APPENDIX I

Preliminary Engineers' Report, Ruggeri-Jensen-Azar & Associates

Preliminary Engineers Report

For

San Sebastian

Morgan Hill, California

~~June 30, 2011~~
~~August 26, 2011~~
~~September 19, 2011~~
May 30, 2012

Prepared for:

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1 Introduction

1.1 Purpose of the Report

This report is prompted by the intent of the project applicant, San Sebastian MH, General Partnership (Applicant), to develop land within the City of Morgan Hill. The Applicant has retained Ruggeri-Jensen-Azar (RJA) to conduct preliminary land planning and engineering design for the proposed development. This report summarizes the findings of these efforts and is intended to be used as a technical reference for the San Sebastian entitlement applications and associated environmental review.

1.2 Study Limitations

This report is limited to identification of the backbone infrastructure and general site grading needed to support development of the Property. All calculations are based on the Applicant approved layout and City of Morgan Hill development guidelines and design criteria at the time of preparation this report. This report and calculations herein are for preliminary purposes only and shall not be used for final design or construction.

1.3 Scope of Work

The scope of this report includes and is limited to the following:

- Develop a circulation system that serves the needs of the community while at the same time enhances the community design objectives.
- Preliminarily, study the site grading and establish conceptual limits of disturbance, cut and fill areas, and preliminary finished grades.
- Preliminarily, study the existing storm water drainage system, identify conceptual drainage areas, and develop a conceptual onsite storm drainage system including detention/retention strategies.
- Develop preliminary LID strategies for onsite storm water management.
- Preliminarily, study the existing sanitary sewer system and develop a conceptual onsite collection and conveyance system.
- Preliminarily, study the existing domestic water system and develop a conceptual onsite distribution system.
- Identify the existing dry utility infrastructure.

2 Study Area

2.1 Location

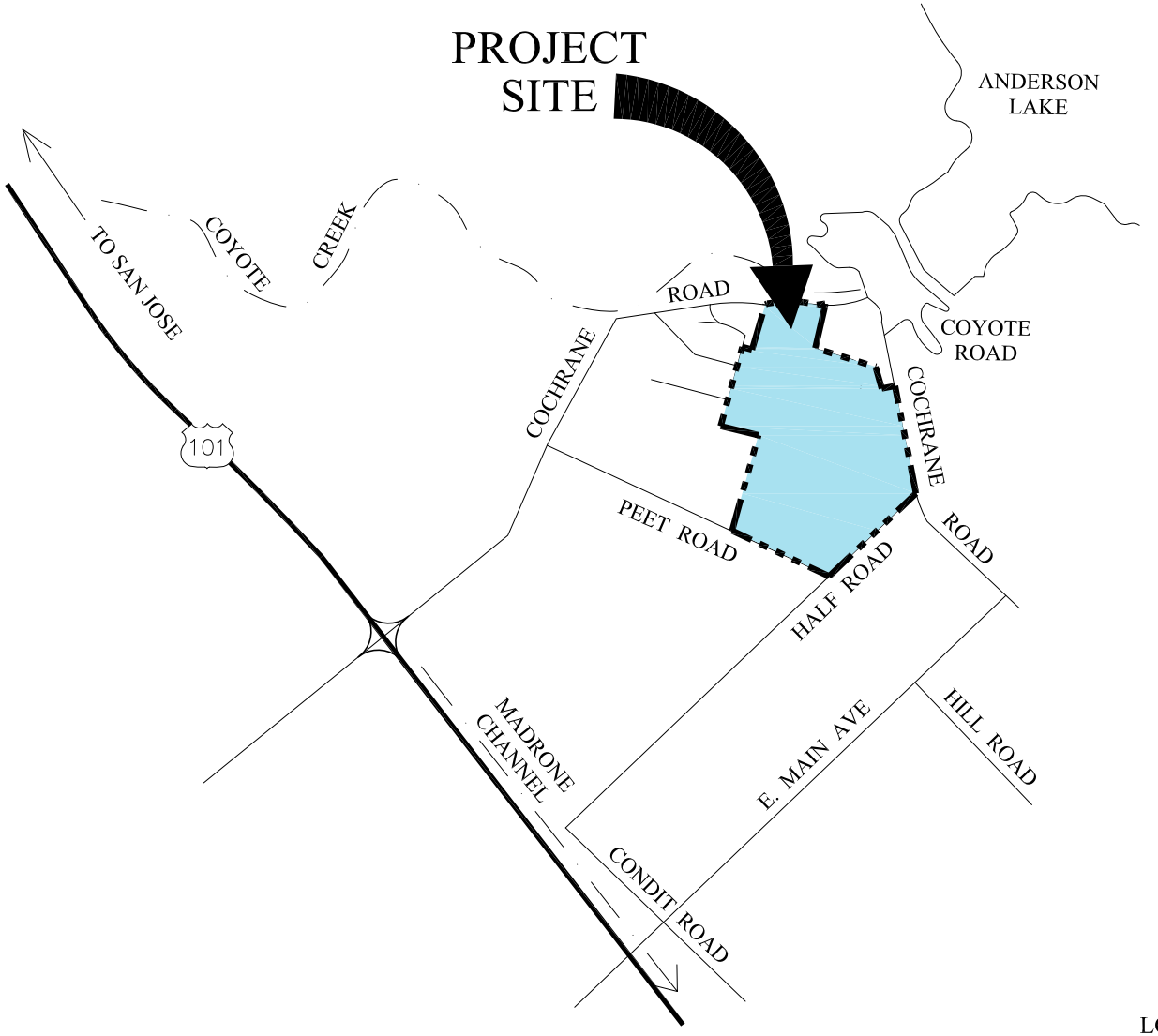
The property comprises approximately 122.1 acres located within the City of Morgan Hill. The property is bounded by the following features: Cochrane Road and Coyote Creek to the north; Peet Road to the south; Coyote Road and Half Road to the east; Santa Clara Valley Water District (SCVWD) right-of-way to the west. Figure 2.1 shows the Local Area Map with respect to the Morgan Hill city limit boundary.

2.2 Existing Conditions and Topography

The property has historically been used for orchard and vegetable farming operations. The site consists mainly of orchards, row crops, and a few residential and various accessory structures used to support the existing agricultural operations. Various other non-orchard trees are found onsite and around the property boundary, including two large, native oak trees within the interior of the site and windrows along the eastern property boundary.

The existing site soils are generally granular in nature with clayey-sand to sandy-clay in the top two to four feet and clayey-gravel with sand below. The site is not located within an earthquake fault zone or landslide hazard zone; however, the extreme northern edge of the property and a small northeast projecting corner along Coyote Road lies within a fault hazard zone identified by the County of Santa Clara. A preliminary geotechnical investigation by Pacific Geotechnical Engineers found no evidence of fault activity near the site. The site is located in a seismically active region, with the Calaveras fault, located approximately one mile northeast of the property, being the closest source. The property is mapped as having low liquefaction potential by the California Geologic Survey and Santa Clara County. A liquefaction study by Pacific Geotechnical Engineers confirmed that the site liquefaction potential is low.

In general, the property is characterized by gradual slopes to the north and south (0.5%-2%) with steeper slopes (5%-50%) up to Coyote Road in the northeast corner of the property. An 8 to 9 foot bluff bisects the property and divides the site into two distinct watersheds. Approximately 27.6 acres drains to the northwest and is tributary to Coyote Creek and ultimately San Francisco Bay. The remaining 94.5 acres drains to the southeast and is tributary to Madrone Channel and ultimately Monterey Bay via Llagas Creek and the Pajaro River. The overall site topographic relief is approximately 21-feet and 66-feet in the north and south watersheds respectively. The north watershed has a maximum elevation of 427-feet near the northeast end of the bluff, and a minimum elevation of 406-feet at the northwest boundary near Cochrane Road. The South watershed has a maximum elevation of 472-feet at the northeast boundary near Coyote Road, and a minimum elevation of 406-feet at a storm drain culvert under Peet Road at the south boundary. Figure 2.2 shows the existing site topography.



NOT TO SCALE

FIGURE 2.1
LOCAL AREA MAP
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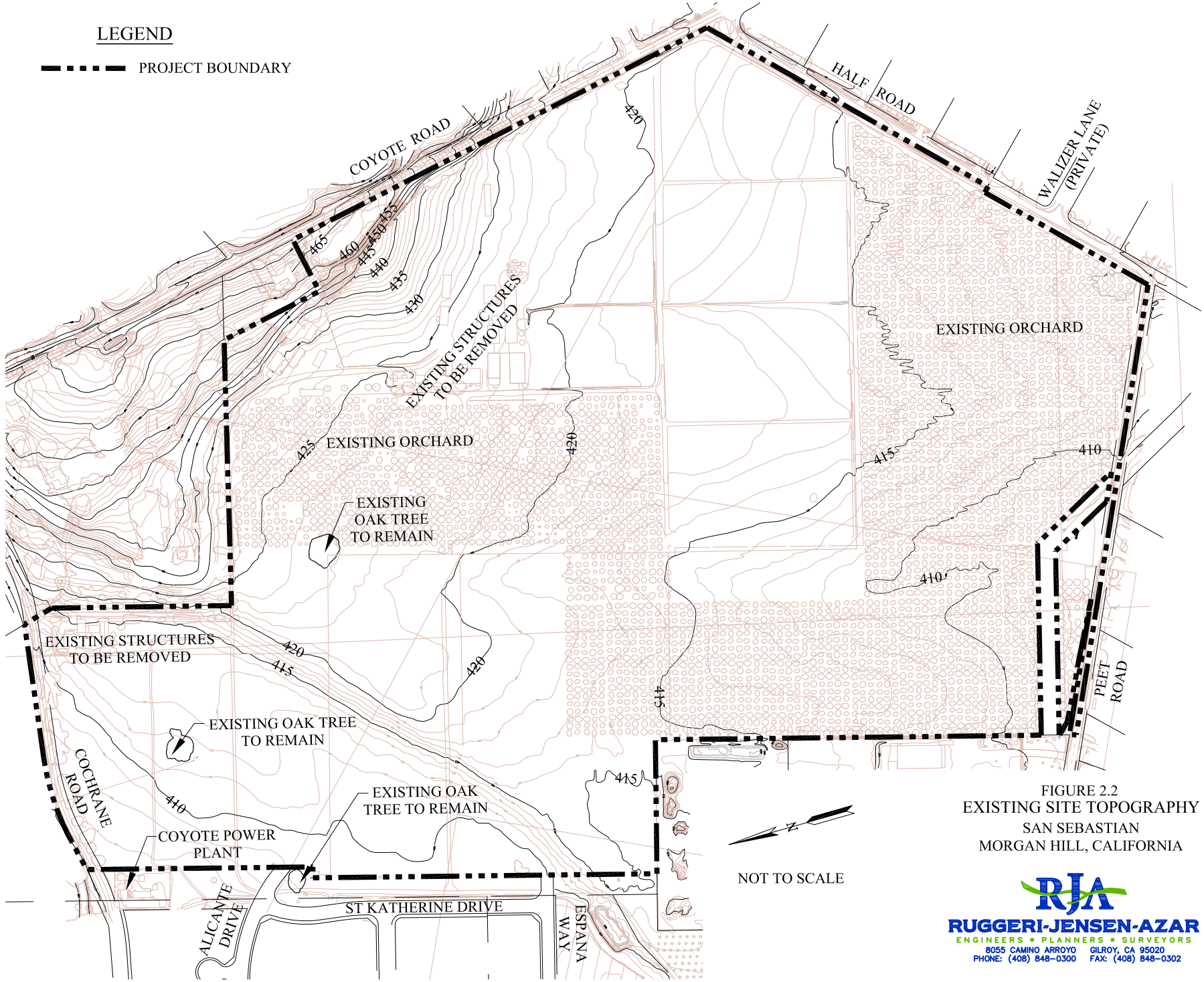

FIGURE 2.2
EXISTING SITE TOPOGRAPHY
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2.3 Existing Easements and Utilities

The north property boundary extends to the north side of Cochrane Road, which is contained within a 40-foot wide street easement along the northerly boundary of the site. To the south, the property boundary extends to the centerline of Peet Road. A 20-foot wide street easement extends along the south property line and encompasses the north half of Peet Road. No official record of street right-of-way dedication was found for either Cochrane Road or Peet Road.

In 1984, the Borello family sold a portion of land to the United States of America via grant deed for the purposes of constructing the Coyote Pumping Plant and Santa Clara Conduit (Book J145, Page 391). The sale included an approximate 1.0-acre, 52.49-foot wide, strip of land through the south end of the property, which contains the 96-inch diameter Santa Clara Conduit. This conduit supplies water from the San Luis Reservoir to the Bay Area. The Borello family reserved the following right through this strip of land:

> *"As to SC-162 only, the right to construct and maintain driveways, roads subdivision streets, utilities, pipelines, ditches, woodrail or wire fencing and fire protection water tanks including all necessary excavations therefore. The exercise of these reserved rights requires the Vendor to submit the proposed plans to the United States, or its assigns, for prior approval and authorization. The above rights do not include the planting of trees, drilling of wells, the erecting of permanent buildings and structures, including all types of solid permanent fencing."*

In 1985, the Borello family sold a portion of land to the Santa Clara Valley Water District via grant deed for the purposes of constructing the Coyote Power Plant, water treatment facility, and associated conduits (Book J349, Page 328). This sale included a 60-foot and 32-foot wide strip of land along the west property boundary, which contains a 54-inch water force main from Anderson Lake, 42-inch discharge pipe to Coyote Creek, and a 24-inch CMP storm drain pipe. The Borello family reserved the following right through these strips of land:

> *"Reserving unto Grantor the non-exclusive right to construct and maintain driveways, roads, subdivision streets and utilities across Tracts Two, Three and Four of Unit No. SC-CYO-2 and the 1.099-acre water pipeline easement herein described provided, however, that Grantor submit proposed plans for such crossings for prior approval and permit issuance by District. All herein reserved rights by Grantor shall be so exercised as not to interfere with, damage, or endanger any District facility or structure. The reserved rights do not include the planting of trees, drilling wells, or the erecting of permanent buildings and structures, including permanent fencing."*

Pacific Gas & Electric Company (PG&E) maintains five easements through the property.

1. **15-foot wide pipeline easement through southern portion of property.**

   This easement is thought to contain a 20-inch diameter gas pipeline. However, neither the pipeline nor the easement is plotted on current PG&E systems maps. The pipeline may not be active and may have been abandoned. Additional coordination will be required with PG&E to determine if the easement can be abandoned through the subdivision process.

2. **Easement for water pipe, electric power line, ingress and egress to domestic water well, ½ interest in existing water well and right-of-way.**

   This easement is not specifically delineated and cannot be located on the property. There is one existing well known to exist on the property and it will be abandoned as part of the grading operations. Additional coordination is required with PG&E to determine if the easement can be abandoned through the subdivision process.

3. **Easement for gas pipelines.**

   The legal document for this easement is not legible, and therefore, the easement cannot be located on the property. A 34-inch gas main is known to run through the southern end of the property parallel to the 96-inch water line. The location of the 34-inch gas main has been verified on PG&E systems maps and via pothole survey. It is possible this easement is linked to the 34-inch gas main. However, further coordination is required with PG&E to verify the location and width of the easement. Development within the easement and around the gas main should be limited to subdivision roads, driveways, utilities, drainage ditches, and minor landscaping.

4. **50-foot wide gas pipeline easement through middle of property.**

   This easement contains a 34-inch gas main, the location of which has been verified on PG&E systems maps and via pothole survey. Development within the easement should be limited to subdivision roads, driveways, utilities, drainage ditches, and minor landscaping. No permanent buildings, structures, trees, or fences will be allowed within the easement.

5. **10-foot by approximately 35-foot easement for transmission of electricity and conveyance of gas located in the northwest corner of the property.**

   This easement contains an electrical power pole and overhead lines. The easement is proposed to be replaced with a 10-foot wide public service easement along with the Cochrane Road right-of-way dedication.

   Another easement is located near the northwest corner of the property, granted to Peter and Laura Orlando for the purposes of irrigation pipeline. The easement cannot be plotted based on the description and is proposed be abandoned with the subdivision process.

   Based on PG&E systems maps, there also appears to be a gas service extending from the northern 34-inch gas main to the neighboring Giancola property located northeast of the site however it does not appear to be within a recorded easement.

The property currently has three existing water sources; and existing well located near Coyote Road, and existing pump house that supplies water from Coyote Creek, and an existing irrigation turn-out from the Santa Clara Valley Water District main lines near the intersection of Alicante Drive and St. Katherine Drive. All of these existing water sources are being considered for irrigation of the landscape and open space areas of the future development.

Utilities that surround the site include:

- City of Morgan Hill owned and maintained 8-inch water mains in Cochrane Road, Half Road, Alicante Drive, Saint Katherine Drive, and Espana Way.
- City of Morgan Hill owned and maintained 10-inch water main in Peet Road.
- City of Morgan Hill owned and maintained 8-inch sewer main in Cochrane Road and Espana Way.
- PG&E owned and maintained 2-inch gas line in Peet Road.
- Overhead utility lines exist along Cochrane Road, Peet Road, Coyote Road, and Half Road.
- Joint trench utilities are present in Alicante Drive, Saint Katherine Drive, and Espana Way within the Alicante residential subdivision.

Figure 2.3 shows the plottable existing easements and utilities within and surrounding the property.

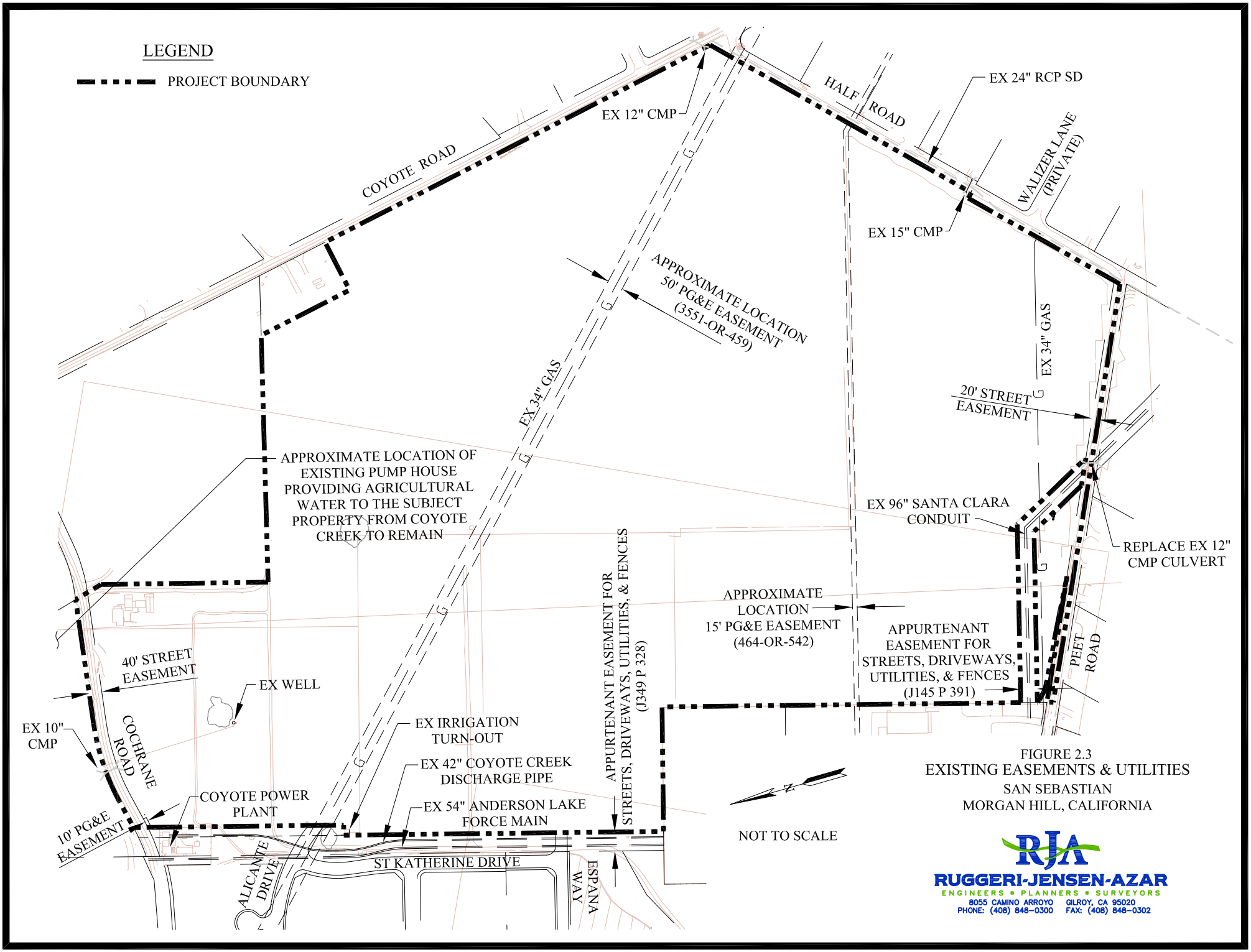

FIGURE 2.3
EXISTING EASEMENTS & UTILITIES
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2.4 Land Use

The property is currently zoned as Single-family District (R1-12,000 RPD & R1-20,000 RPD) and Residential Estate (RE-40,000 RPD) in the City of Morgan Hill. The Applicant is proposing to develop the property into a 244 lot single-family residential gated community, with lot sizes ranging from 10,000 square-feet to over 20,000 square-feet. The development will include privately maintained streets, open space areas, a central community center, and options for detached secondary unit or garage structures on most lots. The Applicant plans to design the development with a rural Italian theme, including private clustered residential enclaves and streets with meandering drainage swales and gravel walking trails. Build-out of the development is planned to take 10-15 years with up to 16 separate construction phases. Figure 2.4 shows the current proposed site plan and Table 2.1 summarizes the corresponding land use break-down.

Table 2.1 – San Sebastian Land Uses

Land Use	Approximate Total Acreage	Residential Units	Secondary Units
Single-Family Residential	87.0	244	50-180
Open Space *(include Community Center & Basins)*	10.8		
Private Streets	23.0		
Pavement	*10.9*		
Landscaping/Open Space (include Swales and trails)	*12.1*		
Public Street Dedication	1.3		
Total	122.1	244	50-180

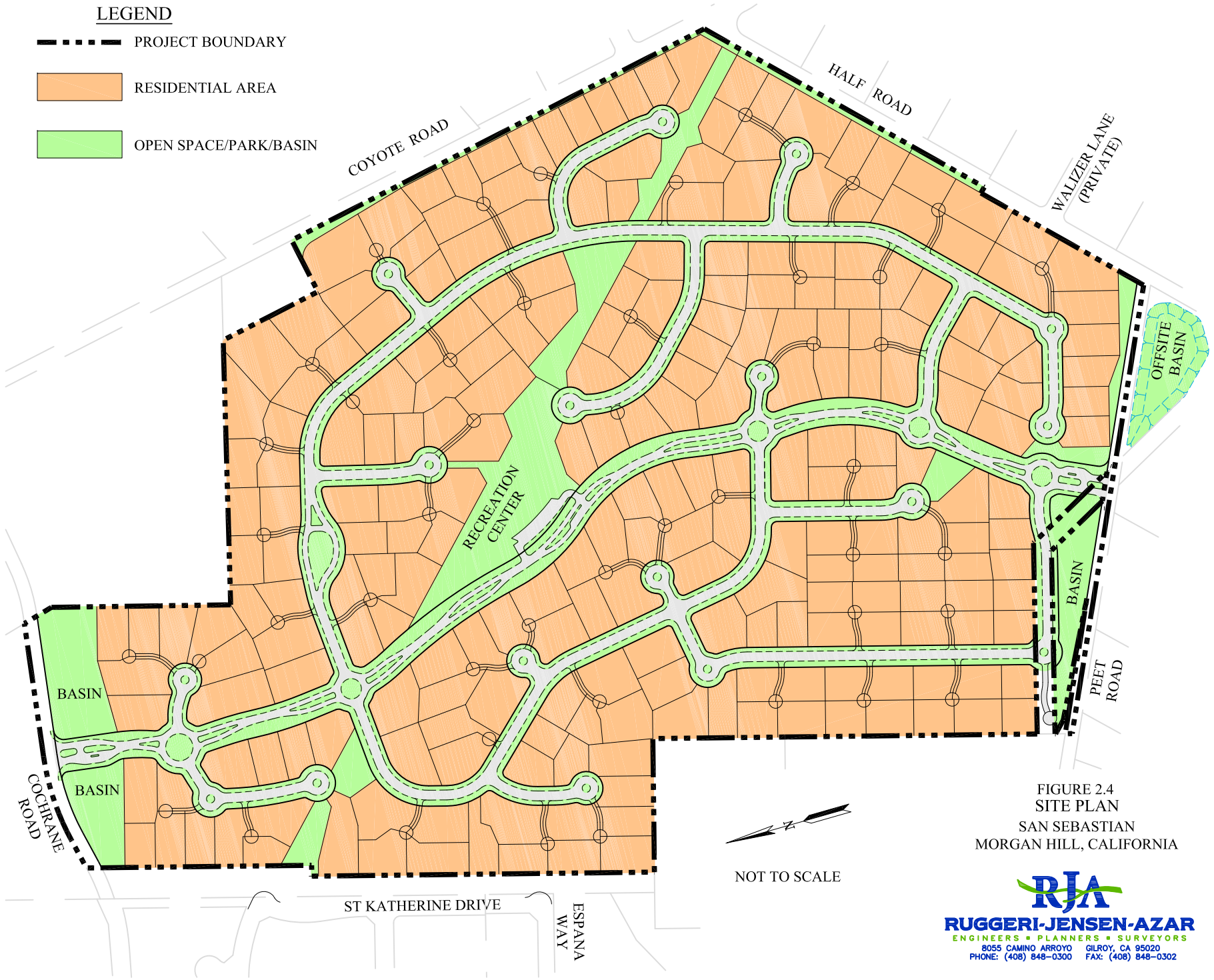

FIGURE 2.4
SITE PLAN
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3 Circulation

Access to the development is provided by Cochrane Road and Peet Road via State Highway 101. Both streets are two lane country-style roads. The project will preserve the streets in their existing condition in order to maintain a rural Character of the area. In addition to these two access points the project is proposing two potential Emergency Vehicle Access (EVA's) points along St. Katherine Drive for either temporary (during early phases of the project) or permanent emergency access to the property. The City of Morgan Hill General Plan indentifies future capital improvements to Peet Road including realignment to provide a perpendicular intersection with Half Road and widening to a two-lane arterial street. The proposed site plan is designed to accommodate these future street improvements whenever they occur but they are not proposed as part of this project.

The onsite circulation plan is designed to provide a safe and efficient travel network, while at the same time maintaining a rural theme through the use of narrow streets with meandering roadside drainage swales as opposed to curb and gutter and gravel walking trails instead of concrete sidewalks found in traditional subdivisions. Figure 3.1 shows the proposed vehicular and pedestrian circulation plan, and Figures 3.2 and 3.3 show the proposed street sections.

A 2-lane central boulevard extends through the center of the site in a north-south direction. The boulevard incorporates security gates at the access points from Cochrane Road and Peet Road and a central landscaped median of varing widths. The travel lanes meander within the 80-foot street right-of-way in an effort to create traffic calming along the otherwise wide-open and relatively straight road. Roundabouts are planned at the major street intersections along the boulevard help reduce traffic speeds and to create more green space and connectivity with the central landscape median. Roundabouts and splitter islands are also used to incorporate the two large existing oak trees into the circulation layout.

Minor neighborhood streets extend off of the central boulevard to provide access to the residential lots and on-street parking opportunities. Common driveways with private utility and access easements are incorporated to provide access to clustered enclave lots. All onsite streets are proposed to be private maintained by a Home Owners Association.

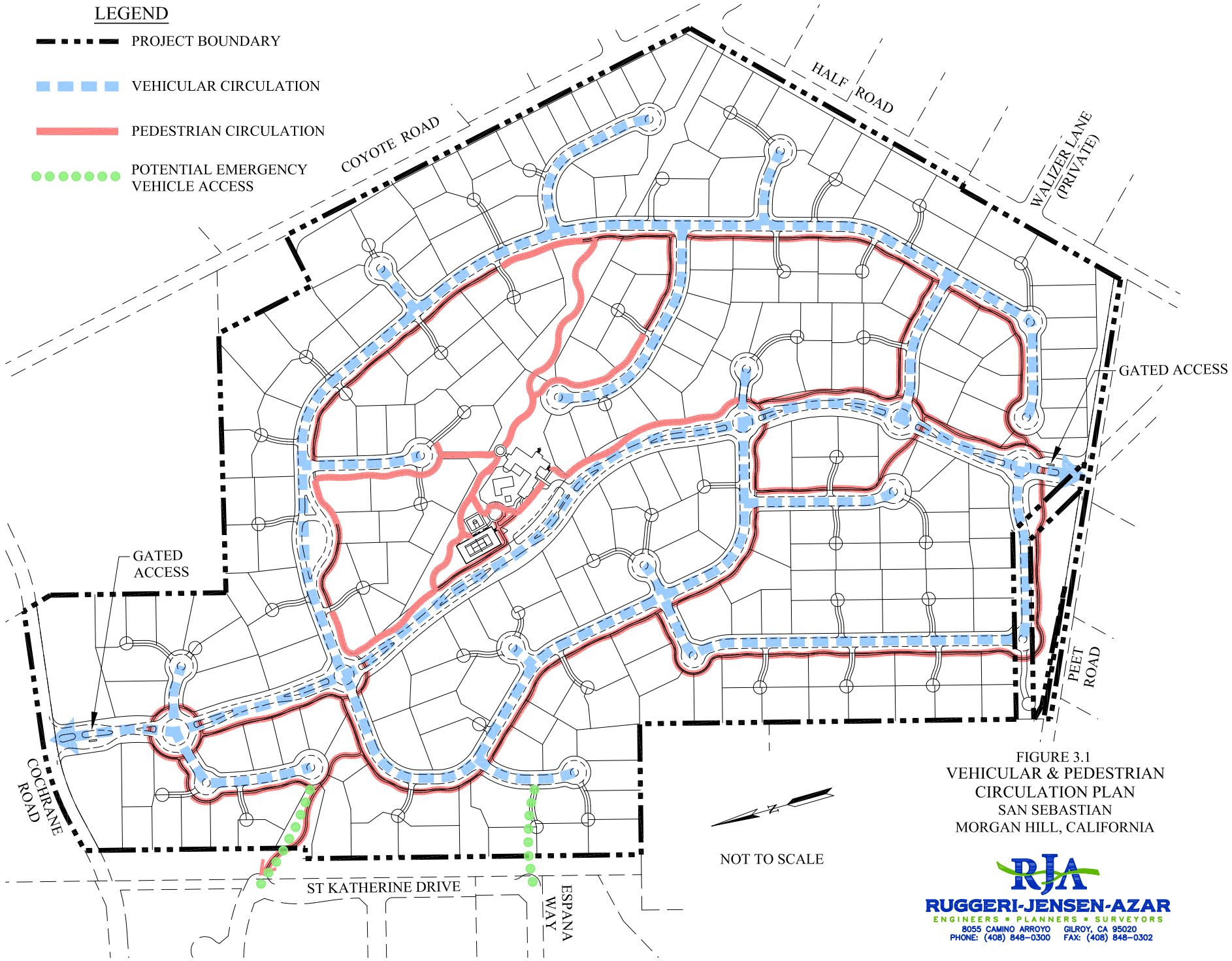

FIGURE 3.1
VEHICULAR & PEDESTRIAN CIRCULATION PLAN
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4 Proposed Site Grading

Figure 4.1 shows the proposed conceptual grading plan for the development. The grading plan was designed to optimize the quality of the development while meeting the following goals to the maximum extent practicable:

- Minimize the quantity of earth moved,
- Achieve a balanced earthwork condition,
- Maintain existing drainage patterns and overland release,
- Protect natural features including trees and slopes, and
- Minimize excavation over existing gas and water transmission pipelines

The grading concept generally requires cuts and fills less than 5-feet, with maximum cuts and fills of 25-feet and 10-feet respectively (see Figure 4.2). To avoid conflicts between the existing gas mains and the gravity utilities the south eastern portion of the site is predominantly in fill. The grading conform slopes around the perimeter of the site and between adjacent lots are expected to be 2:1 maximum (horizontal to vertical) and ranging in height from 0 to 5-feet with slopes as high as 30-feet in one isolated area along Coyote Road. In an effort to minimize the impact to the existing trees along the eastern property boundaries retaining walls, up to 6-feet in height, have been incorporated into the grading design. There is expected to be 170,000 to 220,000 cubic yards of earth moved within the project site, with up to 50,000 cubic yards of earth imported from offsite. The grading plan will be refined during final design to balance cuts and fills and minimize earth movement during the various phases of development.

The existing 34-inch PG&E gas mains are a significant constraint to the site grading since it is assumed only minor grading will be allowed over the pipelines. Further coordination is required with PG&E to determine street and utility design criteria at points where they cross gas lines. Allowable surface loading due to heavy construction equipment will also need to be considered during construction operations.

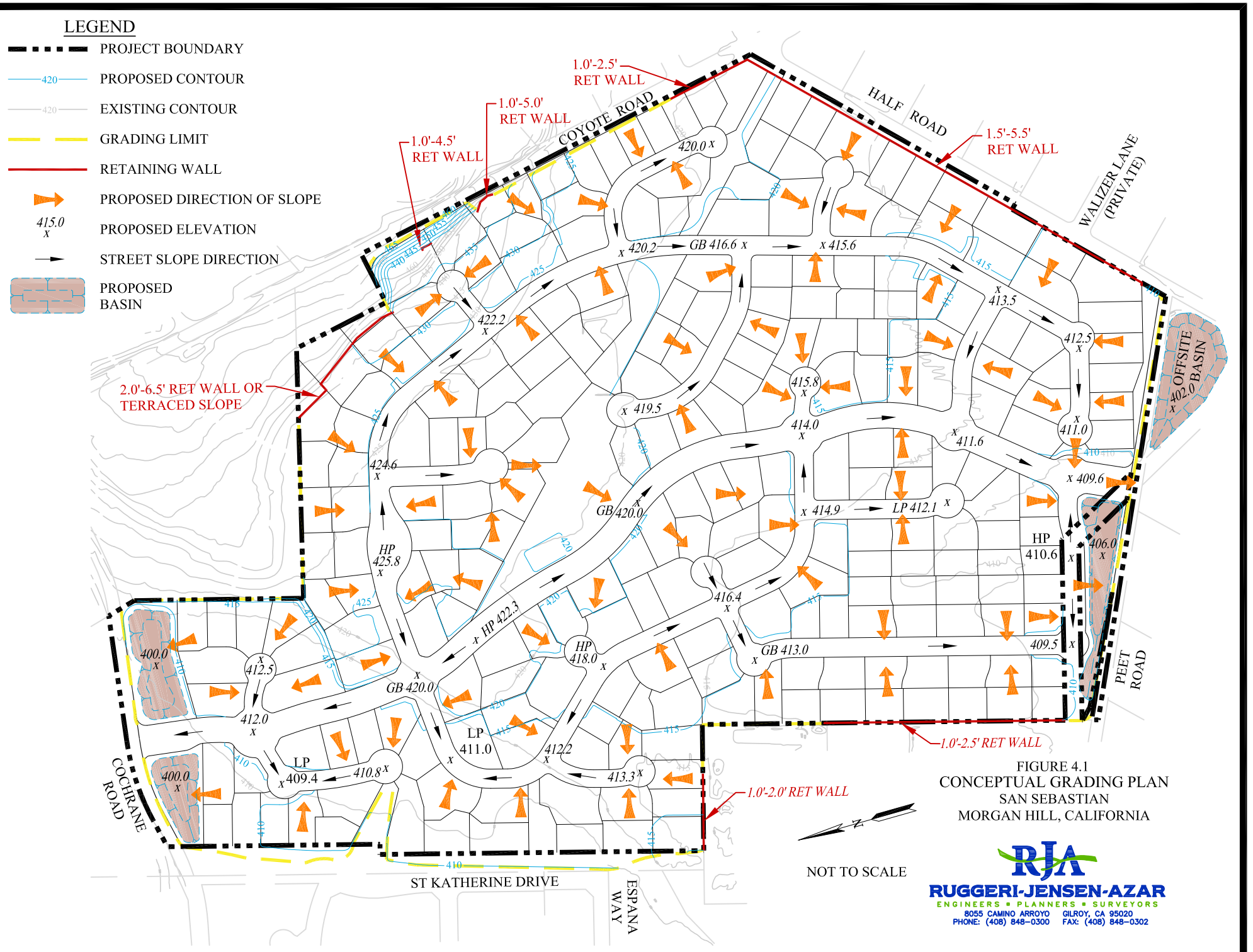

FIGURE 4.1
CONCEPTUAL GRADING PLAN
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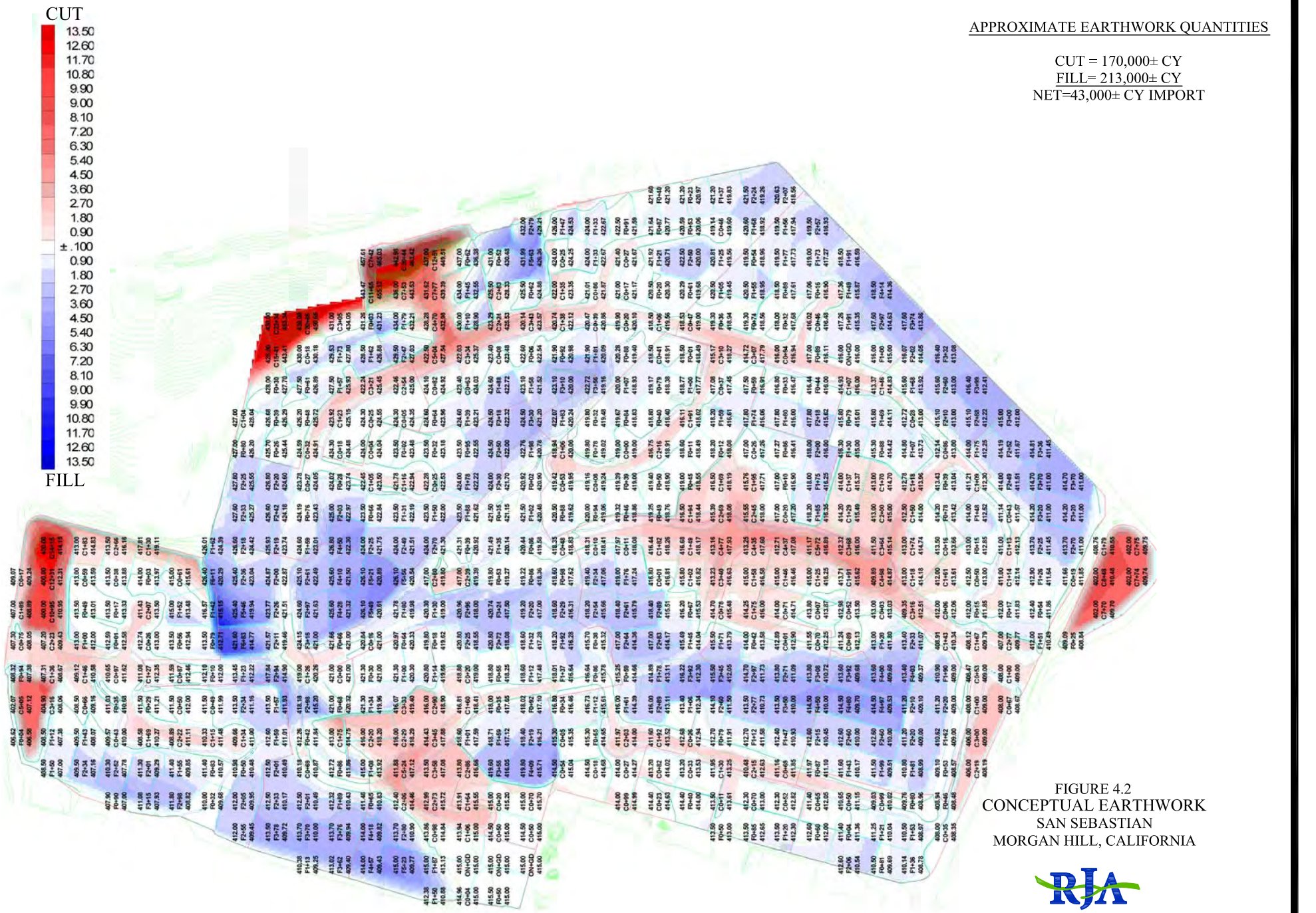

APPROXIMATE EARTHWORK QUANTITIES

CUT = 170,000± CY
FILL= 213,000± CY
NET=43,000± CY IMPORT

FIGURE 4.2
CONCEPTUAL EARTHWORK
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5 Storm Water

5.1 Existing Hydrology and Drainage

The property is located directly below Anderson Lake and is bounded on the north by Coyote Creek. Anderson Lake is a manmade reservoir with a compacted earth dam, and is operated by the Santa Clara Valley Water District (District). The Anderson Dam was preliminarily studied in 2009 for seismic stability and found to be susceptible to considerable damage in the event of a large earthquake. The reservoir is currently kept at or below 56% of its full storage capacity until further analyses are completed. District mapping shows the subject property is located within the Anderson Lake Dam Failure Inundation Zone. The Federal Emergency Management Agency identifies the project site as Flood Zone D, "areas in which flood hazards are undetermined, but possible", per Flood Insurance Rate Map Number 06085C0443H, dated May 18, 2009.

The San Sebastian project is tributary to two separate watersheds. Approximately 27.6 acres drains to the northwest and is tributary to Coyote Creek and ultimately San Francisco Bay. Approximately 95.5 acres drains to the southeast and is tributary to Madrone Channel, and ultimately Monterey Bay via Llagas Creek and the Pajaro River. The Mean Annual Precipitation for the project site is approximately 21-inches. Figure 5.1 shows the existing drainage areas and surrounding storm drain system.

Runoff from the northern drainage area (Area A) sheet flows to the northwest and contributes to Coyote Creek via 18-inch storm drain pipes in Alicante Drive and a 10-inch culvert that crosses Cochrane Road. There is no defined drainage ditch along the project side of Cochrane Road, so runoff most likely overtops the street or continues to the north along Cochrane Road until it is picked up in a downstream storm drain pipe.

Runoff from the southern drainage area sheet flows to the south and east and is collected in onsite agricultural ditches. Approximately 62.0-acres (Area B) discharge to the south and are tributary to a 12-inch CMP culvert that crosses under Peet Road. The 12-inch culvert acts as a metering device and restricts the rate of flow to the south. When the rate of runoff exceeds the culvert capacity, runoff ponds in a small depression north of Peet Road and eventually overtops the street at a low point approximately 600 feet west of the 12-inch culvert (approximately 308.4-feet NGVD 29). The property owners have indicated that Peet Road floods on a near annual basis. Preliminary hydrology and hydraulic calculations support this statement and estimate overtopping occurs sometime between the 2-year and 5-year, 24-hour statistical storm events. There are no formal drainage facilities immediately south of Peet Road. Instead, runoff continues to sheet flow to the south through adjacent properties, and eventually contributes to Madrone Channel.

The remaining 33.5-acres (Area C) discharge to the east through a 15-inch CMP culvert under Half Road. A clay weir restricts flow to the 15-inch culvert and acts as a sediment barrier. When the runoff rate exceeds the weir capacity, storm water sheet flows to the south and

eventually crosses Half Road at a low point near Peet Road. A drainage ditch conveys runoff beyond the Half Road culvert to East Main Street where it is collected in a storm drain pipe, and eventually discharged to Madrone Channel.

The Santa Clara County 2007 Drainage Manual and SCS method was used to determine rainfall depths and estimate peak runoff rates and volumes for the project. Table 5.1 summarizes the existing hydrologic results, while Table 5.2 shows the Peet Road overtopping results.

Table 5.1 – Existing Storm Water Runoff Volumes and Peak Flows (24-hr Storm Event)

Drainage Area	Area (Ac)	2-year (2.34-inches)		10-year (3.98 –inches)		25-year (4.78 –inches)		100-year (5.93 –inches)	
		Q (cfs)	V (ac-ft)	Q (cfs)	V (ac-ft)	Q (cfs)	V (ac-ft)	Q (cfs)	V (ac-ft)
A	27.6	1.2	0.9	7.5	3.8	11.6	5.3	18.2	7.5
B	62.0	3.2	3.1	18.8	10.3	27.0	13.7	39.6	18.9
C	33.5	8.7	4.0	19.3	8.3	24.5	10.3	32.2	13.3

Notes:
1. Area B includes the USA water line parcel and Peet Road right-of-way; approximately 1.0 acres.

Table 5.2 – Existing Peet Road Flooding Results

	2-year (2.34-inches)	10-year (3.98 –inches)	25-year (4.78 –inches)	100-year (5.93 –inches)
Peak Outflow (cfs)	2.4	20.3	31.2	46.9
Peak Storage (ac-ft)	0.31	0.96	1.09	1.20
Peak Water Elevation (ft)	408.18	408.61	408.65	408.69
Overtops Road?	No	Yes	Yes	Yes

Notes:
1. The model includes approximately 13-acres of offsite tributary drainage area and the USA water line parcel.
2. The HEC-HMS 3.0.1 computer model was used for hydrologic and pond routing calculations.

Carollo Engineers prepared a Storm Drain System Master Plan for the City in January 2002 to identify deficiencies in the existing conveyance system and recommend capital improvements to meet future growth needs. The Master Plan recommended constructing a new 18-inch to 54-inch storm drain line in Half Road from Madrone Channel to Coyote Road. The new pipe would provide storm drain conveyance for future development in the vicinity, including the San Sebastian property. The storm drain would also eliminate the flooding currently experienced at Peet Road. However, the City of Morgan Hill has indicated that it is unlikely the Half Road storm drain pipe will be constructed prior to project buildout. The proposed project site storm drain system will be designed assuming the Half Road storm drain system will not be available for downstream connection.

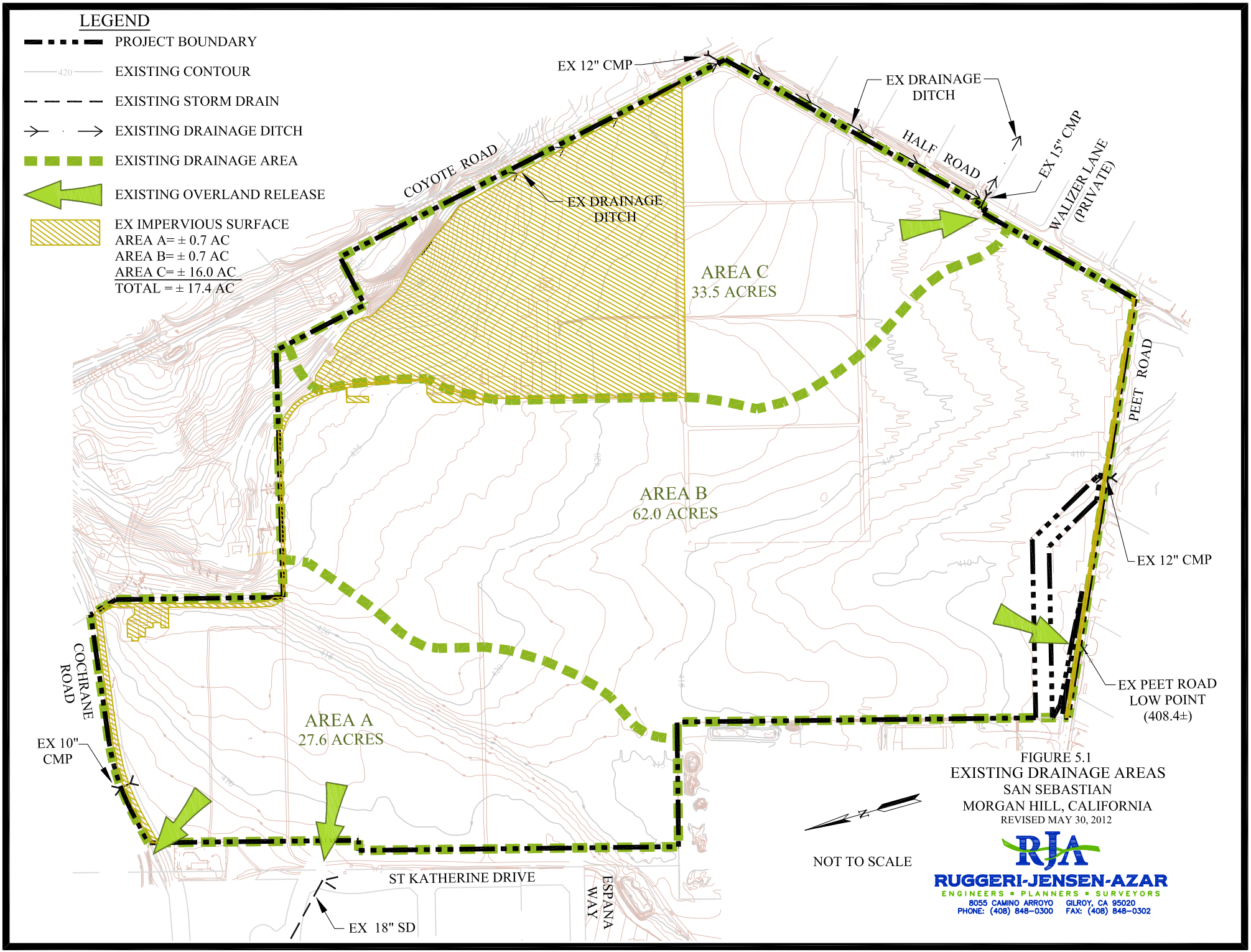

FIGURE 5.1
EXISTING DRAINAGE AREAS
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5.2 Proposed Drainage

The proposed grading and drainage plan seeks to maintain and/or enhance the hydrologic properties of the existing drainage conditions. In general, runoff volumes and peak flows will increase after development due to increases in impervious surface. However, this will be minimized to the maximum extent practicable through the use of storm water management strategies described in Section 5.3. The drainage design utilizes roadside swales and associated culverts to minimize underground storm drain pipes and maintain surface flow. This has the benefit slowing the velocity of runoff thus increasing the time of concentration and providing increased opportunities for percolation. The streets are graded to direct runoff to storm water retention/detention basins. The basins will be designed to allow infiltration of storm water with overflow relief to existing downstream storm drain facilities. The grading design divides the site into two drainage areas, mimicking existing watershed boundaries to the maximum extent practicable, with approximately 29.6-acres draining to the north (Area N), and 93.5-acres draining to the south toward Peet Road (Area S). Table 5.3 summarizes the post-development hydrologic results.

Table 5.3 – Post-Development Storm Water Runoff Volumes and Peak Flows (24-hr Storm Event)

Drainage Area	Area (Ac)	2-year (2.34-inches)		10-year (3.98 –inches)		25-year (4.78 –inches)		100-year (5.93 –inches)	
		Q (cfs)	V (ac-ft)	Q (cfs)	V (ac-ft)	Q (cfs)	V (ac-ft)	Q (cfs)	V (ac-ft)
N	29.6	7.0	2.8	12.8	5.7	16.7	7.3	22.8	9.6
S	93.5	15.8	8.9	30.5	18.6	39.7	23.5	54.0	31.0

Runoff from the north drainage area will be directed to a storm water basin near Cochrane Road with approximately 8 to 9 acre-ft of total storage volume. The storm water basin will for full retention without an downstream outlet or outfall. Preliminary percolation tests in this the vicinity of the north basin resulted in a percolation rate of 4.5 inches per hour. Runoff from the south drainage area will be directed to a storm water basin at Peet Road, including an offsite facility south of the property, with approximately 8 to 10 acre-ft of total storage volume. The storm water basin will allow for infiltration while also providing release through the existing 12-inch CMP culvert at Peet Road. The basin will also be designed to maintain or reduce the frequency of flooding over Peet Road relative to existing conditions. Preliminary percolation tests in the vicinity of the south basin resulted in a percolation rate of 7.9 inches per hour. In the event that the offsite basin is not feasible, an alternative location for the basin would be in the southeast corner of the site near the existing intersection of Peet Road and Half Road. Final design of storm water basins should apply a minimum safety factor of two (2) to all percolation rates to account for variable soil conditions and long-term sedimentation within the basins. Figure 5.2 shows the proposed storm drain system, and Figure 5.3 shows the assumed post-development impervious surface area.

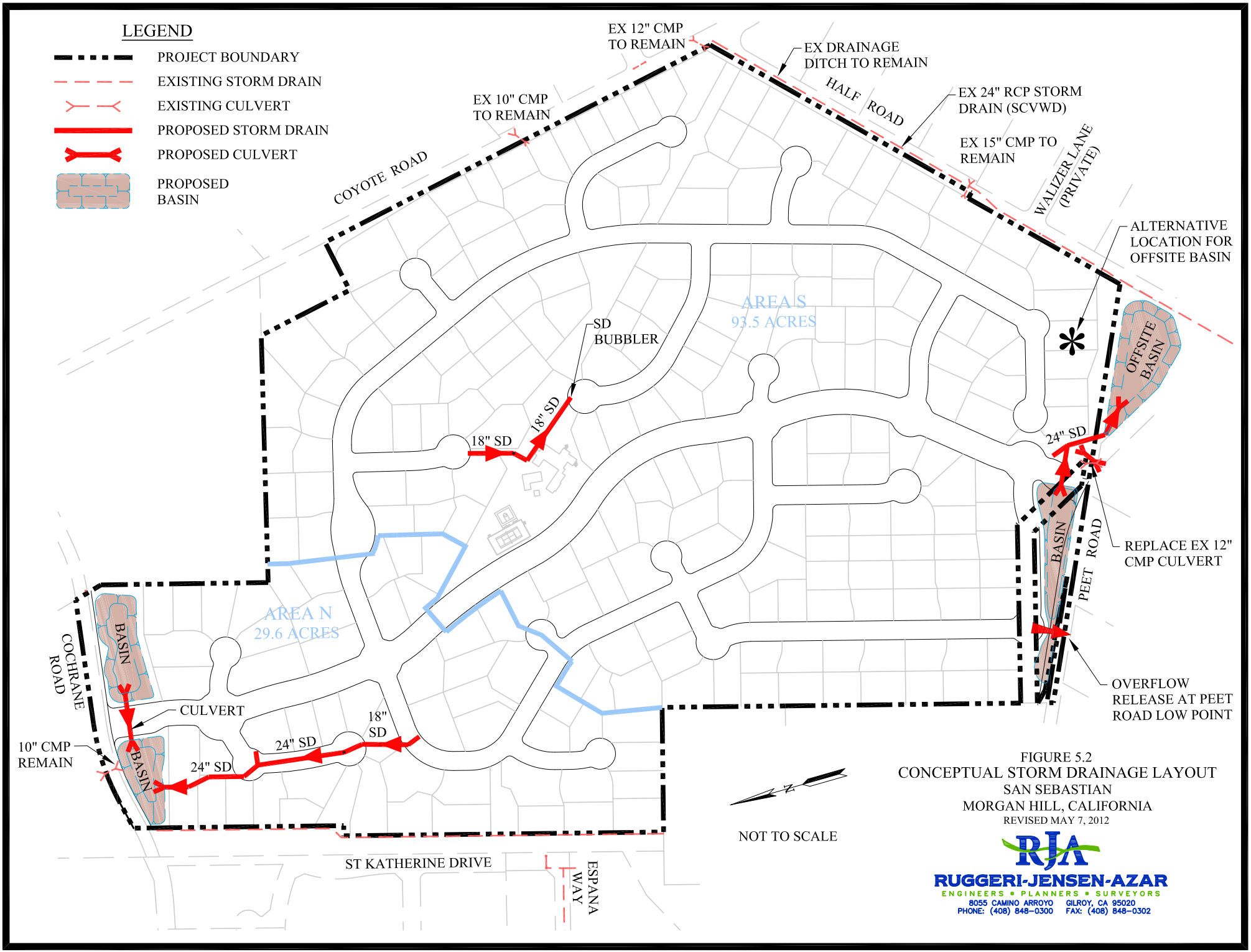

FIGURE 5.2
CONCEPTUAL STORM DRAINAGE LAYOUT
SAN SEBASTIAN
MORGAN HILL, CALIFORNIA
REVISED MAY 7, 2012

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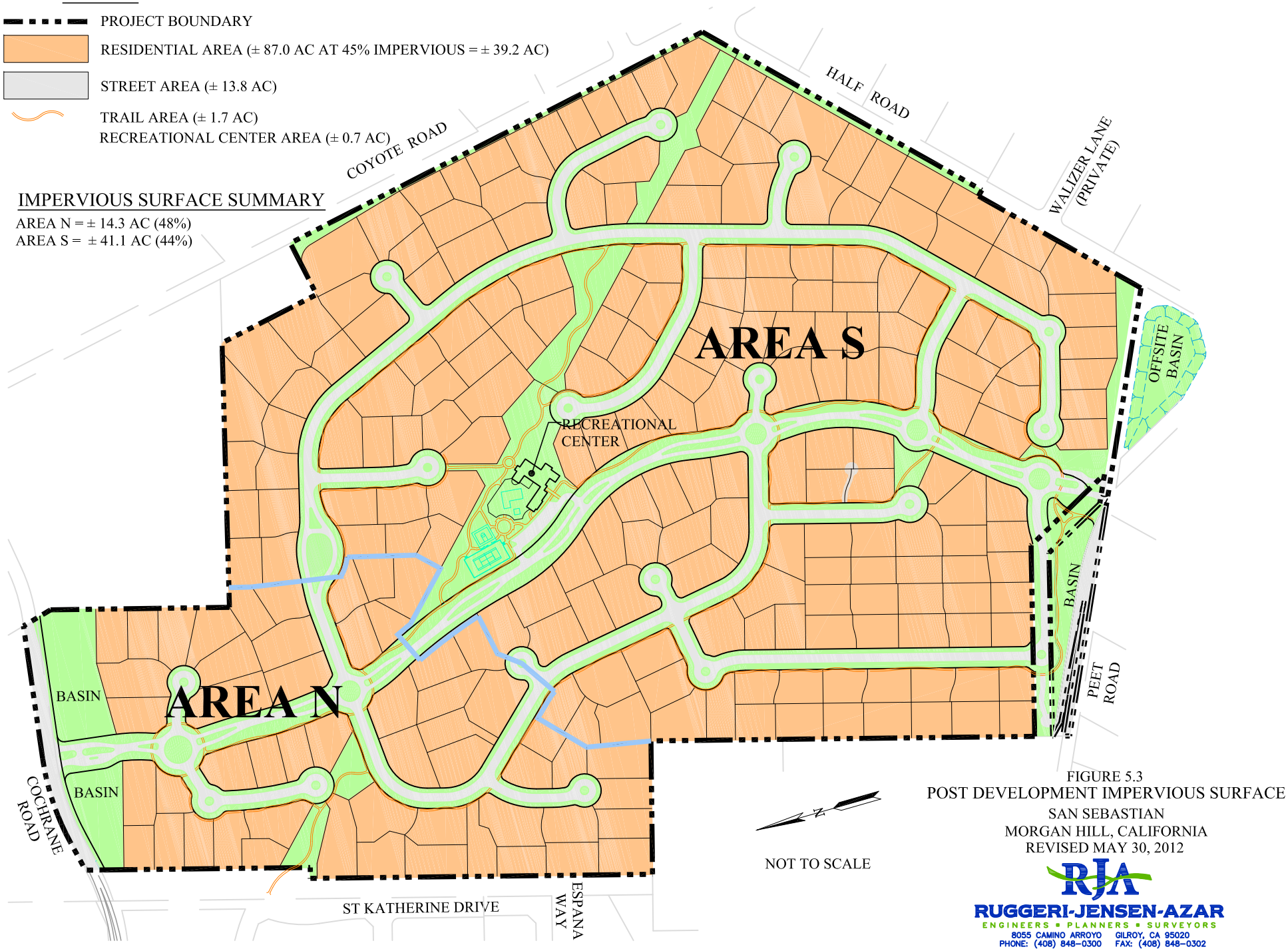

FIGURE 5.3
POST DEVELOPMENT IMPERVIOUS SURFACE
SAN SEBASTIAN
MORGAN HILL, CALIFORNIA
REVISED MAY 30, 2012

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5.3 Storm Water Management

5.3.1 Local Agency Permits & Requirements

The State Water Resources Control Board has implemented a National Pollution Discharge Elimination System (NPDES) Program to control and enforce storm water pollutant discharge reduction per the Clean Water Act. The Central Coast Regional Water Quality Control Board (RWQCB) issues and enforces the NPDES permits for discharges to water bodies in the southern portions of Santa Clara County, including the City of Morgan Hill. As part of their current NPDES Phase II Storm Water Permit, the RWQCB required the City to reduce the volume, rate, and pollutant loading of urban runoff. The RWQCB stipulated that the City establish development standards to be used in new development and redevelopment to help achieve the goals of the NPDES permit.

The City of Morgan Hill is currently working in conjunction with the City of Gilroy and Santa Clara County to develop a Regional Storm Water Management Plan. As part of this process, the City prepared interim Storm Water Post Construction Best Management Practices Development Standards, which were adopted by City council in August 2010. The interim standards outline storm water management strategies and design criteria to reduce the volume, rate, and pollutant loading to the maximum extent practicable through the use of Best Management Practices (BMPs) and Low Impact Development (LID) strategies. The interim standards also require the project applicant to enter into a maintenance agreement with the City that identifies a long-term monitoring and maintenance schedule for selected BMPs.

LID is defined as principles and techniques used in designing sites (starting from site layout, and grading and compaction phases of construction) that disturb only the smallest area necessary, minimize soil compaction and imperviousness, preserve natural drainages, vegetation, and buffer zones, and utilize on-site, lot sized storm water treatment techniques. LID sites reduce and compensate for development impacts on hydrology and water quality in order to preserve and protect existing water bodies. Post-Construction storm water BMPs are small-scale facilities integrated into the site layout, landscaping, and drainage design of urban development to provide long-term management and treatment of storm water runoff. They typically treat runoff from relatively small drainage areas (less than 5-acres) and include elements such as vegetated swales, filter strips, bioretention and bioswale systems, and permeable pavement. If designed correctly, LID and IMP elements can be key amenities for a property, providing both aesthetic qualities and functional storm water management benefits.

5.3.2 Construction Storm Water Management

Development of the San Sebastian project has the potential to increase discharge of storm water pollutants during construction due to ground disturbance. Projects disturbing more than 1-acre of land during construction, or disturb less than 1-acre but are part of a larger common development greater than 1-acre, are required to obtain coverage under the State of California NPDES General Construction Permit, Order No. 2009-0009-DWQ, NPDES No. CAS000002 (General Permit). The General Permit requires the project applicant to file a Notice of Intent (NOI) with the State Water Resources Control Board and develop and implement a Storm Water Pollution Prevention Plan (SWPPP). The SWPPP is designed to address the following five (5) objectives:

- Identify and control all pollutants and their sources, including sources of sediment associated with construction, construction site erosion and all other activities associated with construction activity;
- Where not otherwise required to be under a Regional Water Board permit, identify and either eliminate, control, or treat all non-storm water discharges;
- Select and identify site BMPs that are effective and result in the reduction or elimination of pollutants in storm water discharges and authorized non-storm water discharges from construction activity to the Best Available Technology Economically Achievable (BAT) or Best Conventional Pollutant Control Technology (BCT) standard;
- Provide complete and correct calculations and design details and identify BMP controls for site run-on; and
- Select and identify stabilization BMPs to reduce or eliminate pollutants after construction is complete.

A separate NOI and SWPPP will be prepared and filed with each significant project phase prior to the start of construction per the requirements of the General Permit and RWQCB. The project applicant is required to submit all permit documentation, including but not limited to the NOI, SWPPP, annual reports, pollutant exceedance reports, notice of termination, via the Storm Water Multiple Application and Report Tracking System (SMARTS) website (smarts.waterboards.ca.gov).

5.3.3 Post-Construction Storm Water Management

Development of the San Sebastian project has the potential to increase the volume, rate, and pollutant loading of storm water runoff after construction due to increased imperviousness. The proposed drainage system will be designed to reduce pollutant discharges and lower the post-development storm water runoff volume and rate to pre-development levels to the maximum extent practicable by implementing LID

and BMP planning and design strategies. The project will select and design BMPs and develop a long-term maintenance plan per the requirements of the City's interim standards or subsequently adopted standards at the time of final design.

The conceptual grading and drainage plan prepared for project seeks to mimic the sites pre-development hydrologic features through the following practices:

- Incorporating significant oak trees into the layout design,
- Maintaining existing watershed drainage areas to Coyote Creek and Madrone Channel,
- Maintaining surface flow through the use of roadside vegetated swales and storm drain culverts, which will in turn slow runoff and increase time of concentration, and
- Locating storm water basins in areas with good soil percolation ability to promote infiltration of runoff.

Additional LID and BMP elements that may be incorporated into the design of the project where practicable include:

- Minimize soil compaction,
- Minimize disturbance to existing topography and vegetation,
- Plant new trees and shrubs to increase evaportranspiration,
- Disconnect rooftop and pavement surfaces by directing runoff to landscaped areas,
- Consider use of alternative paving surfaces, such as permeable interlocking concrete pavers at driveways and parking stalls, and coarse aggregate trail surfaces,
- Incorporate efficient irrigation methods including use of drought resistant plants, and
- Install storm drain labeling on drain inlets.

6 Sanitary Sewer

6.1 Sewer Generation

The proposed development is expected to generate an Average Dry Weather Flow (ADWF) of approximately 76,000 gallons per day (gpd) based on the preliminary land use assumptions and City of Morgan Hill design criteria. Table 6.1 summarizes the projected sewer generation from the project.

Table 6.1 – Projected Sewer Generation

Land Use	Approximate Total Acreage	Residential Units	ADWF (gpd)
Single-Family Residential	87.0	244	70,760
Open Space *(incld. Community Center & Basins)*	10.8		5,300
Private Streets	23.0		
Public Street Dedication	1.3		
Total	122.1	244	76,060
		Peak Flow =	0.41 cfs

Notes:

1. Sewer generation assumptions were taken from the City of Morgan Hill Design Standards. The sewer generation factor assumes 90 gpcd and 3.2 people per dwelling unit. Secondary units were not counted as separate dwelling units.

2. The sewer generation factor for Open Space is assumed to be 500 gpda to account for Community Center facilities (ie. pool, bathroom, etc.)

3. The sewer peaking factor was taken from City of Morgan Hill Design Standards. PF = ADF x 3.5

4. RDII was not acounted for in this study since modern pipe and manhole construction methods greatly reduce the affects of RDII.

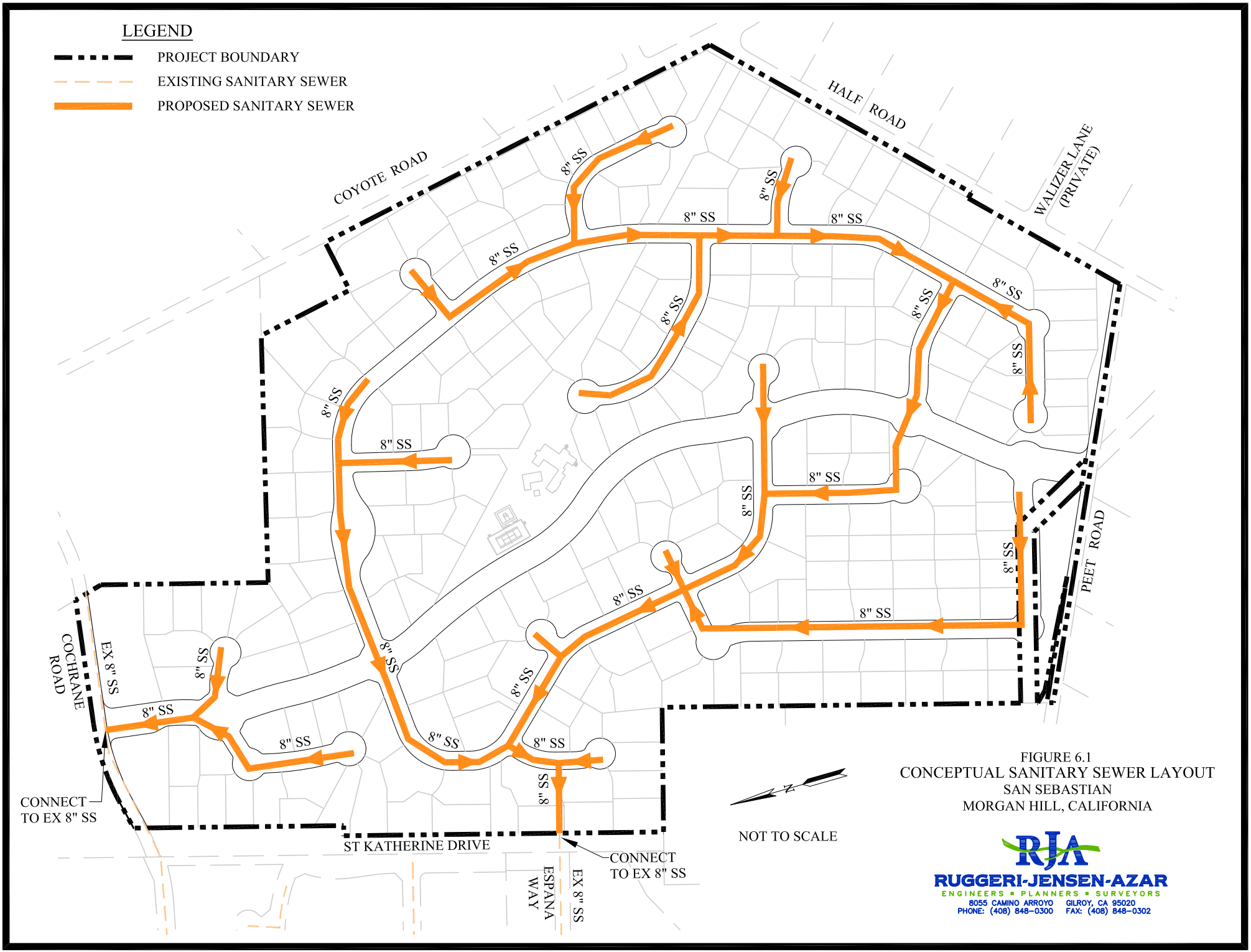

FIGURE 6.1
CONCEPTUAL SANITARY SEWER LAYOUT
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6.2 Collection and Conveyance

The City of Morgan Hill owns and maintains the sewer collection system surrounding the project, which consists of approximately 135 miles of 6-inch through 30-inch diameter sewers, and includes 15 sewage lift stations and associated force mains. The project sewer collection system is proposed to connect to existing 8-inch mains in Cochrane Road and Espana Way, and consist of 8-inch pipes designed in accordance with City standards at the time of final design. The pipes will be located within private street right-of-ways or utility easements. Figure 6.1 shows the conceptual sanitary sewer layout.

Carollo Engineers prepared a Sewer System Master Plan for the City in January 2002 to identify deficiencies in the existing conveyance system and recommend capital improvements to meet future growth needs. The Sewer System Master Plan does not identify system deficiencies or associated capital improvements within the vicinity or directly downstream of the project. The Master Plan does indicate there are possible deficiencies further downstream of the project in the Railroad-Monterey and Joint Morgan Hill-Gilroy Trunk Lines; however, these deficiencies appear to be isolated to wet weather conditions. Both trunk lines are far downstream of the project and are not directly related to development of the project site. The City has developed a capital improvement project schedule to implement the recommendations of the Master Plan. The San Sebastian development will contribute its fair share toward these projects through payment of City established development impact fees.

6.3 Treatment

The South County Regional Wastewater Authority (SCRWA) operates the wastewater treatment plant (WWTP), which treats, recycles and disposes of wastewater from both the City of Gilroy and the City of Morgan Hill. The WWTP currently has an average dry weather capacity of approximately 8.5 million gallons per day (mgd) with approximately 3.6-mgd of treatment capacity available for the City of Morgan Hill (42%). The City recorded an average dry weather flow rate of 3.9-mgd in 2008. The Sewer System Master Plan projects the City will produce an average dry weather flow rate of 5.2-mgd by the year 2020. An independent study by the SCRWA estimated the average dry weather flow for the City of Morgan Hill to be between 4.0-mgd and 4.5-mgd by the year 2020. The study projected the total WWTP flow between 9.1-mgd and 9.7-mgd by the year 2020 and between 10.7-mgd and 11.6-mgd by the year 2030.

The SCRWA is currently in the design phase of a WWTP expansion project that will increase the average dry weather treatment capacity by 4.25-mgd, resulting in a total plant capacity of 12.75-mgd. Construction of the expansion is expected to take place over the next few years, with completion scheduled for the year 2015. The proposed expansion increases the City's available treatment capacity to 5.4-mgd, and should provide sufficient capacity to accommodate City growth through the next 20-years. Since the San Sebastian project area

was accounted for in the City of Morgan Hill General Plan and Sewer System Master Plan with a comparable residential land use, the SCRWA should be able to provide adequate treatment and disposal of wastewater generated by the proposed development.

7 Domestic Water

7.1 Water Demand

The proposed development is expected to have an Average Daily Water Demand (ADD) of approximately 182,300 gallons per day (gpd), and a Maximum Daily Demand (MDD) of 364,300-gpd based on the preliminary land use assumptions and City of Morgan Hill design criteria. Table 7.1 summarizes the projected water demand for the project.

Table 7.1 – Projected Water Demand

Land Use	Approximate Total Acreage	Residential Units		ADD (gpd)
		Primary	Secondary	
Single-Family Residential	87.0	244		150,300
Cottage 1			110	16,500
Cottage 2			17	4,250
Carriage			45	11,250
Open Space *(incld. Community Center & Basins)*	10.8			
Private Streets	23.0			
Public Street Dedication	1.3			
Total	122.1	244	172	182,300
			Maximum Daily Demand =	364,600 gpd
			Peak Hour Demand =	405 gpm
			Average Yearly Demand =	204 ac-ft/yr

Notes:

1. Water demand assumptions are taken from the City of Morgan Hill 2002 Water System Master Plan and 2010 General Plan. The water demand assumes 200 gpcd and 3.08 people per primary dwelling unit. It is assumed the residential factor accounts for onsite common landscaping and community center water demands. Secondary units were assumed at 0.75 people per unit for Cottage 1 and 1.25 people per unit for Cottage 2 and Carriage.

2. The Maximum Daily Demand (MDD) and Peak Hour Demand (PHD) factors are taken from the 2002 City of Morgan Hill Water System Master Plan. MDD = ADD x 2.0, PHD = ADD x 3.2

3. Fire flow requirements are found in the 2002 City of Morgan Hill Water System Master Plan. Residential Fire flow is assumed to be 1,500 gpm for 2-hours with a minimum service pressure of 20 psi.

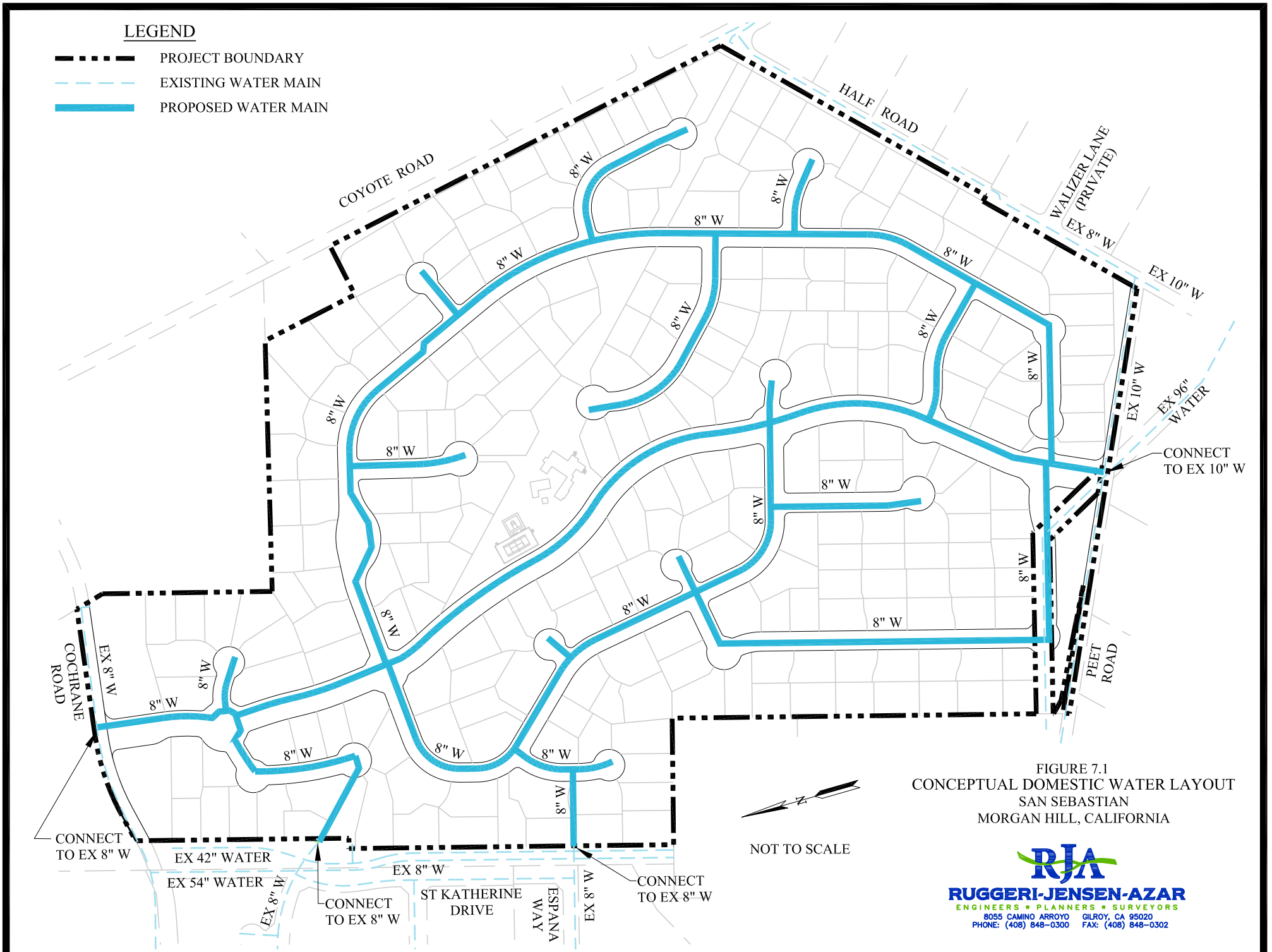

FIGURE 7.1
CONCEPTUAL DOMESTIC WATER LAYOUT
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7.2 Supply and Distribution

The City of Morgan Hill provides potable water service to customers within the City limits. The City's municipal water system extracts water from the Coyote and Llagas underground aquifers via a series of groundwater wells distributed along the valley floor. The Santa Clara Valley Water District manages the groundwater basins that the City uses for water supply. The District prepared a Groundwater Management Plan in 2001 to outline short and long term goals for reducing water consumption, increasing groundwater recharge, and identifying alternative water supply sources to ensure longevity of the groundwater basin. The City prepared its most recent Urban Water Management Plan in December 2005 with subsequent revisions in 2006, and works directly with the District to implement the Groundwater Management Plan.

The City's water system facilities include 17 groundwater wells, 12 potable water storage tanks, 10 booster stations, and over 160-miles of pressurized pipes ranging from 2-inches through 14-inches in diameter. The wells have a total pumping capacity of approximately 16 to 18 million gallons per day (mgd). Carollo Engineers prepared a Water System Master Plan for the City in 2002 to identify deficiencies in the existing supply and distribution system and recommend capital improvements to meet future growth needs. The study projects the total City MDD water demand to be approximately 19.2-mgd in the year 2020. The Master Plan recommends constructing new wells and storage facilities (some of which have already been built) to meet the increased water demand. The City has developed a capital improvement project schedule to implement the recommendations of the Master Plan. The San Sebastian development will contribute its fair share toward these projects through payment of City established development impact fees. Since the San Sebastian project area was accounted for in the City of Morgan Hill General Plan and Water System Master Plan with a comparable residential land use, the City should be able to provide adequate water supply to the proposed development.

The project water distribution system is proposed to connect to existing 8-inch water mains in Cochrane Road, Alicante Drive, Espana Way, and a 10-inch water main in Peet Road. The onsite system will consist of 8-inch pipes designed in accordance with City standards at the time of final design. The pipes will be located within private streets with public utility easements. The onsite water system is proposed to be publicly maintained by the City of Morgan Hill. Figure 7.1 shows the conceptual water system layout.

8 Non-potable Water

The South County Regional Wastewater Authority (SCRWA) provides recycled water service to the City of Gilroy. It operates a three (3) million gallon storage tank and pump station and the wastewater treatment plant. There is currently no recycled water service to the City of Morgan Hill. Corollo Engineers prepared a Recycled Water Master Plan for the Santa Clara Valley Water District and SCRWA in October 2004 to identify future recycled water needs and a capital improvements schedule. The master plan indentifies many potential users within the City of Morgan Hill; however, there are not enough potential users to offset the construction and distribution cost. Because of this, the SCRWA does not plan to extend recycled water service to Morgan Hill in the near future.

It is not feasible to plan for recycled water with the project since no feasible sources exist near the site. As an alternative, the project is proposing the use of existing on-site well water, or untreated surface water supplied from the adjacent 96-inch Santa Clara Conduit or water from the existing pumphouse that supplies irrigation water to the project site from Coyote Creek for irrigation of open space and street landscaping. Figure 8.1 shows the points of connection for the various sources of irrigation water and the areas proposed to be irrigated by non potable water.

The non-potable water use can be estimated using the WUCOLS water budget equation. The formula takes into account average year climate, landscape area, mix of plants used and irrigation system efficiency. The estimated water use formula and result can be found below.

EWU = (ETo) (K_L/IE) (LA) (0.62); where,

EWU	=	estimated water use (gallons per year)
ETo	=	reference evapotraspiration (49.4 inches/year for ETo Zone 8)
K_L	=	landscape coefficient (0.4 average for all plant groups)
IE	=	irrigation efficiency (assume 70%)
LA	=	landscape area (664,000 square-feet; see Figure 8.1)
0.62	=	conversion factor to gallons per year

EWU = 11,620,000 gallons per year (35.6 acre-ft/year)

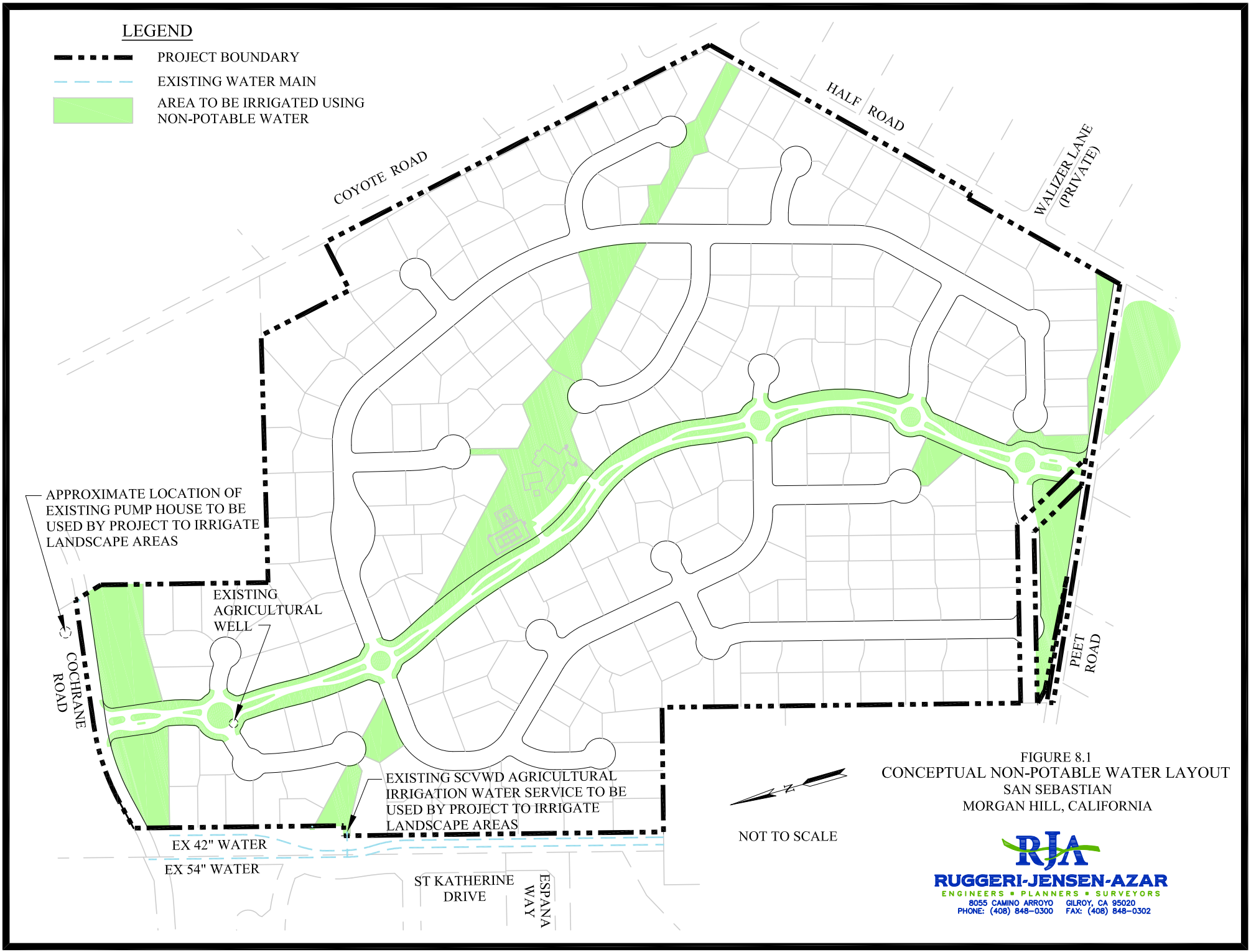

FIGURE 8.1
CONCEPTUAL NON-POTABLE WATER LAYOUT
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9 Dry Utilities and Refuse

This section provides an overview of the dry utility service providers in the City of Morgan Hill including electricity, natural gas, and telecommunications.

9.1. Electric

Pacific Gas and Electric Company (PG&E) provides electrical services to the City of Morgan Hill. PG&E has primary power service lines in close proximity to the property, including service lines along Cochrane Road, Peet Road, Coyote Road and Half Road. Further investigation will be required to determine if PG&E has the infrastructure in place to serve the project.

9.2. Natural Gas

PG&E provides natural gas service to the City of Morgan Hill. PG&E has primary gas service lines in and adjacent to the property. Further investigation will be required to determine if PG&E has the infrastructure in place to serve the project.

9.3. Telecommunications

Charter Communications provides cable television and internet service to the City of Morgan Hill. Extension of underground cable networks will be required to provide service to the proposed development. Verizon and numerous long distance telecommunications companies provide telephone and cellular phone service to the City of Morgan Hill. Further investigation will be required to determine if the service providers have the infrastructure in place to serve the project.

APPENDIX J

Historical Architectural Evaluation, Urban Programmers

HISTORICAL AND ARCHITECTURAL EVALUATION

For the

PARCEL LOCATED AT

2280 Cochrane Road

Morgan Hill, California 95037

Report prepared for: David J. Powers and Associates
1885 The Alameda
San Jose, CA 95126

Prepared by: Urban Programmers
10710 Ridgeview Ave.
San Jose CA 95127
408-210-1052

Date: April 10, 2012

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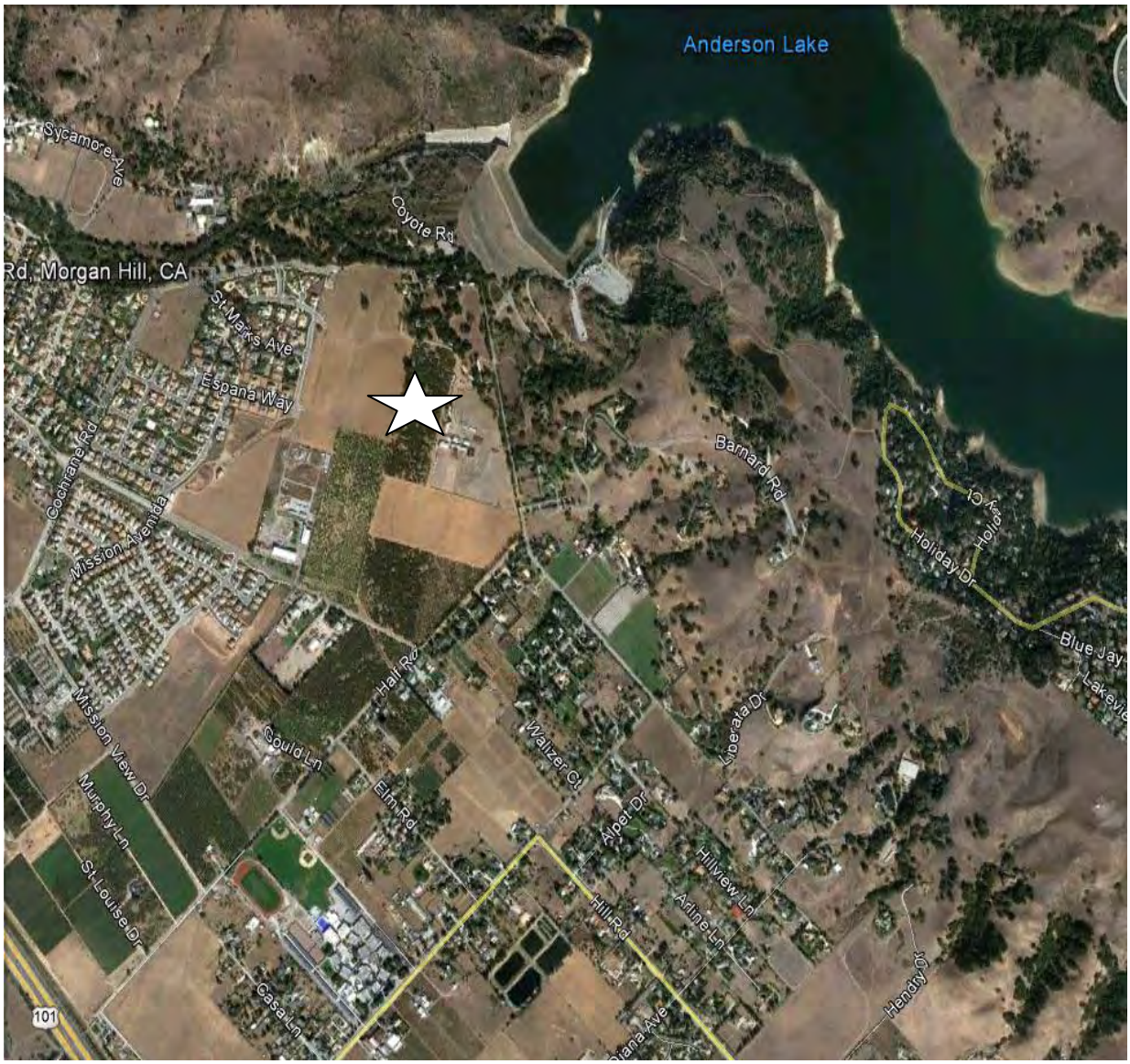

Vicinity Location 2280 Cochrane Road Morgan Hill
Source: Google Earth Pro

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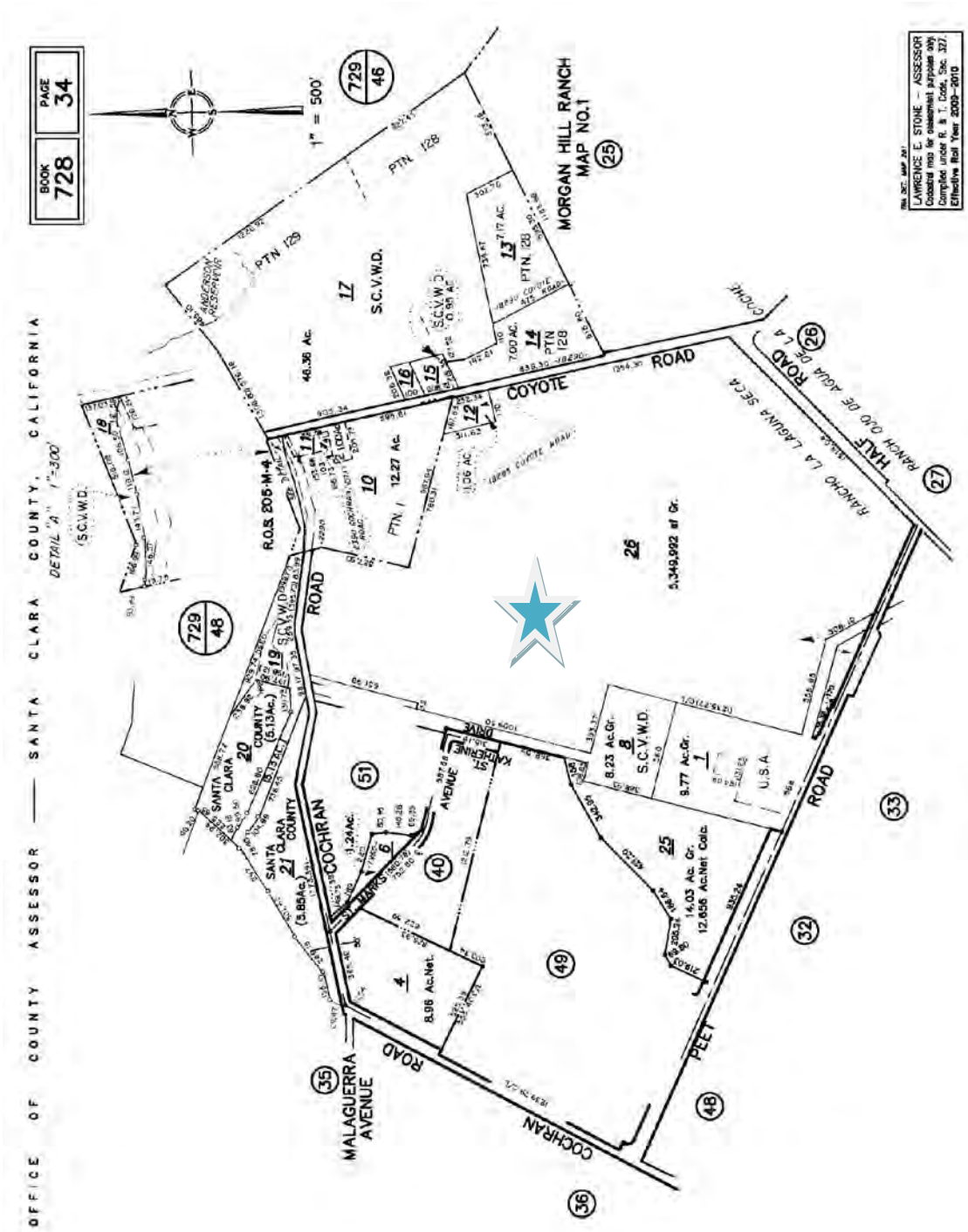

Santa Clara County Assessor's Map APN 28-34-027; 2280 Cochrane Road Morgan Hill Santa Clara County CA
Source: Sant Clara County

Historical and Architectural Evaluation for the Parcel at 2280 Cochrane Road, City of Morgan Hill; Santa Clara County - APN 728-34-027

1. Introduction:

The property that is the subject of this historical and architectural evaluation report is 122 acres, located on the east side of Monterey Road between Peet Road, Cochrane Road (Coyote Rd), and Half Road in the City of Morgan Hill. Discussions of a proposed project include removing the orchards and existing buildings and structures to develop a residential subdivision. The General Plan land use designation is Residential low (1-3 DU AC)

1.1. Current Listings: The property is not listed in the Morgan Hill Inventory of Cultural Resources or in the Santa Clara County Heritage Resource Inventory (2012).

1.2. Methodology: Standard research methodology included, compiling data from public records, researching maps, deeds, published and unpublished materials and contacting individuals with knowledge of the property and related historical subjects. Site investigations and photographs were also part of the research. Unless otherwise noted, historical information presented in this report was also drawn from the Morgan Hill Times, historic aerial photographs, city directories, tax assessment rolls and U.S. Census data. Substantial information was gained from Chris Borello, grandson of Sebastian Borello.

The report reviews the historical background of the subject property and describes the historical significance of the building, structures and objects located on the property, as they may have the potential to be individual or contributing elements eligible for designation or listing in the National Register of Historic Places, the California Register of Historic Resources, or under the Morgan Hill Municipal Code Section 18.75.

1.3. Report Preparation: The report was prepared by Urban Programmers and compiled by Bonnie Bamburg, who has over 37 years experience in preparing historic surveys for cities, counties and the federal government, National Register Nominations for individual sites and historic districts and local assessment reports. She is a former instructor in Historic Preservation at SJSU, a lecturer in historic preservation and former San Jose Historic Landmark Commissioner (1974-1980). She is a past Director of History San Jose, the Western Region of the Association for Preservation Technology and an Advisory to Preservation Action San Jose. Linda Larson Boston, BA, has15 years experience as a researcher and published author in local history, she conducts historic research for architects, attorneys and landowners. She is a former San Jose Historical Landmarks Commissioner (1993-1997), member Institute for Historical Study, and the Board of Directors Preservation Action Council of San Jose. William Zavlaris, BA M.U.P., has over 20 years experience in evaluating architecture for local historical surveys and National Register Nominations. Public records research is provided by Walt Nagle who had over 30 years experience in this field.

2. Executive Summary:

Urban Programmers was asked to provide an architectural and historical study of the property at 2280 Cochrane Road, Morgan hill and to evaluate the history and extant buildings within the historical context and development patterns of Madrone and Morgan Hill to determine if the property and extant buildings are eligible for listing in the California Register of Historic Resources or the Morgan Hill Zoning Ordinance Section 18.75.060 (Historic Preservation). The property is currently use for agricultural – orchards, grasses and operations by the Borello family that has owned the property since 1942. The operations area of the property is used for storage most of the year and is where fruit is placed in wooden trays to dry in the sun during the harvest season (apricots), some of which are grown on this property and more is transported for drying from other California fruit ranches owned by the family.

Research was conducted in the Morgan Hill Library, Gilroy Historical Museum, History San Jose, Archive Library and the Dr. Martin Luther King, Jr. Main Library in San Jose and Santa Clara County Archives and Official Records. The internet was also searched for U.S. Census and historical data. The point of contact for the Borello Family Chris Borello provided information about the family and how the property had been, and is currently used. The significant amount of information gathered in this process led to a historical summary of the property from the Spanish Period into the Mexican Period when it was part of the Rancho (Refugio) de la Laguna Seca (Dry Lake), through the current agricultural use. The basis for a brief historical context statement was "The City of Morgan Hill, Historic Context Statement", prepared by Circa in 2006. The documentation permitted an evaluation of the relative historical importance within the context Morgan Hill's growth and development patterns.

The architecture on the site is primarily utilitarian open sided storage structures and temporary housing for agricultural workers. The residential buildings are four buildings (duplexes) that sit on pier foundations and the five mobile/modular homes. There is one c.1947 permanent residential building on the property. In addition to the seven detached storage structures there is a small office and a "sulfur" house. This is a warehouse type building for treating fruit prior to drying in the sun. All the structures and building are light weight construction- single wall or metal bolt together styles. All the temporary residential buildings have been moved to the site. The buildings and structures do not exhibit architectural designs of artistic quality or engineering solutions that are noteworthy. The property is not a cohesive or exemplary example of rural development, there are no historic residences or other permanent/distinctive buildings or features on the property. Thus, the study concluded that the property does not meet the criteria and is not eligible for listing in the National Register of Historic Places or the California Register of Historic Resources. When compared to the criteria of the Morgan Hill Zoning Ordinance Section 18.75.060 the property does not meet any of the criteria, thus it is not eligible for landmark status.

Separate from this study are the conclusion of an archeological study conducted by Miley P. Holman and Associates. The conclusions of that study are referenced in this evaluation as it considers the property to have a moderately low likelihood of resources that would meet the criteria to be listed in the California Register of Historic Resources.

3. GENERAL HISTORICAL CONTEXT and BACKGROUND STATEMENT

Earliest known Inhabitants

Inhabitants of the area for thousands of years before the European explorers came were the Ohlone, part of the Coastonian Language group who lived a relatively peaceful hunter-gather existence for several thousand years before the coming of Europeans. Very little physical vestiges of these early inhabitants remain.

Spanish Exploration, Settlement and Ranchos 1769-1834

The first Europeans to visit the south county area that includes the subject property came 1769, led by a Spaniard Gaspar de Portolá who was accompanied by sixty-four men. The following years saw several Spaniards traveling to what would become the Santa Clara Valley. The expedition of Juan Bautista de Anza in 1776 brought settlers to Yerba Buena (San Francisco). The following year, El Pueblo de San Jose de Guadalupe and Mission Santa Clara were established at the north end of the Santa Clara Valley and travel routes along the El Camino Real came through the South Santa Clara County. During the next 18 years very little trade occurred and what was grown or created around the Missions, Precideos or in the Pueblo of San Jose remained in the area as the harbors were controlled by Spanish law and were not open to other traders. In 1794 this changed with relaxing of the port authority to allow trade and the ability of Presidio Commanders to grant Ranchos where hides, tallow and some grain, in excess of local needs, could be shipped through the ports. Mexico declared independence from Spain in 1821after which the governance of Alta California fell under Mexican authority and land grants established 13 Ranchos in southern Santa Clara Valley, a practice that continued until 1846.

Settlement Period 1835-1869:

The historical accounts of Morgan Hill, describe the area as open range or grazing land, that was primarily the Rancho Ojode Aguade la Coche (Pig Springs), the 8927.10 acres granted to Juan Maria Hernandez by Governor Figueroa in 1835 and ten years later it was sold to Martin Murphy Sr., an Irish immigrant and pioneer who brought his family west from Missouri in 1844. The other early land owner was Mrs. J. (Catherine) Dunne who came to the Santa Clara Valley from Canada in 1851. To the north was the Rancho (Refugio) de la Laguna Seca (Dry Lake), a track four miles wide that extended north beginning approximately one mile south of Cochrane Road, past Coyote. The 19,9972 acres was granted to Juan Alvirez in 1834, by Governor Figueroa was sold at auction in in 1845, to Bostonian William Fisher, whose heirs inherited the land

and petitioned for a patent which was granted by the United States in 1865. These early residents were primarily cattle ranchers. Daniel Murphy continued his father's pattern of acquiring land for cattle ranching as did other members of the Murphy clan. Locally it included most of the Rancho Laguna Seca that had passed to Daniel's wife Mary Fisher when her parents died. The name of the settlement, however is attributed to Hiram Morgan Hill, also a Missourian who came west and married Diane Murphy the only child of Daniel and Mary. Although tragedy followed the family, the area became known, not as Huntington as was the name on the train station, or as Murphy's, although some referred to it that way into the 1980's, but as "Morgan Hill", the place of Morgan Hill's large ranch.

The property that is the subject of this study was part of the Rancho Laguna Seca ("Refugio de la Laguna Seca"- Dry Lake).

Horticulture 1870-1939:

Cattle ranching remained the leading industry through the 1880's with little development other than the necessities of a post office, small hotels and saloon. By the 1890's the large ranches were being subdivided into small parcels and a community where a post office, churches, a mercantile store, and school had developed. The El Camino Real - Monterey Road – The alignment that connected northern California with Southern California and more particularly San Jose with Gilroy, Pacific Grove and Monterey, became the center of commercial development in Morgan Hill. At road house stations known as "mile houses" between San Jose and Gilroy, the original comfort/rest areas were created. The "18 Mile House" was on the north of town, in the Burnett Township (Madrone) north of Cochrane Road and the next, the "21 Mile House" three miles further on the railroad was south of Main Street the crossroad that became the center of town. With transportation to a wider market via the railroad in 1869, and large ranches divided into smaller sections, the farming that that had started in the 1860's, flourished. Fruit trees, vineyards, row crops, strawberries, vegetables, and flowers were the crops that filled the area surrounding center of town. With the varied agriculture and rail service, packing houses were established as were supporting businesses. Prior to refrigerated trucks, dairy farms were in close proximity to the creameries that processed milk products for distribution within the town. With the advent of refrigerated trucks to transport fresh produce and dairy products, Morgan Hill's economy had shifted from cattle grazing to fresh and processed foods that were delivered locally and shipped out of the valley to a broad market.

At the beginning of the twentieth century, immigrants arrived from China, Japan, Italy and the Azores, to find work on the farms and in the orchards. Many later

became the land owners in a pattern that was replicated within the agricultural communities of Santa Clara Valley. This important population increase brought with it cultural associations, social clubs and civic organizations to the community. Incorporated in 1906, the City of Morgan Hill,was one of the earliest cities to incorporate in Santa Clara County; however the city limits were considerably smaller than present day.

Transportation shifted from buggies and wagons to automobiles and trucks in the 1920's mixing the two forms of transportation on Monterey Road in the 1920's. The advent of motor powered vehicles also brought service stations and garages to the roadside. In 1927, to accommodate the increase in traffic Monterey Road was widened 17 feet (Sharma pg. 75). Still, truck traffic was forced to mix with other vehicles as it moved through town on Monterey Road, continuing to identify Morgan Hill as waypoint the trip between the larger cities of San Jose and Gilroy.

During this period, residential architecture was most distinctive in the center of the community where styles included Italianate, Folk Victorian and Bungalows. The majority of the residential architecture out of town was on the farms and ranches where the vernacular California Ranch style, and Craftsman Bungalow were favored. The agricultural buildings on the ranches and farms were almost exclusively constructed of local redwood and included; barns, sheds and tank houses, and water towers

Mid-Century Development 1930-1960

In this era, small dairy farms were located close to the town center, to the north in Madrone and south extending to Gilroy. Many began during earlier years and continued to grow as the community expanded.

During the decades, the city grew with population primarily related to agriculture and the food processing plants and distribution warehouses through the 1930's until the 1950's. After WWII, the community experienced growth in commercial and residential sectors related to the industries of neighboring cities. Located on the main road (Monterey Highway), the commercial growth expanded with services for the traveling public as well as local business such as gasoline service stations that developed on both sides of Monterey Road and drive-in restaurants at the edges of the downtown. The theme that started with the "mile houses" continued as bars and then restaurants developed along Monterey Road.
As occurred throughout California, the importance of the automobile and the freedom it provided were evident in the outward reaching growth of Morgan Hill. In the 1960's Highway 101 was realigned east of the town center leaving the community with less through traffic but more of a community commercial district

– although it meant less business for gas stations and other businesses who benefited from the traffic.

During the years 1919-1933, the Volstead Act (Prohibition) significantly restricted the production and sale of most alcoholic beverages. Locally, this effected wineries and vineyards forcing many vineyards to change crops and wineries to explore alternate products such as olive oil. The repeal in 1933 encouraged new vineyards to be planted and wineries to rebuild. However many of the farms that were developed with fruit trees remained vital operations. The next devastating event for the fruit ranchers in the area, most of whom grew the lucrative prune was in 1936 and German boycott of California prunes and dried fruit. Without Germany and its allies there was suddenly a world glut of prunes that caused financial ruin for many local ranchers. Those who could hold onto their land replanted orchards to take advantage of improved shipping for fresh fruit and those that canned well. Some turned to vineyards and some to row crop farming. However all were helped by the advent of WWII and the federal government contracts to provide food supplies to the troops. At the end of WWII and the end of the lucrative federal contracts, the industry faced another challenge, frozen and prepared foods. Strawberries were the first locally frozen crops to come from South County.

During this era, rural architecture for agricultural buildings and structures- mostly utilitarian- included a rebuilding of older hay and fruit barns, fruit dehydrators, dairy barns, cold storage buildings, water tanks and towers, wineries, and a wide variety of sheds.

The residential architecture during this era included simple pitched roof cottage style an economical cottage, Spanish Colonial and other revival styles, the California Ranch Style and by Mid-Century, modernistic designs that follow the Bay Area Tradition. At the end of the century, styles, particularly in residential subdivisions copied the post modern and eclectic combinations of design elements, including revival styles with turrets and elements from various design periods.

Roadside business, in addition to the expanding retail and services (grocery, banks, optometrists, dentists etc.) of the central town, included EL Patio Bar (The Capri) on the north side of town in Madrone, Mels Drive In Restaurant and Cocktail Lounge and The Villa Restaurant and lounge, that were on the south. The Circle Drive In, ½ mile south of Morgan Hill appears to be the only one to offer the 1950's classic car-hop service.[1] Commercial buildings of this period are primarily single user commercial style and often reused older buildings adding a

[1] Morgan Hill times, Dec.12,1957

new façade. Theme architecture was found in the motels and early franchise drive-in restaurants.

Suburbanization and Industrialization 1960-2012

Agriculture remained the dominate economic industry until the 1970's when the introduction of "high tech", business campuses appear in Morgan Hill.

In the 1970's, large residential real estate developments were undertaken in the eastern hills around Anderson Reservoir, land that was annexed to Morgan Hill, as were sections to the north until the boarder adjoined that of San Jose in the Madrone District and Coyote Valley. Also in the decade of 1970, business park campuses were developed in Morgan Hill allowing the residents additional employment opportunities.

In the most recent historical period, Morgan Hill has continued to grow, although in a restrained mode and has developed a varied economic base with industrial technology and additional retail centers dispersed from the historic downtown, along Monterey Road. Recreation in the form of golf courses and activities surrounding the Morgan Hill or South County Airport increased. New schools were necessary to accommodate the growing population, and a new hospital was constructed next to Highway 101. As the twenty-first century began, agricultural land around the town center was rapidly being developed for residential and commercial use.

4. BF Cochrane LP (APN 728-34-027)- History and Description of the Buildings and Structures

4.1 History of the property:

The subject parcel was originally part of the Rancho (Refugio) de la Laguna Seca (Dry Lake), a track four miles wide that extended north beginning approximately one mile south of Cochrane Road, to past Coyote. The 19,9972 acres was granted to Juan Alvirez in 1834, by Governor Figueroa. In 1845, the rancho was auctioned, transferring ownership from Juan Alvires, to an Englishman William Fisher (1810-1850), who paid $6,000 for the land.[2] Fisher was a trader who arrived in California in 1830 and married Liberata Ceseña (1818 - 1905). The couple and six children lived in Baja California until 1846, when they moved to San Jose where William operated a retail store as well as raising cattle and planting fruit trees on the former rancho land. In 1849, Fisher sold his mercantile store in San and concentrated on the rancho, where he died

[2] Couchman, R, The Sunsweet Story, Sunsweet Growers Inc, San Jose CA 1967 Page 17

a year later at the age of 40, leaving the rancho to his wife, Liberta Ceseña Fisher and their six children. During the four years Fisher owned the rancho he planted fruit including orchards and vineyards as well as row crops.[3] After the death of William Fisher, Liberta Cesena Fisher married Dr. George H. Bull in 1851, the same year her daughter Maris (Mary) Fisher married Daniel Murphy, the youngest son of pioneer, Martin Murphy who owned the adjoining Rancho Ojo del Agua de la Coche. Dr. Bull and Liberta remained on the rancho until his death in 1854. Three years after the death of Dr. Bull, Liberta sold a portion of the rancho to her son-in-law, Daniel Murphy and a year later, in 1858, married Caesat Piatti. This was the same year Daniel Murphy filed a partition suit to divide the remaining land among the Fisher heirs. Liberta continued to sell acreages and in 1861 sold 200 acres to Juan Maria Malaguerra to be planted in a vineyard and fruit trees. Malaguerra is credited with establishing the first commercial winery in South County. Liberta continued selling sections of the rancho land including 15,692 acres that became. the Phegley Home Ranch c.1860. As the division and sale of land continued, acreage of the Phegley Home Ranch was sold reducing the holdings to a 241 acre cattle ranch. The 1876 Historical Atlas of Santa Clara County by Thompson & West shows the subject parcel was part of the 241 acres that belonged to J. Phegley After the turn of the century it appears the ranch evolved to a fruit ranch growing prunes, apricots and walnuts. Again the land was divided and this time the subject parcel was part of that acquired by Ira Osborn Rhoades in 1915.

Ira O. Rhoades began his career with Union Pacific Railroad, and in 1905, became the purchasing agent with Southern Pacific Railroad. He was also one of the organizers of the Pacific National Bank.[4] He and his family lived in Oakland and San Francisco before moving to Morgan Hill to retire on their country estate. However retirement was not to be. During WWII he served on a committee of five to purchase war supplies for the government.[5] It may have been this added responsibility and the need to be away from Morgan Hill that encouraged him to sell the orchard property of 142 acres, the majority of his property, to Sebastian and Luigia Borello in 1942. In 1969, when Ira Osborn Rhoades died, his obituary noted that he was a 33rd degree Scottish Rite Mason, a Shriner and a member of the Knights Templar.[6] Rhoades is also known for his involvement in the California Prune and Apricot Growers Association that became Sunsweet.[7] The Rhoades Ranch of 12 acres includes his house, that of J. Phegley is designated Santa Clara County Historic Landmark CL11-01.

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[3] Dill Design, Santa Clara County Heritage Resource Survey Update, South County, March 31, 2003, pg 14
[4] Oakland Tribune, Obituary, August 13, 1969.
[5] ibid
[6] ibid
[7] Santa Clara County Board of Supervisors Resolution declaring the Rhoades Ranch Historic Landmark (CL11-01)

Sebastian and Luigia Borello were immigrants from Italy who settled in the Santa Clara Valley. Sebastian Borello immigrated to the United States and to San Jose in 1913, an worked with a relative Robert Borello, on a farm on Quimby Road in the Evergreen area of San Jose. By 1920, Sebastian owned a farm next to his uncle and in January 1923, he became a naturalized citizen. In September of that year he traveled as a single man to Italy to "settle land matters" and returned to San José married to Louisa P. Borello,.[8] During the following years they lived in several locations in San Jose and Los Gatos, while managing their orchard land in Santa Clara County. They did not live on the subject property in South County. One house was constructed on the property c. 1950 and was occupied by Frank Borello (second son of Sebastian and Luigia Borello). The house is a vernacular California Ranch style. The economical building does not appear to have been architecturally significant and in recent years it has been modified with an addition on the east side and other repairs/remodeling. For a period it was occupied by Frank Borello, and it has been a rental property for many years. During the Borello family ownership the orchards of prunes, cherries and apricots have been replanted to maintain yields and market conditions. Historically the fruit was sold to local canneries, sold to brokers who distributed fresh fruit, or dried on the property prior to going to market.[9] Currently, although some of the land has been redeveloped, the remaining 122 acres is planted in cherries, apricots and a field of feed grasses. Also on the property is a 5 acre paved or packed dirt operations area for storage, staging and drying apricots. Fruit comes from this property and from the family's fruit ranches in other California locations.

The property and the buildings are associated with the agricultural heritage of Madrone and Morgan Hill, although most of the buildings on the property were moved to the site and the storage structures were constructed within the past 30 years.

4.2. Discussion of historical significance.

The subject property has been in agricultural use since the mid 1800's. The succession of owners, often with land parcels reduced in size from the previous owner, have adapted to the market place in how the land was used. Early records show cattle grazing as the primary use. At the turn of the century, it was part of the J. Pugeley ranch planted in fruit trees. This use was passed to Ira O. Osborn who did not live full time on the ranch when he initially purchased it, but retired to the property in the late 1930's, just as the European market for prunes was curtailed by A.Hitler's edict. This and the need to return to San

[8] Manifest of the Guilio Cesare, Sept.19,1923

[9] Interview, Borello, Chris 2-15-2012

Francisco to serve as one of the committee of five to purchase war supplies for the government, may have been the reason he sold the property to Sebastian Borello, a fruit rancher with orchards in San Jose and Los Gatos. Rhoades retained 12 acres of the property including his Spanish Revival style house and the Phegley house and barn for his home and small orchard. This property is a Santa Clara County Historic Landmark (CL11-01)

Sebastian Borello did not live on the property but managed the ranch and relocated buildings to the property for worker housing, an office and storage. Open sided storage shed were constructed on the property during the 1980's. The origins of the relocated buildings is unknown, they were moved to the property in the 1950's, and some have been further relocated on the parcel.

The development of agricultural land in Madrone is an important broad historical pattern. Within this time frame the events prior to 1950 contain the greatest association to the development patterns in Madrone and Morgan Hill, however this parcel of the Borello property does not exhibit associations that are unusual or significant in the history of the community. Buildings on the site were moved from other location or were constructed in the 1980's.

The conclusion reached from considering the historical facts is that the owners, were part of very broad patterns in the history of Santa Clara County and Morgan Hill, but did not have individual historical associations in the context of the Mid-Century Morgan Hill, that were significant in the history of the County, Madrone or to Morgan Hill.

4. 3. Description of the Setting, the improvements and use:

4.3.1 Location:

The approximately 122 acre BF Cochrane LP parcel is located east of Highway 101, in the City of Morgan Hill. It is boarded by Cochrane Road on the north and east (formerly Coyote Road), St. Katherine Drive on the west, and Peet Road and Half Road on the south. It is adjacent on the northeast corner to the Rhoades Ranch (Phegley/Rhoades), a Santa Clara County Historic landmark property (CL11-01). The site also boarders property owned by the Santa Clara Valley Water District on the southwest corner. The site is approximately 122 acres that slope to the south from elevation 460 feet above mean sea level along the north boarder at Cochrane Road to 414 feet at Peet and Half Roads. Across St. Katherine Drive are residential subdivisions with houses constructed c. 2005-06. Across Peet Road, are semi-rural parcels with the main houses close to the road and ancillary buildings behind. The properties were the subject of a preliminary survey to consider the historic and architectural values of each. None

of the properties exhibited significant historic or architectural values when compared to the California Register of Historic Resources, the Santa Clara County Historical Resource criteria, or the Morgan Hill Historic Preservation ordinance. Across Cochrane Road on the east the area is primarily open space with relative new homes on large parcels.

The northeast corner of the property is adjacent to the Rhoades Ranch, a 12 acre, property that is significant for its representation of the County's agricultural development patterns evidenced by residential and agricultural buildings that date from the 1860's through 1920's; including the Eclectic Spanish Revival Rhoades house designed by local architect Andrw P Hill Jr. and remodeled by architect Howard Wetmore Higbie. Also for the association with James F. Phegley a rancher during the last decades of the nineteenth century who served as a County Supervisor (1887-91); and for the association with Ira Osborne Rhoades who retired to the property from a position as a railroad purchasing agent and who was instrumental in the organization of the California Prune and Apricot Growers Association (Sunsweet); and Dr. Harold E. Thomas, professor of plant pathology at the University of California (1928-1945) and who was a founder of the Strawberry Institute of California. [10] The historic property is heavily wooded along Cochrane Road, the boarder with the Borello parcel, and around the Rhoades House which is elevated above the parcel line that separates it from the BF Cochrane LP (Borello) property. A driveway on the Rhoades Ranch further separates the historic buildings from the lower neighboring property.

4.3.2 Use of the BF Cochrane LP parcel (APN 728-34-027) (Borello Family Property)

The primary use of the subject property has been fruit orchards since the early 1900's. An operations and drying yard is located along Cochrane Road.(former Coyote Rd) and includes sheds, modular buildings and trailers, used for offices, storage and caretakers for the fruit orchards on this parcel and elsewhere in California. The open land is used annually to sun-dry apricots.

[10] Rhoades Ranch -CL11-01 Resolution by the Board of Supervisors, Santa Clara County

Photograph # 1 Aerial photograph showing the subject parcel with apricots drying grasses in four sections and the orchards.
Source Google Earth Pro, Date: September 30, 2009

Figure # 3 Diagram showing the location and type of buildings and structures on the BF Cochrane LP parcel Source: Christopher Borello, 2012

4.3.3 Buildings and structures

4.3.3.1 Ranch Worker Housing:

There is a variety of housing types on the property. Modular and mobile homes, two or more units in linear buildings that are wood frame with horizontal board siding, board and batt siding c. 1940's and some with metal raised- seamed siding c 1950. The buildings were moved to the property in the mid 1950's[11]. The buildings sit on pier block foundations and have a low-pitched roofs with exposed rafters. The utilitarian style is light weight construction without architectural distinction. Buildings used for agricultural housing are usually placed on pier block foundations were often relocated.

Photograph # 2 Multiple unit ranch worker housing. The building is wood frame with horizontal siding. According to Chris Borello, this building was moved to the property in the 1950's. The original location is unknown.

[11] Email, 4-10-2912 from Chris Borello

Photograph # 3 Multiple unit worker housing, wood frame with board and batt siding. This building was moved to the property in the 1950's according to Chris Borello. The original location is unknown.

Photograph #4 Worker's housing; metal frame, "button" raised seam metal siding.

Metal frame buildings were used toward the end of WWII and became popular after WWII due to their "kit" construction that could be assembled in a very short time with unskilled labor. A number of companies offered building kits with slightly different design features. The name that almost became generic was Butler Building, however the buildings on the subject site are not from that company and are likely to have been manufactured by the U.S. Building Company that patented the "button" system whereby holes are predrilled and a patented tool clamps metal "buttons" through the holes in the sheets of metal with one wrapping over the other to create a raised seam that is water tight and wind resistant. The buildings continue to be offered by the company.

All the raised seam metal clag buildings on the property were moved to the property in the 1950's-60's.[12]

[12] Interview, Chris Borello 4-9-2012

Photograph #5 modular/mobile home c.1990

Photograph # 6 two mobile home "trailers" parked in the center of the paved yard.

Photograph # 7 Residential building of mixed materials. Wood panels cover the front and raised seam metal siding is on the ends. The roof is "button" raised seam sheets of galvanized metal. The building was moved to the property in the 1950's..

Photograph #8 Front façade of a c.1945 house that is on the property next to Cochrane Road, 2280 B Cochrane Road.

This building is the only permanent residential building on the property. Constructed in a vernacular version of the California Ranch Style, the building is not a artistic or high quality example of the style and modifications to enlarge the building with an addition (left) and replace windows have diminished the integrity of the building.

4.3.3.3.2 Agricultural buildings and structures

Photograph #9 Sulfur House; the façade facing into the yard.

Sulfur House: This building is where fruit is treated to repel insects and to retain the color of the fruit. Pallets stacked with trays filled with fresh fruit are wheeled into the building and removed after sulfur or other inhibitors are burned creating the smoke that permeates the surface of the fruit. The building is a mix of materials with a concrete slab foundation/floor. The large wood panel doors (on the right in the photograph) appear fixed and newer industrial rollup doors at the other end of the building appear to be the ones that open and close. The rear and ends of the balding are covered with seamed metal sheets. The building is in fair-poor condition.

Photograph # 10 The south frcade of the "sulfur" house showing the raised seam metal siding, small metal frame windows, and concrete base wall. The building is in fair to poor condition with deteriorated metal siding that is pulling away and rusted. Windows that are broken and patched with miscellaneous materials.

Office:

The c. 1980's, office is a simple pitched roof building with an extended roof canopy in the front that is supported by posts. The wood frame building is on pier block foundations and has panel wood (T-111) siding and board frame windows with ornate security grills.

Photograph # 11 Front façade of the small office building with the extended canopy.

Photograph # 12 Side of the office building, concrete pier foundation and pitched roof. The windows are covered with decorative security grills. The building is a modular building, c.1985

Sheds:

Sheds on the site come in a variety of sizes, however most are open sides, post and beam construction. Some are very large open sided structures to store fruit drying trays, some are relatively small covering one or two vehicles or the above ground fuel tanks. The largest are utilitarian post and beam structures with square, braced, posts along the perimeter and beams to support the roof exhibiting open rafters with slightly corrugated metal sheets on the roof.

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Photograph # 13 Open-sided storage shed. The building appears to have been constructed c. 1970 and is present in the 1998 USGS Aerial photograph.

Photograph # 14 Open sided storage sheds holding fruit drying trays. c.1980's

Photograph #15 Open sided equipment storage shed c. 1980

Similar to the shed that is used to store fruit trays, this open c. 1980, sided shed is used to store equipment and vehicles. The structure is post and beam with a low pitched roof that is covered in corrugated metal sheets. Typical of rural sheds, some of the materials are recycled.

Photograph # 16 Open shed to protect vehicles and to the right one to protect the above ground fuel tank c. 1980.

4. 4. Discussion of Architectural /Engineering value:

The property contains examples of utilitarian structures that are mostly storage structures with open sides for fruit drying trays, vehicles and miscellaneous equipment. The residential buildings do not exhibit artistic design or high quality construction. They are typical of the many such buildings in Morgan Hill or rural California. As a group they define the various needs for storage on a fruit ranch particularly to store drying trays. The "Sulfur House", a warehouse style building, and the large paved lot are elements of the fruit drying process that the family has centralized from its other orchard properties to this property.[13]

To allow objective consideration of the history and architecture, the evaluation of historical and architectural style does not consider the current deteriorated physical condition of the structures and buildings. During the preparation of his study two of the temporary residential buildings were painted.

[13] Borello, Chris, Interview 2/15/2012

5. Evaluation of Significance

The evaluation considers the criteria adopted by the City of Morgan Hill, in the Zoning Code Chapter 18.75 Cultural Resources Preservation, Section 18.75.060 Cultural resource designation – Criteria. To comply with the California Environmental Quality Act – Guidelines, the evaluation considers the criteria of the California Register of Historic Resources and the National Register of Historic Places.

Pertaining to all three listings, the first step is to determine architectural and historic integrity. Integrity is evaluated following the definition provided by the National Register of Historic Places. "Integrity includes seven aspects; location, design, setting, materials, workmanship, feeling and association".

Integrity: The site does not maintain integrity of the setting or feeling because the buildings have been moved to the property and have been altered, while other buildings have been removed. The only permanent building on the property, a house, has been altered with additions and remodeling. The majority of the structures on the property are for storage and were been constructed during the past 30 years. Thus the historical setting of orchards was changed when the operations/drying yard was created and continues to change as buildings are moved and structures constructed.

Historical Context: The subject parcel, is considered within the historical context of the Mid-Century Development 1930-1960 with the theme of agriculture and rural architecture. During this period, the Borello family has replaced/replanted all the fruit trees and has redefined the use of the property around the operations/drying yard. The orchards were part of a broad pattern of agriculture in the Madrone area north of Morgan Hill. Within the historical context, the Borello family's operations were not individually distinctive, but contributed to Santa Clara County's overall rural economy. Most of the buildings on the site were moved to the site in the 1950's-1960's, as other facilities closed and land was redeveloped, or are shed structures that were constructed in the 1980's, primarily for storage.

When compared to the historical patterns and development history of Morgan Hill, the Borello family property was, and is, part of the broad pattern of agricultural use in South County. The association with Phegely and later Ira Rhoades is important in local history, however, when they owned the property this portion was agricultural either grazing land or fruit orchards. The homes, barns and related buildings associated with these two families are on a separate parcel that has been designated a historic landmark by the Santa Clara County Board of Supervisors (SCC CL11-01). Beyond the association to general

agriculture, no events of historical significance were identified to have occurred on, or be associated with the Borello family property.

Based upon the lack of substantial architecture, including the fact that the buildings were either moved to the site or are storage structures that were constructed in the 1980's (and are not 50 years old), the subject property is not eligible for listing in the National Register of Historic Places, the California Register of Cultural Resources or consideration under the Morgan Hill Zoning Ordinance 18.75.060.

5. 1. Morgan Hill Cultural Resources Designation- Criteria

For purposes of this Chapter, an improvement may be designated a cultural resource by the planning commission and any area within the city may be designated as a historic district by the commission pursuant to Section 2.36.040 if it meets one or more of the following criteria.

A. Historical, Cultural Importance.

1. Has significant character, interest or value , as a part of the development, heritage or cultural characteristics of the city, county, state or nation; or is associated with the life of a person(s) significant in the past, or
2. is the site of an historic event with a significant effect upon society, or
3. Exemplifies the cultural, political, economic, social or historical heritage of the community; or

   The orchard and operations/storage area of the BF Cocherine LP parcel are typical of the rural orchard properties in South County. Annexed into the City of Morgan Hill, the property is/was part of the broader economic heritage of Santa Clara County. The buildings and structures are utilitarian used for temporary housing or storage and as such are part of a broad pattern of agricultural use in the Morgan Hill area but do not exhibit significant character, interest or value in communicating the cultural characteristics of the city, county or region and are not directly associated with the lives of people significant in the past. The buildings were moved to the property in the 1950' and the storage structures constructed in the 1980's. this is past the primary period of agricultural significance in Santa Clara County (1870-1945). No historic event was found to have occurred on the property and the utilitarian structures are not yet 50 years old and while part of a broad pattern do no exemplify the cultural, political, economic social or historical heritage of the community.

B. Architectural, engineering Importance:

1. Portrays the environments in an era of history characterized by a distinctive architectural style, or
2. Embodies those distinguishing characteristics of an architectural type or engineering specimen, or
3. Is the work of a designer of master builder whose individual work has significantly influenced the development of Morgan Hill, or
4. Contains elements of design, detail, materials or craftsmanship which represent a significant innovation; or

As stated above, the structures on the site are primarily open sided storage sheds c.1980, that lack distinctive architecture or engineering qualities. The buildings that are temporary housing for workers are also utilitarian and without architectural distinction. Buildings of this type continue to be manufactured for agricultural uses.

C. Geographic Importance:

1. By being part of or related to a square, park or other distinctive area, should be developed or preserved according to a plan based on a historic, cultural, or architectural motif, or
2. Owing to its unique location or singular physical characteristics, represents an established and familiar visual feature of a neighborhood, community, community or city or

The subject property is not associated with a square, park or other distinctive area. The orchard land was part of larger ranches that were divided, and do not relate to the previous ranches or owners. The orchards have been replanted and none of the structures or buildings on the property were present when the property was owned by Ira O. Rhoades.

The property is in an area of rural parcels redeveloping to residential uses and is not a unique location although it is a large parcel and recognized in the area.

D. Archaeological Importance:

1. Has yielded, or may be likely to yield information in pre-history. Ord. 1111 N.S,. Section 50 (part), 1992; ord; N.S. Section 50 (part), 1992: Ord 980 N.S. Section 3 (part), 1990)

Archeologist, Miley P. Holman, conducted a literature search and a trench investigation, that resulted in a finding that there is a low-moderate likelihood of finding materials that would meet the California Register of Historic Resources criteria for significance or provide important information.

5.2. California Register- Eligibility Statement

The criteria for listing historical resources in the California Register are consistent with those developed by the National Park Service for listing resources in the National Register of Historic Places, but have been modified for state use in order to include a range of historical resources which better reflect the history of California. An historical resource must be significant at the local, state or national level under one or more of the following four criteria;

1. It is associated with events that have made a significant contribution to the broad patterns of local or regional history or the cultural heritage of California or the United States.
2. It is associated with the lives of persons important to local, California, or national history;
3. It embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of a master or possesses high artistic values; or
4. It has yielded, or is likely to yield, information important to the prehistory or history of the local area, California, or the nations.

In addition, the resource must retain enough of its historic character or appearance to be recognizable as a historic property, and to convey the reason for its significance.

Research did not uncover information showing that the subject property was associated with individuals or events that have made a significant contribution to the broad patterns of local or regional history, or to the cultural heritage of California or the United States. The Borello family have been fruit ranchers and farmers since 1913 when Sebastian Borello immigrated to Santa Clara County and began tending fruit trees in the Evergreen area of San Jose area. Sebastian Borello did not live on this property. The vernacular structures and buildings on the property are typical of agricultural properties in the South County area, and do not posses distinctive characteristics that are not found in similar buildings within the Morgan Hill and Santa Clara County. When the property was evaluated as a rural unit it was concluded that it did not meet the criteria because the utilitarian structures and buildings are not distinctive or artistic and do not show unique engineering. While some of the residential buildings are over 50 years old they were relocated to the subject property and the vernacular storage structures and other buildings (office) were constructed in the 1980's

and are not old enough as vernacular structures to be considered eligible. Thus it is concluded that the property is not eligible for listing in the California Register.

5. 3. National Register of Historic Places – Standards (Criteria)
The National Register of Historic Places has established standards for evaluating the significance of resources that are important in the heritage of the nation. Historic resources may be considered important at the local level, state level or national level. To apply the standards the resource must be considered within significant historical contexts. The standards, age and integrity statements follow;

1. A property must be fifty years old
2. The resource must retain architectural and historical integrity.
3. The resources must meet at least one of the following criteria
   a. are associated with events that have made a significant contribution to the broad patterns of our history; or
   b. are associated with the lives of persons significant in our past; or
   c. embody the distinctive characteristics of a type, period, or method that possess high artistic values, or that represents a significant and distinguishable entity whose components may lack individual distinction; or
   d. have yielded, or may be likely to yield, information important in prehistory or history.

Research did not uncover information that the subject property was associated with individuals or events that have made a significant contribution to the broad patterns of local or regional history or the cultural heritage of California or the United States. The structure's lack of significant historical associations are the factors in determining that the property is not eligible for listing in the National Register of Historic Places.

Property that is not eligible for listing in the California Register of Historic Resources is not considered to be significant under the criteria of the National Register of Historic Places and is not eligible for listing.

6. California Environmental Quality Act (CEQA)

CEQA defines a historical resource as a resource that meets on or more of the following criteria; (1) listed in, or determined eligible for listening in, the California Register of Historical Resources, (2) listed in a local register of historical resources as defined in PRC Section 5020.1 (k), (3) identified as significant in a historical resource survey meeting the requirements of PRC Section 5024.1(g) or (4) determined to be a historical resource by a project's

lead agency (PRC Section 21084.1 and CEQA Guidelines Section 15064.5 (a)). A historic resource consists of;

> "any object, building, structure, site, area, place, record or manuscript which a lead agency determines to be historically significant or significant in the architectural, engineering, scientific, economic, agricultural, educational social, political, military, or cultural annals of California. Generally a resource shall be considered "historically significant" if the resource meets the criteria for listing in the California Register of Historical Resources" [14]

A literature search showed that the subject property is not listed in the Historic Properties Directory for Santa Clara County (2011) or the Morgan Hill Historic Resources Inventory. The recent designation of the adjacent property, the Rhoades Ranch, as a Santa Clara County Historic Landmark did not include the subject property and this study and evaluation of the attributes of the subject property found the property does not meet the criteria of the California Register of Historic Resources or the City of Morgan Hill's Historic Preservation Zoning criteria. Thus the property does not meet the criteria of any register as a "historical resource" under CEQA.

7. POTENTIAL IMPACTS OF THE PROPOSED PROJECT:

A plan for a residential subdivision of 244 single family homes has been proposed for the property. The plan includes all interior streets, open space and easements. It also includes improving and widening Peet Road along the southern edge of the property. The additional width will be taken from property on both sides of the street. The properties across Peet Road from the subject property were considered in a preliminary survey by Urban Programmers that followed the criteria of CEQA and the Morgan Hill Municipal Code Section 18.75, and these properties were not found to qualify as "historic resources".[15]

Rhoades Ranch Interface: Where the property adjoins the 12 acre Rhoades Ranch (LC11-01) ,as shown on the Tentative Map San Sebastian, Morgan hill Santa Clara County California, dated August 2011 Sheet 1, prepared by Ruggera-Jensen-Azar, the plan shows that rear yards of court-homes will be adjacent to the boundary with the Rhoades Ranch Historic Landmark. This appears to provide a fence that will separate the properties and provide a compatible

[14] CEQA Guidelines Section 15064.5(a)(3).

[15] Urban Programmers, Preliminary Survey of Parcels APN 728-33-005,728-33-004,728-33-003 and 728-33-002 City of Morgan Hill, Santa Clara County, California; February 2012

interface with the side of the historic landmark property. The Rhoades Ranch currently has a driveway set away from the south property line that provides an additional buffer to the proposed development. The primary buildings of the Historic Landmark are set back from the Southern parcel line with sufficient land between the new development and the historic buildings to maintain the rural setting on the landmark property.

BF Cochrane LP development will be phased over several years with the existing plan to remove the orchard (fruit trees) along Peet Road, and in the last phase the operation and storage area on the property would be developed. The improvements considered in this study that are on the subject parcel are not significant to the architectural heritage or history of Morgan Hill or the County of Santa Clara, the state or nation.

When properties are not eligible for listing in the California Register of Historic Resources or considered locally significant, proposed projects including changes to the area, alterations, or demolition of buildings and structures does not create a significant impact as defined in the Guidelines for the California Environmental Quality Act.

8. MITIGATION/RECOMMENDATIONS

1. Mitigation is not required to comply with the California Environmental Quality Act.[16]

2. Holman & Associates recommends the following measures: [17]

(1)Monitoring should be done until the project archaeologist is satisfied that there is no further possibility for the discovery of discrete burials–normally this would be within the first several feet from the existing surface, th area described as well drained loams. In the event that any bone material is discovered, work should be halted with a distance determined by the project archaeologist until a qualified forensic archaeologist has made a determination that it is or is not human.

(2). In the event that human remains are identified, work should be halted inside the zone designated by the project archaeologist until the County Coroner's Office and the Native American Heritage Commission (NAHC) have been notified. It is the duty of the NAHC to designate a Most Likely Descendant

[16] CEQA Guidelines Section

[17] Holman & Associates, to Karli Grisby : RESULTS OF MECHANICAL SUBSURFACE TESTING FOR PREHISTORIC ARCHAEOLOGICAL RESOURCES AT THE COCHRANE BORELLO RESIDENTIAL PROJECT, MORGAN HILL, SANTA CLARA COUNTY, CALIFORNIA

(MLD) to represent tribal interests regarding the method of exposure, removal and the place of reburial of any human bone and associated grave goods.

3. should the plan change with regard to the interface along the property line with Rhoades Ranch (CL11-01) the changes should be reviewed to determine the potential for impacting a historic resource.

9 APPENDIX

9.1 LIST OF SOURCES CONSULTED

Unpublished:

Morgan Hill Building Permit files, Building Department, City Hall

Morgan Hill Historic Resources Inventory, Morgan Hill Planning Department, City Hall

Great Register of Santa Clara County

Santa Clara County Board of /Supervisors Resolution Feb. 8, 1012 Designating Rhoades Ranch a Santa Clara County Historic Landmark (CL11-001)

Santa Clara County Archives

Santa Clara County Historic Resource Inventory (2011)

Santa Clara County Official Records: County Recorder's Office, deeds: County Assessor's Office, Assessment Records

Published Works – History Morgan Hill, San Jose, Santa Clara County

Arbuckle, C., and Rambo, R., Santa Clara County Ranchos, The Rosicrucian Press, San Jose, CA,1968

Circa- "Historical Context Statement for the City of Morgan Hill", October 2006

CITY DIRECTORIES FOR SANTA CLARA COUNTY AND MORGAN HILL, CALIFORNIA*;*
1870, 1878, 1888-89, 1890, 1892 , 1893, 1894 ,1895-1969,1896-9,1900, 1902-03,1906-07,1909-10, 1915,1916, 1918, 1919, I920,1925,1930,1935 ,1940, 1941, 1942, 1943, 1945, 1949, 1950, 1951, 1952, 1955, 1956, 1958, 1959, 1960,

1963, 1965, 1968, 1970, 1972, 1974,1975, 1985

Guinn, J.M. History of the State of California and Biographical Record of the Coast Counties, California, Chapman Publishing Company, Chicago, 1904

Hendy, G. and J.N. Bowman, The Spanish and Mexican Adobe and Other Buildings in the Nine San Francisco Bay Counties, 1776-1850, part VII., Bancroft Library, Berkeley, 1940

Jacobson, Y*.* Passing Farms Enduring Values-California's Santa Clara V*alley*, W. Kaufmann, Los Altos, CA 1984

Munro-Fraser, History of Santa Clara County, California, Alley Bowen & Co., San Francisco, 1881

Payne, S. Santa Clara County, Harvest of Change, Windsor Publications, Northridge CA 1987

San Jose Mercury, Sunshine Fruit and Flowers, A Souvenir of the San Jose Mercury*, 1885*, San Jose Mercury Publishing and Printing Co., 1895

San Jose Mercury, Sunshine Fruit and Flowers, A Souvenir of the San Jose Mercury, 1886, San Jose Mercury Publishing and Printing Co., 1896

San Jose Water Company, San Jose Water Company,125 Years of Service 1866-1991, San Jose, CA 1991

Santa Clara County Historical Heritage Commission**,** Santa Clara County Heritage Resource Inventory*,* San Jose, CA, 1979, 1999

Sawyer, Eugene T., History of Santa Clara County*,* Historic Records Company, Los Angles CA 1922

Sharma, U.R. , Morgan Hill Historical Society, Images of America MORGAN HILL, Arcadia Publishing, San Francisco, 2005

The Board of Trade of San Jose, Santa Clara County California- Vol1, No1, W.B. Bancroft & Co., San Francisco, CA 1887

Thomson & West, 1876 Historical Atlas of Santa Clara Co. California, (reprint) Smith McKay, San Jose, 1973

Wyman, Beth; Hiram Morgan Hill, Morgan Hill, 1990

Published Works – Architecture

Arthur, Eric and Dudley Witney. The Barn: A Vanishing Landmark in North America. Greenwich, CT: New York Graphic Society Ltd., 1972.

Halsted, Byron D., ed. Barns, Sheds and Outbuildings. New York: O. Judd Co., 1881. Rpt.: Brattleboro, VT: Stephen Greene Press, 1977.

McAlester, Virginia & Lee, A Field Guide to American Houses, A.P. Knopf, New York 1984

Rifkind, C. A Field Guide to American Architecture, Times Mirror, New York 1980

Whiffin, Marcus, American Architecture Since 1780, A Guide to Styles, M.I.T.Press, Cambridge Mass. 1981

Schuler, Stanley. American Barns: In a Class by Themselves. Exton, PA: Schiffer Publishing Ltd., 1984.

Schultz, Leroy G., comp. Barns, Stables and Outbuildings: A World Bibliography in English, *1700-1983.* Jefferson, NC, and London: McFarland & Co., 1986.

Interviews:

Chris Borello: March 30, 2012, April 8, 2012: Email April 9, 2012, April 10,2012 Grandson of Sebastian and Luigia Borello regarding family history and the description of structures on the property.

State of California The Resources Agency Primary #
DEPARTMENT OF PARKS AND RECREATION HRI #
PRIMARY RECORD
Trinomial
NRHP Status Code NA
Other Listings _____
Review Code _____ Reviewer _____ Date

Page 1 **of** 3 ***Resource Name or #:** (Assigned by recorder) 18255 Peet Rd Morgan Hill
P1. Other Identifier:
***P2. Location: Not for Publication** X **Unrestricted**
***a. County** Santa Clara **and** (P2c, P2e, and P2b or P2d. Attach a Location Map as necessary.)
***b. USGS 7.5' Quad** Morgan Hill **Date** 1980 **T** __; **R** __; __ **of** __ **of Sec** __; _____ **B.M.**
c. Address 18255 Peet Road City Morgan Hill Zip 95037
d. UTM: (Give more than one for large and/or linear resources) Zone 10,621010 mE/ 4113119 mN
e. Other Locational Data: (e.g., parcel #, directions to resource, elevation, etc., as appropriate)
APN 728-33-002

***P3a. Description:** (Describe resource and its major elements. Include design, materials, condition, alterations, size, setting, and boundaries)
The property is located east of Highway 101 in an unincorporated area of rural parcels and recent residential subdivisions. Approximately 1.36 acres in a triangular (pie) parcel, the property is flat and used primarily for a residence and storage. Buildings on the site include one house c.1935 that has been dramatically remodeled and enlarged, and one barn c.1935, that is left from the previous use as a farm. The remodeling added manufactured siding and brick venire to the house as well as additional space. The barn is typical of a hay barn c.1935 with vertical board siding and a "pop-up" section in the center. The property is associated with the agricultural heritage of South Santa Clara County/Morgan Hill but in the reduced size and with the alterations it is not significant to that era. None of the buildings exhibit qualities of design or construction that meet the criteria of CRHR. This is a remainder parcel left after the larger farm was subdivided. The lack of significant architectural quality and the lack of important associations to people or events allows the conclusion that the property is not eligible for listing in the CRHR or the Santa Clara County Historical Resource Inventory.

***P3b. Resource Attributes:** (List attributes and codes) HP 2 single family
P4. Resources Present: X Building Structure Object Site District Element of District Other (Isolates, etc.)

P5b. Description of Photo: (view, date, accession #) View N storage bldg.
Front Façade, 2/2012
***P6. Date Constructed/Age and Source:**
X Historic Prehistoric Both
Constructed: 1980 Owner
***P7. Owner and Address:**
Brikey
18255 Peet Road ,Morgan Hill CA 95037
***P8. Recorded by:** (Name, affiliation, and address)
Bonnie Bamburg
Urban Programmers
10710 Ridgeview Avenue
San Jose CA 95127
***P9. Date Recorded:** 4/15/2012

***P11. Report Citation**: (Cite survey report and other sources, or enter "none.") None

***Attachments:** NONE Location Map Continuation Sheet Building, Structure, and Object Record
Archaeological Record District Record Linear Feature Record Milling Station Record Rock Art Record
Artifact Record X Photograph Record Other (List):

18255 Peet Road, Morgan Hill
Photographs taken 2/2012

Barn c.1935 The barn is a remnant of the previous farm/ranch use and is currently used for miscellaneous and vehicle storage. The vertical board construction is typical for ranch barns of the 1900-1940.

State of California The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

PRIMARY RECORD

Primary #
HRI #
Trinomial
NRHP Status Code NA

Other Listings _____
Review Code _____ Reviewer _____ Date

Page 1 **of** 3 ***Resource Name or #:** (Assigned by recorder) 18145 Peet Rd. Morgan Hill

P1. Other Identifier:

***P2. Location: Not for Publication** X **Unrestricted**

***a. County** Santa Clara **and** (P2c, P2e, and P2b or P2d. Attach a Location Map as necessary.)

***b. USGS 7.5' Quad** Morgan Hill **Date** 1980 **T** __; **R** __; __ **of** __ **of Sec** __; _____ **B.M.**

c. Address 18145 Peet Road City Morgan Hill Zip 95037

d. UTM: (Give more than one for large and/or linear resources) Zone 10, mE/ 41 mN

e. Other Locational Data: (e.g., parcel #, directions to resource, elevation, etc., as appropriate)
APN 728-33-004

***P3a. Description:** (Describe resource and its major elements. Include design, materials, condition, alterations, size, setting, and boundaries)

The property is located east of Highway 101 in an unincorporated area of rural parcels and recent residential subdivisions. Approximately 7 acres in a rectangular parcel, the property is flat and used primarily for storage or manufacturing of wood pallets. Buildings on the site include two houses and four storage buildings. The buildings date from the 1930's to the 1980's. The houses c. 1935 are cottage forms that have been enlarged and modified to the degree that they have lost architectural integrity. The storage buildings – former barns and workers housing, have been altered for storage of the pallets and equipment. None of the buildings exhibit qualities of design or construction that meet the criteria of CRHR. After lot splits from a larger parcel, the property was used for farms although there is very little that indicates the previous use. The extensive alteration of the buildings, lack of significant architectural quality and the lack of important associations to people or events allows the conclusion that the property is not eligible for listing in the CRHR or the Santa Clara County Historical Resource Inventory.

***P3b. Resource Attributes:** (List attributes and codes) HP industrial HP 2 Single family House

P4. Resources Present: X Building Structure Object Site District Element of District Other (Isolates, etc.)

P5b. Description of Photo: (view, date, accession #) View N Front Façade, 9/09/, 2007

***P6. Date Constructed/Age and Source:** X Historic Prehistoric Both
Constructed: 1924-1980 City directories

***P7. Owner and Address:**
H. Patel and H Bhatt Anil
8715 Leavesly Rd, Gilroy CA 95020

***P8. Recorded by:** (Name, affiliation, and address)
Bonnie Bamburg
Urban Programmers
10710 Ridgeview Avenue
San Jose CA 95127

***P9. Date Recorded:** 4/15/2012

***P11. Report Citation**: (Cite survey report and other sources, or enter "none.") None

***Attachments:** NONE Location Map Continuation Sheet Building, Structure, and Object Record
Archaeological Record District Record Linear Feature Record Milling Station Record Rock Art Record
Artifact Record Photograph Record Other (List):

18145 Peet Road: Buildings on the property:
Photographs taken: February 2012

House #2 next to Peet Road c. 1950. Additions to the house and alterations to the front and rear have diminished architectural integrity. The house is not a significant example of vernacular architecture.

Garage on the property with shed addition c.1935-1970

Industrial buildings used to manufacture wood pallets
Buildings and sheds are constructed on wood frames and covered with plywood c.1970-2003

State of California The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

PRIMARY RECORD

Primary #
HRI #
Trinomial
NRHP Status Code NA

Other Listings _____
Review Code _____ Reviewer _____ Date

Page 1 **of** 3 ***Resource Name or #:** (Assigned by recorder) 18245 Peet Road Morgan Hill

P1. Other Identifier:

***P2. Location: Not for Publication** X **Unrestricted**

***a. County** Santa Clara **and** (P2c, P2e, and P2b or P2d. Attach a Location Map as necessary.)

***b. USGS 7.5' Quad** Morgan Hill **Date** 1980 **T** __; **R** __; __ **3 of** __ **3 of Sec** __; _____ **B.M.**

c. Address 18245 Peet Road City Morgan Hill Zip 95037

d. UTM: (Give more than one for large and/or linear resources) Zone 10,6210056 mE/ 4112968 mN

e. Other Locational Data: (e.g., parcel #, directions to resource, elevation, etc., as appropriate)
APN 728-33-003

***P3a. Description:** (Describe resource and its major elements. Include design, materials, condition, alterations, size, setting, and boundaries)

The property is located east of Highway 101 in an unincorporated area of rural parcels and recent residential subdivisions. Approximately 4.7 acres in a rectangular parcel, the property is flat and used primarily for storage or horse pastures. Buildings on the site include four storage buildings and one converted to apartments. With the exception of one building c.1940, converted to apartments c.1980, the buildings are contemporary c.1980's. None of the buildings exhibit qualities of design or construction that meet the criteria of CRHR. After lot splits from a larger parcel, that was farmed, this parcel has been used to store vehicles, equipment and to pasture horses. The lack of significant architectural quality and the lack of important associations to people or events allows the conclusion that the property is not eligible for listing in the CRHR or the Santa Clara County Historical Resource Inventory.

***P3b. Resource Attributes:** (List attributes and codes) HP 8 industrial

P4. Resources Present: X Building Structure Object Site District Element of District Other (Isolates, etc.)

P5b. Description of Photo: (view, date, accession #) View N storage bldg.
Front Façade, 2/2012

***P6. Date Constructed/Age and Source:**
X Historic Prehistoric Both
Constructed: 1980 Owner

***P7. Owner and Address:**
Trump Ranch LLC
17781 Trump Ct.,Morgan Hill CA 95037

***P8. Recorded by:** (Name, affiliation, and address)
Bonnie Bamburg
Urban Programmers
10710 Ridgeview Avenue
San Jose CA 95127

***P9. Date Recorded:** 4/15/2012

***P11. Report Citation**: (Cite survey report and other sources, or enter "none.") None

***Attachments:** NONE Location Map Continuation Sheet Building, Structure, and Object Record
Archaeological Record District Record Linear Feature Record Milling Station Record Rock Art Record
Artifact Record X Photograph Record Other (List):

Trump Ranch, Peet Road Morgan Hill
Photographs taken 2/2012

Vehicle Storage Building #1

Vehicle Storage building #3 c.1990

Storage Building converted to apartment c.1980

Small buildings and sheds c.1980

APPENDIX K

Relocation Assistance Plan, San Sebastian

San Sebastian
GATED ESTATE HOMES

City of Morgan Hill
Attn: Terry Linder & Erwin Ordonez
17555 Peak Avenue
Morgan Hill CA 95037

RE: Relocation Assistance-San Sebastian Development

Dear Terry and Erwin,

Over the course of construction and development at San Sebastian a number of migrant farmworkers currently residing within the project boundary will be displaced. The existing housing that is located on our property, primarily consists of 30-35 seasonal migrant farmworkers that reside at the ranch during harvest season and an additional 10 +/- farmworkers that reside at the ranch year round.

As our project develops we want to be sensitive to the needs of the 10 +/- year round residents and assist them in relocating. As a point of reference the housing that the migrant farmworkers currently reside in are part of phases 13 & 14, so the need for relocation will occur years down the road (estimated at 8-9 years). With that said, we strongly believe that it's important to memorialize a plan that will address their future needs.

Our proposed ***Relocation Assistance Plan*** is as follows:

1. Noticing Period to alert residents that they will need to vacate:
    a. Residents will be sent a letter, 120 days before they will be required to vacate.
    b. Residents will receive a follow up letter as a friendly reminder, 60 days before they will be required to vacate.
    c. Residents will receive a final letter as a friendly reminder, 30 days before they will be required to vacate.
2. Relocation Resources/Assistance:
    a. Included in the Final Letter referenced above in section 1C, language will also be included in the letter that directs residents to log on to the City of Morgan Hill's website. Once at the website they will be directed to navigate to the Department Link, then the Housing Link and then be directed to download the *Affordable Housing Resources Guide & the RDA Affordable Housing Projects.*
        i. As we do not anticipate all residents will have internet access we will also be printing the *Affordable Housing Resources Guide & the RDA Affordable Housing Projects* documents and including them in the final letter to be mailed to the year round residents.
    b. San Sebastian will provide the 10 +/- year round residents with $250 dollars each to assist with moving expenses.
    c. San Sebastian in coordination with Borello Farms will also provide the option for the 10 +/- year round residents to relocate to facilities owned by Borello Farms, in Gilroy, CA under the same terms as they occupy the facility in Morgan Hill. The

alternate facility provided by Borello Farms is comparable to the housing the residents are currently residing in within the project boundary.

d. In the event the 10 +/- year round residents do not want to relocate to the facility provided in Gilroy under the same terms as they occupy the Morgan Hill Facility, San Sebastian will provide rental assistance in the amount of $100/month for six months.

5/17/12

Chris Borello Date:

5/17/12

Mike Fletcher Date:

APPENDIX L

Hydrology and Water Quality Review, Schaaf & Wheeler

HYDROLOGY AND WATER QUALITY REVIEW

For

COCHRANE-BORELLO DEVELOPMENT

Morgan Hill, CA

June 22, 2012

Prepared For:

David J. Powers and Associates, Inc.

1871 The Alameda, Suite 200

San José, CA 95126

Tel: (408) 248-3500

Fax: (408) 248-9641

Prepared By:

Schaaf & Wheeler

Consulting Civil Engineers

870 Market Street, Suite 1278

San Francisco, CA 94102

Tel: (415) 433-4848

Fax: (415) 433-1029

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APPROACH TO ANALYSIS

This impact evaluation identifies potentially significant hydrologic impacts of the project both during project construction and at completion, and describes mitigation measures needed to reduce those impacts to the level of "less than significant".

THRESHOLDS OF SIGNIFICANCE

Appendix G of the CEQA Guidelines and the Regulatory Setting requirements considers the proposed project to have a significant environmental impact with regard to hydrology and water quality if it would:

- Violate any water quality standards or waste discharge requirements;
- Substantially deplete ground water supplies or interfere substantially with ground water recharge such that there would be a net deficit in aquifer volume or a lowering of the local ground water table level (e.g., the production rate of preexisting nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted);
- Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site;
- Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site;
- Create or contribute runoff water which would exceed the capacity of existing or planned storm water drainage systems or provide substantial additional sources of polluted runoff;
- Otherwise substantially degrade water quality;
- Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map;
- Place within a 100-year flood hazard area structures that would impede or redirect flood flows;
- Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam; or
- Expose people or structures to inundation by seiche, tsunami, or mudflow.

PROJECT DESCRIPTION

Project Site

San Sebastian MH, General Partnership proposes the construction of 244 single family homes with associated access roads and utilities on 123 acres of agricultural land in the City of Morgan Hill, Santa Clara County, California (APN 728-34-026). The project site is currently agricultural and is bounded by Cochrane Road to the north and east, Half Road to the southeast and Peet Road to the southwest. The proposed project includes re-alignment of a portion of Peet Road. The Site abuts lands of the Santa Clara Valley Water District (SCVWD) to the west and Coyote Power Plant to the northwest. Refer to Figure 1 for project location. The purpose of this report is to evaluate the existing and proposed hydrologic conditions and assess potential storm water quality impacts due to the proposed project. This analysis is based on topographic survey data and proposed tentative map, General Plan Alignment for Peet Road, and supporting reports created by Ruggeri-Jensen-Azar Engineers (RJA), dated August 2011 and updated exhibits dated October 2011.

Regulatory Setting

The project site is located within two jurisdictional zones regarding storm water quality and system design. All of the storm water runoff drains to facilities owned and maintained by the SCVWD; however the southern portion of the site eventually drains to Monterey Bay and the northern portion of the site eventually drains to San Francisco Bay. The Monterey Bay watershed is regulated by the Central Coast Regional Water Quality Control Board (RWQCB), the City of Morgan Hill, and SCVWD. The southern drainage basin should adhere to the regulations of the City, SCVWD, and CCRWQCCB for both construction and post-construction storm water quality control. The northern area, which drains to San Francisco Bay, is regulated by the San Francisco Bay RWQCB, City of Morgan Hill and SCVWD. The SFRWQCB requirements are administered by the Santa Clara Valley Urban Runoff Pollution Prevention Program (SCUVRPPP). For the portion of the site subject to SCUVRPPP standards, the project design should follow the regulations set forth in the C.3 Stormwater Handbook.[1] Construction site controls should be designed per the Bay Area Stormwater Management Agencies Association (BASMAA) Blueprint for a Clean Bay and California Stormwater Quality Association Best Management Practices (CASQA BMP) Handbook. It should be noted that SCVWD is a member of SCVURPPP and may require the entire site to be designed to the SCVURPPP standards.

[1] *C.3 Stormwater Handbook*. Santa Clara Valley Urban Runoff Pollution Prevention Program (SCVURPPP). May 2006.

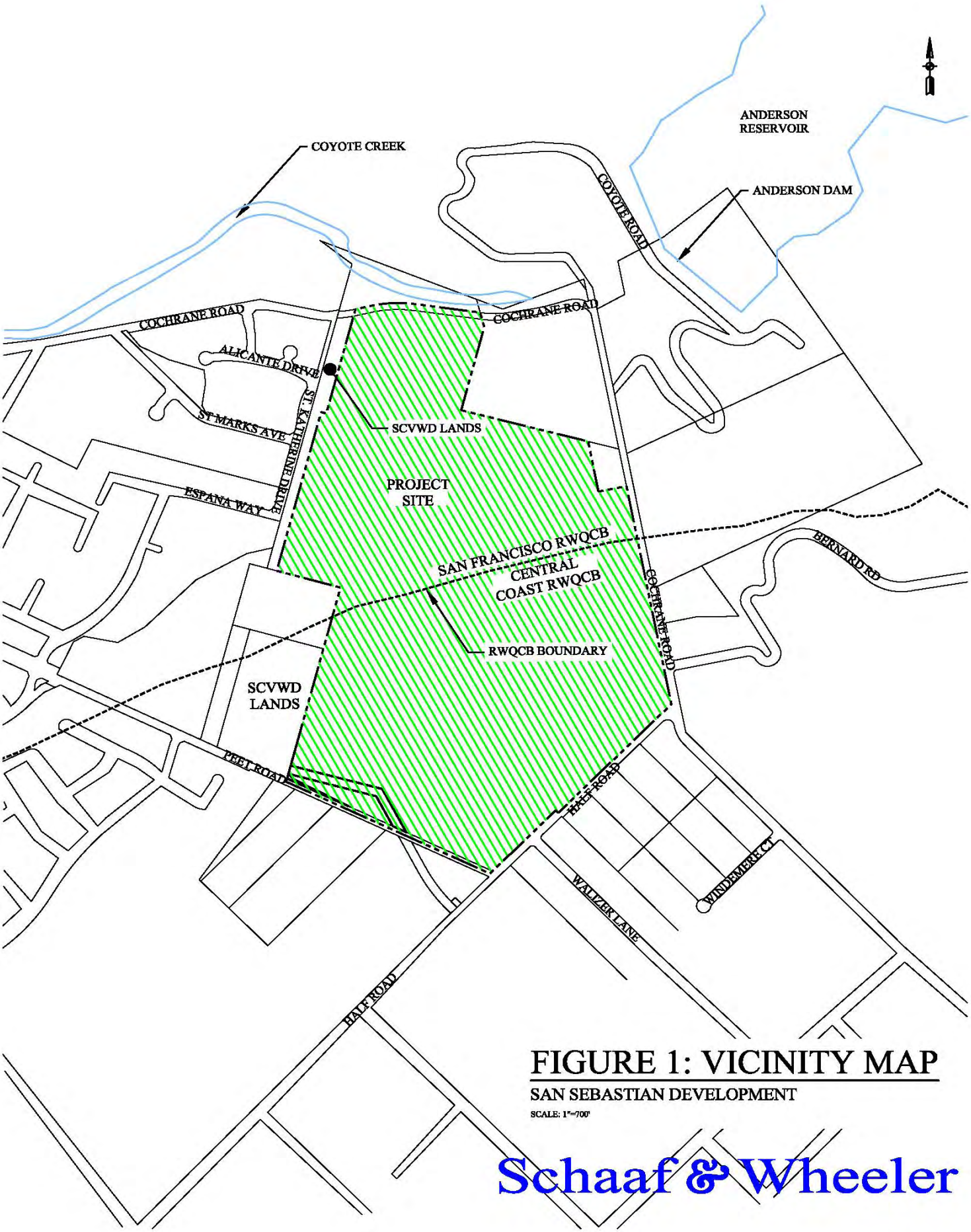

FIGURE 1: VICINITY MAP

SAN SEBASTIAN DEVELOPMENT

SCALE: 1"=700'

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Hydrology and Water Quality Issues Not Discussed Further

The following environmental impacts have been determined to be ***less than significant*** and are not analyzed further for the reasons given:

- Violate Waste Discharge Requirements: The wastewater from the project site is planned to be delivered via piped sanitary sewer lines to the sanitary sewer treatment plant.
- Risk of Seiche: The resonant oscillation of water in an enclosed body of water is a seiche. There are no lakes or other enclosed bodies of water adjacent to the project to produce seiche events that could affect the project site.
- Risk of Tsunami: The project is not near the ocean; thus tsunami events would not affect the project site.

PROJECT IMPACTS AND MITIGATION MEASURES

Impact Hydro1: Place housing or structures within a 100-year flood hazard area or impede flood flows.

Finding: Less than Significant

Per the Federal Emergency Management Agency (FEMA) flood insurance rate map (FIRM) number 06085C0442H, dated May 18, 2009, the project site is located in special flood hazard area (SFHA) Zone D, designating an area in which flood hazards are undetermined, but possible. The FEMA FIRM identifies the site as being located in unincorporated lands of Santa Clara County. Developed lands located adjacent to the project site incorporated into the City have been designated Zone X. The Zone X designation is for areas of 0.2% (i.e. 500-year) chance flood; areas of 1% (i.e. 100-year) chance flood with average depths of less than one foot or with drainage areas less than one square mile. According to the FEMA map, the Zone D boundary coincides with the Corporate Limits for the City of Morgan Hill. Since the project site has been incorporated into the City of Morgan Hill,[2] the site may be determined to be Zone X by a future in-depth study. Both Zones D and X are considered outside of the designated 100-year floodplain. As such, the project has a ***less than significant*** impact on the regulatory floodplain.

The FEMA SFHA designations are shown on Figure 2.

[2] *Boundary Map*. City of Morgan Hill. February 8, 2010. Website: http://www.morgan-hill.ca.gov/.

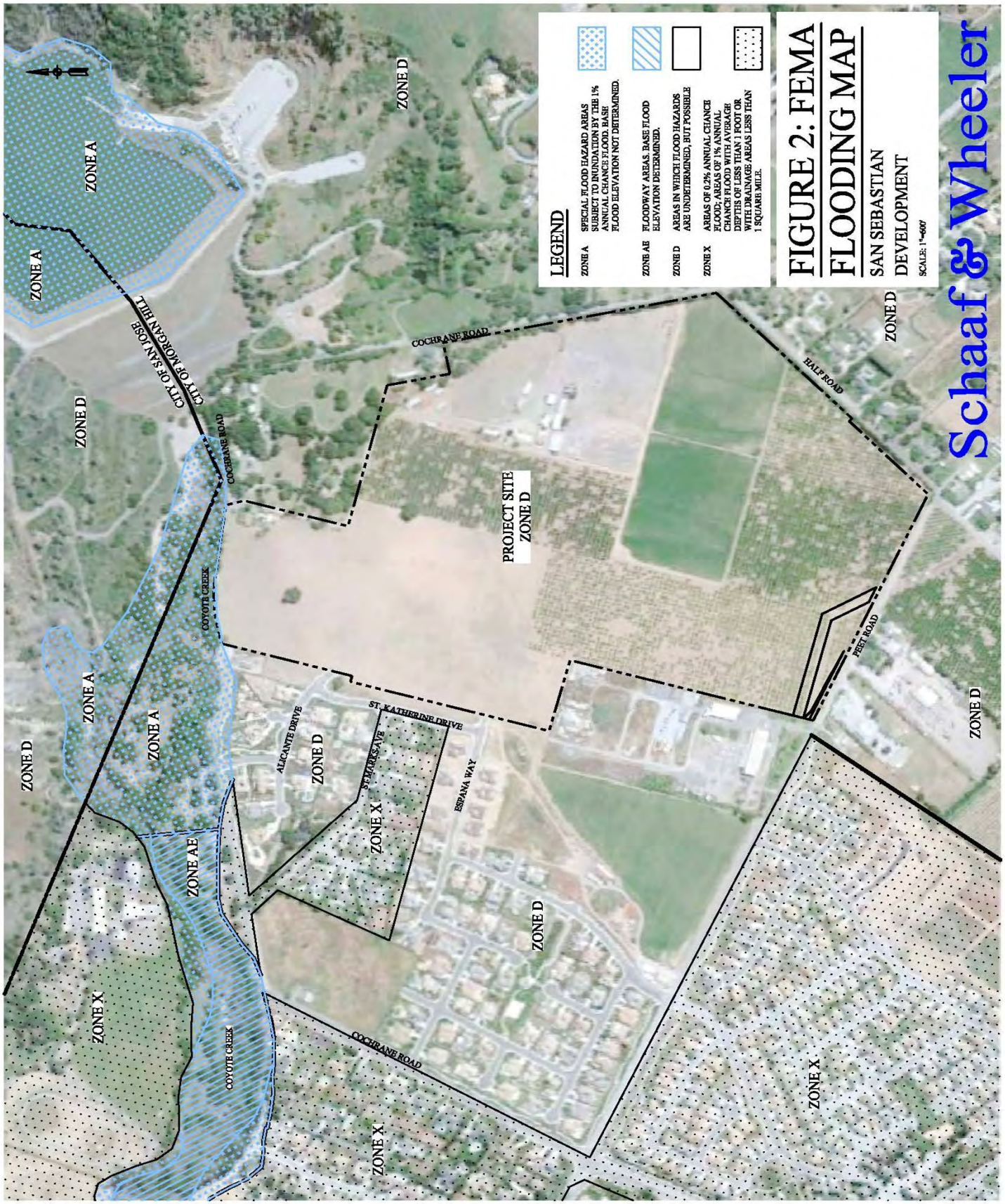
FIGURE 2: FEMA
FLOODING MAP
SAN SEBASTIAN
DEVELOPMENT
SCALE: 1"=600'
Schaaf & Wheeler
LEGEND
ZONE A SPECIAL FLOOD HAZARD AREAS SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD. BASE FLOOD ELEVATION NOT DETERMINED.
ZONE AE FLOODWAY AREAS. BASE FLOOD ELEVATION DETERMINED.
ZONE D AREAS IN WHICH FLOOD HAZARDS ARE UNDETERMINED, BUT POSSIBLE
ZONE X AREAS OF 0.2% ANNUAL CHANCE FLOOD; AREAS OF 1% ANNUAL CHANCE FLOOD WITH AVERAGE DEPTHS OF LESS THAN 1 FOOT OR WITH DRAINAGE AREAS LESS THAN 1 SQUARE MILE.
PROJECT SITE
ZONE D
ZONE A
ZONE AE
ZONE X
COCHRANE ROAD
HALE ROAD
PEET ROAD
ST. KATHERINE DRIVE
ALICANTE DRIVE
ESPANA WAY
ST. MARK AVE
COYOTE CREEK
CITY OF SAN JOSE
CITY OF MORGAN HILL

Impact HYDRO2: Expose people to landslide or mudflow hazards.

Finding: Less than Significant with Mitigation

According to the Landslide Inventory Map of the Morgan Hill Quadrangle,[3] (Figure 3) the project site is not located within the limits of an existing or known landslide. Landslides exist around Anderson Lake and Coyote Creek to the northeast, but do not extend into the project site. However, immediately northeast of the site, ground slopes up to 50% may pose a landslide or mudflow hazard. A geologist should be retained during the detailed design and construction of the project to ensure the slope stability of the lands to the northeast of the site, and for general soil construction suitability. By incorporating any mitigation recommendations made by the geologist during detailed design, this potential impact would be reduced to ***less than significant***.

[3] *Landslide Inventory Map, Morgan Hill Quadrangle*. State of California Department of Conservation. 2004.

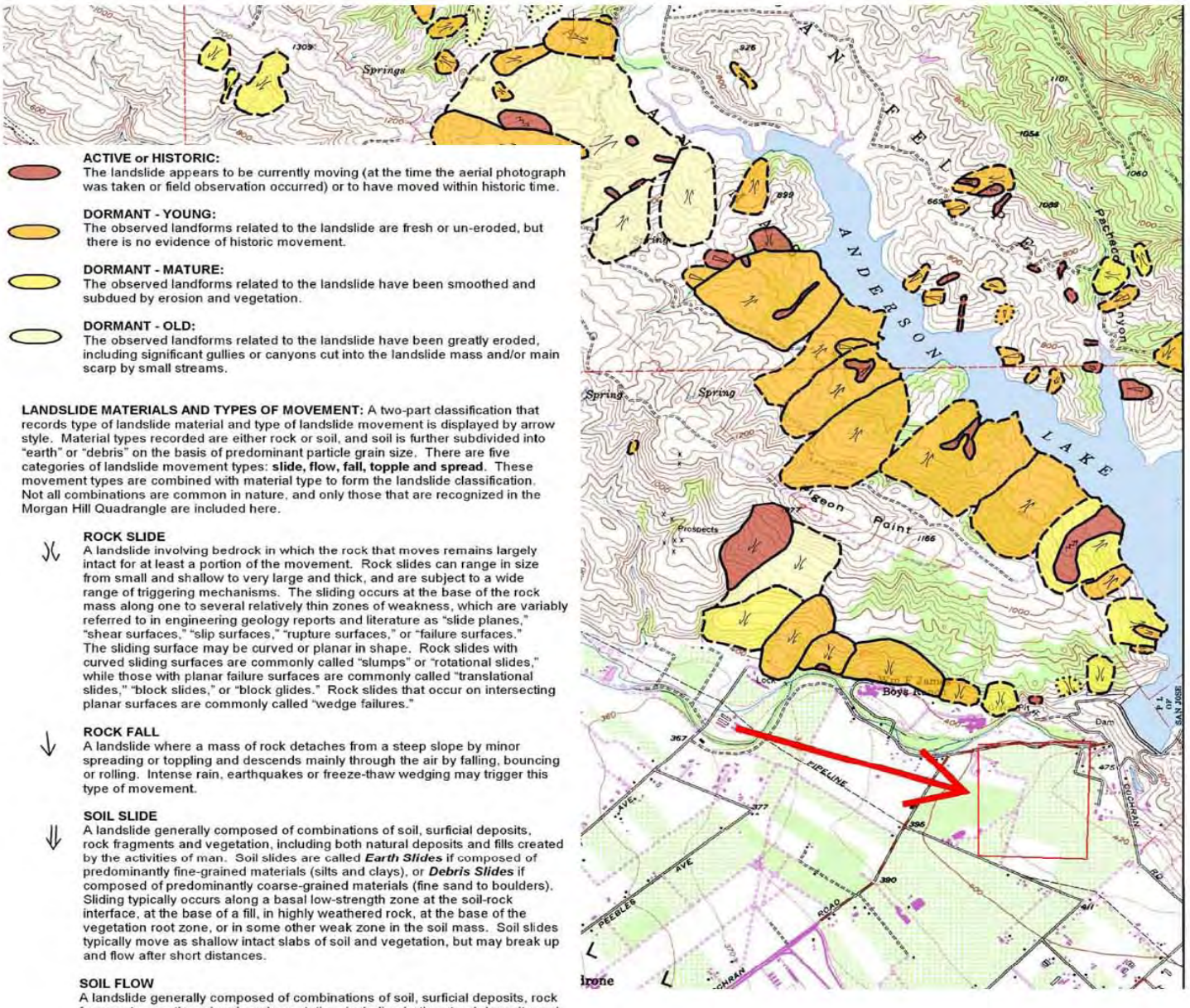

FIGURE 3: LANDSLIDE HAZARD MAP

SAN SEBASTIAN DEVELOPMENT

SCALE: N.T.S.

Schaaf & Wheeler

Impact Hydro3: Expose people or structures to a significant risk of loss, injury or death involving flooding...as a result of the failure of ... a dam.

Finding: Less than Significant

The project site is located within the inundation area for Anderson Dam[4], as shown in Figure 4. The site is not within the inundation boundaries of Chesbro or Coyote Dams. The Santa Clara Valley Water District (SCVWD) performed an analysis of the effects of Anderson Dam failure in 2003. This analysis resulted in an expected maximum inundation depth of 25.6 feet (elevation 425.6 feet) at the project site within 2 hours and 8 minutes after dam failure. Due to proximity of the project site to the dam, flood wave arrival would occur at the site immediately after failure at a maximum velocity of about 14.4 feet per second. These results assume that the dam is at full capacity during failure. The dam is currently kept at a maximum depth of about 68 percent full due to a recent SCVWD seismic analysis.[5] This analysis determined that the dam may experience significant damage in an earthquake and the water level should remain about 25 feet below the spillway until seismic retrofits can be completed. (The currently estimated date of completion is 2018.) Due to the high water surface elevations occurring with a dam failure, designing the project to withstand dam inundation is infeasible.

While the project site is subject to deep inundation should Leroy Anderson Dam fail catastrophically, the dam is inspected twice a year by the District in the presence of representatives from the California Division of Safety of Dams and the Federal Energy Regulatory Commission. Furthermore as previously discussed, Anderson Reservoir is managed to prevent significant damage during a maximum credible earthquake. So while potential inundation resulting from catastrophic dam failure could damage property and proposed structures within the project site and pose a severe hazard to public safety, the probability of such failure is extremely remote and therefore not considered a significant hazard.

[4] *Dam Failure Inundation Hazard Map for Morgan Hill*. Association of Bay Area Governments' (ABAG). 1995. Website: http://www.abag.ca.gov.
[5] *Anderson Dam Seismic Stability Study*. Santa Clara Valley Water District. July 2011. Website: http://www.valleywater.org/.

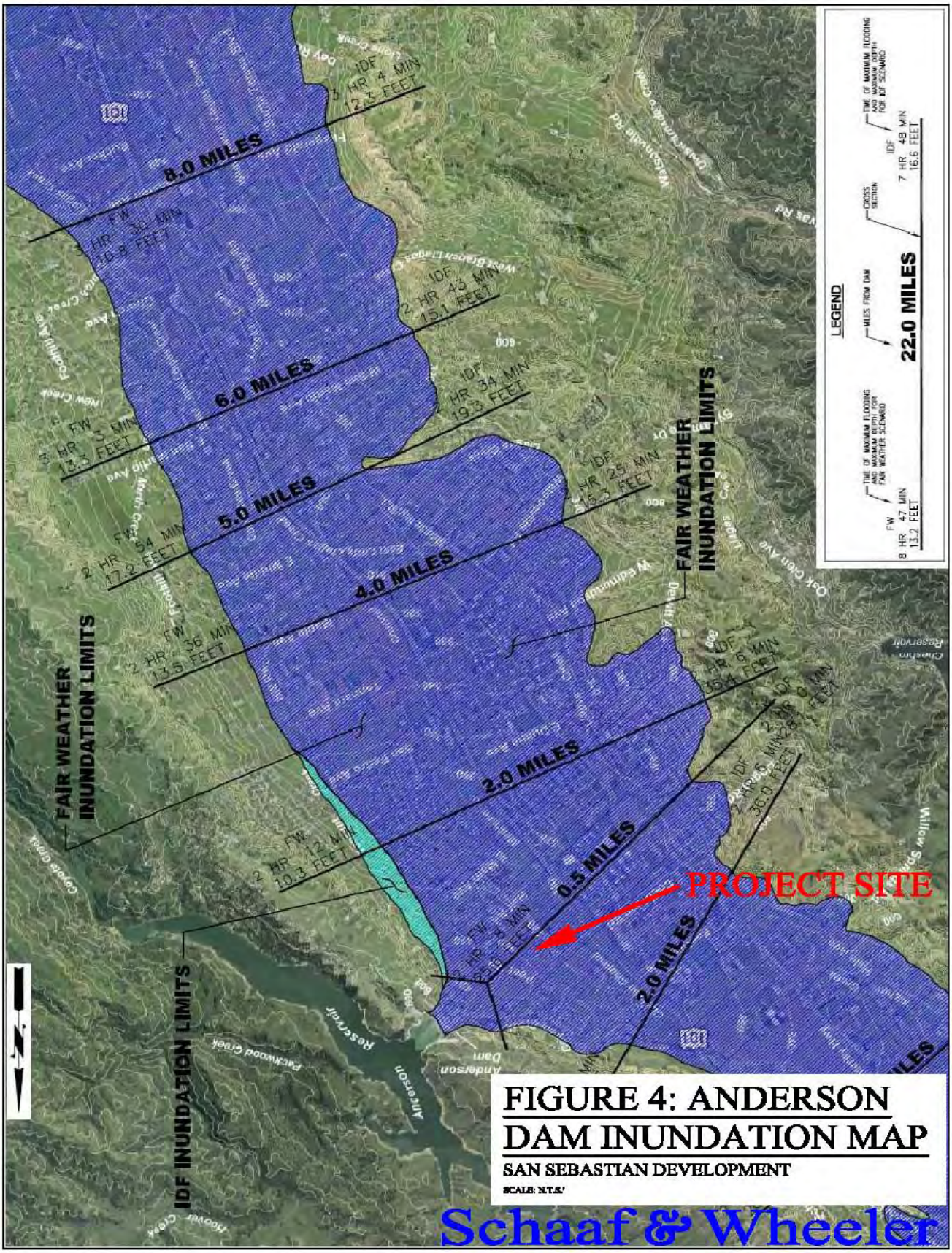

FIGURE 4: ANDERSON DAM INUNDATION MAP

SAN SEBASTIAN DEVELOPMENT

SCALE: N.T.S.

Schaaf & Wheeler

Impact HYDRO4: Substantially alter the existing drainage pattern of the site in a manner which would exceed the capacity of storm water drainage systems, or result in substantial flooding on- or off-site.

Finding: Less than Significant with Mitigation

Existing Site Drainage Pattern

The existing site is divided by a bluff in the northwest quadrant of the property. Lands to the south and west of this bluff are raised and slope generally southward, while land to the north and east of the bluff is depressed and slopes to the northeast. Generally water south of the bluff is tributary to the Pajaro Creek watershed via Llagas Creek while water to the north of the bluff is tributary to the Coyote Creek watershed. Offsite lands to the northwest (APN 728-34-010 & 728-34-012) slope sharply onto the project site. For the purpose of this analysis, it is assumed that water tributary to the project site from these offsite properties is included in the overall site discharge. It is assumed that offsite lands which are separated from the site by a roadway are not be included in the study and that all waters landing on adjacent properties are collected and conveyed offsite by the streets and adjacent drainage ditches.

The existing project site is divided into three drainage basins: Basin I to the northwest, Basin II to the south, and Basin III to the east. Figure 5 shows the delineation of these basins. The basins include the project area and the properties to the northeast which drain through the site. The entire project site is relatively flat, with an average slope of approximately 1%. The northeast corner of the site rises sharply to Coyote Road, with slopes up to 50%. Basins II and III are tributary to the Pajaro River watershed while Basin I is tributary to the Coyote Creek watershed.

Table 1: Existing Drainage Basins

Basin	Area (ac)	Watershed
I	34.6	Coyote Creek to SF Bay
II	72.2	Pajaro River to Monterey Bay
III	30.2	Pajaro River to Monterey Bay

The existing northern drainage Basin I is approximately 35 acres and ranges from elevation 468 feet at the offsite lands to the east to elevation 406 feet at the northwest corner of the site at Cochrane Road. Basin I slopes from the south to the north onto either Cochrane Road to Coyote Creek or to the Santa Clara Valley Water District Lands to the northwest. Water travels within a 10-inch diameter metal pipe under Cochrane Road directly into Coyote Creek, or into the storm drain system on Alicante Drive across SCVWD land. All of this water is within the Coyote Creek watershed, directly tributary to Coyote Creek and ultimately discharges to the San Francisco Bay.

The existing southern drainage area includes Basins II and III. Basin II is approximately 72 acres and ranges from elevation 475 feet on the offsite property to the northeast to onsite elevation 408 feet at Peet Road. Basin II flows from the northeast to the south across Peet Road. Runoff passes through a 12-inch diameter culvert beneath Peet Road during small storm events. During larger storm events water overtops Peet Road to the southeast of the project site. The water from Basin II then sheet flows across agricultural lands and rural roadways. This water is tributary to East Little Llagas Creek, which flows to the Pajaro River and ultimately Monterey Bay.

Drainage Basin III includes the 30-acre eastern portion of the property and ranges from elevation 473 feet in the north to elevation 410 feet in the south at Half Road. Rainfall on this portion of the site currently flows to the south and east, collecting in drainage ditches on Coyote Road and Half Road before discharging through existing 10-, 12-, and 15-inch diameter drainage culverts beneath the streets. Storm water then sheet flows across adjacent properties and along roadways before eventually intersecting a tributary of Llagas Creek at Hill Road and making its way to the Pajaro River and Monterey Bay.

The 2.7 acres of offsite property within the footprint of the Peet Road Expansion is sloped generally east with a low point at the overland discharge location for Basin II. Water sheet flows over the existing road from elevation 412 to 408. In the existing condition, an orchard resides within the limits of the proposed expansion.

(E) 12" CMP CULVERT

(E) DRAINAGE DITCH

(E) 10" CMP CULVERT

(E) DRAINAGE DITCH

HALF ROAD

(E) 15" CMP CULVERT

COCHRANE ROAD

(E) BASIN III
TO LLAGAS CREEK
ONSITE = 30.2 AC
OFFSITE = 0 AC

(E) 12" CMP CULVERT

COCHRANE ROAD

(E) BASIN II
TO LLAGAS CREEK
ONSITE = 65.6 AC
OFFSITE = 6.6 AC

PEET ROAD

APPROXIMATE
LOCATION OF (E)
PUMP HOUSE
FROM COYOTE
CREEK

(E) IRRIGATION
WELL

(E) OVERLAND RELEASE

(E) 10" CMP CULVERT

(E) BASIN I
TO COYOTE CREEK
ONSITE = 31.2 AC
OFFISTE = 3.5 AC

COYOTE CREEK

SCVWD LANDS

SCVWD LANDS

ST. KATHERINE DRIVE

(E) OVERLAND RELEASE

(E) 18" STORM DRAIN

ALICANTE DRIVE

ST MARKS A'

ESPANA WAY

FIGURE 5: EXISTING DRAINAGE BASIN MAP

SAN SEBASTIAN DEVELOPMENT

SCALE: 1"=300'

LEGEND

(EX) DRAINAGE AREA BOUNDARY

OVERLAND FLOW DIRECTION

Schaaf & Wheeler

To estimate peak storm water runoff from the site before and after development, the Rational Method is employed per the Santa Clara County Drainage Manual. (SCCDM)[6] The Rational Method analyzes land use, soil type, project size, and rainfall rates for a particular project location to estimate a peak flow from each drainage basin for a particular storm recurrence and duration. Land use for the site will change with the proposed development from agricultural to low density residential.

Existing soils underlying the site are Natural Resources Conservation Service Hydrologic Soil Groups B and C.[7] Hydrologic Soil Group B encompasses soils with moderate to low runoff potential and moderate infiltration rates; this includes onsite loam and gravelly loam. The onsite clay loam is included in Soil Group C, qualified as having moderate to high runoff potential and slow infiltration rates. The areas with group C soil experience greater peak runoff values and faster times of concentration (i.e. quicker peak runoff) than those areas characterized by group B soils.

The Rational Method incorporates soil type when determining the runoff coefficient (C). Rainfall intensity rates for the project site are based on a mean annual precipitation (MAP) value of 20". Corresponding intensity-duration-frequency (IDF) curves are used to determine the rainfall intensity at each storm frequency and duration. The project site is analyzed for the 2-year, 10-year and 100-year design storms. The pre-project peak flows are listed below in Table 2 for both 24-hour storm duration and storm duration equal to the time of concentration (Tc) for each basin.

Table 2: Existing Peak Flow Rates

		Basin I		**Basin II**		**Basin III**		**Peet Road Exp**	
		C=	0.36	C=	0.41	C=	0.35	C=	0.42
		Area(ac)=	34.6	Area(ac)=	72.2	Area(ac)=	30.2	Area(ac)=	2.7
Design Storm		Tc (min) =	24.2	Tc (min) =	33.1	Tc (min) =	28.2	Tc (min) =	28.4
Return Period	Duration	Intensity (in/hr)	Peak Flow Q (cfs)	Intensity (in/hr)	Peak Flow Q (cfs)	Intensity (in/hr)	Peak Flow Q (cfs)	Intensity (in/hr)	Peak Flow Q (cfs)
2 year	Tc	0.8	10	0.9	28	0.9	10	0.9	1.0
10 year	Tc	1.3	15	1.5	45	1.5	15	1.1	1.3
25 year	Tc	1.4	17	1.2	36	1.3	13	1.3	1.5
100 year	Tc	1.7	21	2.1	62	2.0	21	1.6	1.8
2 year	24 hour	0.1	1	0.1	3	0.1	1	0.1	0.1
10 year	24 hour	0.2	2	0.2	5	0.2	2	0.2	0.2
25 year	24 hour	0.2	2	0.2	6	0.2	2	0.2	0.2
100 year	24 hour	0.2	3	0.2	7	0.2	3	0.2	0.3

[6] *Drainage Manual*. Santa Clara County, California, prepared by Schaaf & Wheeler. August 14, 2007.
[7] *Soil Map – Eastern Santa Clara Area, California*. Web Soil Survey - National Cooperative Soil Survey, Natural Resources Conservation Service. July 27, 2010. Website: http://websoilsurvey.nrcs.usda.gov.

Post-Project Site Drainage Pattern

The proposed project will generally maintain the existing basin drainage patterns toward San Francisco Bay and Monterey Bay. See Figure 6 for a post-project drainage map. The drainage basin to the north will include all of Basin I as well as a portion of the offsite lands to the northeast for a total of 33 acres. The proposed north basin ranges from offsite elevation 468 feet to onsite low point of 406 feet. The overflow release point has been proposed as a structure to the northwest of the site that allows water to flow into the existing 18-inch storm drain in Alicante Road. The system in Alicante Road flows southwest to Madrone Channel before discharging into Coyote Creek. If this release system should fail, the existing overland release point on Cochrane Road in the north corner of the site will be maintained, which would allow water to overtop the road and flow directly into Coyote Creek. The northern basin will continue to be tributary to the Coyote Creek Watershed. The southern drainage basin will incorporate all of Basins II and III and a portion of the offsite lands. The southern drainage basin will be 104 acres and range from elevation 475 feet to 408 feet. The overland release point has been proposed to remain in its current location, which is at the low point in Peet Road. The southern basin will maintain its drainage patterns and contribute to the Pajaro Creek watershed. The project will increase the area of land tributary to Coyote Creek while decreasing the Pajaro Creek watershed by approximately 1.5 acres.

RJA Offsite Improvements for Peet Road Plans dated March 19, 2012 details the proposed re-alignment of Peet Road at the Site's southern boundary per the Morgan Hill Storm Drain Master Plan[8] and General Plan[9]. The right of way will be widened from 20 feet to 72 feet. Schaaf & Wheeler has reviewed the plan for re-alignment, at the time of this report only preliminary centerline grading and a general cross section for the proposed roadway improvement were available. The road grading proposes to maintain the existing overland release point at centerline elevation 408.4. The roadway will be crowned, sloping gradually away from the centerline to the north and south. The roadway will raise existing elevation where adjacent to the southern detention basin offsite alternative location. Elevations will be raised approximately 3 feet before dropping to meet existing grade at Half Road. Despite the raise in grade, overland release for the southern detention basin (in either alternative location) will continue to be over Peet Road and to the west. Control of local runoff from the road via storm drainage infrastructure or roadway swales was not provided and should be included in the final design.

Widening Peet Road from 20 feet to 52 feet with two 5 foot sidewalks (72 foot right of way) will increase its impervious surface and associated runoff peak rate and volume. In the current condition runoff from Peet Road sheet flows generally north and west before

[8] General Plan. City of Morgan Hill, Updated February 2010.
[9] *Storm Drainage System Master Plan*. City of Morgan Hill, prepared by Carrolo Engineers. January 2002.

reaching the low point over land release point at elevation 408.4 feet. Water then continues west over adjacent properties. The existing imperviousness within the limits of Peet Road expansion is 18%. In the post expansion condition imperviousness will increase to 87%.

(E) 12" CMP CULVERT
(P) CONCRETE DITCH
(E) 10" CMP CULVERT
(E) DRAINAGE DITCH TO REMAIN
HALF ROAD
(E) 15" CMP CULVERT
COCHRANE ROAD
(P) DETENTION POND 7.1± ACRE-FEET
(E) SOUTHERN BASIN TO LLAGAS CREEK ONSITE = 97.3 AC OFFSITE = 6.6 AC
(E) 12" CMP CULVERT
COCHRANE ROAD
PEET ROAD
(P) DETENTION POND 2.1± ACRE-FEET
(P) RETENTION POND 5.4± ACRE-FEET
(E) OVERLAND RELEASE
(P) NORTHERN BASIN TO COYOTE CREEK ONSITE = 29.7 AC OFFISTE = 3.5 AC
(E) 10" CMP CULVERT
(P) RETENTION POND 3.2± ACRE-FEET
(P) STORM DRAIN
COYOTE CREEK
(P) OVERFLOW STRUCTURE
(E) OVERLAND RELEASE
ST. KATHERINE DRIVE
ALICANTE DRIVE
ST MARKS AVE
ESPANA WAY

FIGURE 6: PROPOSED DRAINAGE BASIN MAP

SAN SEBASTIAN DEVELOPMENT

SCALE: 1"=300'

LEGEND

(P) DRAINAGE AREA BOUNDARY

OVERLAND FLOW DIRECTION

1.5 ACRES REDIRECTED FROM MONTEREY DRAINAGE BASIN TO SAN FRANCISCO DRAINAGE BASIN

Schaaf & Wheeler

The project site proposes to use drainage swales to convey surface flow to detention and retention ponds. Limited underground storm drain infrastructure is also proposed. The detention ponds in the south have been designed to reduce post-project peak discharge to pre-project conditions for the 25-year storm per the City of Morgan Hill Storm Drain Master Plan[10]. Retention ponds located in the North of the site have been designed to retain the 100 year storm per agreements between the City of Morgan Hill and the project owner. The drainage swales run adjacent to the roadways, flowing through culverts under street intersections. The detention ponds will outlet to a culvert under Peet Road to the south. During storms larger than the 100-year event the northern retention pond will discharge to the drainage system in Alicante Drive to the northwest. Only during system failure will water overtop Cochrane Road and flow directly into Coyote Creek.

Due to the increase in impervious area, the peak runoff from the site and offsite Peet Road expansion would increase in the absence of mitigation. Refer to Table 3 for the results of Schaaf & Wheeler's analysis for post-project peak runoff rates. The total runoff from the site and contributing offsite areas for the 100-year, 24 hour storm would increase from 12.9 cfs to 17.6 cfs. For the storm duration equal to the time of concentration for each basin the peak runoff would increase from 107 cfs to 139 cfs.

Table 3: Proposed Peak Flow Rates

		North Basin		**South Basin**		**Peet Road Exp**	
		C=	0.52	C=	0.52	C=	0.91
		Area(ac)=	33.1	Area(ac)=	103.9	Area(ac)=	2.7
Design Storm		Tc (min) =	34.2	Tc (min) =	43.1	Tc (min) =	30.9
Return Period	Duration	Intensity (in/hr)	Peak Flow Q (cfs)	Intensity (in/hr)	Peak Flow Q (cfs)	Intensity (in/hr)	Peak Flow Q (cfs)
2 year	Tc	0.9	16	0.8	45	0.7	1
10 year	Tc	1.5	25	1.3	72	1.0	2
25 year	Tc	1.2	20	1.1	57	1.2	2
100 year	Tc	2.1	35	1.9	100	1.5	3
2 year	24 hour	0.1	2	0.1	5	0.1	0.2
10 year	24 hour	0.2	3	0.2	9	0.2	0.4
25 year	24 hour	0.2	3	0.2	10	0.2	0.5
100 year	24 hour	0.2	4	0.2	13	0.2	0.6

The project proposes to install retention ponds at the discharge points for the northern drainage basin to retain all of the 100-year storm runoff. Detention ponds have been proposed for the southern proposed drainage basin to reduce the post-project peak discharge to pre-project conditions for the 25-year storm event and promote infiltration. Since detention basin outlet works were not designed at the time of this study, a Modified Rational Method is used to calculate the storage volumes required to reduce the peak discharge to pre-project conditions, for each design storm and critical duration. The Modified Rational Method introduces an adjustment to the C-value for calculating runoff

[10] City of Morgan Hill prepared by Carrolo Engineers, *Storm Drainage System Master Plan*, January 2002.

volume. This modification requires the addition of 0.15 to each C-value. The required storage volumes to achieve the proposed peak discharge mitigation are calculated for each design storm. The results are tabulated in Table 4 below. Per the County specified project-specific design criteria, in order to retain the 100-year, 24 hour storm, the northern basins must cumulatively provide a minimum of 8.2 acre-feet of storage. Per the Morgan Hill design criteria, the southern ponds must cumulatively provide 8 acre-feet of storage to mitigate the peak discharge for the 25-year, 24-hour storm. The southern drainage basin includes required storage volume to mitigate the onsite development and Peet Road expansion.

Table 4: Required Storage to Mitigate Peak Flows

Storm/Duration	N Basin (cf)	N Basin (ac-ft)	S Basin (cf)	S Basin (Total) (ac-ft)
2yr/Tc	6,335	0.1	14,734	0.3
10yr/Tc	10,123	0.2	24,008	0.6
25yr/Tc	13,470	0.3	48,447	1.1
100yr/Tc	14,042	0.3	33,290	0.8
2yr-24hr	58,241	1.3	188,466	4.3
10yr-24hr	93,185	2.1	301,545	6.9
25yr-24hr	107,149	2.5	347,091	8.0
100yr-24hr	121,159	2.8	393,701	9.0

The required storage listed in Table 4 is specific to mitigating the peak discharge and does not address other requirements that may be placed upon the project by regulatory agencies. The project tentative maps dated June 2012 proposed a total of 8.6 acre-feet of storage for the northern basin, and 9.2 acre-feet of storage for the southern basin. The proposed storage volume meets the City's requirements for restricting the peak discharge to pre project conditions for the 25-year design storm for the southern basin, and retaining the 100-year storm for the northern basin. Further, the southern basin sizing is sufficient to detain the 100-year 24-hour runoff sufficiently to mitigate increases to the 100-year peak runoff. Basin S1 can be located on or offsite (or any combination thereof) presuming a minimum of 9.0 acre-feet of combined storage volume is provided and existing overland release patterns are maintained. Calculations performed by RJA determined the required storage based on runoff hydrographs calculated using the 100-year, 24-hour design storm, which is an appropriate approach for detention and retention basin sizing.

Mitigation

As shown in Tables 2 and 3, the project results in increased runoff from the site due to the increased impervious surfaces. Based on our analysis, the project includes sufficient storage volume to mitigate the increased peak runoff rate for both the 25- and 100-year storm events. The drainage basins outlet to existing storm drain systems, some of which are currently under capacity. As such, the outlet works for the detention basins shall be designed to limit post-project flows to pre-project levels for the 2-, 10-, and 100-year

storm events such that the existing frequency of capacity exceedance of any existing culverts is maintained or decreased.

In order to mitigate the increase in peak flow rate due to the expansion of Peet Road, infrastructure should be appropriately sized and designed to convey the flow to one of the southern detention basins. The connection pipes between basins S1 and S2 (regardless of its location on or off site) and the 12" replacement pipe under Peet Road may also have to be modified from what is shown on the conceptual storm drain plan exhibit (which does not include the Peet Road re-alignment). Because these pipes will need to be lengthened to accommodate the widening of Peet Road, the hydraulic losses associated with the longer pipes will be greater. As such, the pipes may need to be enlarged to maintain the same capacity over this longer length. This is particularly relevant for the 12" replacement pipe under Peet Road. The pipe connecting basins S1 and S2 serves primarily as a hydraulic connection between the basins and its capacity may not be relevant.

With these mitigations, impacts to flood risk and storm drain systems as a result of the project will be reduced to a ***less than significant*** level.

Impact HYDRO5: Substantially alter the existing drainage pattern of the site in a manner which would result in substantial erosion or siltation on- or off-site.

Finding: Less than Significant with Mitigation

As described above, peak runoff from the site shall be mitigated with detention basins designed to not exceed pre-project peak runoff for the 2-, 10-, and 100-year storm events. The portion of the site that drains to San Francisco Bay via Coyote Creek is under the jurisdiction of the San Francisco RWQCB, and is required to provide hydromodification mitigation. For the portion of the site that drains to Coyote Creek, the project shall include hydromodification mitigation meeting or exceeding the specifications outlined in the SCVURPPP hydromodification mitigation plan (HMP). At later stages of planning, a Stormwater Pollution Prevention Plan (SWPPP) and a Stormwater Management Plan (SWMP) will be prepared to avoid on-site erosion. These requirements, and other impacts and mitigation measures specific to sediment as a water quality concern, are discussed in Mitigation Measure HYDRO-7.

With these mitigation measures, impacts to erosion or siltation on or off site due to the project will be reduced to ***less than significant***.

Impact HYDRO6: Substantially deplete groundwater supplies or interfere with groundwater recharge.

Finding: Less than Significant

The project site is located on the ridge between the Coyote and Llagas Creek watersheds, as described elsewhere in the report, however the SCVWD describes the northern limit of the Llagas groundwater basin to be Cochrane Road, meaning that the site is entirely underlain by the Llagas groundwater basin. Recharge of the Llagas groundwater basin is achieved through an equal combination of natural recharge and recharge activities of the SCVWD (23,000 afy each). The Llagas basin is estimated to have an operation storage capacity between 150,000 and 165,000 af, and basin pumping between 2001 and 2009 ranges from 44,000 acre-feet to 50,000 acre-feet.[11] The proposed project has no impact to the SCVWD recharge activities for the Llagas groundwater basin.

The surface area of the Llagas groundwater basin is 56,000 acres[12]. Although infiltration varies over the basin, this creates an average annual infiltration volume of 0.4 acre-feet per acre of surface area. The total impervious surface of the proposed development is about 48 acres. Applying the average annual infiltration volume (0.4 af/acre) and the most conservative assumption, that no rainfall onto post-project impervious surfaces is able to percolate into the groundwater basin, this results in a decrease of about 19 acre-feet/year of infiltration, less than one tenth of a percent decrease from existing conditions, and less than 0.05% of the historic groundwater withdrawals. This does not represent a substantial interference with groundwater recharge. Furthermore, these calculations assume zero infiltration of rainfall onto impervious areas, but in fact the project proposes to utilize drainage swales and basins which will promote infiltration of runoff from impervious surfaces.

Given these calculations, and the project plan to promote runoff through the use of open swales and strategically located basins, the impact of the project to groundwater recharge is ***less than significant***.

Note that this finding is specific to groundwater impacts due to the projects change in land use and drainage, and does not include potential groundwater impacts related to the project water demand or supply.

Impact Hydro7: Violate any water quality standards or otherwise substantially degrade water quality.

Finding: Less than Significant with Mitigation

Pajaro River is listed as an impaired water body by the EPA 303(d) list for Boron. Boron is a naturally occurring constituent of surface waters and has harmful effects on crop growth. Llagas Creek is listed as an impaired 303(d) water body for pH, chloride, low dissolved oxygen, sodium and total dissolved solids. Coyote Creek is currently being reviewed by the EPA for inclusion on the 303(d) list. As of the time of this review, no

[11] Santa Clara Valley Water District 2010 Urban Water Management Plan
[12] California's Groundwater Bulletin 118

pollutants of concern or total daily maximum loads (TDMLs) had been set. The City of Morgan Hill has set TDMLs for sediment, fecal coli form and nitrate in their Storm Water Management Plan.[13]

Surface Water Quality

The proposed project could generate significant adversely impacted water quality. Pollutants and chemicals associated with urban development could run off new roadways and other impervious surfaces. The pollutants could then flow into the tributary creeks described herein. These pollutants could include, but may not be limited to, heavy metals from automobile emissions, oil, grease, debris, and air pollution residue. Contaminated urban runoff that remains relatively untreated could result in incremental long-term degradation of water quality.

Short-term adverse impacts to water quality may also occur during construction of the project when areas of disturbed soils become susceptible to water erosion and downstream sedimentation. Grading and vegetation removal in proximity to drainage features could result in an increase in bank erosion, affecting both water quality and slope stability along the drainage feature.

Site design to reduce impervious area coverage, limited grading and fitting of structures to the existing topography, and use of swales rather than storm drain pipes to convey runoff are favored approaches to managing urban runoff.[14] Current agency guidance also recommends that, where soils and geotechnical conditions allow, runoff be infiltrated using a combination of treatment BMPs, such as grass swales and infiltration trenches, to reduce peak flows and enhance water quality.

Under existing conditions, fertilizer and organic compounds are the most likely pollutants of concern since the project site is currently used for agriculture. Given that agricultural activities would cease following project construction, the project could potentially reduce any existing organic contributions to the surface water, a benefit to water quality.

However, there are several pollutants that the project development could contribute to the surface water, including sediment and typical urban pollutants. In contrast to other potential pollutants, sediment is typically of greatest potential concern during the construction-phase of development. After a project has been constructed and the landscaping has been installed, erosion and sedimentation from residential development sites are usually minimal. Pollutants other than sediment which might typically degrade surface-water quality during project construction include petroleum products (gasoline,

[13] *Storm Water Management Plan*. City of Gilroy, City of Morgan Hill and County of Santa Clara. February 22, 2010.

[14] *California Storm Water Quality Task Force, 2003, Ibid.*

diesel, kerosene, oil, and grease), hydrocarbons from asphalt paving, paints, and solvents, detergents, nutrients (fertilizers), pesticides (insecticides, fungicides, herbicides, rodenticides), and litter. Once the housing and roadways have been constructed, typical urban runoff contaminants might include all of the above constituents, as well as trace metals from pavement runoff, nutrients, and bacteria from pet wastes, and landscape maintenance debris.

Since some of the drainage system may overland release directly to Coyote Creek, these pollutants could affect aquatic and wetland habitats and sensitive species, and sediment could reduce flood storage. Without mitigation, the effects on surface water quality could potentially be ***significant***.

Therefore, the following mitigation measures are recommended to reduce the effects on surface quality to a ***less than significant*** level:

Mitigation

Potential construction-phase and post-construction pollutant impacts from the development of the Site and the Peet Road re-alignment can be controlled below the level of significance through preparation and implementation of an erosion control plan, a storm water pollution prevention plan (SWPPP) and a storm water management plan (SWMP) consistent with recommended design criteria, in accordance with the NPDES permitting requirements enforced by the Regional Board. The erosion control plan forms a significant portion of the construction-phase controls required in a SWPPP, which also details the construction-phase housekeeping measures for control of contaminants other than sediment. The SWMP implements treatment measures and best management practices (BMPs) to be implemented for control of pollutants once the project has been constructed. Both the SWPPP and the SWMP set forth the BMP monitoring and maintenance schedule and identifies the responsible entities during the construction and post-construction phases for both the Peet Road realignment and the proposed site development.

The applicant's SWPPP shall prescribe construction-phase BMPs to adequately contain sediment on-site and prevent construction activities from degrading surface runoff. The erosion control plan in the SWPPP would include components for erosion control, such as phasing of grading, limiting areas of disturbance, designation of restricted-entry zones, diversion of runoff away from disturbed areas, protective measures for sensitive areas, outlet protection, and provision for re-vegetation or mulching. The plan would also prescribe treatment measures to trap sediment once it has been mobilized, at a scale and density appropriate to the size and slope of the catchment. These measures typically include inlet protection, straw bale barriers, straw mulching, straw wattles, silt fencing, check dams, terracing, and siltation or sediment ponds. BMPs shall be implemented in

accordance with criteria in the California Stormwater BMP Handbook for Construction[15] or other accepted guidance and shall be reviewed and approved by the City prior to issuance of grading or building permits. The applicant shall identify the SWPPP Manager who will be the responsible party during the construction phase to ensure proper implementation, maintenance and performance of the BMPs.

The applicant's SWMP shall implement post-construction water quality BMPs that control pollutant levels to pre-development levels, or to the maximum extent practicable (MEP) for both the Peet Road and Site development projects. For the site itself, nNeighborhood- and/or lot-level BMPs to promote infiltration or "green" treatment of storm runoff shall be emphasized, consistent with Regional Board guidance for NPDES Phase 2 permit compliance. These types of BMPs include infiltration basins and trenches, constructed wetlands, rain gardens, grassy swales, media filters, and biofiltration features. BMPs shall be designed in accordance with engineering criteria in the California Stormwater BMP Handbook for New and Redevelopment[16] or other accepted guidance and designs shall be reviewed and approved by the City prior to issuance of grading or building permits for the roadway or driveways. These types of structural BMPs are intended to supplement other storm water management program measures, such as street sweeping and litter control, outreach regarding appropriate fertilizer and pesticide use practices, and managed disposal of hazardous wastes. The applicant shall prepare a clearly defined operations and maintenance plan for water quality and quality control measures. The design and maintenance documents shall include measures to limit vector concerns, especially with respect to control of mosquitoes. The applicant shall identify the responsible parties and provide adequate funding to operate and maintain storm water improvements (through a HOA, Geological Hazard Abatement District, CSD, CFD or similar organization). The applicant shall also establish financial assurances, as deemed appropriate by the Morgan Hill Community Development Department, enabling the City to maintain the storm water improvements should the HOA or other entity disband or cease to perform its maintenance responsibilities.

[15] *California Storm Water Quality Association, 2003, California Storm Water Best Management Practice Handbook – Construction.*

[16] *California Stormwater Quality Association, 2003, California Stormwater Best Management Practice Handbook – New Development and Redevelopment.*

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APPENDIX M

Transportation Impact Analysis, Fehr & Peers

Final Transportation Impact Analysis

Borello Residential Development

Prepared For:
David J. Powers & Associates

March 14, 2012

SJ11-1269

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EXECUTIVE SUMMARY

This report presents the results of the transportation impact analysis (TIA) for the proposed Borello Residential Development ("Proposed Project") in Morgan Hill, California. The Proposed Project includes 244 single family dwelling units with up to 180 secondary in-law units. The Proposed Project is located east of US-101 in Morgan Hill and is generally bounded by Peet Road, Half Road, and Cochrane Road.

The impacts of the Proposed Project were evaluated following the guidelines of the City of Morgan Hill and the Santa Clara Valley Transportation Authority (VTA), the congestion management agency for Santa Clara County. Roadway system operations were evaluated under Existing, Project, 2015 Near-Term No Project, and 2015 Near-Term Plus Project Conditions.

Project Traffic Estimates

The Proposed Project is estimated to generate approximately 3,021 daily automobile trips, 231 AM peak-hour trips and 300 PM peak-hour trips. While not quantified, the Proposed Project will also generate some trips by other modes, including walking, bicycling and transit trips.

Project Impacts

Based on the City of Morgan Hill's impact criteria, the Proposed Project would not have a significant impact on roadway facilities (intersections or freeways) near the project site under Project or 2015 Near-Term Cumulative with Project Conditions.

The Proposed Project would not significantly impact pedestrian, bicycle, or transit facilities. However, the City should work with the applicant to ensure that sidewalks are provided along the project frontage.

The Proposed Project would not significantly impact emergency access. Prior to the final approval of the project site plan, the City should confirm that adequate sight distance is provided at all driveways. With this sight distance review, the Proposed Project would not significantly impact on hazards due to a design feature.

The daily vehicle miles traveled (VMT) were estimated using the Morgan Hill Travel Demand Forecasting (TDF) model. Under the 2015 Near-Term Cumulative with Project conditions, VMT is projected to increase by approximately 32,800 vehicle miles traveled compared to 2015 Near-Term Cumulative no Project conditions.

1. INTRODUCTION

This report presents the results of the transportation impact analysis (TIA) conducted for the proposed Borello Residential development ("Proposed Project") located east of US-101 in Morgan Hill, CA. The Proposed Project is generally bounded by generally bounded by Peet Road, Half Road, and Cochrane Road. The purpose of the TIA is to identify any potential significant adverse impacts of the Proposed Project on the surrounding transportation system and to recommend mitigation measures, if needed. Impacts were evaluated following the guidelines of the City of Morgan Hill and the Santa Clara Valley Transportation Authority (VTA), the congestion management agency for Santa Clara County.

PROJECT DESCRIPTION

The Proposed Project includes the development of 244 single-family dwelling units with up to 180 secondary in-law units. The project is proposed to have private streets and amenities accessible through two gated driveways points located off of Peet Road and Cochrane Road. The project site is currently occupied by orchards, row crops, and processing facilities.

STUDY AREA

This analysis evaluated the operations of eight study intersections, which were selected in consultation with City staff and based on VTA's guidelines:

1. Cochrane Road/Madrone Parkway
2. Cochrane Road/US-101 Southbound Ramps
3. Cochrane Road/US-101 Northbound Ramps
4. Cochrane Road/De Paul Dr.
5. Cochrane Road/Mission View Drive
6. Cochrane Road/Peet Road
7. Project Driveway/Peet Road *(future intersection)*
8. Project Driveway/Cochrane Road *(future intersection)*

This study also included evaluation the following US-101 freeway segments (northbound and southbound):

- US-101 between Dunne Avenue and Cochrane Road
- US-101 between Cochrane Road and Coyote Creek Golf Drive

Figure 1 presents the project location, surrounding transportation system, and study intersections. **Figure 2** presents the site plan for the Proposed Project.

ANALYSIS SCENARIOS

Peak traffic conditions generally occur during weekday mornings between 6:00 a.m. and 9:00 a.m. and in the evenings between 4:00 p.m. and 7:00 p.m. The operations of the study intersections were evaluated during the weekday morning (AM) and evening (PM) peak hours for the following four (4) scenarios:

Scenario 1: *Existing Conditions* – Existing volumes obtained from counts.

Scenario 2: *Project Conditions* – Scenario 1 volumes plus traffic generated by the Proposed Project.

Scenario 3: *Near-Term Cumulative No Project Conditions* – Year 2015 traffic volumes based on forecasts from the Citywide traffic model with current General Plan designations for all parcels in the city and staff-approved buildout assumptions for the year 2015. Transportation improvements included in this scenario are those identified by the City as likely to be completed by 2015.

Scenario 4: *Near-Term Cumulative with Project Conditions* – Scenario 3 plus traffic generated by the Proposed Project.

Intersection impacts of the Proposed Project were evaluated by comparing the intersection operations for the following pairs of conditions:

- Project Conditions (Scenario 2) to Existing Conditions (Scenario 1)
- Near-Term Cumulative Conditions with Project Conditions (Scenario 4) to Existing Conditions (Scenario 1)
- Near-Term Cumulative with Project Conditions (Scenario 4) to Near-Term No Project Conditions (Scenario 3).

The City's travel demand forecasting model was used to estimate traffic volumes for the 2015 scenarios under scenarios 3 and 4. Freeway impacts of the Proposed Project were evaluated following VTA guidelines and were assessed by adding project trips to freeway volumes established under Existing Conditions (Scenario 1). Project impacts on bicycle, pedestrian, and transit facilities and services were also addressed.

LEVEL OF SERVICE METHOD

The operations of roadway facilities are described with the term level of service (LOS). LOS is a qualitative description of traffic flow based on such factors as speed, travel time, delay, and freedom to maneuver. Six levels are defined from LOS A, with the least congested operating conditions, to LOS F, with the most congested operating conditions. LOS E represents "at-capacity" operations. Operations are described as LOS F when volumes exceed capacity, resulting in stop-and-go conditions.

Signalized Intersections

The LOS analysis method for signalized intersections approved by the City of Morgan Hill and VTA analyzes intersection operations based on average control vehicular delay, as described in Chapter 16 of the *2000 Highway Capacity Manual* (*HCM*) published by the Transportation Research Board, with adjusted saturation flow rates to reflect conditions in Santa Clara County. Control delay includes initial deceleration delay, queue move-up time, stopped delay, and final acceleration delay. The average control delay for signalized intersections is calculated using the TRAFFIX analysis software and is correlated to a LOS designation as shown in **Table 1**.

Unsignalized Intersections

Operations of the unsignalized study intersections are evaluated using the method contained in Chapter 17 of the 2000 HCM and calculated using the TRAFFIX analysis software. LOS ratings for stop-sign controlled intersections are based on the average control delay expressed in seconds per vehicle. At two-way or side-street-stop controlled intersections, control delay is calculated for each movement, not for the intersection as a whole. For approaches composed of a single lane, delay is computed as the average of all movements in that lane. For all-way stop-controlled locations, a weighted average delay for the entire intersection is presented. **Table 2** summarizes the relationship between delay and LOS for unsignalized intersections.

TABLE 1: SIGNALIZED INTERSECTION LEVEL OF SERVICE DEFINITIONS

Level of Service	Description	Average Control Delay Per Vehicle (Seconds)
A	Operations with very low delay occurring with favorable progression and/or short cycle lengths.	≤ 10.0
B+	Operations with low delay occurring with good progression and/or short cycle lengths.	10.1 to 12.0
B		12.1 to 18.0
B-		18.1 to 20.0
C+	Operations with average delays resulting from fair progression and/or longer cycle lengths. Individual cycle failures begin to appear.	20.1 to 23.0
C		23.1 to 32.0
C-		32.1 to 35.0
D+	Operations with longer delays due to a combination of unfavorable progression, long cycle lengths, and high V/C ratios. Many vehicles stop and individual cycle failures are noticeable.	35.1 to 39.0
D		39.1 to 51.0
D-		51.1 to 55.0
E+	Operations with high delay values indicating poor progression, long cycle lengths, and high V/C ratios. Individual cycle failures are frequent occurrences.	55.1 to 60.0
E		60.1 to 75.0
E-		75.1 to 80.0
F	Operations with delays unacceptable to most drivers occurring due to over-saturation, poor progression, or very long cycle lengths.	> 80.0

Source: *Traffic Level of Service Analysis Guidelines*, VTA Congestion Management Program, June 2003; *Highway Capacity Manual*, Transportation Research Board, 2000.

TABLE 2: UNSIGNALIZED INTERSECTION LEVEL OF SERVICE DEFINITIONS

Level of Service	Description	Average Control Delay Per Vehicle (Seconds)
A	Little or no delay.	≤ 10.0
B	Short traffic delays.	10.1 to 15.0
C	Average traffic delays.	15.1 to 25.0
D	Long traffic delays.	25.1 to 35.0
E	Very long traffic delays.	35.1 to 50.0
F	Extreme traffic delays with intersection capacity exceeded.	> 50.0

Source: *Highway Capacity Manual*, Transportation Research Board, 2000.

General Plan Circulation Element LOS Policy

Per the City of Morgan Hill's *General Plan* (February 2010), the following tiered approach is used to determine minimum acceptable levels of service at intersections:

LOS F in the Downtown intersections along Monterey Road between Main and Fifth Street, and along Depot Street at First through Fifth Street;

LOS E for the following intersections and freeway zones:

- Main Avenue and Del Monte Avenue

- Main Avenue and Depot Street
- Dunne Avenue and Del Monte Avenue
- Dunne Avenue and Monterey Avenue
- Dunne Avenue and Church Street; also until closed: Dunne Avenue and Depot Street
- Cochrane Road and Monterey Road
- Tennant Avenue and Monterey Road
- Tennant Avenue and Butterfield Boulevard
- Cochrane Road Freeway Zone: from Madrone Parkway/Cochrane Plaza to Cochrane/DePaul Drive
- Dunne Avenue Freeway Zone: from Walnut Grove/East Dunne to Condit/East Dunne
- Tennant Avenue Freeway Zone: from Butterfield/Tennant to Condit/Tennant
- Freeway Ramps (such as Cochrane Road/US 101 Southbound Ramps)

LOS D for all remaining intersections and roadway segments in the City.

Based on the above approach, the signalized intersections of Cochrane Road/Madrone Parkway, Cochrane Road/US-101Southbound Ramps, Cochrane Road/US 101 Northbound Ramps, and Cochrane Road/De Paul Drive would have a minimum acceptable threshold of LOS E. The remaining signalized study locations would have a minimum acceptable threshold of LOS D.

The City has generally used a minimum acceptable operating level of LOS D for unsignalized intersections and peak hour signal warrant analysis to identify significant traffic impacts. Therefore, the following unsignalized study intersections would have a minimum acceptable threshold of LOS D: Cochrane Road/Mission View Drive, Cochrane Road/Peet Road, West Project Driveway/Peet Road (future intersection), and East Project Driveway/Cochrane Road (future intersection).

VTA Freeway Segment Level of Service Policy

Freeway segments are evaluated using VTA's analysis procedure, which is based on the density of the traffic flow using methods described in the *2000 HCM*. Density is expressed in passenger cars per mile per lane. The Congestion Management Program range of densities for freeway segment level of service is shown in **Table 3**. The LOS standard for the freeway segments is LOS E.

TABLE 3: FREEWAY SEGMENT LEVEL OF SERVICE DEFINITIONS

Level of Service	Density (passenger cars per mile per lane)
A	≤ 11
B	11.1 to 18.0
C	18.1 to 26.0
D	26.1 to 46.0
E	46.1 to 58.0
F	> 58.0

Sources: *Traffic Level of Service Analysis Guidelines*, VTA Congestion Management Program, June 2003; *Highway Capacity Manual*, Transportation Research Board, 2000.

REPORT ORGANIZATION

The analysis methodologies and results are presented in the following five (5) report chapters:

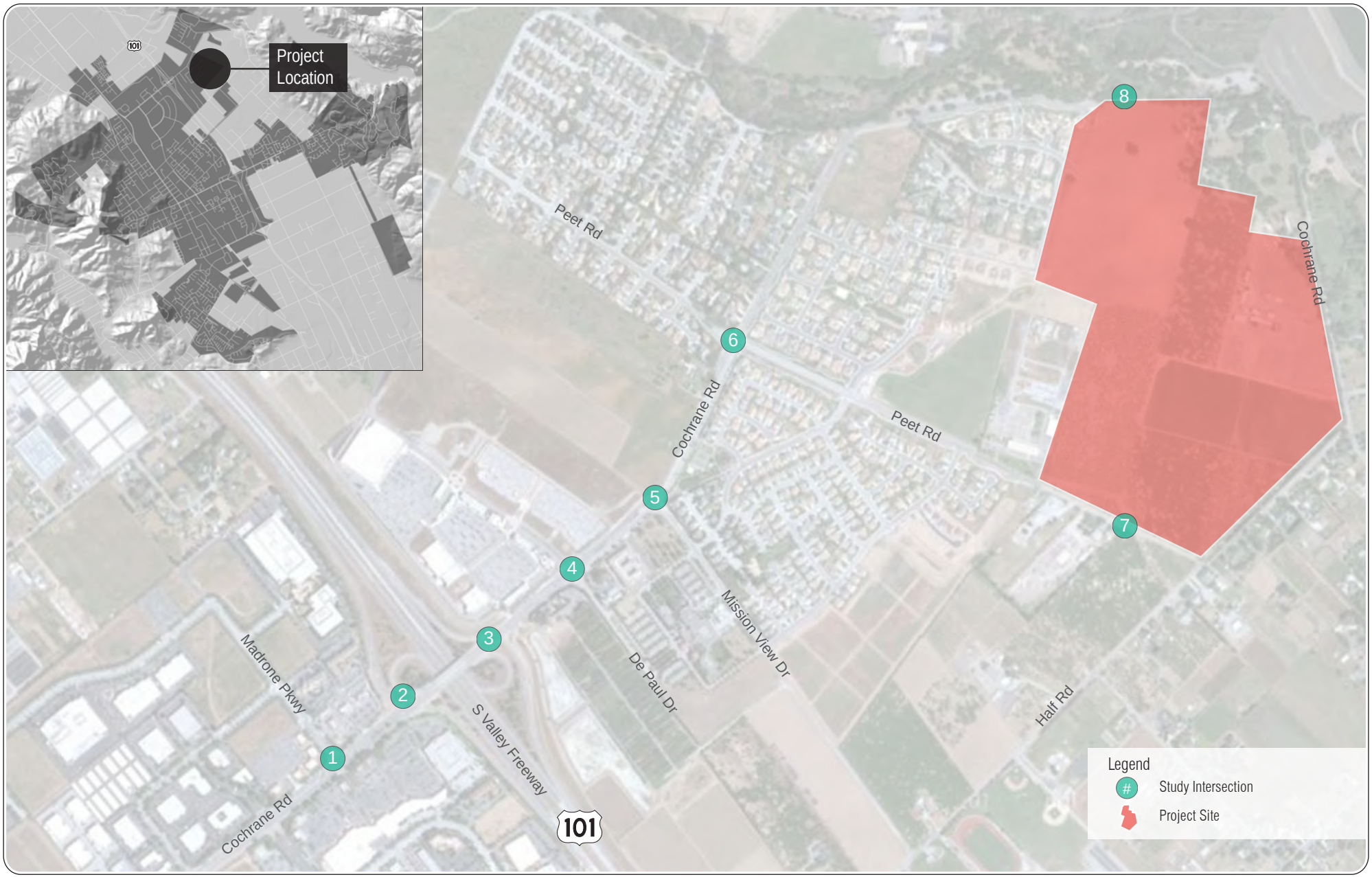
Chapter 2 describes the existing transportation system serving the property and the current operating conditions of the key intersections.

Chapter 3 describes Project Conditions, including the method used to estimate the amount of traffic added to the surrounding roadways by the Proposed Project and its impacts on the transportation system. This chapter also discusses potential impacts to non-automobile modes.

Chapter 4 discusses the Near-Term Cumulative Conditions with and without the project, and identifies cumulative impacts on the transportation system.

Chapter 5 presents VMT estimates for the Proposed Project.

A technical appendix is also attached, which contains the intersection turning movement count summaries and intersection level of service analysis outputs, all of which are referenced in this report.



N

Not to Scale

Project Location

Figure 1

FEHR PEERS

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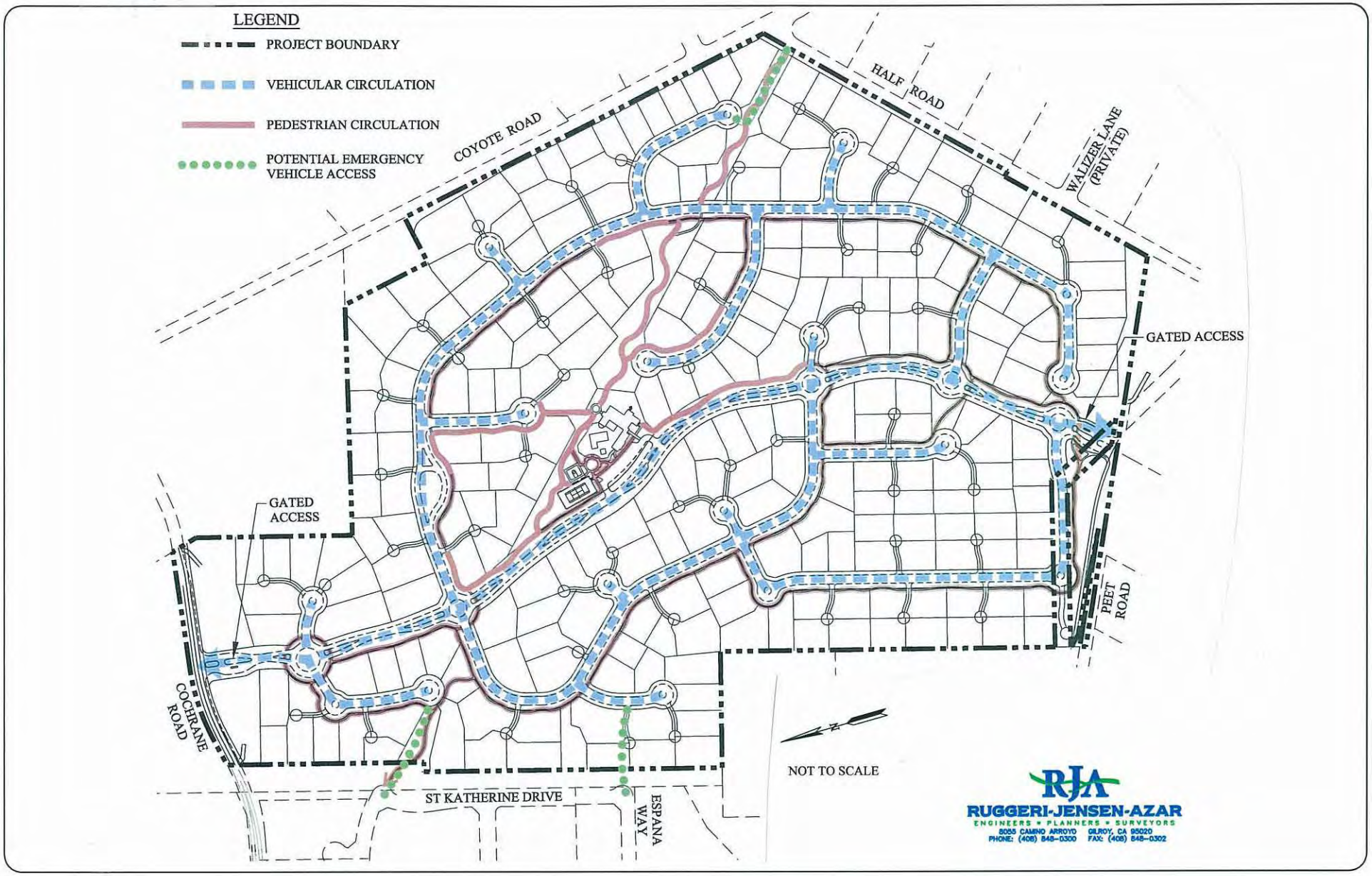


Site Plan

Figure 2

FEHR PEERS

SJ11-1269

2. EXISTING CONDITIONS

This chapter describes the existing conditions of roadway facilities, pedestrian and bicycle facilities, transit service, traffic volumes, and intersection operations near the project site. A discussion of the method used to calculate intersection levels of service and the corresponding results is also presented in this chapter.

EXISTING ROADWAY NETWORK

This section describes the existing roadway network near the project site, which is illustrated on **Figure 1**. Regional access to the site is provided via US-101 and local access is provided via Cochrane Road, Half Road, and Peet Road. Other local roadways within the vicinity of the project site include Madrone Parkway, Mission View Drive, and De Paul Drive. Each of these roadways is described below:

United States Route 101 (US 101) is a north-south freeway that serves as the primary roadway connection between Morgan Hill and all other areas of Santa Clara County. US 101 extends north to San Francisco and south to Los Angeles. The freeway includes six lanes (three mixed-flow lanes in each direction) within most of Morgan Hill. North of Cochrane Road, US 101 widens to eight lanes (three mixed-flow lanes and one high occupancy vehicle (HOV) lane in each direction).The Cochrane Road interchange provides access to the project site.

Cochrane Road is a four-lane, divided arterial street that extends eastward from its intersection with Monterey Road through a partial-cloverleaf interchange at US 101. East of US 101, Cochrane Road is a two-lane road that extends eastward to Anderson Reservoir and then southward to its terminus at the Main Street/Liberata Drive intersection. Existing land uses along Cochrane Road, near the project site, are primarily residential in nature. The northeast side of the project site can be accessed via a driveway proposed to be located along this road.

Madrone Parkway is a two-lane collector street that runs east-west between Cochrane Road and Monterey Road.

Half Road is a two-lane, east-west rural road between Condit Road and Peet Road. Half Road intersects both Mission View Drive and Elm Road.

Peet Road is a two-lane, north-south rural road between Cochrane and Half Road. The southwest side of the project site can be accessed via a driveway proposed to be located along this road.

Mission View Drive is a two-lane, north-south rural road between Cochrane Road and Half Road.

De Paul Drive (formerly known as Saint Louis Drive) is a two-lane residential street that terminates south of Cochrane Road. The DePaul medical center outpatient building is the primary use served by this street.

EXISTING PEDESTRIAN AND BICYCLE FACILITIES

The mild climate, relatively flat terrain, and proximity of many recreational and non-recreational destinations provide an ideal environment for walking and bicycling in the City of Morgan Hill. A quarter mile (equating to about a five-minute walk) is considered the average distance that a pedestrian is willing to walk before opting to drive, though many walking trips cover longer distances. According to the U.S. Department of Transportation, one-quarter of all bicycle trips in the country are under one mile, and about 40 percent of all bicycle trips are two miles or shorter. **Table 4** outlines the land-uses that are anticipated to generate pedestrian and bicycle traffic and their distance to the project site.

TABLE 4: PROXIMITY OF PEDESTRIAN AND BICYCLE GENERATING LAND-USES

Land-Use Facility	Approximate Distance from Project Site (miles)
Live Oak High School, Morgan Hill Retail Center	1/2
Coyote Creek Trail Head	3/4
Cochrane Plaza Retail Center	1
Sobrato High School, Burnett Elementary School, El Toro Elementary School	2
Morgan Hill Caltrain Station	2 1/4
Downtown Morgan Hill, Jackson Elementary School, Britton Middle School	2 1/2

Notes:
1. Distance may vary by route traveled to land-use facility.

Source: Fehr & Peers, October 2011.

Existing pedestrian and bicycle infrastructure in the vicinity of the project site is discussed below.

Pedestrian Facilities

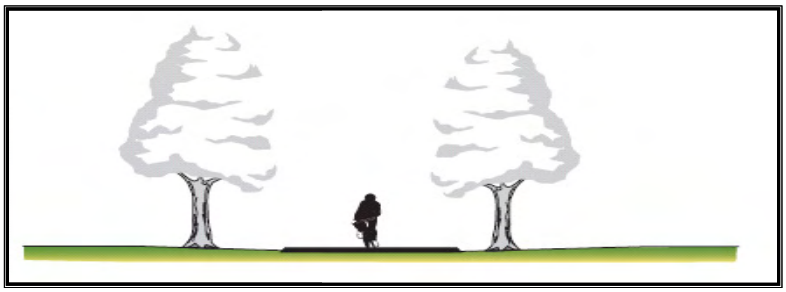
Pedestrian facilities are comprised of sidewalks, crosswalks, and pedestrian signals. As shown on **Figure 3**, sidewalks are generally provided on both sides of Cochrane Road across its interchange with US 101. Sidewalks are also located on the south side of Cochrane Road east of Mission View Drive and on the east side of Mission View Road south of Cochrane Road. Sidewalks are provided along both sides of Peet Road in residential areas. Marked crosswalks are present at all study intersections except for the intersection of Cochrane Road and Peet Road. Only one marked crosswalk is present on the east leg of the intersection of Mission View Drive and Cochrane Road. Pedestrian push buttons and signals are provided at all crosswalks at signalized locations.

Bicycle Facilities

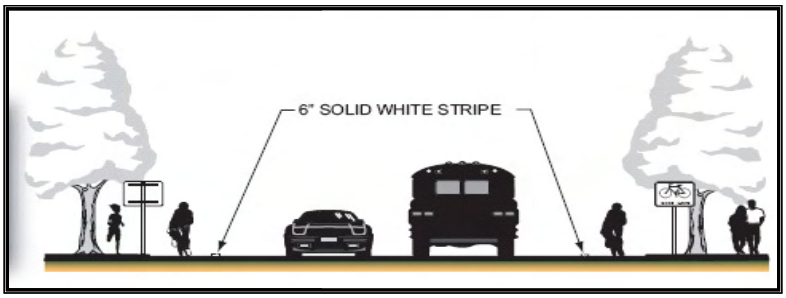
Bikeway planning and design in California typically relies on the guidelines and design standards established by Caltrans in the *Highway Design Manual* (Chapter 1000: Bikeway Planning and Design, 5th Edition, California Department of Transportation, January 2001). Chapter 1000 follows standards developed by the American Association of State Highway and Transportation Officials (AASHTO) and the Federal Highway Administration ("FHWA"), and identifies specific design standards for various conditions and bikeway-to-roadway relationships. Under California law, bicyclists are allowed to use all roadways in California unless posted closed. Therefore, of the roadways that have no designated (or planned) bikeways identified, a

majority are open for cycling. Caltrans standards provide for three distinct types of bikeway facilities, as described below and shown on the accompanying illustrations.

- *Class I Bikeways (Shared-Use Paths)* provide a completely separate right-of-way and are designated for the exclusive use of bicycles and pedestrians with vehicle and pedestrian cross-flow minimized. In general, shared-use paths serve corridors not served by roadways or where sufficient right-of-way exists to allow such facilities to be constructed away from the influence of parallel streets and numerous vehicle conflicts.



- *Class II Bikeways (Bike Lanes)* are lanes for bicyclists adjacent to the outer vehicle travel lanes. These lanes have special lane markings, pavement legends, and signage. Bicycle lanes are generally five feet wide. Adjacent vehicle parking and vehicle/pedestrian cross-flow are permitted.



- *Class III Bikeways (Bike Routes)* are designated by signs or pavement markings for shared use with pedestrians or motor vehicles, but have no separated bike right-of-way or lane striping. Bike routes serve either to: a) provide continuity to other bicycle facilities, or b) designate preferred routes through high demand corridors.

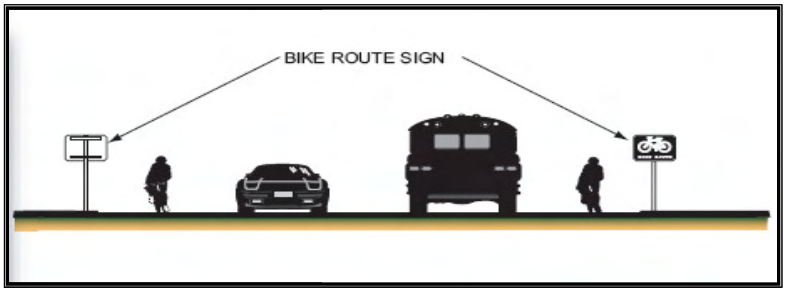


Figure 4 shows the existing bicycle facilities in and near the project site as identified in the City's *Trails and Natural Resources Master Plan* (2007) and *Bikeways Master Plan Update* (2008).

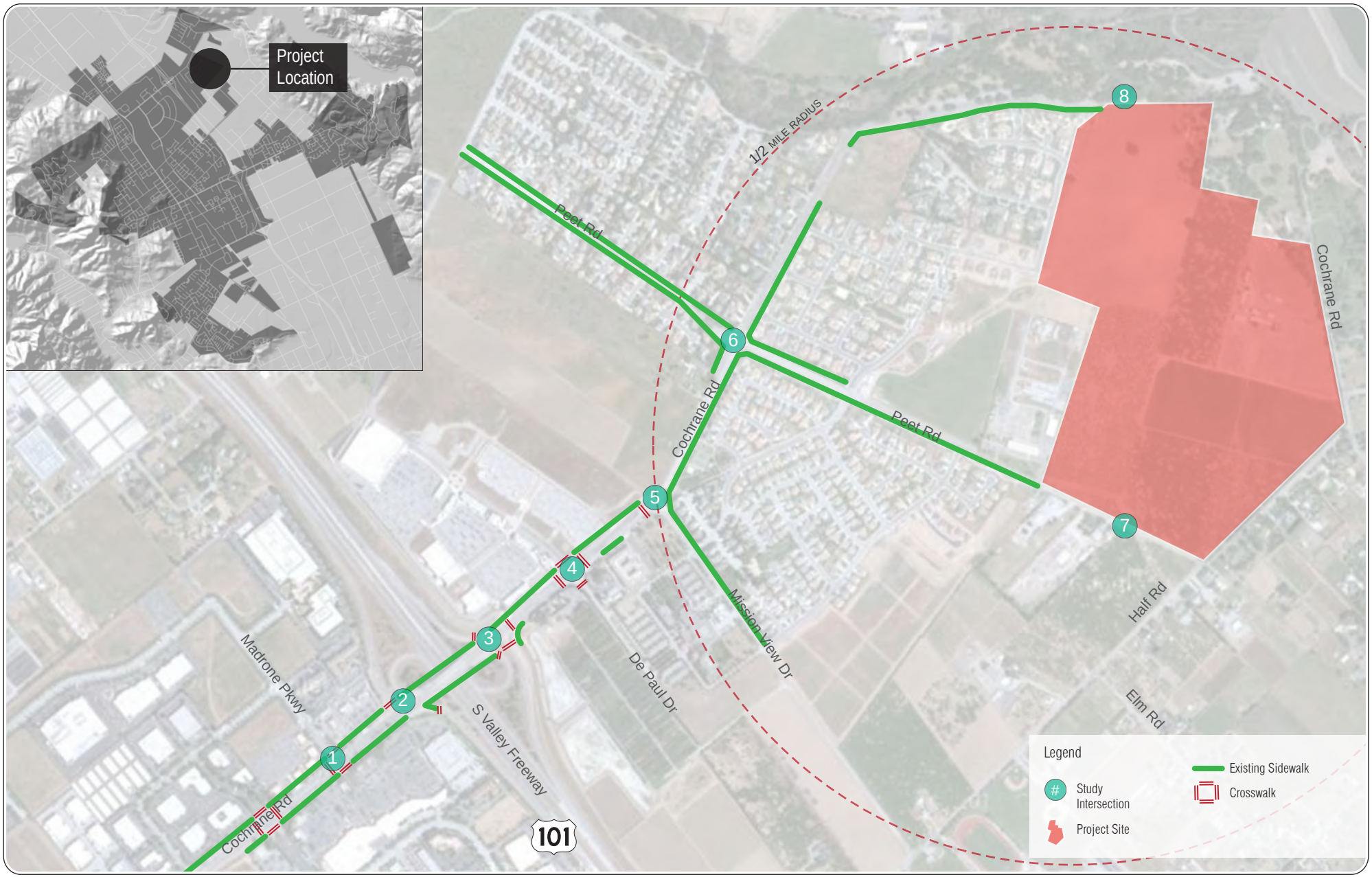
A Class I bike path, known as the Coyote Creek trail, is located approximately three quarters of a mile northwest of the project site. This bike path is a regional trail that runs along the US-101 beginning in the north eastern corner ofMorgan Hill near the Anderson reservoir and terminating in South San Jose.

Class II bike lanes are located along the following roadways in the study area: Cochrane Road between Peet Road and Malaguerra Avenue

- Cochrane Road between Mission View Drive and US-101Northbound Ramps
- Cochrane Road between Madrone Parkway and Monterey Road
- Sutter Boulevard between Cochrane Road and Butterfield Boulevard

Class III bike routes are provided on the following roadways:

- Morning Star Drive between Malaguerra Avenue and Peet Road
- Peet Road between Morning Star Drive and Cochrane Road
- Cochrane Road between Peet Road and Mission View Drive
- Cochrane Road between US-101 Southbound Ramps to Madrone Parkway



Sources: Fehr & Peers 2011 Field Observations

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Existing & Proposed Pedestrian Facilities

Figure 3

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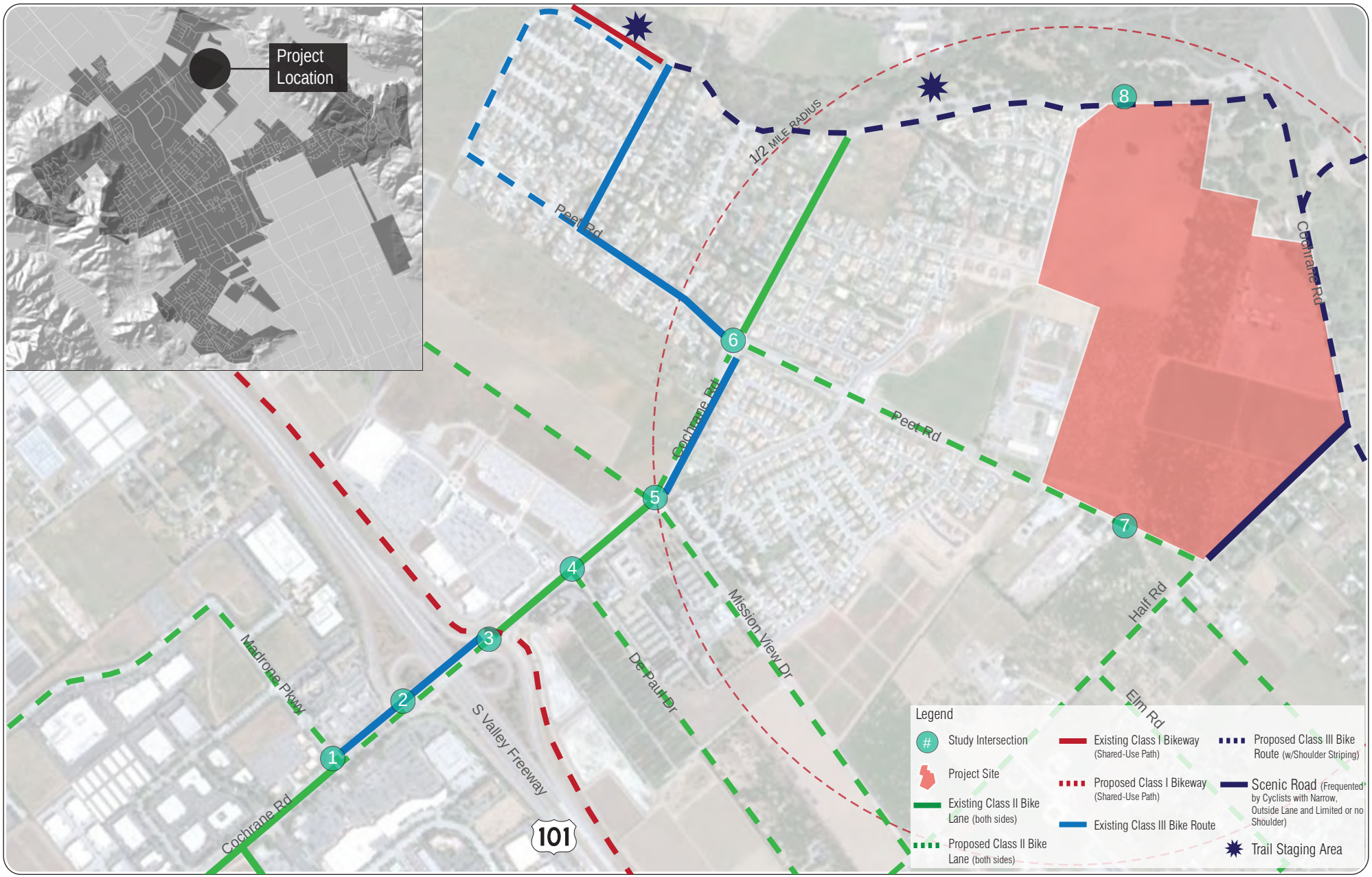

Sources: City of Morgan Hill Trails and Natural Resources Master Plan (2007), Morgan Hill Bicycle Plan (2008)

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Not to Scale

Existing & Proposed Bicycle Facilities

Figure 4

FEHR & PEERS

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EXISTING TRANSIT SERVICE

The VTA operates fixed route, commuter, and paratransit bus service and light rail service (LRT) in Santa Clara County. VTA provides four bus routes (two local and two regional) that serve the project area. The Peninsula Corridor Joint Powers Board operates Caltrain commuter rail service between San Francisco and San Jose, with weekday commute-hour service to Morgan Hill and Gilroy. Monterey Salinas Transit (MST) operates transit service in Monterey County, and provides express bus service to Morgan Hill and San Jose. Existing transit service near the project site is illustrated on **Figure 5** and is discussed in more detail below. Currently four (4) transit stops are located on Route 16 within a half a mile radius of the Proposed Project site.

Route 16 provides bus service between Burnett Avenue and the Morgan Hill Civic Center. Route 16 does not operate on weekends. Near the project site, Route 16 operates along Cochrane Road, Mission View Drive, Half Road, and Elm Road. The closest bus stop is located at the Half Road and Elm Road intersection.

Route 121 operates through Morgan Hill via Butterfield Boulevard and Monterey Road. Route 121 provides connections with Route 68 and the Caltrain station in Morgan Hill. No weekend service is available.

Route 168 operates through Morgan Hill via Butterfield Boulevard and Monterey Road. Route 168 provides connections with Route 68 and the Caltrain station in Morgan Hill. No weekend service is available.

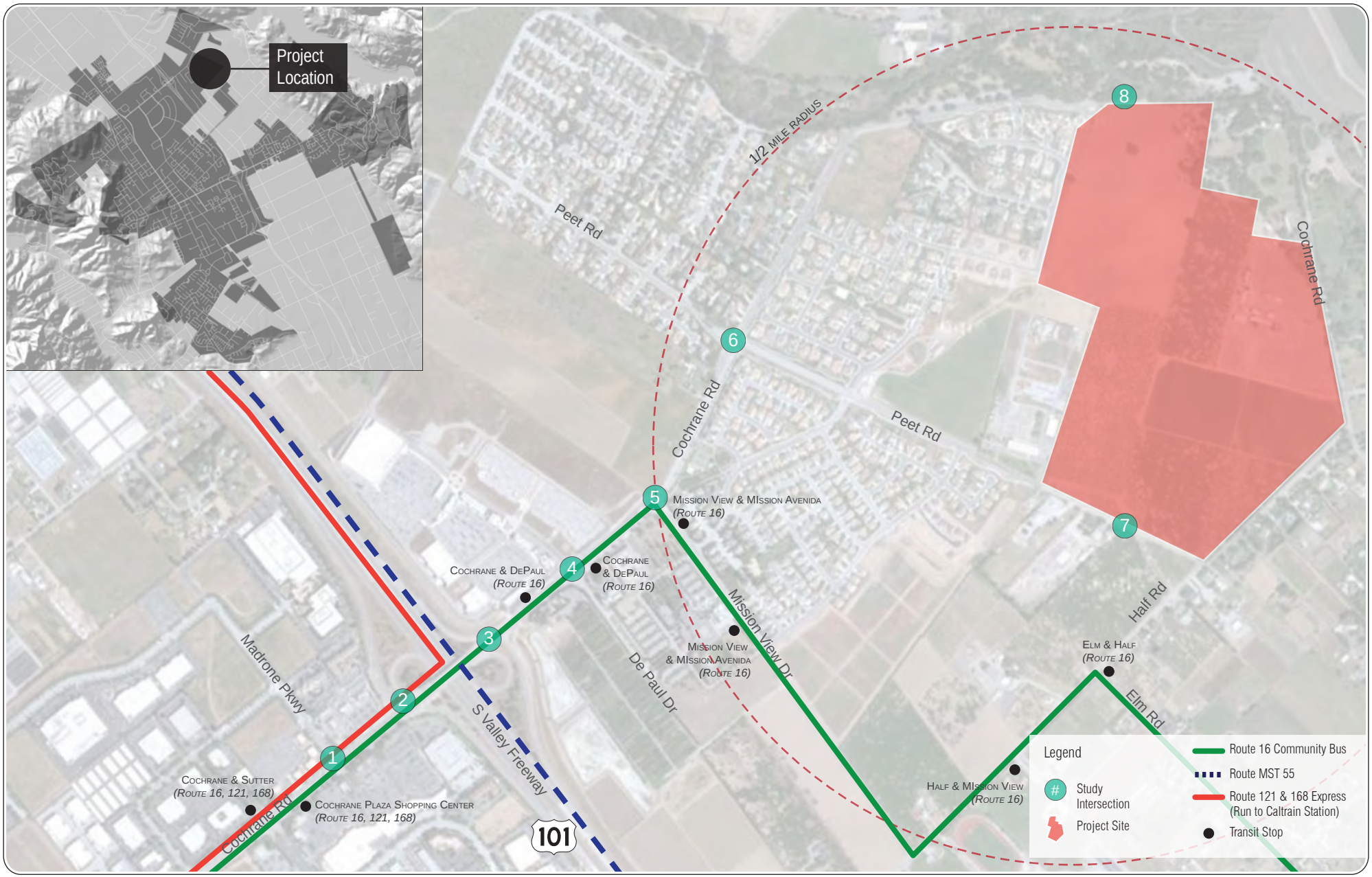
MST 55 operates through Morgan Hill via US 101 and provides a connection with the Caltrain station in Morgan Hill.

CalTrain provides frequent daily train service between San Jose and San Francisco. Service extends south to Morgan Hill and Gilroy during commute hours, with three northbound trips during the AM peak period and three southbound trips during the PM peak period stopping at both the Gilroy and Morgan Hill CalTrain Stations. The Morgan Hill CalTrain Station is located east of Depot Street between First and Second Streets, approximately 2 ¼ miles from the project site. Direct transit service is not provided between the project site and the CalTrain Station. The station can be accessed via Bus Route 16 to the Main Avenue/Butterfield Boulevard intersection and then walking approximately ¼ mile. **Table 5** summarizes hours of operation and service frequencies for these bus routes.

TABLE 5: EXISTING TRANSIT SERVICE

Route	From	To	Weekdays		Weekends	
			Operating Hrs	Headway[1]	Operating Hrs	Headway[1]
Bus Service (VTA)						
16	Burnett Avenue	Morgan Hill Civic Center	6:31 a-5:28p	11 Trips Each Direction	No Service	-
121	Gilroy Transit Center	Lockheed Martin/Moffett Park	4:31 a-8:45 a 2:51 p-7:30 p	6 Trips Each Direction	No Service	-
168	Gilroy Transit Center	San Jose Diridon Transit Center	5:42 a-8:51 a 3:33 p-6:45 p	5 Trips Each Direction	No Service	-
MST 55	Monterey	San Jose Diridon Transit Center	5:00 a -7:53 p	3 Trips Each Direction	5:22 a -7:50 p	3 Trips Each Direction
CalTrain						
CalTrain[2]	San Francisco (4th & King)	Gilroy	6:07a-7:39a 4:52p-7:47p	3 Trains NB in AM and SB in PM	No Service	-

Notes: 1. Headways are defined as the time interval between two transit vehicles traveling in the same direction over the same route.
2. Operating hours reflect service from and to Gilroy.
Source: VTA, Caltrain, October 2011.



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Existing Transit Service

Figure 5

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EXISTING VOLUMES AND LANE CONFIGURATIONS

The operations of the study intersections were evaluated during the weekday AM and PM peak hours. Intersection operations were evaluated for the highest one-hour volume counted in each peak period – AM between 6:00 and 9:00 a.m. and PM between 4:00 and 7:00 p.m. Available (2009) traffic counts at most of the study intersections were obtained from previous traffic studies. New traffic counts at the intersections of Cochrane Road/Mission View Drive and Cochrane Road/Peet Road were conducted at the end of August 2011 when schools in the vicinity of the project site were in session. The traffic count summaries are included in **Appendix A**.

Figure 6 presents the existing AM and PM peak-hour turning movement volumes, the existing lane configurations, and traffic control devices for the seven study intersections.

EXISTING INTERSECTION LEVELS OF SERVICE

Existing intersection lane configurations, signal timings, and peak-hour turning movement volumes as illustrated on **Figure 6** were used as inputs for the LOS calculations. The results of the LOS analysis for Existing Conditions are presented in **Table 6**. **Appendix B** contains the corresponding calculation sheets. Measured against the City of Morgan Hill LOS standard, all of the study intersections are operating at acceptable levels of service during both peak hours under Existing Conditions.

TABLE 6: EXISTING INTERSECTION LEVELS OF SERVICE

Intersection	Count Date	Traffic Control[1]	Peak Hour	Delay[2]	LOS[3]
1. Cochrane Rd./Madrone Pkwy.**	4/21/2009	Signal	AM PM	21.1 32.7	C+ C-
2. Cochrane Rd./US-101 SB Ramps**	4/21/2009	Signal	AM PM	12.8 13.1	B B
3. Cochrane Rd./US-101 NB Ramps**	4/21/2009	Signal	AM PM	10.6 11.8	B+ B+
4. Cochrane Rd./De Paul Dr.**	4/21/2009	Signal	AM PM	16.2 16.7	B B
5. Cochrane Rd./Mission View Dr.*	8/30/2011	AWSC	AM PM	16.0 10.6	C B
6. Cochrane Rd./Peet Rd.*	8/30/2011	SSSC	AM PM	12.5 13.3	B B
7. Project Dwy./Peet Rd.*	*Future Intersection*				
8. Project Dwy./Cochrane Rd.*	*Future Intersection*				

Notes:

1 SSSC = Side-Street Stop Control, AWSC = All-way Stop Control

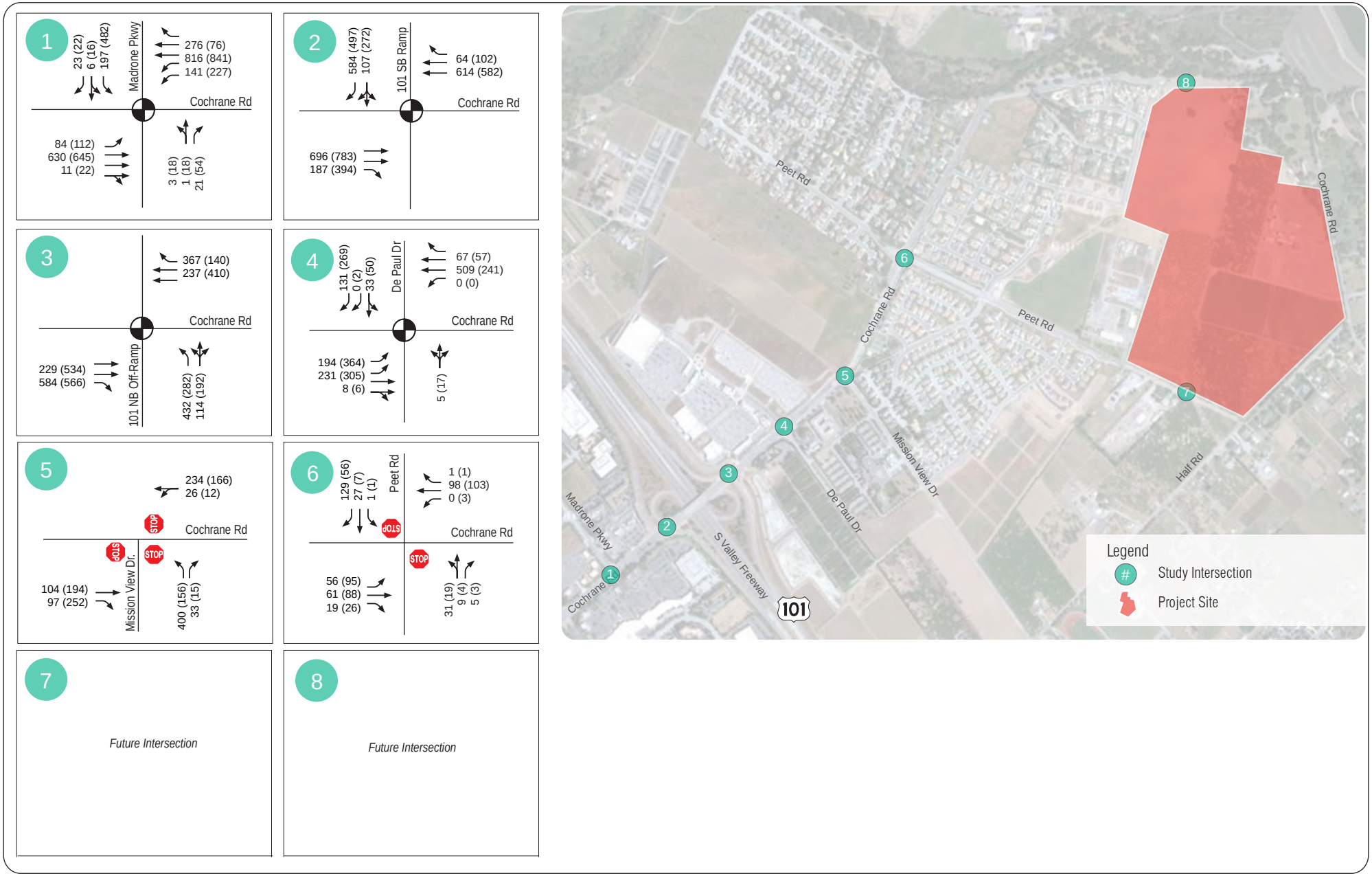
2 Whole intersection weighted average control delay expressed in seconds per vehicle calculated using methods described in the *2000 HCM*, with adjusted saturation flow rates to reflect Santa Clara County Conditions for signalized intersections. Total control delay for the worst movement is presented for side-street stop-controlled intersections.

3 LOS = Level of service. LOS calculations conducted using the TRAFFIX level of service analysis software package.

* Unsignalized intersection

** LOS E threshold (all other intersections have LOS D threshold)

Source: Fehr & Peers, October 2011.



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Existing Intersection Peak-Hour Volumes and Lane Geometries

Figure 6

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FIELD OBSERVATIONS

Field observations of the study intersections were conducted during the morning and evening peak hours in August 2011. In general, observations indicated that all of the study intersections and freeway segments are operating at or near the calculated levels of service. Most of the vehicle queues typically cleared these intersections within one cycle. All of the unsignalized intersections were observed to operate acceptably, with side street traffic volumes finding gaps to enter the intersections.

The study freeway segment of US 101 northbound from Dunne Avenue to Cochrane Road was observed to operate with some congestion during the AM peak-hour. Vehicles on the freeway on- and off-ramps were not observed to queue back onto the mainline segments of the freeway.

A low volume of bicyclists and pedestrians were observed to be traveling on existing facilities near the project site. A greater number of bicyclists and pedestrians were seen during the PM peak-hour.

EXISTING FREEWAY SEGMENT LEVELS OF SERVICE

Freeway segment densities reported in the latest (2010) VTA's *Monitoring and Conformance Report* were used to calculate the levels of service for the key freeway segments during the AM and PM peak hours. The results of the LOS analysis for Existing Conditions are presented in **Table 7**. All freeway segments operate at or above the VTA's LOS E standard.

TABLE 7: EXISTING FREEWAY SEGMENT LEVELS OF SERVICE

Freeway	Direction	From	To	Peak Hour	Lanes		Density[1]		LOS[2]	
					Mixed	HOV	Mixed	HOV	Mixed	HOV
US 101	Northbound	Dunne Ave.	Cochrane Rd.	AM	3	0	47	N/A	E	N/A
				PM	3	0	21		C	
		Cochrane Rd.	Coyote Creek Golf Dr.	AM	3	1	28	19	D	C
				PM	3	1	22	5	C	A
	Southbound	Dunne Ave.	Cochrane Rd.	AM	3	0	19	N/A	C	N/A
				PM	3	0	37		D	
		Cochrane Rd.	Coyote Creek Golf Dr.	AM	3	0	19	N/A	C	N/A
				PM	3	0	32		D	

Notes:
1 Measured in passenger cars per mile per lane.
2 LOS = level of service.
N/A = Not applicable. Freeway segment does not have HOV lanes.
Source: VTA, 2010. Fehr & Peers, October 2011.

3. PROJECT CONDITIONS

The impacts of the Proposed Project on the surrounding roadway system are discussed in this chapter. First, the method used to estimate the amount of traffic generated by the Proposed Project is described. Then, the results of the LOS calculations for Project Conditions are presented. Project Conditions are defined as Existing Conditions plus traffic generated by the Proposed Project. Since the existing site is vacant, Project conditions assume existing transportation conditions plus traffic generated by the 244 single-family dwelling units and 180 secondary in-law units. A comparison of intersection operations under Project Conditions is presented and the impacts of the project on the study intersections are discussed. Site access, on-site circulation, parking and non-automobile modes are also addressed in this chapter.

PROJECT TRAFFIC ESTIMATES

The amount of traffic associated with the project was estimated using a three-step process: (1) trip generation, (2) trip distribution, and (3) trip assignment. In the first step, the amount of traffic entering and exiting the project area was estimated on a daily and peak-hour basis. In the second step, the direction vehicles use to approach and depart the site was estimated. The trips were assigned to specific street segments and intersection turning movements in the third step and added to the existing traffic volumes to develop Existing plus Project traffic volumes. The results of the process for this analysis are described in the following sections.

Trip Generation

The amount of traffic generated by a development is estimated by applying the appropriate trip generation rates, corresponding to the land use type, to the size of the development. Automobile trip generation estimates for the 244 single-family dwelling units portion of the Proposed Project were calculated using the Single-Family Dwelling Unit (Land Use 210) land use rates identified in *Trip Generation*, 8th Edition (Institute of Transportation Engineers (ITE), 2008). The ITE manual does not specify a rate for secondary in-law units. Therefore, one-half of the Single-Family Dwelling Unit (Land Use 210) land use rate (based on the effective ITE equation) was used to quantify this land use, as secondary in-law units generally have similar travel characteristics as single-family dwelling units but approximately half the number of occupants. The results are presented in **Table 8**. **Appendix C** contains the corresponding trip generation calculations for the secondary in-law units.

TABLE 8: PROJECT VEHICLE TRIP GENERATION RATES AND ESTIMATES

Land Use	Size	Daily	AM			PM		
			In	Out	Total	In	Out	Total
Trip Rates								
Residential[1]	244 units	9.68	0.18	0.55	0.74	0.61	0.36	0.96
Secondary In-Law[2]	180 units	4.96	0.09	0.28	0.38	0.31	0.18	0.50
Trip Estimates								
Residential	244 units	2,362	45	135	181	148	87	235
Secondary In-Law	180 units	893	17	51	67	56	33	89
Total Project Trips		***3,255***	***62***	***186***	***248***	***204***	***120***	***324***

Notes:
1 The effective rate is based on the ITE equation for this land use.
2 See **Appendix C** for corresponding calculations.
Source: *Trip Generation* (8th Edition), Institute of Transportation Engineers, 2008; Fehr & Peers, October 2011.

The project's potential transportation impacts under Existing plus Project conditions were analyzed by adding the new vehicle trips generated by the Proposed Project to Existing volumes. As shown in **Table 8**, the Proposed Project would result in approximately 3,255 new daily vehicle trips, and 248 and 324 new AM and PM peak hour vehicle trips, respectively.

Trip Distribution

Trip distribution is defined as the directions of approach and departure that vehicles would use to arrive at and depart from the site. Trip distribution percentages were developed based on existing traffic patterns at the study intersections and the locations of complementary land uses. Distribution patterns are expected to be similar for the AM and PM peak periods. Project-generated trips were assigned to the surrounding transportation network based on the general directions of approach and departure illustrated in **Figure 7**. As shown, the project-generated vehicle trips would be distributed as follows:

- 45% from the north on U.S. 101
- 25% from the south on U.S. 101
- 30% from the west on Cochrane Road (to/from Downtown Morgan Hill, Morgan Hill Retail Center, Cochrane Plaza Shopping Center, & Monterey Highway)

Trip Assignment

Trips generated by the Proposed Project were assigned to the roadway system based on the directions of approach and departure described above. The trip assignments for the AM and PM peak hours are shown on **Figure 7**. Project trips were added to existing traffic volumes in **Figure 6** to establish intersection volumes for Project Conditions, as shown on **Figure 8**.

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Project Trip Assignment and Distribution

Figure 7

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Project Intersection Peak-Hour Volumes

Figure 8

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PROJECT INTERSECTION LEVELS OF SERVICE

The results of the intersection LOS calculations for Project Conditions are presented in **Table 9**. The results for Existing Conditions are included for comparison purposes, along with the projected increases in critical delay and critical volume-to-capacity (V/C) ratios. Critical delay represents the delay associated with the critical movements of the intersection, or the movements that require the most "green time" and have the greatest effect on overall intersection operations. The changes in critical delay and critical V/C ratio between Existing and Project Conditions are used to identify significant impacts.

Under Project Conditions, all study intersections are estimated to operate at acceptable levels of service, at LOS C or better during both peak hours. **Appendix B** contains the corresponding calculation sheets.

TABLE 9: EXISTING AND PROJECT CONDITIONS INTERSECTION LEVELS OF SERVICE

Intersection	Peak Hour	Existing		Project			
		Delay[1]	LOS[2]	Delay[1]	LOS[2]	Δ in Crit. V/C[3]	Δ in Crit. Delay[4]
1. Cochrane Rd./Madrone Pkwy.**	AM	21.1	C+	20.7	C+	+0.015	-0.4
	PM	32.7	C-	32.4	C-	+0.010	-0.1
2. Cochrane Rd./US-101 SB Ramps**	AM	12.8	B	13.1	B	+0.028	+0.2
	PM	13.1	B	14.1	B	+0.078	+1.2
3. Cochrane Rd./US-101 NB Ramps**	AM	10.6	B+	10.5	B+	+0.063	+0.6
	PM	11.8	B+	11.9	B+	+0.081	+0.6
4. Cochrane Rd./De Paul Dr.**	AM	16.2	B	16.0	B	+0.058	-0.5
	PM	16.7	B	16.9	B	+0.038	+1.0
5. Cochrane Rd./Mission View Dr.*	AM	16.0	C	22.9	C	NA	NA
	PM	10.6	B	14.7	B		
6. Cochrane Rd./Peet Rd.*	AM	12.5	B	17.6	C	NA	NA
	PM	13.3	B	18.7	C		
7. Project Dwy./Peet Road*	AM	*Future intersection*		9.0	A	NA	NA
	PM			9.7	A		
8. Project Dwy./Cochrane Rd.*	AM	*Future intersection*		10.0	A	NA	NA
	PM			10.7	B		

Notes:

1 Whole intersection weighted average control delay expressed in seconds per vehicle calculated using methods described in the *2000 HCM*, with adjusted saturation flow rates to reflect Santa Clara County Conditions for signalized intersections. Total control delay for the worst movement is presented for side-street stop-controlled intersections.

2 LOS = Level of service. LOS calculations conducted using the TRAFFIX level of service analysis software package.

3 Change in the critical volume-to-capacity ratio (V/C) between signalized intersections under Existing and Project Conditions.

4 Change in critical movement delay between signalized intersections under Existing and Project Conditions.

* Unsignalized intersection

** LOS E threshold (all other intersections have LOS D threshold)

Bold text indicates unacceptable operations by City of Morgan Hill LOS standards.

Source: Fehr & Peers, October 2011.

A few of the intersections (such as Cochrane Road/Madrone Parkway and Cochrane Road/De Paul Drive) show a reduction in the average delay with the addition of project traffic, which is counter-intuitive. The average delay values in the table are weighted averages. Weighted average delays will be reduced when

traffic is added to a movement with a low delay.[1] Conversely, relatively small volume increases to movements with high delays can substantially increase the weighted average delay.

PROJECT FREEWAY SEGMENT LEVELS OF SERVICE

Project-generated traffic volumes were added to existing traffic volumes for each freeway mainline segment. These volumes were then used to re-calculate density for each segment under Project Conditions. The resulting freeway segment operations are presented in **Table 10**.

According to CMP guidelines, freeway segments to which a proposed development is projected to add trips equal to or greater than one percent of the freeway segment's capacity must be evaluated. The freeway segments immediately north and south of Cochrane Road were reviewed to determine if a significant amount of project traffic would be added to these freeway segments. A capacity of 2,300 vehicles per hour per lane (vphpl) for freeway segments with three or more lanes was used in the freeway analysis.

Table 10 outlines the estimated number of project trips added to the freeway segments. The addition of project trips is not estimated to degrade acceptable LOS E freeway operations to unacceptable levels (LOS F). Therefore, no additional freeway segment analysis is required for the Proposed Project.

TRANSIT, PEDESTRIAN, AND BICYCLE FACILITIES

Currently VTA Route 16 provides four (4) stops with half-mile of the project site. Patrons utilizing Routes 121,168 or Caltrain to access the project site would have to walk more than one mile to the nearest bus stop or Caltrain station. Given the project's location to these facilities, transit ridership generated by the Proposed Project is expected to be minimal and would not conflict with existing or planned transit facilities.

Currently no sidewalk exists adjacent to the project site on portions of Cochrane Road north of the project site and Half Road east of the project site. The project should provide sidewalks along its frontage to improve pedestrian access to adjacent land uses. The project would likely increase the number of pedestrians traveling along roadway facilities and trails near the project site. With recommendations contained in the following section and the addition of sidewalks along the project frontage, pedestrian circulation is expected to be adequate.

As identified in the City's 2008 *Bikeways Master Plan Update*, and shown on **Figure 4**, the proposed Class II bike lane on Peet Road and the proposed Class III bike route on Cochrane Road would provide direct access to the project site. The proposed bike lane on Peet Road is planned to connect to a proposed bike lane on Half Road which will provide direct access to the Live Oak High School sports stadium. The proposed bike route on Cochrane Road is planned to connect to a proposed bike lane on East Main Avenue which will provide direct access to the main entrance of Live Oak High School. The project's developer has committed to fund the proposed bicycle facilities along the Cochrane Road frontage as identified in the City's *Bikeways Master Plan Update*. The Proposed Project does not conflict with any adopted plan, policy, or facility and generally supports policies identified in the City's *Trail Master Plan* and *Bikeways Master Plan Update.*

[1] For example, if you have one movement with 10 vehicles with a delay of 100 seconds and another movement with 400 vehicles and 10 seconds of delay, the weighted average delay is calculated as (100 seconds X 10 vehicles + 10 seconds X 400 vehicles) / 410 vehicles = 12.2 seconds per vehicle. Now if you add 100 vehicles to the movement with 10 seconds of delay, the weight average is calculated as (100 seconds X 10 vehicles + 10 seconds X 500 vehicles) / 510 vehicles = 11.8 seconds per vehicle. The weighted average delay improves, even though more vehicles are added.

TABLE 10: PROJECT US-101 FREEWAY SEGMENT IMPACT EVALUATION

Segment	Travel Direction[1]	Capacity (vphpl)[2]	Peak Hour	Existing Conditions		Project Conditions			
				Density[3]	LOS[4]	Trips Added[5]	Density[3]	LOS[4]	% Impact[6]
Dunne Avenue to Cochrane Road	NB	6,900	AM	47	E	15	47	E	0.22
			PM	21	C	47	21	C	0.68
	SB	6,900	AM	19	C	43	19	C	0.62
			PM	37	D	28	32	D	0.41
Cochrane Road to Coyote Creek Golf Drive	NB	6,900 (mixed flow)	AM	28	D	66	28	D	0.96
			PM	22	C	46	22	C	0.67
		1,650 (HOV)	AM	19	C	12	19	C	0.71
			PM	5	A	4	5	A	0.23
	SB	6,900	AM	19	C	26	19	C	0.38
			PM	32	D	85	37	D	1.23

Notes:
1 NB = Northbound, SB = Southbound.
2 vphpl = vehicles per hour per lane.
3 Measured in passenger cars per mile per lane.
4 LOS = level of service.
5 Project trips added to individual freeway segments.
6 Percent impact on mixed flow lanes determined by dividing the number of project trips by the freeway segment's capacity.
Source: Fehr & Peers, October 2011.

PROJECT ON-SITE CIRCULATION AND ACCESS

Main access to the project site occurs along Peet Road and Cochrane Road. As shown on **Figure 2**, there are a total of six proposed access points. Each proposed access point is discussed in further detail below.

Access Point #1 *(Private)* – Project driveway located off of Peet Road approximately one half of a mile south of the Cochrane Road/Peet Road intersection. This driveway will feature a security gate at its' entrance and exit.

Access Point #2 *(Private)* – Project driveway located off of Cochrane Road approximately one half of a mile north of the Cochrane Road/Half Road intersection. This driveway will feature a security gate at its' entrance and exit.

Access Point #3 *(Public)* – Pedestrian trail located on the west side of the project site near Corte Estancia, extending to Saint Katherine Drive located on the adjacent property.

Access Point #4 *(Public)* – Emergency vehicle access located on the west side of the project site near Corte Estancia, extending to Saint Katherine Drive located on the adjacent property.

Access Point #5 *(Public)* – Emergency vehicle access located on the west side of the project site near Strada de Stella, extending to Espana Way located on the adjacent property.

Access Point #6 (Public) – Emergency vehicle access located on the east side of the project site, connecting to Half Road.

Intra-Site Accessibility

The two-gated project entries are proposed to be connected via a main boulevard (Viale San Sebastian) with a landscaped median. Access to residential lots is provided by minor neighborhood streets that extend off of Viale San Sebastian. Common driveways are proposed to provide access to clustered enclave lots.

Internal Traffic Control Devices

The project site plan indicates that five roundabouts will be located along Viale San Sebastian. No other traffic control devices at internal intersections are specified on the site plan.

Project Driveway Operation

Queuing at the project security gates were analyzed to ensure adequate vehicle storage. Traffic flows at the project driveways are projected to be heaviest in the inbound direction during the evening peak hour. Accordingly, vehicle queuing requirements were analyzed for the following condition:

- Evening peak hour: Maximum queue length for inbound traffic at the two project driveways

To estimate the maximum inbound queue at the security gates, the projected volume and service rate was entered into a Poisson Distribution equation, as shown in **Attachment D**.

As shown in **Table 11**, there is sufficient queuing space for the evening peak-hour inbound trips both project driveways.

TABLE 11: EVENING PEAK-HOUR MAXIMUM QUEUE LENGTHS

Location	Maximum Queue Length	Storage Needed	Storage Provided[1]
Project Driveway/Peet Road	4 vehicles	75 feet	110 feet
Project Driveway/Cochrane Road	4 vehicles	75 feet	110 feet

Notes: [1]Approximate storage length per San Sebastian Tentative Map (August 2011).

Source: Fehr & Peers, 2011.

Emergency Vehicle Access

Emergency vehicle access considers two factors: whether the project site is accessible to emergency vehicles from other areas of the City (regional accessibility) and whether the individual parcels or sites within the project are accessible by various types of emergency vehicle (internal accessibility).

The project site itself is accessible through a variety of roadways, which connect to the remaining areas of the City of Morgan Hill. The most likely access routes would be via Peet Road or Cochrane Road. The Project site is anticipated to be serviced by the El Toro fire station located approximately 2 miles from the project site.

The project site plan provides five vehicle access locations for various areas of the site, which are connected to each by an extensive internal roadway network. Two of the access locations are private and require entrance through a security gate and three of the entrances are specifically for emergency vehicle access.

Based on these considerations, we can consider the emergency vehicle access to be generally adequate and a significant impact is not anticipated to occur.

On-Site Pedestrian Connections

The Proposed Project provides a sidewalk along the east side of Viale San Sebastian. No other internal sidewalks are proposed within the site.

The project proposes a pedestrian pathway system that will connect to the parks located within the project site, adjacent developments, and county parks. The connection points of the pathways will be open to the public. No gates are proposed on the walking paths.

Sight Distance

Sight distance is evaluated to determine if a driver will have adequate visibility to enter a roadway without resulting in a conflict with through traffic. A sight distance analysis was conducted by Ruggeri-Jensen-Azar (RJA) to assess the sight distance for vehicles exiting the project site on Peet Road and Cochrane Road. The results of this analysis determined that adequate sight distance is provided at both project driveways. RJA's sight distance diagram and assumptions can be found on the project design plans titled *Vesting Tentative Map & PD Package, Street Sections & Details, San Sebastian Phase 1-5*.

ON-SITE PARKING FOR VEHICLES

The City's Municipal Code, Section 18.50.020, requires two covered parking spaces per single-family residential dwelling unit, a minimum of one space for a secondary dwelling unit containing two bedrooms, and one space per four units for guest parking. Off-street parking spaces for secondary dwelling units may be uncovered and located within the front, side, or rear yard areas. Guest parking spaces may be located on street or conveniently located at off-street mid-block locations and in close proximity to recreational amenities. In no case shall guest spaces be located more than 150 feet from the residential dwellings they are intended to serve. This results in a required supply of 745 spaces.

The Proposed Project will have a total parking supply of 1,416 spaces. Of those spaces, 1,144 spaces will be provided for the 244 single-family dwelling units and 180 secondary in-law units and 272 spaces will be provided for guest parking. Thus, the Proposed Project exceeds the required parking supply standards identified in the City's Municipal Code.

SIGNIFICANT IMPACT CRITERIA

According to the 2010 CEQA Guidelines, implementation of the Proposed Project would have a significant impact if it would do any of the following:

- Conflict with an applicable plan, ordinance, or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including, but not limited to, intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit.

- Conflict with an applicable congestion management program, including, but not limited to, level of service standards and travel demand measures or other standards established by the county congestion management agency for designated roads or highways.

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

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

- Result in inadequate emergency access.

- Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities.

The CEQA Guidelines are intended to provide general guidance for lead agencies evaluating impacts to the transportation system. For purposes of evaluating impacts of the Proposed Project, the above significance criteria are interpreted as described below.

The results of the level of service calculations for Existing Conditions were compared to the results for Project Conditions to identify significant impacts. The following standards of significance apply to the transportation impacts discussed in this study. These standards are consistent with the *Guidelines for Preparation of Transportation Impact Reports* (City of Morgan Hill, February 2010).

Signalized Intersection Impact Criteria

The City's LOS standard for the study intersections of Cochrane Road/Madrone Parkway, Cochrane Road/US-101Southbound Ramps, Cochrane Road/US 101 Northbound Ramps, and Cochrane Road/De Paul Drive is LOS E; the LOS standard for the remaining intersection is LOS D. The City of Morgan Hill has adopted the signalized intersection impact criteria as defined by the VTA; therefore, traffic impacts at City of Morgan Hill intersections would occur when the addition of traffic associated with implementation of the Project causes:

1. Intersection operations to deteriorate from an acceptable level under Existing Conditions to an unacceptable level; or,
2. Exacerbation of unacceptable operations under Existing Conditions by increasing the average critical delay by more than 4 seconds and increasing the critical volume-to-capacity (V/C) ratio by 0.01 or more at an intersection operating at unacceptable LOS (LOS E or F depending on study location) LOS E or LOS F under Project Conditions.

None of the intersections analyzed for this report are designated Congestion Management Program (CMP) intersections, and no impacts were identified.

Unsignalized Intersection Impact Criteria

Level of service analysis at unsignalized intersections is generally used to determine the need for modifying intersection control type (i.e. all-way stop or signalization). As part of this evaluation traffic volumes, delay, and traffic signal warrants are evaluated to determine if the existing intersection control is appropriate.

The City has generally used a minimum acceptable operating level of LOS D for unsignalized intersections. Significant impacts are defined to occur when the addition of project traffic for the worst movement/approach degrades to LOS E or LOS F and the intersection satisfies the peak hour signal warrants from the Caltrans Manual on Uniform Traffic Control Devices (MUTCD).

Freeway Impact Criteria

According to VTA's *Transportation Impact Analysis Guidelines* (VTA, 2009) a freeway segment analysis should be included if the project meets one of the following requirements:

1. The proposed development project is expected to add traffic equal to at least one percent of a freeway segment's capacity.
2. The proposed development project is adjacent to one of the freeway segment's access or egress points

3. Based on engineering judgment, Lead Agency staff determines that the freeway segment should be included in the analysis.

For mixed-flow lanes, freeway segment capacities are defined as 2,200 vehicles per hour per lane (vphpl) for four-lane freeway segments and 2,300 vphpl for six-lane freeway segments. HOV lane capacities are defined between 1,800 to 1,900 vphpl.

If a project meets the criteria outlined above, then the implementation of the Proposed Project could result in a significant impact if the addition of project traffic on a freeway segment exceeded one of the following thresholds:

1. The addition of project traffic causes the operating level of a freeway segment to deteriorate from LOS E or better under Existing Conditions to LOS F; or
2. The number of new trips added by a Proposed Project to a segment already operating at LOS F under Existing Conditions is more than one percent of the freeway segment capacity

INTERSECTION IMPACTS AND MITIGATION

The impacts of the Proposed Project were evaluated by comparing intersection operations with the Project to Existing Conditions using the City's *2010 General Plan Circulation Element* LOS policies and the significance criteria described above. Based on the analysis presented above the Proposed Project would have a **less-than-significant impact** on all of the study intersections.

FREEWAY IMPACTS AND MITIGATION

The freeway impacts of the Proposed Project were evaluated based on VTA's guidelines. As shown in **Table 10**, the addition of project trips is not anticipated to degrade acceptable LOS E to unacceptable levels (LOS F). Therefore, no additional freeway segment analysis is required and the Proposed Project would have a **less-than-significant impact** on the study freeway segments.

PEDESTRIAN, BICYCLE, AND TRANSIT IMPACTS AND MITIGATION

The City's *Guidelines for Preparation of Transportation Impact Reports* do not specify impact criteria for pedestrian, bicycle, and transit impacts. However, these impacts are generally evaluated based on whether a Proposed Project would: 1) conflict with existing or planned pedestrian, bicycle, or transit facilities, or 2) create walking, bicycling, or transit use demand without providing adequate and appropriate facilities for non-motorized mobility.

The Proposed Project is not expected to increase the pedestrian, biking, or transit demand to a level where it could not be accommodated by existing or planned facilities. Therefore, the Proposed Project would have a **less-than-significant impact** on pedestrian, bicycle, and transit facilities and services.

PROJECT ON-SITE CIRCULATION AND ACCESS

The Proposed Project is not expected to result in inadequate emergency access or conflict with any policies identified in the City's *2010 General Plan Circulation Element*. A review of the project site plan indicated that the internal roadway network is adequate and provides access to and from various areas within the development. Thus, the Proposed Project would have a **less-than-significant impact** on emergency access.

Adequate sight distance will be provided at the two project driveways. Therefore, the Proposed Project would have a **less-than-significant impact** on hazards due to a design feature.

4. 2015 NEAR-TERM CUMULATIVE CONDITIONS

This chapter describes the expected traffic operations under 2015 Near-Term Cumulative Conditions with and without the Proposed Project. The City of Morgan Hill travel demand forecasting model was used to estimate 2015 traffic volumes. 2015 land use and network assumptions are briefly discussed below and followed by a more detailed discussion of intersection operations.

LAND USE AND TRANSPORTATION NETWORK ASSUMPTIONS

The City's travel demand forecasting model was used to develop 2015 Near-Term Cumulative traffic volume estimates for the study intersections. The 2015 land use estimates were based on input from City staff and regionally approved data from the Association of Bay Area Governments (ABAG). Also included in the model is the planned roadway network based on the 2010 *General Plan Circulation Element*. The forecasted volumes were estimated for 2015 Near-Term Cumulative No Project Conditions and the project trips identified under Project Conditions were then added to those forecasts to represent 2015 Near-Term Cumulative with Project Conditions.

Per mitigation identified in the 2006 *Cochrane Plaza TIA* and as confirmed by the City, a traffic signal is assumed to be installed at the Cochrane Road/Mission View intersection under 2015 Near-Term Cumulative scenarios. In addition, the lane geometry at this intersection would be changed to:

- Two left-turn lanes and one shared through/right-turn lane on the northbound approach,
- One left-turn lane, one through lane, and one shared through/right-turn lane on the westbound approach,
- One left-turn lane, one through lane, and one right-turn lane on the southbound approach, and
- One left-turn lane, one through lane, and one right-turn lane on the eastbound approach.

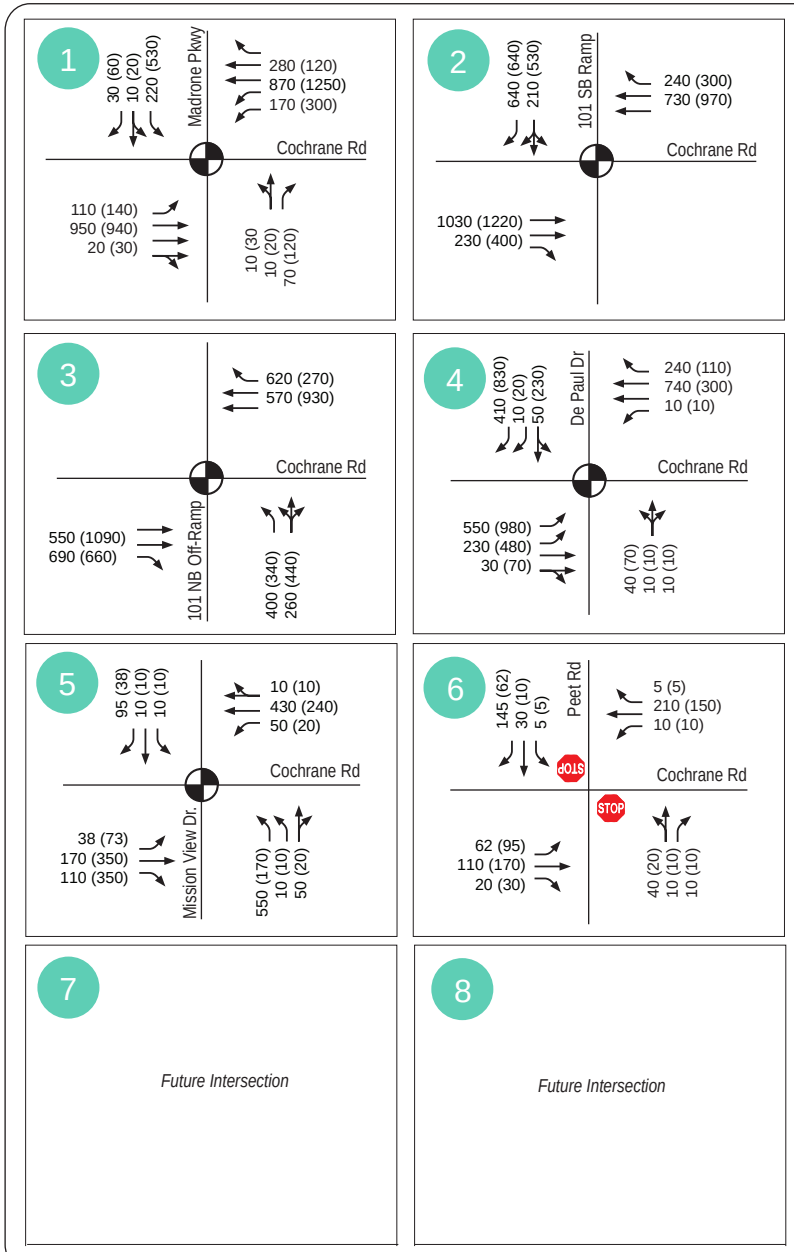
The City's 2010 *General Plan Update* encourages the northern extension of Hill Road to connect with Peet Road. As a part of this connection, Peet Road would need to be realigned to intersect with Half Road approximately 280 feet west of its' current location. In accordance with the City's *General Plan*, the project's developer would commit to fund the realignment of Peet Road.

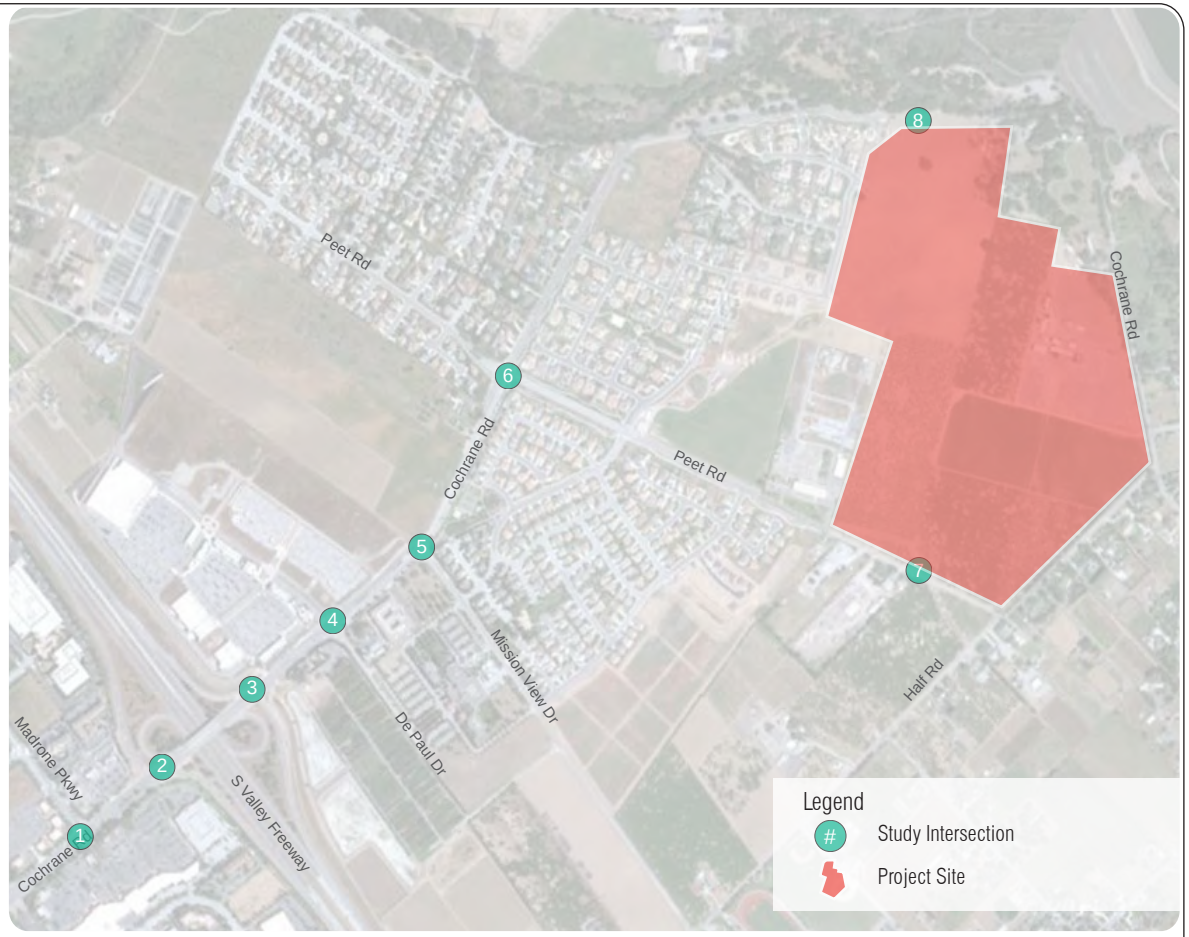
2015 NEAR-TERM NO PROJECT INTERSECTION TRAFFIC VOLUME ESTIMATES

Using the base year and future year model forecasts, weekday peak-hour intersection turning movements were developed for the eight study intersections for 2015 Near-Term Cumulative No Project Conditions. The techniques presented in National Cooperative Highway Research Program (NCHRP) Report 255[2] were used to refine the raw model forecasts. This method is based on existing counts and the difference between the No Project (existing) and 2015 model volumes. Further manual adjustments may be made to the resulting volumes to provide more reasonable forecasts.

Figure 9 illustrates the AM and PM peak hour intersection turning movement forecasts volumes for the study intersections under 2015 Near-Term Cumulative No Project Conditions. These volumes were used to calculate the levels of service for the six existing study intersections under this scenario. **Table 12** presents the Near-Term Cumulative General Plan No Project Conditions. All six of the existing study intersections are projected to operate at acceptable levels of service under the 2015 Near-Term Cumulative No Project Conditions.

[2] National Cooperative Highway Research Program (NCHRP). *Report 255: Highway Traffic Data for Urbanized Area Project Planning and Design.* Washington, D.C.: National Academy Press, 1982.





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Not to Scale

2015 Near-Term Cumulative No Project Intersection Peak-Hour-Volumes and Lane Geometries

Figure 9

FEHR PEERS

SJ11-1269

TABLE 12: 2015 NEAR-TERM CUMULATIVE NO PROJECT INTERSECTION LEVELS OF SERVICE

Intersection	Traffic Control[1]	Peak Hour	Delay[2]	LOS[3]
1. Cochrane Rd./Madrone Pkwy.**	Signal	AM PM	25.1 34.5	C C-
2. Cochrane Rd./US-101 SB Ramps**	Signal	AM PM	23.0 30.7	C C
3. Cochrane Rd./US-101 NB Ramps**	Signal	AM PM	19.7 24.9	B- C
4. Cochrane Rd./De Paul Dr.**	Signal	AM PM	28.3 26.4	C C
5. Cochrane Rd./Mission View Dr.	Signal	AM PM	31.0 20.3	C C+
6. Cochrane Rd./Peet Rd.*	SSSC	AM PM	15.4 13.5	C B
7. Project Dwy./Peet Road*	*Future Intersection*			
8. Project Dwy./Cochrane Rd.*	*Future Intersection*			

Notes:

1 SSSC = Side-Street Stop Control, AWSC = All-way Stop Control

2 Whole intersection weighted average control delay expressed in seconds per vehicle calculated using methods described in the *2000 HCM*, with adjusted saturation flow rates to reflect Santa Clara County Conditions for signalized intersections. Total control delay for the worst movement is presented for side-street stop-controlled intersections.

3 LOS = Level of service. LOS calculations conducted using the TRAFFIX level of service analysis software package.

* Unsignalized intersection

** LOS E threshold (all other intersections have LOS D threshold)

Bold text indicates unacceptable operations by City of Morgan Hill LOS standards.

Source: Fehr & Peers, October 2011.

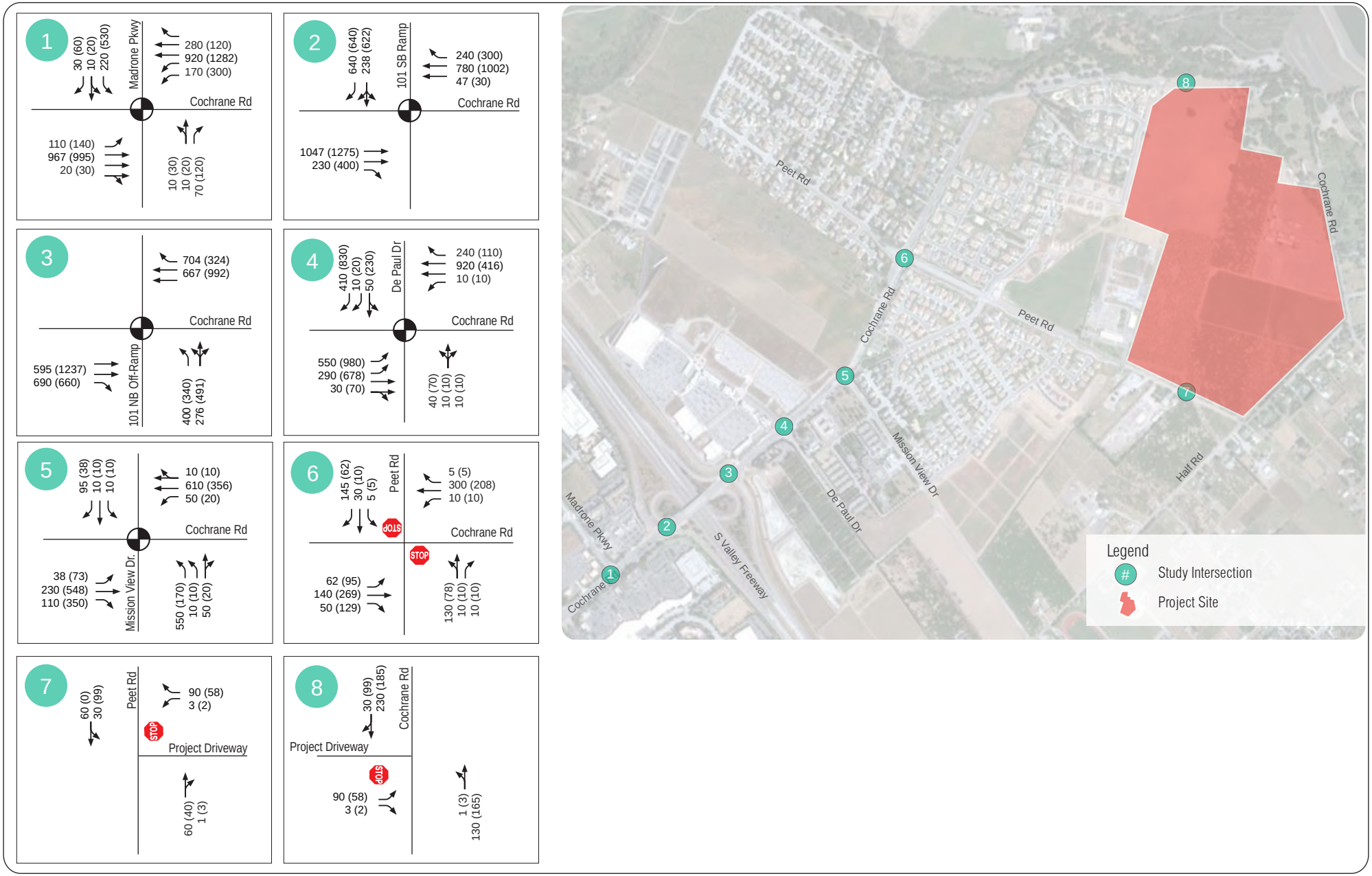
2015 NEAR-TERM CUMULATIVE WITH PROJECT TRAFFIC VOLUME ESTIMATES

The estimated trips generated from the Proposed Project (**Figure 8**) were added to the traffic volumes from the 2015 Near-Term Cumulative No Project Conditions (**Figure 9**) to estimate 2015 Near-Term Cumulative With Project Conditions. The volumes used in this analysis are presented on **Figure 10**.

2015 NEAR-TERM CUMULATIVE WITH PROJECT INTERSECTION LEVEL OF SERVICE

The results of the LOS analysis for 2015 Near-Term Cumulative with Project Conditions are presented in **Table 13**. **Appendix B** contains the corresponding calculation sheets. All of the study intersections are projected to operate at acceptable levels of service under this scenario.

As noted under Project Conditions, several of the intersections such as Cochrane Road/Madrone Parkway and Cochrane Road/Mission View Drive show a reduction in average delay with the addition of project traffic, which is counter-intuitive. The average delay values in the table are weighted averages. Weighted average delays will be reduced when traffic is added to a movement with a low delay. Conversely, relatively small volume increases to movements with high delays can substantially increase the weighted average delay.



Not to Scale

2015 Near-Term Cumulative with Project Intersection Peak-Hour Volumes

Figure 10

FEHR PEERS

SJ11-1269

TABLE 13: EXISTING AND 2015 NEAR-TERM CUMULATIVE PLUS PROJECT INTERSECTION LEVELS OF SERVICE

Intersection	Peak Hour	Existing		2015 Near-Term Cumulative with Project			
		Delay[1]	LOS[2]	Delay[1]	LOS[2]	Δ in Crit. V/C[3]	Δ in Crit. Delay[4]
1. Cochrane Rd./Madrone Pkwy.**	AM	21.1	C+	24.5	C	+0.057	+5.0
	PM	32.7	C-	36.4	D	+0.162	+2.9
2. Cochrane Rd./US-101 SB Ramps**	AM	12.8	B	23.8	C	+0.173	+12.1
	PM	13.1	B	34.9	D+	+0.331	+26.5
3. Cochrane Rd./US-101 NB Ramps**	AM	10.6	B+	19.8	B-	+0.267	+15.6
	PM	11.8	B+	25.8	C	+0.337	+16.3
4. Cochrane Rd./De Paul Dr.**	AM	16.2	B	28.6	C	+0.272	+12.9
	PM	16.7	B	27.6	C	+0.409	+15.0
5. Cochrane Rd./Mission View Dr.[5]	AM	16.0	C	31.0	C	NA	NA
	PM	10.6	B	19.4	B-		
6. Cochrane Rd./Peet Rd.*	AM	12.5	B	29.4	D	NA	NA
	PM	13.3	B	21.0	C		
7. Project Dwy./Peet Road*	AM	*Future Intersection*		9.0	A	NA	NA
	PM			9.8	A		
8. Project Dwy./Cochrane Rd.*	AM	*Future Intersection*		11.7	B	NA	NA
	PM			10.9	B		

Notes:

1 Whole intersection weighted average control delay expressed in seconds per vehicle calculated using methods described in the *2000 HCM*, with adjusted saturation flow rates to reflect Santa Clara County Conditions for signalized intersections. Total control delay for the worst movement is presented for side-street stop-controlled intersections.

2 LOS = Level of service. LOS calculations conducted using the TRAFFIX level of service analysis software package.

3 Change in the critical volume-to-capacity ratio (V/C) between signalized intersections under Existing Conditions and 2015 Near-Term Cumulative plus Project Conditions.

4 Change in critical average movement delay between signalized intersections under Existing Conditions and 2015 Near-Term plus Project Conditions.

5 The analysis of this intersection assumes side-street stop control under Existing Conditions and signal control under 2015 Near-Term Cumulative plus Project Conditions.

* Unsignalized intersection

** LOS E threshold (all other intersections have LOS D threshold)

Bold text indicates unacceptable operations by City of Morgan Hill LOS standards.

Source: Fehr & Peers, October 2011.

INTERSECTION IMPACTS AND MITIGATION

The impacts of the Proposed Project were evaluated by comparing intersection operations under 2015 Near-Term Cumulative Conditions with Project to the Existing Conditions using the same significance criteria identified in **Chapter 3**. All of the study intersections would operate at acceptable LOS under 2015 Near-Term Cumulative Conditions with Project Conditions; therefore, the Proposed Project would have a **less-than-significant** impact on traffic operations under 2015 Near-Term Cumulative conditions.

As shown in **Table 13**, the study intersections are projected to operate at acceptable LOS under 2015 Near-Term Cumulative conditions; therefore, the Proposed Project would have a **less-than-significant impact** on traffic operations when comparing the 2015 Near-Term Cumulative No Project with Project scenarios.

VEHICLE MILES TRAVELED ANALYSIS

Transportation is a major contributor to greenhouse gas emissions and a direct result of population and employment growth, which generates vehicle trips to move goods, provide public services, and connect people with work, school, shopping, and other activities. Growth in travel (especially vehicle travel) is due in large part to urban development patterns (i.e., the built environment).

A performance measure used to quantify the amount of travel is vehicle miles traveled (VMT). VMT is also an important input to GHG analysis since the amount of travel and conditions under which the travel occurs directly relate to how much fuel vehicles burn. One combusted gallon of gas from a vehicle is equal to approximately 24 pounds of carbon dioxide. Given today's average vehicle fuel mileage (i.e., approximately 22 miles per gallon), one mile of travel equates to about one pound of carbon dioxide. As a result, increases in VMT directly cause increases in greenhouse gas emissions and air pollution.

VMT measurement has one primary limitation: it is not directly observed and therefore cannot be directly measured. It is calculated based on the number of cars multiplied by the distance traveled by each car. The amount of VMT can be obtained through extensive surveys of residents, visitors, and employees, or using a validated travel demand model that estimates vehicle demand. VMT estimates derived from TDF models are dependent on the level of detail in the network and other variables related to vehicle movement through the network. The volume of traffic and distance travelled depends on land use types, density/intensity, and patterns as well as the supporting transportation system.

The City's travel demand forecasting (TDF) model was used to develop citywide daily VMT estimates for 2015 Near-Term Cumulative plus Project Conditions. The simplest calculation of VMT is the number of cars multiplied by the distance traveled by each car. Based on the state of the practice technique for determining the VMT estimates for municipalities, the following assumptions were used to allocate VMT to the City of Morgan Hill:

- **Internal-internal (II):** All daily trips made entirely within the Morgan Hill city limits.
- **One-half of internal-external (IX):** One-half of daily trips with an origin within Morgan Hill city limit and destination outside of Morgan Hill. This assumes that Morgan Hill shares half the responsibility for trips traveling to other municipalities.
- **One-half of external-internal (XI):** One-half of daily trips with an origin outside of Morgan Hill city limit and destination within Morgan Hill. Similar to the IX trips, Morgan Hill shares the responsibility of trips traveling from other municipalities.
- **External-external (XX):** Trips through the city are not included. This approach is consistent with the concept used for the IX and XI trips. Therefore, the XX VMT would be assigned to other municipalities such as Gilroy, Watsonville, Hollister, Salinas, and San Jose.

This method is referred to as the Origin-Destination method and is consistent with the Regional Targets Advisory Committee (RTAC) recommendation to the California Transportation Commission (CTC) presented in the report *Recommendations of the Regional Targets Advisory Committee (RTAC) Pursuant to Senate Bill 375* (Regional Targets Advisory Committee, 2009). Estimated daily VMT associated with Proposed Project is shown in **Table 14**, below. Under the 2015 Near-Term Cumulative plus Project conditions, total VMT is projected to increase by 16,730 compared to 2015 Near-Term Cumulative no Project Conditions, or about 50 daily vehicle miles traveled per household[3].

[3] Traveled per household is calculated by dividing the VMT estimates by the project size; 16,730 miles/334 units = 50 daily miles traveled per household.

TABLE 14: VEHICLE MILES TRAVELED (VMT) ESTIMATES

Speed Bin (mph)	Project Contribution (Daily VMT)
12.5-17.49	+ 30
17.5-22.49	+ 50
22.5-27.49	+ 340
27.5-32.49	+ 500
32.5-37.49	+ 270
37.5-42.49	+ 2,190
42.5-47.49	+ 1,970
47.5-52.49	+ 720
52.5-57.49	+ 370
57.5-62.49	+ 4,580
62.5-67.49	+ 5,710
Total VMT	**+16,730**

Source: Fehr & Peers, March 2012.

APPENDIX A

Traffic Data Service
Campbell, CA
(408) 377-2988
tdsbay@cs.com

File Name : 1AM FINAL
Site Code : 00000001
Start Date : 8/31/2011
Page No : 1

Groups Printed- Vehicles

	Southbound					COCHRANE RD Westbound					MISSION VIEW DR Northbound					COCHRANE RD Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
07:00 AM	0	0	0	0	0	0	31	1	1	33	0	0	77	1	78	13	17	1	1	32	143
07:15 AM	0	0	0	0	0	0	49	13	0	62	2	0	65	1	68	13	15	1	0	29	159
07:30 AM	0	0	0	0	0	0	81	12	0	93	6	0	95	0	101	21	24	0	0	45	239
07:45 AM	0	0	0	0	0	0	53	1	0	54	18	0	129	0	147	28	30	0	0	58	259
Total	0	0	0	0	0	0	214	27	1	242	26	0	366	2	394	75	86	2	1	164	800
08:00 AM	0	0	0	0	0	0	51	0	0	51	7	0	111	0	118	35	35	1	0	71	240
08:15 AM	0	0	0	0	0	0	47	0	0	47	2	0	53	0	55	24	28	0	0	52	154
08:30 AM	0	0	0	0	0	0	43	2	0	45	1	0	48	0	49	26	19	2	0	47	141
08:45 AM	0	0	0	0	0	0	38	0	1	39	1	0	38	0	39	18	30	1	0	49	127
Total	0	0	0	0	0	0	179	2	1	182	11	0	250	0	261	103	112	4	0	219	662
Grand Total	0	0	0	0	0	0	393	29	2	424	37	0	616	2	655	178	198	6	1	383	1462
Apprch %	0	0	0	0		0	92.7	6.8	0.5		5.6	0	94	0.3		46.5	51.7	1.6	0.3		
Total %	0	0	0	0	0	0	26.9	2	0.1	29	2.5	0	42.1	0.1	44.8	12.2	13.5	0.4	0.1	26.2	

	Southbound					COCHRANE RD Westbound					MISSION VIEW DR Northbound					COCHRANE RD Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:15 AM																					
07:15 AM	0	0	0	0	0	0	49	13	0	62	2	0	65	1	68	13	15	1	0	29	159
07:30 AM	0	0	0	0	0	0	81	12	0	93	6	0	95	0	101	21	24	0	0	45	239
07:45 AM	0	0	0	0	0	0	53	1	0	54	18	0	129	0	147	28	30	0	0	58	259
08:00 AM	0	0	0	0	0	0	51	0	0	51	7	0	111	0	118	35	35	1	0	71	240
Total Volume	0	0	0	0	0	0	234	26	0	260	33	0	400	1	434	97	104	2	0	203	897
% App. Total	0	0	0	0		0	90	10	0		7.6	0	92.2	0.2		47.8	51.2	1	0		
PHF	.000	.000	.000	.000	.000	.000	.722	.500	.000	.699	.458	.000	.775	.250	.738	.693	.743	.500	.000	.715	.866

Traffic Data Service
Campbell, CA
(408) 377-2988
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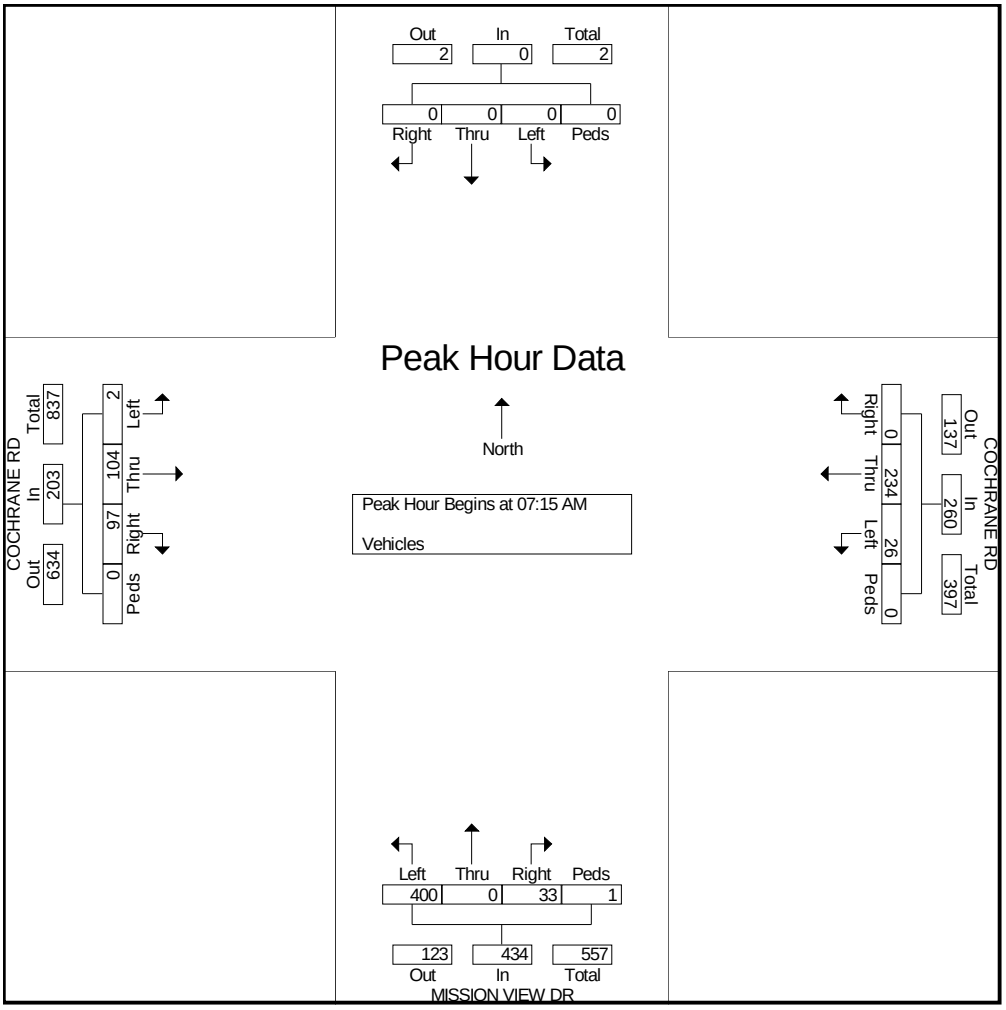
File Name : 1AM FINAL
Site Code : 00000001
Start Date : 8/31/2011
Page No : 2



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File Name : 1AM FINAL
Site Code : 00000001
Start Date : 8/31/2011
Page No : 1

BIKES

Groups Printed- Bikes

	Southbound					COCHRANE RD Westbound					MISSION VIEW DR Northbound					COCHRANE RD Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
07:00 AM	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2	0	0	0	0	0	2
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2	0	0	0	0	0	2
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2	0	0	0	0	0	2
Apprch %	0	0	0	0		0	0	0	0		100	0	0	0		0	0	0	0		
Total %	0	0	0	0	0	0	0	0	0	0	100	0	0	0	100	0	0	0	0	0	

	Southbound					COCHRANE RD Westbound					MISSION VIEW DR Northbound					COCHRANE RD Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:00 AM																					
07:00 AM	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2	0	0	0	0	0	2
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2	0	0	0	0	0	2
% App. Total	0	0	0	0		0	0	0	0		100	0	0	0		0	0	0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.250	.000	.000	.000	.250	.000	.000	.000	.000	.000	.250

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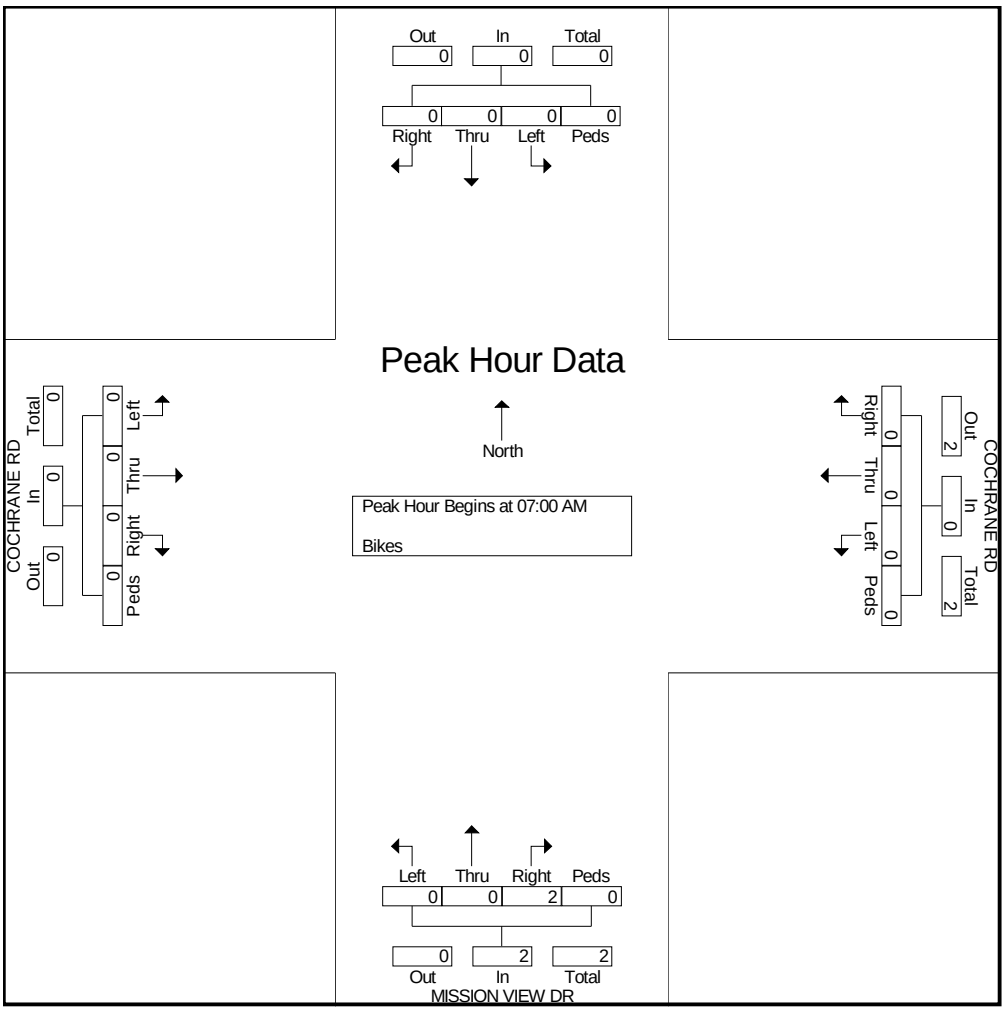
File Name : 1AM FINAL
Site Code : 00000001
Start Date : 8/31/2011

BIKES



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File Name : 1PM FINAL
Site Code : 00000001
Start Date : 8/31/2011
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Groups Printed- Vehicles

	Southbound					COCHRANE RD Westbound					MISSION VIEW DR Northbound					COCHRANE RD Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
04:00 PM	0	0	0	0	0	0	39	6	0	45	2	0	29	0	31	44	52	5	0	101	177
04:15 PM	0	0	0	0	0	0	37	4	0	41	3	0	35	0	38	69	44	6	0	119	198
04:30 PM	0	0	0	0	0	0	33	3	0	36	2	0	37	1	40	68	42	4	1	115	191
04:45 PM	0	0	0	0	0	0	30	3	1	34	1	0	40	0	41	58	51	1	0	110	185
Total	0	0	0	0	0	0	139	16	1	156	8	0	141	1	150	239	189	16	1	445	751
05:00 PM	0	0	0	0	0	0	51	1	0	52	5	0	40	0	45	60	48	4	0	112	209
05:15 PM	0	0	0	0	0	0	39	3	0	42	7	0	43	0	50	69	53	2	0	124	216
05:30 PM	0	0	0	0	0	0	46	5	1	52	2	0	33	0	35	65	42	4	0	111	198
05:45 PM	0	0	0	0	0	0	23	0	0	23	2	0	49	1	52	60	49	1	0	110	185
Total	0	0	0	0	0	0	159	9	1	169	16	0	165	1	182	254	192	11	0	457	808
Grand Total	0	0	0	0	0	0	298	25	2	325	24	0	306	2	332	493	381	27	1	902	1559
Apprch %	0	0	0	0		0	91.7	7.7	0.6		7.2	0	92.2	0.6		54.7	42.2	3	0.1		
Total %	0	0	0	0	0	0	19.1	1.6	0.1	20.8	1.5	0	19.6	0.1	21.3	31.6	24.4	1.7	0.1	57.9	

	Southbound					COCHRANE RD Westbound					MISSION VIEW DR Northbound					COCHRANE RD Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:45 PM																					
04:45 PM	0	0	0	0	0	0	30	3	1	34	1	0	40	0	41	58	51	1	0	110	185
05:00 PM	0	0	0	0	0	0	51	1	0	52	5	0	40	0	45	60	48	4	0	112	209
05:15 PM	0	0	0	0	0	0	39	3	0	42	7	0	43	0	50	69	53	2	0	124	216
05:30 PM	0	0	0	0	0	0	46	5	1	52	2	0	33	0	35	65	42	4	0	111	198
Total Volume	0	0	0	0	0	0	166	12	2	180	15	0	156	0	171	252	194	11	0	457	808
% App. Total	0	0	0	0		0	92.2	6.7	1.1		8.8	0	91.2	0		55.1	42.5	2.4	0		
PHF	.000	.000	.000	.000	.000	.000	.814	.600	.500	.865	.536	.000	.907	.000	.855	.913	.915	.688	.000	.921	.935

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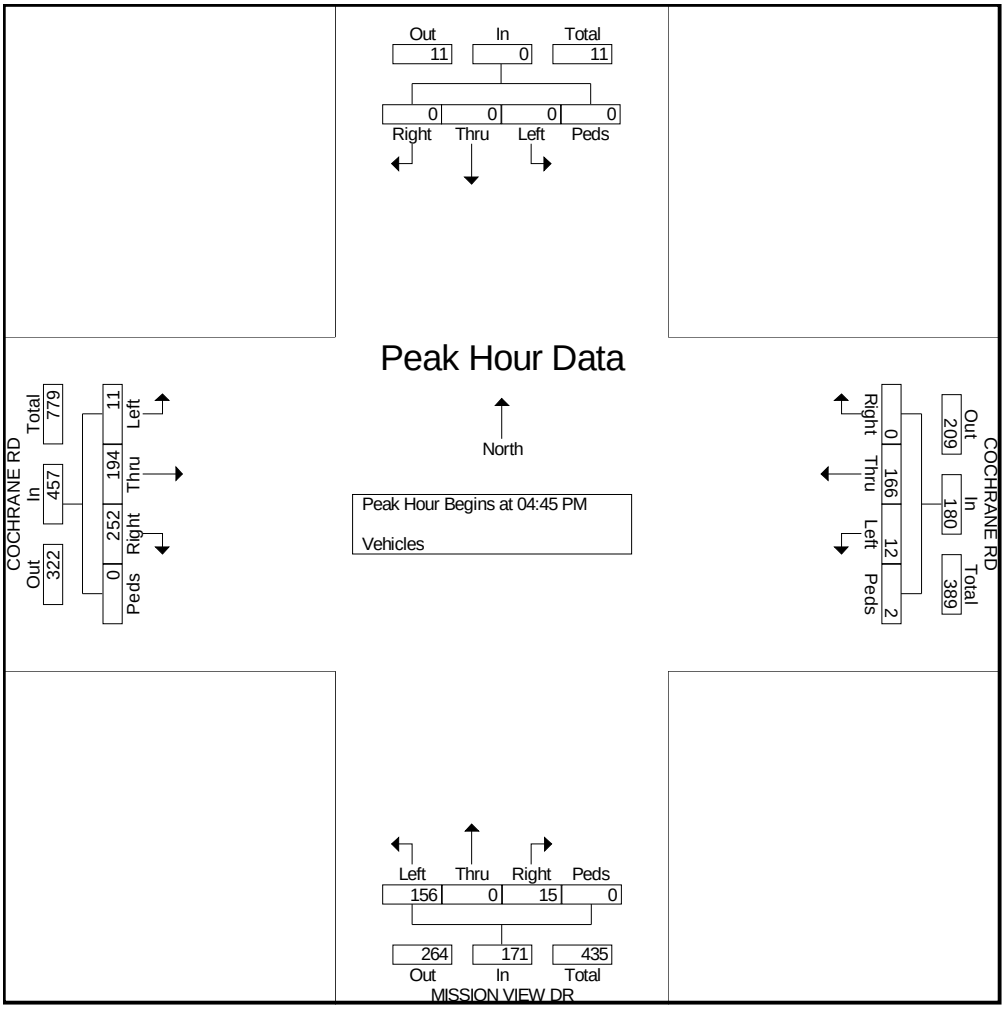

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File Name : 1PM FINAL
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BIKES

Groups Printed- Bikes

	Southbound					COCHRANE RD Westbound					MISSION VIEW DR Northbound					COCHRANE RD Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
04:00 PM	0	0	0	0	0	0	1	0	0	1	0	0	2	0	2	1	0	0	0	1	4
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	1	0	0	3	3
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	1	0	0	1	0	0	2	0	2	3	2	0	0	5	8
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
05:30 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	2	0	0	2	3
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	3	0	0	3	4
Grand Total	0	0	0	0	0	0	2	0	0	2	0	0	2	0	2	3	5	0	0	8	12
Apprch %	0	0	0	0		0	100	0	0		0	0	100	0		37.5	62.5	0	0		
Total %	0	0	0	0	0	0	16.7	0	0	16.7	0	0	16.7	0	16.7	25	41.7	0	0	66.7	

	Southbound					COCHRANE RD Westbound					MISSION VIEW DR Northbound					COCHRANE RD Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:00 PM																					
04:00 PM	0	0	0	0	0	0	1	0	0	1	0	0	2	0	2	1	0	0	0	1	4
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	1	0	0	3	3
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	1	0	0	1	0	0	2	0	2	3	2	0	0	5	8
% App. Total	0	0	0	0		0	100	0	0		0	0	100	0		60	40	0	0		
PHF	.000	.000	.000	.000	.000	.000	.250	.000	.000	.250	.000	.000	.250	.000	.250	.375	.500	.000	.000	.417	.500

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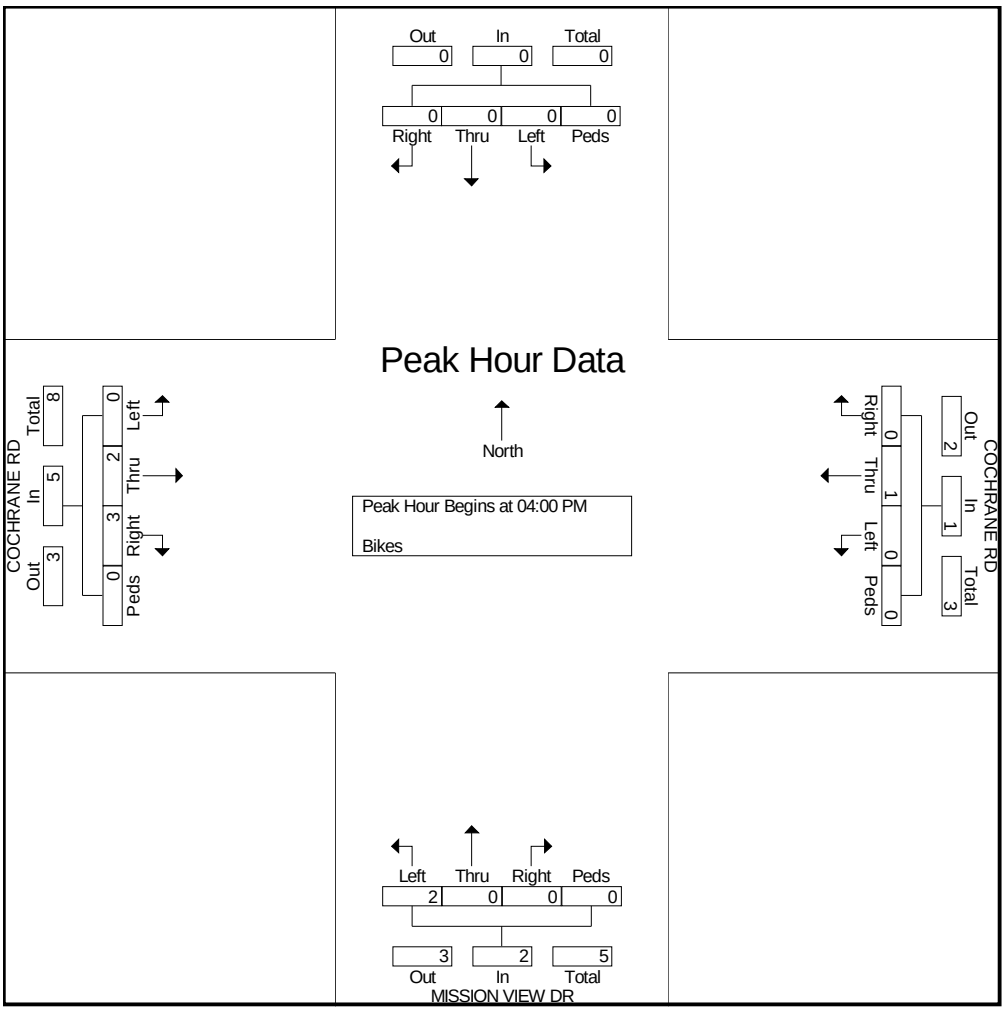
BIKES



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File Name : 2AM FINAL
Site Code : 00000002
Start Date : 8/30/2011
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Groups Printed- Vehicles

	PEET RD Southbound					COCHRANE RD Westbound					PEET RD Northbound					COCHRANE RD Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
07:00 AM	15	0	0	1	16	0	12	0	0	12	2	0	7	0	9	2	15	0	1	18	55
07:15 AM	40	15	0	1	56	0	19	0	0	19	1	0	5	2	8	3	6	8	2	19	102
07:30 AM	47	6	1	2	56	0	37	0	0	37	0	2	6	0	8	7	12	10	0	29	130
07:45 AM	22	3	0	0	25	0	23	0	0	23	2	4	9	0	15	2	21	25	0	48	111
Total	124	24	1	4	153	0	91	0	0	91	5	6	27	2	40	14	54	43	3	114	398
08:00 AM	20	3	0	0	23	1	19	0	0	20	2	3	11	0	16	7	22	13	0	42	101
08:15 AM	24	1	0	1	26	0	17	0	0	17	0	3	8	1	12	3	14	14	0	31	86
08:30 AM	18	0	1	0	19	0	14	0	5	19	0	0	12	3	15	3	9	8	0	20	73
08:45 AM	11	1	0	0	12	1	19	1	0	21	1	1	6	3	11	3	17	9	1	30	74
Total	73	5	1	1	80	2	69	1	5	77	3	7	37	7	54	16	62	44	1	123	334
Grand Total	197	29	2	5	233	2	160	1	5	168	8	13	64	9	94	30	116	87	4	237	732
Apprch %	84.5	12.4	0.9	2.1		1.2	95.2	0.6	3		8.5	13.8	68.1	9.6		12.7	48.9	36.7	1.7		
Total %	26.9	4	0.3	0.7	31.8	0.3	21.9	0.1	0.7	23	1.1	1.8	8.7	1.2	12.8	4.1	15.8	11.9	0.5	32.4	

	PEET RD Southbound					COCHRANE RD Westbound					PEET RD Northbound					COCHRANE RD Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:15 AM																					
07:15 AM	40	15	0	1	56	0	19	0	0	19	1	0	5	2	8	3	6	8	2	19	102
07:30 AM	47	6	1	2	56	0	37	0	0	37	0	2	6	0	8	7	12	10	0	29	130
07:45 AM	22	3	0	0	25	0	23	0	0	23	2	4	9	0	15	2	21	25	0	48	111
08:00 AM	20	3	0	0	23	1	19	0	0	20	2	3	11	0	16	7	22	13	0	42	101
Total Volume	129	27	1	3	160	1	98	0	0	99	5	9	31	2	47	19	61	56	2	138	444
% App. Total	80.6	16.9	0.6	1.9		1	99	0	0		10.6	19.1	66	4.3		13.8	44.2	40.6	1.4		
PHF	.686	.450	.250	.375	.714	.250	.662	.000	.000	.669	.625	.563	.705	.250	.734	.679	.693	.560	.250	.719	.854

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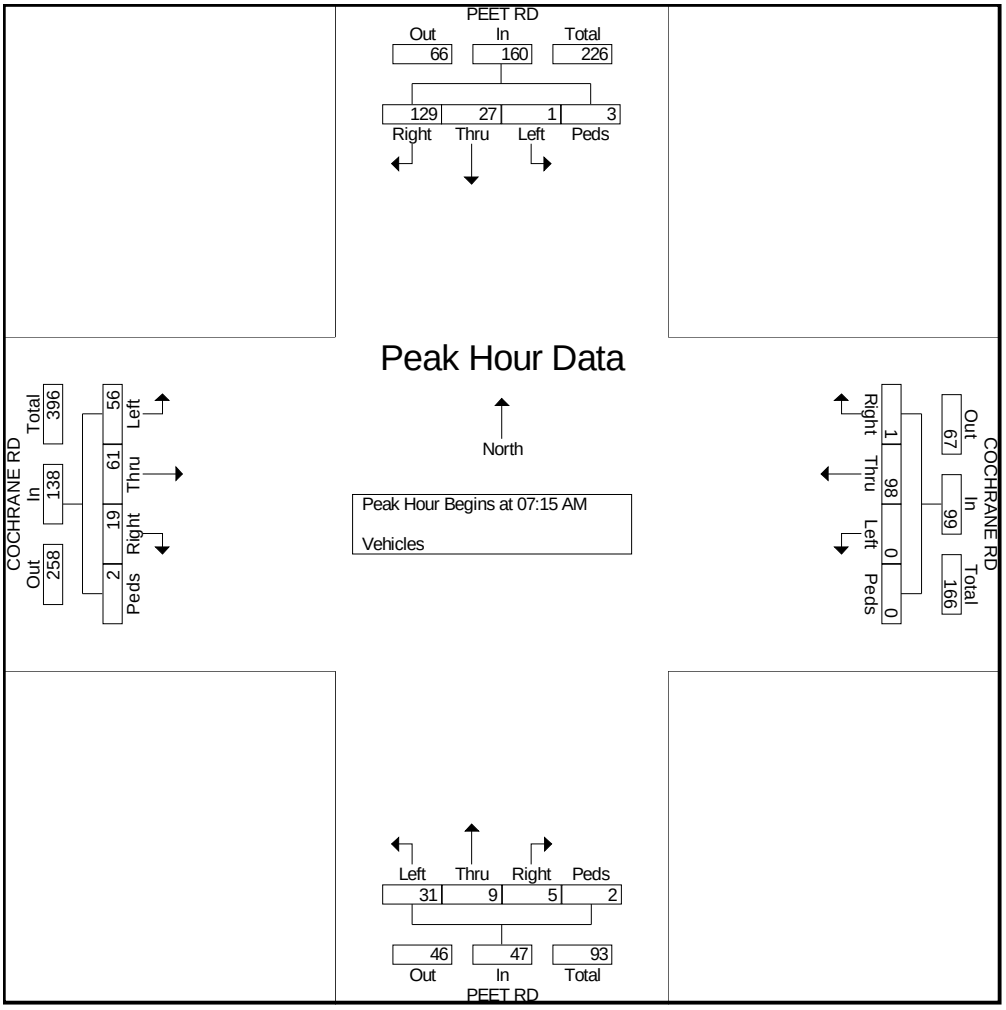

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File Name : 2AM FINAL
Site Code : 00000002
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BIKES

Groups Printed- Bikes

	PEET RD Southbound					COCHRANE RD Westbound					PEET RD Northbound					COCHRANE RD Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2	2
07:15 AM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2	3
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:30 AM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1
08:45 AM	1	1	0	0	2	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	3
Total	1	1	0	0	2	0	0	0	0	0	1	1	0	0	2	0	0	0	0	0	4
Grand Total	1	2	0	0	3	0	0	0	0	0	1	1	0	0	2	0	0	2	0	2	7
Apprch %	33.3	66.7	0	0		0	0	0	0		50	50	0	0		0	0	100	0		
Total %	14.3	28.6	0	0	42.9	0	0	0	0	0	14.3	14.3	0	0	28.6	0	0	28.6	0	28.6	

	PEET RD Southbound					COCHRANE RD Westbound					PEET RD Northbound					COCHRANE RD Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 08:00 AM																					
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:30 AM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1
08:45 AM	1	1	0	0	2	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	3
Total Volume	1	1	0	0	2	0	0	0	0	0	1	1	0	0	2	0	0	0	0	0	4
% App. Total	50	50	0	0		0	0	0	0		50	50	0	0		0	0	0	0		
PHF	.250	.250	.000	.000	.250	.000	.000	.000	.000	.000	.250	.250	.000	.000	.500	.000	.000	.000	.000	.000	.333

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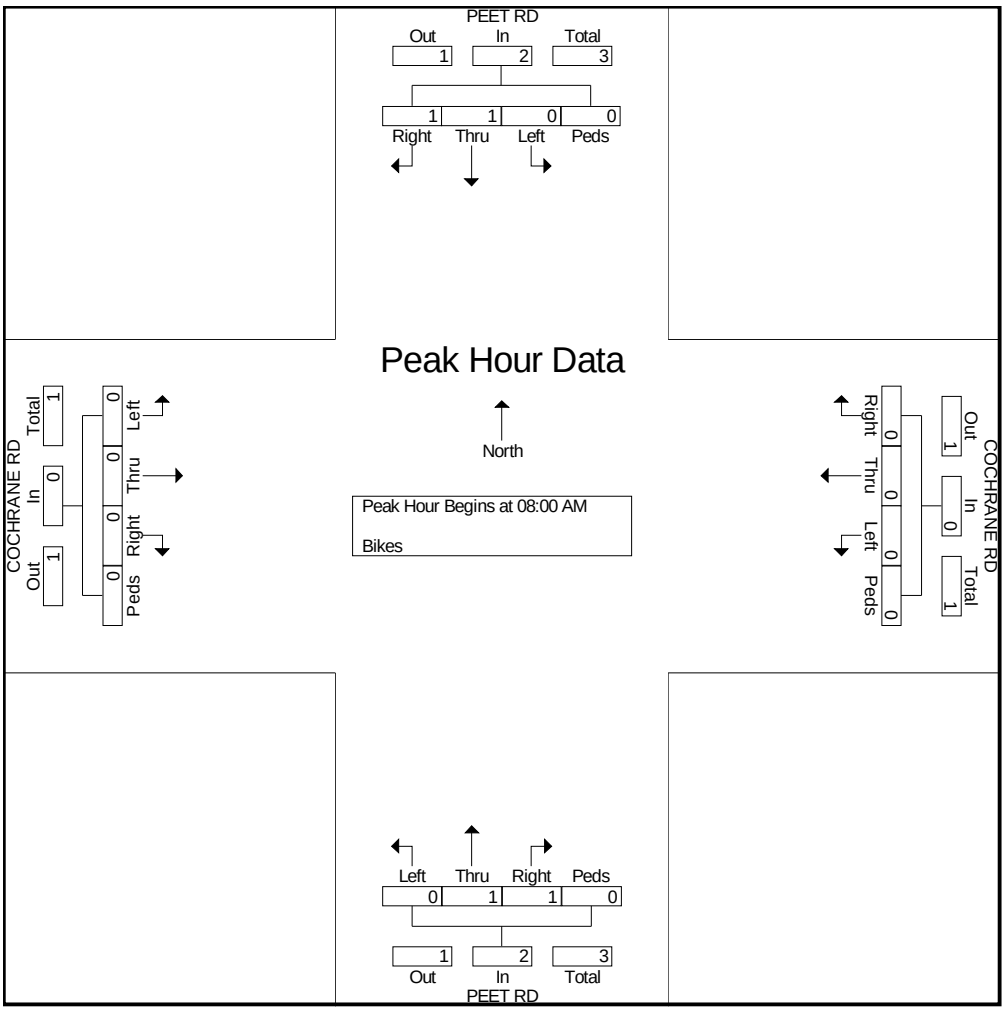
BIKES



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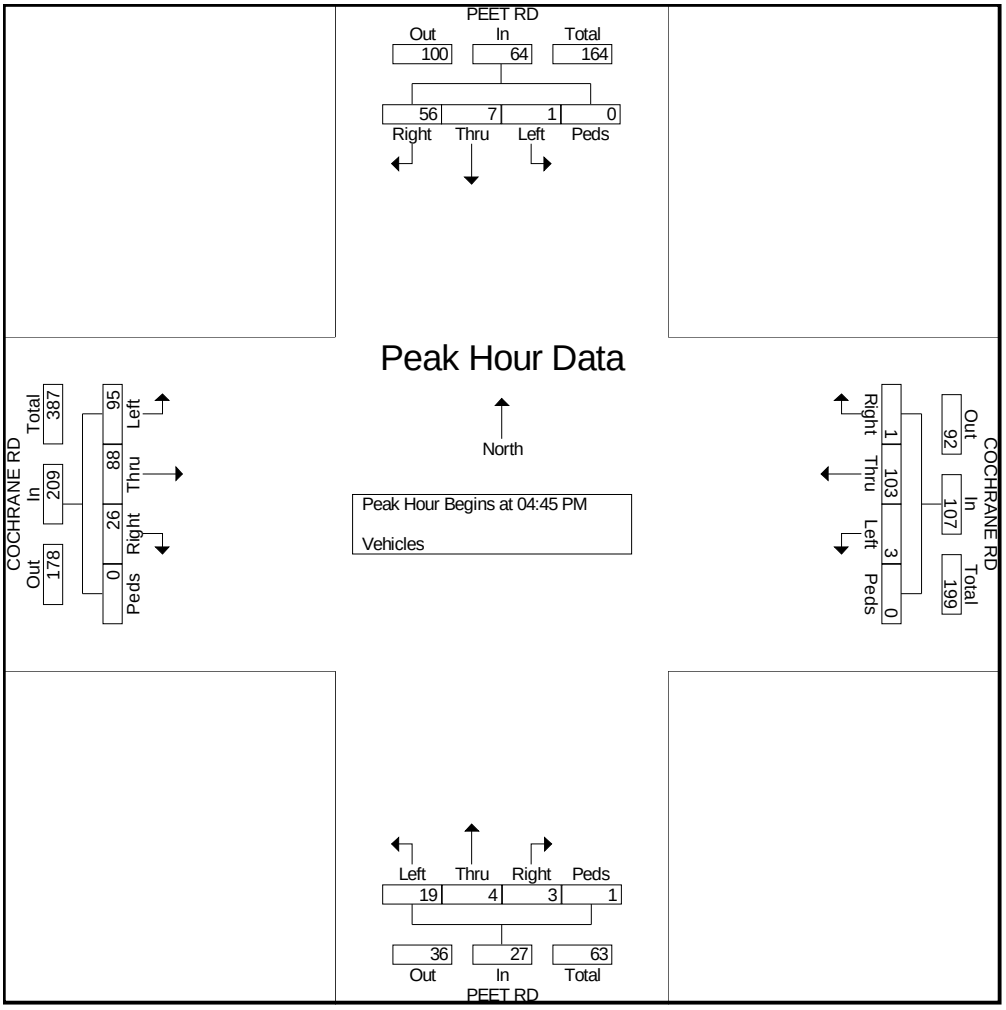
Groups Printed- Vehicles

	PEET RD Southbound					COCHRANE RD Westbound					PEET RD Northbound					COCHRANE RD Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
04:00 PM	18	0	2	0	20	0	19	1	0	20	0	1	7	0	8	7	27	19	0	53	101
04:15 PM	19	2	0	1	22	1	19	0	0	20	0	4	4	0	8	9	19	18	0	46	96
04:30 PM	10	1	0	0	11	0	22	1	1	24	1	0	2	2	5	7	22	14	2	45	85
04:45 PM	9	3	0	0	12	0	21	1	0	22	2	0	2	1	5	4	26	21	0	51	90
Total	56	6	2	1	65	1	81	3	1	86	3	5	15	3	26	27	94	72	2	195	372
05:00 PM	11	1	0	0	12	1	31	2	0	34	0	2	10	0	12	8	24	21	0	53	111
05:15 PM	21	2	1	0	24	0	17	0	0	17	0	2	4	0	6	7	18	34	0	59	106
05:30 PM	15	1	0	0	16	0	34	0	0	34	1	0	3	0	4	7	20	19	0	46	100
05:45 PM	12	1	1	0	14	1	7	0	0	8	1	3	4	1	9	4	25	21	0	50	81
Total	59	5	2	0	66	2	89	2	0	93	2	7	21	1	31	26	87	95	0	208	398
Grand Total	115	11	4	1	131	3	170	5	1	179	5	12	36	4	57	53	181	167	2	403	770
Apprch %	87.8	8.4	3.1	0.8		1.7	95	2.8	0.6		8.8	21.1	63.2	7		13.2	44.9	41.4	0.5		
Total %	14.9	1.4	0.5	0.1	17	0.4	22.1	0.6	0.1	23.2	0.6	1.6	4.7	0.5	7.4	6.9	23.5	21.7	0.3	52.3	

	PEET RD Southbound					COCHRANE RD Westbound					PEET RD Northbound					COCHRANE RD Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:45 PM																					
04:45 PM	9	3	0	0	12	0	21	1	0	22	2	0	2	1	5	4	26	21	0	51	90
05:00 PM	11	1	0	0	12	1	31	2	0	34	0	2	10	0	12	8	24	21	0	53	111
05:15 PM	21	2	1	0	24	0	17	0	0	17	0	2	4	0	6	7	18	34	0	59	106
05:30 PM	15	1	0	0	16	0	34	0	0	34	1	0	3	0	4	7	20	19	0	46	100
Total Volume	56	7	1	0	64	1	103	3	0	107	3	4	19	1	27	26	88	95	0	209	407
% App. Total	87.5	10.9	1.6	0		0.9	96.3	2.8	0		11.1	14.8	70.4	3.7		12.4	42.1	45.5	0		
PHF	.667	.583	.250	.000	.667	.250	.757	.375	.000	.787	.375	.500	.475	.250	.563	.813	.846	.699	.000	.886	.917

Traffic Data Service
Campbell, CA
(408) 377-2988
tdsbay@cs.com

File Name : 2PM FINAL
Site Code : 00000002
Start Date : 8/30/2011
Page No : 2



Traffic Data Service
Campbell, CA
(408) 377-2988
tdsbay@cs.com

File Name : 2PM FINAL
Site Code : 00000002
Start Date : 8/30/2011
Page No : 1

BIKES

Groups Printed- Bikes

	PEET RD Southbound					COCHRANE RD Westbound					PEET RD Northbound					COCHRANE RD Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
04:00 PM	0	0	0	0	0	0	1	0	0	1	0	0	1	0	1	0	0	0	0	0	2
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	2	2
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	1	0	0	1	0	0	1	0	1	1	0	1	0	2	4
05:00 PM	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	2
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	1	0	0	1	2
05:30 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	1	1	0	2	3
05:45 PM	0	1	0	0	1	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	3
Total	0	2	0	0	2	0	1	0	0	1	0	4	0	0	4	0	2	1	0	3	10
Grand Total	0	2	0	0	2	0	2	0	0	2	0	4	1	0	5	1	2	2	0	5	14
Apprch %	0	100	0	0		0	100	0	0		0	80	20	0		20	40	40	0		
Total %	0	14.3	0	0	14.3	0	14.3	0	0	14.3	0	28.6	7.1	0	35.7	7.1	14.3	14.3	0	35.7	

	PEET RD Southbound					COCHRANE RD Westbound					PEET RD Northbound					COCHRANE RD Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 05:00 PM																					
05:00 PM	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	2
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	1	0	0	1	2
05:30 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	1	1	0	2	3
05:45 PM	0	1	0	0	1	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	3
Total Volume	0	2	0	0	2	0	1	0	0	1	0	4	0	0	4	0	2	1	0	3	10
% App. Total	0	100	0	0		0	100	0	0		0	100	0	0		0	66.7	33.3	0		
PHF	.000	.500	.000	.000	.500	.000	.250	.000	.000	.250	.000	.500	.000	.000	.500	.000	.500	.250	.000	.375	.833

Traffic Data Service
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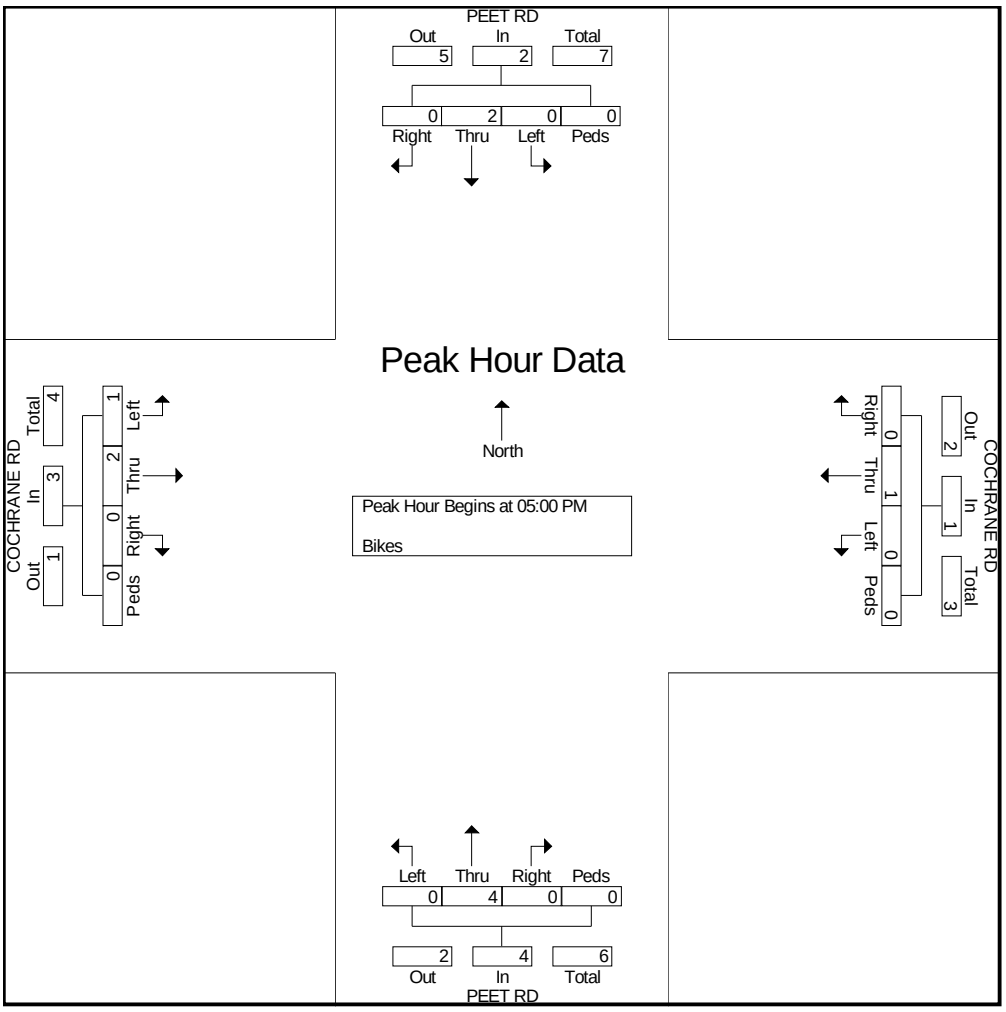
File Name : 2PM FINAL
Site Code : 00000002
Start Date : 8/30/2011
Page No : 2

BIKES



Start Date: 4/21/2009
Start Time: 7:00:00 AM

	MADRONE PKWY			COCHRANE RD			MADRONE PKWY			COCHRANE RD		
Start Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left
07:00 AM	5	0	36	44	102	17	3	5	0	1	128	7
07:15 AM	4	2	35	49	121	21	2	9	1	0	163	17
07:30 AM	8	3	56	80	130	31	2	4	2	1	156	5
07:45 AM	6	1	60	117	209	37	0	0	2	2	144	27
08:00 AM	3	1	69	63	178	35	8	0	0	3	183	17
08:15 AM	2	1	34	44	245	29	4	0	1	0	153	16
08:30 AM	12	3	34	52	184	40	9	1	0	6	150	24
08:45 AM	8	2	37	42	147	26	3	4	5	2	117	12

Start Date: 4/21/2009
Start Time: 4:00:00 PM

	MADRONE PKWY			COCHRANE RD			MADRONE PKWY			COCHRANE RD		
Start Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left
04:00 PM	5	6	65	10	182	31	20	5	7	5	177	22
04:15 PM	13	4	94	17	190	34	5	3	7	0	179	11
04:30 PM	3	2	111	12	152	64	5	1	3	1	167	15
04:45 PM	3	10	92	13	183	56	3	4	4	6	168	26
05:00 PM	11	1	142	12	230	38	13	6	2	5	160	13
05:15 PM	0	1	114	18	188	65	15	2	6	6	195	36
05:30 PM	4	6	132	22	187	71	15	6	8	4	155	29
05:45 PM	7	8	94	24	236	53	11	4	2	7	135	34

Start Date: 4/21/2009
Start Time: 7:00:00 AM

	US-101 SB RAMPS			COCHRANE RD						COCHRANE RD		
Start Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left
07:00 AM	99	0	13	10	99	0	0	0	0	46	133	0
07:15 AM	107	0	26	6	76	0	0	0	0	29	158	0
07:30 AM	121	0	23	11	103	0	0	0	0	36	174	0
07:45 AM	147	0	32	12	192	0	0	0	0	45	142	0
08:00 AM	124	0	24	21	173	0	0	0	0	50	234	0
08:15 AM	156	0	24	16	144	0	0	0	0	49	153	0
08:30 AM	157	0	27	15	105	0	0	0	0	43	167	0
08:45 AM	113	0	20	21	128	0	0	0	0	35	119	0

Start Date: 4/21/2009
Start Time: 4:00:00 PM

	US-101 SB RAMPS			COCHRANE RD						COCHRANE RD		
Start Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left
04:00 PM	84	0	70	29	120	0	0	0	0	97	185	0
04:15 PM	104	0	69	26	132	0	0	0	0	86	188	0
04:30 PM	117	0	66	32	116	0	0	0	0	92	176	0
04:45 PM	115	0	76	27	136	0	0	0	0	109	186	0
05:00 PM	122	0	52	23	147	0	0	0	0	89	184	0
05:15 PM	121	0	76	26	153	0	0	0	0	99	214	0
05:30 PM	139	0	68	26	146	0	0	0	0	97	199	0
05:45 PM	133	0	62	25	172	0	0	0	0	74	175	0

Start Date: 4/21/2009
Start Time: 7:00:00 AM

				COCHRANE RD			US-101 NB RAMPS			COCHRANE RD		
Start Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left
07:00 AM	0	0	0	99	30	0	24	0	64	131	26	0
07:15 AM	0	0	0	78	45	0	27	0	48	154	31	0
07:30 AM	0	0	0	93	39	0	21	0	81	161	44	0
07:45 AM	0	0	0	101	82	0	37	0	117	131	52	0
08:00 AM	0	0	0	104	64	0	31	0	123	186	74	0
08:15 AM	0	0	0	69	52	0	25	0	111	106	59	0
08:30 AM	0	0	0	64	40	0	40	0	89	141	54	0
08:45 AM	0	0	0	66	57	0	32	0	83	93	45	0

Start Date: 4/21/2009
Start Time: 4:00:00 PM

				COCHRANE RD			US-101 NB RAMPS			COCHRANE RD		
Start Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left
04:00 PM	0	0	0	30	101	0	48	0	54	143	106	0
04:15 PM	0	0	0	33	105	0	31	0	51	146	109	0
04:30 PM	0	0	0	33	84	0	32	0	52	133	118	0
04:45 PM	0	0	0	31	102	0	53	0	62	128	118	0
05:00 PM	0	0	0	35	105	0	42	0	64	135	119	0
05:15 PM	0	0	0	38	110	0	48	0	68	150	148	0
05:30 PM	0	0	0	36	95	0	51	0	66	152	139	0
05:45 PM	0	0	0	31	100	0	51	0	84	129	128	0

Start Date: 4/29/2009
Start Time: 7:00:00 AM

	DE PAUL DR			COCHRANE RD			DE PAUL DR			COCHRANE RD		
Start Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left
07:00 AM	23	0	0	8	87	0	0	0	1	0	26	34
07:15 AM	38	0	4	5	92	0	0	0	0	1	34	33
07:30 AM	25	0	7	11	128	0	0	0	0	0	45	31
07:45 AM	27	0	15	13	136	0	0	0	0	3	61	56
08:00 AM	31	0	5	10	125	0	0	0	0	0	58	56
08:15 AM	48	0	6	33	120	0	0	1	5	5	67	51
08:30 AM	43	1	2	11	91	0	2	0	0	7	28	35
08:45 AM	36	0	7	5	75	0	1	0	0	7	43	29

Start Date: 4/28/2009
Start Time: 4:00:00 PM

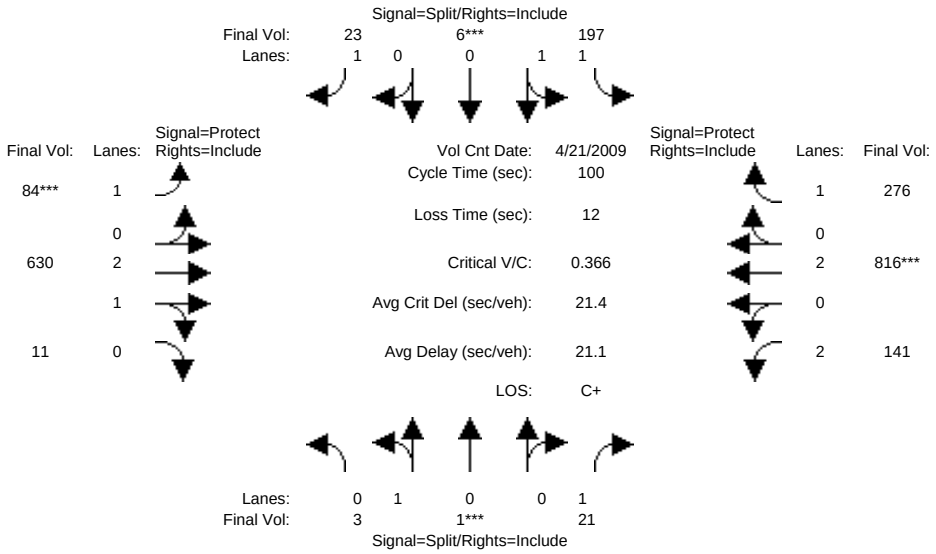
	DE PAUL DR			COCHRANE RD			DE PAUL DR			COCHRANE RD		
Start Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left
04:00 PM	78	1	12	12	50	0	0	1	5	3	84	70
04:15 PM	63	0	17	8	55	0	0	1	6	5	79	61
04:30 PM	63	0	19	8	66	0	0	2	6	5	85	64
04:45 PM	59	0	15	10	68	0	0	0	2	3	66	97
05:00 PM	55	0	10	11	62	0	0	0	8	3	70	84
05:15 PM	70	0	8	12	51	0	0	0	4	0	75	104
05:30 PM	70	0	19	19	68	0	0	0	1	0	81	84

APPENDIX B

Condit Road

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Existing AM

Intersection #1: Madrone Parkway/ Cochrane Road

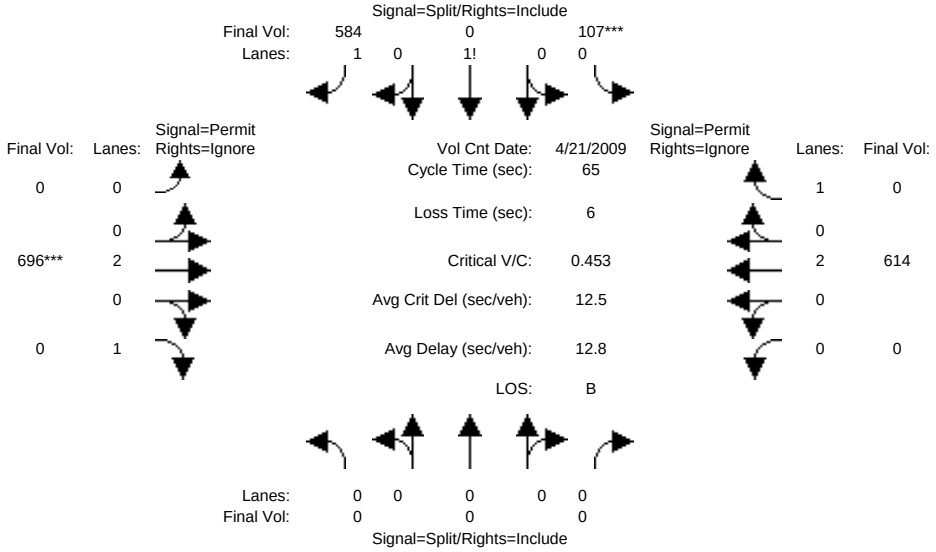


Street Name:	Madrone Parkway						Cochrane Road					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Min. Green:	10	10	10	10	10	10	7	10	10	7	10	10
Volume Module: >> Count Date: 21 Apr 2009 << 7:45-8:45am												
Base Vol:	3	1	21	197	6	23	84	630	11	141	816	276
Growth 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
Initial Bse:	3	1	21	197	6	23	84	630	11	141	816	276
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	3	1	21	197	6	23	84	630	11	141	816	276
User 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
PHF 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
PHF Volume:	3	1	21	197	6	23	84	630	11	141	816	276
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	3	1	21	197	6	23	84	630	11	141	816	276
PCE 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
MLF 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
Final Vol.:	3	1	21	197	6	23	84	630	11	141	816	276
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.95	0.95	0.92	0.93	0.95	0.92	0.92	0.98	0.95	0.83	1.00	0.92
Lanes:	0.75	0.25	1.00	1.94	0.06	1.00	1.00	2.95	0.05	2.00	2.00	1.00
Final Sat.:	1350	450	1750	3445	105	1750	1750	5504	96	3150	3800	1750
Capacity Analysis Module:												
Vol/Sat:	0.00	0.00	0.01	0.06	0.06	0.01	0.05	0.11	0.11	0.04	0.21	0.16
Crit Moves:		****			****		****				****	
Green Time:	10.0	10.0	10.0	13.9	13.9	13.9	11.7	39.7	39.7	24.3	52.4	52.4
Volume/Cap:	0.02	0.02	0.12	0.41	0.41	0.09	0.41	0.29	0.29	0.18	0.41	0.30
Delay/Veh:	40.6	40.6	41.3	39.8	39.8	37.7	42.3	20.6	20.6	30.1	14.6	13.7
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	40.6	40.6	41.3	39.8	39.8	37.7	42.3	20.6	20.6	30.1	14.6	13.7
HCM2kAvg:	0	0	1	3	3	1	3	4	4	2	7	5

Condit Road

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Existing AM

Intersection #2: 101 SB Ramps/Cochrane Road



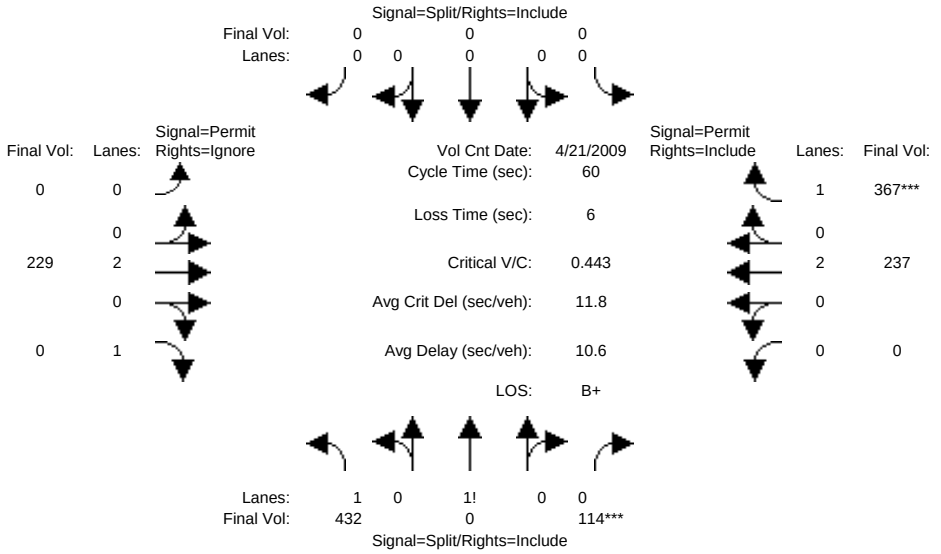
Street Name: 101 SB Ramps Cochrane Road

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Min. Green:	10	10	10	10	10	10	7	10	10	7	10	10
Volume Module: >> Count Date: 21 Apr 2009 << 7:45-8:45am												
Base Vol:	0	0	0	107	0	584	0	696	187	0	614	64
Growth 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
Initial Bse:	0	0	0	107	0	584	0	696	187	0	614	64
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	0	0	107	0	584	0	696	187	0	614	64
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00
PHF Volume:	0	0	0	107	0	584	0	696	0	0	614	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	0	0	107	0	584	0	696	0	0	614	0
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00
Final Vol.:	0	0	0	107	0	584	0	696	0	0	614	0
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.92	1.00	0.92	0.92	1.00	0.92	0.92	1.00	0.92	0.92	1.00	0.92
Lanes:	0.00	0.00	0.00	0.27	0.00	1.73	0.00	2.00	1.00	0.00	2.00	1.00
Final Sat.:	0	0	0	469	0	3031	0	3800	1750	0	3800	1750
Capacity Analysis Module:												
Vol/Sat:	0.00	0.00	0.00	0.23	0.00	0.19	0.00	0.18	0.00	0.00	0.16	0.00
Crit Moves:				****				****				
Green Time:	0.0	0.0	0.0	32.7	0.0	32.7	0.0	26.3	0.0	0.0	26.3	0.0
Volume/Cap:	0.00	0.00	0.00	0.45	0.00	0.38	0.00	0.45	0.00	0.00	0.40	0.00
Delay/Veh:	0.0	0.0	0.0	10.6	0.0	10.1	0.0	14.3	0.0	0.0	13.9	0.0
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	0.0	0.0	0.0	10.6	0.0	10.1	0.0	14.3	0.0	0.0	13.9	0.0
HCM2kAvg:	0	0	0	5	0	4	0	5	0	0	4	0

Condit Road

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Existing AM

Intersection #3: 101 NB Ramps/Cochrane Road

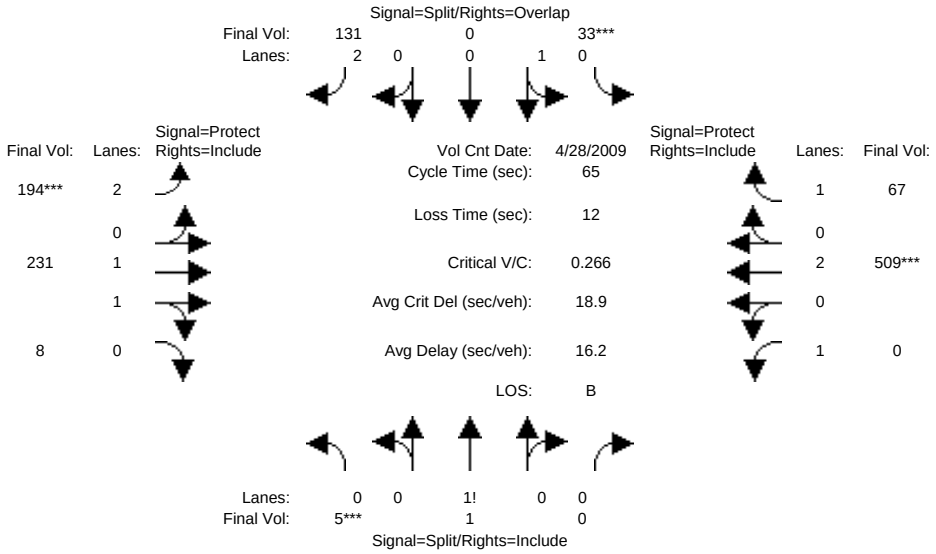


Street Name:	101 NB Ramps						Cochrane Road					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Min. Green:	10	10	10	10	10	10	7	10	10	7	10	10
Volume Module: >> Count Date: 21 Apr 2009 << 7:30-8:30am												
Base Vol:	432	0	114	0	0	0	0	229	584	0	237	367
Growth 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
Initial Bse:	432	0	114	0	0	0	0	229	584	0	237	367
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	432	0	114	0	0	0	0	229	584	0	237	367
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
PHF Volume:	432	0	114	0	0	0	0	229	0	0	237	367
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	432	0	114	0	0	0	0	229	0	0	237	367
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
Final Vol.:	432	0	114	0	0	0	0	229	0	0	237	367
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.92	1.00	0.92	0.92	1.00	0.92	0.92	1.00	0.92	0.92	1.00	0.92
Lanes:	1.65	0.00	0.35	0.00	0.00	0.00	0.00	2.00	1.00	0.00	2.00	1.00
Final Sat.:	2895	0	605	0	0	0	0	3800	1750	0	3800	1750
Capacity Analysis Module:												
Vol/Sat:	0.15	0.00	0.19	0.00	0.00	0.00	0.00	0.06	0.00	0.00	0.06	0.21
Crit Moves:			****									****
Green Time:	25.6	0.0	25.6	0.0	0.0	0.0	0.0	28.4	0.0	0.0	28.4	28.4
Volume/Cap:	0.35	0.00	0.44	0.00	0.00	0.00	0.00	0.13	0.00	0.00	0.13	0.44
Delay/Veh:	11.7	0.0	12.4	0.0	0.0	0.0	0.0	8.9	0.0	0.0	8.9	10.9
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	11.7	0.0	12.4	0.0	0.0	0.0	0.0	8.9	0.0	0.0	8.9	10.9
HCM2kAvg:	3	0	5	0	0	0	0	1	0	0	1	4

Condit Road

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Existing AM

Intersection #4: De Paul Drive/Cochrane Road

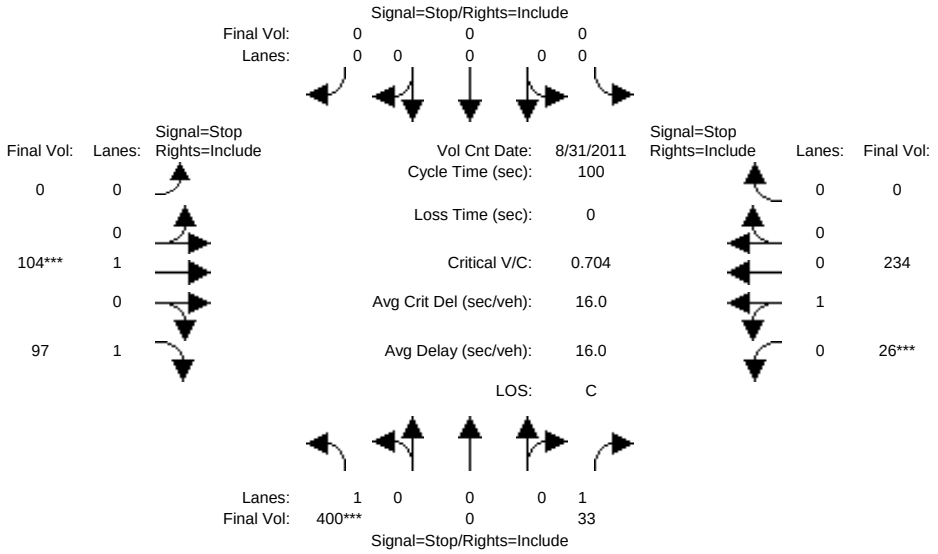


Street Name:	De Paul Drive						Cochrane Road					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Min. Green:	10	10	10	10	10	10	7	10	10	7	10	10
Volume Module: >> Count Date: 28 Apr 2009 << 7:30-8:30am												
Base Vol:	5	1	0	33	0	131	194	231	8	0	509	67
Growth 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
Initial Bse:	5	1	0	33	0	131	194	231	8	0	509	67
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	5	1	0	33	0	131	194	231	8	0	509	67
User 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
PHF 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
PHF Volume:	5	1	0	33	0	131	194	231	8	0	509	67
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	5	1	0	33	0	131	194	231	8	0	509	67
PCE 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
MLF 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
Final Vol.:	5	1	0	33	0	131	194	231	8	0	509	67
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.95	0.95	0.92	0.95	0.95	0.83	0.83	0.97	0.95	0.92	1.00	0.92
Lanes:	0.83	0.17	0.00	1.00	0.00	2.00	2.00	1.93	0.07	1.00	2.00	1.00
Final Sat.:	1500	300	0	1800	0	3150	3150	3576	124	1750	3800	1750
Capacity Analysis Module:												
Vol/Sat:	0.00	0.00	0.00	0.02	0.00	0.04	0.06	0.06	0.06	0.00	0.13	0.04
Crit Moves:	****			****			****				****	
Green Time:	10.0	10.0	0.0	10.0	0.0	20.4	10.4	33.0	33.0	0.0	22.6	22.6
Volume/Cap:	0.02	0.02	0.00	0.12	0.00	0.13	0.39	0.13	0.13	0.00	0.39	0.11
Delay/Veh:	23.4	23.4	0.0	23.9	0.0	16.0	24.9	8.5	8.5	0.0	16.2	14.5
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	23.4	23.4	0.0	23.9	0.0	16.0	24.9	8.5	8.5	0.0	16.2	14.5
HCM2kAvg:	0	0	0	1	0	1	2	1	1	0	4	1

Condit Road

Level Of Service Computation Report
2000 HCM 4-Way Stop (Future Volume Alternative)
Existing AM

Intersection #5: Mission View Drive/Cochrane Road

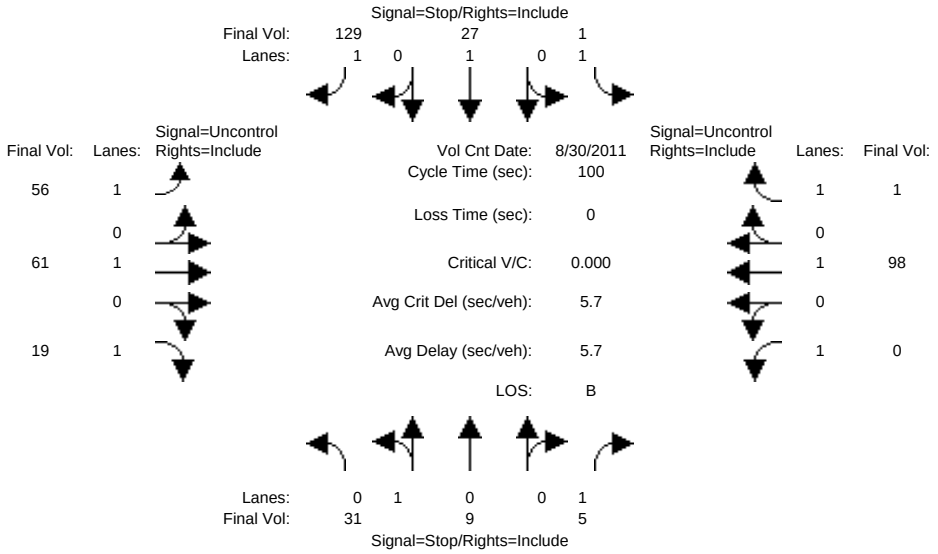


Street Name:	Mission View Drive						Cochrane Road					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Min. Green:	7	10	10	7	10	10	7	10	10	7	10	10
Volume Module: >> Count Date: 31 Aug 2011 << 7:15am - 8:15 am												
Base Vol:	400	0	33	0	0	0	0	104	97	26	234	0
Growth 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
Initial Bse:	400	0	33	0	0	0	0	104	97	26	234	0
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	400	0	33	0	0	0	0	104	97	26	234	0
User 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
PHF 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
PHF Volume:	400	0	33	0	0	0	0	104	97	26	234	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	400	0	33	0	0	0	0	104	97	26	234	0
PCE 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
MLF 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
Final Vol.:	400	0	33	0	0	0	0	104	97	26	234	0
Saturation Flow Module:												
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	0.00	1.00	0.00	0.00	0.00	0.00	1.00	1.00	0.10	0.90	0.00
Final Sat.:	568	0	696	0	0	0	0	550	615	58	526	0
Capacity Analysis Module:												
Vol/Sat:	0.70	xxxx	0.05	xxxx	xxxx	xxxx	xxxx	0.19	0.16	0.45	0.45	xxxx
Crit Moves:	****							****		****		
Delay/Veh:	21.7	0.0	8.0	0.0	0.0	0.0	0.0	10.3	9.2	13.3	13.3	0.0
Delay 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
AdjDel/Veh:	21.7	0.0	8.0	0.0	0.0	0.0	0.0	10.3	9.2	13.3	13.3	0.0
LOS by Move:	C	*	A	*	*	*	*	B	A	B	B	*
ApproachDel:		20.6			xxxxxx			9.7			13.3	
Delay Adj:		1.00			xxxxx			1.00			1.00	
ApprAdjDel:		20.6			xxxxxx			9.7			13.3	
LOS by Appr:		C			*			A			B	

Condit Road

Level Of Service Computation Report
2000 HCM Unsignalized (Future Volume Alternative)
Existing AM

Intersection #6: Peet Road/Cochrane Road

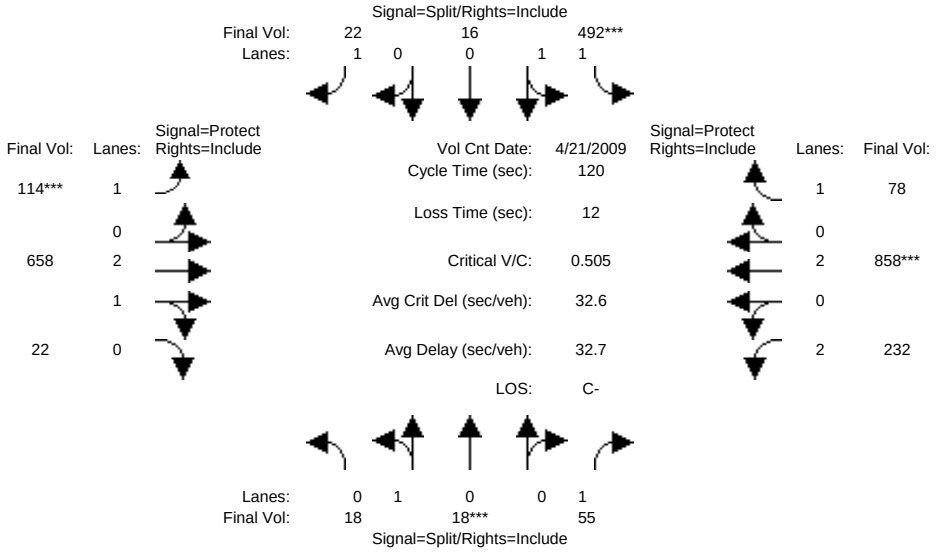


Street Name:	Peet Road						Cochrane Road					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Volume Module: >> Count Date: 30 Aug 2011 << 7:15am-8:15am												
Base Vol:	31	9	5	1	27	129	56	61	19	0	98	1
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	31	9	5	1	27	129	56	61	19	0	98	1
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	31	9	5	1	27	129	56	61	19	0	98	1
User 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
PHF 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
PHF Volume:	31	9	5	1	27	129	56	61	19	0	98	1
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Final Vol.:	31	9	5	1	27	129	56	61	19	0	98	1
Critical Gap Module:												
Critical Gp:	7.1	6.5	6.2	7.1	6.5	6.2	4.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx
FollowUpTim:	3.5	4.0	3.3	3.5	4.0	3.3	2.2	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	350	272	61	288	290	98	99	xxxx	xxxxx	xxxx	xxxx	xxxxx
Potent Cap.:	609	638	1010	669	624	963	1507	xxxx	xxxxx	xxxx	xxxx	xxxxx
Move Cap.:	495	614	1010	639	600	963	1507	xxxx	xxxxx	xxxx	xxxx	xxxxx
Volume/Cap:	0.06	0.01	0.00	0.00	0.04	0.13	0.04	xxxx	xxxx	xxxx	xxxx	xxxx
Level Of Service Module:												
Queue:	xxxxx	xxxx	0.0	0.0	0.1	0.5	0.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Stopped Del:	xxxxx	xxxx	8.6	10.6	11.3	9.3	7.5	xxxx	xxxxx	xxxxx	xxxx	xxxxx
LOS by Move:	*	*	A	B	B	A	A	*	*	*	*	*
Movement:	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT
Shared Cap.:	518	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	0.3	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd StpDel:	12.5	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	B	*	*	*	*	*	*	*	*	*	*	*
ApproachDel:		12.1			9.7			xxxxxx			xxxxxx	
ApproachLOS:		B			A			*			*	

Condit Road

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Existing PM

Intersection #1: Madrone Parkway/ Cochrane Road

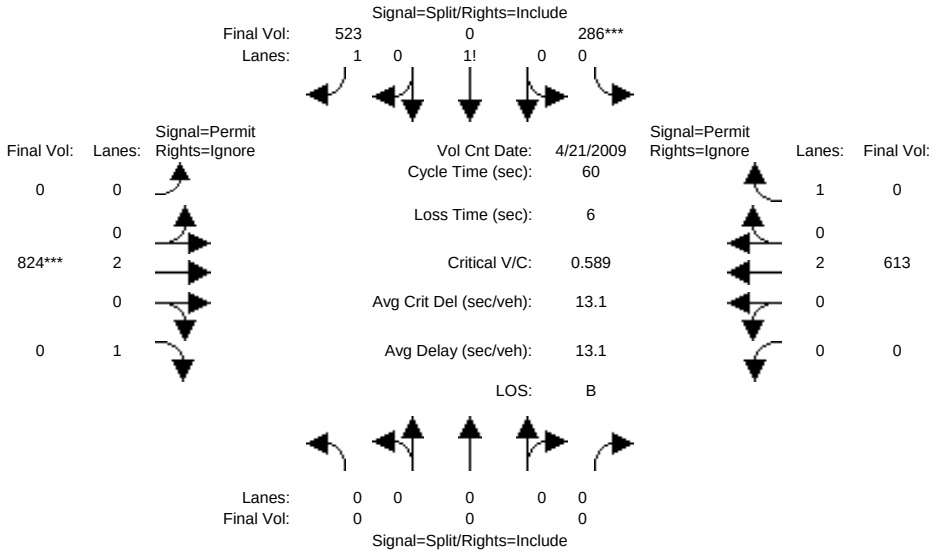


Street Name:	Madrone Parkway						Cochrane Road					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Min. Green:	10	10	10	10	10	10	7	10	10	7	10	10
Volume Module: >> Count Date: 21 Apr 2009 << 5:00-6:00pm												
Base Vol:	18	18	54	482	16	22	112	645	22	227	841	76
Growth 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
Initial Bse:	18	18	54	482	16	22	112	645	22	227	841	76
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	18	18	54	482	16	22	112	645	22	227	841	76
User 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
PHF Adj:	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
PHF Volume:	18	18	55	492	16	22	114	658	22	232	858	78
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	18	18	55	492	16	22	114	658	22	232	858	78
PCE 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
MLF 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
Final Vol.:	18	18	55	492	16	22	114	658	22	232	858	78
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.95	0.95	0.92	0.93	0.95	0.92	0.92	0.98	0.95	0.83	1.00	0.92
Lanes:	0.50	0.50	1.00	1.94	0.06	1.00	1.00	2.90	0.10	2.00	2.00	1.00
Final Sat.:	900	900	1750	3436	114	1750	1750	5415	185	3150	3800	1750
Capacity Analysis Module:												
Vol/Sat:	0.02	0.02	0.03	0.14	0.14	0.01	0.07	0.12	0.12	0.07	0.23	0.04
Crit Moves:		****		****			****				****	
Green Time:	10.0	10.0	10.0	32.3	32.3	32.3	14.7	40.9	40.9	24.8	51.0	51.0
Volume/Cap:	0.24	0.24	0.38	0.53	0.53	0.05	0.53	0.36	0.36	0.36	0.53	0.10
Delay/Veh:	52.3	52.3	53.7	38.0	38.0	32.5	51.9	29.8	29.8	41.1	26.0	20.8
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	52.3	52.3	53.7	38.0	38.0	32.5	51.9	29.8	29.8	41.1	26.0	20.8
HCM2kAvg:	1	1	2	8	8	1	5	6	6	4	11	2

Condit Road

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Existing PM

Intersection #2: 101 SB Ramps/Cochrane Road

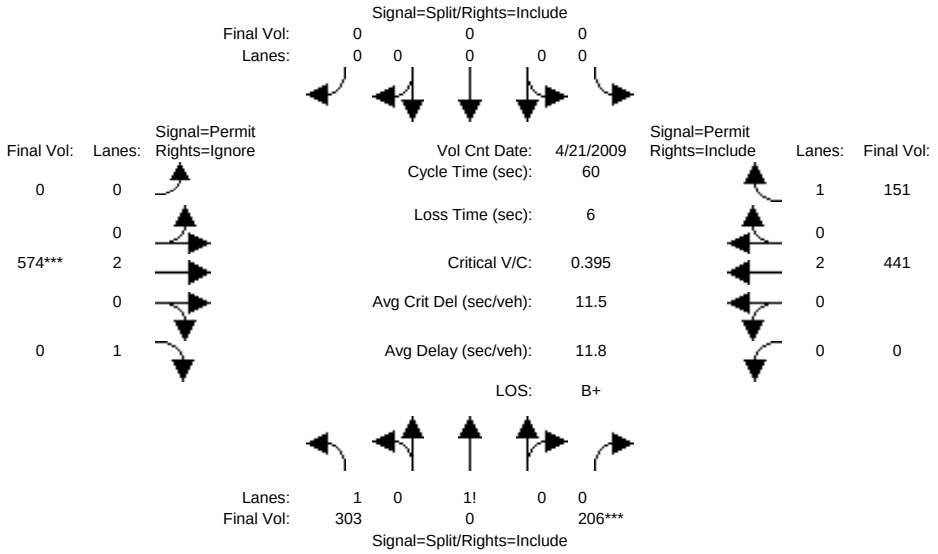


Street Name:	101 SB Ramps						Cochrane Road					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Min. Green:	10	10	10	10	10	10	7	10	10	7	10	10
Volume Module: >> Count Date: 21 Apr 2009 << 4:45-5:45pm												
Base Vol:	0	0	0	272	0	497	0	783	394	0	582	102
Growth 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
Initial Bse:	0	0	0	272	0	497	0	783	394	0	582	102
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	0	0	272	0	497	0	783	394	0	582	102
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.00	0.95	0.95	0.00
PHF Volume:	0	0	0	286	0	523	0	824	0	0	613	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	0	0	286	0	523	0	824	0	0	613	0
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00
Final Vol.:	0	0	0	286	0	523	0	824	0	0	613	0
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.92	1.00	0.92	0.92	1.00	0.92	0.92	1.00	0.92	0.92	1.00	0.92
Lanes:	0.00	0.00	0.00	0.52	0.00	1.48	0.00	2.00	1.00	0.00	2.00	1.00
Final Sat.:	0	0	0	915	0	2585	0	3800	1750	0	3800	1750
Capacity Analysis Module:												
Vol/Sat:	0.00	0.00	0.00	0.31	0.00	0.20	0.00	0.22	0.00	0.00	0.16	0.00
Crit Moves:				****				****				
Green Time:	0.0	0.0	0.0	31.9	0.0	31.9	0.0	22.1	0.0	0.0	22.1	0.0
Volume/Cap:	0.00	0.00	0.00	0.59	0.00	0.38	0.00	0.59	0.00	0.00	0.44	0.00
Delay/Veh:	0.0	0.0	0.0	10.3	0.0	8.4	0.0	16.0	0.0	0.0	14.5	0.0
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	0.0	0.0	0.0	10.3	0.0	8.4	0.0	16.0	0.0	0.0	14.5	0.0
HCM2kAvg:	0	0	0	8	0	4	0	6	0	0	4	0

Condit Road

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Existing PM

Intersection #3: 101 NB Ramps/Cochrane Road

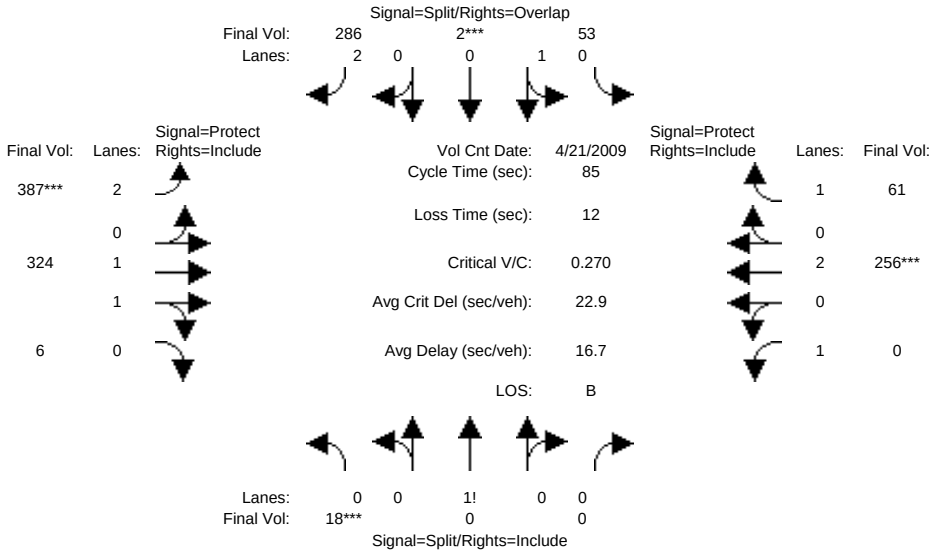


Street Name:	101 NB Ramps						Cochrane Road					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Min. Green:	10	10	10	10	10	10	7	10	10	7	10	10
Volume Module: >> Count Date: 21 Apr 2009 << 5:00-6:00pm												
Base Vol:	282	0	192	0	0	0	0	534	566	0	410	140
Growth 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
Initial Bse:	282	0	192	0	0	0	0	534	566	0	410	140
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	282	0	192	0	0	0	0	534	566	0	410	140
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
PHF Adj:	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.00	0.93	0.93	0.93
PHF Volume:	303	0	206	0	0	0	0	574	0	0	441	151
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	303	0	206	0	0	0	0	574	0	0	441	151
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
Final Vol.:	303	0	206	0	0	0	0	574	0	0	441	151
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.92	1.00	0.92	0.92	1.00	0.92	0.92	1.00	0.92	0.92	1.00	0.92
Lanes:	1.42	0.00	0.58	0.00	0.00	0.00	0.00	2.00	1.00	0.00	2.00	1.00
Final Sat.:	2491	0	1009	0	0	0	0	3800	1750	0	3800	1750
Capacity Analysis Module:												
Vol/Sat:	0.12	0.00	0.20	0.00	0.00	0.00	0.00	0.15	0.00	0.00	0.12	0.09
Crit Moves:			****					****				
Green Time:	31.1	0.0	31.1	0.0	0.0	0.0	0.0	22.9	0.0	0.0	22.9	22.9
Volume/Cap:	0.24	0.00	0.40	0.00	0.00	0.00	0.00	0.40	0.00	0.00	0.30	0.23
Delay/Veh:	8.0	0.0	9.0	0.0	0.0	0.0	0.0	13.7	0.0	0.0	13.1	12.7
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	8.0	0.0	9.0	0.0	0.0	0.0	0.0	13.7	0.0	0.0	13.1	12.7
HCM2kAvg:	2	0	4	0	0	0	0	4	0	0	3	2

Condit Road

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Existing PM

Intersection #4: De Paul Drive/Cochrane Road

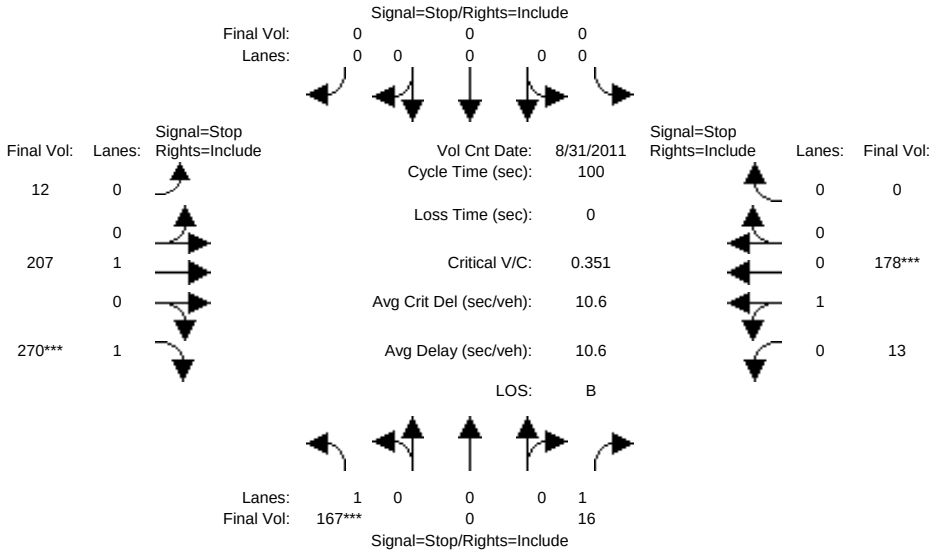


Street Name:	De Paul Drive						Cochrane Road					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Min. Green:	10	10	10	10	10	10	7	10	10	7	10	10
Volume Module: >> Count Date: 21 Apr 2009 << 5:00-6:00p												
Base Vol:	17	0	0	50	2	269	364	305	6	0	241	57
Growth 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
Initial Bse:	17	0	0	50	2	269	364	305	6	0	241	57
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	17	0	0	50	2	269	364	305	6	0	241	57
User 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
PHF Adj:	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
PHF Volume:	18	0	0	53	2	286	387	324	6	0	256	61
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	18	0	0	53	2	286	387	324	6	0	256	61
PCE 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
MLF 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
Final Vol.:	18	0	0	53	2	286	387	324	6	0	256	61
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.92	1.00	0.92	0.95	0.95	0.83	0.83	0.97	0.95	0.92	1.00	0.92
Lanes:	1.00	0.00	0.00	0.96	0.04	2.00	2.00	1.96	0.04	1.00	2.00	1.00
Final Sat.:	1750	0	0	1731	69	3150	3150	3629	71	1750	3800	1750
Capacity Analysis Module:												
Vol/Sat:	0.01	0.00	0.00	0.03	0.03	0.09	0.12	0.09	0.09	0.00	0.07	0.03
Crit Moves:	****				****		****				****	
Green Time:	10.0	0.0	0.0	10.0	10.0	44.2	34.2	53.0	53.0	0.0	18.8	18.8
Volume/Cap:	0.09	0.00	0.00	0.26	0.26	0.17	0.31	0.14	0.14	0.00	0.31	0.16
Delay/Veh:	33.6	0.0	0.0	34.8	34.8	10.8	17.4	6.6	6.6	0.0	27.9	26.9
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	33.6	0.0	0.0	34.8	34.8	10.8	17.4	6.6	6.6	0.0	27.9	26.9
HCM2kAvg:	0	0	0	2	2	2	3	2	2	0	3	1

Condit Road

Level Of Service Computation Report
2000 HCM 4-Way Stop (Future Volume Alternative)
Existing PM

Intersection #5: Mission View Drive/Cochrane Road

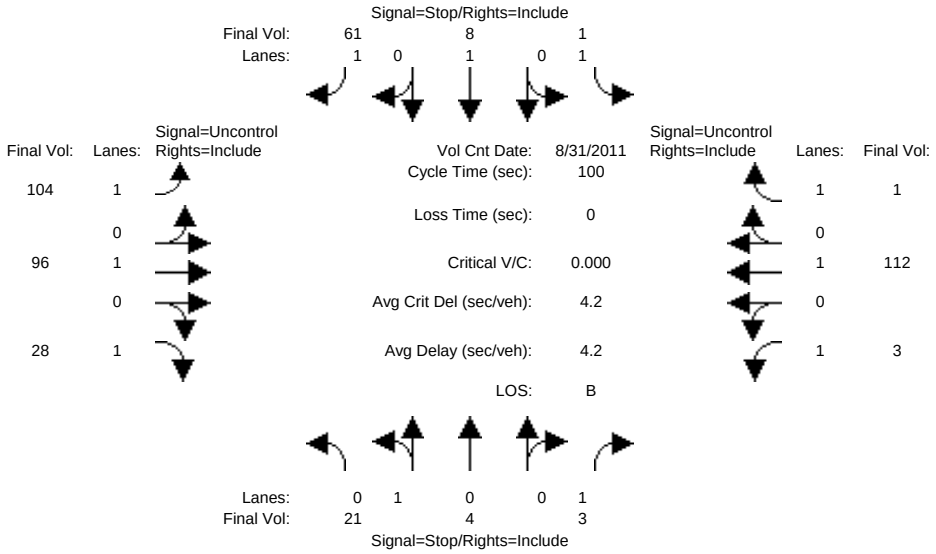


Street Name:	Mission View Drive						Cochrane Road					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Min. Green:	7	10	10	7	10	10	7	10	10	7	10	10
Volume Module: >> Count Date: 31 Aug 2011 << 4:45-5:45PM												
Base Vol:	156	0	15	0	0	0	11	194	252	12	166	0
Growth 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
Initial Bse:	156	0	15	0	0	0	11	194	252	12	166	0
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	156	0	15	0	0	0	11	194	252	12	166	0
User 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
PHF Adj:	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
PHF Volume:	167	0	16	0	0	0	12	207	270	13	178	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	167	0	16	0	0	0	12	207	270	13	178	0
PCE 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
MLF 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
Final Vol.:	167	0	16	0	0	0	12	207	270	13	178	0
Saturation Flow Module:												
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	0.00	1.00	0.00	0.00	0.00	0.05	0.95	1.00	0.07	0.93	0.00
Final Sat.:	529	0	638	0	0	0	36	629	767	42	585	0
Capacity Analysis Module:												
Vol/Sat:	0.32	xxxx	0.03	xxxx	xxxx	xxxx	0.33	0.33	0.35	0.30	0.30	xxxx
Crit Moves:	****								****		****	
Delay/Veh:	11.9	0.0	8.1	0.0	0.0	0.0	10.5	10.5	9.7	10.9	10.9	0.0
Delay 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
AdjDel/Veh:	11.9	0.0	8.1	0.0	0.0	0.0	10.5	10.5	9.7	10.9	10.9	0.0
LOS by Move:	B	*	A	*	*	*	B	B	A	B	B	*
ApproachDel:	11.6			xxxxxx			10.1			10.9		
Delay Adj:	1.00			xxxxx			1.00			1.00		
ApprAdjDel:	11.6			xxxxxx			10.1			10.9		
LOS by Appr:	B			*			B			B		

Condit Road

Level Of Service Computation Report
2000 HCM Unsignalized (Future Volume Alternative)
Existing PM

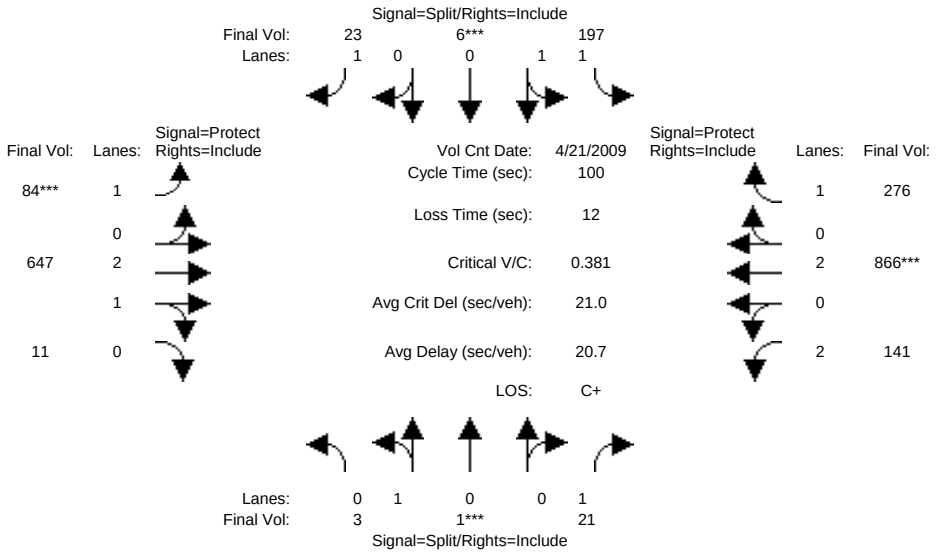
Intersection #6: Peet Road/Cochrane Road



Street Name:	Peet Road						Cochrane Road					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Volume Module: >> Count Date: 31 Aug 2011 << 4:45-5:45pm												
Base Vol:	19	4	3	1	7	56	95	88	26	3	103	1
Growth 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
Initial Bse:	19	4	3	1	7	56	95	88	26	3	103	1
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	19	4	3	1	7	56	95	88	26	3	103	1
User 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
PHF Adj:	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
PHF Volume:	21	4	3	1	8	61	104	96	28	3	112	1
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Final Vol.:	21	4	3	1	8	61	104	96	28	3	112	1
Critical Gap Module:												
Critical Gp:	7.1	6.5	6.2	7.1	6.5	6.2	4.1	xxxx	xxxxx	4.1	xxxx	xxxxx
FollowUpTim:	3.5	4.0	3.3	3.5	4.0	3.3	2.2	xxxx	xxxxx	2.2	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	457	423	96	440	450	112	113	xxxx	xxxxx	124	xxxx	xxxxx
Potent Cap.:	517	525	966	531	507	946	1488	xxxx	xxxxx	1475	xxxx	xxxxx
Move Cap.:	452	488	966	497	471	946	1488	xxxx	xxxxx	1475	xxxx	xxxxx
Volume/Cap:	0.05	0.01	0.00	0.00	0.02	0.06	0.07	xxxx	xxxx	0.00	xxxx	xxxx
Level Of Service Module:												
Queue:	xxxxx	xxxx	0.0	0.0	0.0	0.2	0.2	xxxx	xxxxx	0.0	xxxx	xxxxx
Stopped Del:	xxxxx	xxxx	8.7	12.3	13.3	9.1	7.6	xxxx	xxxxx	7.4	xxxx	xxxxx
LOS by Move:	*	*	A	B	B	A	A	*	*	A	*	*
Movement:	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT
Shared Cap.:	458	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	0.2	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd StpDel:	13.3	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	B	*	*	*	*	*	*	*	*	*	*	*
ApproachDel:		13.3			9.5			xxxxxx			xxxxxx	
ApproachLOS:		B			A			*			*	

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Project AM

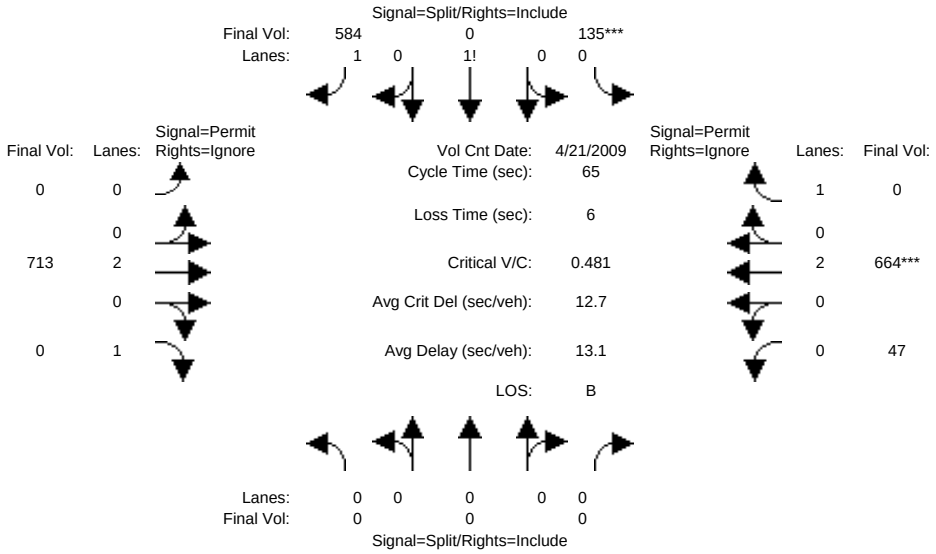
Intersection #1: Madrone Parkway/ Cochrane Road



Street Name:	Madrone Parkway						Cochrane Road					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Min. Green:	10	10	10	10	10	10	7	10	10	7	10	10
Volume Module: >> Count Date: 21 Apr 2009 << 7:45-8:45am												
Base Vol:	3	1	21	197	6	23	84	630	11	141	816	276
Growth 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
Initial Bse:	3	1	21	197	6	23	84	630	11	141	816	276
Added Vol:	0	0	0	0	0	0	0	17	0	0	50	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	3	1	21	197	6	23	84	647	11	141	866	276
User 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
PHF 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
PHF Volume:	3	1	21	197	6	23	84	647	11	141	866	276
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	3	1	21	197	6	23	84	647	11	141	866	276
PCE 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
MLF 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
Final Vol.:	3	1	21	197	6	23	84	647	11	141	866	276
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.95	0.95	0.92	0.93	0.95	0.92	0.92	0.98	0.95	0.83	1.00	0.92
Lanes:	0.75	0.25	1.00	1.94	0.06	1.00	1.00	2.95	0.05	2.00	2.00	1.00
Final Sat.:	1350	450	1750	3445	105	1750	1750	5506	94	3150	3800	1750
Capacity Analysis Module:												
Vol/Sat:	0.00	0.00	0.01	0.06	0.06	0.01	0.05	0.12	0.12	0.04	0.23	0.16
Crit Moves:		****			****		****				****	
Green Time:	10.0	10.0	10.0	13.4	13.4	13.4	11.2	40.5	40.5	24.1	53.4	53.4
Volume/Cap:	0.02	0.02	0.12	0.43	0.43	0.10	0.43	0.29	0.29	0.19	0.43	0.30
Uniform Del:	40.6	40.6	41.0	39.8	39.8	38.0	41.4	20.1	20.1	30.1	14.1	12.9
IncremntDel:	0.0	0.0	0.3	0.6	0.6	0.2	1.5	0.1	0.1	0.1	0.1	0.2
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay 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
Delay/Veh:	40.6	40.6	41.3	40.4	40.4	38.2	42.9	20.1	20.1	30.3	14.2	13.1
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	40.6	40.6	41.3	40.4	40.4	38.2	42.9	20.1	20.1	30.3	14.2	13.1
HCM2kAvg:	0	0	1	3	3	1	3	5	4	2	8	5

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Project AM

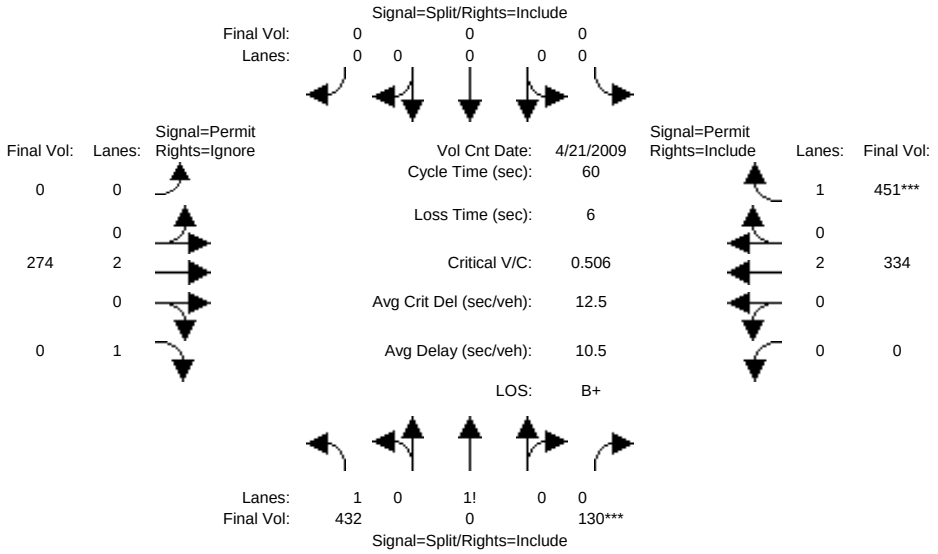
Intersection #2: 101 SB Ramps/Cochrane Road



Street Name:	101 SB Ramps						Cochrane Road					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Min. Green:	10	10	10	10	10	10	7	10	10	7	10	10
Volume Module: >> Count Date: 21 Apr 2009 << 7:45-8:45am												
Base Vol:	0	0	0	107	0	584	0	696	187	0	614	64
Growth 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
Initial Bse:	0	0	0	107	0	584	0	696	187	0	614	64
Added Vol:	0	0	0	28	0	0	0	17	0	47	50	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	0	0	135	0	584	0	713	187	47	664	64
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00
PHF Volume:	0	0	0	135	0	584	0	713	0	47	664	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	0	0	135	0	584	0	713	0	47	664	0
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00
Final Vol.:	0	0	0	135	0	584	0	713	0	47	664	0
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.92	1.00	0.92	0.92	1.00	0.92	0.92	1.00	0.92	0.95	0.98	0.92
Lanes:	0.00	0.00	0.00	0.32	0.00	1.68	0.00	2.00	1.00	0.14	1.86	1.00
Final Sat.:	0	0	0	553	0	2947	0	3800	1750	245	3455	1750
Capacity Analysis Module:												
Vol/Sat:	0.00	0.00	0.00	0.24	0.00	0.20	0.00	0.19	0.00	0.19	0.19	0.00
Crit Moves:				****							****	
Green Time:	0.0	0.0	0.0	33.0	0.0	33.0	0.0	26.0	0.0	26.0	26.0	0.0
Volume/Cap:	0.00	0.00	0.00	0.48	0.00	0.39	0.00	0.47	0.00	0.48	0.48	0.00
Uniform Del:	0.0	0.0	0.0	10.4	0.0	9.8	0.0	14.4	0.0	14.5	14.5	0.0
IncremntDel:	0.0	0.0	0.0	0.2	0.0	0.1	0.0	0.2	0.0	0.2	0.2	0.0
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	0.00	0.00	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00	1.00	0.00
Delay/Veh:	0.0	0.0	0.0	10.7	0.0	10.0	0.0	14.6	0.0	14.7	14.7	0.0
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	0.0	0.0	0.0	10.7	0.0	10.0	0.0	14.6	0.0	14.7	14.7	0.0
HCM2kAvg:	0	0	0	6	0	4	0	5	0	5	5	0

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Project AM

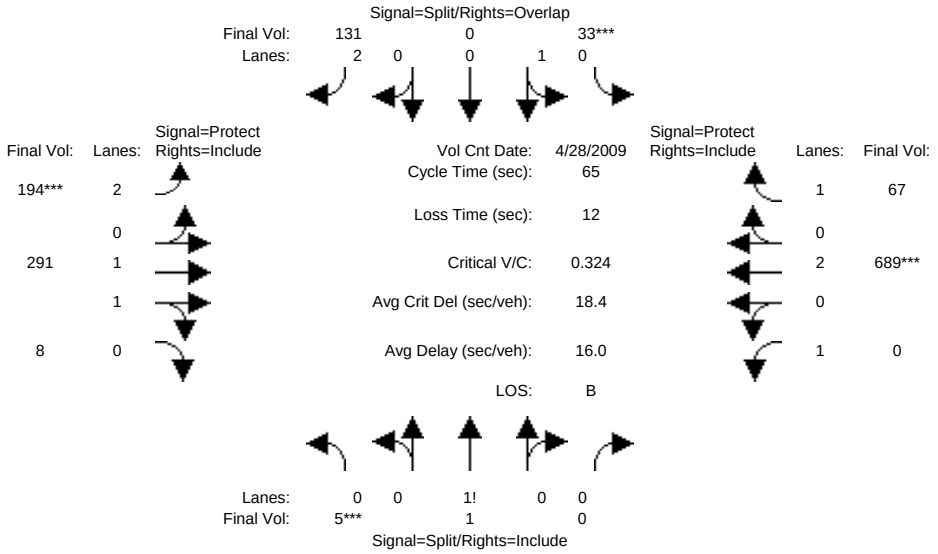
Intersection #3: 101 NB Ramps/Cochrane Road



Street Name:	101 NB Ramps						Cochrane Road					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Min. Green:	10	10	10	10	10	10	7	10	10	7	10	10
Volume Module: >> Count Date: 21 Apr 2009 << 7:30-8:30am												
Base Vol:	432	0	114	0	0	0	0	229	584	0	237	367
Growth 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
Initial Bse:	432	0	114	0	0	0	0	229	584	0	237	367
Added Vol:	0	0	16	0	0	0	0	45	0	0	97	84
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	432	0	130	0	0	0	0	274	584	0	334	451
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
PHF Volume:	432	0	130	0	0	0	0	274	0	0	334	451
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	432	0	130	0	0	0	0	274	0	0	334	451
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
Final Vol.:	432	0	130	0	0	0	0	274	0	0	334	451
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.92	1.00	0.92	0.92	1.00	0.92	0.92	1.00	0.92	0.92	1.00	0.92
Lanes:	1.62	0.00	0.38	0.00	0.00	0.00	0.00	2.00	1.00	0.00	2.00	1.00
Final Sat.:	2842	0	658	0	0	0	0	3800	1750	0	3800	1750
Capacity Analysis Module:												
Vol/Sat:	0.15	0.00	0.20	0.00	0.00	0.00	0.00	0.07	0.00	0.00	0.09	0.26
Crit Moves:			****									****
Green Time:	23.4	0.0	23.4	0.0	0.0	0.0	0.0	30.6	0.0	0.0	30.6	30.6
Volume/Cap:	0.39	0.00	0.51	0.00	0.00	0.00	0.00	0.14	0.00	0.00	0.17	0.51
Uniform Del:	13.1	0.0	13.9	0.0	0.0	0.0	0.0	7.8	0.0	0.0	7.9	9.7
IncremntDel:	0.2	0.0	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	0.00	1.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00
Delay/Veh:	13.3	0.0	14.3	0.0	0.0	0.0	0.0	7.8	0.0	0.0	8.0	10.2
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	13.3	0.0	14.3	0.0	0.0	0.0	0.0	7.8	0.0	0.0	8.0	10.2
HCM2kAvg:	4	0	5	0	0	0	0	1	0	0	2	5

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Project AM

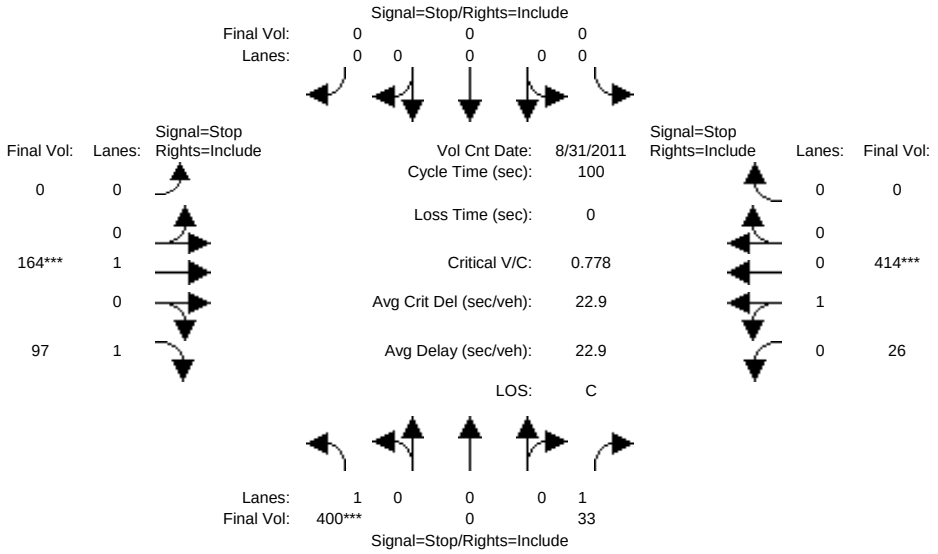
Intersection #4: De Paul Drive/Cochrane Road



Street Name:	De Paul Drive						Cochrane Road					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Min. Green:	10	10	10	10	10	10	7	10	10	7	10	10
Volume Module: >> Count Date: 28 Apr 2009 << 7:30-8:30am												
Base Vol:	5	1	0	33	0	131	194	231	8	0	509	67
Growth 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
Initial Bse:	5	1	0	33	0	131	194	231	8	0	509	67
Added Vol:	0	0	0	0	0	0	0	60	0	0	180	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	5	1	0	33	0	131	194	291	8	0	689	67
User 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
PHF 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
PHF Volume:	5	1	0	33	0	131	194	291	8	0	689	67
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	5	1	0	33	0	131	194	291	8	0	689	67
PCE 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
MLF 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
Final Vol.:	5	1	0	33	0	131	194	291	8	0	689	67
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.95	0.95	0.92	0.95	0.95	0.83	0.83	0.97	0.95	0.92	1.00	0.92
Lanes:	0.83	0.17	0.00	1.00	0.00	2.00	2.00	1.95	0.05	1.00	2.00	1.00
Final Sat.:	1500	300	0	1800	0	3150	3150	3601	99	1750	3800	1750
Capacity Analysis Module:												
Vol/Sat:	0.00	0.00	0.00	0.02	0.00	0.04	0.06	0.08	0.08	0.00	0.18	0.04
Crit Moves:	****			****			****				****	
Green Time:	10.0	10.0	0.0	10.0	0.0	18.4	8.4	33.0	33.0	0.0	24.6	24.6
Volume/Cap:	0.02	0.02	0.00	0.12	0.00	0.15	0.48	0.16	0.16	0.00	0.48	0.10
Uniform Del:	23.3	23.3	0.0	23.7	0.0	17.5	26.3	8.6	8.6	0.0	15.3	13.0
IncremntDel:	0.0	0.0	0.0	0.2	0.0	0.1	0.9	0.0	0.0	0.0	0.3	0.1
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00
Delay/Veh:	23.4	23.4	0.0	23.9	0.0	17.5	27.2	8.6	8.6	0.0	15.6	13.1
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	23.4	23.4	0.0	23.9	0.0	17.5	27.2	8.6	8.6	0.0	15.6	13.1
HCM2kAvg:	0	0	0	1	0	1	2	2	2	0	6	1

Level Of Service Computation Report
2000 HCM 4-Way Stop (Future Volume Alternative)
Project AM

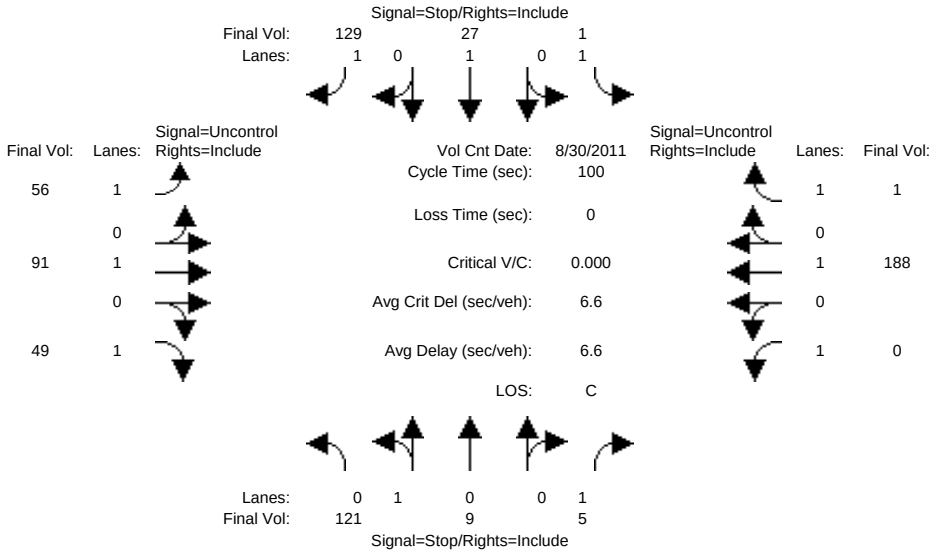
Intersection #5: Mission View Drive/Cochrane Road



Street Name:	Mission View Drive						Cochrane Road					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Min. Green:	7	10	10	7	10	10	7	10	10	7	10	10
Volume Module: >> Count Date: 31 Aug 2011 << 7:15am - 8:15 am												
Base Vol:	400	0	33	0	0	0	0	104	97	26	234	0
Growth 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
Initial Bse:	400	0	33	0	0	0	0	104	97	26	234	0
Added Vol:	0	0	0	0	0	0	0	60	0	0	180	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	400	0	33	0	0	0	0	164	97	26	414	0
User 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
PHF 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
PHF Volume:	400	0	33	0	0	0	0	164	97	26	414	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	400	0	33	0	0	0	0	164	97	26	414	0
PCE 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
MLF 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
Final Vol.:	400	0	33	0	0	0	0	164	97	26	414	0
Saturation Flow Module:												
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	0.00	1.00	0.00	0.00	0.00	0.00	1.00	1.00	0.06	0.94	0.00
Final Sat.:	514	0	616	0	0	0	0	516	572	34	540	0
Capacity Analysis Module:												
Vol/Sat:	0.78	xxxx	0.05	xxxx	xxxx	xxxx	xxxx	0.32	0.17	0.77	0.77	xxxx
Crit Moves:	****							****			****	
Delay/Veh:	28.5	0.0	8.7	0.0	0.0	0.0	0.0	12.3	9.8	25.7	25.7	0.0
Delay 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
AdjDel/Veh:	28.5	0.0	8.7	0.0	0.0	0.0	0.0	12.3	9.8	25.7	25.7	0.0
LOS by Move:	D	*	A	*	*	*	*	B	A	D	D	*
ApproachDel:		26.9			xxxxxx			11.3			25.7	
Delay Adj:		1.00			xxxxx			1.00			1.00	
ApprAdjDel:		26.9			xxxxxx			11.3			25.7	
LOS by Appr:		D			*			B			D	

Level Of Service Computation Report
2000 HCM Unsignalized (Future Volume Alternative)
Project AM

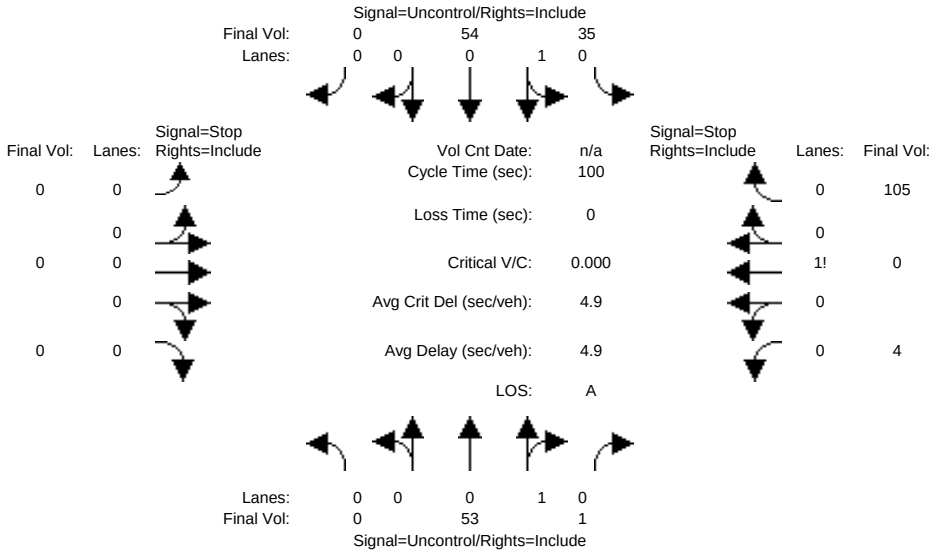
Intersection #6: Peet Road/Cochrane Road



Street Name:	Peet Road						Cochrane Road					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Volume Module: >> Count Date: 30 Aug 2011 << 7:15am-8:15am												
Base Vol:	31	9	5	1	27	129	56	61	19	0	98	1
Growth 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
Initial Bse:	31	9	5	1	27	129	56	61	19	0	98	1
Added Vol:	90	0	0	0	0	0	0	30	30	0	90	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	121	9	5	1	27	129	56	91	49	0	188	1
User 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
PHF 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
PHF Volume:	121	9	5	1	27	129	56	91	49	0	188	1
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Final Vol.:	121	9	5	1	27	129	56	91	49	0	188	1
Critical Gap Module:												
Critical Gp:	7.1	6.5	6.2	7.1	6.5	6.2	4.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx
FollowUpTim:	3.5	4.0	3.3	3.5	4.0	3.3	2.2	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	470	392	91	422	440	188	189	xxxx	xxxxx	xxxx	xxxx	xxxxx
Potent Cap.:	508	547	972	545	514	859	1397	xxxx	xxxxx	xxxx	xxxx	xxxxx
Move Cap.:	401	525	972	519	494	859	1397	xxxx	xxxxx	xxxx	xxxx	xxxxx
Volume/Cap:	0.30	0.02	0.01	0.00	0.05	0.15	0.04	xxxx	xxxx	xxxx	xxxx	xxxx
Level Of Service Module:												
Queue:	xxxxx	xxxx	0.0	0.0	0.2	0.5	0.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Stopped Del:	xxxxx	xxxx	8.7	12.0	12.7	9.9	7.7	xxxx	xxxxx	xxxxx	xxxx	xxxxx
LOS by Move:	*	*	A	B	B	A	A	*	*	*	*	*
Movement:	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT
Shared Cap.:	407	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	1.4	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd StpDel:	17.9	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	C	*	*	*	*	*	*	*	*	*	*	*
ApproachDel:		17.6			10.4			xxxxxx			xxxxxx	
ApproachLOS:		C			B			*			*	

Level Of Service Computation Report
2000 HCM Unsignalized (Future Volume Alternative)
Project AM

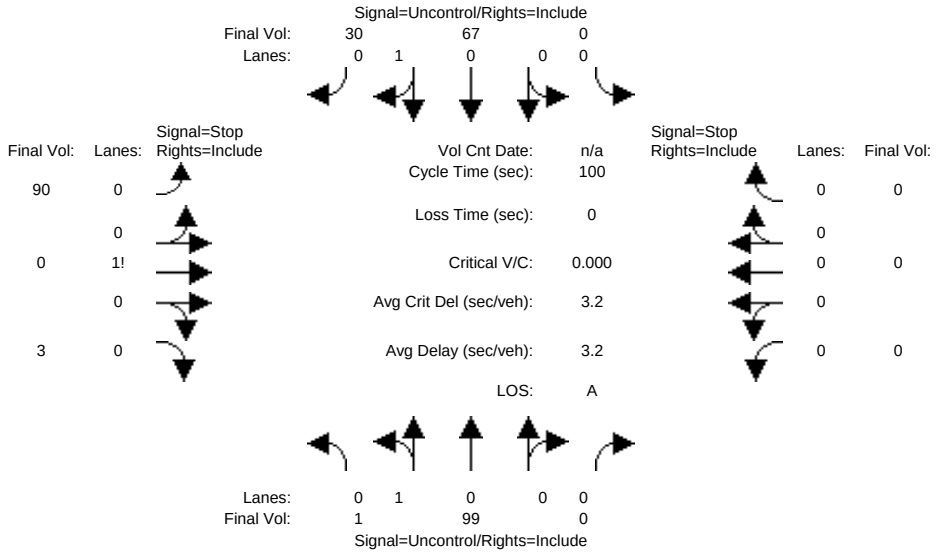
Intersection #7: Peet Road/West Project Driveway



Street Name:	Peet Road						West Project Driveway					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Volume Module: 7:15-8:15am												
Base Vol:	0	45	0	0	46	0	0	0	0	0	0	0
Growth 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
Initial Bse:	0	45	0	0	46	0	0	0	0	0	0	0
Added Vol:	0	0	1	30	0	0	0	0	0	3	0	90
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	45	1	30	46	0	0	0	0	3	0	90
User 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
PHF Adj:	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
PHF Volume:	0	53	1	35	54	0	0	0	0	4	0	105
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Final Vol.:	0	53	1	35	54	0	0	0	0	4	0	105
Critical Gap Module:												
Critical Gp:	xxxxx	xxxx	xxxxx	4.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx	6.4	xxxx	6.2
FollowUpTim:	xxxxx	xxxx	xxxxx	2.2	xxxx	xxxxx	xxxxx	xxxx	xxxxx	3.5	xxxx	3.3
Capacity Module:												
Cnflict Vol:	xxxx	xxxx	xxxxx	54	xxxx	xxxxx	xxxx	xxxx	xxxxx	177	xxxx	53
Potent Cap.:	xxxx	xxxx	xxxxx	1564	xxxx	xxxxx	xxxx	xxxx	xxxxx	817	xxxx	1020
Move Cap.:	xxxx	xxxx	xxxxx	1564	xxxx	xxxxx	xxxx	xxxx	xxxxx	803	xxxx	1020
Volume/Cap:	xxxx	xxxx	xxxx	0.02	xxxx	xxxx	xxxx	xxxx	xxxx	0.00	xxxx	0.10
Level Of Service Module:												
Queue:	xxxxx	xxxx	xxxxx	0.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Stopped Del:	xxxxx	xxxx	xxxxx	7.4	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
LOS by Move:	*	*	*	A	*	*	*	*	*	*	*	*
Movement:	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	1011	xxxxx
SharedQueue:	xxxxx	xxxx	xxxxx	0.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	0.4	xxxxx
Shrd StpDel:	xxxxx	xxxx	xxxxx	7.4	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	9.0	xxxxx
Shared LOS:	*	*	*	A	*	*	*	*	*	*	A	*
ApproachDel:	xxxxxx			xxxxxx			xxxxxx			9.0		
ApproachLOS:	*			*			*			A		

Level Of Service Computation Report
2000 HCM Unsignalized (Future Volume Alternative)
Project AM

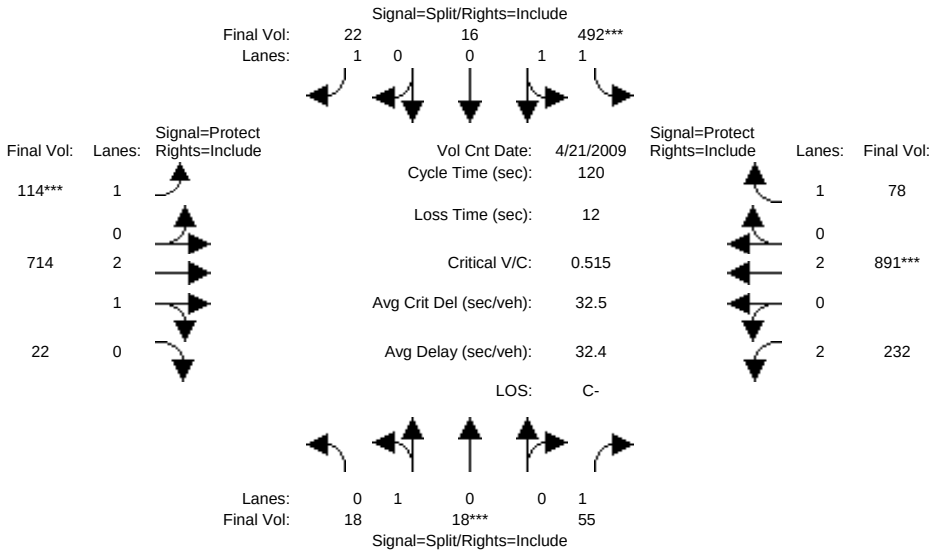
Intersection #8: Cochrane Road/East Project Driveway



Street Name:	Cochrane Road						East Project Driveway					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Volume Module:												
Base Vol:	0	99	0	0	67	0	0	0	0	0	0	0
Growth 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
Initial Bse:	0	99	0	0	67	0	0	0	0	0	0	0
Added Vol:	1	0	0	0	0	30	90	0	3	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	1	99	0	0	67	30	90	0	3	0	0	0
User 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
PHF 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
PHF Volume:	1	99	0	0	67	30	90	0	3	0	0	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Final Vol.:	1	99	0	0	67	30	90	0	3	0	0	0
Critical Gap Module:												
Critical Gp:	4.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx	6.4	xxxx	6.2	xxxxx	xxxx	xxxxx
FollowUpTim:	2.2	xxxx	xxxxx	xxxxx	xxxx	xxxxx	3.5	xxxx	3.3	xxxxx	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	97	xxxx	xxxxx	xxxx	xxxx	xxxxx	183	xxxx	82	xxxx	xxxx	xxxxx
Potent Cap.:	1509	xxxx	xxxxx	xxxx	xxxx	xxxxx	811	xxxx	983	xxxx	xxxx	xxxxx
Move Cap.:	1509	xxxx	xxxxx	xxxx	xxxx	xxxxx	811	xxxx	983	xxxx	xxxx	xxxxx
Volume/Cap:	0.00	xxxx	xxxx	xxxx	xxxx	xxxx	0.11	xxxx	0.00	xxxx	xxxx	xxxx
Level Of Service Module:												
Queue:	0.0	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Stopped Del:	7.4	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
LOS by Move:	A	*	*	*	*	*	*	*	*	*	*	*
Movement:	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	815	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	0.0	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	0.4	xxxxx	xxxxx	xxxx	xxxxx
Shrd StpDel:	7.4	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	10.0	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	A	*	*	*	*	*	*	A	*	*	*	*
ApproachDel:	xxxxxx			xxxxxx			10.0			xxxxxx		
ApproachLOS:	*			*			A			*		

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Project PM

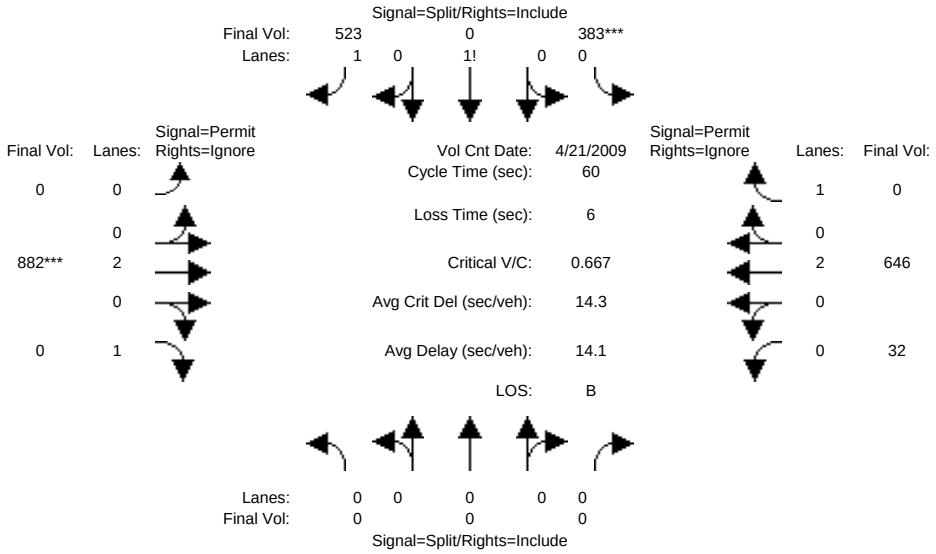
Intersection #1: Madrone Parkway/ Cochrane Road



Street Name:	Madrone Parkway						Cochrane Road					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Min. Green:	10	10	10	10	10	10	7	10	10	7	10	10
Volume Module: >> Count Date: 21 Apr 2009 << 5:00-6:00pm												
Base Vol:	18	18	54	482	16	22	112	645	22	227	841	76
Growth 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
Initial Bse:	18	18	54	482	16	22	112	645	22	227	841	76
Added Vol:	0	0	0	0	0	0	0	55	0	0	32	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	18	18	54	482	16	22	112	700	22	227	873	76
User 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
PHF Adj:	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
PHF Volume:	18	18	55	492	16	22	114	714	22	232	891	78
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	18	18	55	492	16	22	114	714	22	232	891	78
PCE 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
MLF 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
Final Vol.:	18	18	55	492	16	22	114	714	22	232	891	78
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.95	0.95	0.92	0.93	0.95	0.92	0.92	0.98	0.95	0.83	1.00	0.92
Lanes:	0.50	0.50	1.00	1.94	0.06	1.00	1.00	2.91	0.09	2.00	2.00	1.00
Final Sat.:	900	900	1750	3436	114	1750	1750	5429	171	3150	3800	1750
Capacity Analysis Module:												
Vol/Sat:	0.02	0.02	0.03	0.14	0.14	0.01	0.07	0.13	0.13	0.07	0.23	0.04
Crit Moves:		****		****			****				****	
Green Time:	10.0	10.0	10.0	31.7	31.7	31.7	14.5	42.5	42.5	23.8	51.9	51.9
Volume/Cap:	0.24	0.24	0.38	0.54	0.54	0.05	0.54	0.37	0.37	0.37	0.54	0.10
Uniform Del:	51.5	51.5	52.1	37.9	37.9	32.9	49.7	28.8	28.8	41.6	25.3	20.2
IncremntDel:	0.9	0.9	1.6	0.7	0.7	0.0	2.9	0.1	0.1	0.4	0.4	0.1
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay 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
Delay/Veh:	52.3	52.3	53.7	38.6	38.6	33.0	52.5	28.9	28.9	42.0	25.6	20.3
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	52.3	52.3	53.7	38.6	38.6	33.0	52.5	28.9	28.9	42.0	25.6	20.3
HCM2kAvg:	1	1	2	8	9	1	5	7	6	4	12	2

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Project PM

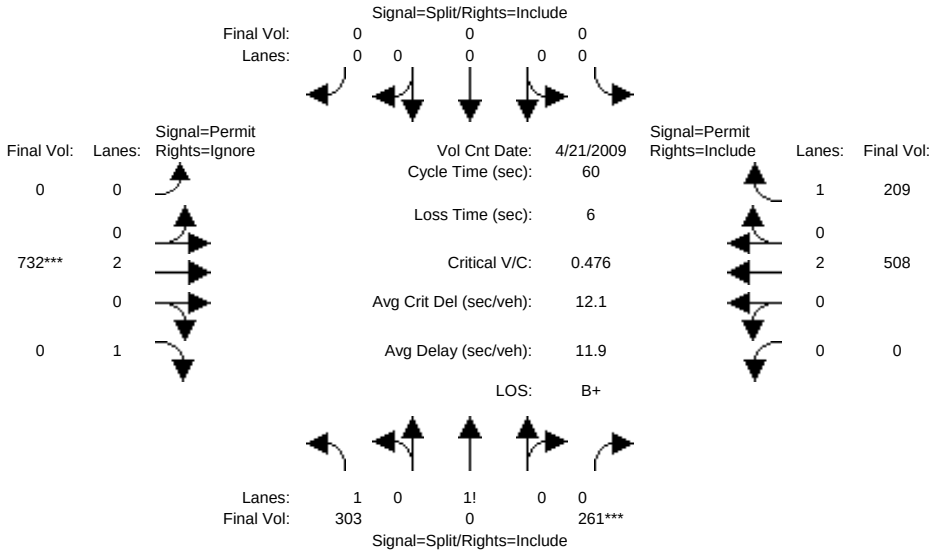
Intersection #2: 101 SB Ramps/Cochrane Road



Street Name:	101 SB Ramps						Cochrane Road					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Min. Green:	10	10	10	10	10	10	7	10	10	7	10	10
Volume Module: >> Count Date: 21 Apr 2009 << 4:45-5:45pm												
Base Vol:	0	0	0	272	0	497	0	783	394	0	582	102
Growth 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
Initial Bse:	0	0	0	272	0	497	0	783	394	0	582	102
Added Vol:	0	0	0	92	0	0	0	55	0	30	32	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	0	0	364	0	497	0	838	394	30	614	102
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.00	0.95	0.95	0.00
PHF Volume:	0	0	0	383	0	523	0	882	0	32	646	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	0	0	383	0	523	0	882	0	32	646	0
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00
Final Vol.:	0	0	0	383	0	523	0	882	0	32	646	0
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.92	1.00	0.92	0.92	1.00	0.92	0.92	1.00	0.92	0.95	0.97	0.92
Lanes:	0.00	0.00	0.00	0.59	0.00	1.41	0.00	2.00	1.00	0.10	1.90	1.00
Final Sat.:	0	0	0	1040	0	2460	0	3800	1750	172	3528	1750
Capacity Analysis Module:												
Vol/Sat:	0.00	0.00	0.00	0.37	0.00	0.21	0.00	0.23	0.00	0.18	0.18	0.00
Crit Moves:				****				****				
Green Time:	0.0	0.0	0.0	33.1	0.0	33.1	0.0	20.9	0.0	20.9	20.9	0.0
Volume/Cap:	0.00	0.00	0.00	0.67	0.00	0.39	0.00	0.67	0.00	0.53	0.53	0.00
Uniform Del:	0.0	0.0	0.0	9.5	0.0	7.6	0.0	16.6	0.0	15.6	15.6	0.0
IncremntDel:	0.0	0.0	0.0	1.3	0.0	0.1	0.0	1.3	0.0	0.4	0.4	0.0
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	0.00	0.00	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00	1.00	0.00
Delay/Veh:	0.0	0.0	0.0	10.8	0.0	7.7	0.0	17.9	0.0	16.0	16.0	0.0
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	0.0	0.0	0.0	10.8	0.0	7.7	0.0	17.9	0.0	16.0	16.0	0.0
HCM2kAvg:	0	0	0	10	0	4	0	7	0	5	5	0

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Project PM

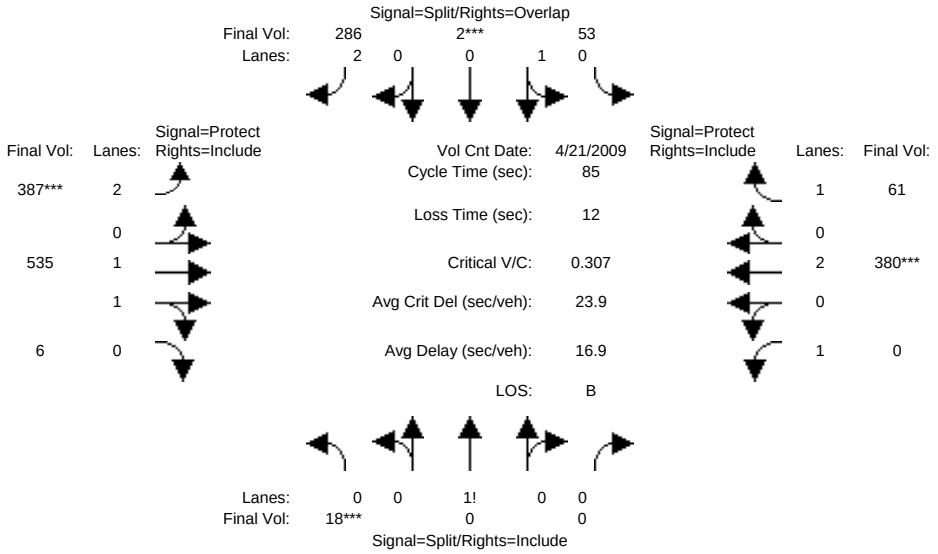
Intersection #3: 101 NB Ramps/Cochrane Road



Street Name:	101 NB Ramps						Cochrane Road					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Min. Green:	10	10	10	10	10	10	7	10	10	7	10	10
Volume Module: >> Count Date: 21 Apr 2009 << 5:00-6:00pm												
Base Vol:	282	0	192	0	0	0	0	534	566	0	410	140
Growth 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
Initial Bse:	282	0	192	0	0	0	0	534	566	0	410	140
Added Vol:	0	0	51	0	0	0	0	147	0	0	62	54
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	282	0	243	0	0	0	0	681	566	0	472	194
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
PHF Adj:	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.00	0.93	0.93	0.93
PHF Volume:	303	0	261	0	0	0	0	732	0	0	508	209
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	303	0	261	0	0	0	0	732	0	0	508	209
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
Final Vol.:	303	0	261	0	0	0	0	732	0	0	508	209
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.92	1.00	0.92	0.92	1.00	0.92	0.92	1.00	0.92	0.92	1.00	0.92
Lanes:	1.37	0.00	0.63	0.00	0.00	0.00	0.00	2.00	1.00	0.00	2.00	1.00
Final Sat.:	2393	0	1107	0	0	0	0	3800	1750	0	3800	1750
Capacity Analysis Module:												
Vol/Sat:	0.13	0.00	0.24	0.00	0.00	0.00	0.00	0.19	0.00	0.00	0.13	0.12
Crit Moves:			****					****				
Green Time:	29.7	0.0	29.7	0.0	0.0	0.0	0.0	24.3	0.0	0.0	24.3	24.3
Volume/Cap:	0.26	0.00	0.48	0.00	0.00	0.00	0.00	0.48	0.00	0.00	0.33	0.29
Uniform Del:	8.7	0.0	10.0	0.0	0.0	0.0	0.0	13.2	0.0	0.0	12.3	12.1
IncremntDel:	0.1	0.0	0.3	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.1	0.2
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	0.00	1.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00
Delay/Veh:	8.8	0.0	10.3	0.0	0.0	0.0	0.0	13.4	0.0	0.0	12.4	12.3
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	8.8	0.0	10.3	0.0	0.0	0.0	0.0	13.4	0.0	0.0	12.4	12.3
HCM2kAvg:	2	0	5	0	0	0	0	5	0	0	3	3

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Project PM

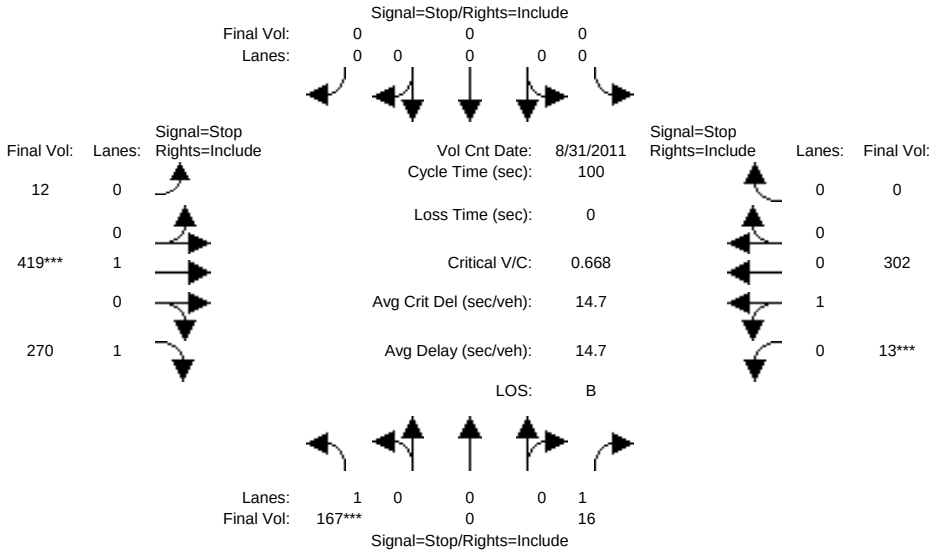
Intersection #4: De Paul Drive/Cochrane Road



Street Name:	De Paul Drive						Cochrane Road					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Min. Green:	10	10	10	10	10	10	7	10	10	7	10	10
Volume Module: >> Count Date: 21 Apr 2009 << 5:00-6:00p												
Base Vol:	17	0	0	50	2	269	364	305	6	0	241	57
Growth 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
Initial Bse:	17	0	0	50	2	269	364	305	6	0	241	57
Added Vol:	0	0	0	0	0	0	0	198	0	0	116	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	17	0	0	50	2	269	364	503	6	0	357	57
User 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
PHF Adj:	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
PHF Volume:	18	0	0	53	2	286	387	535	6	0	380	61
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	18	0	0	53	2	286	387	535	6	0	380	61
PCE 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
MLF 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
Final Vol.:	18	0	0	53	2	286	387	535	6	0	380	61
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.92	1.00	0.92	0.95	0.95	0.83	0.83	0.97	0.95	0.92	1.00	0.92
Lanes:	1.00	0.00	0.00	0.96	0.04	2.00	2.00	1.98	0.02	1.00	2.00	1.00
Final Sat.:	1750	0	0	1731	69	3150	3150	3656	44	1750	3800	1750
Capacity Analysis Module:												
Vol/Sat:	0.01	0.00	0.00	0.03	0.03	0.09	0.12	0.15	0.15	0.00	0.10	0.03
Crit Moves:	****				****		****				****	
Green Time:	10.0	0.0	0.0	10.0	10.0	39.2	29.2	53.0	53.0	0.0	23.8	23.8
Volume/Cap:	0.09	0.00	0.00	0.26	0.26	0.20	0.36	0.23	0.23	0.00	0.36	0.12
Uniform Del:	33.4	0.0	0.0	34.1	34.1	13.6	20.9	7.1	7.1	0.0	24.5	22.8
IncremntDel:	0.2	0.0	0.0	0.7	0.7	0.1	0.2	0.1	0.1	0.0	0.2	0.1
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00
Delay/Veh:	33.6	0.0	0.0	34.8	34.8	13.6	21.1	7.1	7.1	0.0	24.7	23.0
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	33.6	0.0	0.0	34.8	34.8	13.6	21.1	7.1	7.1	0.0	24.7	23.0
HCM2kAvg:	0	0	0	2	2	2	4	3	3	0	4	1

Level Of Service Computation Report
2000 HCM 4-Way Stop (Future Volume Alternative)
Project PM

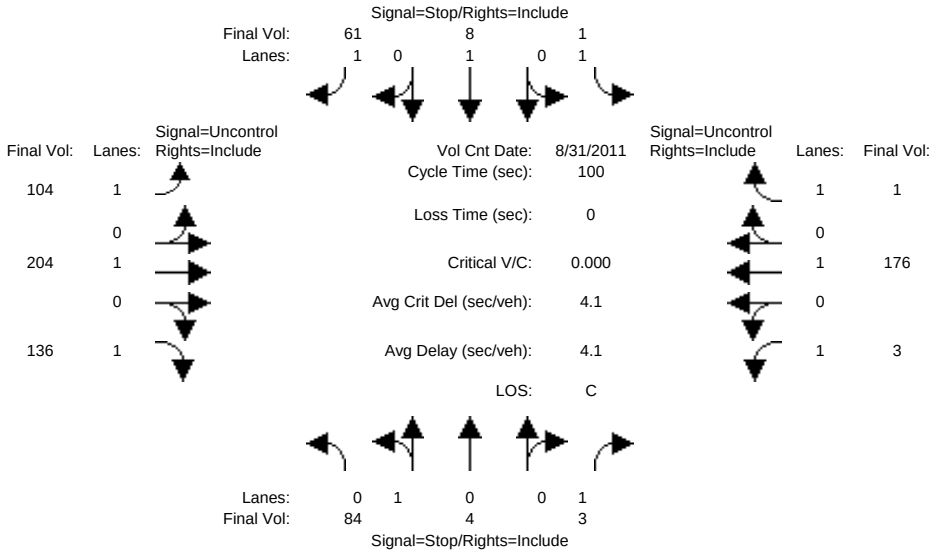
Intersection #5: Mission View Drive/Cochrane Road



Street Name:	Mission View Drive						Cochrane Road					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Min. Green:	7	10	10	7	10	10	7	10	10	7	10	10
Volume Module: >> Count Date: 31 Aug 2011 << 4:45-5:45PM												
Base Vol:	156	0	15	0	0	0	11	194	252	12	166	0
Growth 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
Initial Bse:	156	0	15	0	0	0	11	194	252	12	166	0
Added Vol:	0	0	0	0	0	0	0	198	0	0	116	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	156	0	15	0	0	0	11	392	252	12	282	0
User 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
PHF Adj:	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
PHF Volume:	167	0	16	0	0	0	12	419	270	13	302	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	167	0	16	0	0	0	12	419	270	13	302	0
PCE 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
MLF 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
Final Vol.:	167	0	16	0	0	0	12	419	270	13	302	0
Saturation Flow Module:												
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	0.00	1.00	0.00	0.00	0.00	0.03	0.97	1.00	0.04	0.96	0.00
Final Sat.:	478	0	566	0	0	0	18	628	738	25	581	0
Capacity Analysis Module:												
Vol/Sat:	0.35	xxxx	0.03	xxxx	xxxx	xxxx	0.67	0.67	0.37	0.52	0.52	xxxx
Crit Moves:	****							****		****		
Delay/Veh:	13.3	0.0	8.8	0.0	0.0	0.0	18.3	18.3	10.2	14.8	14.8	0.0
Delay 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
AdjDel/Veh:	13.3	0.0	8.8	0.0	0.0	0.0	18.3	18.3	10.2	14.8	14.8	0.0
LOS by Move:	B	*	A	*	*	*	C	C	B	B	B	*
ApproachDel:	12.9			xxxxxx			15.2			14.8		
Delay Adj:	1.00			xxxxx			1.00			1.00		
ApprAdjDel:	12.9			xxxxxx			15.2			14.8		
LOS by Appr:	B			*			C			B		

Level Of Service Computation Report
2000 HCM Unsignalized (Future Volume Alternative)
Project PM

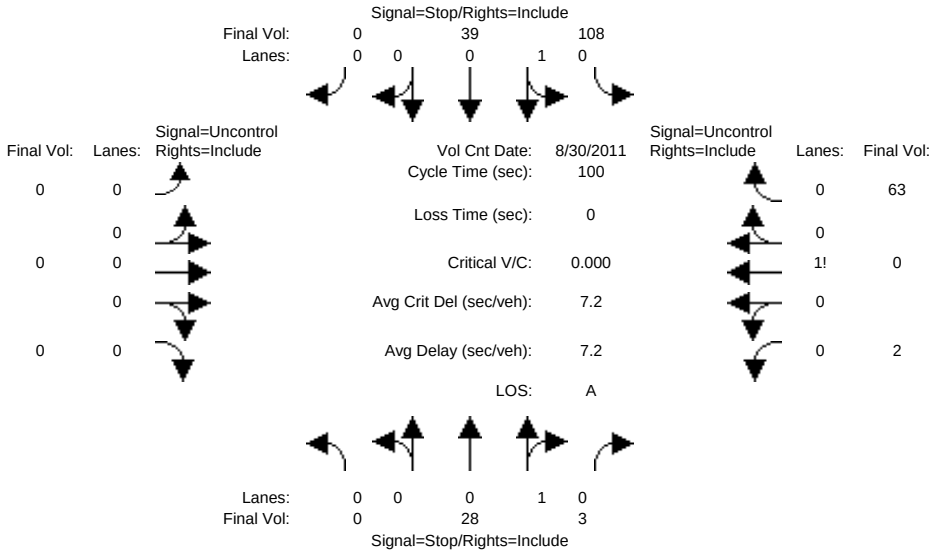
Intersection #6: Peet Road/Cochrane Road



Street Name:	Peet Road						Cochrane Road					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Volume Module: >> Count Date: 31 Aug 2011 << 4:45-5:45pm												
Base Vol:	19	4	3	1	7	56	95	88	26	3	103	1
Growth 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
Initial Bse:	19	4	3	1	7	56	95	88	26	3	103	1
Added Vol:	58	0	0	0	0	0	0	99	99	0	58	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	77	4	3	1	7	56	95	187	125	3	161	1
User 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
PHF Adj:	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
PHF Volume:	84	4	3	1	8	61	104	204	136	3	176	1
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Final Vol.:	84	4	3	1	8	61	104	204	136	3	176	1
Critical Gap Module:												
Critical Gp:	7.1	6.5	6.2	7.1	6.5	6.2	4.1	xxxx	xxxxx	4.1	xxxx	xxxxx
FollowUpTim:	3.5	4.0	3.3	3.5	4.0	3.3	2.2	xxxx	xxxxx	2.2	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	628	594	204	665	730	176	177	xxxx	xxxxx	340	xxxx	xxxxx
Potent Cap.:	398	420	842	376	352	873	1412	xxxx	xxxxx	1230	xxxx	xxxxx
Move Cap.:	343	389	842	350	325	873	1412	xxxx	xxxxx	1230	xxxx	xxxxx
Volume/Cap:	0.25	0.01	0.00	0.00	0.02	0.07	0.07	xxxx	xxxx	0.00	xxxx	xxxx
Level Of Service Module:												
Queue:	xxxxx	xxxx	0.0	0.0	0.1	0.2	0.2	xxxx	xxxxx	0.0	xxxx	xxxxx
Stopped Del:	xxxxx	xxxx	9.3	15.3	16.3	9.4	7.8	xxxx	xxxxx	7.9	xxxx	xxxxx
LOS by Move:	*	*	A	C	C	A	A	*	*	A	*	*
Movement:	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT
Shared Cap.:	345	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	1.0	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd StpDel:	19.0	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	C	*	*	*	*	*	*	*	*	*	*	*
ApproachDel:		18.7			10.3			xxxxxx			xxxxxx	
ApproachLOS:		C			B			*			*	

Level Of Service Computation Report
2000 HCM Unsignalized (Future Volume Alternative)
Project PM

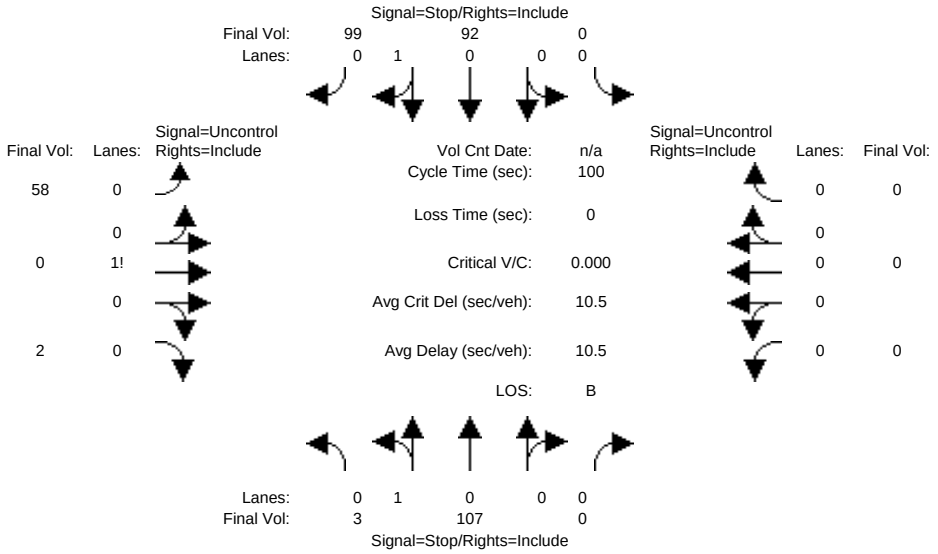
Intersection #7: Peet Road/West Project Driveway



Street Name:	Peet Road						West Project Driveway					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Volume Module: >> Count Date: 30 Aug 2011 << 4:45-5:45pm												
Base Vol:	0	26	0	0	36	0	0	0	0	0	0	0
Growth 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
Initial Bse:	0	26	0	0	36	0	0	0	0	0	0	0
Added Vol:	0	0	3	99	0	0	0	0	0	2	0	58
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	26	3	99	36	0	0	0	0	2	0	58
User 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
PHF Adj:	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
PHF Volume:	0	28	3	108	39	0	0	0	0	2	0	63
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Final Vol.:	0	28	3	108	39	0	0	0	0	2	0	63
Critical Gap Module:												
Critical Gp:	xxxxx	6.5	6.2	7.1	6.5	xxxxx	xxxxx	xxxx	xxxxx	4.1	xxxx	xxxxx
FollowUpTim:	xxxxx	4.0	3.3	3.5	4.0	xxxxx	xxxxx	xxxx	xxxxx	2.2	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	xxxx	68	0	50	36	xxxxx	xxxx	xxxx	xxxxx	0	xxxx	xxxxx
Potent Cap.:	xxxx	827	900	955	860	xxxxx	xxxx	xxxx	xxxxx	900	xxxx	xxxxx
Move Cap.:	xxxx	825	900	924	858	xxxxx	xxxx	xxxx	xxxxx	900	xxxx	xxxxx
Volume/Cap:	xxxx	0.03	0.00	0.12	0.05	xxxx	xxxx	xxxx	xxxx	0.00	xxxx	xxxx
Level Of Service Module:												
Queue:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	0.0	xxxx	xxxxx
Stopped Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	9.0	xxxx	xxxxx
LOS by Move:	*	*	*	*	*	*	*	*	*	A	*	*
Movement:	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT
Shared Cap.:	xxxx	xxxx	832	906	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	xxxx	0.1	0.6	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd StpDel:	xxxxx	xxxx	9.5	9.7	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	*	A	A	*	*	*	*	*	*	*	*
ApproachDel:		9.5			9.7			xxxxxx			xxxxxx	
ApproachLOS:		A			A			*			*	

Level Of Service Computation Report
2000 HCM Unsignalized (Future Volume Alternative)
Project PM

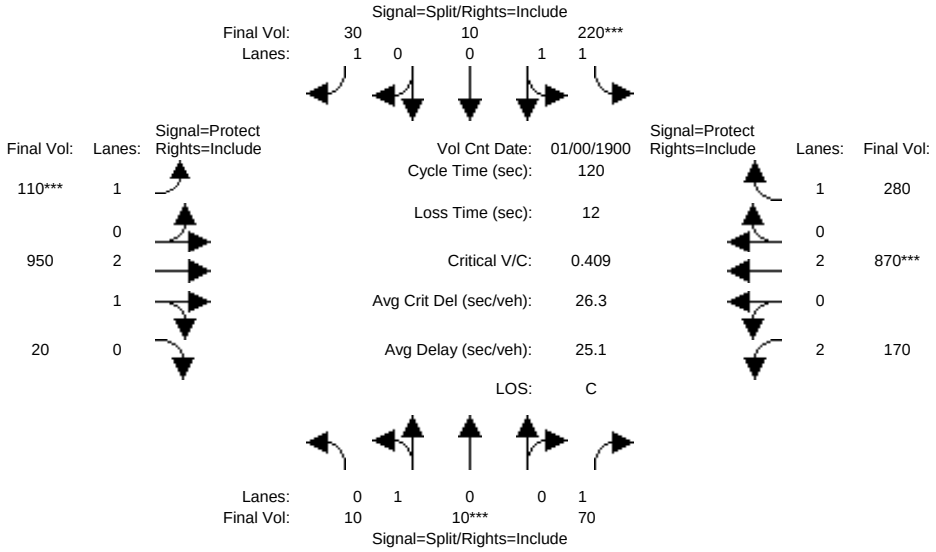
Intersection #8: Cochrane Road/East Project Driveway



Street Name:	Cochrane Road						East Project Driveway					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Volume Module:												
Base Vol:	0	107	0	0	92	0	0	0	0	0	0	0
Growth 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
Initial Bse:	0	107	0	0	92	0	0	0	0	0	0	0
Added Vol:	3	0	0	0	0	99	58	0	2	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	3	107	0	0	92	99	58	0	2	0	0	0
User 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
PHF 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
PHF Volume:	3	107	0	0	92	99	58	0	2	0	0	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Final Vol.:	3	107	0	0	92	99	58	0	2	0	0	0
Critical Gap Module:												
Critical Gp:	7.1	6.5	xxxxx	xxxxx	6.5	6.2	4.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx
FollowUpTim:	3.5	4.0	xxxxx	xxxxx	4.0	3.3	2.2	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	163	117	xxxxx	xxxx	118	0	0	xxxx	xxxxx	xxxx	xxxx	xxxxx
Potent Cap.:	806	777	xxxxx	xxxx	776	900	900	xxxx	xxxxx	xxxx	xxxx	xxxxx
Move Cap.:	616	725	xxxxx	xxxx	724	900	900	xxxx	xxxxx	xxxx	xxxx	xxxxx
Volume/Cap:	0.00	0.15	xxxx	xxxx	0.13	0.11	0.06	xxxx	xxxx	xxxx	xxxx	xxxx
Level Of Service Module:												
Queue:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	0.2	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Stopped Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	9.3	xxxx	xxxxx	xxxxx	xxxx	xxxxx
LOS by Move:	*	*	*	*	*	*	A	*	*	*	*	*
Movement:	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT
Shared Cap.:	722	xxxx	xxxxx	xxxx	xxxx	806	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	0.5	xxxx	xxxxx	xxxxx	xxxx	0.9	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd StpDel:	10.7	xxxx	xxxxx	xxxxx	xxxx	10.8	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	B	*	*	*	*	B	*	*	*	*	*	*
ApproachDel:	10.7			10.8			xxxxxx			xxxxxx		
ApproachLOS:	B			B			*			*		

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
2015 No Project AM

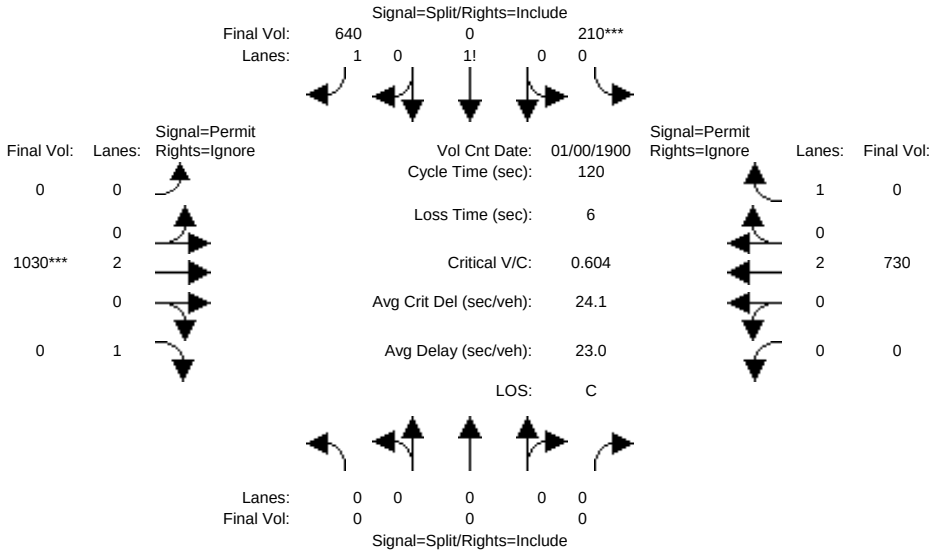
Intersection #1: Madrone Parkway/ Cochrane Road



Street Name:	Madrone Parkway						Cochrane Road					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Min. Green:	10	10	10	10	10	10	7	10	10	7	10	10
Volume Module: >> Count Date: 0 Jan 1900 << 12:00:00 AM												
Base Vol:	10	10	70	220	10	30	110	950	20	170	870	280
Growth 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
Initial Bse:	10	10	70	220	10	30	110	950	20	170	870	280
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	10	10	70	220	10	30	110	950	20	170	870	280
User 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
PHF 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
PHF Volume:	10	10	70	220	10	30	110	950	20	170	870	280
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	10	10	70	220	10	30	110	950	20	170	870	280
PCE 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
MLF 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
Final Vol.:	10	10	70	220	10	30	110	950	20	170	870	280
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.95	0.95	0.92	0.93	0.95	0.92	0.92	0.98	0.95	0.83	1.00	0.92
Lanes:	0.50	0.50	1.00	1.91	0.09	1.00	1.00	2.94	0.06	2.00	2.00	1.00
Final Sat.:	900	900	1750	3396	154	1750	1750	5484	115	3150	3800	1750
Capacity Analysis Module:												
Vol/Sat:	0.01	0.01	0.04	0.06	0.06	0.02	0.06	0.17	0.17	0.05	0.23	0.16
Crit Moves:		****		****			****				****	
Green Time:	11.7	11.7	11.7	19.0	19.0	19.0	18.5	64.1	64.1	21.6	67.2	67.2
Volume/Cap:	0.11	0.11	0.41	0.41	0.41	0.11	0.41	0.32	0.32	0.30	0.41	0.29
Uniform Del:	49.4	49.4	50.9	45.4	45.4	43.2	45.8	15.7	15.7	42.7	15.0	13.8
IncremntDel:	0.3	0.3	1.6	0.5	0.5	0.2	1.0	0.1	0.1	0.3	0.1	0.2
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay 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
Delay/Veh:	49.7	49.7	52.4	45.9	45.9	43.4	46.9	15.8	15.8	43.0	15.2	14.0
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	49.7	49.7	52.4	45.9	45.9	43.4	46.9	15.8	15.8	43.0	15.2	14.0
HCM2kAvg:	1	1	3	4	4	1	4	7	6	3	9	5

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
2015 No Project AM

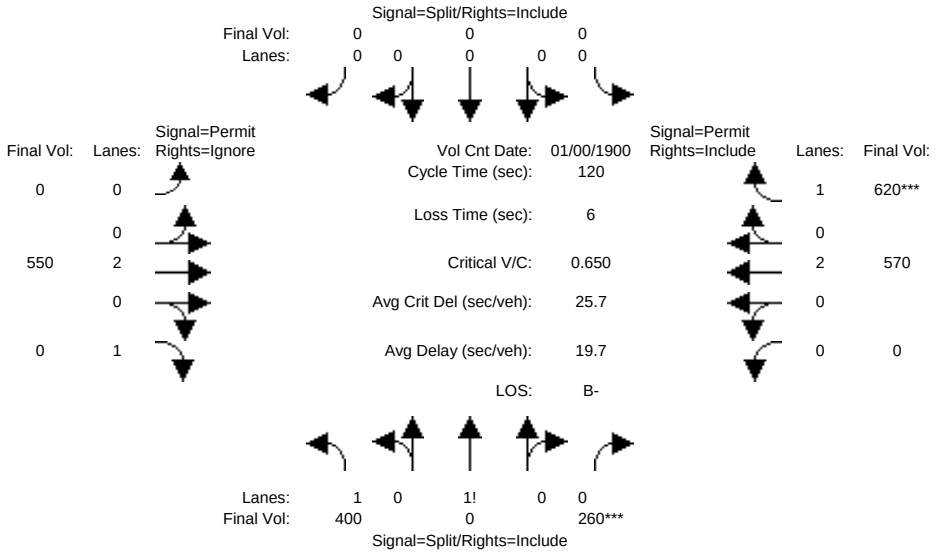
Intersection #2: 101 SB Ramps/Cochrane Road



Street Name:	101 SB Ramps						Cochrane Road					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Min. Green:	10	10	10	10	10	10	7	10	10	7	10	10
Volume Module: >> Count Date: 0 Jan 1900 << 12:00:00 AM												
Base Vol:	0	0	0	210	0	640	0	1030	230	0	730	240
Growth 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
Initial Bse:	0	0	0	210	0	640	0	1030	230	0	730	240
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	0	0	210	0	640	0	1030	230	0	730	240
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00
PHF Volume:	0	0	0	210	0	640	0	1030	0	0	730	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	0	0	210	0	640	0	1030	0	0	730	0
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00
Final Vol.:	0	0	0	210	0	640	0	1030	0	0	730	0
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.92	1.00	0.92	0.92	1.00	0.92	0.92	1.00	0.92	0.92	1.00	0.92
Lanes:	0.00	0.00	0.00	0.40	0.00	1.60	0.00	2.00	1.00	0.00	2.00	1.00
Final Sat.:	0	0	0	693	0	2807	0	3800	1750	0	3800	1750
Capacity Analysis Module:												
Vol/Sat:	0.00	0.00	0.00	0.30	0.00	0.23	0.00	0.27	0.00	0.00	0.19	0.00
Crit Moves:				****				****				
Green Time:	0.0	0.0	0.0	60.2	0.0	60.2	0.0	53.8	0.0	0.0	53.8	0.0
Volume/Cap:	0.00	0.00	0.00	0.60	0.00	0.45	0.00	0.60	0.00	0.00	0.43	0.00
Uniform Del:	0.0	0.0	0.0	21.4	0.0	19.3	0.0	25.0	0.0	0.0	22.6	0.0
IncremntDel:	0.0	0.0	0.0	0.8	0.0	0.2	0.0	0.6	0.0	0.0	0.2	0.0
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	0.00	0.00	0.00	1.00	0.00	1.00	0.00	1.00	0.00	0.00	1.00	0.00
Delay/Veh:	0.0	0.0	0.0	22.2	0.0	19.5	0.0	25.6	0.0	0.0	22.7	0.0
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	0.0	0.0	0.0	22.2	0.0	19.5	0.0	25.6	0.0	0.0	22.7	0.0
HCM2kAvg:	0	0	0	14	0	9	0	14	0	0	9	0

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
2015 No Project AM

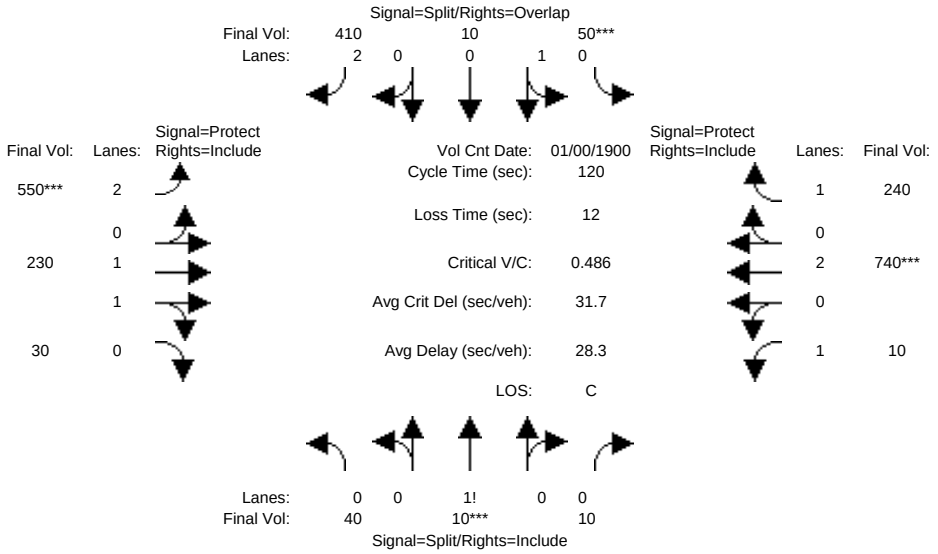
Intersection #3: 101 NB Ramps/Cochrane Road



Street Name:	101 NB Ramps						Cochrane Road					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Min. Green:	10	10	10	10	10	10	7	10	10	7	10	10
Volume Module: >> Count Date: 0 Jan 1900 << 12:00:00 AM												
Base Vol:	400	0	260	0	0	0	0	550	690	0	570	620
Growth 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
Initial Bse:	400	0	260	0	0	0	0	550	690	0	570	620
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	400	0	260	0	0	0	0	550	690	0	570	620
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
PHF Volume:	400	0	260	0	0	0	0	550	0	0	570	620
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	400	0	260	0	0	0	0	550	0	0	570	620
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
Final Vol.:	400	0	260	0	0	0	0	550	0	0	570	620
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.92	1.00	0.92	0.92	1.00	0.92	0.92	1.00	0.92	0.92	1.00	0.92
Lanes:	1.43	0.00	0.57	0.00	0.00	0.00	0.00	2.00	1.00	0.00	2.00	1.00
Final Sat.:	2511	0	989	0	0	0	0	3800	1750	0	3800	1750
Capacity Analysis Module:												
Vol/Sat:	0.16	0.00	0.26	0.00	0.00	0.00	0.00	0.14	0.00	0.00	0.15	0.35
Crit Moves:			****									****
Green Time:	48.6	0.0	48.6	0.0	0.0	0.0	0.0	65.4	0.0	0.0	65.4	65.4
Volume/Cap:	0.39	0.00	0.65	0.00	0.00	0.00	0.00	0.27	0.00	0.00	0.28	0.65
Uniform Del:	25.3	0.0	28.9	0.0	0.0	0.0	0.0	14.5	0.0	0.0	14.6	19.2
IncremntDel:	0.2	0.0	1.5	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	1.6
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	0.00	1.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00
Delay/Veh:	25.5	0.0	30.3	0.0	0.0	0.0	0.0	14.6	0.0	0.0	14.7	20.8
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	25.5	0.0	30.3	0.0	0.0	0.0	0.0	14.6	0.0	0.0	14.7	20.8
HCM2kAvg:	7	0	14	0	0	0	0	5	0	0	5	16

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
2015 No Project AM

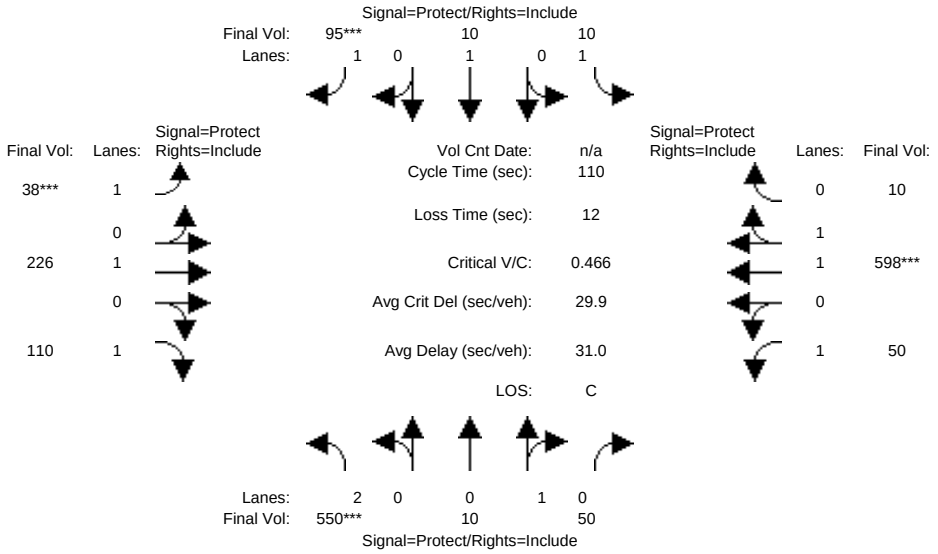
Intersection #4: De Paul Drive/Cochrane Road



Street Name:	De Paul Drive						Cochrane Road					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Min. Green:	10	10	10	10	10	10	7	10	10	7	10	10
Volume Module: >> Count Date: 0 Jan 1900 << 12:00:00 AM												
Base Vol:	40	10	10	50	10	410	550	230	30	10	740	240
Growth 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
Initial Bse:	40	10	10	50	10	410	550	230	30	10	740	240
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	40	10	10	50	10	410	550	230	30	10	740	240
User 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
PHF 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
PHF Volume:	40	10	10	50	10	410	550	230	30	10	740	240
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	40	10	10	50	10	410	550	230	30	10	740	240
PCE 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
MLF 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
Final Vol.:	40	10	10	50	10	410	550	230	30	10	740	240
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.92	0.92	0.92	0.95	0.95	0.83	0.83	0.98	0.95	0.92	1.00	0.92
Lanes:	0.66	0.17	0.17	0.83	0.17	2.00	2.00	1.76	0.24	1.00	2.00	1.00
Final Sat.:	1167	292	292	1500	300	3150	3150	3273	427	1750	3800	1750
Capacity Analysis Module:												
Vol/Sat:	0.03	0.03	0.03	0.03	0.03	0.13	0.17	0.07	0.07	0.01	0.19	0.14
Crit Moves:		****		****			****				****	
Green Time:	10.0	10.0	10.0	10.0	10.0	51.6	41.6	51.8	51.8	36.2	46.4	46.4
Volume/Cap:	0.41	0.41	0.41	0.40	0.40	0.30	0.50	0.16	0.16	0.02	0.50	0.35
Uniform Del:	52.2	52.2	52.2	52.2	52.2	22.4	31.0	20.9	20.9	29.4	28.0	26.2
IncremntDel:	1.9	1.9	1.9	1.7	1.7	0.1	0.4	0.0	0.0	0.0	0.3	0.3
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay 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
Delay/Veh:	54.1	54.1	54.1	53.9	53.9	22.5	31.4	20.9	20.9	29.4	28.3	26.5
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	54.1	54.1	54.1	53.9	53.9	22.5	31.4	20.9	20.9	29.4	28.3	26.5
HCM2kAvg:	3	3	3	3	3	5	8	3	3	0	10	6

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
2015 No Project AM

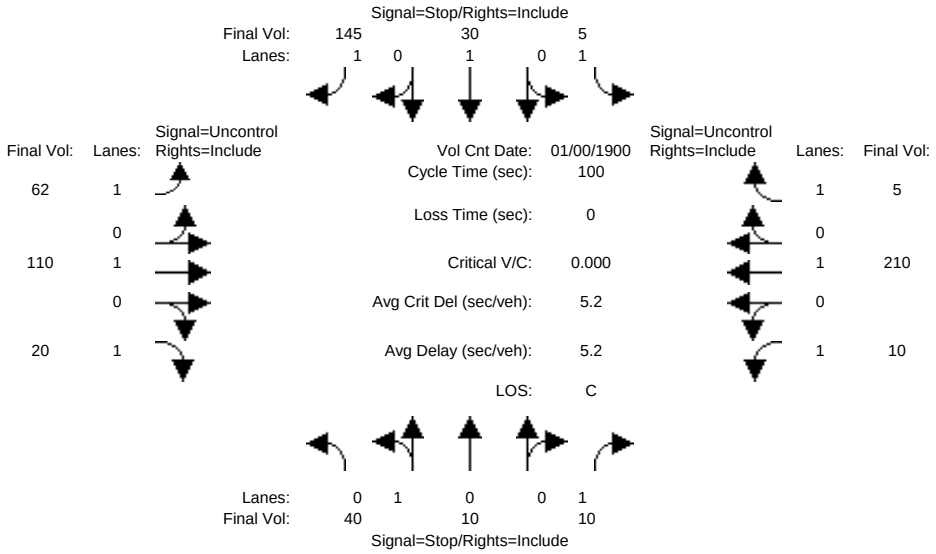
Intersection #5: Cochrane Rd/Mission View Dr



Street Name:	Mission View Dr						Cochrane Rd					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Min. Green:	7	10	10	7	10	10	7	10	10	7	10	10
Volume Module:												
Base Vol:	550	10	50	10	10	95	38	170	110	50	430	10
Growth 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
Initial Bse:	550	10	50	10	10	95	38	170	110	50	430	10
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Proposed Pr:	0	0	0	0	0	0	0	56	0	0	168	0
Initial Fut:	550	10	50	10	10	95	38	226	110	50	598	10
User 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
PHF 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
PHF Volume:	550	10	50	10	10	95	38	226	110	50	598	10
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	550	10	50	10	10	95	38	226	110	50	598	10
PCE 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
MLF 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
Final Vol.:	550	10	50	10	10	95	38	226	110	50	598	10
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.83	0.95	0.95	0.92	1.00	0.92	0.92	1.00	0.92	0.92	0.97	0.95
Lanes:	2.00	0.17	0.83	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.97	0.03
Final Sat.:	3150	300	1500	1750	1900	1750	1750	1900	1750	1750	3639	61
Capacity Analysis Module:												
Vol/Sat:	0.17	0.03	0.03	0.01	0.01	0.05	0.02	0.12	0.06	0.03	0.16	0.16
Crit Moves:	****					****	****				****	
Green Time:	40.4	31.2	31.2	21.8	12.6	12.6	7.0	29.3	29.3	15.7	38.0	38.0
Volume/Cap:	0.48	0.12	0.12	0.03	0.05	0.48	0.34	0.45	0.24	0.20	0.48	0.48
Uniform Del:	26.7	29.2	29.2	35.6	43.4	45.6	49.3	33.6	31.6	41.6	28.2	28.2
IncremntDel:	0.3	0.1	0.1	0.0	0.1	1.8	1.8	0.6	0.3	0.4	0.3	0.3
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay 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
Delay/Veh:	27.0	29.3	29.3	35.6	43.5	47.4	51.1	34.2	31.8	42.0	28.5	28.5
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	27.0	29.3	29.3	35.6	43.5	47.4	51.1	34.2	31.8	42.0	28.5	28.5
HCM2kAvg:	7	1	1	0	0	4	2	7	3	2	8	8

Level Of Service Computation Report
2000 HCM Unsignalized (Future Volume Alternative)
2015 No Project AM

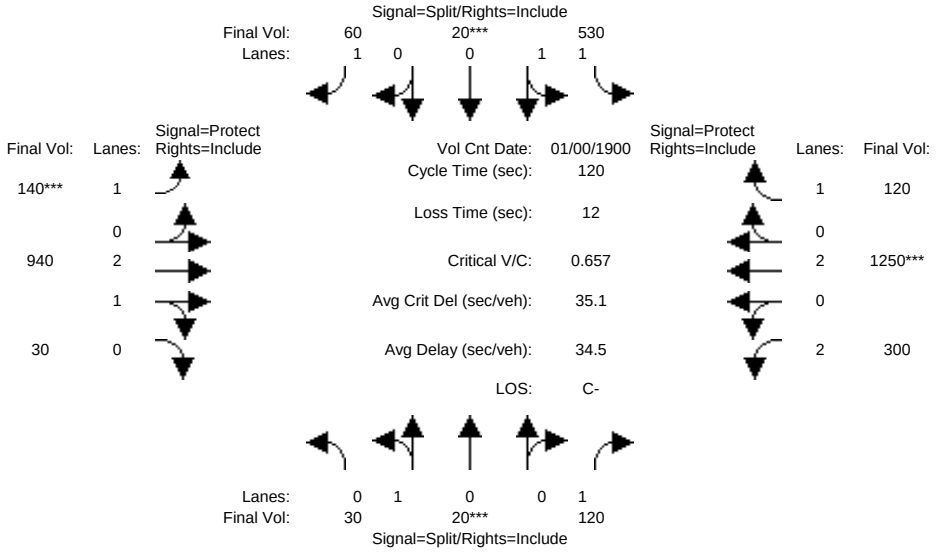
Intersection #6: Peet Road/Cochrane Road



Street Name:	Peet Road						Cochrane Road					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Volume Module: >> Count Date: 0 Jan 1900 << 12:00:00 AM												
Base Vol:	40	10	10	5	30	145	62	110	20	10	210	5
Growth 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
Initial Bse:	40	10	10	5	30	145	62	110	20	10	210	5
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	40	10	10	5	30	145	62	110	20	10	210	5
User 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
PHF 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
PHF Volume:	40	10	10	5	30	145	62	110	20	10	210	5
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Final Vol.:	40	10	10	5	30	145	62	110	20	10	210	5
Critical Gap Module:												
Critical Gp:	7.1	6.5	6.2	7.1	6.5	6.2	4.1	xxxx	xxxxx	4.1	xxxx	xxxxx
FollowUpTim:	3.5	4.0	3.3	3.5	4.0	3.3	2.2	xxxx	xxxxx	2.2	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	554	469	110	484	484	210	215	xxxx	xxxxx	130	xxxx	xxxxx
Potent Cap.:	446	495	949	496	486	835	1367	xxxx	xxxxx	1468	xxxx	xxxxx
Move Cap.:	337	469	949	464	460	835	1367	xxxx	xxxxx	1468	xxxx	xxxxx
Volume/Cap:	0.12	0.02	0.01	0.01	0.07	0.17	0.05	xxxx	xxxx	0.01	xxxx	xxxx
Level Of Service Module:												
Queue:	xxxxx	xxxx	0.0	0.0	0.2	0.6	0.1	xxxx	xxxxx	0.0	xxxx	xxxxx
Stopped Del:	xxxxx	xxxx	8.8	12.8	13.4	10.2	7.8	xxxx	xxxxx	7.5	xxxx	xxxxx
LOS by Move:	*	*	A	B	B	B	A	*	*	A	*	*
Movement:	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT
Shared Cap.:	357	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	0.5	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd StpDel:	16.7	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	C	*	*	*	*	*	*	*	*	*	*	*
ApproachDel:		15.4			10.8			xxxxxx			xxxxxx	
ApproachLOS:		C			B			*			*	

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
2015 No Project PM

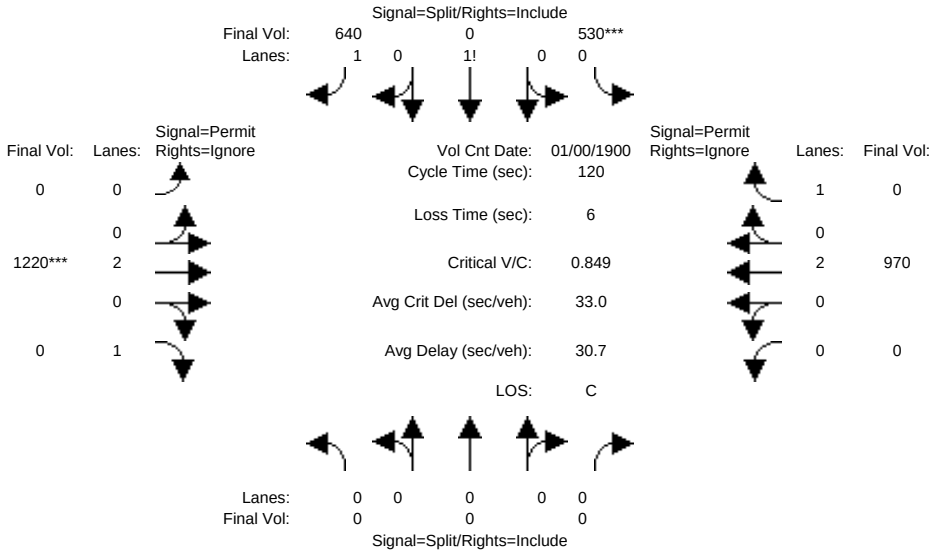
Intersection #1: Madrone Parkway/ Cochrane Road



Street Name:	Madrone Parkway						Cochrane Road					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Min. Green:	10	10	10	10	10	10	7	10	10	7	10	10
Volume Module: >> Count Date: 0 Jan 1900 << 12:00:00 AM												
Base Vol:	30	20	120	530	20	60	140	940	30	300	1250	120
Growth 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
Initial Bse:	30	20	120	530	20	60	140	940	30	300	1250	120
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	30	20	120	530	20	60	140	940	30	300	1250	120
User 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
PHF 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
PHF Volume:	30	20	120	530	20	60	140	940	30	300	1250	120
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	30	20	120	530	20	60	140	940	30	300	1250	120
PCE 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
MLF 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
Final Vol.:	30	20	120	530	20	60	140	940	30	300	1250	120
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.95	0.95	0.92	0.93	0.95	0.92	0.92	0.98	0.95	0.83	1.00	0.92
Lanes:	0.60	0.40	1.00	1.93	0.07	1.00	1.00	2.90	0.10	2.00	2.00	1.00
Final Sat.:	1080	720	1750	3421	129	1750	1750	5427	173	3150	3800	1750
Capacity Analysis Module:												
Vol/Sat:	0.03	0.03	0.07	0.15	0.15	0.03	0.08	0.17	0.17	0.10	0.33	0.07
Crit Moves:		****			****		****				****	
Green Time:	12.5	12.5	12.5	28.3	28.3	28.3	14.6	48.2	48.2	26.5	60.0	60.0
Volume/Cap:	0.27	0.27	0.66	0.66	0.66	0.15	0.66	0.43	0.43	0.43	0.66	0.14
Uniform Del:	49.5	49.5	51.7	41.5	41.5	36.3	50.3	26.0	26.0	40.3	22.3	16.1
IncremntDel:	0.8	0.8	8.5	1.9	1.9	0.2	7.3	0.1	0.1	0.4	0.9	0.1
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay 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
Delay/Veh:	50.3	50.3	60.1	43.4	43.4	36.5	57.6	26.1	26.1	40.7	23.2	16.2
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	50.3	50.3	60.1	43.4	43.4	36.5	57.6	26.1	26.1	40.7	23.2	16.2
HCM2kAvg:	2	2	5	10	10	2	6	9	8	5	17	2

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
2015 No Project PM

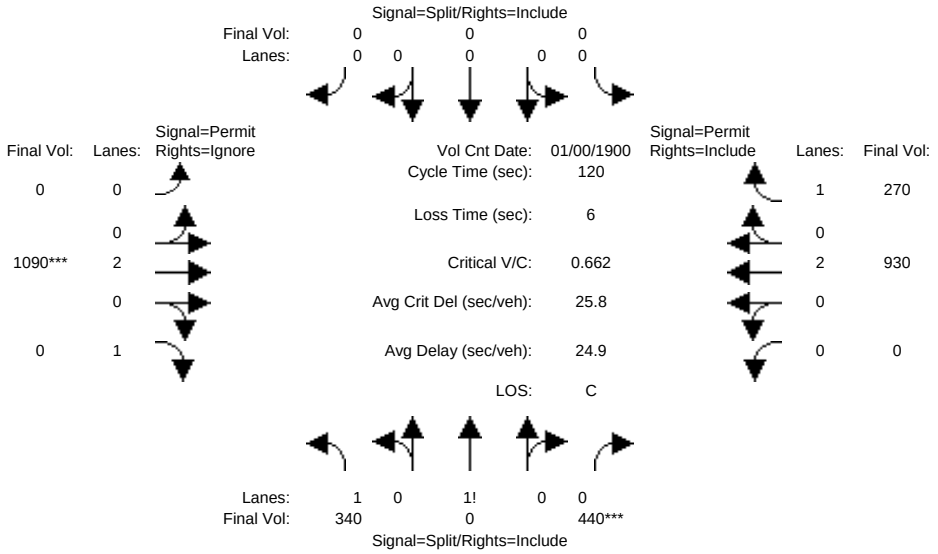
Intersection #2: 101 SB Ramps/Cochrane Road



Street Name:	101 SB Ramps						Cochrane Road					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Min. Green:	10	10	10	10	10	10	7	10	10	7	10	10
Volume Module: >> Count Date: 0 Jan 1900 << 12:00:00 AM												
Base Vol:	0	0	0	530	0	640	0	1220	400	0	970	300
Growth 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
Initial Bse:	0	0	0	530	0	640	0	1220	400	0	970	300
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	0	0	530	0	640	0	1220	400	0	970	300
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00
PHF Volume:	0	0	0	530	0	640	0	1220	0	0	970	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	0	0	530	0	640	0	1220	0	0	970	0
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00
Final Vol.:	0	0	0	530	0	640	0	1220	0	0	970	0
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.92	1.00	0.92	0.92	1.00	0.92	0.92	1.00	0.92	0.92	1.00	0.92
Lanes:	0.00	0.00	0.00	0.62	0.00	1.38	0.00	2.00	1.00	0.00	2.00	1.00
Final Sat.:	0	0	0	1091	0	2409	0	3800	1750	0	3800	1750
Capacity Analysis Module:												
Vol/Sat:	0.00	0.00	0.00	0.49	0.00	0.27	0.00	0.32	0.00	0.00	0.26	0.00
Crit Moves:				****				****				
Green Time:	0.0	0.0	0.0	68.6	0.0	68.6	0.0	45.4	0.0	0.0	45.4	0.0
Volume/Cap:	0.00	0.00	0.00	0.85	0.00	0.46	0.00	0.85	0.00	0.00	0.68	0.00
Uniform Del:	0.0	0.0	0.0	21.4	0.0	15.0	0.0	34.2	0.0	0.0	31.2	0.0
IncremntDel:	0.0	0.0	0.0	5.2	0.0	0.1	0.0	5.0	0.0	0.0	1.3	0.0
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	0.00	0.00	0.00	1.00	0.00	1.00	0.00	1.00	0.00	0.00	1.00	0.00
Delay/Veh:	0.0	0.0	0.0	26.6	0.0	15.1	0.0	39.2	0.0	0.0	32.5	0.0
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	0.0	0.0	0.0	26.6	0.0	15.1	0.0	39.2	0.0	0.0	32.5	0.0
HCM2kAvg:	0	0	0	28	0	10	0	21	0	0	15	0

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
2015 No Project PM

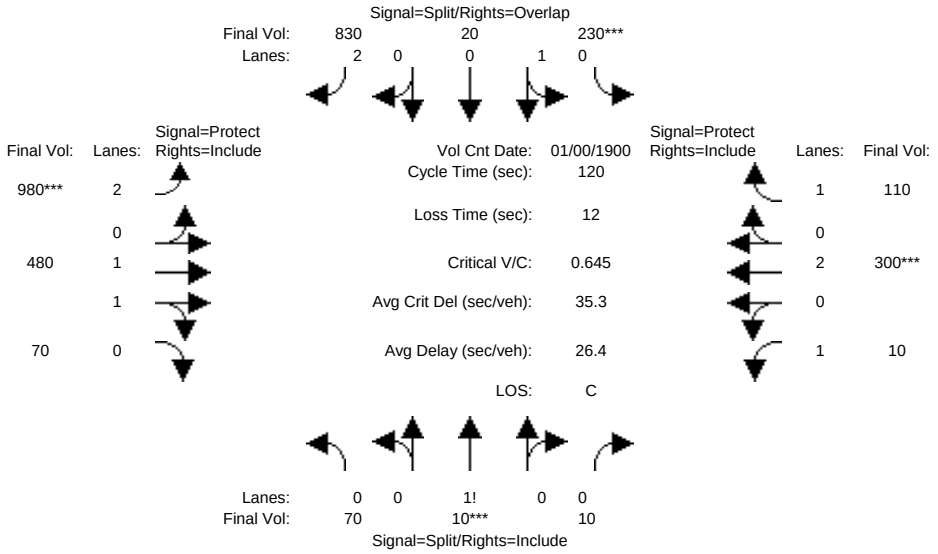
Intersection #3: 101 NB Ramps/Cochrane Road



Street Name:	101 NB Ramps						Cochrane Road					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Min. Green:	10	10	10	10	10	10	7	10	10	7	10	10
Volume Module: >> Count Date: 0 Jan 1900 << 12:00:00 AM												
Base Vol:	340	0	440	0	0	0	0	1090	660	0	930	270
Growth 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
Initial Bse:	340	0	440	0	0	0	0	1090	660	0	930	270
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	340	0	440	0	0	0	0	1090	660	0	930	270
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
PHF Volume:	340	0	440	0	0	0	0	1090	0	0	930	270
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	340	0	440	0	0	0	0	1090	0	0	930	270
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
Final Vol.:	340	0	440	0	0	0	0	1090	0	0	930	270
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.92	1.00	0.95	0.92	1.00	0.92	0.92	1.00	0.92	0.92	1.00	0.92
Lanes:	1.28	0.00	0.72	0.00	0.00	0.00	0.00	2.00	1.00	0.00	2.00	1.00
Final Sat.:	2248	0	1288	0	0	0	0	3800	1750	0	3800	1750
Capacity Analysis Module:												
Vol/Sat:	0.15	0.00	0.34	0.00	0.00	0.00	0.00	0.29	0.00	0.00	0.24	0.15
Crit Moves:			****					****				
Green Time:	62.0	0.0	62.0	0.0	0.0	0.0	0.0	52.0	0.0	0.0	52.0	52.0
Volume/Cap:	0.29	0.00	0.66	0.00	0.00	0.00	0.00	0.66	0.00	0.00	0.56	0.36
Uniform Del:	16.5	0.0	21.3	0.0	0.0	0.0	0.0	27.0	0.0	0.0	25.5	22.8
IncremntDel:	0.1	0.0	1.4	0.0	0.0	0.0	0.0	1.0	0.0	0.0	0.5	0.3
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	0.00	1.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00
Delay/Veh:	16.6	0.0	22.7	0.0	0.0	0.0	0.0	28.0	0.0	0.0	25.9	23.0
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	16.6	0.0	22.7	0.0	0.0	0.0	0.0	28.0	0.0	0.0	25.9	23.0
HCM2kAvg:	5	0	17	0	0	0	0	15	0	0	12	6

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
2015 No Project PM

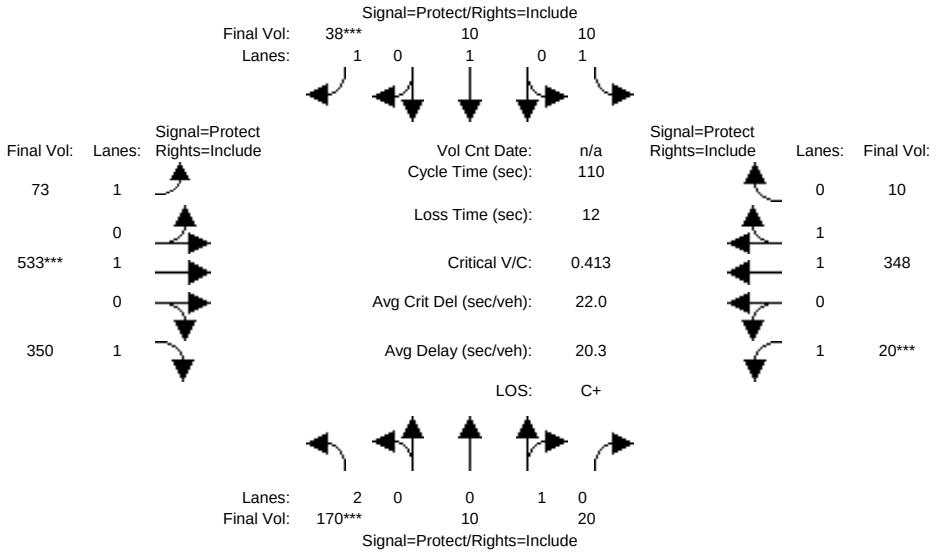
Intersection #4: De Paul Drive/Cochrane Road



Street Name:	De Paul Drive						Cochrane Road					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Min. Green:	10	10	10	10	10	10	7	10	10	7	10	10
Volume Module: >> Count Date: 0 Jan 1900 << 12:00:00 AM												
Base Vol:	70	10	10	230	20	830	980	480	70	10	300	110
Growth 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
Initial Bse:	70	10	10	230	20	830	980	480	70	10	300	110
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	70	10	10	230	20	830	980	480	70	10	300	110
User 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
PHF 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
PHF Volume:	70	10	10	230	20	830	980	480	70	10	300	110
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	70	10	10	230	20	830	980	480	70	10	300	110
PCE 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
MLF 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
Final Vol.:	70	10	10	230	20	830	980	480	70	10	300	110
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.92	0.92	0.92	0.95	0.95	0.83	0.83	0.98	0.95	0.92	1.00	0.92
Lanes:	0.78	0.11	0.11	0.92	0.08	2.00	2.00	1.74	0.26	1.00	2.00	1.00
Final Sat.:	1361	194	194	1656	144	3150	3150	3229	471	1750	3800	1750
Capacity Analysis Module:												
Vol/Sat:	0.05	0.05	0.05	0.14	0.14	0.26	0.31	0.15	0.15	0.01	0.08	0.06
Crit Moves:		****		****			****				****	
Green Time:	10.0	10.0	10.0	25.7	25.7	83.4	57.6	51.9	51.9	20.4	14.6	14.6
Volume/Cap:	0.62	0.62	0.62	0.65	0.65	0.38	0.65	0.34	0.34	0.03	0.65	0.52
Uniform Del:	53.2	53.2	53.2	43.0	43.0	7.6	23.5	22.7	22.7	41.6	50.2	49.4
IncremntDel:	7.8	7.8	7.8	3.8	3.8	0.1	1.0	0.1	0.1	0.0	3.2	2.2
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay 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
Delay/Veh:	60.9	60.9	60.9	46.8	46.8	7.7	24.5	22.8	22.8	41.6	53.4	51.5
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	60.9	60.9	60.9	46.8	46.8	7.7	24.5	22.8	22.8	41.6	53.4	51.5
HCM2kAvg:	4	4	4	9	9	6	13	6	6	0	6	4

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
2015 No Project PM

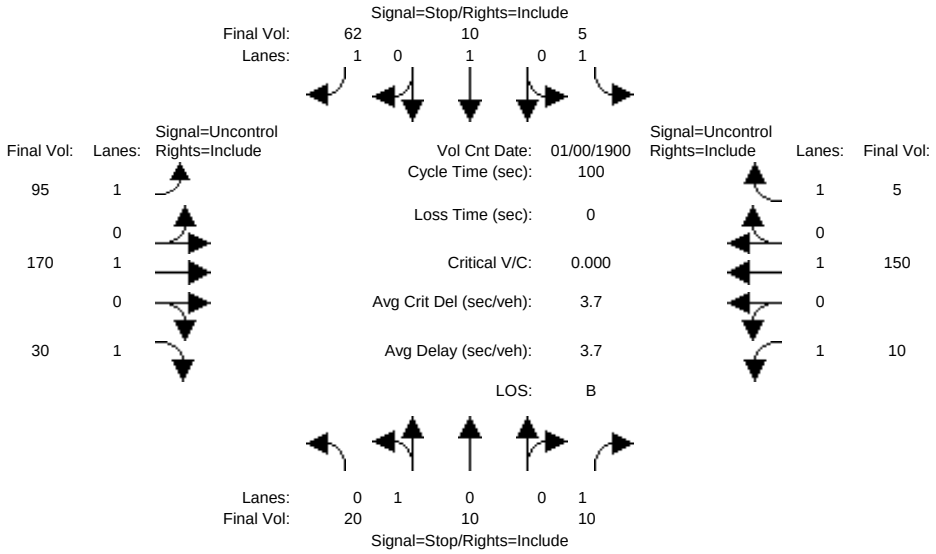
Intersection #5: Cochrane Rd/Mission View Dr



Street Name:	Mission View Dr						Cochrane Rd					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Min. Green:	7	10	10	7	10	10	7	10	10	7	10	10
Volume Module:												
Base Vol:	170	10	20	10	10	38	73	350	350	20	240	10
Growth 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
Initial Bse:	170	10	20	10	10	38	73	350	350	20	240	10
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Proposed Pr:	0	0	0	0	0	0	0	183	0	0	108	0
Initial Fut:	170	10	20	10	10	38	73	533	350	20	348	10
User 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
PHF 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
PHF Volume:	170	10	20	10	10	38	73	533	350	20	348	10
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	170	10	20	10	10	38	73	533	350	20	348	10
PCE 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
MLF 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
Final Vol.:	170	10	20	10	10	38	73	533	350	20	348	10
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.83	0.95	0.95	0.92	1.00	0.92	0.92	1.00	0.92	0.92	0.97	0.95
Lanes:	2.00	0.33	0.67	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.94	0.06
Final Sat.:	3150	600	1200	1750	1900	1750	1750	1900	1750	1750	3597	103
Capacity Analysis Module:												
Vol/Sat:	0.05	0.02	0.02	0.01	0.01	0.02	0.04	0.28	0.20	0.01	0.10	0.10
Crit Moves:	****					****		****		****		
Green Time:	13.1	13.6	13.6	9.5	10.0	10.0	29.7	67.9	67.9	7.0	45.2	45.2
Volume/Cap:	0.45	0.14	0.14	0.07	0.06	0.24	0.15	0.45	0.32	0.18	0.24	0.24
Uniform Del:	45.1	43.0	43.0	46.2	45.7	46.5	30.6	11.2	10.1	48.8	21.1	21.1
IncremntDel:	0.9	0.3	0.3	0.2	0.1	0.8	0.2	0.3	0.2	0.8	0.1	0.1
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay 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
Delay/Veh:	46.0	43.3	43.3	46.4	45.8	47.2	30.7	11.5	10.2	49.6	21.2	21.2
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	46.0	43.3	43.3	46.4	45.8	47.2	30.7	11.5	10.2	49.6	21.2	21.2
HCM2kAvg:	3	1	1	0	0	1	2	9	6	1	4	4

Level Of Service Computation Report
2000 HCM Unsignalized (Future Volume Alternative)
2015 No Project PM

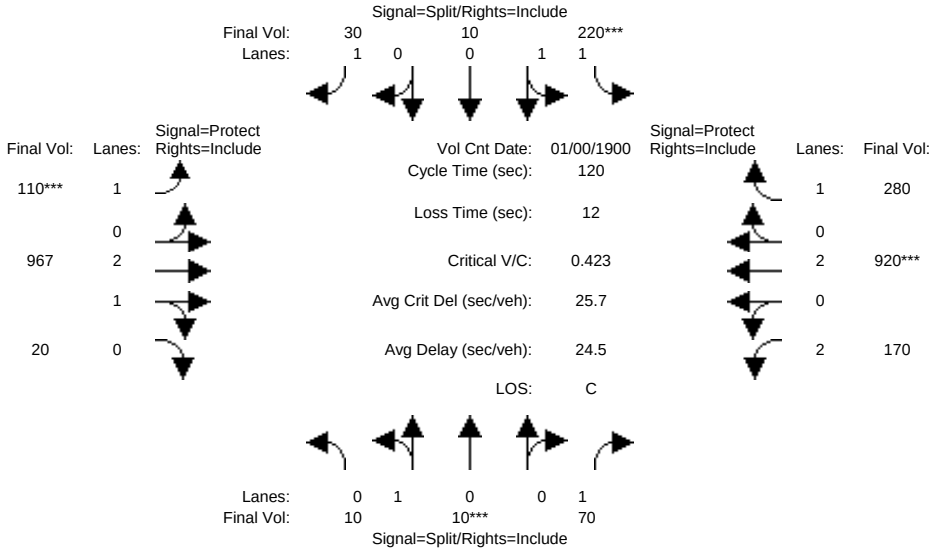
Intersection #6: Peet Road/Cochrane Road



Street Name:	Peet Road						Cochrane Road					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Volume Module: >> Count Date: 0 Jan 1900 << 12:00:00 AM												
Base Vol:	20	10	10	5	10	62	95	170	30	10	150	5
Growth 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
Initial Bse:	20	10	10	5	10	62	95	170	30	10	150	5
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	20	10	10	5	10	62	95	170	30	10	150	5
User 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
PHF 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
PHF Volume:	20	10	10	5	10	62	95	170	30	10	150	5
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Final Vol.:	20	10	10	5	10	62	95	170	30	10	150	5
Critical Gap Module:												
Critical Gp:	7.1	6.5	6.2	7.1	6.5	6.2	4.1	xxxx	xxxxx	4.1	xxxx	xxxxx
FollowUpTim:	3.5	4.0	3.3	3.5	4.0	3.3	2.2	xxxx	xxxxx	2.2	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	568	535	170	555	560	150	155	xxxx	xxxxx	200	xxxx	xxxxx
Potent Cap.:	436	454	879	445	440	902	1438	xxxx	xxxxx	1384	xxxx	xxxxx
Move Cap.:	377	421	879	408	408	902	1438	xxxx	xxxxx	1384	xxxx	xxxxx
Volume/Cap:	0.05	0.02	0.01	0.01	0.02	0.07	0.07	xxxx	xxxx	0.01	xxxx	xxxx
Level Of Service Module:												
Queue:	xxxxx	xxxx	0.0	0.0	0.1	0.2	0.2	xxxx	xxxxx	0.0	xxxx	xxxxx
Stopped Del:	xxxxx	xxxx	9.1	13.9	14.1	9.3	7.7	xxxx	xxxxx	7.6	xxxx	xxxxx
LOS by Move:	*	*	A	B	B	A	A	*	*	A	*	*
Movement:	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT
Shared Cap.:	390	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	0.2	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd StpDel:	15.0	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	B	*	*	*	*	*	*	*	*	*	*	*
ApproachDel:		13.5			10.2			xxxxxx			xxxxxx	
ApproachLOS:		B			B			*			*	

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
2015 Plus Project AM

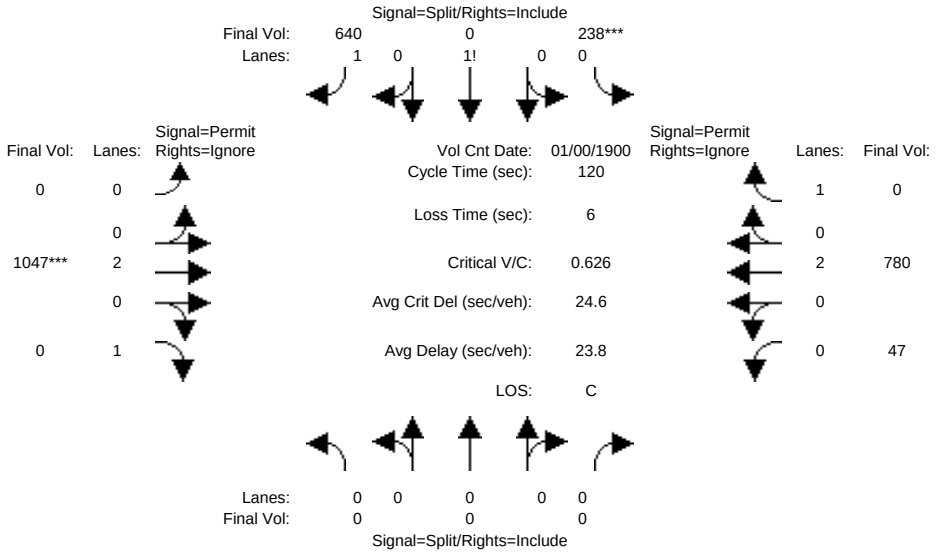
Intersection #1: Madrone Parkway/ Cochrane Road



Street Name:	Madrone Parkway						Cochrane Road					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Min. Green:	10	10	10	10	10	10	7	10	10	7	10	10
Volume Module: >> Count Date: 0 Jan 1900 << 12:00:00 AM												
Base Vol:	10	10	70	220	10	30	110	950	20	170	870	280
Growth 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
Initial Bse:	10	10	70	220	10	30	110	950	20	170	870	280
Added Vol:	0	0	0	0	0	0	0	17	0	0	50	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	10	10	70	220	10	30	110	967	20	170	920	280
User 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
PHF 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
PHF Volume:	10	10	70	220	10	30	110	967	20	170	920	280
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	10	10	70	220	10	30	110	967	20	170	920	280
PCE 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
MLF 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
Final Vol.:	10	10	70	220	10	30	110	967	20	170	920	280
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.95	0.95	0.92	0.93	0.95	0.92	0.92	0.98	0.95	0.83	1.00	0.92
Lanes:	0.50	0.50	1.00	1.91	0.09	1.00	1.00	2.94	0.06	2.00	2.00	1.00
Final Sat.:	900	900	1750	3396	154	1750	1750	5486	113	3150	3800	1750
Capacity Analysis Module:												
Vol/Sat:	0.01	0.01	0.04	0.06	0.06	0.02	0.06	0.18	0.18	0.05	0.24	0.16
Crit Moves:		****		****			****				****	
Green Time:	11.3	11.3	11.3	18.4	18.4	18.4	17.8	65.0	65.0	21.5	68.7	68.7
Volume/Cap:	0.12	0.12	0.42	0.42	0.42	0.11	0.42	0.33	0.33	0.30	0.42	0.28
Uniform Del:	49.7	49.7	51.2	46.0	46.0	43.8	46.4	15.3	15.3	42.7	14.5	13.1
IncremntDel:	0.3	0.3	1.7	0.5	0.5	0.2	1.1	0.1	0.1	0.3	0.1	0.2
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay 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
Delay/Veh:	50.1	50.1	53.0	46.5	46.5	44.0	47.5	15.4	15.4	43.0	14.6	13.2
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	50.1	50.1	53.0	46.5	46.5	44.0	47.5	15.4	15.4	43.0	14.6	13.2
HCM2kAvg:	1	1	3	4	4	1	4	7	6	3	9	5

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
2015 Plus Project AM

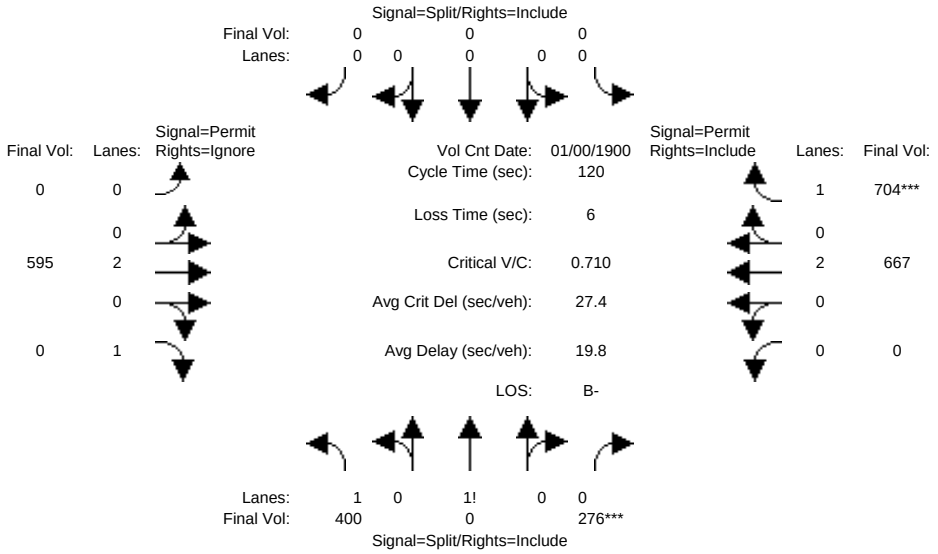
Intersection #2: 101 SB Ramps/Cochrane Road



Street Name:	101 SB Ramps						Cochrane Road					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Min. Green:	10	10	10	10	10	10	7	10	10	7	10	10
Volume Module: >> Count Date: 0 Jan 1900 << 12:00:00 AM												
Base Vol:	0	0	0	210	0	640	0	1030	230	0	730	240
Growth 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
Initial Bse:	0	0	0	210	0	640	0	1030	230	0	730	240
Added Vol:	0	0	0	28	0	0	0	17	0	47	50	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	0	0	238	0	640	0	1047	230	47	780	240
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00
PHF Volume:	0	0	0	238	0	640	0	1047	0	47	780	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	0	0	238	0	640	0	1047	0	47	780	0
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00
Final Vol.:	0	0	0	238	0	640	0	1047	0	47	780	0
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.92	1.00	0.92	0.92	1.00	0.92	0.92	1.00	0.92	0.95	0.98	0.92
Lanes:	0.00	0.00	0.00	0.43	0.00	1.57	0.00	2.00	1.00	0.12	1.88	1.00
Final Sat.:	0	0	0	746	0	2754	0	3800	1750	210	3490	1750
Capacity Analysis Module:												
Vol/Sat:	0.00	0.00	0.00	0.32	0.00	0.23	0.00	0.28	0.00	0.22	0.22	0.00
Crit Moves:				****				****				
Green Time:	0.0	0.0	0.0	61.2	0.0	61.2	0.0	52.8	0.0	52.8	52.8	0.0
Volume/Cap:	0.00	0.00	0.00	0.63	0.00	0.46	0.00	0.63	0.00	0.51	0.51	0.00
Uniform Del:	0.0	0.0	0.0	21.2	0.0	18.8	0.0	25.9	0.0	24.2	24.2	0.0
IncremntDel:	0.0	0.0	0.0	0.9	0.0	0.2	0.0	0.8	0.0	0.3	0.3	0.0
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	0.00	0.00	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00	1.00	0.00
Delay/Veh:	0.0	0.0	0.0	22.1	0.0	19.0	0.0	26.7	0.0	24.5	24.5	0.0
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	0.0	0.0	0.0	22.1	0.0	19.0	0.0	26.7	0.0	24.5	24.5	0.0
HCM2kAvg:	0	0	0	15	0	9	0	15	0	10	11	0

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
2015 Plus Project AM

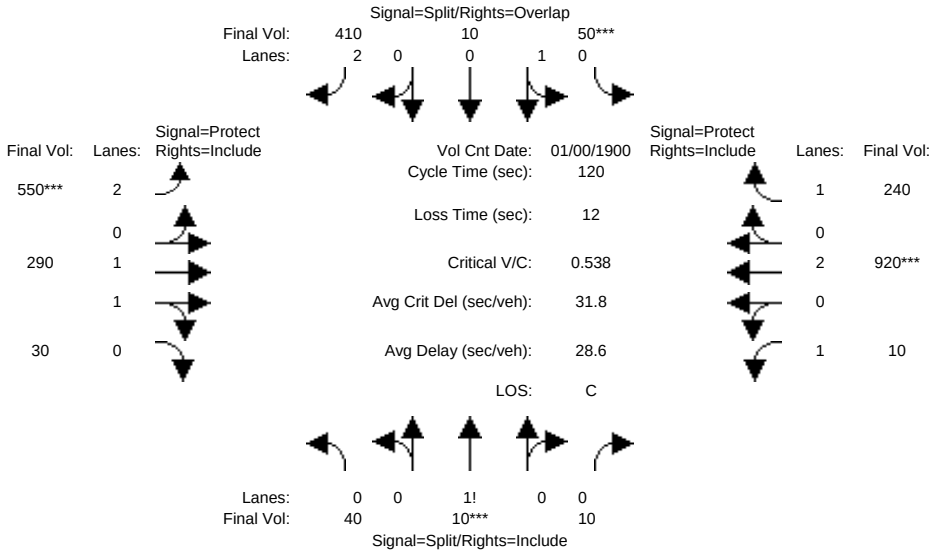
Intersection #3: 101 NB Ramps/Cochrane Road



Street Name:	101 NB Ramps						Cochrane Road					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Min. Green:	10	10	10	10	10	10	7	10	10	7	10	10
Volume Module: >> Count Date: 0 Jan 1900 << 12:00:00 AM												
Base Vol:	400	0	260	0	0	0	0	550	690	0	570	620
Growth 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
Initial Bse:	400	0	260	0	0	0	0	550	690	0	570	620
Added Vol:	0	0	16	0	0	0	0	45	0	0	97	84
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	400	0	276	0	0	0	0	595	690	0	667	704
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
PHF Volume:	400	0	276	0	0	0	0	595	0	0	667	704
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	400	0	276	0	0	0	0	595	0	0	667	704
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
Final Vol.:	400	0	276	0	0	0	0	595	0	0	667	704
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.92	1.00	0.92	0.92	1.00	0.92	0.92	1.00	0.92	0.92	1.00	0.92
Lanes:	1.42	0.00	0.58	0.00	0.00	0.00	0.00	2.00	1.00	0.00	2.00	1.00
Final Sat.:	2485	0	1015	0	0	0	0	3800	1750	0	3800	1750
Capacity Analysis Module:												
Vol/Sat:	0.16	0.00	0.27	0.00	0.00	0.00	0.00	0.16	0.00	0.00	0.18	0.40
Crit Moves:			****									****
Green Time:	46.0	0.0	46.0	0.0	0.0	0.0	0.0	68.0	0.0	0.0	68.0	68.0
Volume/Cap:	0.42	0.00	0.71	0.00	0.00	0.00	0.00	0.28	0.00	0.00	0.31	0.71
Uniform Del:	27.2	0.0	31.4	0.0	0.0	0.0	0.0	13.4	0.0	0.0	13.7	18.8
IncremntDel:	0.2	0.0	2.5	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	2.4
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	0.00	1.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00
Delay/Veh:	27.4	0.0	33.9	0.0	0.0	0.0	0.0	13.4	0.0	0.0	13.7	21.3
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	27.4	0.0	33.9	0.0	0.0	0.0	0.0	13.4	0.0	0.0	13.7	21.3
HCM2kAvg:	8	0	16	0	0	0	0	5	0	0	6	19

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
2015 Plus Project AM

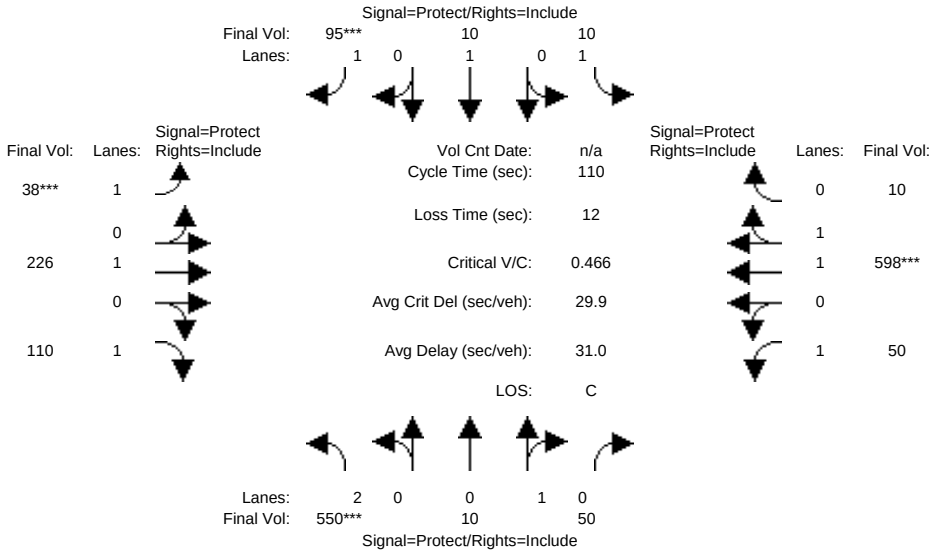
Intersection #4: De Paul Drive/Cochrane Road



Street Name:	De Paul Drive						Cochrane Road					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Min. Green:	10	10	10	10	10	10	7	10	10	7	10	10
Volume Module: >> Count Date: 0 Jan 1900 << 12:00:00 AM												
Base Vol:	40	10	10	50	10	410	550	230	30	10	740	240
Growth 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
Initial Bse:	40	10	10	50	10	410	550	230	30	10	740	240
Added Vol:	0	0	0	0	0	0	0	60	0	0	180	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	40	10	10	50	10	410	550	290	30	10	920	240
User 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
PHF 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
PHF Volume:	40	10	10	50	10	410	550	290	30	10	920	240
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	40	10	10	50	10	410	550	290	30	10	920	240
PCE 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
MLF 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
Final Vol.:	40	10	10	50	10	410	550	290	30	10	920	240
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.92	0.92	0.92	0.95	0.95	0.83	0.83	0.98	0.95	0.92	1.00	0.92
Lanes:	0.66	0.17	0.17	0.83	0.17	2.00	2.00	1.81	0.19	1.00	2.00	1.00
Final Sat.:	1167	292	292	1500	300	3150	3150	3353	347	1750	3800	1750
Capacity Analysis Module:												
Vol/Sat:	0.03	0.03	0.03	0.03	0.03	0.13	0.17	0.09	0.09	0.01	0.24	0.14
Crit Moves:		****		****			****				****	
Green Time:	10.0	10.0	10.0	10.0	10.0	46.9	36.9	52.6	52.6	35.4	51.1	51.1
Volume/Cap:	0.41	0.41	0.41	0.40	0.40	0.33	0.57	0.20	0.20	0.02	0.57	0.32
Uniform Del:	52.2	52.2	52.2	52.2	52.2	25.6	34.9	20.7	20.7	30.0	26.1	22.9
IncremntDel:	1.9	1.9	1.9	1.7	1.7	0.2	0.8	0.1	0.1	0.0	0.5	0.3
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay 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
Delay/Veh:	54.1	54.1	54.1	53.9	53.9	25.8	35.7	20.8	20.8	30.0	26.6	23.2
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	54.1	54.1	54.1	53.9	53.9	25.8	35.7	20.8	20.8	30.0	26.6	23.2
HCM2kAvg:	3	3	3	3	3	5	8	3	3	0	13	6

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
2015 Plus Project AM

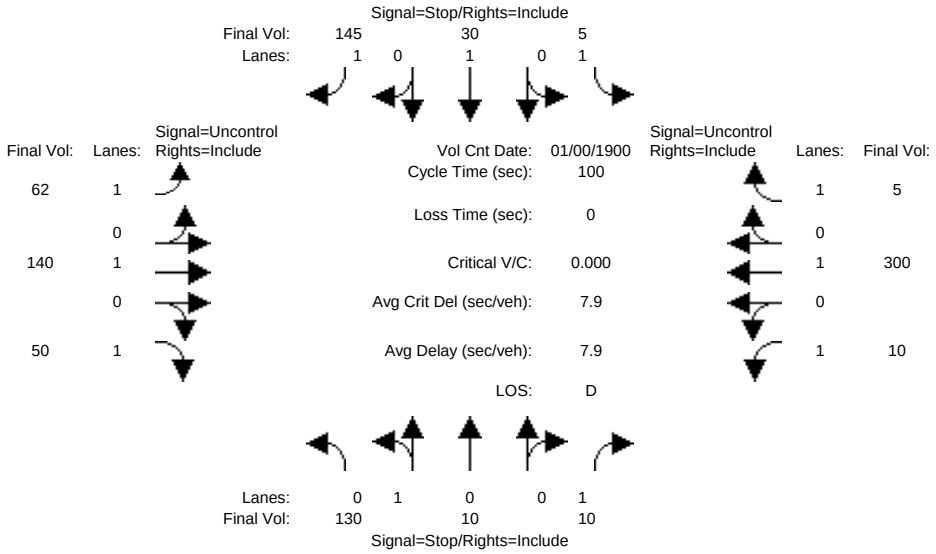
Intersection #5: Cochrane Rd/Mission View Dr



Street Name:	Mission View Dr						Cochrane Rd					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Min. Green:	7	10	10	7	10	10	7	10	10	7	10	10
Volume Module:												
Base Vol:	550	10	50	10	10	95	38	170	110	50	430	10
Growth 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
Initial Bse:	550	10	50	10	10	95	38	170	110	50	430	10
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Proposed Pr:	0	0	0	0	0	0	0	56	0	0	168	0
Initial Fut:	550	10	50	10	10	95	38	226	110	50	598	10
User 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
PHF 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
PHF Volume:	550	10	50	10	10	95	38	226	110	50	598	10
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	550	10	50	10	10	95	38	226	110	50	598	10
PCE 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
MLF 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
Final Vol.:	550	10	50	10	10	95	38	226	110	50	598	10
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.83	0.95	0.95	0.92	1.00	0.92	0.92	1.00	0.92	0.92	0.97	0.95
Lanes:	2.00	0.17	0.83	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.97	0.03
Final Sat.:	3150	300	1500	1750	1900	1750	1750	1900	1750	1750	3639	61
Capacity Analysis Module:												
Vol/Sat:	0.17	0.03	0.03	0.01	0.01	0.05	0.02	0.12	0.06	0.03	0.16	0.16
Crit Moves:	****					****	****				****	
Green Time:	40.4	31.2	31.2	21.8	12.6	12.6	7.0	29.3	29.3	15.7	38.0	38.0
Volume/Cap:	0.48	0.12	0.12	0.03	0.05	0.48	0.34	0.45	0.24	0.20	0.48	0.48
Uniform Del:	26.7	29.2	29.2	35.6	43.4	45.6	49.3	33.6	31.6	41.6	28.2	28.2
IncremntDel:	0.3	0.1	0.1	0.0	0.1	1.8	1.8	0.6	0.3	0.4	0.3	0.3
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay 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
Delay/Veh:	27.0	29.3	29.3	35.6	43.5	47.4	51.1	34.2	31.8	42.0	28.5	28.5
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	27.0	29.3	29.3	35.6	43.5	47.4	51.1	34.2	31.8	42.0	28.5	28.5
HCM2kAvg:	7	1	1	0	0	4	2	7	3	2	8	8

Level Of Service Computation Report
2000 HCM Unsignalized (Future Volume Alternative)
2015 Plus Project AM

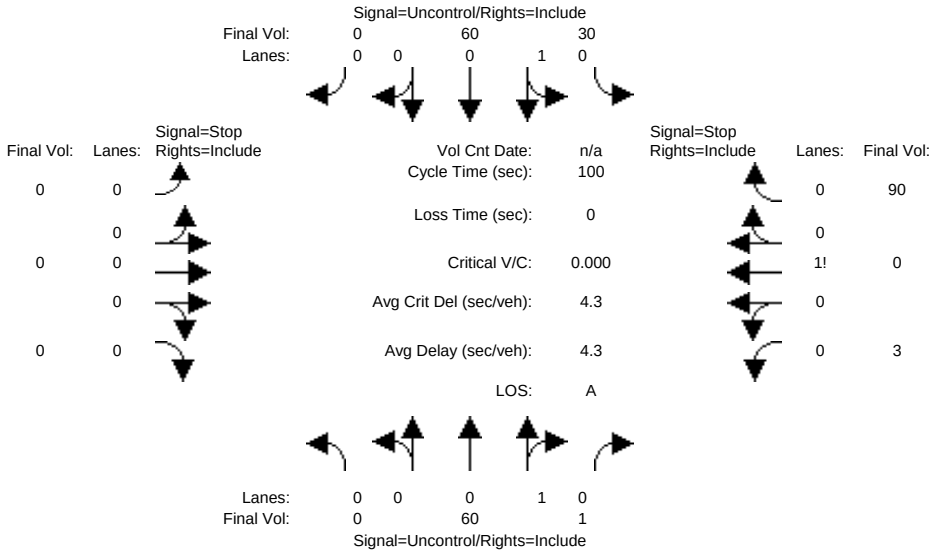
Intersection #6: Peet Road/Cochrane Road



Street Name:	Peet Road						Cochrane Road					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Volume Module: >> Count Date: 0 Jan 1900 << 12:00:00 AM												
Base Vol:	40	10	10	5	30	145	62	110	20	10	210	5
Growth 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
Initial Bse:	40	10	10	5	30	145	62	110	20	10	210	5
Added Vol:	90	0	0	0	0	0	0	30	30	0	90	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	130	10	10	5	30	145	62	140	50	10	300	5
User 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
PHF 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
PHF Volume:	130	10	10	5	30	145	62	140	50	10	300	5
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Final Vol.:	130	10	10	5	30	145	62	140	50	10	300	5
Critical Gap Module:												
Critical Gp:	7.1	6.5	6.2	7.1	6.5	6.2	4.1	xxxx	xxxxx	4.1	xxxx	xxxxx
FollowUpTim:	3.5	4.0	3.3	3.5	4.0	3.3	2.2	xxxx	xxxxx	2.2	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	674	589	140	619	634	300	305	xxxx	xxxxx	190	xxxx	xxxxx
Potent Cap.:	371	423	913	404	399	744	1267	xxxx	xxxxx	1396	xxxx	xxxxx
Move Cap.:	269	400	913	375	377	744	1267	xxxx	xxxxx	1396	xxxx	xxxxx
Volume/Cap:	0.48	0.03	0.01	0.01	0.08	0.19	0.05	xxxx	xxxx	0.01	xxxx	xxxx
Level Of Service Module:												
Queue:	xxxxx	xxxx	0.0	0.0	0.3	0.7	0.2	xxxx	xxxxx	0.0	xxxx	xxxxx
Stopped Del:	xxxxx	xxxx	9.0	14.7	15.4	11.0	8.0	xxxx	xxxxx	7.6	xxxx	xxxxx
LOS by Move:	*	*	A	B	C	B	A	*	*	A	*	*
Movement:	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT
Shared Cap.:	275	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	2.7	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd StpDel:	30.9	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	D	*	*	*	*	*	*	*	*	*	*	*
ApproachDel:		29.4			11.8			xxxxxx			xxxxxx	
ApproachLOS:		D			B			*			*	

Level Of Service Computation Report
2000 HCM Unsignalized (Future Volume Alternative)
2015 Plus Project AM

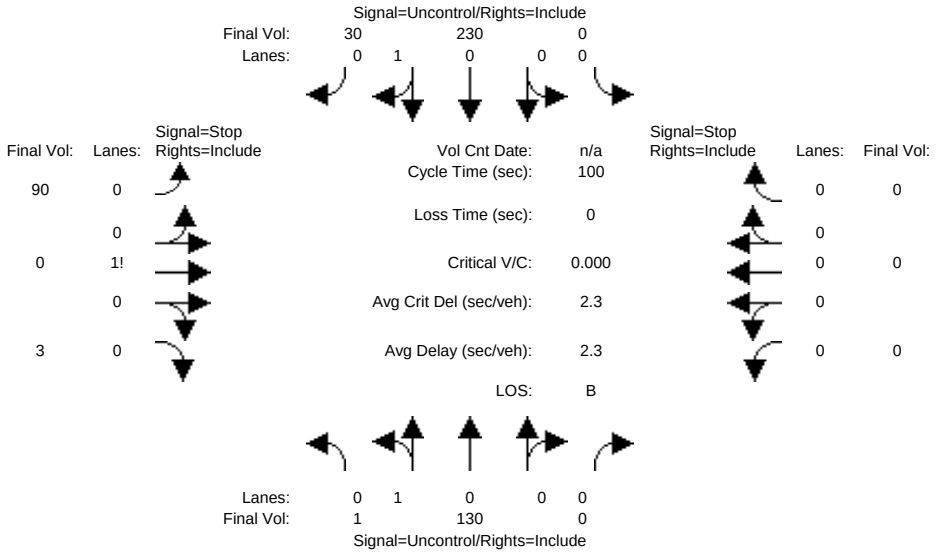
Intersection #7: Peet Road/West Project Driveway



Street Name:	Peet Road						West Project Driveway					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Volume Module:												
Base Vol:	0	60	0	0	60	0	0	0	0	0	0	0
Growth 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
Initial Bse:	0	60	0	0	60	0	0	0	0	0	0	0
Added Vol:	0	0	1	30	0	0	0	0	0	3	0	90
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	60	1	30	60	0	0	0	0	3	0	90
User 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
PHF 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
PHF Volume:	0	60	1	30	60	0	0	0	0	3	0	90
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Final Vol.:	0	60	1	30	60	0	0	0	0	3	0	90
Critical Gap Module:												
Critical Gp:	xxxxx	xxxx	xxxxx	4.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx	6.4	xxxx	6.2
FollowUpTim:	xxxxx	xxxx	xxxxx	2.2	xxxx	xxxxx	xxxxx	xxxx	xxxxx	3.5	xxxx	3.3
Capacity Module:												
Cnflict Vol:	xxxx	xxxx	xxxxx	61	xxxx	xxxxx	xxxx	xxxx	xxxxx	181	xxxx	61
Potent Cap.:	xxxx	xxxx	xxxxx	1555	xxxx	xxxxx	xxxx	xxxx	xxxxx	814	xxxx	1010
Move Cap.:	xxxx	xxxx	xxxxx	1555	xxxx	xxxxx	xxxx	xxxx	xxxxx	801	xxxx	1010
Volume/Cap:	xxxx	xxxx	xxxx	0.02	xxxx	xxxx	xxxx	xxxx	xxxx	0.00	xxxx	0.09
Level Of Service Module:												
Queue:	xxxxx	xxxx	xxxxx	0.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Stopped Del:	xxxxx	xxxx	xxxxx	7.4	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
LOS by Move:	*	*	*	A	*	*	*	*	*	*	*	*
Movement:	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	1002	xxxxx
SharedQueue:	xxxxx	xxxx	xxxxx	0.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	0.3	xxxxx
Shrd StpDel:	xxxxx	xxxx	xxxxx	7.4	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	9.0	xxxxx
Shared LOS:	*	*	*	A	*	*	*	*	*	*	A	*
ApproachDel:	xxxxxx			xxxxxx			xxxxxx			9.0		
ApproachLOS:	*			*			*			A		

Level Of Service Computation Report
2000 HCM Unsignalized (Future Volume Alternative)
2015 Plus Project AM

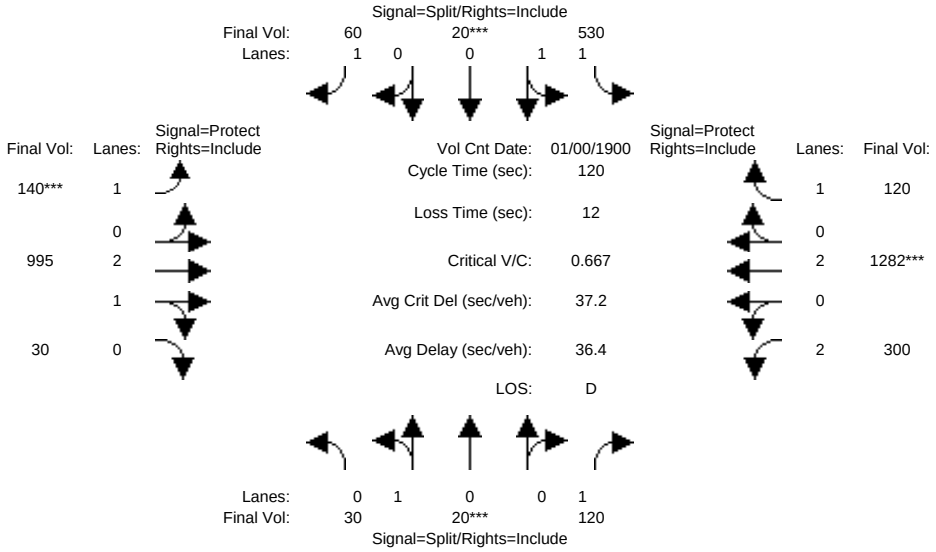
Intersection #8: Cochrane Road/East Project Driveway



Street Name:	Cochrane Road						East Project Driveway					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Volume Module:												
Base Vol:	0	130	0	0	230	0	0	0	0	0	0	0
Growth 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
Initial Bse:	0	130	0	0	230	0	0	0	0	0	0	0
Added Vol:	1	0	0	0	0	30	90	0	3	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	1	130	0	0	230	30	90	0	3	0	0	0
User 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
PHF 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
PHF Volume:	1	130	0	0	230	30	90	0	3	0	0	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Final Vol.:	1	130	0	0	230	30	90	0	3	0	0	0
Critical Gap Module:												
Critical Gp:	4.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx	6.4	xxxx	6.2	xxxxx	xxxx	xxxxx
FollowUpTim:	2.2	xxxx	xxxxx	xxxxx	xxxx	xxxxx	3.5	xxxx	3.3	xxxxx	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	260	xxxx	xxxxx	xxxx	xxxx	xxxxx	377	xxxx	245	xxxx	xxxx	xxxxx
Potent Cap.:	1316	xxxx	xxxxx	xxxx	xxxx	xxxxx	629	xxxx	799	xxxx	xxxx	xxxxx
Move Cap.:	1316	xxxx	xxxxx	xxxx	xxxx	xxxxx	628	xxxx	799	xxxx	xxxx	xxxxx
Volume/Cap:	0.00	xxxx	xxxx	xxxx	xxxx	xxxx	0.14	xxxx	0.00	xxxx	xxxx	xxxx
Level Of Service Module:												
Queue:	0.0	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Stopped Del:	7.7	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
LOS by Move:	A	*	*	*	*	*	*	*	*	*	*	*
Movement:	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	633	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	0.0	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	0.5	xxxxx	xxxxx	xxxx	xxxxx
Shrd StpDel:	7.7	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	11.7	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	A	*	*	*	*	*	*	B	*	*	*	*
ApproachDel:	xxxxxx			xxxxxx			11.7			xxxxxx		
ApproachLOS:	*			*			B			*		

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
2015 Plus Project PM

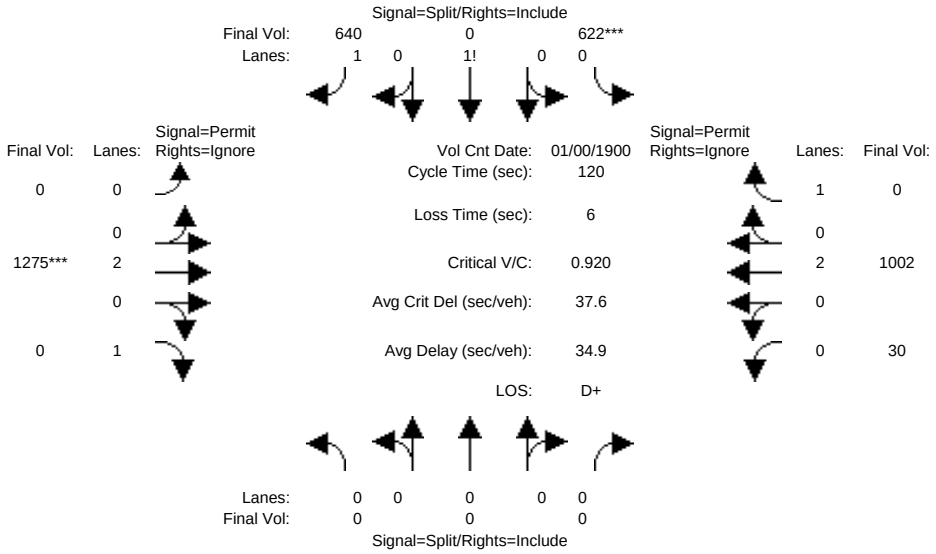
Intersection #1: Madrone Parkway/ Cochrane Road



Street Name:	Madrone Parkway						Cochrane Road					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Min. Green:	10	10	10	10	10	10	7	10	10	7	10	10
Volume Module: >> Count Date: 0 Jan 1900 << 12:00:00 AM												
Base Vol:	30	20	120	530	20	60	140	940	30	300	1250	120
Growth 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
Initial Bse:	30	20	120	530	20	60	140	940	30	300	1250	120
Added Vol:	0	0	0	0	0	0	0	55	0	0	32	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	30	20	120	530	20	60	140	995	30	300	1282	120
User 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
PHF 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
PHF Volume:	30	20	120	530	20	60	140	995	30	300	1282	120
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	30	20	120	530	20	60	140	995	30	300	1282	120
PCE 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
MLF 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
Final Vol.:	30	20	120	530	20	60	140	995	30	300	1282	120
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.95	0.95	0.92	0.93	0.95	0.92	0.92	0.98	0.95	0.83	1.00	0.92
Lanes:	0.60	0.40	1.00	1.93	0.07	1.00	1.00	2.91	0.09	2.00	2.00	1.00
Final Sat.:	1080	720	1750	3421	129	1750	1750	5436	164	3150	3800	1750
Capacity Analysis Module:												
Vol/Sat:	0.03	0.03	0.07	0.15	0.15	0.03	0.08	0.18	0.18	0.10	0.34	0.07
Crit Moves:		****			****		****				****	
Green Time:	12.3	12.3	12.3	27.9	27.9	27.9	14.4	49.4	49.4	25.7	60.7	60.7
Volume/Cap:	0.27	0.27	0.67	0.67	0.67	0.15	0.67	0.44	0.44	0.44	0.67	0.14
Uniform Del:	49.7	49.7	51.8	41.8	41.8	36.6	50.5	25.4	25.4	40.9	22.1	15.7
IncremntDel:	0.8	0.8	9.2	2.1	2.1	0.2	7.9	0.1	0.1	0.5	0.9	0.1
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay 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
Delay/Veh:	50.5	50.5	61.0	43.9	43.9	36.8	58.4	25.6	25.6	41.4	23.0	15.8
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	50.5	50.5	61.0	43.9	43.9	36.8	58.4	25.6	25.6	41.4	23.0	15.8
HCM2kAvg:	2	2	5	10	10	2	6	9	9	5	17	2

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
2015 Plus Project PM

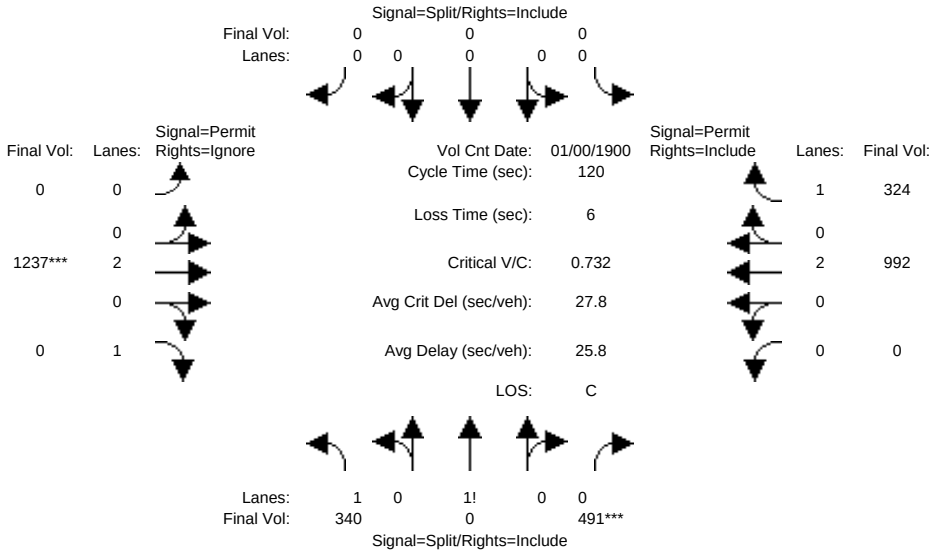
Intersection #2: 101 SB Ramps/Cochrane Road



Street Name:	101 SB Ramps						Cochrane Road					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Min. Green:	10	10	10	10	10	10	7	10	10	7	10	10
Volume Module: >> Count Date: 0 Jan 1900 << 12:00:00 AM												
Base Vol:	0	0	0	530	0	640	0	1220	400	0	970	300
Growth 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
Initial Bse:	0	0	0	530	0	640	0	1220	400	0	970	300
Added Vol:	0	0	0	92	0	0	0	55	0	30	32	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	0	0	622	0	640	0	1275	400	30	1002	300
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00
PHF Volume:	0	0	0	622	0	640	0	1275	0	30	1002	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	0	0	622	0	640	0	1275	0	30	1002	0
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00
Final Vol.:	0	0	0	622	0	640	0	1275	0	30	1002	0
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.92	1.00	0.92	0.92	1.00	0.92	0.92	1.00	0.92	0.95	0.97	0.92
Lanes:	0.00	0.00	0.00	0.66	0.00	1.34	0.00	2.00	1.00	0.06	1.94	1.00
Final Sat.:	0	0	0	1156	0	2344	0	3800	1750	108	3592	1750
Capacity Analysis Module:												
Vol/Sat:	0.00	0.00	0.00	0.54	0.00	0.27	0.00	0.34	0.00	0.28	0.28	0.00
Crit Moves:				****				****				
Green Time:	0.0	0.0	0.0	70.2	0.0	70.2	0.0	43.8	0.0	43.8	43.8	0.0
Volume/Cap:	0.00	0.00	0.00	0.92	0.00	0.47	0.00	0.92	0.00	0.76	0.76	0.00
Uniform Del:	0.0	0.0	0.0	22.4	0.0	14.2	0.0	36.4	0.0	33.6	33.6	0.0
IncremntDel:	0.0	0.0	0.0	10.2	0.0	0.1	0.0	10.1	0.0	2.7	2.7	0.0
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	0.00	0.00	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00	1.00	0.00
Delay/Veh:	0.0	0.0	0.0	32.6	0.0	14.3	0.0	46.6	0.0	36.2	36.2	0.0
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	0.0	0.0	0.0	32.6	0.0	14.3	0.0	46.6	0.0	36.2	36.2	0.0
HCM2kAvg:	0	0	0	35	0	10	0	25	0	16	17	0

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
2015 Plus Project PM

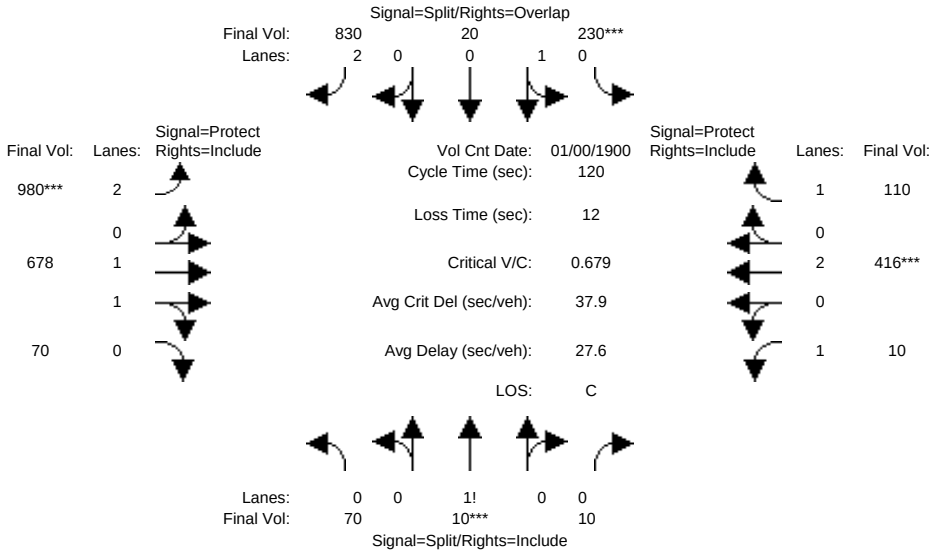
Intersection #3: 101 NB Ramps/Cochrane Road



Street Name:	101 NB Ramps						Cochrane Road					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Min. Green:	10	10	10	10	10	10	7	10	10	7	10	10
Volume Module: >> Count Date: 0 Jan 1900 << 12:00:00 AM												
Base Vol:	340	0	440	0	0	0	0	1090	660	0	930	270
Growth 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
Initial Bse:	340	0	440	0	0	0	0	1090	660	0	930	270
Added Vol:	0	0	51	0	0	0	0	147	0	0	62	54
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	340	0	491	0	0	0	0	1237	660	0	992	324
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
PHF Volume:	340	0	491	0	0	0	0	1237	0	0	992	324
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	340	0	491	0	0	0	0	1237	0	0	992	324
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
Final Vol.:	340	0	491	0	0	0	0	1237	0	0	992	324
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.92	1.00	0.95	0.92	1.00	0.92	0.92	1.00	0.92	0.92	1.00	0.92
Lanes:	1.26	0.00	0.74	0.00	0.00	0.00	0.00	2.00	1.00	0.00	2.00	1.00
Final Sat.:	2210	0	1327	0	0	0	0	3800	1750	0	3800	1750
Capacity Analysis Module:												
Vol/Sat:	0.15	0.00	0.37	0.00	0.00	0.00	0.00	0.33	0.00	0.00	0.26	0.19
Crit Moves:			****					****				
Green Time:	60.6	0.0	60.6	0.0	0.0	0.0	0.0	53.4	0.0	0.0	53.4	53.4
Volume/Cap:	0.30	0.00	0.73	0.00	0.00	0.00	0.00	0.73	0.00	0.00	0.59	0.42
Uniform Del:	17.4	0.0	23.3	0.0	0.0	0.0	0.0	27.4	0.0	0.0	25.0	22.7
IncremntDel:	0.1	0.0	2.5	0.0	0.0	0.0	0.0	1.7	0.0	0.0	0.5	0.4
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	0.00	1.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00
Delay/Veh:	17.4	0.0	25.8	0.0	0.0	0.0	0.0	29.1	0.0	0.0	25.6	23.1
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	17.4	0.0	25.8	0.0	0.0	0.0	0.0	29.1	0.0	0.0	25.6	23.1
HCM2kAvg:	6	0	20	0	0	0	0	18	0	0	13	8

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
2015 Plus Project PM

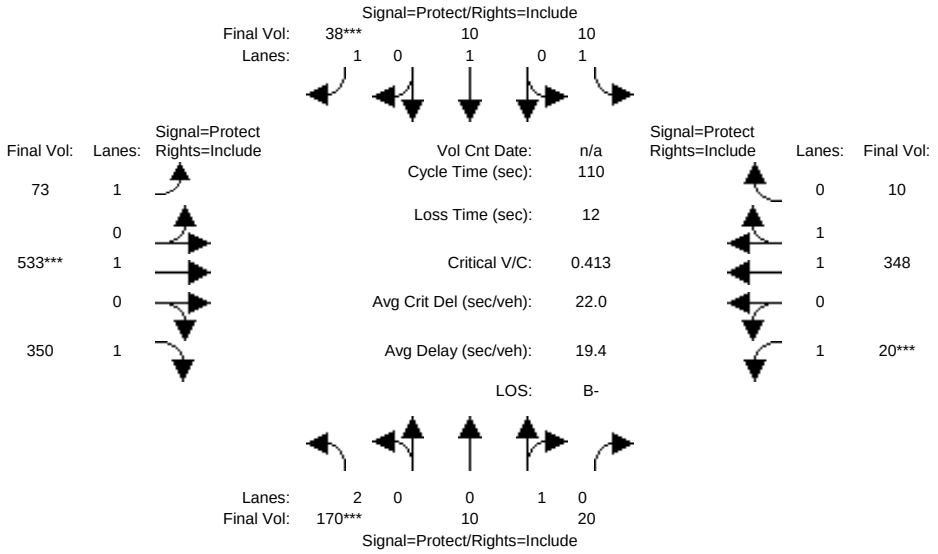
Intersection #4: De Paul Drive/Cochrane Road



Street Name:	De Paul Drive						Cochrane Road					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Min. Green:	10	10	10	10	10	10	7	10	10	7	10	10
Volume Module: >> Count Date: 0 Jan 1900 << 12:00:00 AM												
Base Vol:	70	10	10	230	20	830	980	480	70	10	300	110
Growth 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
Initial Bse:	70	10	10	230	20	830	980	480	70	10	300	110
Added Vol:	0	0	0	0	0	0	0	198	0	0	116	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	70	10	10	230	20	830	980	678	70	10	416	110
User 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
PHF 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
PHF Volume:	70	10	10	230	20	830	980	678	70	10	416	110
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	70	10	10	230	20	830	980	678	70	10	416	110
PCE 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
MLF 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
Final Vol.:	70	10	10	230	20	830	980	678	70	10	416	110
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.92	0.92	0.92	0.95	0.95	0.83	0.83	0.98	0.95	0.92	1.00	0.92
Lanes:	0.78	0.11	0.11	0.92	0.08	2.00	2.00	1.81	0.19	1.00	2.00	1.00
Final Sat.:	1361	194	194	1656	144	3150	3150	3353	346	1750	3800	1750
Capacity Analysis Module:												
Vol/Sat:	0.05	0.05	0.05	0.14	0.14	0.26	0.31	0.20	0.20	0.01	0.11	0.06
Crit Moves:		****		****			****				****	
Green Time:	10.0	10.0	10.0	24.3	24.3	78.8	54.5	57.2	57.2	16.5	19.2	19.2
Volume/Cap:	0.62	0.62	0.62	0.69	0.69	0.40	0.69	0.42	0.42	0.04	0.69	0.39
Uniform Del:	53.2	53.2	53.2	44.3	44.3	9.6	26.0	20.6	20.6	44.9	47.6	45.2
IncremntDel:	7.8	7.8	7.8	5.3	5.3	0.1	1.4	0.2	0.2	0.1	3.3	0.9
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay 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
Delay/Veh:	60.9	60.9	60.9	49.6	49.6	9.7	27.4	20.8	20.8	45.0	50.8	46.1
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	60.9	60.9	60.9	49.6	49.6	9.7	27.4	20.8	20.8	45.0	50.8	46.1
HCM2kAvg:	4	4	4	10	10	7	14	9	8	0	8	4

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
2015 Plus Project PM

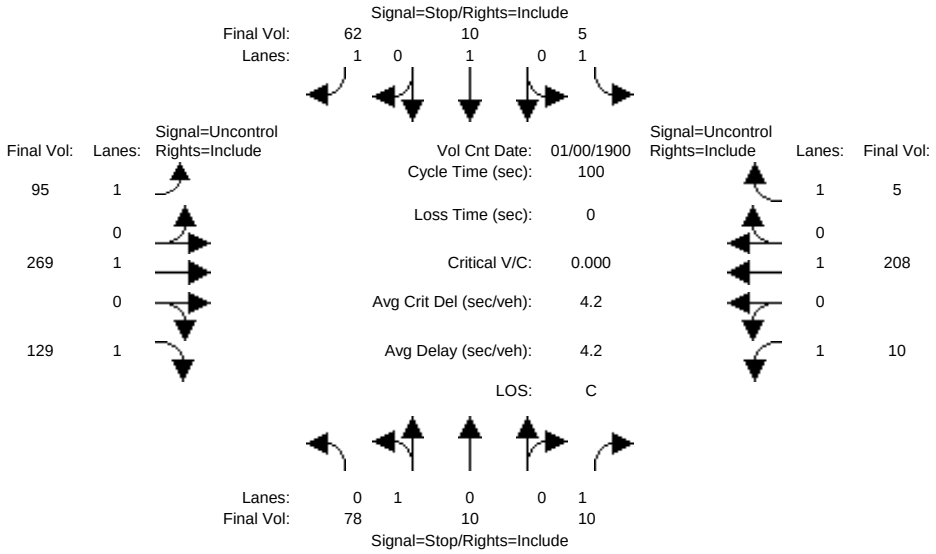
Intersection #5: Cochrane Rd/Mission View Dr



Street Name:	Mission View Dr						Cochrane Rd					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Min. Green:	7	10	10	7	10	10	7	10	10	7	10	10
Volume Module:												
Base Vol:	170	10	20	10	10	38	73	350	350	20	240	10
Growth 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
Initial Bse:	170	10	20	10	10	38	73	350	350	20	240	10
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Proposed Pr:	0	0	0	0	0	0	0	183	0	0	108	0
Initial Fut:	170	10	20	10	10	38	73	533	350	20	348	10
User 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
PHF 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
PHF Volume:	170	10	20	10	10	38	73	533	350	20	348	10
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	170	10	20	10	10	38	73	533	350	20	348	10
PCE 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
MLF 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
Final Vol.:	170	10	20	10	10	38	73	533	350	20	348	10
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.83	0.95	0.95	0.92	1.00	0.92	0.92	1.00	0.92	0.92	0.97	0.95
Lanes:	2.00	0.33	0.67	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.94	0.06
Final Sat.:	3150	600	1200	1750	1900	1750	1750	1900	1750	1750	3597	103
Capacity Analysis Module:												
Vol/Sat:	0.05	0.02	0.02	0.01	0.01	0.02	0.04	0.28	0.20	0.01	0.10	0.10
Crit Moves:	****					****		****		****		
Green Time:	13.1	13.6	13.6	9.5	10.0	10.0	29.7	67.9	67.9	7.0	45.2	45.2
Volume/Cap:	0.45	0.14	0.14	0.07	0.06	0.24	0.15	0.45	0.32	0.18	0.24	0.24
Uniform Del:	45.1	43.0	43.0	46.2	45.7	46.5	30.6	11.2	10.1	48.8	21.1	21.1
IncremntDel:	0.9	0.3	0.3	0.2	0.1	0.8	0.2	0.3	0.2	0.8	0.1	0.1
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay 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
Delay/Veh:	46.0	43.3	43.3	46.4	45.8	47.2	30.7	11.5	10.2	49.6	21.2	21.2
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	46.0	43.3	43.3	46.4	45.8	47.2	30.7	11.5	10.2	49.6	21.2	21.2
HCM2kAvg:	3	1	1	0	0	1	2	9	6	1	4	4

Level Of Service Computation Report
2000 HCM Unsignalized (Future Volume Alternative)
2015 Plus Project PM

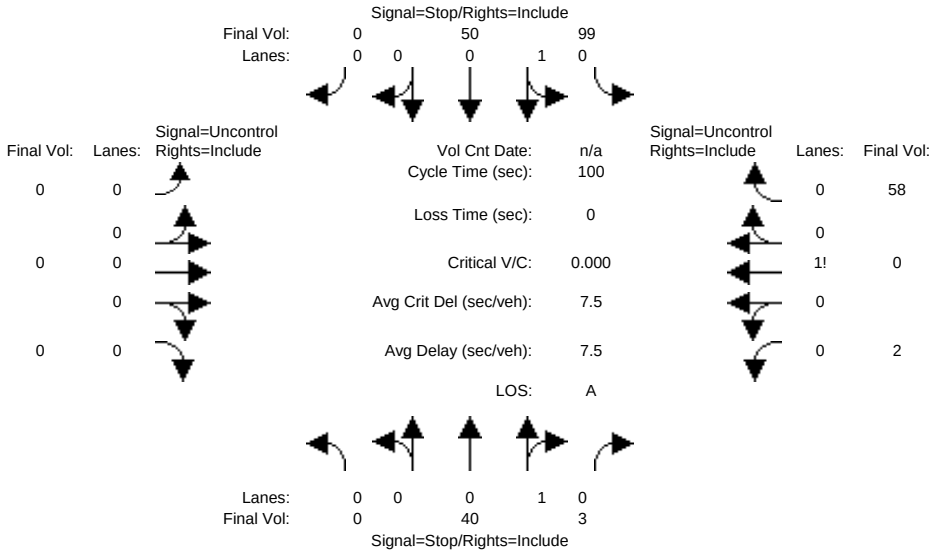
Intersection #6: Peet Road/Cochrane Road



Street Name:	Peet Road						Cochrane Road					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Volume Module: >> Count Date: 0 Jan 1900 << 12:00:00 AM												
Base Vol:	20	10	10	5	10	62	95	170	30	10	150	5
Growth 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
Initial Bse:	20	10	10	5	10	62	95	170	30	10	150	5
Added Vol:	58	0	0	0	0	0	0	99	99	0	58	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	78	10	10	5	10	62	95	269	129	10	208	5
User 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
PHF 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
PHF Volume:	78	10	10	5	10	62	95	269	129	10	208	5
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Final Vol.:	78	10	10	5	10	62	95	269	129	10	208	5
Critical Gap Module:												
Critical Gp:	7.1	6.5	6.2	7.1	6.5	6.2	4.1	xxxx	xxxxx	4.1	xxxx	xxxxx
FollowUpTim:	3.5	4.0	3.3	3.5	4.0	3.3	2.2	xxxx	xxxxx	2.2	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	726	692	269	762	816	208	213	xxxx	xxxxx	398	xxxx	xxxxx
Potent Cap.:	343	370	775	324	314	837	1369	xxxx	xxxxx	1172	xxxx	xxxxx
Move Cap.:	291	341	775	294	289	837	1369	xxxx	xxxxx	1172	xxxx	xxxxx
Volume/Cap:	0.27	0.03	0.01	0.02	0.03	0.07	0.07	xxxx	xxxx	0.01	xxxx	xxxx
Level Of Service Module:												
Queue:	xxxxx	xxxx	0.0	0.1	0.1	0.2	0.2	xxxx	xxxxx	0.0	xxxx	xxxxx
Stopped Del:	xxxxx	xxxx	9.7	17.4	17.9	9.6	7.8	xxxx	xxxxx	8.1	xxxx	xxxxx
LOS by Move:	*	*	A	C	C	A	A	*	*	A	*	*
Movement:	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT
Shared Cap.:	296	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	1.2	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd StpDel:	22.2	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	C	*	*	*	*	*	*	*	*	*	*	*
ApproachDel:	21.0			11.2			xxxxxx			xxxxxx		
ApproachLOS:	C			B			*			*		

Level Of Service Computation Report
2000 HCM Unsignalized (Future Volume Alternative)
2015 Plus Project PM

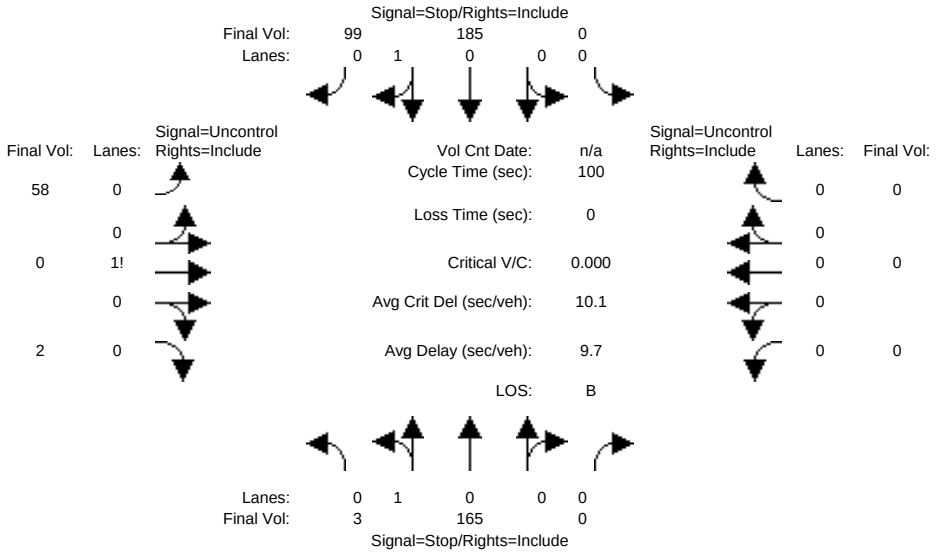
Intersection #7: Peet Road/West Project Driveway



Street Name:	Peet Road						West Project Driveway					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Volume Module:												
Base Vol:	0	40	0	0	50	0	0	0	0	0	0	0
Growth 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
Initial Bse:	0	40	0	0	50	0	0	0	0	0	0	0
Added Vol:	0	0	3	99	0	0	0	0	0	2	0	58
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	40	3	99	50	0	0	0	0	2	0	58
User 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
PHF 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
PHF Volume:	0	40	3	99	50	0	0	0	0	2	0	58
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Final Vol.:	0	40	3	99	50	0	0	0	0	2	0	58
Critical Gap Module:												
Critical Gp:	xxxxx	6.5	6.2	7.1	6.5	xxxxx	xxxxx	xxxx	xxxxx	4.1	xxxx	xxxxx
FollowUpTim:	xxxxx	4.0	3.3	3.5	4.0	xxxxx	xxxxx	xxxx	xxxxx	2.2	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	xxxx	62	0	53	33	xxxxx	xxxx	xxxx	xxxxx	0	xxxx	xxxxx
Potent Cap.:	xxxx	833	900	951	864	xxxxx	xxxx	xxxx	xxxxx	900	xxxx	xxxxx
Move Cap.:	xxxx	831	900	911	862	xxxxx	xxxx	xxxx	xxxxx	900	xxxx	xxxxx
Volume/Cap:	xxxx	0.05	0.00	0.11	0.06	xxxx	xxxx	xxxx	xxxx	0.00	xxxx	xxxx
Level Of Service Module:												
Queue:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	0.0	xxxx	xxxxx
Stopped Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	9.0	xxxx	xxxxx
LOS by Move:	*	*	*	*	*	*	*	*	*	A	*	*
Movement:	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT
Shared Cap.:	xxxx	xxxx	835	894	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	xxxx	0.2	0.6	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd StpDel:	xxxxx	xxxx	9.5	9.8	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	*	A	A	*	*	*	*	*	*	*	*
ApproachDel:		9.5			9.8			xxxxxx			xxxxxx	
ApproachLOS:		A			A			*			*	

Level Of Service Computation Report
2000 HCM Unsignalized (Future Volume Alternative)
2015 Plus Project PM

Intersection #8: Cochrane Road/East Project Driveway



Street Name:	Cochrane Road						East Project Driveway					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Volume Module:												
Base Vol:	0	165	0	0	185	0	0	0	0	0	0	0
Growth 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
Initial Bse:	0	165	0	0	185	0	0	0	0	0	0	0
Added Vol:	3	0	0	0	0	99	58	0	2	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	3	165	0	0	185	99	58	0	2	0	0	0
User 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
PHF 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
PHF Volume:	3	165	0	0	185	99	58	0	2	0	0	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Final Vol.:	3	165	0	0	185	99	58	0	2	0	0	0
Critical Gap Module:												
Critical Gp:	7.1	6.5	xxxxx	xxxxx	6.5	6.2	4.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx
FollowUpTim:	3.5	4.0	xxxxx	xxxxx	4.0	3.3	2.2	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	210	117	xxxxx	xxxx	118	0	0	xxxx	xxxxx	xxxx	xxxx	xxxxx
Potent Cap.:	752	777	xxxxx	xxxx	776	900	900	xxxx	xxxxx	xxxx	xxxx	xxxxx
Move Cap.:	511	725	xxxxx	xxxx	724	900	900	xxxx	xxxxx	xxxx	xxxx	xxxxx
Volume/Cap:	0.01	0.23	xxxx	xxxx	0.26	0.11	0.06	xxxx	xxxx	xxxx	xxxx	xxxx
Level Of Service Module:												
Queue:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	0.2	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Stopped Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	9.3	xxxx	xxxxx	xxxxx	xxxx	xxxxx
LOS by Move:	*	*	*	*	*	*	A	*	*	*	*	*
Movement:	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT
Shared Cap.:	720	xxxx	xxxxx	xxxx	xxxx	777	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	0.9	xxxx	xxxxx	xxxxx	xxxx	1.7	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd StpDel:	10.9	xxxx	xxxxx	xxxxx	xxxx	9.8	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	B	*	*	*	*	B	*	*	*	*	*	*
ApproachDel:	10.9			9.8			xxxxxx			xxxxxx		
ApproachLOS:	B			B			*			*		

APPENDIX C

Borello Residential Development

Trip Generation Calculation Methodology for Secondary In-Law Units

The ITE manual does not specify a rate for secondary in-law units. Therefore, one-half of the Single-Family Dwelling Unit (Land Use 210) land use rate (based on the effective ITE equation) was used to quantify this land use, as secondary in-law units generally have similar travel characteristics as single-family dwelling units but approximately half the number of occupants. Shown below is the corresponding trip generation calculation methodology for this land-use.

Step 1: The ITE fitted curve equation for Single-family residential Land-use code 210 was applied to the proposed 180 secondary in-law units.

Example:

- *Daily=EXP(0.92 x LN(secondary in-law unit size)+2.71)= EXP(0.92 x LN(180)+2.71)=**1,786***

Step 2: To derive a rate, the trips estimated in Step 1 were divided by the proposed 180 secondary in-law units.

Example:

- Daily Rate=*1,786/180=**9.92***

Step 3: The rates developed in Step 2 were divided by 2 to estimate the trip generation rate for the secondary in-Law units. That rate was then applied to the 180 secondary in-law units to develop a final trip generation for the land-use.

Example:

- *Daily=(9.92/2) x 180=**893***

APPENDIX D

Minimum Required Throat Depth

Cochrane-Borello TIA

Project Driveway 1 Date: 9/20/2011

Full Access - PM Peak Hr

Demand Volume (Ingressing Vehicles-pcph): 95
Service Rate: 240

	P(x = n)	P(x<n)
P(0)	0.604	0.604
P(1)	0.239	0.843
P(2)	0.095	0.938
P(3)	0.037	0.975

MRTD = 75 FEET

rho= λ / μ
μ= service rate of movement capacity
λ= arrival rate
P(0)= 1-rho
P(n)= ((rho)^n)*P(0)

Methodology outlined in the City of Roseville's standards for traffic studies

APPENDIX N

Environmental Noise Assessment, Illingworth & Rodkin

COCHRANE-BORELLO RESIDENTIAL PROJECT
ENVIRONMENTAL NOISE ASSESSMENT
MORGAN HILL, CALIFORNIA

March 22, 2012

♦ ♦ ♦

Prepared for:

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Job No.: 11-041

INTRODUCTION

The Cochrane-Borello Residential Project is located on the east side of US Highway 101 (APN 728-34-027). The site is bordered by Cochrane Road, Half Road, Peet Road, and a Santa Clara Valley Water District facility. The proposed project includes removal of the existing orchards and associated uses, and development of a gated residential community consisting of 244 single-family homes, up to 180 secondary units, a private recreation center (including community pool, tennis court, basketball court, tot lot, fitness center and outdoor gathering areas), private streets, approximately 23 acres of private open space, private parks, and surrounding landscaping. The project also includes the re-alignment of Peet Road east of the Santa Clara Water District Facility. The realignment would shift the location of Peet Road to the south, and the Peet Road right-of-way would run through one residence on the Birkey parcel (APN 728-33-002) and two residential buildings on the Patel and Hasu parcel (APN 728-33-004).

This report evaluates the project's potential to result in significant impacts with respect to applicable CEQA guidelines. The report is divided into two sections. The Setting Section provides a brief description of the fundamentals of environmental noise, summarizes applicable regulatory criteria, and discusses the results of the ambient noise monitoring survey completed to document existing noise conditions. The Impacts and Mitigation Measures Section describes the significance criteria used to evaluate project impacts, provides a discussion of each project impact, and presents mitigation measures where necessary to provide a compatible project in relation to adjacent noise sources and land uses.

SETTING

Fundamentals of Environmental Noise

Noise may be defined as unwanted sound. Noise is usually objectionable because it is disturbing or annoying. The objectionable nature of sound could be caused by its *pitch* or its loudness. *Pitch* is the height or depth of a tone or sound, depending on the relative rapidity (frequency) of the vibrations by which it is produced. Higher pitched signals sound louder to humans than sounds with a lower pitch. *Loudness* is intensity of sound waves combined with the reception characteristics of the ear. Intensity may be compared with the height of an ocean wave in that it is a measure of the amplitude of the sound wave.

In addition to the concepts of pitch and loudness, there are several noise measurement scales which are used to describe noise in a particular location. *A decibel (dB)* is a unit of measurement which indicates the relative amplitude of a sound. The zero on the decibel scale is based on the lowest sound level that the healthy, unimpaired human ear can detect. Sound levels in decibels are calculated on a logarithmic basis. An increase of 10 decibels represents a ten-fold increase in acoustic energy, while 20 decibels is 100 times more intense, 30 decibels is 1,000 times more intense, etc. There is a relationship between the subjective noisiness or loudness of a sound and its intensity. Each 10 decibel increase in sound level is perceived as approximately a doubling of loudness over a fairly wide range of intensities. Technical terms are defined in Table 1.

There are several methods of characterizing sound. The most common in California is the *A-weighted sound level or dBA.* This scale gives greater weight to the frequencies of sound to which the human ear is most sensitive. Representative outdoor and indoor noise levels in units of dBA are shown in Table 2. Because sound levels can vary markedly over a short period of time, a method for describing either the average character of the sound or the statistical behavior of the variations must be utilized. Most commonly, environmental sounds are described in terms of an average level that has the same acoustical energy as the summation of all the time-varying events. This energy-equivalent sound/noise descriptor is called L_{eq}. The most common averaging period is hourly, but L_{eq} can describe any series of noise events of arbitrary duration. The scientific instrument used to measure noise is the sound level meter. Sound level meters can accurately measure environmental noise levels to within about plus or minus 1 dBA. Various computer models are used to predict environmental noise levels from sources, such as roadways and airports. The accuracy of the predicted models depends upon the distance the receptor is from the noise source. Close to the noise source, the models are accurate to within about plus or minus 1 to 2 dBA.

Since the sensitivity to noise increases during the evening and at night -- because excessive noise interferes with the ability to sleep -- 24-hour descriptors have been developed that incorporate artificial noise penalties added to quiet-time noise events. The *Community Noise Equivalent Level, CNEL,* is a measure of the cumulative noise exposure in a community, with a 5 dB penalty added to evening (7:00 pm - 10:00 pm) and a 10 dB addition to nocturnal (10:00 pm - 7:00 am) noise levels. The *Day/Night Average Sound Level, L_{dn},* is essentially the same as CNEL, with the exception that the evening time period is dropped and all occurrences during this three-hour period are grouped into the daytime period.

Fundamentals of Groundborne Vibration

Ground vibration consists of rapidly fluctuating motions or waves with an average motion of zero. Several different methods are typically used to quantify vibration amplitude. One is the Peak Particle Velocity (PPV) and another is the Root Mean Square (RMS) velocity. The PPV is defined as the maximum instantaneous positive or negative peak of the vibration wave. The RMS velocity is defined as the average of the squared amplitude of the signal. The PPV and RMS vibration velocity amplitudes are used to evaluate human response to vibration. In this section, a PPV descriptor with units of mm/sec or in/sec is used to evaluate construction generated vibration for building damage and human complaints. Table 3 displays the reactions of people and the effects on buildings that continuous vibration levels produce. The annoyance levels shown in Table 3 should be interpreted with care since vibration may be found to be annoying at much lower levels than those shown, depending on the level of activity or the sensitivity of the individual. To sensitive individuals, vibrations approaching the threshold of perception can be annoying.

Low-level vibrations frequently cause irritating secondary vibration, such as a slight rattling of windows, doors or stacked dishes. The rattling sound can give rise to exaggerated vibration complaints, even though there is very little risk of actual structural damage. In high noise environments, which are more prevalent where groundborne vibration approaches perceptible levels, this rattling phenomenon may also be produced by loud airborne environmental noise causing induced vibration in exterior doors and windows.

Construction activities can cause vibration that varies in intensity depending on several factors. The use of pile driving and vibratory compaction equipment typically generate the highest construction related ground-borne vibration levels. Because of the impulsive nature of such activities, the use of the peak particle velocity descriptor (PPV) has been routinely used to measure and assess ground-borne vibration and almost exclusively to assess the potential of vibration to induce structural damage and the degree of annoyance for humans.

The two primary concerns with construction-induced vibration, the potential to damage a structure and the potential to interfere with the enjoyment of life are evaluated against different vibration limits. Studies have shown that the threshold of perception for average persons is in the range of 0.008 to 0.012 in/sec PPV. Human perception to vibration varies with the individual and is a function of physical setting and the type of vibration. Persons exposed to elevated ambient vibration levels such as people in an urban environment may tolerate a higher vibration level.

Structural damage can be classified as cosmetic only, such as minor cracking of building elements, or may threaten the integrity of the building. Safe vibration limits that can be applied to assess the potential for damaging a structure vary by researcher and there is no general consensus as to what amount of vibration may pose a threat for structural damage to the building. Construction-induced vibration that can be detrimental to the building is very rare and has only been observed in instances where the structure is at a high state of disrepair and the construction activity occurs immediately adjacent to the structure.

TABLE 1 Definitions of Acoustical Terms Used in this Report

Term	Definition
Decibel, dB	A unit describing, the amplitude of sound, equal to 20 times the logarithm to the base 10 of the ratio of the pressure of the sound measured to the reference pressure. The reference pressure for air is 20.
Sound Pressure Level	Sound pressure is the sound force per unit area, usually expressed in micro Pascals (or 20 micro Newtons per square meter), where 1 Pascal is the pressure resulting from a force of 1 Newton exerted over an area of 1 square meter. The sound pressure level is expressed in decibels as 20 times the logarithm to the base 10 of the ratio between the pressures exerted by the sound to a reference sound pressure (e.g., 20 micro Pascals). Sound pressure level is the quantity that is directly measured by a sound level meter.
Frequency, Hz	The number of complete pressure fluctuations per second above and below atmospheric pressure. Normal human hearing is between 20 Hz and 20,000 Hz. Infrasonic sound are below 20 Hz and Ultrasonic sounds are above 20,000 Hz.
A-Weighted Sound Level, dBA	The sound pressure level in decibels as measured on a sound level meter using the A-weighting filter network. The A-weighting filter de-emphasizes the very low and very high frequency components of the sound in a manner similar to the frequency response of the human ear and correlates well with subjective reactions to noise.
Equivalent Noise Level, L_{eq}	The average A-weighted noise level during the measurement period.
L_{max}, L_{min}	The maximum and minimum A-weighted noise level during the measurement period.
L_{01}, L_{10}, L_{50}, L_{90}	The A-weighted noise levels that are exceeded 1%, 10%, 50%, and 90% of the time during the measurement period.
Day/Night Noise Level, L_{dn} or DNL	The average A-weighted noise level during a 24-hour day, obtained after addition of 10 decibels to levels measured in the night between 10:00 pm and 7:00 am.
Community Noise Equivalent Level, CNEL	The average A-weighted noise level during a 24-hour day, obtained after addition of 5 decibels in the evening from 7:00 pm to 10:00 pm and after addition of 10 decibels to sound levels measured in the night between 10:00 pm and 7:00 am.
Ambient Noise Level	The composite of noise from all sources near and far. The normal or existing level of environmental noise at a given location.
Intrusive	That noise which intrudes over and above the existing ambient noise at a given location. The relative intrusiveness of a sound depends upon its amplitude, duration, frequency, and time of occurrence and tonal or informational content as well as the prevailing ambient noise level.

Source: Handbook of Acoustical Measurements and Noise Control, Harris, 1998.

TABLE 2 Typical Noise Levels in the Environment

Common Outdoor Activities	Noise Level (dBA)	Common Indoor Activities
	110 dBA	Rock band
Jet fly-over at 1,000 feet		
	100 dBA	
Gas lawn mower at 3 feet		
	90 dBA	
Diesel truck at 50 feet at 50 mph		Food blender at 3 feet
	80 dBA	Garbage disposal at 3 feet
Noisy urban area, daytime		
Gas lawn mower, 100 feet	70 dBA	Vacuum cleaner at 10 feet
Commercial area		Normal speech at 3 feet
Heavy traffic at 300 feet	60 dBA	
		Large business office
Quiet urban daytime	50 dBA	Dishwasher in next room
Quiet urban nighttime	40 dBA	Theater, large conference room
Quiet suburban nighttime		
	30 dBA	Library
Quiet rural nighttime		Bedroom at night, concert hall
	20 dBA	
		Broadcast/recording studio
	10 dBA	
	0 dBA	

Source: Technical Noise Supplement (TeNS), Caltrans, November 2009.

TABLE 3 Reaction of People and Damage to Buildings From Continuous or Frequent Intermittent Vibration Levels

Velocity Level, PPV (in/sec)	Human Reaction	Effect on Buildings
0.01	Barely perceptible	No effect
0.04	Distinctly perceptible	Vibration unlikely to cause damage of any type to any structure
0.08	Distinctly perceptible to strongly perceptible	Recommended upper level of the vibration to which ruins and ancient monuments should be subjected
0.1	Strongly perceptible	Virtually no risk of damage to normal buildings
0.3	Strongly perceptible to severe	Threshold at which there is a risk of damage to older residential dwellings such as plastered walls or ceilings
0.5	Severe - Vibrations considered unpleasant	Threshold at which there is a risk of damage to newer residential structures

Source: Transportation- and Construction-Induced Vibration Guidance Manual, California Department of Transportation, June 2004.

Regulatory Background - Noise

The proposed project would be subject to noise-related regulations, plans, and policies established within documents prepared by the State of California and the City of Morgan Hill. These documents are implemented during the environmental review process to limit noise exposure at existing and proposed noise sensitive land uses. Applicable planning documents include: (1) the California Environmental Quality Act (CEQA) Guidelines, Appendix G, (2) the City of Morgan Hill General Plan, and (3) the City of Morgan Hill Code of Ordinances. Regulations, plans, and policies presented within these documents form the basis of the significance criteria used to assess project impacts.

State CEQA Guidelines. The California Environmental Quality Act (CEQA) contains guidelines to evaluate the significance of effects of environmental noise attributable to a proposed project. CEQA asks the following applicable questions. Would the project result in:

- Exposure of persons to or generation of noise levels in excess of standards established in the local General Plan or Noise Ordinance, or applicable standards of other agencies?

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

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

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

- 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, exposure of people residing or working in the project area to excessive noise levels.

- For a project within the vicinity of a private airstrip, exposure of people residing or working in the project area to excessive noise levels.

Public Health and Safety Element of the City of Morgan Hill General Plan. The Public Health and Safety Element of the General Plan sets forth noise and land use compatibility standards to guide development, and noise goals and policies to protect citizens from the harmful and annoying effects of excessive noise. Single-family residential land uses are considered normally acceptable in noise environments up to 60 dBA L_{dn}. Policies established in the Noise Element of the General Plan that are applicable to the proposed project include:

7a. New development projects shall be designated and constructed to meet acceptable exterior noise level standards, as follows:

- The maximum exterior noise level of 60 dBA L_{dn} shall be applied in residential areas where outdoor noise is a major consideration (e.g., backyards in single family housing developments and recreation areas in multi-family housing projects.) Where the city determines that providing an L_{dn} of 60 dBA or lower cannot be achieved after the application of reasonable and feasible mitigation, an L_{dn} of 65 dBA may be permitted.

- Indoor noise levels should not exceed an L_{dn} of 45 dBA in new residential housing units.

7b. The impact of a proposed development project on existing land uses should be evaluated in terms of the potential for adverse community response based on significant increase in existing noise levels, regardless of compatibility guidelines.

7e. Noise level increases resulting from traffic associated with new projects shall be considered significant if: a) the noise level increase is 5 dBA L_{dn} or greater, with a future noise level of less than 60 dBA L_{dn}, or b) the noise level increase is 3 dBA L_{dn} or greater, with a future noise level of 60 dBA L_{dn} or greater.

City of Morgan Hill Code of Ordinances. Chapter 8.28, Section 8.28.040 of the Health and Safety section of the Municipal Code prohibits construction activities between the hours of eight p.m. and seven a.m., Monday through Friday and between the hours of six p.m. and nine a.m. on Saturday. Construction activities may not occur on Sundays or federal holidays.

Chapter 18.48, Section 18.48.075 of the Zoning Code establishes noise level limits that are enforced at the property line. "At the lot line of all uses specified in Section 18.48.010, the maximum sound generated by any use shall not exceed seventy to seventy-five db(A) when adjacent uses are industrial or wholesale uses. When adjacent to offices, retail or sensitive

industries, the sound level shall be limited to sixty-five to seventy db(A). When uses are adjacent or contiguous to residential, park or institutional uses, the maximum sound level shall not exceed sixty db(A). Excluded from these standards are occasional sounds generated by the movement of railroad equipment, temporary construction activities, or warning devices."

Existing Noise Environment

The project site is located northeast of US Highway 101 in Morgan Hill, California. The approximate 120-acre site is bordered by Cochrane Road, Half Road, Peet Road, and a Santa Clara Valley Water District facility. The project proposes to construct a gated community consisting of: 244 single-family homes, 180 secondary units, access roads, open space, and surrounding landscaping. The predominant noise sources affecting the project site include local roadway traffic along Cochrane Road and Peet Road, and operations at the Santa Clara Valley Water District pump facility, which borders the southwest portion of the site.

Two noise monitoring surveys were performed at the site during the months of June and September 2011. The June 2011 survey consisted of four long-term noise measurements along the roadways that border the site (i.e., Cochrane Road, Peet Road, and Half Road) and three short-term noise measurements at locations representative of nearby residential land uses. The September 2011 survey consisted of several short-term noise measurements at the Santa Clara Water District Facility. Noise levels were monitored using Larson-Davis Laboratories Model 820 integrating sound level meters fitted with precision microphones and windscreens. Figure 1 shows the noise monitoring locations.

Long-Term Noise Monitoring

Long-term noise measurement (LT-1) was made at the north end of the site along Cochrane Road, approximately 40 feet from the center of the roadway. Noise levels measured at this site were primarily the result of local traffic along Cochrane Road. Hourly average noise levels typically ranged from 42 to 55 dBA L_{eq} during the day, and from 38 to 44 dBA L_{eq} at night. The estimated day-night average noise level at this location was 50 dBA L_{dn}. Data collected at Site LT-1 are summarized graphically in Figures 2 through 4.

A second long-term noise measurement (LT-2) was made along the portion of Cochrane Road located northeast of the project site in the vicinity of Barnard Road. The microphone was positioned approximately 60 feet from the centerline of the road. Hourly average noise levels, generated primarily by local traffic, typically ranged from 49 to 59 dBA L_{eq} during the day, and from 41 to 51 dBA L_{eq} at night. The estimated day-night average noise level at this location was 56 dBA L_{dn}. Data collected at Site LT-2 are summarized graphically in Figures 5 through 7.

Long-term noise measurement LT-3 was made along the southeast portion of the site adjacent to Half Road. This segment of Half Road is not a through road, and thus carries a relatively low volume of traffic to and from local residential land uses. Hourly average noise levels at Site LT-3 typically ranged from 425 to 54 dBA L_{eq} during the day, and from 39 to 48 dBA L_{eq} at night. The estimated day-night average noise level at this location was 52 dBA L_{dn}. Data collected at Site LT-3 are summarized graphically in Figures 8 through 10.

The final long-term noise measurement (Site LT-4) was located along the southernmost boundary of the project site adjacent to Peet Road. Hourly average noise levels, generated primarily by local traffic, typically ranged from 55 to 63 dBA L_{eq} during the day, and from 44 to 57 dBA L_{eq} at night. The estimated day-night average noise level at this location was 60 dBA L_{dn}. Data collected at Site LT-4 are summarized graphically in Figures 11 through 13.

Short-Term Noise Monitoring

Short-term noise measurements ST-1, ST-2, and ST-3 were located adjacent to residential land uses that border the project site. Typical daytime ambient noise levels ranged from 47 to 49 dBA L_{eq}, and were primarily the result of local traffic, intermittent aircraft overflights, and the Santa Clara Water District Facility. Table 4 summarizes the results of these short-term measurements made in June 2011.

TABLE 4 - Summary of Short-Term Noise Measurements (dBA)

Noise Measurement Location	Noise Source	L_{eq}	L_{max}	$L_{(10)}$	$L_{(50)}$	$L_{(90)}$	L_{dn}
ST-1: Eastern terminus of Espana Way adjacent to west boundary of site. (6/29/2011, 12:10-12:20 p.m.)	Jet aircraft/ pump station	47	62	49	44	41	48
ST-2: San Carlos Place, south of Peet Road. (6/29/2011, 12:30-12:40 p.m.)	Aircraft/ traffic	49	66	50	43	41	50
ST-3: North end of project site adjacent rural residential land use. (6/29/2011, 12:50-1:00 p.m.)	Distant Traffic	47	54	49	46	42	53

A series of short-term noise measurements were made at the Santa Clara Water District Facility on September 28, 2011. I&R visited the site to identify sources of noise at the Plant and document operational noise levels attributable to significant sources of noise. These particular sources included the pumps, an emergency diesel generator, electrical transformers, and a mechanics shop.

The Santa Clara Water District Facility's pump building houses six booster pumps. During the summer months, typical operations at the plant consist of the operation of two booster pumps within the building with the doors closed. These pumps run approximately half of the time during the summer, based on demand. During the winter months, the booster pumps are rarely in operation. Operational noise levels at the project site's westernmost property line, immediately east of the equipment bay door, were 44 dBA L_{eq}. With the bay door open, the operation of two booster pumps generated a noise level of 64 dBA L_{eq} at the project site's westernmost boundary. The operation of all six pumps simultaneously could yield noise levels approximately 5 dBA higher, but this would only occur on a limited basis.

Figure 1 Aerial Photo Showing Noise Monitoring Locations

NOISE IMPACTS AND MITIGATION MEASURES

Significance Criteria

Paraphrasing from Appendix G of the CEQA Guidelines, a project would normally result in significant noise impacts if noise levels generated by the project conflict with adopted environmental standards or plans, if the project would generate excessive ground-borne vibration levels, or if ambient noise levels at sensitive receptors would be substantially increased over a permanent, temporary, or periodic basis. The following criteria were used to evaluate the significance of environmental noise resulting from the project:

- A significant noise impact would be identified if the project would expose persons to or generate noise levels that would exceed applicable noise standards presented in the General Plan or Municipal Code.

- A significant impact would be identified if the construction of the project would expose persons to excessive vibration levels. Groundborne vibration levels exceeding 0.3 in/sec PPV (peak particle velocity) would have the potential to result in "architectural" damage to normal buildings.

- A significant impact would be identified if traffic generated by the project would substantially increase noise levels at sensitive receptors in the vicinity. A substantial increase would occur if : a) the noise level increase is 5 dBA L_{dn} or greater, with a future noise level of less than 60 dBA L_{dn}, or b) the noise level increase is 3 dBA L_{dn} or greater, with a future noise level of 60 dBA L_{dn} or greater.

- A significant noise impact would be identified if construction related noise would temporarily increase ambient noise levels at sensitive receptors. Hourly average noise levels exceeding 60 dBA $L_{eq,}$ and the ambient by at least 5 dBA L_{eq}, for a period greater than one year would constitute a significant temporary noise increase at adjacent residential land uses.

Impact 1: **Noise and Land Use Compatibility.** Future residential uses developed at the project site would not be exposed to exterior noise levels greater than 60 dBA L_{dn}, which is in compliance with the exterior noise and land use compatibility standard presented in the City of Morgan Hill's General Plan. Interior noise levels would be expected to be below 45 dBA L_{dn} assuming standard residential construction. Noise levels generated by operations at the Santa Clara Water District Facility may at times exceed the City of Morgan Hill's Zoning Code noise limits. **This is a significant impact.**

Future Exterior Noise Environment

The future noise environment at the project site is anticipated to increase as a result of cumulative growth forecast under the current General Plan. Near-term cumulative plus project traffic volumes were used to assess the compatibility of the proposed residential project with

respect to the noise environment expected at the site. Future noise levels were calculated for receptors positioned 100 feet from the center of Cochrane Road and 80 feet from the center of Peet Road (nearest residential rear yard areas). The results of these calculations indicate that exterior noise levels in the rear yard of the residential units nearest Cochrane Road would be approximately 55 dBA L_{dn}, and 51 dBA L_{dn} at residential units nearest Peet Road.

Noise levels in outdoor use areas that are affected by transportation noise are required to be maintained at or below 60 dBA L_{dn} to be considered acceptable for residential development. Overall L_{dn} noise levels in outdoor use areas of residential uses adjacent to area roadways would be below 60 dBA L_{dn} and would comply with the City's exterior noise standard.

Noise levels generated by operations at the Santa Clara Water District Facility may at times exceed the 60 dBA noise limit established in the City of Morgan Hill's Zoning Code. The primary noise source at Santa Clara Water District Facility is the operation of booster pumps. Additional noise sources identified at the Santa Clara Water District Facility included an emergency diesel generator that is tested once per week for a period of fifteen minutes, transformers, and machines and equipment in the mechanical maintenance building (e.g., air compressor, band saw, drill press, diesel forklift, etc.).

Operations at the Santa Clara Water District Facility may at times generate noise levels that range from 53 to 69 dBA L_{eq} at the property line. Intermittent operations could generate noises that exceed the Zoning Code noise limits by up to 9 dBA.

Future Interior Noise Environment

The City of Morgan Hill requires that interior noise levels within new residential units not exceed 45 dBA L_{dn}. Residential units proposed along Cochrane Road would be exposed to exterior noise levels ranging from about 51 to 55 dBA. In buildings of typical construction, with the windows partially open, interior noise levels are approximately 15 dBA lower than exterior noise levels. With the windows closed, standard residential construction typically provides 20 to 25 decibels of exterior to interior noise reduction. Given the anticipated noise levels at exterior facades adjacent to project roadways, standard residential construction methods would achieve interior noise levels of 45 dBA L_{dn} or less.

Operations at the Santa Clara Water District Facility may at times generate noise levels that range from 53 to 69 dBA L_{eq} at the property line. Second-story facades of residential buildings constructed on Lots 41, 42, 78, 79, 81, 82, 109-112, 227, 228, and 230 may have direct line-of-sight to noise sources at the Santa Clara Water District Facility, thereby requiring noise insulation in order to minimize the intrusiveness of these intermittent sounds indoors.

Mitigation Measure 1:

The following measures shall be included in the design of the project:

- Notify residents of Lots 41, 42, 78, 79, 81, 82, 109-112, 227, 228, and 230 of the potential for intermittent noises from operations and activities at the Santa Clara Water District Facility. This notification will be provided in the deed to the property.

- Construct eight-foot noise barriers, relative to the residential pad elevation, to reduce intermittent noises from activities associated with operations at the Santa Clara Water District Facility to less than 60 dBA. Noise barriers would be required at the property lines of Lots 41, 42, 78, 79, 81, 82, 109-112, 227, 228, and 230 that adjoin the Santa Clara Water District Facility.

- Provide a suitable form of forced-air mechanical ventilation, as determined by the local building official, for units located on Lots 41, 42, 78, 79, 81, 82, 109-112, 227, 228, and 230, so that windows could be kept closed at the occupant's discretion to control interior noise.

The implementation of these mitigation measures would reduce the impact to a less-than-significant level.

Impact 2: **Exposure to Excessive Groundborne Vibration.** Construction related vibration would not be excessive at nearby residential land uses. **This is a less-than-significant impact.**

The construction of the project may generate perceptible vibration when heavy equipment or impact tools (e.g. jackhammers, hoe rams) are used. Construction activities would include site preparation work, foundation work, and new building framing and finishing. The proposed project would not require pile driving, which can cause excessive vibration.

For structural damage, the California Department of Transportation uses a vibration limit of 0.5 inches/second, peak particle velocity (in/sec, PPV) for buildings structurally sound and designed to modern engineering standards, 0.3 in/sec, PPV for buildings that are found to be structurally sound but where structural damage is a major concern, and a conservative limit of 0.08 in/sec, PPV for ancient buildings or buildings that are documented to be structurally weakened.

Table 5 presents typical vibration levels that could be expected from construction equipment at a distance of 25 feet. Project construction activities such as drilling, the use of jackhammers, rock drills and other high-power or vibratory tools, and rolling stock equipment (tracked vehicles, compactors, etc.) may generate substantial vibration in the immediate vicinity. Construction activities may extend over several construction seasons, but construction vibration would not be substantial for most of this time except during vibration generating activities (as discussed above). Jackhammers typically generate vibration levels of 0.035 in/sec PPV and drilling typically generates vibration levels of 0.09 in/sec PPV at a distance of 25 feet. Vibration levels would vary depending on soil conditions, construction methods, and equipment used. Vibration

levels would be expected to be 0.2 in/sec PPV or less, below the 0.3 in/sec PPV significance threshold. Vibration generated by construction activities near the common property line would at times be perceptible, however, would not be expected to result in "architectural" damage to these buildings. This is a less-than-significant impact.

In areas where vibration would not be expected to cause structural damage, vibration levels may still be perceptible. However, as with any type of construction, this would be anticipated and it would not be considered significant given the intermittent and short duration of the phases that have the highest potential of producing vibration (demolition and use of jackhammers and other high power tools). By use of administrative controls such as notifying adjacent commercial shops of scheduled construction activities and scheduling construction activities with the highest potential to produce perceptible vibration to hours with the least potential to affect these uses, perceptible vibration can be kept to a minimum and as such would not result in a significant impact with respect to perception.

TABLE 5 Vibration Source Levels for Construction Equipment[1]

Equipment		**PPV at 25 ft. (in/sec)**	**Approximate L_v at 25 ft. (VdB)**
Pile Driver (Impact)	upper range	1.158	112
	typical	0.644	104
Pile Driver (Sonic)	upper range	0.734	105
	typical	0.170	93
Clam shovel drop		0.202	94
Hydromill (slurry wall)	in soil	0.008	66
	in rock	0.017	75
Vibratory Roller		0.210	94
Hoe Ram		0.089	87
Large bulldozer		0.089	87
Caisson drilling		0.089	87
Loaded trucks		0.076	86
Jackhammer		0.035	79
Small bulldozer		0.003	58

Mitigation Measure 2: None required.

[1] Transit Noise and Vibration Impact Assessment, United States Department of Transportation, Office 87of Planning and Environment, Federal Transit Administration, May 2006.87

Impact 3: **Project-Generated Traffic Noise**. The proposed project would not result in a substantial permanent noise level increase at residential land uses in the vicinity. **This is a less-than-significant impact.**

Traffic volume information was reviewed at the following study area intersections:

1. Cochrane Road/Madrone Parkway
2. Cochrane Road /US-101 SB Ramps
3. Cochrane Road /US-101 NB Ramps
4. Cochrane Road /De Paul Drive
5. Cochrane Road /Mission View Drive
6. Cochrane Road /Peet Road
7. Project Driveway/Peet Road - Future Intersection
8. Project Driveway/Cochrane Road - Future Intersection

Traffic volumes under the "Existing" and "Project" traffic scenarios were compared to calculate the relative increase in traffic noise attributable to the proposed project. A noise impact was identified at noise-sensitive land uses where: a) the noise level increase was predicted to be 5 dBA L_{dn} or greater, with a future noise level of less than 60 dBA L_{dn}, or b) the noise level increase was predicted to be 3 dBA L_{dn} or greater, with a future noise level of 60 dBA L_{dn} or greater.

A comparison of the "Existing" and "Project" traffic scenarios showed that traffic noise levels would not be substantially increased with the project as compared to existing conditions at sensitive land uses along roadway segments represented by Intersections 1-5. Traffic noise levels are calculated to increase by 0 to 2 dBA L_{dn} as a result of the project and such noise increases would not be considered substantial.

Traffic noise levels would be substantially increased during the peak traffic hour at sensitive land uses in the vicinity of Intersection 6. Traffic noise levels were calculated at locations within the shielded rear yards of existing residential land uses using FHWA's TNM model. The modeling accounted for the existing six-foot noise barriers that shield the rear yards of these receptors. The predicted "Existing" hourly average noise level during the PM peak hour is 40 dBA $L_{eq,}$ and the hourly average noise level during the PM peak hour assuming the "Project" scenario is calculated to reach 45 dBA L_{eq}. Traffic noise levels along this segment of Peet Road, between Cochrane Road and the Project Driveway (Intersection 7), are calculated to increase overall noise levels by 1 to 2 dBA L_{dn} reaching 51 dBA L_{dn}. Traffic noise levels will remain below the City's 60 dBA L_{dn} "normally acceptable" noise levels threshold, and the traffic noise increase would not be considered substantial.

The project also includes the realignment of Peet Road east of the Santa Clara Water District Facility. The realignment would shift the Peet Road travel lanes away from some receptors (i.e., R1, R2, and R3) and nearer to others (i.e., R4) as shown in Figure 14. FHWA's TNM model was also used to calculate the change in noise levels expected from the realignment of Peet Road. Table 6 summarizes the results of the traffic noise modeling calculations for receptors that adjoin the segment of Peet Road proposed for realignment as part of the project.

TABLE 6 Traffic Noise Levels at Receptors Adjoining Realigned Segment of Peet Road

Receptor	Existing Traffic L_{dn} (dBA)	Project Traffic L_{dn} (dBA)	Change Due to Roadway Realignment (dBA)	Existing + Project + Roadway Realignment L_{dn} (dBA)
R1 - Birkey	57	59	-2	57
R2 – Trump Ranch LLC	55	57	-1	56
R3 – Patel and Hasu	56	58	-1	57
R4 – Patel and Hasu	55	57	+1	58

As shown above, existing day-night average noise levels are calculated to increase by up to 2 dBA L_{dn} as a result of traffic attributable to the project. The roadway realignment would shift the location of the eastbound and westbound Peet Road travel lanes away from receptors on the Birkey parcel (APN 728-33-002), the Trump Ranch LLC parcel (APN 728-33-003), and the westernmost residential building on the Patel and Hasu parcel (APN 728-33-004). The shifting of the travel lanes away from these receptors would reduce traffic noise levels by 1 to 2 dBA because of the additional distance between the noise source and the receptor. The travel lanes would shift closer to the easternmost residential building on the Patel and Hasu parcel increasing traffic noise levels by 1 dBA. Resulting noise levels assuming increased traffic from the project and the change in the roadway geometry would be 1 to 3 dBA L_{dn} above existing conditions. The noise increase would not be considered substantial as the increase is predicted to be less than 5 dBA L_{dn} and future noise levels would remain below 60 dBA L_{dn}.

The remaining buildings on the Birkey, Patel and Hasu parcels are agricultural-related and not sensitive to noise. A possible residence is located approximately 370 feet from the center of Peet Road on. The minor realignment of the roadway adjacent to the Trump Ranch LLC parcel would not measurably change noise traffic noise. Traffic noise levels will remain below the City's 60 dBA L_{dn} "normally acceptable" noise levels threshold, and the traffic noise increase would not be considered substantial.

Traffic noise levels were also modeled for residential receptors located along the segment of Cochrane Road between Peet Road and the Project Driveway (Intersection 8). "Existing" hourly average noise levels during the PM peak hour are 45 dBA $L_{eq,}$ and the average noise level during the PM peak hour assuming the "Project" scenario is calculated to increase to 49 dBA L_{eq}. Traffic noise levels along Cochrane Road, between Peet Road and the Project Driveway, are calculated to increase by 1 dBA L_{dn} and to reach 56 dBA L_{dn}. The traffic noise increase would not be considered substantial considering that future noise level at receptors along this segment would remain below 60 dBA.

The proposed project could be one of several future projects that will contribute to substantial increases in ambient noise levels expected over time and may change the character of the noise environment in the area. Recently constructed residential land uses to the west include extensive noise mitigation, such as open space buffers and noise barriers that shield private outdoor use areas from traffic noise. It is apparent that future increases in noise were taken into account in the design of these subdivisions.

Mitigation Measure 3: None required.

Impact 4: **Construction Noise.** Residences in the vicinity of the site would be exposed to noise levels substantially above ambient conditions over the duration of project construction activities. **This is considered a significant noise impact.**

The proposed project will be built in sixteen phases of development. Phase 1 would include a building allotment for 21 residences to be built from 2012-2013. Phases 2, 3, and 4 include an allotment for 39 residences to be developed from 2013-2014. Phase 4 includes development of six units that have not received allotment. Also, the proposed allotments do not include the secondary units proposed within each phase. Construction of Phase 1A is targeted for June 2012. Full development of the project would continue for 10 to 12 years beyond this time, as allocations become available and market conditions dictate.

Construction of the project would involve site improvements, such as the establishment of utilities, site grading and excavation, the construction of foundations, building framing, paving, and landscaping. The project would also generate a large amount of truck trips along roadways serving the site.

Noise impacts from construction activities depend on the various pieces of construction equipment, the timing and length of noise generating activities, and the distance between the construction noise sources and noise sensitive areas. Construction noise impacts primarily result when construction activities occur during noise-sensitive times of the day (e.g., early morning, evening, or nighttime hours), when the construction occurs in areas adjoining noise sensitive land uses, or when construction lasts over extended periods of time.

During each stage of construction, there would be a different mix of equipment operating. Construction noise levels would vary by stage and vary within stages based on the amount of equipment in operation and location where the equipment is operating. Typical construction noise levels at a distance of 50 feet are shown in Tables 7 and 8. Table 7 shows the average noise level ranges by construction phase and Table 8 shows the maximum noise level ranges for different construction equipment. Most demolition and construction noise is in the range of 80 to 90 dBA at a distance of 50 feet from the source.

The highest noise levels would be generated during demolition, excavation, and foundation construction. Jackhammers typically generate maximum noise levels of 85 dBA at a distance of 50 feet. Large pieces of earth-moving equipment, such as graders, excavators, and bulldozers, generate maximum noise levels of 85 to 90 dBA at a distance of 50 feet.

Average noise levels at 100 feet from the more typical construction activity at this site would range from 70 to 80 dBA L_{eq} during busy construction periods. These noise levels drop off at a rate of about 6 dBA per doubling of distance between the noise source and receptor, so noise levels at 200 feet would be expected to range from 64 to 74 dBA L_{eq}, and noise levels at 400 feet would be expected to range from 58 to 68 dBA L_{eq}, and so on.

Based on this analysis, project development would expose existing area residences to construction-generated noise over multiple building seasons. Given the potential for substantial increases in noise at adjacent residences as a result of project construction and the likelihood that substantial

noise increases would likely occur for more than one construction season, construction of the project is determined to result in a significant unavoidable, short-term noise impact.

TABLE 7 Typical Ranges of Energy Equivalent Construction Noise Levels at 50 Feet, L_{eq} in dBA

	Domestic Housing		Office Building, Hotel, Hospital, School, Public Works		Industrial Parking Garage, Religious Amusement & Recreations, Store, Service Station		Public Works Roads & Highways, Sewers, and Trenches	
	I	**II**	**I**	**II**	**I**	**II**	**I**	**II**
Ground Clearing	83	83	84	84	84	83	84	84
Excavation	88	75	89	79	89	71	88	78
Foundations	81	81	78	78	77	77	88	88
Erection	81	65	87	75	84	72	79	78
Finishing	88	72	89	75	89	74	84	84

I - All pertinent equipment present at site.
II - Minimum required equipment present at site.

Source: U.S.E.P.A., Legal Compilation on Noise, Vol. 1, p. 2-104, 1973.

TABLE 8 Construction Equipment 50-foot Noise Emission Limits

Equipment Category	L_{max} Level (dBA)[1,2]	Impact/Continuous
Arc Welder	73	Continuous
Auger Drill Rig	85	Continuous
Backhoe	80	Continuous
Bar Bender	80	Continuous
Boring Jack Power Unit	80	Continuous
Chain Saw	85	Continuous
Compressor[3]	70	Continuous
Compressor (other)	80	Continuous
Concrete Mixer	85	Continuous
Concrete Pump	82	Continuous
Concrete Saw	90	Continuous
Concrete Vibrator	80	Continuous
Crane	85	Continuous
Dozer	85	Continuous
Excavator	85	Continuous
Front End Loader	80	Continuous
Generator	82	Continuous
Generator (25 KVA or less)	70	Continuous
Gradall	85	Continuous
Grader	85	Continuous
Grinder Saw	85	Continuous
Horizontal Boring Hydro Jack	80	Continuous
Hydra Break Ram	90	Impact
Impact Pile Driver	105	Impact
Insitu Soil Sampling Rig	84	Continuous
Jackhammer	85	Impact
Mounted Impact Hammer (hoe ram)	90	Impact
Paver	85	Continuous
Pneumatic Tools	85	Continuous
Pumps	77	Continuous
Rock Drill	85	Continuous
Scraper	85	Continuous
Slurry Trenching Machine	82	Continuous
Soil Mix Drill Rig	80	Continuous
Street Sweeper	80	Continuous
Tractor	84	Continuous
Truck (dump, delivery)	84	Continuous
Vacuum Excavator Truck (vac-truck)	85	Continuous
Vibratory Compactor	80	Continuous
Vibratory Pile Driver	95	Continuous
All other equipment with engines larger than 5 HP	85	Continuous

Notes:
1 Measured at 50 feet from the construction equipment, with a "slow" (1 sec.) time constant.
2 Noise limits apply to total noise emitted from equipment and associated components operating at full power while engaged in its intended operation.
3 Portable Air Compressor rated at 75 cfm or greater and that operates at greater than 50 psi.

Mitigation Measure 4: The contractor shall prepare a detailed construction plan identifying the schedule for major noise-generating construction activities. The construction plan shall identify a procedure for coordination with adjacent residential land uses so that construction activities can be scheduled to minimize noise disturbance. The plan shall consider the following available controls to reduce construction noise levels as low as practical:

- Construction activities shall be limited to the hours between 7:00 a.m. and 8:00 p.m., Monday through Friday, and between the hours of 9:00 a.m. and 6:00 p.m. on Saturdays. No construction activities should occur on Sundays or federal holidays (Consistent with Section 8.28.040 of the Morgan Hill Municipal Code);

- Temporary noise barriers (e.g., solid plywood fences (minimum 8 feet in height) and/or acoustical blankets could be erected, if necessary, along affected property boundaries facing the construction site. This mitigation would only be necessary if conflicts occurred which were irresolvable by proper scheduling. Noise control blanket barriers can be rented and quickly erected;

- Equip all internal combustion engine-driven equipment with mufflers, which are in good condition and appropriate for the equipment;

- Prohibit all unnecessary idling of internal combustion engines;

- Route construction related traffic to and from the site via designated truck routes and avoid residential streets where possible;

- Utilize “quiet” models of air compressors and other stationary noise sources where technology exists;

- Locate all stationary noise-generating equipment, such as air compressors and portable power generators, as far away as possible from adjacent land uses;

- Shield adjacent sensitive uses from stationary equipment with individual noise barriers or partial acoustical enclosures;

- Locate staging areas and construction material storage areas as far away as possible from adjacent land uses;

- Designate a "disturbance coordinator" who would be responsible for responding to any local complaints about construction noise. The disturbance coordinator will determine the cause of the noise complaint (e.g., starting too early, bad muffler, etc.) and will require that reasonable measures warranted to correct the problem be implemented. Conspicuously post a telephone number for the disturbance coordinator at the construction site and include it in the notice sent to neighbors regarding the construction schedule.

- Hold a preconstruction meeting with the job inspectors and the general contractor/on-site project manager to confirm that noise mitigation and practices (including construction hours, construction schedule, and noise coordinator) are completed.

The implementation of the above mitigation measures would reduce the effects of construction noise upon existing residences in the area. Even after implementation of these measures, however, noise levels at adjacent residences would continue to substantially exceed existing ambient noise levels. For this reason, and because construction is expected to last over several (approximately 10-12) years, project construction noise would represent a significant unavoidable impact.

Noise Levels at LT-1
~ 40 feet from the Center of Cochrane Road, adjacent to nearby Creek
June 27, 2011

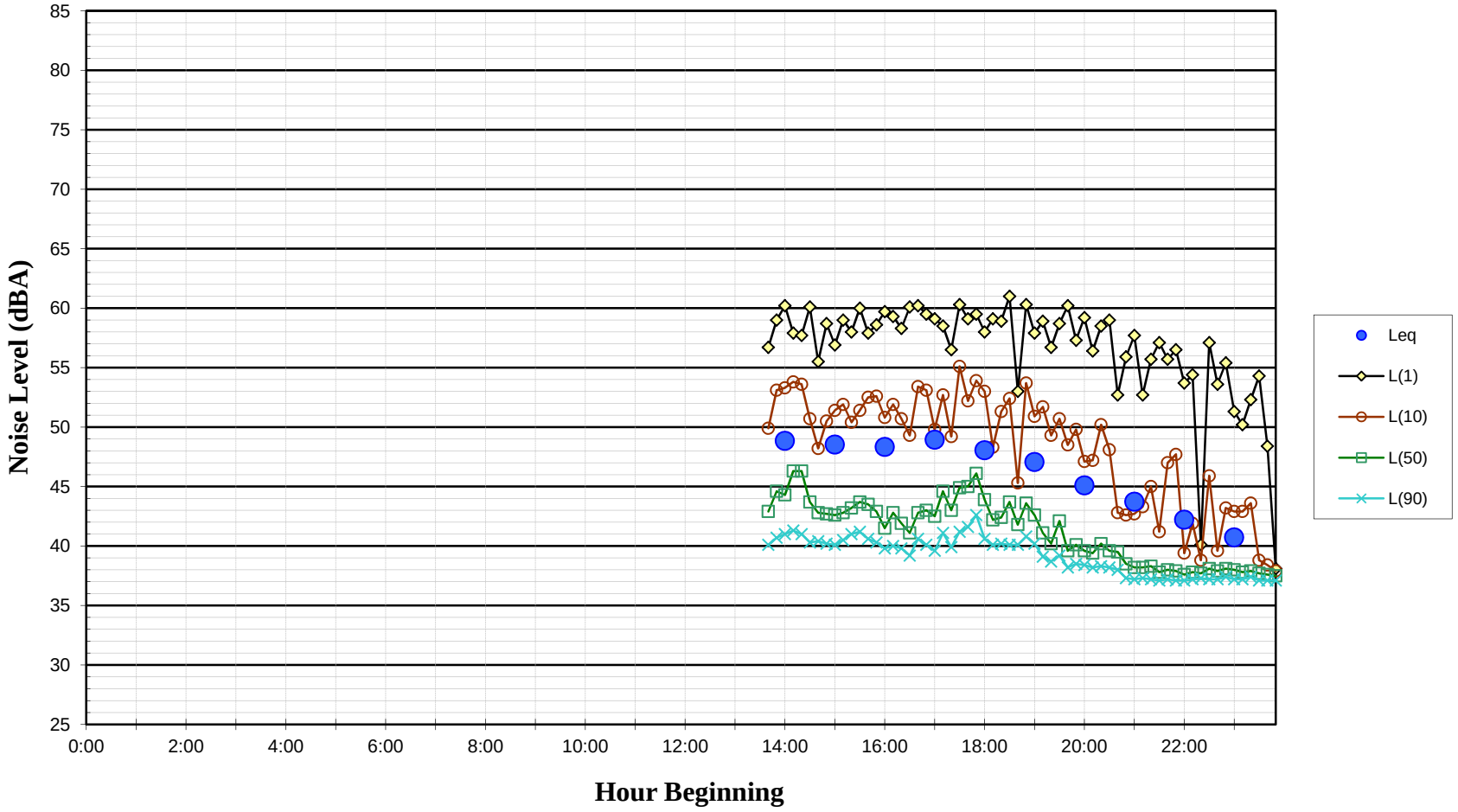

Figure 2

Figure 14 Peet Road Improvement Plans Showing Modeling Receptor Locations