00
Incremental Delay, d2				6.7	35.2	37.4	64.0	0.3			15.0	0.3
Delay (s)				42.0	75.3	77.5	130.9	21.9			49.3	22.3
Level of Service				D	E	E	F	C			D	C
Approach Delay (s)		0.0			65.7			22.5			45.3	
Approach LOS		A			E			C			D	

Intersection Summary			
HCM 2000 Control Delay	45.8	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.00		
Actuated Cycle Length (s)	135.3	Sum of lost time (s)	13.5
Intersection Capacity Utilization	86.4%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

17: Mountain House Pkwy & I-205 EB Off-Ramp

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰↰	↱						↑↑	↱		↑↑	
Traffic Volume (vph)	1220	100	239	0	0	0	0	385	469	0	1357	0
Future Volume (vph)	1220	100	239	0	0	0	0	385	469	0	1357	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5						4.5	4.5		4.5	
Lane Util. Factor	0.97	1.00						0.95	1.00		0.95	
Frt	1.00	0.94						1.00	0.85		1.00	
Flt Protected	0.95	1.00						1.00	1.00		1.00	
Satd. Flow (prot)	3303	1687						3008	1346		3223	
Flt Permitted	0.95	1.00						1.00	1.00		1.00	
Satd. Flow (perm)	3303	1687						3008	1346		3223	
Peak-hour factor, PHF	0.90	0.25	0.93	0.92	0.92	0.92	0.92	0.84	0.77	0.92	0.91	0.92
Adj. Flow (vph)	1356	400	257	0	0	0	0	458	609	0	1491	0
RTOR Reduction (vph)	0	9	0	0	0	0	0	0	166	0	0	0
Lane Group Flow (vph)	1356	648	0	0	0	0	0	458	443	0	1491	0
Heavy Vehicles (%)	6%	6%	6%	2%	2%	2%	20%	20%	20%	12%	12%	12%
Turn Type	Prot	NA						NA	Perm		NA	
Protected Phases	7	4						2			6	
Permitted Phases									2			
Actuated Green, G (s)	37.9	37.9						43.1	43.1		43.1	
Effective Green, g (s)	37.9	37.9						43.1	43.1		43.1	
Actuated g/C Ratio	0.42	0.42						0.48	0.48		0.48	
Clearance Time (s)	4.5	4.5						4.5	4.5		4.5	
Vehicle Extension (s)	3.0	3.0						3.0	3.0		3.0	
Lane Grp Cap (vph)	1390	710						1440	644		1543	
v/s Ratio Prot	c0.41	0.38						0.15			c0.46	
v/s Ratio Perm									0.33			
v/c Ratio	0.98	0.91						0.32	0.69		0.97	
Uniform Delay, d1	25.6	24.5						14.4	18.2		22.7	
Progression Factor	1.00	1.00						1.00	1.00		1.00	
Incremental Delay, d2	18.4	16.1						0.1	3.1		15.5	
Delay (s)	44.0	40.6						14.5	21.3		38.2	
Level of Service	D	D						B	C		D	
Approach Delay (s)		42.9			0.0			18.4			38.2	
Approach LOS		D			A			B			D	

Intersection Summary			
HCM 2000 Control Delay	35.7	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.97		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	87.1%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			