APPENDIX A

NOP, SCOPING LETTERS, AND SUMMARY OF SCOPING SESSION

NOTICE OF PREPARATION (NOP) OF AN
ENVIRONMENTAL IMPACT REPORT
FOR THE LARKSPUR SMART STATION AREA PLAN

To: State Clearinghouse
Marin County Clerk
Responsible Agencies
Interested Individuals and Organizations

From: Neal Toft, Director of Planning and Building
City of Larkspur
400 Magnolia Avenue
Larkspur, CA 94939

The City of Larkspur will be the Lead Agency and will prepare an Environmental Impact Report (EIR) for the Larkspur SMART Station Area Plan. The City is requesting comments from responsible agencies regarding the scope and content of the environmental document. The public is also invited to submit comments regarding the scope of the EIR.

Project Location: The Larkspur SMART Station would be located in the SMART right-of-way east of Highway 101, north of Sir Francis Drake Boulevard, near the terminus of the Cal Park Hill Tunnel bike path. The station lies above and just west of Larkspur Landing, a mixed use area that includes residential, office and retail uses. As shown in Figure 1, the 405-acre study area is defined by an approximately ½ mile radius circle around that station, with the addition of an area to the south known as the Redwood Highway area (see Plan Map below)

Project Description: The City of Larkspur is preparing the Larkspur SMART Station Area Plan. The SMART (Sonoma-Marin Area Rail Transit) is a passenger train and multi-use pathway project planned to extend 70 miles from Cloverdale in Sonoma County to Larkspur in Marin County. The Larkspur SMART Station Area Plan will identify potential land use and regulatory changes that are intended to support transit oriented development in the area surrounding the planned SMART station. More information on the SMART Station Area Plan can be found on the City of Larkspur website at:
http://www.larkspurcityhall.org/index.aspx?nid=157.

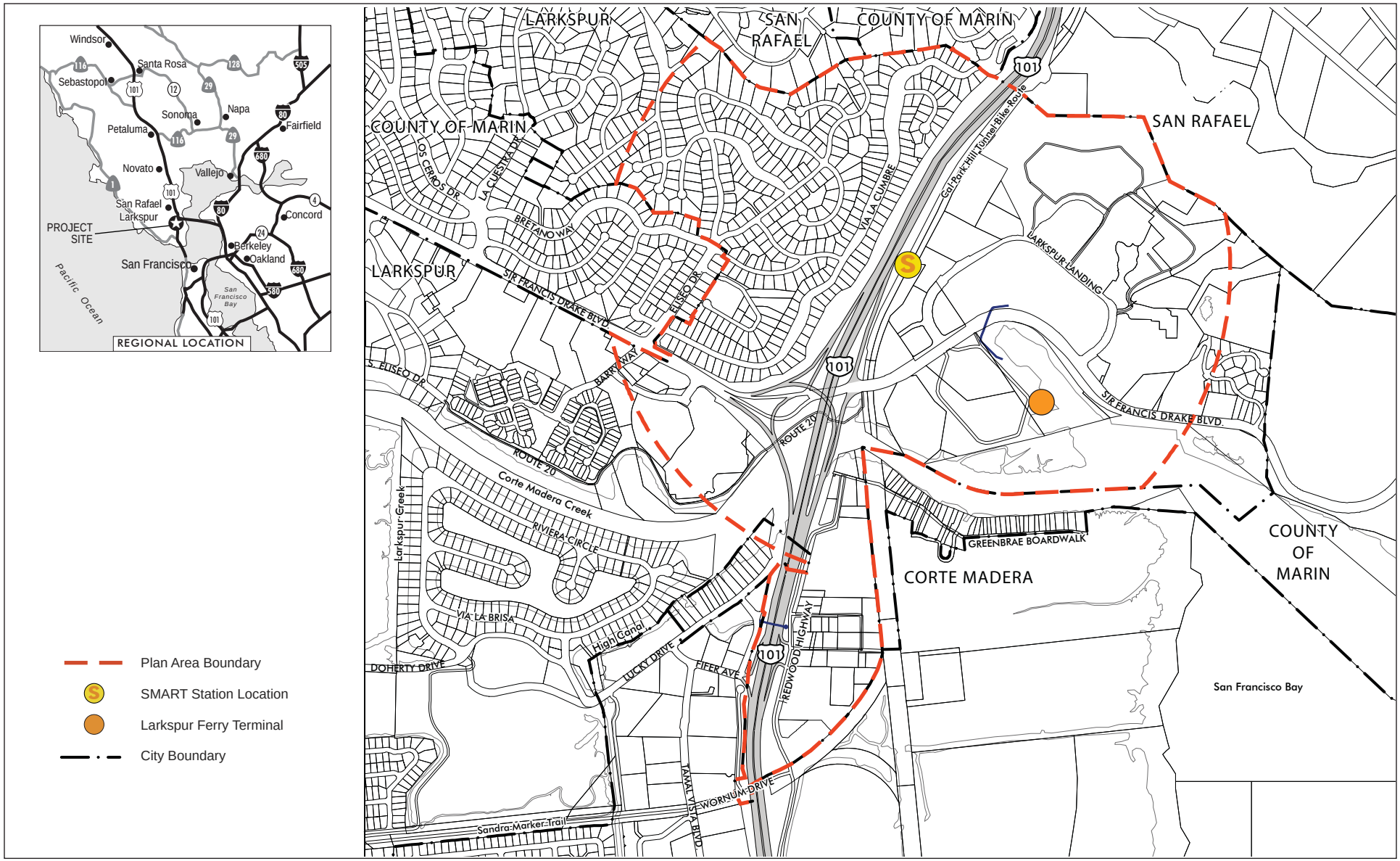
Potential Environmental Effects: It has been determined that an EIR will be necessary to analyze potential environmental impacts associated with the proposed project. Specific areas of analysis will include, but will not be limited to the following topics: Land Use and Planning Policy; Transportation and Circulation; Air Quality; Greenhouse Gas Emissions; Noise/Vibration; Biological Resources; Hydrology and Water Quality; Geology; Hazards and Hazardous Materials; Utilities and Pubic Services; and Cultural Resources.

Due to the time limits mandated by State law, your response to this NOP must be submitted by Friday, February 15, 2013. Please address your written comments to: Neal Toft, Director of Planning and Building, City of Larkspur, 400 Magnolia Avenue, Larkspur, CA 94939 or ntoft@cityoflarkspur.org

A scoping session for the preparation of the EIR will be held at 7:30 p.m. on January 22, 2013 at Larkspur City Hall, City Council Chambers, 400 Magnolia Avenue, Larkspur. The public and public agencies are invited to attend the scoping session to provide comments regarding the scope and content of the EIR.

Neal Toft, Director of Planning and Building, City of Larkspur

1/4/2013
Date



LSA

FIGURE 1

0 600 1200
FEET

N

Larkspur SMART Station Area Plan NOP

Project Location and Regional Vicinity Map

SOURCES: CALIF. GOVERNOR'S OES; CITY OF LARKSPUR, 2011; BMS DESIGN GROUP; LSA ASSOCIATES, INC., 2013.

I:\BMD1201 Larkspur SMART\figures\NOP\Fig_1.ai (1/2/13)

Notes- SAP EIR Scoping Session 1/22

Cindy Winter, Greenbrae

- She favors higher density in Larkspur Landing and if it is done right it can be a model of land use planning to be proud of
- She is worried most new residents will bring cars with them into a geographically confined area
- Without excellent multi-modal facilities there will be gridlock and more GHG emissions
- One way to reduce congestion in Larkspur Landing is to encourage people who live outside it to walk and bicycle into it
- The bike/pedestrian overpass over 101 will be demolished and not replaced as part of the Highway 101 project contrary to the wishes of many
- She worked out an alternative overcrossing design and discussed it with Bill Whitney and Neal Toft. An independent engineer says he believes it works
- The next steps is a conference with Caltrans engineers
- The Caltrans proposed route through Wornum and along Redwood Highway will discourage biking and walking
- She is an experienced cyclist and the sections are disagreeable at best and at worst dangerous
- Not all walkers and riders will find it possible to go north of CM Creek to avoid these inconveniences and will jump in their car instead
- Station Area planners need to consider these issues because in Sub-area 1a connectivity to the station is critical
- There is no use for a CMFC if it is separated from the popular and beautiful Sandra Marker Trail by the freeway.
- Not sure whether the SMART station planners can take a position as a group and ask TAM to reconsider some of their designs but at least you can reflect on it

Sandy Guldman, Larkspur

- As an individual who bikes, she strongly supports retaining the overpass over 101
- As president of Friends of Corte Madera Creek Watershed, she is concerned about proximity of development at ferry terminal to a hotbed of clapper rails in the tidal marsh south of the terminal
- Very environmentally sensitive area and any development there will be constrained by the need to protect that habitat

Alisha O'Loughlin, Planning Director of Marin County Bicycle Coalition

- Preferred plan supports moderate to higher density residential development, new retail and employment and acknowledges the area's older demographic; all of these support the need for alternative transportation options
- The report calls for improving connections between Redwood Highway North, Larkspur downtown and Larkspur Landing
- The report notes congestion is already an issue and will likely be exacerbated with build out in the Preferred Plan; with additional higher density development comes more traffic
- Plan supports mode shift measures and identifies improvements to bike/pedestrian connections
- Simultaneously TAM and Caltrans are developing the Hwy 101 GB improvement project that calls for demolition of overpass and no replacement
- Removal will undoubtedly affect bike and pedestrian connectivity safety and perceived safety within and adjacent to the SAP planning area
- Imperative the SAP EIR take into account the removal of the overpass on bike and

pedestrian circulation in the Station Area
- Will Caltrans improvements adequately provide for future development intensity and pedestrian and bike goals and objectives identified in SAP?
- Imperative that SAP EIR evaluates what future pedestrian and bike conditions will be once TAM project is built with current design rather than evaluate conditions as are currently on the ground
- TAM project includes bike and pedestrian enhancements to Wornum drive but they will not substitute for the safety of the existing separated from traffic overcrossing
- Too much to ask for timid, young, or less-abled walkers and bikers
- Existing overcrossing is used by locals and is the primary north-south greenway from Golden Gate Bridge to Novato
- County has goal for 20% of all trips to be made by biking and walking by 2020 and we need safe separate facilities to achieve that
- Removal of overcrossing will divide community
- Proposed TAM project is inconsistent with General Plans of Larkspur, Corte Madera, and the County with regards to fostering connectivity within and between communities and policies encouraging an increase in bike and pedestrian modes
- SAP EIR should evaluate future bike/pedestrian needs and impacts as relate to TAM project given current design

Mike Hooper, Larkspur
- Member of SAP CAC
- Project description on NOP is not adequate; needs to be succinct, but needs to provide the community with a reasonable chance of understanding what this project is
- Project is not just the preferred alternative but the range of mitigation measures being proposed
- Those measures include reduced parking at ferry terminal and paid parking at the terminal, shuttle buses and trolleys to get to the ferry terminal, and other traffic mitigation measures
- Need clear examples of mitigation measures
- Numbers are not enough; examples that we can be comfortable with are required
- The SAP EIR needs to provide for a range of densities
- When the Plan comes to PC in future with specific projects, he hates to think PC and Council will get stuck with approving a particular project for a particular density
- SAP EIR should provide for a range of alternatives, in between “no project” and the preferred plan
- SMART station needs to come to the terminal and shouldn’t come to Larkspur at all unless it goes to terminal; SAP EIR needs to analyze that
- SAP EIR should include a growth control plan; analyze the time these developments should occur and allow development to move forward only if the mitigation measures are brought to bear
- Told at last CAC meeting this was a long-range plan, not to worry about it because it won’t happen in his lifetime or the consultant’s lifetime. He does worry, he has kids
- Project is $600,000 and it needs to be a worthwhile $600,000 and needs to consider a wide range of alternatives
- “Transferable development rights” allow one property owner to purchase from another property owner development rights; a degree of flexibility
- Frequently developers find that projects don’t work in the context they’re given
- Transferable development rights accomplish many things- e.g. if excess capacity on ferry site, owner could sell the development rights to the apartment owners on the hill and they could double their density

- He thinks the densities are too high
- Traffic mitigation won't work without extraordinary effort
- Perception will be 40 du/ac on some locations is just too much

Don Graff, Greenbrae

- SAP CAC member
- Should create transportation hub in this area- ferry, Airporter, SMART, and buses in a single location which would enhance usage of SMART and ferry
- Would cause changes to preferred plan in terms of uses at ferry terminal that may have to be decreased in size or moved up to where the SMART station is proposed currently
- Would be a good process for the SAP EIR to include as a part of an alternative

Jean Severinghaus, Greenbrae Boardwalk

- Involved with GP and Station Area Plan process for several years
- Excited about increased development and density near transit
- Lives across creek to the south and can walk to the Airporter or ferry
- Can ride a bike to west Marin or north Marin in a short time
- She hasn't seen very much planning of circulation for multi-modal circulation around the station itself
- Major environmental problem is the congestion of Highway 101that the SMART train is trying to address
- Sonoma residents will be most likely users going south to jobs in Marin
- County Bike and Pedestrian Plan from 2008 notes a major opportunity to get people going 15 minutes or less in car to switch mode to walking or biking by improving connections
- Need to improve the "last mile" after getting off transit
- In regards to the Highway 101 improvement project, the community is being offered what's expedient to accommodate a freeway expansion, not been looked at by local groups
- Need to ask for at least 2.5 miles of looking at bike and pedestrian trails and connections
- Removal the overcrossing: if you go by the north route under the creek and loop around to get to Lucky drive it's ¾ mile- across overpass it's ½ mile. Increase for walkers of 5 minutes; that's the time it takes to drive from Tamalpais highway on-ramp to Terra Linda in a car. It will impact people's choices
- EIR should look at impacts of 1.5-6 in of Sea level rise in Redwood Highway north particularly to analyze impacts on circulation in area

Planning Commissioner Comments

Commissioner Jeff Stahl

- Surprised the two existing apartment in Larkspur Landing weren't identified as opportunity sites given their low density
- That's an area that could tolerate more height without visual impacts
- Lost opportunity to consider re-densification there- not just about vacant parking lots
- Analysis of challenges to the area neglects to mention the geographic isolation of Larkspur Landing area from the rest of the city, including public services.
- Mike Hooper's comments about a range of densities were worthwhile
- Seems to be a a good idea to apply an aggregate density to the entire area and then allow for flexibility in distributing that density across different sites

- Ferry terminal parking lot is a ripe opportunity for increasing parking; adding housing with its own parking requirement would be a monster building
- Should be designed to transfer density from one opportunity site to another within an aggregate limit
- The SAP EIR should look at what proposed mix of uses and densities it will achieve will support in terms of retail; not what Marin Country Mart is becoming
- Need grocery services in the area; restaurants; how support?
- Marin Country Mart is not becoming a neighborhood supporting venue
- Isolated character of the area is counterintuitive to hosting a senior demographic
- Walking and biking is great for active and able people, but seniors need assistance with access; shuttles would help, or wordsmith language about supporting an older demographic
- Geographic hazards should be analyzed; the ferry site is probably on fill
- Climate change impacts should be analyzed; seems important especially regarding sea level rise
- Notion of a parking district makes sense; look at allowing parking along Larkspur Landing Circle
- Supports serious consideration of potential of creating an alternative in the EIR that considers the SMART station at the ferry terminal

Commissioner Monte Deignan

- SMART station location makes no sense
- If we are going to study TOD, why leave the Airporter and SMART train in a tiny landlocked section of the Larkspur Landing area?
- The SAP EIR should study how to move the station over to ferry terminal as a transit hub
- Can SMART's hand be forced in this?
- As a long-range plan, will it look at potential impacts of San Quentin's closure? The end of the peninsula would be ideal transit hub; does that enter into the study?
- Would like to see bike connections improved; crossing the highway at Larkspur Landing is a disaster

Planning Director Toft

- Relocating the SMART station has been raised by the CAC and public
- The SMART train was planned and voted on in its configuration and the extension from San Rafael phase 2 is not funded at this time
- SMART, one of partner agencies, has indicated they don't have funding right now to study an alternative
- Identifying a desire to consolidate transportation options and such a policy will be in the Plan
- SMART has indicated that station itself is a simple platform and should in the future it be relocated it wouldn't be substantially costly to relocate

Commissioner Mark Sandoval

- Agrees with commissioners about possible loss of opportunities
- To have a transportation hub at the ferry is common sense and we are skirting the issue with planning efforts that could be focusing on that.

Commissioner Kevin Haroff

- Impressed with quality of public comments tonight

- Shares a lot of concerns from public and commissioners
- There is a consensus among the community to encourage the transportation hub as a preferred alternative
- Do the funding constraints and decisions of other agencies truly constrain what the preferred alternative would be for CEQA purposes?
- Can we present a preferred alternative that is more of what the community wants, while it may not be the alternative that moves forward?
- For planning purposes a preferred alternative should incorporate those concepts at the outset and to the extent necessary back away if they are not feasible; at least set up in preferred alternative sends a message to the partner agencies
- Significant mixed use and residential development proposed in Plan for current ferry terminal parking lot
- Current parking needs of terminal need to be addressed. Structured parking there is financially infeasible
- Worries that planning assumes actions that aren't feasible
- It would be helpful if the other agencies that will play an important role in funding are involved as early as possible; commitments and assurances will be important to success of this plan
- Does CEQA analyze the economic feasibility of the different planning elements proposed going to be taken into account

Planning Director Toft

- Next planning phase will analyze infrastructure and funding needs and will inform us on what funding opportunities are available and how additional parking needs from new development could be balanced
- Will identify impacts and issues in conjunction with refining the plan
- Opportunity for funding will come with supportive densities and uses

Planning Commission Chair Richard Young

- Heard tonight concerns about loss of overpass and that connectivity particularly for residents on Redwood Highway area
- Station should be relocated
- Isolation of Larkspur Landing area should be considered
- Parking needs should be analyzed and integrated parking is essential
- Should be a diversity of densities, a range
- Growth control of development

CITY OF San Rafael

MAYOR GARY O. PHILLIPS
VICE MAYOR BARBARA HELLER
COUNCILMEMBER KATE COLIN
COUNCILMEMBER DAMON CONNOLLY
COUNCILMEMBER ANDREW CUYUGAN MCCULLOUGH

COMMUNITY DEVELOPMENT DEPARTMENT
PHONE: 415-485-3085
FAX: 415-485-3184

RECEIVED
FEB 01 2013
By

January 30, 2013

Neal Toft
Director of Planning and Building
City of Larkspur
400 Magnolia Avenue
Larkspur, CA 94939

Subject: Larkspur SMART Station Area Plan- Notice of Preparation

Dear Mr. Toft:

The City of San Rafael has received the published Notice of Preparation addressing the scoping of the EIR to be prepared for the Larkspur SMART Station Area Plan. As a neighboring local jurisdiction, San Rafael offers the following comments for consideration in scoping and preparing this plan EIR:

1. Transportation/Traffic. The Plan will recommend changes in land use and density/intensity, which will have the potential to significantly impact traffic along the Sir Francis Drake Boulevard corridor. We request that the EIR assess projected AM and PM peak hour traffic (arterial analysis) along the Sir Francis Drake Boulevard corridor between US101 and I-580. Further, we request that the EIR assess projected traffic during the AM and PM peak hour at the intersection of Sir Francis Drake Boulevard and Andersen Drive. The San Rafael General Plan 2020 recommends that this intersection be widened and signalized (coupled with widening the eastbound I-580 ramps) to accommodate planned and projected growth. As much of this intersection is located within the corporate limits of the San Rafael, the timing and implementation of improvements at this intersection will be closely coordinated by us.

2. Public Services. Larkspur and San Rafael share a mutual aid agreement for shared fire services. As noted above, the Plan will recommend changes in land use and density/intensity, which: a) will increase the need for fire service; and b) could impact emergency response time along the Sir Francis Drake Boulevard corridor. We request that the EIR assess potential impacts on fire services and emergency response time.

Should you have any questions please do not hesitate to contact me at 415.485.5064 or paul.jensen@cityofsanrafael.org.

Sincerely,

Paul A. Jensen

Paul A. Jensen, AICP
CITY OF SAN RAFAEL
Community Development Director

cc: Nancy Mackle, City Manager
Nader Mansourian, Public Works Director
Chris Gray, Fire Chief

February 15, 2013

MARIN CONSERVATION LEAGUE
Protecting Marin Since 1934

Neal Toft
Director of Planning and Building
City of Larkspur
400 Magnolia Avenue
Larkspur CA 94939

Re: Scoping Comments for the Larkspur SMART Station Area Plan

Dear Mr. Toft:

We are assuming that all of the concerns conveyed by members of the Citizens Advisory Committee and summarized in the Plan will be evaluated in the DEIR. If they are not already being included in the scoping comments, we ask that they be analyzed in the DEIR that is being prepared for the Larkspur SMART Station Area Plan. The Plan has the potential for substantial environmental impacts that need to be carefully analyzed and considered.

SEA LEVEL RISE

Some of the development contemplated by the Plan is located in areas that will be subject to sea level rise associated with global warming. The DEIR should fully address the impacts of sea level rise over the decades long life of any projects, and should bar development and/or impose mitigation measures to deal with it.

BIOLOGICAL RESOURCES

The area south of the ferry terminal, particularly the Heerdt Marsh, which is part of the Corte Madera Ecological Reserve and home to the endangered Clapper Rail, is an environmentally sensitive area that is likely to suffer adverse impacts if the proposed high-density development plan is implemented. The nature and extent of these impacts needs to be analyzed and mitigation measures should be included in the DEIR.

TRANSPORTATION AND CIRCULATION (1)

The proposed high-density development will certainly contribute to congestion on Sir Francis Drake, which will add to greenhouse gas emissions and adversely impact air quality. The DEIR needs to fully analyze these impacts and go beyond suggesting that it will be necessary for major improvements and capacity increases to be made to Sir Francis Drake Boulevard in order to accommodate the development proposed in the Plan. The plan should state specifically that any density increase in the area shall be conditional on at least maintaining the LOS on Sir Francis Drake(SFD) and the EIR should reflect that approach. As the LOS is currently at F in this area during peak hours, the DEIR should preferably stipulate a mitigation requirement that improvements to SFD must be in place prior to any increases in density in the area, so as to bring the LOS to an acceptable level. Likewise, the Plan assumes the construction of a SMART station, but it is not clear when or even if such a station will be built. Implementation of the plan should be contingent the confirmed presence of a SMART station, and if not, then the DEIR should analyze

PHONE: 415.485.6257
FAX: 415.485.6259
EMAIL: mcl@marinconservationleague.org
WEB: marinconservationleague.org
ADDRESS: 175 N. Redwood Dr., Ste. 135
San Rafael, CA 94903-1977

the impacts of the Plan if the station is not built and all of the new residents, instead, are limited to presently available transportation systems.

TRANSPORTATION AND CIRCULATION (2)
Although the project areas designated for both the Larkspur SMART Station Area Plan and the Highway 101 Greenbrae/Twin Cities Corridor Improvement Plan proposed by the Transportation Authority of Marin are overlapping, there is barely any acknowledgment of that fact by either sponsoring entity in their own project's documentation. What are the impacts of TAM's proposed plan for a massive highway construction project within the same project area? What impacts will it have on the Larkspur SMART Station Area Plan? What impacts will Plan implementation have on 101 traffic? Does highway 101 have capacity to accommodate the large increase in population in an already congested freeway corridor? Again, the answers to these questions address the possibility that a SMART station will not be built.

TRANSPORTATION AND CIRCULATION (3)
Despite uncertainties about whether the proposed Highway 101 Greenbrae/Twin Cities Corridor Improvement Project will ever be constructed, removal of the pedestrian-bicycle highway overpass between Lucky Drive and Industrial Way would have a significant impact on pedestrian and bicycle circulation routes in the Plan area. What are the ramifications of the overpass removal on the Plan's anticipated benefits of multi-modal options for pedestrians and bicyclists?

TRANSPORTATION AND CIRCULATION (4)
As there are no similarly situated, comparable, transit-oriented developments of this scale in the Bay Area, the DEIR should provide reliable data that documents the assumption that a combination of bicycle, transit, and ferry options available will actually result in a significantly demonstrable decrease in the residents' use of automobiles. The DEIR should provide data demonstrating that (1) most residents of the 948 new housing units will work in the City and take the ferry to work each day, (2) that bus service will be available to take them to wherever else in the County they work, shop, go to school, socialize, exercise, and/or play sports, (3) that many jobs in the immediate Plan area will be held by residents of the immediate Plan area, who will walk or bicycle to work. Will the plan include any controls that insure that residents rely on public transit, biking or walking?

TRANSPORTATION AND CIRCULATION (5)
It is obvious that the large number of new residents will not use public transit/biking/walking 100% of the time, and, therefore, there will be some increase in vehicular traffic. What is the expected increase in vehicular traffic and what are the impacts? The DEIR should provide reliable, relevant data to show that the net increase in vehicle miles traveled (VMT) as a result of this high-density project would not have a demonstrable adverse impact on air quality and greenhouse gas emissions.

TRANSPORTATION AND CIRCULATION (6)
A high-density development of this scale involves parking issues that should be fully examined in the DEIR, with mitigations proposed. Will it be necessary to construct a double-deck parking

structure at the ferry terminal parking lot? Will it be necessary to create a parking district that would construct parking in other parts of the development? Is there some other means of providing sufficient parking? The preferred alternative should include recommendations for resolving the parking problem as part of the DEIR.

TRANSPORTATION AND CIRCULATION (7)
The issue of transit scattering versus a transit hub warrants examination in the DEIR, as many concerns have been expressed about the SMART station being located so far from the ferry terminal. Although the proposed extension of SMART has no funding and is not included in the current phase of SMART construction, the feasibility of relocating the station should be examined in the DEIR as part of the preferred alternative.

TRANSPORTATION AND CIRCULATION (8)
An older demographic will likely require some sort of shuttle service to meet the needs of residents who require services not available in the immediate area and are unable to reach such services by walking or bicycling. Is it feasible to require a shuttle service as part of a development plan? What are the costs such a service and where will the funding come from? If private developers are required to provide this service, what measures will be imposed to insure compliance?

TRANSPORTATION AND CIRCULATION (9)
The Plan correctly assumes that older people don't drive as much, but they do require most support and care workers who will need parking close to residences. Also, older retired people who can still drive are more likely to make multiple mid-day trips. How is this being addressed in the Plan?

TRANSPORTATION AND CIRCULATION (10)
If new residents are expected to use the Larkspur Ferry, what will be the impact of the Plan on ferry service, which is currently operating at or near capacity during commute hours? Will it be necessary to add new ferries to provide added capacity? If so, what will it cost, and is there funding available?

HYDROLOGY/DRAINAGE
Although the proposed areas for development all appear to be above elevations that currently flood, all access roads in the Plan area are shown to be below the level of 100-year floods, which seem to occur every few years, even without considering sea-level rise. It is now generally recognized that one result of global warming is to produce storm events of greater intensity and severity. How often will access to newly developed areas be impeded due to flooding? The DEIR should explain how to mitigate the lack of ingress and egress for residents and workers, as well as its impact on the ability of police, firefighters, and paramedics to respond in case of medical emergencies and disasters of various kinds that occur when access is unavailable due to flooding.

LAND USE CONSISTENCY AND COMPATIBILITY (1)
The project description needs to provide the community with a better understanding of what the project actually includes, and what kinds of mitigation measures are being proposed. Because it is being made an integral part of the Larkspur General Plan Update we understand that no additional DEIR will be required at the time one or more developers come forward to implement the approved plan. Therefore, it is very important to describe and analyze each component of the Plan in the DEIR so that appropriate mitigations can be required at this time, before the Plan is approved.

LAND USE CONSISTENCY AND COMPATIBILITY (2)
The Plan indicates that housing in the Plan area will likely be affordable only to households earning less than 120 percent of AMI, and that Federal, state, and local financing sources will be needed to develop housing that is affordable to households with lower incomes. It goes on to state that the gap between subsidies provided by low-income housing tax credits, bond financing, and other typical sources and construction costs will probably be in excess of $100,000 per unit. That gap would have to be filled by local financing sources, housing trust funds (which are not currently available) and in-lieu fees. The Plan states that the Local Housing Subsidy needed would range between $41,972,519 and $57,448,800. The DEIR should explain how this deficit, which would likely make implementation of the proposed Plan impossible, would be mitigated. Where will these funds come from and is it realistic to assume that such funding will be available? What will happen if no funding is available?

LAND USE CONSISTENCY AND COMPATIBILITY (3)
The growth projections indicated in various parts of the Plan are based on the Bay Area Jobs-Housing Connection Strategy estimates issued in May 2012 by ABAG and MTC that are inconsistent with the recent projections published by the California Department of Finance, which state that growth in Marin County will be essentially stagnant between now and 2050. That should be taken into account in evaluating the alternatives studied in the DEIR, particularly regarding the market for retail and employment in the area.

LAND USE CONSISTENCY AND COMPATIBILITY (4)
Neighborhood-supporting retail is a significant need in an area separated from the rest of the community by a major freeway, and the DEIR should examine the economic viability of locating businesses such as a grocery store there. The Larkspur "Country Mart" has attempted, without success, to provide grocery services. Is it realistic to assume that groceries and other day-to-day retail services will be provided? What level of population is needed to support these services? If they are not provided, will residents use automobiles to travel for basic necessities?

LAND USE CONSISTENCY AND COMPATIBILITY (5)
In an area where high-density development is so tightly focused on use of multi-modal transit such as the ferry terminal, the ramifications of liquefaction in event of a major earthquake should be studied and discussed in the DEIR.

PUBLIC SERVICES (1)
The Marin Municipal Water District has a longstanding deficit in its ability to provide all of the water needed within its jurisdiction on a long-term basis that is likely to include drought years. The DEIR should explain the how the proposed high-density development would obtain the water it requires without impacting existing water users.

PUBLIC SERVICES (2)
As the majority of housing units in the Plan area lie within the San Rafael School District, the DEIR should discuss the impacts of transporting students to elementary, middle, and high school locations that are a considerable distance from the Plan area. How will students get to and from schools? Will public transit, such as school buses, be provided? If so, what will it cost and how will it be funded? If not, how many students will be driven to and from school, and what will be the impacts of the additional traffic?

COMMUNITY COHESIVENESS
Geographic isolation of the Larkspur Landing area from other parts of the Larkspur community is a factor that should be evaluated, with mitigation and adaptation strategies identified in the DEIR.

Respectfully submitted,

Susan Stompe, President
Marin Conservation League

www.marinbike.org

V 415 456 3469
F 415 456 9344
733 Center Blvd.
Fairfax, CA 94930

Board of Directors
Maureen Gaffney, *President*
Mark Comin, *Vice President*
Don Magdanz, *Secretary*
Ian Roth, *Treasurer*
Phil Brewer
Chris Hobbs
Jennifer Kaplan
Fred Morfit
Scott Penzarella
John Vipiana

Advisors
Mark Birnbaum
Joe Breeze
Tom Hale
Deb Hubsmith
Jim Jacobsen
Patrick Seidler
Julia Violich

Staff
Kim Baenisch
Executive Director
Tom Boss
Membership Director
Bob Trigg
Administrator
April Spooner
Volunteer and Activities Coordinator
Andy Peri
Advocacy Director
Alisha Oloughlin
Planning Director
Erik Schmidt
Off-Road Director
Wendi Kallins
Safe Routes to Schools Director
Laura Kelly
Safe Routes Volunteer Liaison
Peggy Clark
Safe Routes Project Coordinator
Share the Road Program Manager
Gwen Froh
Safe Routes Teen Coordinator
James Sievert
Safe Routes Teen Coordinator and Instructor

February 15, 2013

Neal Toft
Director of Planning and Building
City of Larkspur
400 Magnolia Avenue
Larkspur, CA 94939

Subject: Larkspur Station Area Plan/General Plan Update
Environmental Assessment Scoping Comments

Dear Mr. Toft:

On behalf of the Marin County Bicycle Coalition (MCBC), we would like to take this opportunity to provide scoping comments on Larkspur Station Area Plan environmental assessment.

MCBC has been active in advocacy for 15 years in Marin County and has the primary goal of making the roads safer for cyclists and pedestrians. We achieve this end by working to ensure that any and all road or road-related projects consider the needs of cyclist and pedestrian safety as a top priority. It is within this context that MCBC submits the following comments.

Local and Regional Connectivity

The SAP encourages higher-density residential and transit oriented development, new retail and additional employment. This higher-density development in combination with public transit and key transportation facilities in the area necessitates the need for safe and interconnected active transportation facilities that will successfully provide for, as well as encourage, an increase in biking, walking and use of public transit within and through the Station Area.

East Sir Francis Drake Boulevard: Highway 101 to East Francisco

The Station Area Plan calls for improving connections between Redwood Highway North, Larkspur Downtown and Larkspur Landing, yet it fails to address much needed non-motorized transportation improvements between Larkspur Landing and areas to the east. This area was identified as a key gap in the San Francisco Bay Trail Gap Analysis Study and is also one of the top priority projects in the county as described in the 2008 Marin County Unincorporated Area Bicycle and Pedestrian Master Plan.

Opportunities to maximize bicycle and pedestrian travel for areas to the east of Larkspur Landing include: (1) both the east and west directions on the north and south sides of

Interstate 580, (2) the connection of the existing Shoreline Bay Trail in San Rafael to both the new viewing area near the Richmond/San Rafael Bridge and Remillard Park in Larkspur, (3) from the south side of the I-580 on-ramp at Main Street to the intersection of Andersen Drive with Sir Francis Drake Boulevard, (4) the Andersen Drive/Sir Francis Drake Boulevard intersection itself to determine the feasibility of improvements that would enable cyclists and pedestrians to safely cross the intersection, (5) access from the I-580 on-ramp to the San Quentin Prison entrance through San Quentin Village, (6) access/egress to/from existing bus stops that provide service across the bridge (which is closed to bicycles and pedestrians), (7) Main Street under I-580, and (8) the connection from the I-580 onramp to East Francisco Boulevard.

The intersection of Sir Francis Drake Boulevard and Andersen Drive presently proves challenging for motorists, bicyclists and pedestrians alike. This area is also physically bisected by I-580, which runs along the northern edge of the study area. Bike access is permitted on the shoulder of I-580 from the Sir Francis Drake Boulevard onramp to Main Street. There is a partially paved, rustic pathway connecting the I-580 flyover to East Francisco Boulevard. This pathway serves several office buildings, residences and recreational destinations located off of East Francisco Boulevard. At this time, bikes are not permitted on the Richmond/San Rafael Bridge, but regional transit buses equipped with bike racks make the connection to the East Bay. The San Francisco Bay Trail is improved on the northern and southern edges of the study area, thus it represents a key gap in the continuity of the regional trail system. San Quentin prison visitor use and employees also generate pedestrian traffic along Main Street.

The area includes several medium- to large-sized office buildings, a State penitentiary, a private recreational club, public recreational facilities and residential housing. In close proximity are several residential neighborhoods, large neighborhood shopping centers, hotels, the Larkspur Ferry Terminal, the future SMART Station, future high-density development at Larkspur Landing, Marin County Mart, Sanitary District #1 and the Ferry Terminal, and several schools. **The MCBC strongly recommends that the SAP environmental assessment includes a thorough assessment of existing bicycle/pedestrian connectivity and safety issues and needs between the SMART Station and destinations to the east via Sir Francis Drake Boulevard East, including the I-580 flyover, Anderson Drive, Main Street and East Francisco Boulevard.**

West Sir Francis Drake Boulevard: Highway 101 to Wolf Grade

Under the Preferred Plan Alternative, the western extent of the Station Planning Area is currently near Eliseo Drive/Barry Way. By limiting the focus of bicycle/pedestrian improvements and connectivity to the defined Planning Area, the Plan fails to capture a significant portion of western Marin's cyclist and pedestrian community. Many cyclists that reside or work west of Eliseo Drive/Barry Way will be commuting to the SMART Station, the Ferry Terminal, Cal Park Tunnel, the Central Marin Ferry Connection, local commercial areas and businesses, and beyond. Furthermore, upon build-out of Larkspur Landing, Marin Country Mart, Sanitary District #1, the Ferry Terminal and Drakes Landing, there will be a significantly higher demand for safe bicycle facilities between the Planning Area and the commercial, business and recreational destinations to the west. Additionally, numerous cyclists already utilize Wolf Grade to access these destinations from the north and this number will only increase upon arrival of SMART and build-out of the Station Area. Furthermore, the Bon Air Road/Sir Francis Drake Boulevard intersection receives a significant amount of traffic and the provision of safe bicycle

facilities between the SMART Station and Bon Air Road could play a significant role in helping to entice commuters to bike/walk to their destinations instead of driving, thereby reducing traffic congestion at this intersection and beyond.

The Marin County Unincorporated Area Bicycle and Pedestrian Master Plan identifies Sir Francis Drake Boulevard, between Highway 101 and the Town of Ross, as a special Bikeway Study Area. This 2.1 mile segment is proposed in the Master Plan for Class II bicycle lanes.

Therefore, the MCBC strongly requests the SAP environmental assessment include an analysis of traffic operations and bicycle/pedestrian connectivity from the SMART Station to at minimum, Wolf Grade to the west, in order to provide for the current and anticipated growth of non-motorized demand to/from the Station, businesses and commercial centers, public transit facilities, residential areas and popular recreational destinations to the west.

Bay Trail Alignment
It has long been a MCBC intention to complete the North-South Greenway adjacent to the eastern edge of the Station Planning Area along the current SMART Right of Way (over Corte Madera Creek and to the south to Wornum Drive) for both transportation and recreation purposes. MCBC has long supported a separated bridge over Corte Madera Creek and a north/south pathway on the SMART right-of-way from Corte Madera Creek to Wornum Drive. Because of the opportunities that became available with the design of the Greenbrae Corridor Improvement Project, MCBC also supports the construction of a 12-foot wide bicycle/pedestrian pathway using the “bent caps” on the Northbound Sir Francis Drake Boulevard exit ramp that is planned as part of the Greenbrae Corridor Improvement Project.

MCBC supports the Central Marin Ferry Connection Project study Alternative 1C (Attachment A).This alternative provides a separated bike/pedestrian facility over Corte Madera Creek using the bent caps and continuing through the (first) mobile home park after touching down onto Redwood Highway (when heading south). The route then continues along the SMART railroad corridor heading south to Wornum at Redwood Highway. **The MCBC recommends that the SAP environmental assessment includes a feasibility assessment of the Central Marin Ferry Connection Project study Alternative 1C as an alternative for a bicycle/pedestrian crossing of Corte Madera Creek.**

Corte Madera Creek Crossings
Please see comments on “Bay Trail Alignment” above. The current crossings of Corte Madera Creek along both sides of Highway 101 are too narrow to safely accommodate current and future bicycle and pedestrian volumes. **The MCBC recommends that the SAP environmental assessment includes a discussion of alternatives for non-motorized crossings of the west and east sides of Corte Madera Creek.**

Redwood Highway North: Wornum Drive to Corte Madera Creek
The MCBC supports much needed bicycle and pedestrian improvements to Redwood Highway North between Wornum Drive and Corte Madera Creek. Currently, this area lacks continuous bicycle lanes and sidewalks and is of great hazard to cyclists and pedestrians. This corridor serves as a key connector for those wishing to access the

SMART Station, Ferry Terminal, Central Marin Ferry Connection, Cal Park Tunnel, Marin Airporter and commercial and business centers to the north from Larkspur and Corte Madera, as well as from locations further to the south and west. This corridor also serves as Marin's North-South Greenway, a mostly car-free north-south bikeway extending from Sausalito through Novato. The corridor receives a high level of existing non-motorized commuter and recreational traffic; and upon operation of SMART and development within and adjacent to the Station Planning Area, this corridor will be of increasing importance to non-motorized users. Therefore, a safe and interconnected bicycle/pedestrian network to serve current and future non-motorized needs is vitally important throughout this corridor. **The MCBC recommends that the SAP environmental assessment includes an analysis of bicycle/pedestrian connectivity and safety deficiencies along Redwood Highway North between Wornum Drive and Corte Madera Creek, and provides an evaluation of alternatives to alleviate the deficiencies identified.**

West Side of Highway 101: Wornum Drive to Corte Madera Creek

The MCBC supports bicycle and pedestrian improvements to the west side of Highway 101 between Wornum Drive and Corte Madera Creek. This corridor serves as a key connector for those wishing to access the SMART Station, Ferry Terminal, Central Marin Ferry Connection, Cal Park Tunnel, Marin Airporter and commercial and business centers to the north from Larkspur and Corte Madera, as well as from locations further to the south and west. In addition, the corridor provides a direct connection to the Corte Madera Creek Pathway for those wishing to travel westbound, including travel to the Bon Air Shopping Center, Marin General Hospital and College of Marin. The corridor receives a high level of existing non-motorized commuter and recreational traffic; and upon operation of SMART and development within and adjacent to the Station Planning Area, this corridor will be of increasing importance to non-motorized users. Therefore, a safe and interconnected bicycle/pedestrian network to serve current and future non-motorized needs is vitally important throughout this corridor. **The MCBC recommends that the SAP environmental assessment includes an analysis of alternatives for provision of a Class I multi-use pathway along the west side of Highway 101 between Wornum Drive and Corte Madera Creek.**

Separated from Traffic Crossing of Highway 101/SAP's Relation to Greenbrae Corridor Improvement Project

At the same time that this Plan is being developed, the Transportation Authority of Marin, in partnership with and Caltrans, has been developing the design plans and environmental assessment for the Twin Cities Greenbrae Corridor Improvement Project (GCIP), which calls for the removal of the bicycle/pedestrian overcrossing of Hwy 101 at Lucky Drive, without plans for replacement. Under the current design, the GCIP will reroute bicycle/pedestrian traffic needing to cross Highway 101 under the freeway via Wornum Drive. Cyclists and pedestrians using Wornum will be forced to navigate numerous lanes of heavy traffic, including multiple on/off-ramps. The planned Wornum Drive route will include crossing multiple right turn lanes, and in some cases double right turn lanes, which are notoriously dangerous for cyclists and pedestrians. The removal of this existing bike/ped overcrossing will undoubtedly affect bicycle/pedestrian connectivity, safety, *and* perceived safety within and adjacent to the SMART Station Planning Area. Therefore, it's imperative that the environmental assessment for the SMART Station Area Plan takes into account the impacts that the removal of the overcrossing and the subsequent rerouting of bicycle/pedestrian traffic onto the

dangerous and highly congested Wornum Drive will have on bike/pedestrian circulation within and adjacent to the Station Plan Area.

The removal of the overcrossing will result in the division of the local community without providing a friendly and "attractive" crossing point. This project is *inconsistent* with policies from the General Plans of Larkspur, Corte Madera and the County of Marin with regards to fostering connectivity within and between communities and between the east and west sides of the freeway. It also conflicts with policies and goals that encourage an increase in bicycle/pedestrian mode shift, including the Marin Countywide Plan's goal of 20 percent of all trips in Marin to be made by walking or biking by 2020. The existing overcrossing is heavily used by many local residents and it is also an important part of Marin's North-South Greenway, a mostly car-free north-south bikeway extending from Sausalito through Novato. **The MCBC strongly requests that the SAP environmental assessment includes an evaluation of not only the current bicycle/pedestrian transportation conditions, but also an evaluation of future bike/pedestrian transportation needs and impacts that will result from construction of the GCIP, given the project's current design.**

Application of a Pedestrian Environmental Quality Index

We urge the City of Larkspur to consider the application of a Pedestrian Environmental Quality Index (PEQI) when evaluating solutions for getting people safely across Highway 101 and through the Station Planning Area. Many of the intersections within the Planning Area represent typical routes pedestrians and bicyclists use to access nearby public transit, parks, schools, essential goods, and surrounding neighborhoods. Overall, existing conditions at the project area suggest substantial traffic hazards for pedestrians and bicyclists, both for area residents walking and bicycling to adjacent neighborhood amenities and for people coming to the project area via non-motorized means. Application of a PEQI, originally developed by the San Francisco Department of Public Health (SFDPH) in 2008 and now used nationwide, should be included as part of the study of intersection operating conditions.

The environmental assessment should evaluate existing conditions for pedestrian and bicycle safety and the cumulative effects on pedestrian and bicycle hazards and collision frequencies in the project area. The PEQI should quantify street and intersection factors empirically known to affect people's travel behaviors and be organized into the typical five categories: intersection safety, traffic, street design, land use and perceived safety. Within these categories should be 31 indicators that reflect the quality of the built environment for pedestrians which should comprise the survey used for data collection. SFDPH has aggregated these indicators to create a weighted summary index, which can be reported as an overall index. Table 1 indicates how the indicators fit into the broader domains of pedestrian comfort and security.

Table 1: PEQI 2.0 Indicators by Domain				
Intersection Safety	**Traffic Volume**	**Street Design**	**Land Use**	**Perceived Safety**
• Crosswalks • High visibility crosswalk • Intersection lighting • Traffic control • Pedestrian/ Countdown signal • Wait time • Crossing speed • Pedestrian refuge island • Curb ramps • Intersection traffic calming features • Pedestrian engineering countermeasures	• Number of vehicle lanes • Posted speed limit • Traffic volume • Street traffic calming features	• Continuous sidewalk • Width of sidewalk • Width of throughway • Large sidewalk obstructions • Sidewalk impediments • Trees • Driveway cuts • Presence of a buffer • Planters/ gardens	• Public seating • Public art/ historic sites • Retail use and public places	• Pedestrian scale lighting • Illegal graffiti • Litter • Empty spaces

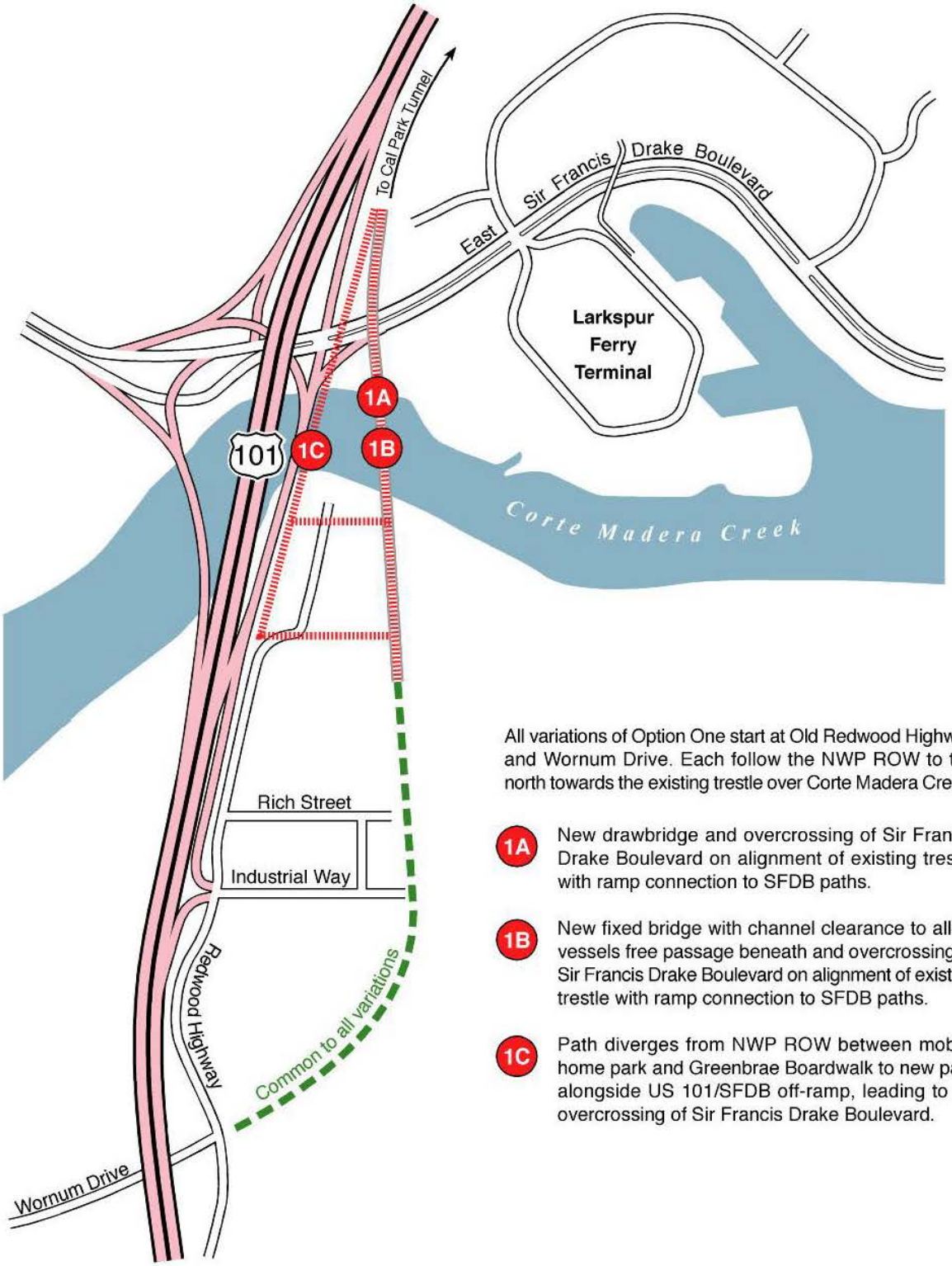
The discussion of baseline conditions should include data on pedestrian-vehicle collisions in the project area. In addition to assessing where new resident populations will be introduced and their potential pedestrian routes, providing a map of the location of pedestrian-vehicle collisions in the project area over the past 10 years would be helpful in identifying high hazard locations that could benefit from focused pedestrian design efforts. The environmental assessment should also consider how improvements in the pedestrian environment in the area may be feasible and provide appropriate mitigations.

The MCBC requests that the SAP environmental assessment includes the application of a Pedestrian Environmental Quality Index based on the alternatives presented in order to ensure a safe, inviting and user-friendly bicycle/pedestrian environment within the Planning Area.

Thank you for your careful consideration of our comments.

Sincerely,

Alisha Oloughlin, Planning Director
Marin County Bicycle Coalition



All variations of Option One start at Old Redwood Highway and Wornum Drive. Each follow the NWP ROW to the north towards the existing trestle over Corte Madera Creek.

1A New drawbridge and overcrossing of Sir Francis Drake Boulevard on alignment of existing trestle with ramp connection to SFDB paths.

1B New fixed bridge with channel clearance to allow vessels free passage beneath and overcrossing of Sir Francis Drake Boulevard on alignment of existing trestle with ramp connection to SFDB paths.

1C Path diverges from NWP ROW between mobile home park and Greenbrae Boardwalk to new path alongside US 101/SFDB off-ramp, leading to an overcrossing of Sir Francis Drake Boulevard.

Larkspur Trestle Bike Path Option 1

10/02

February 11, 2013

RECEIVED
FEB 11 2013
By

Neal Toft

Director of Planning and Building, City of Larkspur

400 Magnolia Avenue,

Larkspur, CA 94939

Subject: Environmental Impact Report, Larkspur SMART Station Area Plan

Dear Neal,

I am writing you to address my environmental concerns about the geographic area known as the Larkspur SMART Station Area Plan.

As a recent member of the Larkspur General Plan Citizens Advisory Committee, I was able to attend the October, 2012, National Oceanographic and Atmospheric Agency (NOAA) conference on "Adapting to Rising Tides". The conference was held to alert local governments about the pending impacts of climate change on the greater bay area.

1. I was stunned to learn about the large risk that 160,000 Bay Area residents residing along the bay's shore will face when the predicted increases in water level rise occur in the next ten to twenty years. The city of Larkspur has an enormous exposure to these potential impacts. Its citizens residing along Corte Madera Creek and on the San Francisco Bay are among those facing the increased vulnerability to flooding.

   NOAA scientists also stated their prediction that the number of Bay Area residents facing the risk will continue to increase if further development on the 180,000 acres at risk is allowed to continue. Within the next dozen years or so, the NOAA scientists stated that "water has a memory" and Bay waters will return to the areas where water historically flowed before the construction of levies, dams, walls, dunes, and landfill, etc. "Today's Flood is Tomorrow's High Tide" is the title of one of the many information sheets handed out to conference participants. It is also predicted that, of the San Francisco Bay's extensive tidal marshes and tidal flats (which help reduce shoreline flooding and erosion), will be severely affected by steep water level rise by 2050. These predictions are supported by the San Francisco Bay Conservation and Development Commission (BCDC) as well as the Pacific Institute.

1. Continued: The United States Geological Survey (USGS) had created a flooding map which clearly shows the area under consideration, the Larkspur SMART Station Plan, will be seriously affected by water level rise and tidal flooding.

2. In addition, through the course of LGPCAC meetings, information was provided by area residents of a section under study, the people residing in the Redwood Highway, about chronic street flooding occurring during most regular rain storms. This area of our city is where a large number of affordable housing units are located. Many of these units are mobile homes and tidal marsh cottages.

   Currently the City of Larkspur is under increased pressure from MTC and ABAG to intensify the development – "densify" – of affordable housing within the Larkspur SMART Station Area of Larkspur Landing and perhaps even the Redwood Highway area. In consideration of the creek and bay front flooding predictions, construction of this housing violates the notion of environmental justice, as it places an inequitable distribution of the environmental burden upon future affordable housing residents. The purpose of the environmental justice is to ensure that every citizen enjoys the same degree of protection from environmental and health hazards. In addition, I am concerned that some segments of the population in need of affordable housing have no current meaningful involvement in the decision making process of the Larkspur SMART Station Area Plan.

3. Much of the existing documentation about the SMART Station Plan area, including the definition of the 100-year flood plain, are based on dated studies of past water flow and precipitation. Now faced with the fact of climate change in addition predictions of increased flooding, Larkspur must use all new USGS, NOAA, San Francisco BCDC, Pacific Institute, etc. data at its disposal in order to face the new challenges presented by natural forces. We ignore new scientific warnings at the risk of unequal peril to our citizenry.

We must adopt regulatory and development policies that support the safety of all citizens of Larkspur. We must prepare for the change that is coming and protect our citizens with imagination and penetrating vision - otherwise our community stumbles into the future unprepared. We must consider the possibility that intensified development of the SMART Station Area for Larkspur Landing is not such a smart idea after all.

Sincerely,

Nancy A. Nakai

Nancy A. Nakai

14 Cedar Avenue

Larkspur, CA 94939

February 14, 2013

Neal Toft
Director of Planning and Building
City of Larkspur
ntoft@cityoflarkspur.org

From: Cindy Winter, cinhiver@yahoo.com

Re: Larkspur SMART Station Area Plan
Response to Notice of Preparation (NOP) of EIR

My response concerns transportation and circulation only. Until the challenges raised by traffic, transit, and non-motorized transporters have been resolved, no other issues, including the design and placement of buildings, can be addressed satisfactorily.

The area of the Larkspur SMART Station plan is tightly constrained – by steep hills, by waterfront, and by U.S. 101 and Sir Francis Drake Boulevard.

Given these constraints, the only way to achieve higher-density is to construct taller buildings. Higher density means more people will be living, working and shopping at Larkspur Landing. Most of them will have cars. However, as time passes, and as additional higher-density construction occurs beyond Larkspur Landing, but near it, there will not be enough space to accommodate all these additional vehicles on the roadways and in parking lots. The inevitable outcome will be massive gridlock.

See list of new developments (actual, planned, discussed) attached as Exhibit "A."

SUGGESTED SOLUTIONS:

I find it discouraging to hear so much analysis of parking lot capacity, when we should be concentrating on the relief of traffic congestion on East Sir Francis Drake. Parking availability will only encourage driving into the area. We need to move beyond our 1950's-era focus on cars and turn our thoughts to the future, guided by SB 375 and worries about the effects of climate change.

(A) Bicycles, pedestrians and the disabled: The "Spider web":

As with the new residences, offices and shops, the only way to accommodate increased transportation volumes will be to build up. Heavy traffic, i.e. motor vehicles, should continue to use existing roadways, but light-weight transporters, i.e. cyclists, pedestrians and the disabled, must be encouraged in this mode of travel by their own network of elevated pathways. Here, they will be able to move safely and conveniently, without fear of being hit by trucks or cars and without having to compete with traffic for road space. Nor will they delay traffic by frequent use of traffic signals at road intersections.

The Central Marin Ferry Connector Project is a good first step. I also propose:

(1) A bike/ped overcrossing (POC) from the SMART station across Larkspur Landing Circle and the parking lots on either side, and connecting with the ferry. The "dog leg" on the north side of East Sir Francis Drake could remain, but it points in the wrong direction for efficient ferry-train connection and some remediation would be needed.

(2) A POC at the southeast end of Larkspur Landing Circle, at the signalized intersection with East Sir Francis Drake. The multi-use path along the water is a pleasant place to walk, and while pedestrians may access it from the CMFCP, if walking is to be encouraged there should be equal access near its eastern end. Many residents in the area, and in the Bon Air Center/South Eliseo area, are older people who often stroll along Corte Madera Creek. Larkspur Landing should have its own recreational walkway by the water.

(3) Free flow of motor vehicle traffic on West Sir Francis Drake could be improved by a POC connecting Eliseo Drive and Barry Way.

(4) At some time in the distant future, a POC should be designed and built across Highway 101, joining the Greenbrae Hills and the SMART station.

I envision this network of overcrossings as an extremely useful and potentially beautiful "spider web."

Yes, these POC's would be costly to build. However, remarkably small expenditures on active transportation ("small" compared to road building) can allow key roadways to operate the same for automobiles today as they did 20 years ago, despite increased traffic demand – which Larkspur Landing will have, inevitably. See Geller, Roger, Bicycle Coordinator, City of Portland, *"Build It and They Will Come,"* 2011; two pages of graphs from this report are attached as Exhibit "B."

(B) Support bike/ped infrastructure in the vicinity of Larkspur Landing:

The Larkspur SMART Station Area Plan includes U.S. 101 from Wornum Drive north to Corte Madera Creek. GCIP's proposed abolishment of the POC is (a) contrary to 23 CFR 652, (b) blatantly contrary to Policy f, Larkspur's General Plan, and (c) broadly detrimental to bike/ped circulation. My responses to the GCIP DED are lengthy, thus not attached. Please advise if you would like a copy of this document.

Regarding traffic congestion at Larkspur Landing, it is critical that the many walkers and cyclists who live and work outside the Landing be persuaded to leave their cars at home and walk and cycle into it. It is not sufficient to concentrate on traffic solutions only within the Landing.

Regarding the SMART station and train ridership, it is highly likely that on weekends numerous cyclists from San Francisco and southern Marin County will set out for Larkspur Landing, to catch the train north. A POC over 101 will provide convenient and safe access to the station (the GCIP plans for Wornum and Redwood Highway are dangerous for cyclists, walkers, children, the elderly, the disabled).

Higher-density development means that population density along 101 will increase. More people will be desirous of crossing 101 and accessing the Landing by using a POC. That is why the Fehr & Peers survey "Memorandum" fails. It is merely a snapshot in time, as of March 2012. Regarding future needs for a POC, it is irrelevant.

It is imperative that the Larkspur Station Area planning process fully support the inclusion in GCIP of a POC, roughly from Fifer Avenue to Industrial Way. It is also imperative that should additional bike/ped infrastructure be proposed in areas outside Larkspur Landing and within cycling and/or walking distance to it, that the Larkspur Station planners fully support that as well.

(C) Define the term "transit-oriented":

I believe that a more precise definition of what this term means would aid in planning.

We have a ferry, and there will be a train. Both qualify as public transit.

However, to the extent bus transit is to be relied on, more thought needs to be given to the details. If buses are to persuade residents to leave their cars at home, they must be efficient, safe, convenient, comfortable and inexpensive. I have been thinking about bus transit in connection with GCIP, where the bus stop arrangements have been poorly designed, in my view as a former long-time bus commuter.

Buses must stop to pick up passengers, which slows their progress, and as long as buses must share lanes with traffic, their speed will be further curtailed if traffic is slow. Logically, this means that buses should have their own dedicated lanes that cannot be used by any other kinds of vehicles, and buses should be given free-flow priority at intersections. That concept means taking a lane of freeway for buses only, which would no doubt be controversial. Nonetheless, the concept needs full and frank discussion.

If bus transit cannot be made efficient and popular, then what??? We have no reasonable space to widen our roadways in the Greenbrae/Larkspur Landing/Corte Madera area. Double-deck roadways could be built, but nobody wants that, and given sea level rise, it would be prohibitively expensive to raise two levels of traffic lanes above the waters as they rose.

(D) Old-fashioned elevated trams:

Sea level rise is occurring. That more will occur is guaranteed, even though the precise extent cannot be predicted. See the sobering Figure 2-22 contained in the GCIP DED. To prepare for this "sure uncertainty," we need a transportation system that does not rely on massive amounts of concrete that are difficult and extremely costly to raise and reconfigure as time passes.

As a possible solution, let's consider an old-fashioned elevated rail system. We know we're faced with having to eventually build a causeway, from Wornum Drive to the hills north of the creek. The causeway would be needed to elevate traffic above floods that will become longer-lasting, and then permanent, as time passes.

A relatively lightweight raised rail structure could be adapted fairly easily to changing conditions. The vehicles on the rail tracks would be small, not heavy like the SMART cars; instead they would be simple and inexpensive people pods that would run in a never-ending stream, at intervals of only a few minutes. Ideally, users would pay no fares.

The route: I propose that the route follow, roughly, the outlines of the station area plan, though omitting the Greenbrae hills. The elevated tramway would serve local residents, workers, and shoppers, by enabling them to travel easily, without driving, from, say, the Marin Country Mart to Bon Air Shopping Center and then on to Trader Joe's and home again. Ingenious engineering would be required, but we need to explore this option seriously.

(E) Traffic to/from Richmond Bridge:

This traffic might be tolled, hence somewhat diminished, by requiring the use of transponders, similar to FasTrack, at key points along the route. Would this be technically feasible? Legal?

(F) Meanwhile:

As soon as possible, let's build the very best bike/ped "spider web" that can be designed. Based on the Portland experience, good multi-use pathways should significantly restrict the rate of growth of traffic, thus buying us some time to plan for 2050 and beyond.

Respectfully submitted,

Cindy Winter

Cindy Winter
cinhiver@yahoo.com

Ms. Cindy M. Winter
336 Bon Air Ctr # 108
Greenbrae, CA 94904-3017

January 22, 2013

New developments under way/planned/discussed for GCIP area:

*MND 1. MacFarlane Partners, 185 new units + mixed use, old Wincup site, Wornum and Tamal Vista.

*MND 2. Rose Lane (also known as Rose Garden), Doherty Drive, Larkspur, 85+6 = 91 new units, The New Home Company.

3. Larkspur Library, Doherty Drive. Many amenities and activities are being planned. The new library will be so close to East Larkspur (as the crow flies) that it would seem a shame if patrons couldn't walk safely to it on a nice day.

4. Fifer Avenue: A large property owner is reported to be considering redevelopment similar to the MacFarlane project.

*MND 2 only 5. Higher-density development is under serious and on-going discussion for Larkspur Landing, in connection with SMART station planning. The GCIP freeway Mitigated Negative Declaration lists Drake's Way -- 24 residential units, and Drake's Cove -- 126 residential units + hotel and mixed use. See page 1-21 of the MND. However, since this portion of the MND was prepared, the Larkspur Landing discussions have expanded to include a number of additional sites and other changes.

6. Higher-density development has been suggested for Bon Air Shopping Center.

7. Higher-density development has been suggested for Drakes Landing.

8. College of Marin is under reconstruction, to attract more students.

9. SMART train station and Central Marin Ferry Connector Project.

10. Alto Tunnel will open some day; geography, population, and evolving attitudes make it inevitable.

Many drivers attracted to Nos. 11, 12 and 13 would probably use Tamalpais Drive, but some (an unknown number) would be attracted in the direction of Trader Joe's and Wornum:

11. Larkspur-Corte Madera School District, new elementary school, San Clemente Drive.

Continued...

*See MND, page 1-21.

12. The Village: Nordstrom's is under renovation, and the shopping center parking will be renovated to accommodate more vehicles more easily.

13. Madera Vista Apartments, off Paradise Drive in Corte Madera, 126 vacant units, to be renovated (building permit has been issued).

AND FINALLY:

14. What would traffic be like were San Quentin moved from Marin?

Prepared by Cindy Winter
cinhiver@yahoo.com
(Resident of Greenbrae)

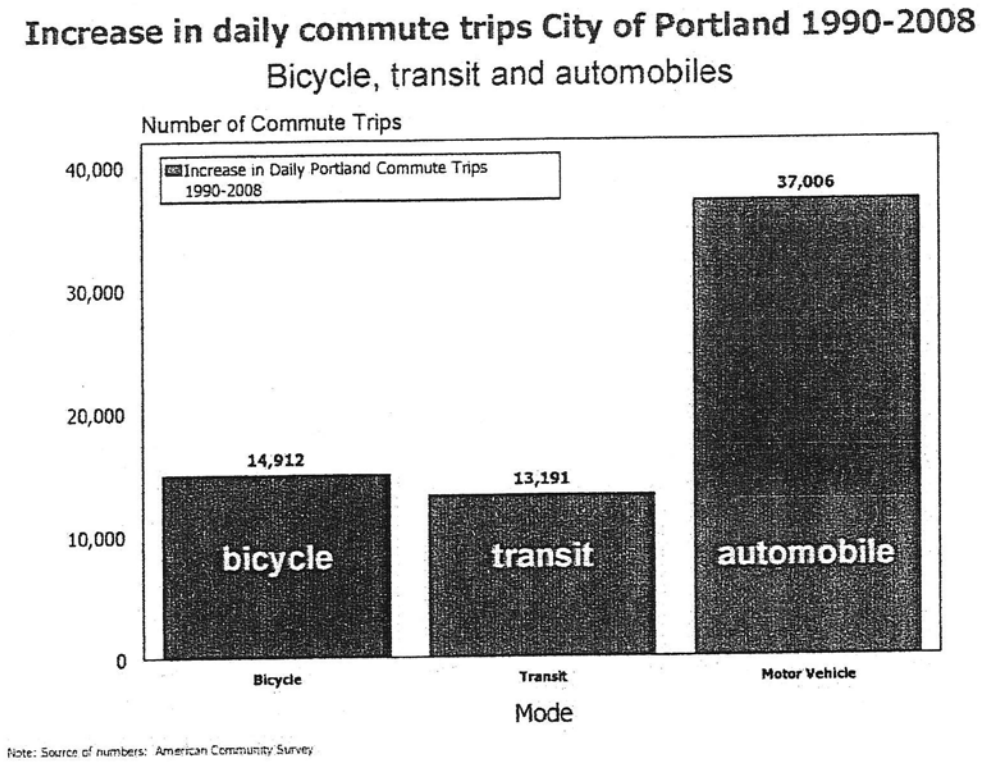


Figure 11. Change in daily commute trips by mode 1990-2008

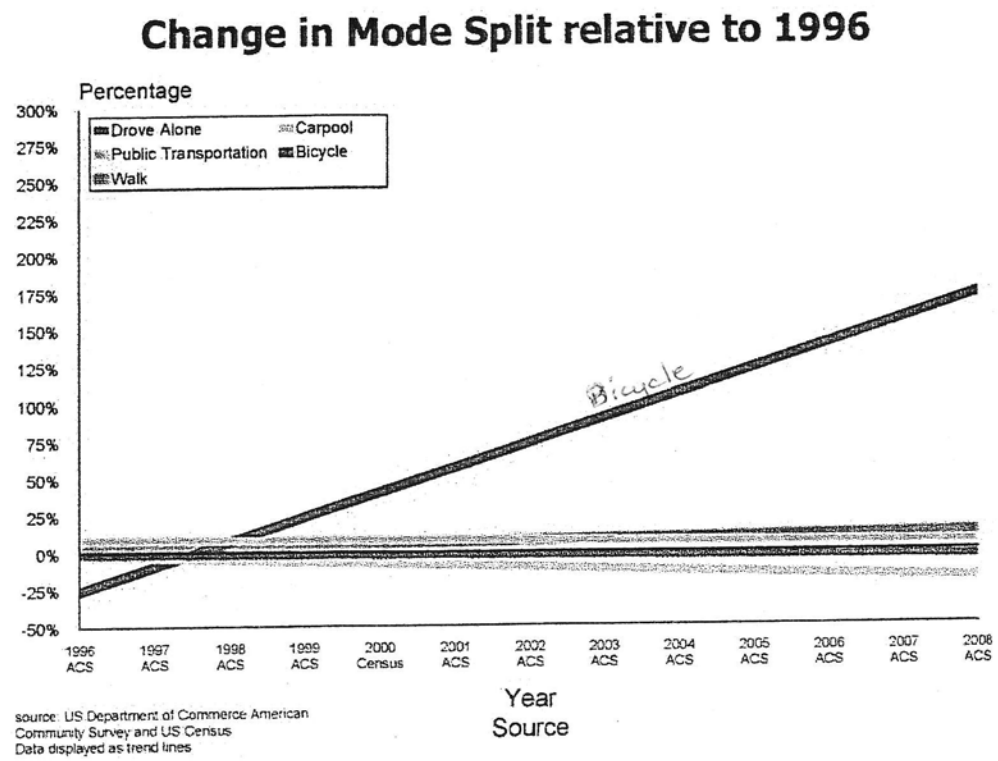


Figure 12. Change in mode split relative to 1996 (Trend Line)

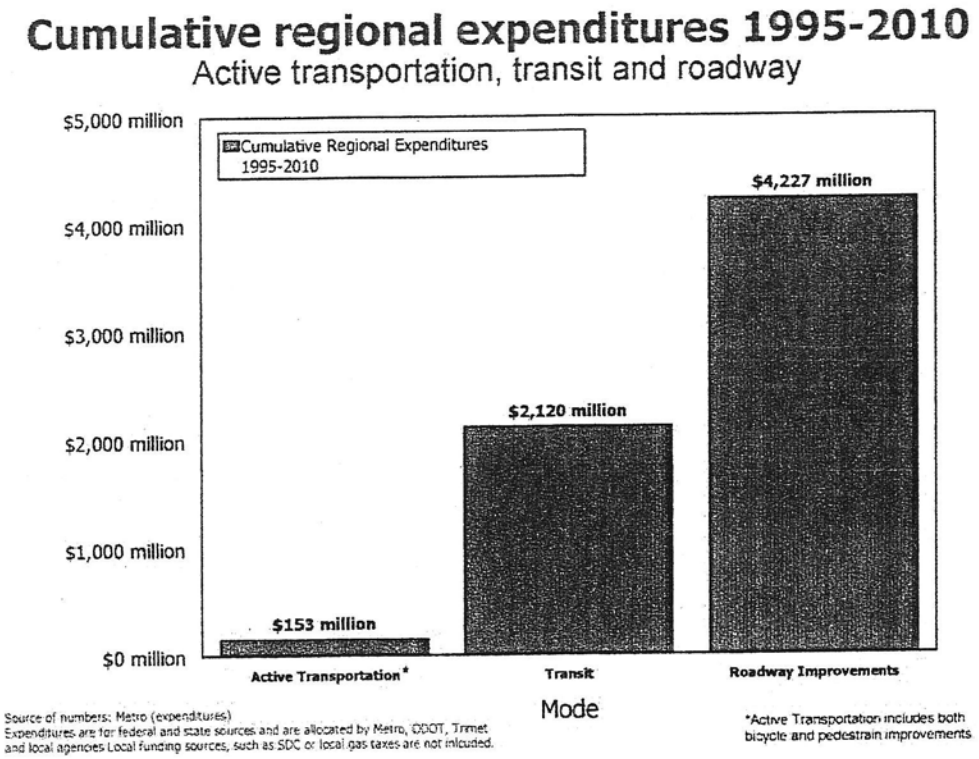


Figure 13. Cumulative regional capitol expenditures in transportation 1995-2010

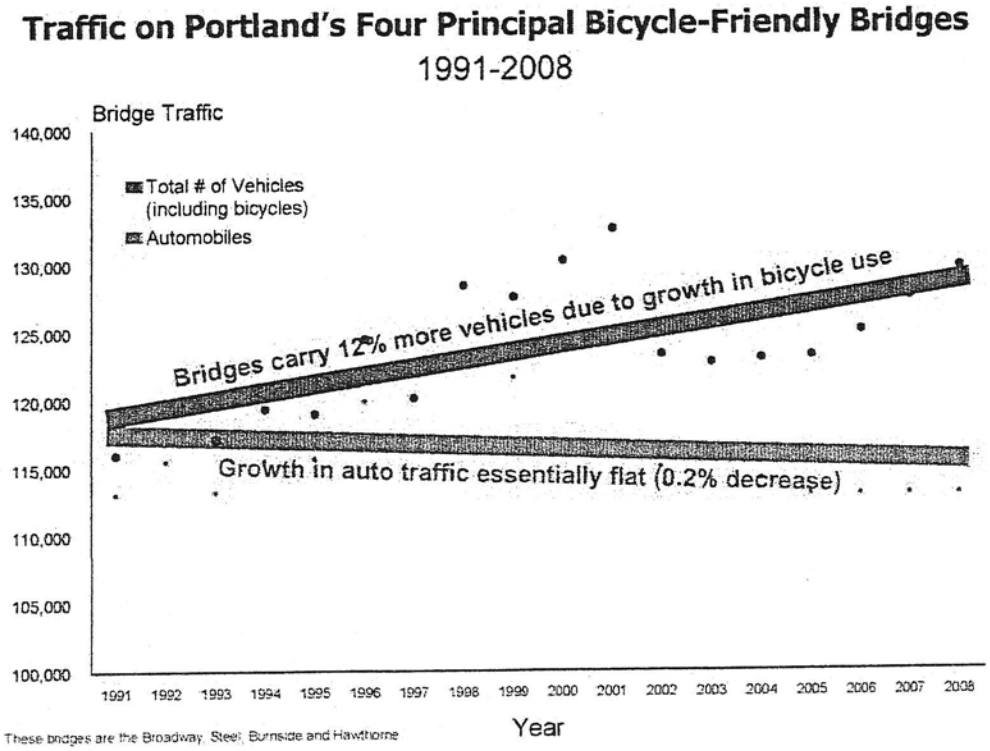


Figure 14. Increased demand for mobility largely met by bicycles on four principal Portland bridges

From: Neal Toft
To: Julia Capasso
Subject: FW: EIR scoping questions for SMART SAP
Date: Friday, February 15, 2013 4:11:59 PM

Julia,

Please add to NOP Comments

Neal

-----Original Message-----
From: Jean [mailto:jsever117@gmail.com]
Sent: Friday, February 15, 2013 3:45 PM
To: Neal Toft
Subject: EIR scoping questions for SMART SAP

Re NOP for EIR Scope, Larkspur SMART Station Area Plan(SAP)

Neal,
Please include these questions in the EIR for the SMART SAP.
Thank you!

1) Circulation SAP
This is the hub of the regional network. Within the narrow scope of the plan area, including Redwood Highway North, how can the plan make sure to accommodate all users accessing that area and that station by bike? On foot? By bus? What routes provide the conflict-free and fast connectivity within the area connecting to downtown Larkspur? To all major employment centers and likely destinations for the 60% of arriving users who are going to jobs, shopping and business in Central Marin? To the minority 40% going on to San Francisco by bus or ferry per the ridership studies?
Where will users coming to employment in Marin store their bicycles near the station overnight? Many may choose to store a car overnight near the station and take SMART rather than drive and sit in the demoralizing traffic jam coming south from Sonoma County that occurs every single morning. How can they best be encouraged to store a bike overnight instead of a car to reduce traffic capacity? Could a locked roofed secure bike parking shelter for 300 bikes be built near the corner of Larkspur Landing Circle on 4 spaces of Airporter Land central to ferry and train and Airporter? What will be the impact of not providing ample secure overnight bike parking?
Where will train users coming south store their cars overnight near the station? What will be the impact of that?
The fastest route to downtown Larkspur by bike and on foot is via the Pedestrian Overcrossing (POC) at Lucky drive: what can the SAP do to ensure that this fastest route remains accessible to SMART users, and is made ADA compliant? The route crossing under 101 north of the creek to the westside bridge is 3/4 miles from the RR ROW at SFD to Lucky Dr versus 1/2 mile from the RR ROW/SFD to Lucky Dr via Redwood Hwy and the Lucky POC.
Can SMART ask the GCIP/CALTRANS and TAM to meet SMART's needs for connectivity since the POC is within the Plan area and is critical for reducing traffic congestion by cars within the station area.
Can Larkspur ask the GCIP the same?
What changes can be made to code so that all new residential structures will build bicycle parking and pathway access and sidewalks to encourage reduced car use? Likewise code changes to require bicycle parking for all new businesses and hotels?
Can code be changed to offer housing with only 1 or some units with no car parking space at a reduced rate?
What kind of bicycle map could be provided to SAP users showing times by bike at 10mph speed and by foot at 3mph speed on each of the regional multi use paths(MUP) connecting to the station area to destinations within 15 minutes, 20 minutes and 30 minutes to educate and encourage area users to walk or bike rather than driving cars out of or into the station area, since traffic is already at or near capacity much of the day? At 10mph where could a user get from the station by bike on the MUP in going to work in 15 minutes? Where a walker? I think the Sonoma County train riders will be super

motivated to get to their destinations by any means because of the misery of the drive they will be avoiding. Can we ask them if they will walk or ride a bike at this terminus and how much time they would be willing to spend getting the distance from the train to their employment or other destinations? Where are their jobs in Central Marin? Are they close enough to get to in a 15 minute bike ride? A 15 minute walking trip? What can be done to make those trips better? What can be done to maximize the distance train riders are able to travel in that 15 minute time amount?
What impact would reducing cars by 300 and bike/walking trips have on capacity? Would it allow for more TOD housing units? The area is very attractive and will likely be desired by large numbers of seniors downsizing from big Marin houses; under supply will likely be a problem.
What aspects of the planned bicycle and pedestrian paths will be under FEMA's new 9' 100 year flood line? What will happen to the circulation during more frequent times of increased flooding with climate change?
Where does BCDC's 16" increase by 2050 flood line fall in the station area and connecting to the MUPaths users will be accessing on bike or foot from the train? From the ferry? In Redwood Highway area?
What would be the flooded condition advantage for SAP circulation of continuing the CMFC elevated above flooding across Corte Madera Creek and south on the SMART RR ROW?
How will fire-trucks and safety services circulate during high water conditions?
What can be done to make the Larkspur Landing area less isolated? The Redwood Highway area less isolated? Can Larkspur support building a recreational trail on the levees behind Redwood Highway North?
Station to ferry bike/ped access is currently planned via parking lots which provide numerous conflict points and are unsafe. What is the time to arrive from station platform to ferry entrance via this planned route? Would it be better and financially possible to make a dedicated stairs and path separate from cars between the Airporter and back of the Cinema building to the street from near the end of the top of the "U" ramp of the Cal Park path directly down to Larkspur Landing Circle(LLC), then continue on the street to the corner at the south corner of the Airporter, and a new crosswalk across LLC, then to the SFD pedestrian signal and on to the ferry? I walked this route and found it took 5.5 minutes. The planned route is circuitous via the shopping center and took 7.5 minutes; it is longer. Walkers tend to take the shortest path; what would it cost to build this route for walkers? What impacts would a faster walking path from station platform to ferry have on the SAP, and could it make shuttles or special bridges or moving the station to the ferry less attractive in cost/benefit ratio?
The SMART plan is a pathway as well as train. Once the pathway segments to the north are connected by SMART, do we know how many more bicyclists will come and go via the SAP area? What will be the impact if many recreational riders and tourists come by bike and ferry from San Francisco to go north on the train and path? Do the planned routes adequately serve numerous tourists coming north or Ballpark bound fans heading south from the Airporter/SMART parking lots?
What would be the impact on car traffic on East SFD, and can Larkspur work with GCIP/Caltrans to request this, to rename all "Richmond Bridge" signs on 101 NB as "East Sir Francis Drake?" Sausalito did similarly a number of years ago with "Alexander Ave" and successfully cut congestion on Bridgeway.
Can housing density figures be tied to traffic capacity such that incentives are built in to pay for non-car features and thus make room for desired densities?
With good advance planning for circulation for all modes of users besides cars, we have a chance to fulfill the dream of walkable neighborhoods, attractive transit oriented high density housing, and regional travelers. Without careful attention to connectivity for multimodal users we will have traffic at capacity, reduced air quality, increased greenhouse gas emissions and increasing contributions to climate change.
Respectfully submitted by
Jean Severinghaus
2/15/13
Greenbrae Boardwalk Designated Representative to the Larkspur SMART SAP CAC Executive Board Member, Greenbrae Boardwalk
117 Greenbrae Boardwalk
Greenbrae, CA 94904
415-577-3227
Jsever117@gmail.com

--
Sent from my mobile device

APPENDIX B

TRANSPORTATION DATA

APPENDIX A

TRAFFIC COUNTS

APPENDIX A-1

COMPARISON OF TRAFFIC COUNTS ON SIR FRANCIS DRAKE BOULEVARD AT LARKSPUR LANDING (2006 TO 2011)

Summary of Traffic Volumes along Sir Francis Drake Boulevard at Larkspur Landing								
	2006 Traffic Volumes[1]		2011 Traffic Volumes[2]		Net Change Traffic Volumes		Percentage Change Traffic Volumes	
	AM	PM	AM	PM	AM	PM	AM	PM
In/Out Larkspur Landing West	620	870	641	1,066	21	196	3%	23%
In/Out Larkspur Landing East	308	701	248	437	-60	-264	-19%	-38%
Sub-Total	*928*	*1,571*	*889*	*1,503*	*-39*	*-68*	-4%	-4%
In/Out Larkspur Ferry Terminal	690	570	771	632	81	62	12%	11%
Total	**1,618**	**2,141**	**1,660**	**2,135**	**42**	**-6**	3%	0%
Eastbound Through Trips	1,126	1,074	906	1,250	-220	176	-20%	16%
Westbound through Trips	1,348	988	1,188	874	-160	-114	-12%	-12%
Total	**2,474**	**2,062**	**2,094**	**2,124**	**-380**	**62**	-15%	3%

Notes:

1. From Greenbrae Corridor Improvement Project,. Fehr & Peers, 2011.

2. From Task 2A: Draft Existing Conditions Analysis, MTC Program for Arterial System Synchronization for Marin County, City of Larkspur, and Caltrans. TJKM, 2011.

Source: Fehr & Peers, 2012

APPENDIX A-2

2006 INTERSECTION TURNING MOVEMENT COUNTS

Traffic Data Service

1386 White Oaks Road, Suite 1
Campbell, CA 95008
tdsbay@cs.com

File Name : 2AMFINAL
Site Code : 00000002
Start Date : 9/12/2006
Page No : 1

Groups Printed- Vehicles

	WOLFE GRADE Southbound					SIR FRANCIS DRAKE BLVD Westbound					DRIVEWAY Northbound					SIR FRANCIS DRAKE BLVD 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
Factor	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		
07:00 AM	27	1	54	1	83	21	126	0	0	147	0	0	1	0	1	1	227	5	0	233	464
07:15 AM	37	1	90	0	128	23	180	2	1	206	3	0	1	2	6	3	290	12	0	305	645
07:30 AM	49	4	113	0	166	45	243	13	0	301	0	0	2	3	5	1	322	14	0	337	809
07:45 AM	68	8	143	0	219	33	268	22	24	347	10	0	6	9	25	17	294	30	0	341	932
Total	181	14	400	1	596	122	817	37	25	1001	13	0	10	14	37	22	1133	61	0	1216	2850
08:00 AM	69	7	61	1	138	33	268	63	41	405	57	6	22	41	126	56	263	31	0	350	1019
08:15 AM	70	10	74	1	155	44	247	17	19	327	37	5	18	19	79	12	405	56	0	473	1034
08:30 AM	52	4	78	0	134	34	210	8	10	262	6	0	2	4	12	2	264	30	0	296	704
08:45 AM	74	3	93	0	170	38	252	4	2	296	4	4	2	1	11	7	297	50	0	354	831
Total	265	24	306	2	597	149	977	92	72	1290	104	15	44	65	228	77	1229	167	0	1473	3588
Grand Total	446	38	706	3	1193	271	1794	129	97	2291	117	15	54	79	265	99	2362	228	0	2689	6438
Apprch %	37.4	3.2	59.2	0.3		11.8	78.3	5.6	4.2		44.2	5.7	20.4	29.8		3.7	87.8	8.5	0		
Total %	6.9	0.6	11	0	18.5	4.2	27.9	2	1.5	35.6	1.8	0.2	0.8	1.2	4.1	1.5	36.7	3.5	0	41.8	

	WOLFE GRADE Southbound					SIR FRANCIS DRAKE BLVD Westbound					DRIVEWAY Northbound					SIR FRANCIS DRAKE BLVD 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 07:30 AM																					
07:30 AM	49	4	113	0	166	**45**	243	13	0	301	0	0	2	3	5	1	322	14	0	337	809
07:45 AM	68	8	**143**	0	**219**	33	**268**	22	24	347	10	0	6	9	25	17	294	30	0	341	932
08:00 AM	69	7	61	**1**	138	33	268	**63**	**41**	**405**	**57**	**6**	**22**	**41**	**126**	**56**	263	31	0	350	1019
08:15 AM	**70**	**10**	74	1	155	44	247	17	19	327	37	5	18	19	79	12	**405**	**56**	0	**473**	**1034**
Total Volume	256	29	391	2	678	155	1026	115	84	1380	104	11	48	72	235	86	1284	131	0	1501	3794
% App. Total	37.8	4.3	57.7	0.3		11.2	74.3	8.3	6.1		44.3	4.7	20.4	30.6		5.7	85.5	8.7	0		
PHF	.914	.725	.684	.500	.774	.861	.957	.456	.512	.852	.456	.458	.545	.439	.466	.384	.793	.585	.000	.793	.917

Traffic Data Service

1386 White Oaks Road, Suite 1
Campbell, CA 95008
tdsbay@cs.com

File Name : 2PMFINAL
Site Code : 00000002
Start Date : 9/12/2006
Page No : 1

Groups Printed- Vehicles

	WOLFE GRADE Southbound					SIR FRANCIS DRAKE BLVD Westbound					DRIVEAWAY Northbound					SIR FRANCIS DRAKE BLVD 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
Factor	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		
04:00 PM	33	0	56	0	89	142	277	1	0	420	2	1	0	0	3	4	299	94	0	397	909
04:15 PM	27	1	56	0	84	146	297	0	0	443	3	3	6	2	14	1	267	75	0	343	884
04:30 PM	43	0	42	0	85	155	309	2	1	467	5	5	1	0	11	2	248	67	0	317	880
04:45 PM	36	0	56	0	92	125	274	4	0	403	2	0	1	0	3	6	271	62	0	339	837
Total	139	1	210	0	350	568	1157	7	1	1733	12	9	8	2	31	13	1085	298	0	1396	3510
05:00 PM	40	1	48	0	89	133	291	5	1	430	1	3	1	0	5	7	263	92	0	362	886
05:15 PM	23	0	70	0	93	132	315	9	0	456	4	0	14	1	19	12	286	59	0	357	925
05:30 PM	54	0	80	1	135	140	345	1	0	486	7	0	4	0	11	2	274	51	0	327	959
05:45 PM	75	0	62	0	137	112	339	2	1	454	3	1	3	2	9	0	240	45	0	285	885
Total	192	1	260	1	454	517	1290	17	2	1826	15	4	22	3	44	21	1063	247	0	1331	3655
Grand Total	331	2	470	1	804	1085	2447	24	3	3559	27	13	30	5	75	34	2148	545	0	2727	7165
Apprch %	41.2	0.2	58.5	0.1		30.5	68.8	0.7	0.1		36	17.3	40	6.7		1.2	78.8	20	0		
Total %	4.6	0	6.6	0	11.2	15.1	34.2	0.3	0	49.7	0.4	0.2	0.4	0.1	1	0.5	30	7.6	0	38.1	

	WOLFE GRADE Southbound					SIR FRANCIS DRAKE BLVD Westbound					DRIVEAWAY Northbound					SIR FRANCIS DRAKE BLVD 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	40	**1**	48	0	89	133	291	5	**1**	430	1	**3**	1	0	5	7	263	**92**	0	**362**	886
05:15 PM	23	0	70	0	93	132	315	**9**	0	456	4	0	**14**	1	**19**	**12**	**286**	59	0	357	925
05:30 PM	54	0	**80**	**1**	135	**140**	**345**	1	0	**486**	**7**	0	4	0	11	2	274	51	0	327	**959**
05:45 PM	**75**	0	62	0	**137**	112	339	2	1	454	3	1	3	**2**	9	0	240	45	0	285	885
Total Volume	192	1	260	1	454	517	1290	17	2	1826	15	4	22	3	44	21	1063	247	0	1331	3655
% App. Total	42.3	0.2	57.3	0.2		28.3	70.6	0.9	0.1		34.1	9.1	50	6.8		1.6	79.9	18.6	0		
PHF	.640	.250	.813	.250	.828	.923	.935	.472	.500	.939	.536	.333	.393	.375	.579	.438	.929	.671	.000	.919	.953

Traffic Data Service

1386 White Oaks Road, Suite 1
Campbell, CA 95008
tdsbay@cs.com

File Name : 3AMFINAL
Site Code : 00000003
Start Date : 9/13/2006
Page No : 1

Groups Printed- Vehicles

	Southbound					SIR FRANCIS DRAKE BLVD Westbound					BON AIR RD Northbound					SIR FRANCIS DRAKE BLVD 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
Factor	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		
07:00 AM	0	0	0	0	0	0	120	90	0	210	54	0	27	0	81	41	289	0	0	330	621
07:15 AM	0	0	0	0	0	0	180	98	3	281	78	0	25	1	104	53	293	0	0	346	731
07:30 AM	0	0	0	0	0	0	207	149	2	358	131	0	49	0	180	144	311	0	0	455	993
07:45 AM	0	0	0	0	0	0	226	237	10	473	150	0	81	2	233	149	285	0	0	434	1140
Total	0	0	0	0	0	0	733	574	15	1322	413	0	182	3	598	387	1178	0	0	1565	3485
08:00 AM	0	0	0	0	0	0	218	212	8	438	123	0	71	0	194	115	274	0	0	389	1021
08:15 AM	0	0	0	0	0	0	196	195	5	396	79	0	66	3	148	130	299	0	0	429	973
08:30 AM	0	0	0	0	0	0	169	139	0	308	128	0	52	4	184	94	238	0	0	332	824
08:45 AM	0	0	0	0	0	0	144	202	0	346	107	0	61	1	169	85	265	0	1	351	866
Total	0	0	0	0	0	0	727	748	13	1488	437	0	250	8	695	424	1076	0	1	1501	3684
Grand Total	0	0	0	0	0	0	1460	1322	28	2810	850	0	432	11	1293	811	2254	0	1	3066	7169
Apprch %	0	0	0	0		0	52	47	1		65.7	0	33.4	0.9		26.5	73.5	0	0		
Total %	0	0	0	0	0	0	20.4	18.4	0.4	39.2	11.9	0	6	0.2	18	11.3	31.4	0	0	42.8	

	Southbound					SIR FRANCIS DRAKE BLVD Westbound					BON AIR RD Northbound					SIR FRANCIS DRAKE BLVD 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 07:30 AM																					
07:30 AM	0	0	0	0	0	0	207	149	2	358	131	0	49	0	180	144	**311**	0	0	**455**	993
07:45 AM	0	0	0	0	0	0	**226**	**237**	**10**	**473**	**150**	0	**81**	2	**233**	**149**	285	0	0	434	**1140**
08:00 AM	0	0	0	0	0	0	218	212	8	438	123	0	71	0	194	115	274	0	0	389	1021
08:15 AM	0	0	0	0	0	0	196	195	5	396	79	0	66	**3**	148	130	299	0	0	429	973
Total Volume	0	0	0	0	0	0	847	793	25	1665	483	0	267	5	755	538	1169	0	0	1707	4127
% App. Total	0	0	0	0		0	50.9	47.6	1.5		64	0	35.4	0.7		31.5	68.5	0	0		
PHF	.000	.000	.000	.000	.000	.000	.937	.836	.625	.880	.805	.000	.824	.417	.810	.903	.940	.000	.000	.938	.905

Traffic Data Service

1386 White Oaks Road, Suite 1
Campbell, CA 95008
tdsbay@cs.com

File Name : 3PMFINAL
Site Code : 00000003
Start Date : 9/13/2006
Page No : 1

Groups Printed- Vehicles

	Southbound					SIR FRANCIS DRAKE BLVD Westbound					BON AIR RD Northbound					SIR FRANCIS DRAKE BLVD 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
Factor	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		
04:00 PM	0	0	0	0	0	0	296	115	2	413	178	0	93	0	271	71	269	0	0	340	1024
04:15 PM	0	0	0	0	0	0	317	101	5	423	148	0	111	4	263	19	182	0	0	201	887
04:30 PM	0	0	0	0	0	0	314	118	3	435	136	0	104	0	240	51	276	0	0	327	1002
04:45 PM	0	0	0	0	0	0	274	114	2	390	117	0	124	1	242	51	178	0	0	229	861
Total	0	0	0	0	0	0	1201	448	12	1661	579	0	432	5	1016	192	905	0	0	1097	3774
05:00 PM	0	0	0	0	0	0	281	133	6	420	122	0	126	0	248	56	245	0	0	301	969
05:15 PM	0	0	0	0	0	0	315	123	1	439	125	0	108	0	233	34	235	0	0	269	941
05:30 PM	0	0	0	0	0	0	295	130	2	427	106	0	120	0	226	57	297	0	0	354	1007
05:45 PM	0	0	0	0	0	0	332	111	0	443	140	0	94	0	234	62	297	0	0	359	1036
Total	0	0	0	0	0	0	1223	497	9	1729	493	0	448	0	941	209	1074	0	0	1283	3953
Grand Total	0	0	0	0	0	0	2424	945	21	3390	1072	0	880	5	1957	401	1979	0	0	2380	7727
Apprch %	0	0	0	0		0	71.5	27.9	0.6		54.8	0	45	0.3		16.8	83.2	0	0		
Total %	0	0	0	0	0	0	31.4	12.2	0.3	43.9	13.9	0	11.4	0.1	25.3	5.2	25.6	0	0	30.8	

	Southbound					SIR FRANCIS DRAKE BLVD Westbound					BON AIR RD Northbound					SIR FRANCIS DRAKE BLVD 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	0	0	0	0	0	281	**133**	**6**	420	122	0	**126**	0	**248**	56	245	0	0	301	969
05:15 PM	0	0	0	0	0	0	315	123	1	439	125	0	108	0	233	34	235	0	0	269	941
05:30 PM	0	0	0	0	0	0	295	130	2	427	106	0	120	0	226	57	**297**	0	0	354	1007
05:45 PM	0	0	0	0	0	0	**332**	111	0	**443**	**140**	0	94	0	234	**62**	297	0	0	**359**	**1036**
Total Volume	0	0	0	0	0	0	1223	497	9	1729	493	0	448	0	941	209	1074	0	0	1283	3953
% App. Total	0	0	0	0		0	70.7	28.7	0.5		52.4	0	47.6	0		16.3	83.7	0	0		
PHF	.000	.000	.000	.000	.000	.000	.921	.934	.375	.976	.880	.000	.889	.000	.949	.843	.904	.000	.000	.893	.954

Traffic Data Service

1386 White Oaks Road, Suite 1
Campbell, CA 95008
tdsbay@cs.com

File Name : 4AMFINAL
Site Code : 00000004
Start Date : 9/13/2006
Page No : 1

Groups Printed- Vehicles

	ELISEO DR Southbound					SIR FRANCIS DRAKE BLVD Westbound					BARRY WY Northbound					SIR FRANCIS DRAKE BLVD 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
Factor	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		
07:00 AM	2	10	28	1	41	4	279	42	1	326	33	4	6	2	45	2	323	0	3	328	740
07:15 AM	12	12	39	0	63	2	297	114	0	413	51	6	9	0	66	5	411	0	2	418	960
07:30 AM	16	7	65	0	88	6	445	108	1	560	70	7	20	2	99	3	499	2	3	507	1254
07:45 AM	50	13	80	1	144	19	468	110	0	597	117	6	11	2	136	7	485	3	8	503	1380
Total	80	42	212	2	336	31	1489	374	2	1896	271	23	46	6	346	17	1718	5	16	1756	4334
08:00 AM	70	21	52	0	143	13	459	116	0	588	137	9	5	0	151	14	480	6	1	501	1383
08:15 AM	3	10	30	2	45	13	363	123	2	501	125	1	8	3	137	16	475	30	2	523	1206
08:30 AM	11	15	20	2	48	8	378	132	3	521	111	4	8	4	127	22	395	17	6	440	1136
08:45 AM	16	13	30	2	61	12	426	128	2	568	80	2	5	2	89	8	396	6	6	416	1134
Total	100	59	132	6	297	46	1626	499	7	2178	453	16	26	9	504	60	1746	59	15	1880	4859
Grand Total	180	101	344	8	633	77	3115	873	9	4074	724	39	72	15	850	77	3464	64	31	3636	9193
Apprch %	28.4	16	54.3	1.3		1.9	76.5	21.4	0.2		85.2	4.6	8.5	1.8		2.1	95.3	1.8	0.9		
Total %	2	1.1	3.7	0.1	6.9	0.8	33.9	9.5	0.1	44.3	7.9	0.4	0.8	0.2	9.2	0.8	37.7	0.7	0.3	39.6	

	ELISEO DR Southbound					SIR FRANCIS DRAKE BLVD Westbound					BARRY WY Northbound					SIR FRANCIS DRAKE BLVD 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 07:30 AM																					
07:30 AM	16	7	65	0	88	6	445	108	1	560	70	7	**20**	2	99	3	**499**	2	3	507	1254
07:45 AM	50	13	**80**	1	**144**	**19**	**468**	110	0	**597**	117	6	11	2	136	7	485	3	**8**	503	1380
08:00 AM	**70**	**21**	52	0	143	13	459	116	0	588	**137**	**9**	5	0	**151**	14	480	6	1	501	**1383**
08:15 AM	3	10	30	**2**	45	13	363	**123**	**2**	501	125	1	8	**3**	137	**16**	475	**30**	2	**523**	1206
Total Volume	139	51	227	3	420	51	1735	457	3	2246	449	23	44	7	523	40	1939	41	14	2034	5223
% App. Total	33.1	12.1	54	0.7		2.3	77.2	20.3	0.1		85.9	4.4	8.4	1.3		2	95.3	2	0.7		
PHF	.496	.607	.709	.375	.729	.671	.927	.929	.375	.941	.819	.639	.550	.583	.866	.625	.971	.342	.438	.972	.944

Traffic Data Service

1386 White Oaks Road, Suite 1
Campbell, CA 95008
tdsbay@cs.com

File Name : 4PMFINAL
Site Code : 00000004
Start Date : 9/13/2006
Page No : 1

Groups Printed- Vehicles

	ELISEO DR Southbound					SIR FRANCIS DRAKE BLVD Westbound					BARRY WY Northbound					SIR FRANCIS DRAKE BLVD 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
Factor	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		
04:00 PM	15	11	20	0	46	36	396	100	0	532	100	6	29	1	136	12	420	28	1	461	1175
04:15 PM	27	38	46	0	111	22	392	121	0	535	63	13	36	0	112	20	407	34	0	461	1219
04:30 PM	24	18	33	0	75	23	429	106	0	558	61	22	35	0	118	18	413	25	0	456	1207
04:45 PM	9	18	34	2	63	23	399	141	1	564	64	6	33	2	105	8	370	17	2	397	1129
Total	75	85	133	2	295	104	1616	468	1	2189	288	47	133	3	471	58	1610	104	3	1775	4730
05:00 PM	12	10	20	0	42	10	391	131	0	532	69	15	15	0	99	14	368	18	0	400	1073
05:15 PM	20	13	31	0	64	18	478	115	0	611	57	13	17	0	87	9	400	20	0	429	1191
05:30 PM	14	9	21	0	44	39	497	100	0	636	53	10	24	1	88	10	395	13	4	422	1190
05:45 PM	11	11	19	3	44	34	496	120	0	650	77	15	18	4	114	14	371	15	6	406	1214
Total	57	43	91	3	194	101	1862	466	0	2429	256	53	74	5	388	47	1534	66	10	1657	4668
Grand Total	132	128	224	5	489	205	3478	934	1	4618	544	100	207	8	859	105	3144	170	13	3432	9398
Apprch %	27	26.2	45.8	1		4.4	75.3	20.2	0		63.3	11.6	24.1	0.9		3.1	91.6	5	0.4		
Total %	1.4	1.4	2.4	0.1	5.2	2.2	37	9.9	0	49.1	5.8	1.1	2.2	0.1	9.1	1.1	33.5	1.8	0.1	36.5	

	ELISEO DR Southbound					SIR FRANCIS DRAKE BLVD Westbound					BARRY WY Northbound					SIR FRANCIS DRAKE BLVD 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	15	11	20	0	46	**36**	396	100	0	532	**100**	6	29	1	**136**	12	**420**	28	1	**461**	1175
04:15 PM	**27**	**38**	**46**	0	**111**	22	392	121	0	535	63	13	**36**	0	112	**20**	407	**34**	0	461	**1219**
04:30 PM	24	18	33	0	75	23	**429**	106	0	558	61	**22**	35	0	118	18	413	25	0	456	1207
04:45 PM	9	18	34	**2**	63	23	399	**141**	**1**	**564**	64	6	33	**2**	105	8	370	17	**2**	397	1129
Total Volume	75	85	133	2	295	104	1616	468	1	2189	288	47	133	3	471	58	1610	104	3	1775	4730
% App. Total	25.4	28.8	45.1	0.7		4.8	73.8	21.4	0		61.1	10	28.2	0.6		3.3	90.7	5.9	0.2		
PHF	.694	.559	.723	.250	.664	.722	.942	.830	.250	.970	.720	.534	.924	.375	.866	.725	.958	.765	.375	.963	.970

Traffic Data Service

1386 White Oaks Road, Suite 1
Campbell, CA 95008
tdsbay@cs.com

File Name : 5AMFINAL
Site Code : 00000005
Start Date : 9/14/2006
Page No : 1

Groups Printed- Vehicles

	US-101 SB OFF-RAMP Southbound					SIR FRANCIS DRAKE BLVD Westbound					US-101 NB OFF-RAMP Northbound					SIR FRANCIS DRAKE BLVD 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
Factor	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		
06:30 AM	149	0	0	0	149	0	82	0	0	82	0	0	97	2	99	128	103	0	0	231	561
06:45 AM	147	0	0	0	147	0	100	0	0	100	0	0	84	3	87	198	180	0	0	378	712
Total	296	0	0	0	296	0	182	0	0	182	0	0	181	5	186	326	283	0	0	609	1273
07:00 AM	142	0	0	0	142	0	105	0	0	105	0	0	110	2	112	239	144	0	0	383	742
07:15 AM	177	0	0	0	177	0	105	0	0	105	0	0	159	8	167	271	178	0	0	449	898
07:30 AM	206	0	0	0	206	0	144	0	0	144	0	0	269	3	272	346	230	0	0	576	1198
07:45 AM	203	0	0	0	203	0	117	0	0	117	0	0	283	5	288	325	223	0	0	548	1156
Total	728	0	0	0	728	0	471	0	0	471	0	0	821	18	839	1181	775	0	0	1956	3994
08:00 AM	132	0	0	0	132	0	91	0	0	91	0	0	241	2	243	287	272	0	0	559	1025
08:15 AM	182	0	0	0	182	0	103	0	0	103	0	0	227	3	230	292	227	0	0	519	1034
08:30 AM	195	0	0	0	195	0	99	0	0	99	0	0	229	2	231	264	263	0	0	527	1052
08:45 AM	199	0	0	0	199	0	104	0	0	104	0	0	247	3	250	258	266	0	0	524	1077
Total	708	0	0	0	708	0	397	0	0	397	0	0	944	10	954	1101	1028	0	0	2129	4188
09:00 AM	208	0	0	0	208	0	96	0	0	96	0	0	216	4	220	228	229	0	1	458	982
09:15 AM	235	0	0	0	235	0	103	0	0	103	0	0	219	5	224	256	237	0	0	493	1055
Grand Total	2175	0	0	0	2175	0	1249	0	0	1249	0	0	2381	42	2423	3092	2552	0	1	5645	11492
Apprch %	100	0	0	0		0	100	0	0		0	0	98.3	1.7		54.8	45.2	0	0		
Total %	18.9	0	0	0	18.9	0	10.9	0	0	10.9	0	0	20.7	0.4	21.1	26.9	22.2	0	0	49.1	

	US-101 SB OFF-RAMP Southbound					SIR FRANCIS DRAKE BLVD Westbound					US-101 NB OFF-RAMP Northbound					SIR FRANCIS DRAKE BLVD 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 06:30 AM to 09:15 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:30 AM																					
07:30 AM	**206**	0	0	0	**206**	0	**144**	0	0	**144**	0	0	269	3	272	**346**	230	0	0	**576**	**1198**
07:45 AM	203	0	0	0	203	0	117	0	0	117	0	0	**283**	**5**	**288**	325	223	0	0	548	1156
08:00 AM	132	0	0	0	132	0	91	0	0	91	0	0	241	2	243	287	**272**	0	0	559	1025
08:15 AM	182	0	0	0	182	0	103	0	0	103	0	0	227	3	230	292	227	0	0	519	1034
Total Volume	723	0	0	0	723	0	455	0	0	455	0	0	1020	13	1033	1250	952	0	0	2202	4413
% App. Total	100	0	0	0		0	100	0	0		0	0	98.7	1.3		56.8	43.2	0	0		
PHF	.877	.000	.000	.000	.877	.000	.790	.000	.000	.790	.000	.000	.901	.650	.897	.903	.875	.000	.000	.956	.921

Traffic Data Service

1386 White Oaks Road, Suite 1
Campbell, CA 95008
tdsbay@cs.com

File Name : 5PMFINAL
Site Code : 00000005
Start Date : 9/14/2006
Page No : 1

Groups Printed- Vehicles

	US-101 SB OFF-RAMP Southbound					SIR FRANCIS DRAKE BLVD Westbound					US-101 NB OFF-RAMP Northbound					SIR FRANCIS DRAKE BLVD 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
Factor	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		
03:30 PM	134	0	0	0	134	0	107	0	0	107	0	0	271	6	277	253	276	0	0	529	1047
03:45 PM	145	0	0	0	145	0	129	0	0	129	0	0	280	6	286	262	262	0	0	524	1084
Total	279	0	0	0	279	0	236	0	0	236	0	0	551	12	563	515	538	0	0	1053	2131
04:00 PM	135	0	0	0	135	0	137	0	0	137	0	0	244	0	244	264	280	0	0	544	1060
04:15 PM	128	0	0	0	128	0	141	0	0	141	0	0	263	1	264	237	251	0	0	488	1021
04:30 PM	152	0	0	0	152	0	126	0	0	126	0	0	272	5	277	181	233	0	0	414	969
04:45 PM	132	0	0	0	132	0	165	0	0	165	0	0	359	6	365	240	233	0	0	473	1135
Total	547	0	0	0	547	0	569	0	0	569	0	0	1138	12	1150	922	997	0	0	1919	4185
05:00 PM	138	0	0	0	138	0	168	0	0	168	0	0	401	8	409	257	260	0	0	517	1232
05:15 PM	148	0	0	0	148	0	138	0	0	138	0	0	293	4	297	283	264	0	0	547	1130
05:30 PM	153	0	0	0	153	0	194	0	0	194	0	0	394	1	395	250	246	0	0	496	1238
05:45 PM	156	0	0	0	156	0	163	0	0	163	0	0	373	4	377	235	238	0	0	473	1169
Total	595	0	0	0	595	0	663	0	0	663	0	0	1461	17	1478	1025	1008	0	0	2033	4769
06:00 PM	189	0	0	0	189	0	102	0	0	102	0	0	336	4	340	267	278	0	0	545	1176
06:15 PM	166	0	0	0	166	0	124	0	0	124	0	0	320	2	322	259	241	0	0	500	1112
Grand Total	1776	0	0	0	1776	0	1694	0	0	1694	0	0	3806	47	3853	2988	3062	0	0	6050	13373
Apprch %	100	0	0	0		0	100	0	0		0	0	98.8	1.2		49.4	50.6	0	0		
Total %	13.3	0	0	0	13.3	0	12.7	0	0	12.7	0	0	28.5	0.4	28.8	22.3	22.9	0	0	45.2	

	US-101 SB OFF-RAMP Southbound					SIR FRANCIS DRAKE BLVD Westbound					US-101 NB OFF-RAMP Northbound					SIR FRANCIS DRAKE BLVD 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 03:30 PM to 06:15 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 05:00 PM																					
05:00 PM	138	0	0	0	138	0	168	0	0	168	0	0	**401**	**8**	**409**	257	260	0	0	517	1232
05:15 PM	148	0	0	0	148	0	138	0	0	138	0	0	293	4	297	**283**	**264**	0	0	**547**	1130
05:30 PM	153	0	0	0	153	0	**194**	0	0	**194**	0	0	394	1	395	250	246	0	0	496	**1238**
05:45 PM	**156**	0	0	0	**156**	0	163	0	0	163	0	0	373	4	377	235	238	0	0	473	1169
Total Volume	595	0	0	0	595	0	663	0	0	663	0	0	1461	17	1478	1025	1008	0	0	2033	4769
% App. Total	100	0	0	0		0	100	0	0		0	0	98.8	1.2		50.4	49.6	0	0		
PHF	.954	.000	.000	.000	.954	.000	.854	.000	.000	.854	.000	.000	.911	.531	.903	.905	.955	.000	.000	.929	.963

Traffic Data Service

1386 White Oaks Road, Suite 1
Campbell, CA 95008
tdsbay@cs.com

File Name : 6AMFINAL
Site Code : 00000006
Start Date : 9/14/2006
Page No : 1

Groups Printed- Vehicles

	US-101 SB RAMPS Southbound					SIR FRANCIS DRAKE BLVD Westbound					Northbound					SIR FRANCIS DRAKE BLVD 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
Factor	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		
06:30 AM	0	0	98	0	98	0	98	187	0	285	0	0	0	0	0	0	177	0	0	177	560
06:45 AM	0	0	108	0	108	0	105	189	0	294	0	0	0	0	0	0	176	0	0	176	578
Total	0	0	206	0	206	0	203	376	0	579	0	0	0	0	0	0	353	0	0	353	1138
07:00 AM	0	0	90	0	90	0	98	191	0	289	0	0	0	0	0	0	148	0	0	148	527
07:15 AM	1	0	93	0	94	0	103	258	0	361	0	0	0	0	0	0	175	0	0	175	630
07:30 AM	1	0	137	0	138	0	123	244	0	367	0	0	0	0	0	0	251	0	0	251	756
07:45 AM	0	0	97	0	97	0	106	289	0	395	0	0	0	0	0	0	239	0	0	239	731
Total	2	0	417	0	419	0	430	982	0	1412	0	0	0	0	0	0	813	0	0	813	2644
08:00 AM	1	0	159	0	160	0	80	262	0	342	0	0	0	0	0	0	272	0	0	272	774
08:15 AM	1	0	92	0	93	0	83	271	0	354	0	0	0	0	0	0	281	0	0	281	728
08:30 AM	0	0	82	0	82	0	57	248	0	305	0	0	0	0	0	0	313	0	0	313	700
08:45 AM	0	0	114	0	114	0	96	235	0	331	0	0	0	0	0	0	247	0	0	247	692
Total	2	0	447	0	449	0	316	1016	0	1332	0	0	0	0	0	0	1113	0	0	1113	2894
09:00 AM	0	0	103	0	103	0	74	263	0	337	0	0	0	0	0	0	228	0	0	228	668
09:15 AM	0	0	90	0	90	0	88	276	0	364	0	0	0	0	0	0	221	0	0	221	675
Grand Total	4	0	1263	0	1267	0	1111	2913	0	4024	0	0	0	0	0	0	2728	0	0	2728	8019
Apprch %	0.3	0	99.7	0		0	27.6	72.4	0		0	0	0	0		0	100	0	0		
Total %	0	0	15.8	0	15.8	0	13.9	36.3	0	50.2	0	0	0	0	0	0	34	0	0	34	

	US-101 SB RAMPS Southbound					SIR FRANCIS DRAKE BLVD Westbound					Northbound					SIR FRANCIS DRAKE BLVD 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 06:30 AM to 09:00 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:30 AM																					
07:30 AM	**1**	0	137	0	138	0	**123**	244	0	367	0	0	0	0	0	0	251	0	0	251	756
07:45 AM	0	0	97	0	97	0	106	**289**	0	**395**	0	0	0	0	0	0	239	0	0	239	731
08:00 AM	1	0	**159**	0	**160**	0	80	262	0	342	0	0	0	0	0	0	272	0	0	272	**774**
08:15 AM	1	0	92	0	93	0	83	271	0	354	0	0	0	0	0	0	**281**	0	0	**281**	728
Total Volume	3	0	485	0	488	0	392	1066	0	1458	0	0	0	0	0	0	1043	0	0	1043	2989
% App. Total	0.6	0	99.4	0		0	26.9	73.1	0		0	0	0	0		0	100	0	0		
PHF	.750	.000	.763	.000	.763	.000	.797	.922	.000	.923	.000	.000	.000	.000	.000	.000	.928	.000	.000	.928	.965

Traffic Data Service

1386 White Oaks Road, Suite 1
Campbell, CA 95008
tdsbay@cs.com

File Name : 6PMFINAL
Site Code : 00000006
Start Date : 9/14/2006
Page No : 1

Groups Printed- Vehicles

	US-101 SB RAMPS Southbound					SIR FRANCIS DRAKE BLVD Westbound					Northbound					SIR FRANCIS DRAKE BLVD 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
Factor	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		
03:30 PM	1	0	46	0	47	0	102	191	0	293	0	0	0	0	0	0	284	0	0	284	624
03:45 PM	0	0	45	0	45	0	105	190	0	295	0	0	0	0	0	0	245	0	0	245	585
Total	1	0	91	0	92	0	207	381	0	588	0	0	0	0	0	0	529	0	0	529	1209
04:00 PM	0	0	47	0	47	0	128	187	0	315	0	0	0	0	0	0	288	0	0	288	650
04:15 PM	2	0	48	0	50	0	125	207	0	332	0	0	0	0	0	0	249	0	0	249	631
04:30 PM	2	0	25	0	27	0	102	207	0	309	0	0	0	0	0	0	239	0	0	239	575
04:45 PM	0	0	50	0	50	0	138	246	0	384	0	0	0	0	0	0	213	0	0	213	647
Total	4	0	170	0	174	0	493	847	0	1340	0	0	0	0	0	0	989	0	0	989	2503
05:00 PM	0	0	41	0	41	0	156	249	0	405	0	0	0	0	0	0	273	0	0	273	719
05:15 PM	2	0	72	0	74	0	128	274	0	402	0	0	0	0	0	0	267	0	0	267	743
05:30 PM	1	0	48	0	49	0	169	318	0	487	0	0	0	0	0	0	255	0	0	255	791
05:45 PM	0	0	42	0	42	0	126	286	0	412	0	0	0	0	0	0	224	0	0	224	678
Total	3	0	203	0	206	0	579	1127	0	1706	0	0	0	0	0	0	1019	0	0	1019	2931
06:00 PM	1	0	47	0	48	0	109	266	0	375	0	0	0	0	0	0	277	0	0	277	700
06:15 PM	0	0	59	0	59	0	133	252	0	385	0	0	0	0	0	0	254	0	0	254	698
Grand Total	9	0	570	0	579	0	1521	2873	0	4394	0	0	0	0	0	0	3068	0	0	3068	8041
Apprch %	1.6	0	98.4	0		0	34.6	65.4	0		0	0	0	0		0	100	0	0		
Total %	0.1	0	7.1	0	7.2	0	18.9	35.7	0	54.6	0	0	0	0	0	0	38.2	0	0	38.2	

	US-101 SB RAMPS Southbound					SIR FRANCIS DRAKE BLVD Westbound					Northbound					SIR FRANCIS DRAKE BLVD 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 03:30 PM to 06:15 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 05:00 PM																					
05:00 PM	0	0	41	0	41	0	156	249	0	405	0	0	0	0	0	0	**273**	0	0	**273**	719
05:15 PM	**2**	0	**72**	0	**74**	0	128	274	0	402	0	0	0	0	0	0	267	0	0	267	743
05:30 PM	1	0	48	0	49	0	**169**	**318**	0	**487**	0	0	0	0	0	0	255	0	0	255	**791**
05:45 PM	0	0	42	0	42	0	126	286	0	412	0	0	0	0	0	0	224	0	0	224	678
Total Volume	3	0	203	0	206	0	579	1127	0	1706	0	0	0	0	0	0	1019	0	0	1019	2931
% App. Total	1.5	0	98.5	0		0	33.9	66.1	0		0	0	0	0		0	100	0	0		
PHF	.375	.000	.705	.000	.696	.000	.857	.886	.000	.876	.000	.000	.000	.000	.000	.000	.933	.000	.000	.933	.926

Traffic Data Service

1386 White Oaks Road, Suite 1
Campbell, CA 95008
tdsbay@cs.com

File Name : 7AMFINAL
Site Code : 00000007
Start Date : 9/14/2006
Page No : 1

Groups Printed- Vehicles

	Southbound					SIR FRANCIS DRAKE BLVD Westbound					US-101 NB RAMPS Northbound					SIR FRANCIS DRAKE BLVD 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
Factor	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		
06:30 AM	0	0	0	0	0	23	257	0	0	280	191	35	3	0	229	0	204	59	0	263	772
06:45 AM	0	0	0	0	0	21	309	0	0	330	189	33	2	0	224	0	221	55	0	276	830
Total	0	0	0	0	0	44	566	0	0	610	380	68	5	0	453	0	425	114	0	539	1602
07:00 AM	0	0	0	0	0	20	330	0	0	350	217	31	1	0	249	0	187	55	0	242	841
07:15 AM	0	0	0	0	0	26	392	0	0	418	174	31	2	0	207	0	199	60	0	259	884
07:30 AM	0	0	0	0	0	53	434	0	0	487	227	38	11	0	276	0	309	70	0	379	1142
07:45 AM	0	0	0	0	0	40	419	0	0	459	280	56	1	0	337	0	235	106	0	341	1137
Total	0	0	0	0	0	139	1575	0	0	1714	898	156	15	0	1069	0	930	291	0	1221	4004
08:00 AM	0	0	0	0	0	46	320	0	0	366	253	69	1	0	323	0	299	129	0	428	1117
08:15 AM	0	0	0	0	0	33	392	0	0	425	275	44	4	0	323	0	253	134	0	387	1135
08:30 AM	0	0	0	0	0	42	393	0	0	435	271	46	0	0	317	0	254	158	0	412	1164
08:45 AM	0	0	0	0	0	38	364	0	0	402	283	63	2	0	348	0	233	136	0	369	1119
Total	0	0	0	0	0	159	1469	0	0	1628	1082	222	7	0	1311	0	1039	557	0	1596	4535
09:00 AM	0	0	0	0	0	46	408	0	0	454	265	57	0	0	322	0	229	116	0	345	1121
09:15 AM	0	0	0	0	0	50	396	0	0	446	298	72	5	0	375	0	199	130	0	329	1150
Grand Total	0	0	0	0	0	438	4414	0	0	4852	2923	575	32	0	3530	0	2822	1208	0	4030	12412
Apprch %	0	0	0	0		9	91	0	0		82.8	16.3	0.9	0		0	70	30	0		
Total %	0	0	0	0	0	3.5	35.6	0	0	39.1	23.5	4.6	0.3	0	28.4	0	22.7	9.7	0	32.5	

	Southbound					SIR FRANCIS DRAKE BLVD Westbound					US-101 NB RAMPS Northbound					SIR FRANCIS DRAKE BLVD 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 06:30 AM to 09:00 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:45 AM																					
07:45 AM	0	0	0	0	0	40	**419**	0	0	**459**	**280**	56	1	0	**337**	0	235	106	0	341	1137
08:00 AM	0	0	0	0	0	**46**	320	0	0	366	253	**69**	1	0	323	0	**299**	129	0	**428**	1117
08:15 AM	0	0	0	0	0	33	392	0	0	425	275	44	**4**	0	323	0	253	134	0	387	1135
08:30 AM	0	0	0	0	0	42	393	0	0	435	271	46	0	0	317	0	254	**158**	0	412	**1164**
Total Volume	0	0	0	0	0	161	1524	0	0	1685	1079	215	6	0	1300	0	1041	527	0	1568	4553
% App. Total	0	0	0	0		9.6	90.4	0	0		83	16.5	0.5	0		0	66.4	33.6	0		
PHF	.000	.000	.000	.000	.000	.875	.909	.000	.000	.918	.963	.779	.375	.000	.964	.000	.870	.834	.000	.916	.978

Traffic Data Service

1386 White Oaks Road, Suite 1
Campbell, CA 95008
tdsbay@cs.com

File Name : 7PMFINAL
Site Code : 00000007
Start Date : 9/14/2006
Page No : 1

Groups Printed- Vehicles

	Southbound					SIR FRANCIS DRAKE BLVD Westbound					US-101 NB RAMPS Northbound					SIR FRANCIS DRAKE BLVD 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
Factor	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		
03:30 PM	0	0	0	0	0	114	297	0	0	411	353	111	1	0	465	0	158	181	0	339	1215
03:45 PM	0	0	0	0	0	80	251	0	0	331	344	125	3	0	472	0	118	168	0	286	1089
Total	0	0	0	0	0	194	548	0	0	742	697	236	4	0	937	0	276	349	0	625	2304
04:00 PM	0	0	0	0	0	103	386	0	0	489	247	124	0	0	371	0	157	158	0	315	1175
04:15 PM	0	0	0	0	0	71	278	0	0	349	279	111	8	0	398	0	157	144	0	301	1048
04:30 PM	0	0	0	0	0	55	343	0	0	398	303	140	1	0	444	0	98	173	0	271	1113
04:45 PM	0	0	0	0	0	102	384	0	0	486	279	137	1	0	417	0	140	120	0	260	1163
Total	0	0	0	0	0	331	1391	0	0	1722	1108	512	10	0	1630	0	552	595	0	1147	4499
05:00 PM	0	0	0	0	0	85	376	0	0	461	252	114	7	0	373	0	203	114	0	317	1151
05:15 PM	0	0	0	0	0	76	400	0	0	476	265	148	1	0	414	0	171	186	0	357	1247
05:30 PM	0	0	0	0	0	58	478	0	0	536	234	136	0	0	370	0	125	160	0	285	1191
05:45 PM	0	0	0	0	0	67	498	0	0	565	236	111	0	0	347	0	146	135	0	281	1193
Total	0	0	0	0	0	286	1752	0	0	2038	987	509	8	0	1504	0	645	595	0	1240	4782
06:00 PM	0	0	0	0	0	57	504	0	0	561	247	118	1	0	366	0	165	160	0	325	1252
06:15 PM	5	8	0	0	13	57	458	0	0	515	157	91	11	0	259	0	196	123	0	319	1106
Grand Total	5	8	0	0	13	925	4653	0	0	5578	3196	1466	34	0	4696	0	1834	1822	0	3656	13943
Apprch %	38.5	61.5	0	0		16.6	83.4	0	0		68.1	31.2	0.7	0		0	50.2	49.8	0		
Total %	0	0.1	0	0	0.1	6.6	33.4	0	0	40	22.9	10.5	0.2	0	33.7	0	13.2	13.1	0	26.2	

	Southbound					SIR FRANCIS DRAKE BLVD Westbound					US-101 NB RAMPS Northbound					SIR FRANCIS DRAKE BLVD 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 03:30 PM to 06:15 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 05:15 PM																					
05:15 PM	0	0	0	0	0	**76**	400	0	0	476	**265**	**148**	**1**	0	**414**	0	**171**	**186**	0	**357**	1247
05:30 PM	0	0	0	0	0	58	478	0	0	536	234	136	0	0	370	0	125	160	0	285	1191
05:45 PM	0	0	0	0	0	67	498	0	0	**565**	236	111	0	0	347	0	146	135	0	281	1193
06:00 PM	0	0	0	0	0	57	**504**	0	0	561	247	118	1	0	366	0	165	160	0	325	**1252**
Total Volume	0	0	0	0	0	258	1880	0	0	2138	982	513	2	0	1497	0	607	641	0	1248	4883
% App. Total	0	0	0	0		12.1	87.9	0	0		65.6	34.3	0.1	0		0	48.6	51.4	0		
PHF	.000	.000	.000	.000	.000	.849	.933	.000	.000	.946	.926	.867	.500	.000	.904	.000	.887	.862	.000	.874	.975

Traffic Data Service

1386 White Oaks Road, Suite 1
Campbell, CA 95008
tdsbay@cs.com

File Name : 8AMFINAL
Site Code : 00000008
Start Date : 9/14/2006
Page No : 1

Groups Printed- Vehicles

	LARKSPUR LANDING CIR WEST Southbound					SIR FRANCIS DRAKE BLVD Westbound					DRIVEWAY Northbound					SIR FRANCIS DRAKE BLVD 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
Factor	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		
06:30 AM	28	4	0	0	32	3	243	0	0	246	0	0	13	0	13	82	226	59	0	367	658
06:45 AM	35	0	0	0	35	2	265	0	0	267	0	0	17	0	17	93	213	67	0	373	692
Total	63	4	0	0	67	5	508	0	0	513	0	0	30	0	30	175	439	126	0	740	1350
07:00 AM	38	1	0	0	39	5	266	5	1	277	0	1	22	1	24	105	225	58	4	392	732
07:15 AM	49	3	2	0	54	0	330	0	1	331	0	0	11	1	12	91	233	52	6	382	779
07:30 AM	71	8	0	0	79	0	387	8	0	395	0	1	24	0	25	234	236	68	4	542	1041
07:45 AM	72	4	2	0	78	1	338	4	0	343	0	0	13	0	13	97	322	78	4	501	935
Total	230	16	4	0	250	6	1321	17	2	1346	0	2	70	2	74	527	1016	256	18	1817	3487
08:00 AM	63	8	0	0	71	4	277	8	0	289	0	0	23	0	23	229	224	85	10	548	931
08:15 AM	45	3	1	0	49	1	359	1	0	361	0	1	7	1	9	30	291	115	3	439	858
08:30 AM	56	1	0	0	57	1	359	3	0	363	0	0	9	0	9	24	275	155	4	458	887
08:45 AM	59	2	3	1	65	8	364	3	1	376	0	0	7	3	10	83	269	109	1	462	913
Total	223	14	4	1	242	14	1359	15	1	1389	0	1	46	4	51	366	1059	464	18	1907	3589
09:00 AM	52	2	2	3	59	3	305	3	0	311	0	1	22	7	30	81	262	136	3	482	882
09:15 AM	55	0	2	0	57	7	312	3	0	322	0	0	12	7	19	29	270	121	0	420	818
Grand Total	623	36	12	4	675	35	3805	38	3	3881	0	4	180	20	204	1178	3046	1103	39	5366	10126
Apprch %	92.3	5.3	1.8	0.6		0.9	98	1	0.1		0	2	88.2	9.8		22	56.8	20.6	0.7		
Total %	6.2	0.4	0.1	0	6.7	0.3	37.6	0.4	0	38.3	0	0	1.8	0.2	2	11.6	30.1	10.9	0.4	53	

	LARKSPUR LANDING CIR WEST Southbound					SIR FRANCIS DRAKE BLVD Westbound					DRIVEWAY Northbound					SIR FRANCIS DRAKE BLVD 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 06:30 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:30 AM																					
07:30 AM	71	**8**	0	0	**79**	0	**387**	**8**	0	**395**	0	**1**	**24**	0	**25**	**234**	236	68	4	542	**1041**
07:45 AM	**72**	4	**2**	0	78	1	338	4	0	343	0	0	13	0	13	97	**322**	78	4	501	935
08:00 AM	63	8	0	0	71	**4**	277	8	0	289	0	0	23	0	23	229	224	85	**10**	**548**	931
08:15 AM	45	3	1	0	49	1	359	1	0	361	0	1	7	**1**	9	30	291	**115**	3	439	858
Total Volume	251	23	3	0	277	6	1361	21	0	1388	0	2	67	1	70	590	1073	346	21	2030	3765
% App. Total	90.6	8.3	1.1	0		0.4	98.1	1.5	0		0	2.9	95.7	1.4		29.1	52.9	17	1		
PHF	.872	.719	.375	.000	.877	.375	.879	.656	.000	.878	.000	.500	.698	.250	.700	.630	.833	.752	.525	.926	.904

Traffic Data Service

1386 White Oaks Road, Suite 1
Campbell, CA 95008
tdsbay@cs.com

File Name : 8PMFINAL
Site Code : 00000008
Start Date : 9/14/2006
Page No : 1

Groups Printed- Vehicles

	LARKSPUR LANDING CIR WEST Southbound					SIR FRANCIS DRAKE BLVD Westbound					DRIVEWAY Northbound					SIR FRANCIS DRAKE BLVD 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
Factor	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		
03:30 PM	85	1	3	0	89	4	233	2	12	251	0	0	92	9	101	18	389	77	0	484	925
03:45 PM	95	0	1	0	96	5	249	3	1	258	0	1	11	4	16	14	362	79	0	455	825
Total	180	1	4	0	185	9	482	5	13	509	0	1	103	13	117	32	751	156	0	939	1750
04:00 PM	107	0	7	0	114	7	241	7	17	272	0	1	111	28	140	13	328	92	0	433	959
04:15 PM	103	0	4	1	108	1	273	1	1	276	0	0	9	3	12	13	337	103	0	453	849
04:30 PM	87	1	3	0	91	2	274	3	3	282	0	2	26	38	66	11	323	76	0	410	849
04:45 PM	130	5	8	0	143	3	309	2	7	321	0	0	83	72	155	25	327	95	1	448	1067
Total	427	6	22	1	456	13	1097	13	28	1151	0	3	229	141	373	62	1315	366	1	1744	3724
05:00 PM	61	3	14	0	78	3	216	0	0	219	1	7	217	38	263	20	348	83	0	451	1011
05:15 PM	146	3	8	0	157	0	327	2	0	329	0	1	50	2	53	21	338	129	0	488	1027
05:30 PM	104	2	5	0	111	6	256	1	0	263	0	0	199	0	199	10	285	92	0	387	960
05:45 PM	130	1	7	0	138	3	321	6	0	330	0	1	18	0	19	23	269	108	0	400	887
Total	441	9	34	0	484	12	1120	9	0	1141	1	9	484	40	534	74	1240	412	0	1726	3885
06:00 PM	110	2	0	1	113	3	239	4	1	247	0	0	130	1	131	13	308	104	3	428	919
06:15 PM	116	1	9	2	128	1	277	4	0	282	0	0	112	3	115	30	285	103	3	421	946
Grand Total	1274	19	69	4	1366	38	3215	35	42	3330	1	13	1058	198	1270	211	3899	1141	7	5258	11224
Apprch %	93.3	1.4	5.1	0.3		1.1	96.5	1.1	1.3		0.1	1	83.3	15.6		4	74.2	21.7	0.1		
Total %	11.4	0.2	0.6	0	12.2	0.3	28.6	0.3	0.4	29.7	0	0.1	9.4	1.8	11.3	1.9	34.7	10.2	0.1	46.8	

	LARKSPUR LANDING CIR WEST Southbound					SIR FRANCIS DRAKE BLVD Westbound					DRIVEWAY Northbound					SIR FRANCIS DRAKE BLVD 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 03:30 PM to 06:15 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:45 PM																					
04:45 PM	130	**5**	8	0	143	3	309	**2**	**7**	321	0	0	83	**72**	155	**25**	327	95	**1**	448	**1067**
05:00 PM	61	3	**14**	0	78	3	216	0	0	219	**1**	**7**	**217**	38	**263**	20	**348**	83	0	451	1011
05:15 PM	**146**	3	8	0	**157**	0	**327**	2	0	**329**	0	1	50	2	53	21	338	**129**	0	**488**	1027
05:30 PM	104	2	5	0	111	**6**	256	1	0	263	0	0	199	0	199	10	285	92	0	387	960
Total Volume	441	13	35	0	489	12	1108	5	7	1132	1	8	549	112	670	76	1298	399	1	1774	4065
% App. Total	90.2	2.7	7.2	0		1.1	97.9	0.4	0.6		0.1	1.2	81.9	16.7		4.3	73.2	22.5	0.1		
PHF	.755	.650	.625	.000	.779	.500	.847	.625	.250	.860	.250	.286	.632	.389	.637	.760	.932	.773	.250	.909	.952

Traffic Data Service

1386 White Oaks Road, Suite 1
Campbell, CA 95008
tdsbay@cs.com

File Name : 9AMFINAL
Site Code : 00000009
Start Date : 9/12/2006
Page No : 1

Groups Printed- Vehicles

	LARKSPUR LANDING CIR EAST Southbound					SIR FRANCIS DRAKE BLVD Westbound					Northbound					SIR FRANCIS DRAKE BLVD 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
Factor	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		
07:00 AM	13	0	4	2	19	11	318	0	1	330	0	0	0	0	0	0	236	6	1	243	592
07:15 AM	24	0	2	1	27	14	406	0	0	420	0	0	0	0	0	0	225	12	1	238	685
07:30 AM	16	0	7	0	23	8	374	0	2	384	0	0	0	0	0	0	250	9	0	259	666
07:45 AM	12	0	9	3	24	15	412	0	4	431	0	0	0	0	0	0	304	11	0	315	770
Total	65	0	22	6	93	48	1510	0	7	1565	0	0	0	0	0	0	1015	38	2	1055	2713
08:00 AM	19	0	12	2	33	15	386	0	2	403	0	0	0	0	0	0	254	13	0	267	703
08:15 AM	21	0	11	0	32	9	389	0	0	398	0	0	0	0	0	0	318	21	2	341	771
08:30 AM	15	0	14	2	31	22	392	0	1	415	0	0	0	0	0	0	308	23	1	332	778
08:45 AM	19	0	2	0	21	17	384	0	2	403	0	0	0	0	0	0	282	10	0	292	716
Total	74	0	39	4	117	63	1551	0	5	1619	0	0	0	0	0	0	1162	67	3	1232	2968
Grand Total	139	0	61	10	210	111	3061	0	12	3184	0	0	0	0	0	0	2177	105	5	2287	5681
Apprch %	66.2	0	29	4.8		3.5	96.1	0	0.4		0	0	0	0		0	95.2	4.6	0.2		
Total %	2.4	0	1.1	0.2	3.7	2	53.9	0	0.2	56	0	0	0	0	0	0	38.3	1.8	0.1	40.3	

	LARKSPUR LANDING CIR EAST Southbound					SIR FRANCIS DRAKE BLVD Westbound					Northbound					SIR FRANCIS DRAKE BLVD 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 07:45 AM																					
07:45 AM	12	0	9	**3**	24	15	**412**	0	**4**	**431**	0	0	0	0	0	0	304	11	0	315	770
08:00 AM	19	0	12	2	**33**	15	386	0	2	403	0	0	0	0	0	0	254	13	0	267	703
08:15 AM	**21**	0	11	0	32	9	389	0	0	398	0	0	0	0	0	0	**318**	21	**2**	**341**	771
08:30 AM	15	0	**14**	2	31	**22**	392	0	1	415	0	0	0	0	0	0	308	**23**	1	332	**778**
Total Volume	67	0	46	7	120	61	1579	0	7	1647	0	0	0	0	0	0	1184	68	3	1255	3022
% App. Total	55.8	0	38.3	5.8		3.7	95.9	0	0.4		0	0	0	0		0	94.3	5.4	0.2		
PHF	.798	.000	.821	.583	.909	.693	.958	.000	.438	.955	.000	.000	.000	.000	.000	.000	.931	.739	.375	.920	.971

Traffic Data Service

1386 White Oaks Road, Suite 1
Campbell, CA 95008
tdsbay@cs.com

File Name : 9PMFINAL
Site Code : 00000009
Start Date : 9/12/2006
Page No : 1

Groups Printed- Vehicles

	LARKSPUR LANDING CIR EAST Southbound					SIR FRANCIS DRAKE BLVD Westbound					Northbound					SIR FRANCIS DRAKE BLVD 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
Factor	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		
04:00 PM	53	0	61	3	117	56	186	0	0	242	0	0	0	0	0	0	366	37	0	403	762
04:15 PM	86	0	52	2	140	45	213	0	3	261	0	0	0	0	0	0	387	25	0	412	813
04:30 PM	59	0	58	0	117	44	227	0	0	271	0	0	0	0	0	0	391	35	1	427	815
04:45 PM	42	0	44	0	86	37	258	0	2	297	0	0	0	0	0	0	327	27	2	356	739
Total	240	0	215	5	460	182	884	0	5	1071	0	0	0	0	0	0	1471	124	3	1598	3129
05:00 PM	34	0	41	1	76	35	263	0	1	299	0	0	0	0	0	0	364	25	0	389	764
05:15 PM	37	0	49	4	90	33	273	0	1	307	0	0	0	0	0	0	326	29	5	360	757
05:30 PM	41	0	78	0	119	79	199	0	0	278	0	0	0	0	0	0	313	21	1	335	732
05:45 PM	41	0	33	0	74	40	203	0	0	243	0	0	0	0	0	0	290	31	0	321	638
Total	153	0	201	5	359	187	938	0	2	1127	0	0	0	0	0	0	1293	106	6	1405	2891
Grand Total	393	0	416	10	819	369	1822	0	7	2198	0	0	0	0	0	0	2764	230	9	3003	6020
Apprch %	48	0	50.8	1.2		16.8	82.9	0	0.3		0	0	0	0		0	92	7.7	0.3		
Total %	6.5	0	6.9	0.2	13.6	6.1	30.3	0	0.1	36.5	0	0	0	0	0	0	45.9	3.8	0.1	49.9	

	LARKSPUR LANDING CIR EAST Southbound					SIR FRANCIS DRAKE BLVD Westbound					Northbound					SIR FRANCIS DRAKE BLVD 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 04:15 PM																					
04:15 PM	**86**	0	52	**2**	**140**	**45**	213	0	**3**	261	0	0	0	0	0	0	387	25	0	412	813
04:30 PM	59	0	**58**	0	117	44	227	0	0	271	0	0	0	0	0	0	**391**	**35**	1	**427**	**815**
04:45 PM	42	0	44	0	86	37	258	0	2	297	0	0	0	0	0	0	327	27	**2**	356	739
05:00 PM	34	0	41	1	76	35	**263**	0	1	**299**	0	0	0	0	0	0	364	25	0	389	764
Total Volume	221	0	195	3	419	161	961	0	6	1128	0	0	0	0	0	0	1469	112	3	1584	3131
% App. Total	52.7	0	46.5	0.7		14.3	85.2	0	0.5		0	0	0	0		0	92.7	7.1	0.2		
PHF	.642	.000	.841	.375	.748	.894	.913	.000	.500	.943	.000	.000	.000	.000	.000	.000	.939	.800	.375	.927	.960

Traffic Data Service

1386 White Oaks Road, Suite 1
Campbell, CA 95008
tdsbay@cs.com

File Name : 10AMFINAL
Site Code : 00000010
Start Date : 9/12/2006
Page No : 1

Groups Printed- Vehicles

	ANDERSEN DR Southbound					SIR FRANCIS DRAKE BLVD Westbound					Northbound					SIR FRANCIS DRAKE BLVD 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
Factor	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		
07:00 AM	21	0	3	0	24	58	331	0	0	389	0	0	0	0	0	0	201	13	0	214	627
07:15 AM	37	0	3	0	40	75	378	0	0	453	0	0	0	0	0	0	214	15	0	229	722
07:30 AM	41	0	9	0	50	109	331	0	0	440	0	0	0	0	0	0	202	24	0	226	716
07:45 AM	51	0	11	0	62	115	358	0	0	473	0	0	0	0	0	0	256	32	0	288	823
Total	150	0	26	0	176	357	1398	0	0	1755	0	0	0	0	0	0	873	84	0	957	2888
08:00 AM	61	0	8	0	69	103	320	0	0	423	0	0	0	0	0	0	244	35	0	279	771
08:15 AM	36	0	2	0	38	119	319	0	0	438	0	0	0	0	0	0	269	51	0	320	796
08:30 AM	38	0	10	0	48	111	340	0	0	451	0	0	0	0	0	0	266	29	0	295	794
08:45 AM	38	0	3	0	41	110	305	0	0	415	0	0	0	0	0	0	277	34	0	311	767
Total	173	0	23	0	196	443	1284	0	0	1727	0	0	0	0	0	0	1056	149	0	1205	3128
Grand Total	323	0	49	0	372	800	2682	0	0	3482	0	0	0	0	0	0	1929	233	0	2162	6016
Apprch %	86.8	0	13.2	0		23	77	0	0		0	0	0	0		0	89.2	10.8	0		
Total %	5.4	0	0.8	0	6.2	13.3	44.6	0	0	57.9	0	0	0	0	0	0	32.1	3.9	0	35.9	

	ANDERSEN DR Southbound					SIR FRANCIS DRAKE BLVD Westbound					Northbound					SIR FRANCIS DRAKE BLVD 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 07:45 AM																					
07:45 AM	51	0	**11**	0	62	115	**358**	0	0	**473**	0	0	0	0	0	0	256	32	0	288	**823**
08:00 AM	**61**	0	8	0	**69**	103	320	0	0	423	0	0	0	0	0	0	244	35	0	279	771
08:15 AM	36	0	2	0	38	**119**	319	0	0	438	0	0	0	0	0	0	**269**	**51**	0	**320**	796
08:30 AM	38	0	10	0	48	111	340	0	0	451	0	0	0	0	0	0	266	29	0	295	794
Total Volume	186	0	31	0	217	448	1337	0	0	1785	0	0	0	0	0	0	1035	147	0	1182	3184
% App. Total	85.7	0	14.3	0		25.1	74.9	0	0		0	0	0	0		0	87.6	12.4	0		
PHF	.762	.000	.705	.000	.786	.941	.934	.000	.000	.943	.000	.000	.000	.000	.000	.000	.962	.721	.000	.923	.967

Traffic Data Service

1386 White Oaks Road, Suite 1
Campbell, CA 95008
tdsbay@cs.com

File Name : 10PMFINAL
Site Code : 00000010
Start Date : 9/12/2006
Page No : 1

Groups Printed- Vehicles

	ANDERSEN DR Southbound					SIR FRANCIS DRAKE BLVD Westbound					Northbound					SIR FRANCIS DRAKE BLVD 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
Factor	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		
04:00 PM	18	0	31	0	49	98	215	0	0	313	0	0	0	0	0	0	323	61	0	384	746
04:15 PM	41	0	13	0	54	94	202	0	0	296	0	0	0	0	0	0	346	48	0	394	744
04:30 PM	26	0	22	0	48	93	244	0	0	337	0	0	0	0	0	0	384	43	0	427	812
04:45 PM	31	0	8	0	39	114	229	0	0	343	0	0	0	0	0	0	290	66	0	356	738
Total	116	0	74	0	190	399	890	0	0	1289	0	0	0	0	0	0	1343	218	0	1561	3040
05:00 PM	33	0	23	0	56	101	209	0	0	310	0	0	0	0	0	0	346	39	0	385	751
05:15 PM	37	0	24	0	61	127	275	0	0	402	0	0	0	0	0	0	316	28	0	344	807
05:30 PM	26	0	13	0	39	114	243	0	0	357	0	0	0	0	0	0	327	60	0	387	783
05:45 PM	18	0	17	0	35	108	256	0	0	364	0	0	0	0	0	0	294	40	0	334	733
Total	114	0	77	0	191	450	983	0	0	1433	0	0	0	0	0	0	1283	167	0	1450	3074
Grand Total	230	0	151	0	381	849	1873	0	0	2722	0	0	0	0	0	0	2626	385	0	3011	6114
Apprch %	60.4	0	39.6	0		31.2	68.8	0	0		0	0	0	0		0	87.2	12.8	0		
Total %	3.8	0	2.5	0	6.2	13.9	30.6	0	0	44.5	0	0	0	0	0	0	43	6.3	0	49.2	

	ANDERSEN DR Southbound					SIR FRANCIS DRAKE BLVD Westbound					Northbound					SIR FRANCIS DRAKE BLVD 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 04:30 PM																					
04:30 PM	26	0	22	0	48	93	244	0	0	337	0	0	0	0	0	0	**384**	43	0	**427**	**812**
04:45 PM	31	0	8	0	39	114	229	0	0	343	0	0	0	0	0	0	290	**66**	0	356	738
05:00 PM	33	0	23	0	56	101	209	0	0	310	0	0	0	0	0	0	346	39	0	385	751
05:15 PM	**37**	0	**24**	0	**61**	**127**	**275**	0	0	**402**	0	0	0	0	0	0	316	28	0	344	807
Total Volume	127	0	77	0	204	435	957	0	0	1392	0	0	0	0	0	0	1336	176	0	1512	3108
% App. Total	62.3	0	37.7	0		31.2	68.8	0	0		0	0	0	0		0	88.4	11.6	0		
PHF	.858	.000	.802	.000	.836	.856	.870	.000	.000	.866	.000	.000	.000	.000	.000	.000	.870	.667	.000	.885	.957

Traffic Data Service

1386 White Oaks Road, Suite 1
Campbell, CA 95008
tdsbay@cs.com

File Name : 14AMFINAL
Site Code : 00000014
Start Date : 9/14/2006
Page No : 1

Groups Printed- Vehicles

	DRIVEWAY Southbound					FIFER AVE Westbound					TAMAL VISTA BLVD Northbound					FIFER AVE 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
Factor	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		
06:30 AM	4	2	0	1	7	1	20	45	0	66	7	1	6	0	14	21	16	0	0	37	124
06:45 AM	2	5	3	1	11	0	37	53	0	90	6	0	30	1	37	34	31	0	0	65	203
Total	6	7	3	2	18	1	57	98	0	156	13	1	36	1	51	55	47	0	0	102	327
07:00 AM	3	5	4	0	12	1	50	45	1	97	6	5	50	1	62	37	34	0	0	71	242
07:15 AM	0	1	3	0	4	0	57	50	2	109	14	0	77	0	91	51	45	1	0	97	301
07:30 AM	1	7	2	0	10	2	82	36	6	126	7	2	155	6	170	99	78	1	1	179	485
07:45 AM	0	2	5	1	8	0	69	64	1	134	10	7	80	3	100	123	53	0	0	176	418
Total	4	15	14	1	34	3	258	195	10	466	37	14	362	10	423	310	210	2	1	523	1446
08:00 AM	0	9	2	1	12	1	40	79	0	120	13	5	63	0	81	89	87	1	0	177	390
08:15 AM	1	4	2	2	9	3	49	54	1	107	12	5	98	1	116	94	57	1	0	152	384
08:30 AM	1	7	2	2	12	2	43	59	0	104	15	9	34	2	60	85	78	0	0	163	339
08:45 AM	3	3	2	1	9	2	59	88	0	149	6	1	43	0	50	72	60	0	0	132	340
Total	5	23	8	6	42	8	191	280	1	480	46	20	238	3	307	340	282	2	0	624	1453
09:00 AM	0	7	4	2	13	1	37	82	0	120	14	2	45	1	62	57	46	0	0	103	298
09:15 AM	1	6	6	0	13	1	40	66	0	107	18	2	46	0	66	65	40	1	1	107	293
Grand Total	16	58	35	11	120	14	583	721	11	1329	128	39	727	15	909	827	625	5	2	1459	3817
Apprch %	13.3	48.3	29.2	9.2		1.1	43.9	54.3	0.8		14.1	4.3	80	1.7		56.7	42.8	0.3	0.1		
Total %	0.4	1.5	0.9	0.3	3.1	0.4	15.3	18.9	0.3	34.8	3.4	1	19	0.4	23.8	21.7	16.4	0.1	0.1	38.2	

	DRIVEWAY Southbound					FIFER AVE Westbound					TAMAL VISTA BLVD Northbound					FIFER AVE 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 06:30 AM to 09:15 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:30 AM																					
07:30 AM	**1**	7	2	0	10	2	**82**	36	**6**	126	7	2	**155**	**6**	**170**	99	78	**1**	**1**	**179**	**485**
07:45 AM	0	2	**5**	1	8	0	69	64	1	**134**	10	**7**	80	3	100	**123**	53	0	0	176	418
08:00 AM	0	**9**	2	1	**12**	1	40	**79**	0	120	**13**	5	63	0	81	89	**87**	1	0	177	390
08:15 AM	1	4	2	**2**	9	**3**	49	54	1	107	12	5	98	1	116	94	57	1	0	152	384
Total Volume	2	22	11	4	39	6	240	233	8	487	42	19	396	10	467	405	275	3	1	684	1677
% App. Total	5.1	56.4	28.2	10.3		1.2	49.3	47.8	1.6		9	4.1	84.8	2.1		59.2	40.2	0.4	0.1		
PHF	.500	.611	.550	.500	.813	.500	.732	.737	.333	.909	.808	.679	.639	.417	.687	.823	.790	.750	.250	.955	.864

Traffic Data Service

1386 White Oaks Road, Suite 1
Campbell, CA 95008
tdsbay@cs.com

File Name : 14PMFINAL
Site Code : 00000014
Start Date : 9/14/2006
Page No : 1

Groups Printed- Vehicles

	DRIVEWAY Southbound					FIFER AVE Westbound					TAMAL VISTA BLVD Northbound					FIFER AVE 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
Factor	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		
03:30 PM	4	5	4	0	13	2	62	77	0	141	18	4	92	0	114	86	41	1	1	129	397
03:45 PM	3	6	2	0	11	3	67	85	0	155	16	3	127	3	149	91	40	0	0	131	446
Total	7	11	6	0	24	5	129	162	0	296	34	7	219	3	263	177	81	1	1	260	843
04:00 PM	1	6	3	2	12	0	55	89	1	145	16	2	103	1	122	85	31	2	1	119	398
04:15 PM	3	8	6	0	17	0	51	84	0	135	9	8	100	0	117	69	40	0	1	110	379
04:30 PM	3	16	1	0	20	1	54	69	0	124	12	2	114	0	128	61	34	1	0	96	368
04:45 PM	2	7	2	2	13	0	59	74	0	133	12	9	96	0	117	72	41	1	0	114	377
Total	9	37	12	4	62	1	219	316	1	537	49	21	413	1	484	287	146	4	2	439	1522
05:00 PM	3	5	1	1	10	1	75	78	1	155	22	5	125	2	154	77	51	0	2	130	449
05:15 PM	4	6	1	0	11	0	65	69	1	135	10	6	116	0	132	80	48	0	0	128	406
05:30 PM	4	4	6	1	15	2	82	64	0	148	12	6	103	1	122	70	34	1	2	107	392
05:45 PM	2	6	4	0	12	1	74	89	2	166	15	7	113	1	136	86	42	0	1	129	443
Total	13	21	12	2	48	4	296	300	4	604	59	24	457	4	544	313	175	1	5	494	1690
06:00 PM	4	10	6	0	20	0	96	67	1	164	11	4	149	0	164	124	43	1	0	168	516
06:15 PM	1	6	5	1	13	2	101	68	0	171	12	0	181	3	196	75	42	0	0	117	497
Grand Total	34	85	41	7	167	12	841	913	6	1772	165	56	1419	11	1651	976	487	7	8	1478	5068
Apprch %	20.4	50.9	24.6	4.2		0.7	47.5	51.5	0.3		10	3.4	85.9	0.7		66	32.9	0.5	0.5		
Total %	0.7	1.7	0.8	0.1	3.3	0.2	16.6	18	0.1	35	3.3	1.1	28	0.2	32.6	19.3	9.6	0.1	0.2	29.2	

	DRIVEWAY Southbound					FIFER AVE Westbound					TAMAL VISTA BLVD Northbound					FIFER AVE 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 03:30 PM to 06:15 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 05:30 PM																					
05:30 PM	**4**	4	**6**	**1**	15	**2**	82	64	0	148	12	6	103	1	122	70	34	**1**	**2**	107	392
05:45 PM	2	6	4	0	12	1	74	**89**	**2**	166	**15**	**7**	113	1	136	86	42	0	1	129	443
06:00 PM	4	**10**	6	0	**20**	0	96	67	1	164	11	4	149	0	164	**124**	**43**	1	0	**168**	**516**
06:15 PM	1	6	5	1	13	2	**101**	68	0	**171**	12	0	**181**	**3**	**196**	75	42	0	0	117	497
Total Volume	11	26	21	2	60	5	353	288	3	649	50	17	546	5	618	355	161	2	3	521	1848
% App. Total	18.3	43.3	35	3.3		0.8	54.4	44.4	0.5		8.1	2.8	88.3	0.8		68.1	30.9	0.4	0.6		
PHF	.688	.650	.875	.500	.750	.625	.874	.809	.375	.949	.833	.607	.754	.417	.788	.716	.936	.500	.375	.775	.895

Traffic Data Service

1386 White Oaks Road, Suite 1
Campbell, CA 95008
tdsbay@cs.com

File Name : 16AMFINAL
Site Code : 00000016
Start Date : 9/14/2006
Page No : 1

Groups Printed- Vehicles

	REDWOOD HWY Southbound					INDUSTRIAL WY Westbound					REDWOOD HWY Northbound					US-101 NB RAMPS 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
Factor	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		
06:30 AM	29	19	1	0	49	2	10	11	0	23	12	24	29	0	65	41	2	16	0	59	196
06:45 AM	17	29	0	2	48	0	13	15	0	28	11	36	23	0	70	21	0	19	2	42	188
Total	46	48	1	2	97	2	23	26	0	51	23	60	52	0	135	62	2	35	2	101	384
07:00 AM	22	23	1	1	47	0	10	5	0	15	9	15	60	0	84	33	1	21	0	55	201
07:15 AM	12	19	0	0	31	1	5	7	1	14	14	16	57	0	87	29	0	38	0	67	199
07:30 AM	12	14	0	3	29	2	11	5	0	18	15	16	93	0	124	98	0	16	0	114	285
07:45 AM	15	18	0	0	33	0	8	5	1	14	18	11	118	0	147	33	1	17	1	52	246
Total	61	74	1	4	140	3	34	22	2	61	56	58	328	0	442	193	2	92	1	288	931
08:00 AM	23	12	0	2	37	4	15	13	0	32	18	9	106	0	133	34	0	19	0	53	255
08:15 AM	18	22	0	0	40	3	16	14	2	35	14	18	98	0	130	23	0	14	0	37	242
08:30 AM	49	30	1	4	84	1	6	12	0	19	10	21	88	0	119	34	0	15	0	49	271
08:45 AM	28	15	0	0	43	1	4	12	0	17	18	14	84	0	116	36	0	15	0	51	227
Total	118	79	1	6	204	9	41	51	2	103	60	62	376	0	498	127	0	63	0	190	995
09:00 AM	0	8	0	0	8	4	11	7	0	22	22	9	81	0	112	17	1	3	0	21	163
09:15 AM	5	3	0	0	8	2	11	16	1	30	23	17	84	0	124	25	0	8	3	36	198
Grand Total	230	212	3	12	457	20	120	122	5	267	184	206	921	0	1311	424	5	201	6	636	2671
Apprch %	50.3	46.4	0.7	2.6		7.5	44.9	45.7	1.9		14	15.7	70.3	0		66.7	0.8	31.6	0.9		
Total %	8.6	7.9	0.1	0.4	17.1	0.7	4.5	4.6	0.2	10	6.9	7.7	34.5	0	49.1	15.9	0.2	7.5	0.2	23.8	

	REDWOOD HWY Southbound					INDUSTRIAL WY Westbound					REDWOOD HWY Northbound					US-101 NB RAMPS 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 06:30 AM to 09:15 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:30 AM																					
07:30 AM	12	14	0	**3**	29	2	11	5	0	18	15	16	93	0	124	**98**	0	16	0	**114**	**285**
07:45 AM	15	18	0	0	33	0	8	5	1	14	**18**	11	**118**	0	**147**	33	**1**	17	**1**	52	246
08:00 AM	**23**	12	0	2	37	**4**	15	13	0	32	18	9	106	0	133	34	0	**19**	0	53	255
08:15 AM	18	**22**	0	0	**40**	3	**16**	**14**	**2**	**35**	14	**18**	98	0	130	23	0	14	0	37	242
Total Volume	68	66	0	5	139	9	50	37	3	99	65	54	415	0	534	188	1	66	1	256	1028
% App. Total	48.9	47.5	0	3.6		9.1	50.5	37.4	3		12.2	10.1	77.7	0		73.4	0.4	25.8	0.4		
PHF	.739	.750	.000	.417	.869	.563	.781	.661	.375	.707	.903	.750	.879	.000	.908	.480	.250	.868	.250	.561	.902

Traffic Data Service

1386 White Oaks Road, Suite 1
Campbell, CA 95008
tdsbay@cs.com

File Name : 16PMFINAL
Site Code : 00000016
Start Date : 9/14/2006
Page No : 1

Groups Printed- Vehicles

	REDWOOD HWY Southbound					INDUSTRIAL WY Westbound					REDWOOD HWY Northbound					US-101 NB RAMPS 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
Factor	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		
03:30 PM	15	14	0	0	29	0	11	10	0	21	19	36	260	1	316	8	0	6	3	17	383
03:45 PM	21	0	0	0	21	2	9	12	0	23	13	26	279	0	318	14	0	6	0	20	382
Total	36	14	0	0	50	2	20	22	0	44	32	62	539	1	634	22	0	12	3	37	765
04:00 PM	21	18	0	0	39	0	25	19	0	44	18	25	239	0	282	18	0	18	0	36	401
04:15 PM	14	3	0	0	17	1	12	14	0	27	17	35	236	0	288	7	0	4	2	13	345
04:30 PM	19	1	2	0	22	0	20	6	0	26	11	22	264	0	297	28	0	18	0	46	391
04:45 PM	10	23	1	2	36	1	20	18	1	40	16	23	235	2	276	17	0	14	3	34	386
Total	64	45	3	2	114	2	77	57	1	137	62	105	974	2	1143	70	0	54	5	129	1523
05:00 PM	18	15	3	0	36	1	8	9	1	19	10	30	246	1	287	16	0	11	0	27	369
05:15 PM	20	10	0	2	32	0	18	4	8	30	16	20	196	0	232	12	1	3	9	25	319
05:30 PM	29	9	1	3	42	0	17	8	0	25	3	30	243	1	277	22	0	2	0	24	368
05:45 PM	14	13	4	0	31	0	13	5	8	26	9	22	232	0	263	16	0	5	13	34	354
Total	81	47	8	5	141	1	56	26	17	100	38	102	917	2	1059	66	1	21	22	110	1410
06:00 PM	11	14	0	0	25	3	11	7	4	25	15	23	288	9	335	22	0	9	1	32	417
06:15 PM	8	6	0	0	14	0	10	4	0	14	5	20	196	0	221	5	0	2	4	11	260
Grand Total	200	126	11	7	344	8	174	116	22	320	152	312	2914	14	3392	185	1	98	35	319	4375
Apprch %	58.1	36.6	3.2	2		2.5	54.4	36.2	6.9		4.5	9.2	85.9	0.4		58	0.3	30.7	11		
Total %	4.6	2.9	0.3	0.2	7.9	0.2	4	2.7	0.5	7.3	3.5	7.1	66.6	0.3	77.5	4.2	0	2.2	0.8	7.3	

	REDWOOD HWY Southbound					INDUSTRIAL WY Westbound					REDWOOD HWY Northbound					US-101 NB RAMPS 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 03:30 PM to 06:15 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:00 PM																					
04:00 PM	**21**	18	0	0	**39**	0	**25**	**19**	0	**44**	**18**	25	239	0	282	18	0	**18**	0	36	**401**
04:15 PM	14	3	0	0	17	**1**	12	14	0	27	17	**35**	236	0	288	7	0	4	2	13	345
04:30 PM	19	1	**2**	0	22	0	20	6	0	26	11	22	**264**	0	**297**	**28**	0	18	0	**46**	391
04:45 PM	10	**23**	1	**2**	36	1	20	18	**1**	40	16	23	235	**2**	276	17	0	14	**3**	34	386
Total Volume	64	45	3	2	114	2	77	57	1	137	62	105	974	2	1143	70	0	54	5	129	1523
% App. Total	56.1	39.5	2.6	1.8		1.5	56.2	41.6	0.7		5.4	9.2	85.2	0.2		54.3	0	41.9	3.9		
PHF	.762	.489	.375	.250	.731	.500	.770	.750	.250	.778	.861	.750	.922	.250	.962	.625	.000	.750	.417	.701	.950

APPENDIX A-3

2011 INTERSECTION TURNING MOVEMENT COUNTS

Type of peak hour being reported: Intersection Peak

Method for determining peak hour: Total Entering Volume

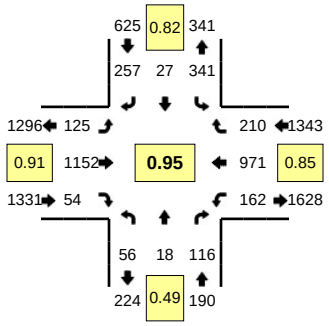
LOCATION: Wolfe Grade -- Sir Francis Drake Blvd

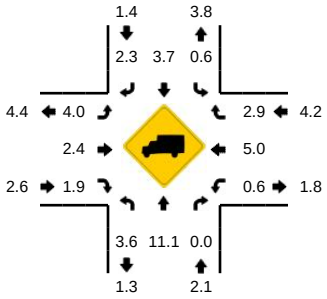
QC JOB #: 10663521

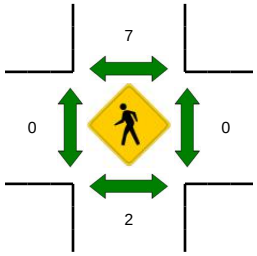
CITY/STATE: Marin County/Larkspur, CA

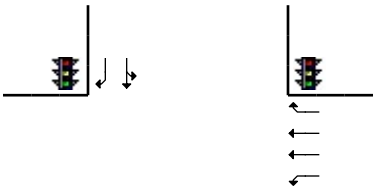
DATE: Thu, Oct 06 2011

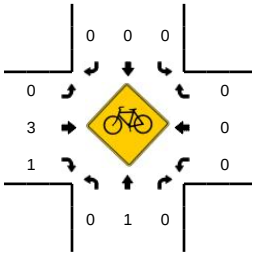
Peak-Hour: 7:30 AM -- 8:30 AM
Peak 15-Min: 8:15 AM -- 8:30 AM

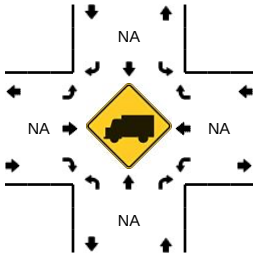


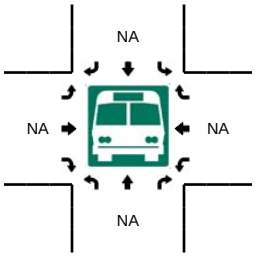












15-Min Count Period Beginning At	Wolfe Grade (Northbound)				Wolfe Grade (Southbound)				Sir Francis Drake Blvd (Eastbound)				Sir Francis Drake Blvd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:30 AM	3	1	5	0	98	1	48	0	25	329	3	0	6	234	36	8	797	
7:45 AM	13	3	7	0	111	9	64	0	30	279	23	2	34	274	49	11	909	
8:00 AM	23	8	68	0	78	14	98	0	25	226	18	4	67	190	41	0	860	
8:15 AM	17	6	36	0	54	3	47	0	33	318	10	6	36	273	84	0	923	3489
8:30 AM	3	0	5	0	50	3	40	0	38	247	21	1	9	178	66	0	661	3353
8:45 AM	7	2	19	0	72	2	59	0	35	240	7	1	11	184	48	0	687	3131
9:00 AM	7	4	14	0	69	3	58	0	37	213	2	1	11	228	51	0	698	2969
9:15 AM	1	1	9	0	48	0	57	0	23	263	1	1	8	282	50	0	744	2790

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	68	24	144	0	216	12	188	0	132	1272	40	24	144	1092	336	0	3692
Heavy Trucks	0	4	0		4	0	4		0	52	4		0	64	12		144
Pedestrians		4				0				0				0			4
Bicycles	0	0	0		0	0	0		0	1	0		0	0	0		1
Railroad																	
Stopped Buses																	

Comments:

Report generated on 12/6/2011 3:07 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: Intersection Peak

Method for determining peak hour: Total Entering Volume

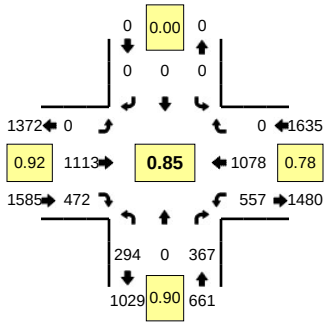
LOCATION: Bon Air Rd -- Sir Francis Drake Blvd

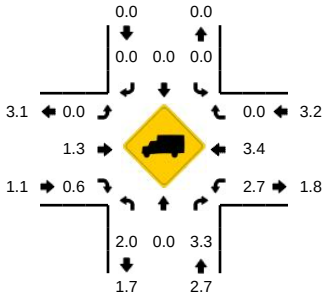
QC JOB #: 10663515

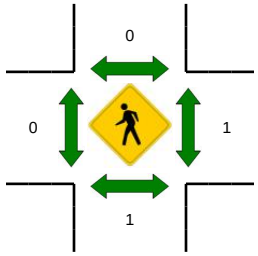
CITY/STATE: Marin County/Larkspur, CA

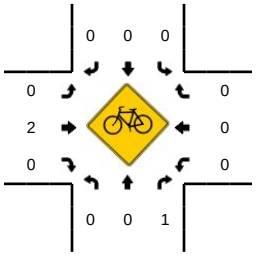
DATE: Thu, Oct 06 2011

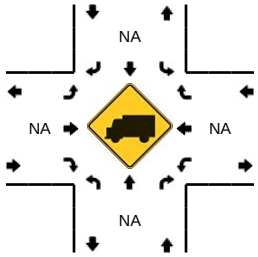
Peak-Hour: 7:30 AM -- 8:30 AM
Peak 15-Min: 7:45 AM -- 8:00 AM

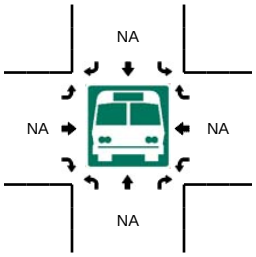












15-Min Count Period Beginning At	Bon Air Rd (Northbound)				Bon Air Rd (Southbound)				Sir Francis Drake Blvd (Eastbound)				Sir Francis Drake Blvd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:30 AM	55	0	98	0	0	0	0	0	0	304	103	0	121	274	0	0	955	
7:45 AM	88	0	97	0	0	0	0	0	0	296	133	0	169	354	0	0	1137	
8:00 AM	87	0	86	0	0	0	0	0	0	254	107	0	148	223	0	0	905	
8:15 AM	64	0	86	0	0	0	0	0	0	259	129	0	119	227	0	0	884	3881
8:30 AM	64	0	95	0	0	0	0	0	0	174	97	0	133	186	0	0	749	3675
8:45 AM	44	0	85	0	0	0	0	0	0	223	143	0	158	194	0	0	847	3385
9:00 AM	48	0	78	0	0	0	0	0	0	226	94	0	127	252	0	0	825	3305
9:15 AM	46	0	59	0	0	0	0	0	0	251	55	0	126	287	0	0	824	3245

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	352	0	388	0	0	0	0	0	0	1184	532	0	676	1416	0	0	4548
Heavy Trucks	4	0	16		0	0	0		0	16	8		12	20	0		76
Pedestrians		4				0				0				0			4
Bicycles	0	0	1		0	0	0		0	0	0		0	0	0		1
Railroad																	
Stopped Buses																	

Comments:

Report generated on 12/6/2011 3:07 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: Intersection Peak

Method for determining peak hour: Total Entering Volume

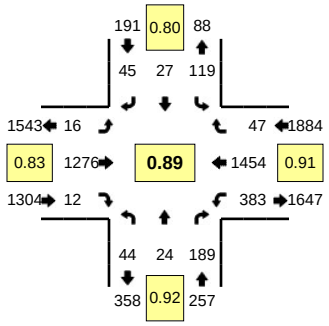
LOCATION: Elisio Dr -- Sir Francis Drake Blvd

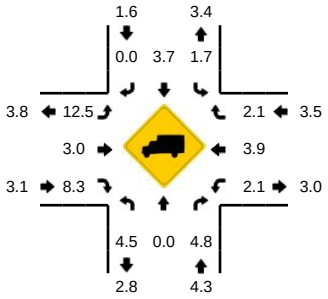
QC JOB #: 10663506

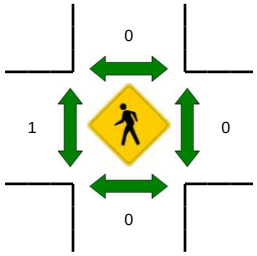
CITY/STATE: Marin County/Larkspur, CA

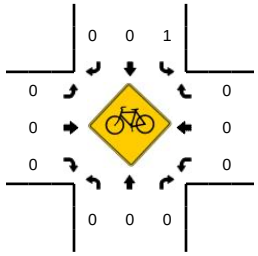
DATE: Thu, Oct 06 2011

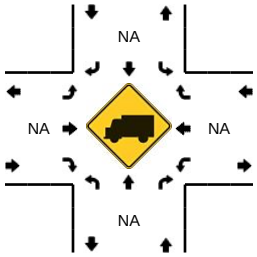
Peak-Hour: 8:30 AM -- 9:30 AM
Peak 15-Min: 9:00 AM -- 9:15 AM

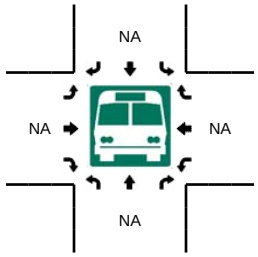












15-Min Count Period Beginning At	Elisio Dr (Northbound)				Elisio Dr (Southbound)				Sir Francis Drake Blvd (Eastbound)				Sir Francis Drake Blvd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:30 AM	17	2	42	0	46	6	8	0	2	436	4	0	64	372	16	10	1025	
7:45 AM	12	2	43	0	55	7	20	0	2	345	5	0	47	446	17	8	1009	
8:00 AM	8	6	50	1	48	4	17	0	1	228	3	0	96	328	20	8	818	
8:15 AM	10	7	57	0	37	7	9	0	3	261	1	1	80	263	12	9	757	3609
8:30 AM	10	10	53	0	33	6	9	0	6	249	3	0	70	293	7	10	759	3343
8:45 AM	8	5	46	0	23	9	17	0	4	270	1	0	93	354	14	14	858	3192
9:00 AM	12	4	44	0	32	8	8	0	1	386	5	0	79	395	20	23	1017	3391
9:15 AM	14	5	46	0	30	4	11	1	5	371	3	0	77	412	6	17	1002	3636

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	48	16	176	0	128	32	32	0	4	1544	20	0	316	1580	80	92	4068
Heavy Trucks	8	0	4		4	0	0		0	40	0		4	60	4		124
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Railroad																	
Stopped Buses																	

Comments:

Report generated on 12/6/2011 3:07 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: Intersection Peak

Method for determining peak hour: Total Entering Volume

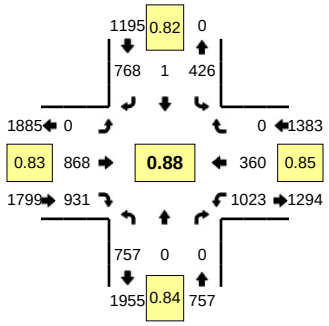
LOCATION: US 101 SB Ramps -- Sir Francis Drake Blvd

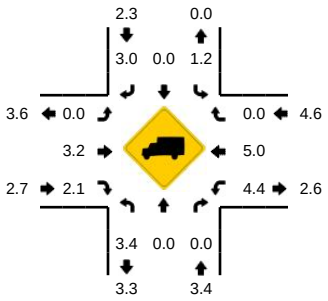
QC JOB #: 10663536

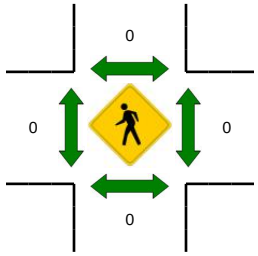
CITY/STATE: Marin County/Larkspur, CA

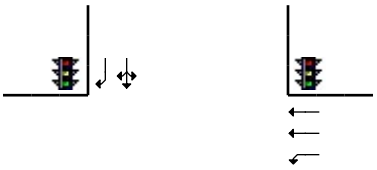
DATE: Thu, Oct 06 2011

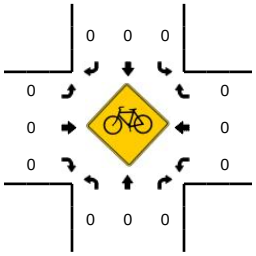
Peak-Hour: 8:30 AM -- 9:30 AM
Peak 15-Min: 9:00 AM -- 9:15 AM

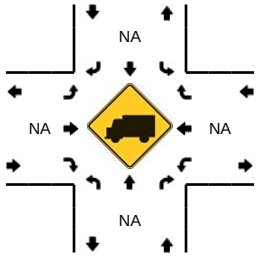


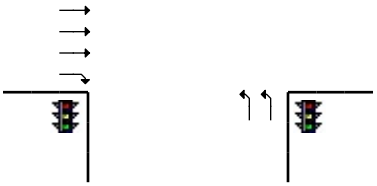


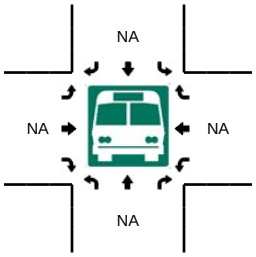












15-Min Count Period Beginning At	US 101 SB Ramps (Northbound)				US 101 SB Ramps (Southbound)				Sir Francis Drake Blvd (Eastbound)				Sir Francis Drake Blvd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:30 AM	124	0	0	0	134	0	233	0	0	263	289	0	279	105	0	0	1427	
7:45 AM	234	0	0	0	124	1	174	0	0	212	241	0	249	113	0	0	1348	
8:00 AM	205	0	0	0	127	1	162	0	0	198	217	0	223	82	0	0	1215	
8:15 AM	140	0	0	0	102	2	149	0	0	229	193	0	192	76	0	0	1083	5073
8:30 AM	150	0	0	0	83	0	175	0	0	202	188	0	203	56	0	0	1057	4703
8:45 AM	159	0	0	0	107	0	209	0	0	199	213	0	237	107	0	0	1231	4586
9:00 AM	225	0	0	0	135	1	198	0	0	250	275	0	277	94	0	0	1455	4826
9:15 AM	223	0	0	0	101	0	186	0	0	217	255	0	306	103	0	0	1391	5134

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	900	0	0	0	540	4	792	0	0	1000	1100	0	1108	376	0	0	5820
Heavy Trucks	28	0	0		4	0	20		0	24	12		64	20	0		172
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Railroad																	
Stopped Buses																	

Comments:

Report generated on 12/6/2011 3:07 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: Intersection Peak

Method for determining peak hour: Total Entering Volume

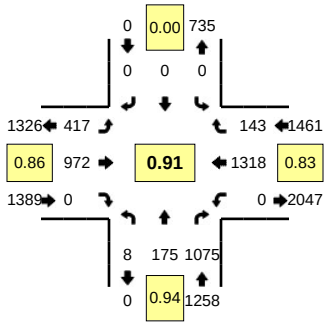
LOCATION: US 101 NB Ramps -- Sir Francis Drake Blvd

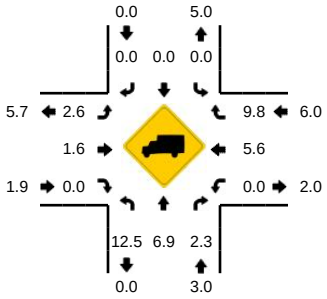
QC JOB #: 10663533

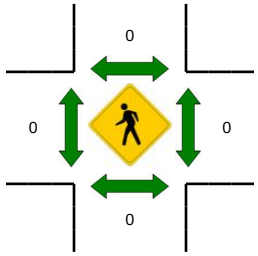
CITY/STATE: Marin County/Larkspur, CA

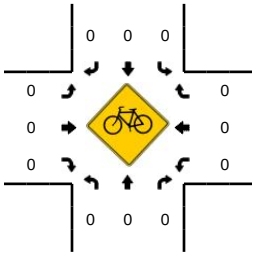
DATE: Thu, Oct 06 2011

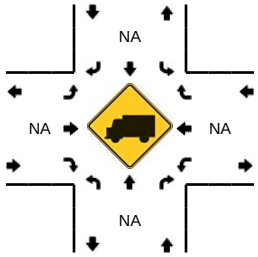
Peak-Hour: 7:30 AM -- 8:30 AM
Peak 15-Min: 7:30 AM -- 7:45 AM

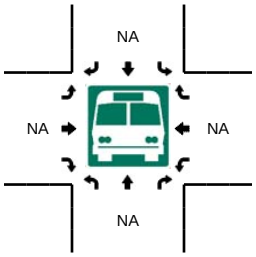












15-Min Count Period Beginning At	US 101 NB Ramps (Northbound)				US 101 NB Ramps (Southbound)				Sir Francis Drake Blvd (Eastbound)				Sir Francis Drake Blvd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:30 AM	0	40	258	0	0	0	0	0	108	294	0	0	0	397	31	0	1128	
7:45 AM	5	35	235	0	0	0	0	0	109	213	0	0	0	359	34	0	990	
8:00 AM	3	45	287	0	0	0	0	0	91	242	0	0	0	298	34	0	1000	
8:15 AM	0	55	295	0	0	0	0	0	109	223	0	0	0	264	44	0	990	4108
8:30 AM	1	56	254	0	0	0	0	0	120	167	0	0	0	249	28	0	875	3855
8:45 AM	1	63	256	0	0	0	0	0	98	202	0	0	0	325	19	0	964	3829
9:00 AM	0	58	241	0	0	0	0	0	109	277	0	0	0	379	24	0	1088	3917
9:15 AM	1	54	201	0	0	0	0	0	112	204	0	0	0	399	45	0	1016	3943

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	160	1032	0	0	0	0	0	432	1176	0	0	0	1588	124	0	4512
Heavy Trucks	0	16	28		0	0	0		12	12	0		0	72	4		144
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Railroad																	
Stopped Buses																	

Comments:

Report generated on 12/6/2011 3:07 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: Intersection Peak

Method for determining peak hour: Total Entering Volume

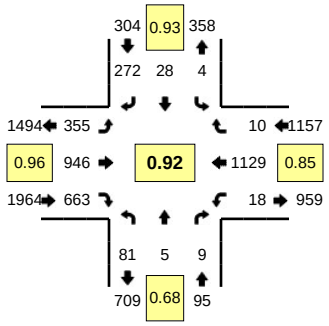
LOCATION: W Larkspur Landing -- E Sir Francis Drake Blvd

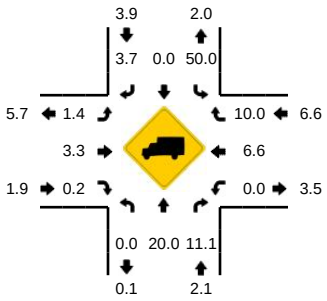
QC JOB #: 10663542

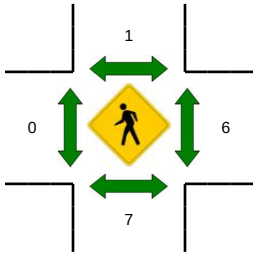
CITY/STATE: Marin County/Larkspur, CA

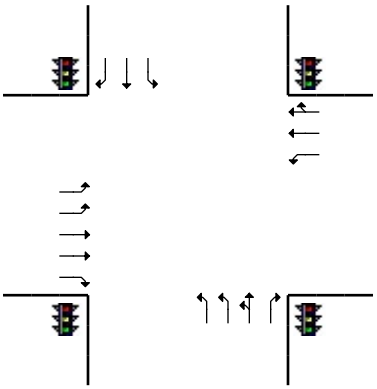
DATE: Thu, Oct 06 2011

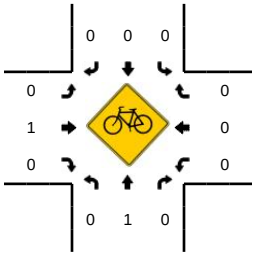
Peak-Hour: 7:30 AM -- 8:30 AM
Peak 15-Min: 7:30 AM -- 7:45 AM

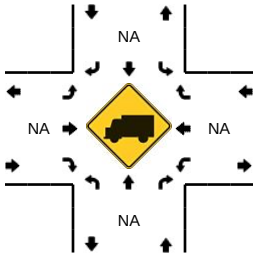


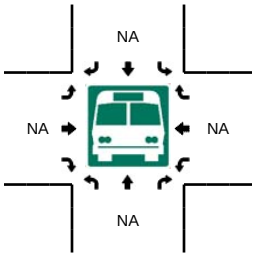












15-Min Count Period Beginning At	W Larkspur Landing (Northbound)				W Larkspur Landing (Southbound)				E Sir Francis Drake Blvd (Eastbound)				E Sir Francis Drake Blvd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:30 AM	15	2	1	0	3	13	68	0	59	216	235	2	4	335	1	0	954	
7:45 AM	20	0	4	0	1	4	66	0	105	225	120	3	4	298	1	0	851	
8:00 AM	16	2	0	0	0	8	63	0	76	228	196	2	7	284	4	0	886	
8:15 AM	30	1	4	0	0	3	75	0	103	277	112	5	3	212	4	0	829	3520
8:30 AM	8	1	1	0	1	2	92	0	132	249	31	6	0	185	0	0	708	3274
8:45 AM	4	3	1	0	2	4	84	0	126	218	56	4	5	242	1	0	750	3173
9:00 AM	33	2	0	0	1	5	96	0	131	236	122	3	2	276	3	0	910	3197
9:15 AM	8	1	0	0	4	0	90	0	146	234	12	2	2	332	5	0	836	3204

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	60	8	4	0	12	52	272	0	236	864	940	8	16	1340	4	0	3816
Heavy Trucks	0	0	0		8	0	12		0	32	0		0	72	4		128
Pedestrians		20				4				0				20			44
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Railroad																	
Stopped Buses																	

Comments:

Report generated on 12/6/2011 3:07 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: Intersection Peak

Method for determining peak hour: Total Entering Volume

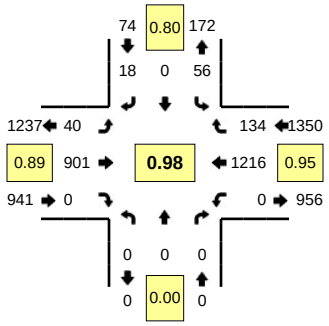
LOCATION: E Larkspur Landing -- E Sir Francis Drake Blvd

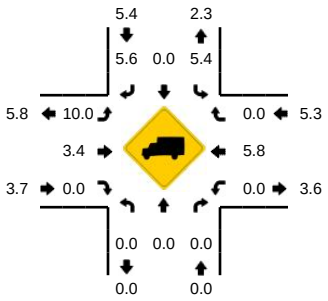
QC JOB #: 10663539

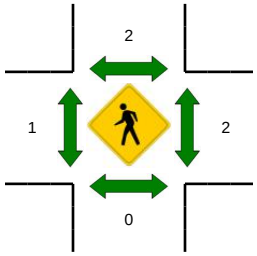
CITY/STATE: Marin County/Larkspur, CA

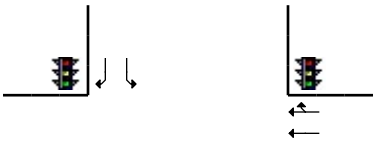
DATE: Thu, Oct 06 2011

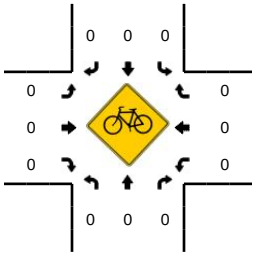
Peak-Hour: 7:30 AM -- 8:30 AM
Peak 15-Min: 8:15 AM -- 8:30 AM

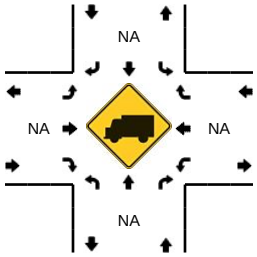


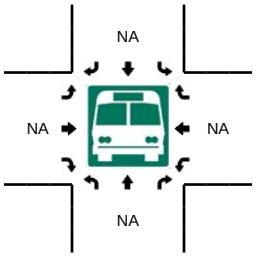












15-Min Count Period Beginning At	E Larkspur Landing (Northbound)				E Larkspur Landing (Southbound)				E Sir Francis Drake Blvd (Eastbound)				E Sir Francis Drake Blvd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:30 AM	0	0	0	0	16	0	5	0	4	209	0	2	0	328	27	0	591	
7:45 AM	0	0	0	0	13	0	4	0	12	209	0	0	0	299	32	0	569	
8:00 AM	0	0	0	0	16	0	6	1	9	218	0	0	0	325	24	0	599	
8:15 AM	0	0	0	0	10	0	3	0	12	265	0	1	0	264	51	0	606	2365
8:30 AM	0	0	0	0	15	0	5	0	13	244	0	0	0	165	47	0	489	2263
8:45 AM	0	0	0	0	12	0	4	0	18	210	0	1	0	241	42	0	528	2222
9:00 AM	0	0	0	0	7	0	6	0	17	209	0	2	0	275	68	0	584	2207
9:15 AM	0	0	0	0	8	0	9	0	45	207	0	1	0	277	27	0	574	2175

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	0	0	0	40	0	12	0	48	1060	0	4	0	1056	204	0	2424
Heavy Trucks	0	0	0		0	0	0		0	24	0		0	80	0		104
Pedestrians		0				4				0				8			12
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Railroad																	
Stopped Buses																	

Comments:

Report generated on 12/6/2011 3:07 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: Intersection Peak

Method for determining peak hour: Total Entering Volume

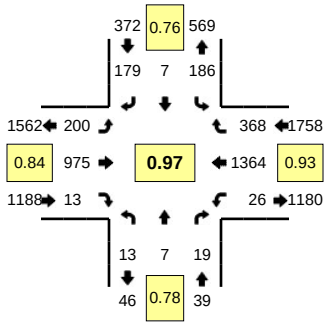
LOCATION: Wolfe Grade -- Sir Francis Drake Blvd

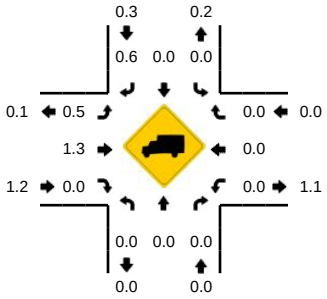
QC JOB #: 10663520

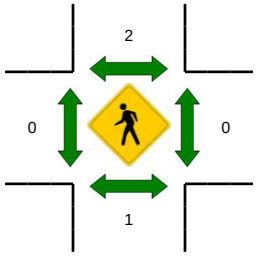
CITY/STATE: Marin County/Larkspur, CA

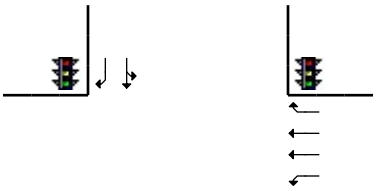
DATE: Thu, Oct 06 2011

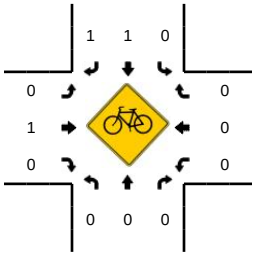
Peak-Hour: 5:00 PM -- 6:00 PM
Peak 15-Min: 5:45 PM -- 6:00 PM

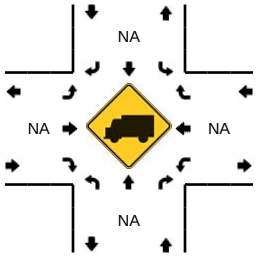


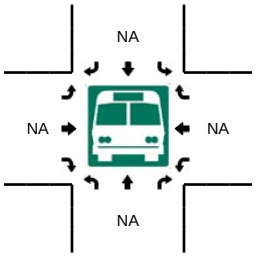












15-Min Count Period Beginning At	Wolfe Grade (Northbound)				Wolfe Grade (Southbound)				Sir Francis Drake Blvd (Eastbound)				Sir Francis Drake Blvd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	7	2	11	0	39	3	41	0	75	286	2	0	5	303	103	0	877	
4:15 PM	4	4	9	0	57	0	31	0	49	241	3	2	7	232	101	0	740	
4:30 PM	10	1	7	0	43	1	21	0	49	245	8	3	5	281	103	0	777	
4:45 PM	2	1	4	0	60	0	35	0	44	204	2	0	2	264	100	0	718	3112
5:00 PM	3	0	4	0	38	1	32	0	57	253	2	2	5	322	87	0	806	3041
5:15 PM	1	2	7	0	50	3	35	0	43	274	1	2	11	326	94	0	849	3150
5:30 PM	4	3	5	0	48	2	41	0	53	229	4	2	3	346	93	0	833	3206
5:45 PM	5	2	3	0	50	1	71	0	41	219	6	0	7	370	94	0	869	3357

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	20	8	12	0	200	4	284	0	164	876	24	0	28	1480	376	0	3476
Heavy Trucks	0	0	0		0	0	0		0	12	0		0	0	0		12
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Railroad																	
Stopped Buses																	

Comments:

Report generated on 12/6/2011 3:07 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: Intersection Peak

Method for determining peak hour: Total Entering Volume

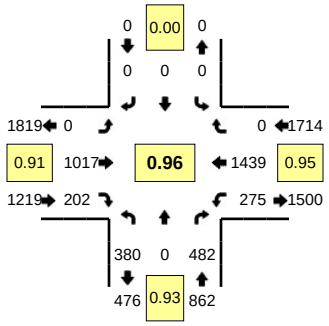
LOCATION: Bon Air Rd -- Sir Francis Drake Blvd

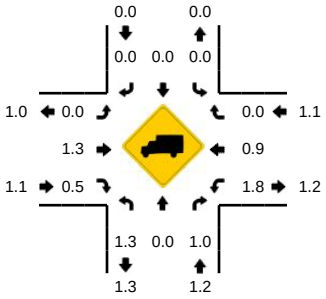
QC JOB #: 10663514

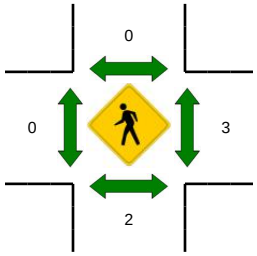
CITY/STATE: Marin County/Larkspur, CA

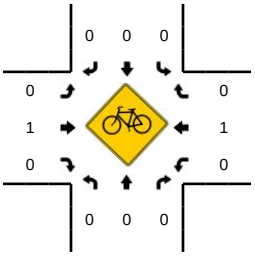
DATE: Thu, Oct 06 2011

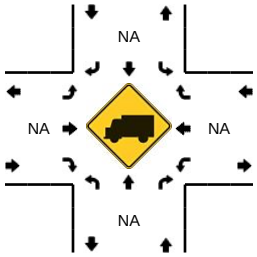
Peak-Hour: 5:00 PM -- 6:00 PM
Peak 15-Min: 5:15 PM -- 5:30 PM

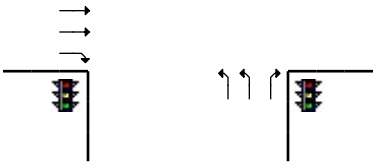


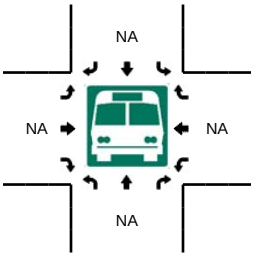












15-Min Count Period Beginning At	Bon Air Rd (Northbound)				Bon Air Rd (Southbound)				Sir Francis Drake Blvd (Eastbound)				Sir Francis Drake Blvd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	94	0	148	0	0	0	0	0	0	282	61	0	94	321	0	0	1000	
4:15 PM	92	0	115	0	0	0	0	0	0	232	48	0	89	236	0	0	812	
4:30 PM	85	0	128	0	0	0	0	0	0	238	51	0	90	329	0	0	921	
4:45 PM	109	0	125	0	0	0	0	0	0	225	41	0	90	289	0	2	881	3614
5:00 PM	83	0	129	0	0	0	0	0	0	259	37	0	59	334	0	1	902	3516
5:15 PM	90	0	129	0	0	0	0	0	0	273	62	0	76	357	0	0	987	3691
5:30 PM	107	0	115	0	0	0	0	0	0	246	52	0	72	366	0	0	958	3728
5:45 PM	100	0	109	0	0	0	0	0	0	239	51	0	67	382	0	0	948	3795

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	360	0	516	0	0	0	0	0	0	1092	248	0	304	1428	0	0	3948
Heavy Trucks	12	0	12		0	0	0		0	16	4		4	12	0		60
Pedestrians		8				0				0				0			8
Bicycles	0	0	0		0	0	0		0	1	0		0	0	0		1
Railroad																	
Stopped Buses																	

Comments:

Report generated on 12/6/2011 3:07 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: Intersection Peak

Method for determining peak hour: Total Entering Volume

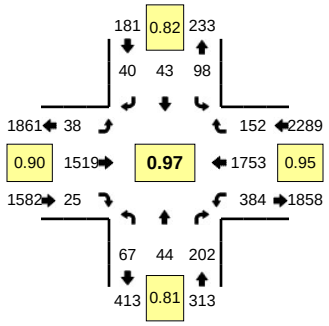
LOCATION: Elisio Dr -- Sir Francis Drake Blvd

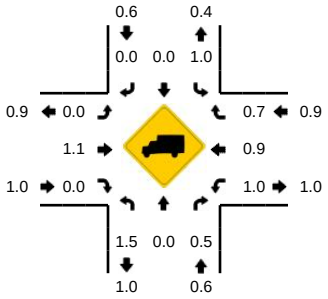
QC JOB #: 10663505

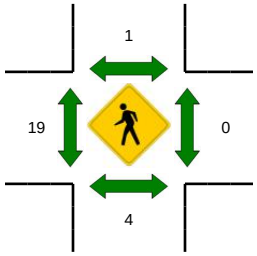
CITY/STATE: Marin County/Larkspur, CA

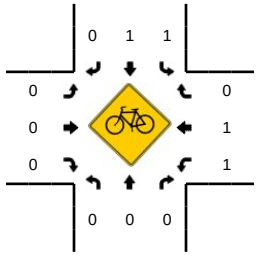
DATE: Thu, Oct 06 2011

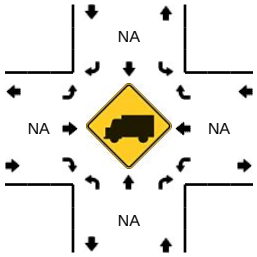
Peak-Hour: 5:00 PM -- 6:00 PM
Peak 15-Min: 5:30 PM -- 5:45 PM

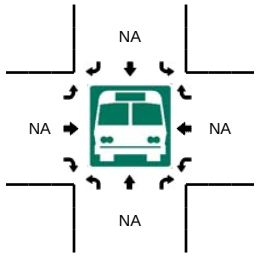












15-Min Count Period Beginning At	Elisio Dr (Northbound)				Elisio Dr (Southbound)				Sir Francis Drake Blvd (Eastbound)				Sir Francis Drake Blvd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	19	19	66	0	21	7	7	1	6	406	4	0	76	371	21	20	1044	
4:15 PM	16	11	52	0	17	6	10	0	3	463	4	0	80	370	24	14	1070	
4:30 PM	19	12	59	0	27	13	10	0	8	415	1	1	73	395	35	5	1073	
4:45 PM	20	9	36	0	16	2	9	0	7	361	6	1	81	362	37	13	960	4147
5:00 PM	19	5	57	0	19	12	12	0	9	333	8	0	89	424	32	10	1029	4132
5:15 PM	15	12	50	0	19	13	11	0	5	437	5	1	79	436	35	7	1125	4187
5:30 PM	15	13	51	0	24	7	9	0	12	391	5	0	90	453	47	13	1130	4244
5:45 PM	18	14	44	0	36	11	8	0	11	358	7	0	87	440	38	9	1081	4365

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	60	52	204	0	96	28	36	0	48	1564	20	0	360	1812	188	52	4520
Heavy Trucks	0	0	0		0	0	0		0	16	0		4	16	0		36
Pedestrians		0				0				16				0			16
Bicycles	0	0	0		0	1	0		0	0	0		0	0	0		1
Railroad																	
Stopped Buses																	

Comments:

Report generated on 12/6/2011 3:07 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: Intersection Peak

Method for determining peak hour: Total Entering Volume

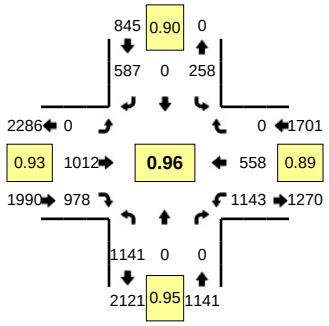
LOCATION: US 101 SB Ramps -- Sir Francis Drake Blvd

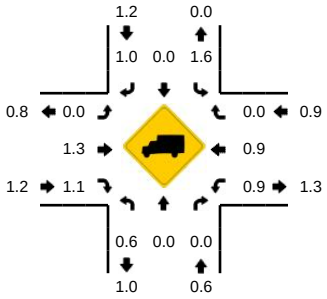
QC JOB #: 10663535

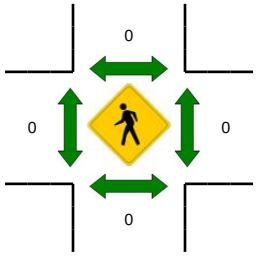
CITY/STATE: Marin County/Larkspur, CA

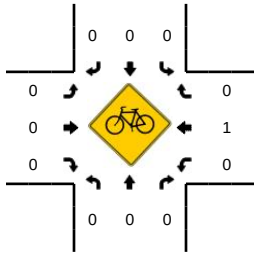
DATE: Thu, Oct 06 2011

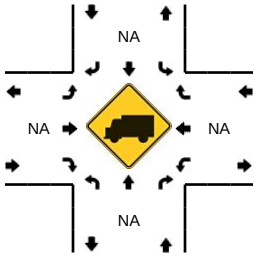
Peak-Hour: 5:00 PM -- 6:00 PM
Peak 15-Min: 5:30 PM -- 5:45 PM

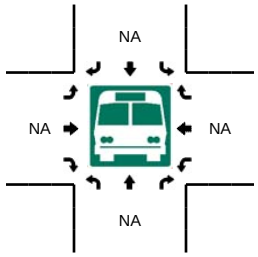












15-Min Count Period Beginning At	US 101 SB Ramps (Northbound)				US 101 SB Ramps (Southbound)				Sir Francis Drake Blvd (Eastbound)				Sir Francis Drake Blvd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	254	0	0	0	52	0	138	0	0	308	251	0	227	96	0	0	1326	
4:15 PM	222	0	0	0	58	1	150	0	0	287	264	0	227	115	0	0	1324	
4:30 PM	283	0	0	0	74	1	135	0	0	282	231	0	234	89	0	0	1329	
4:45 PM	246	0	0	0	48	0	165	0	0	241	213	0	235	87	0	0	1235	5214
5:00 PM	263	0	0	0	56	0	138	0	0	254	216	0	267	152	0	0	1346	5234
5:15 PM	284	0	0	0	83	0	155	0	0	259	252	0	297	117	0	0	1447	5357
5:30 PM	295	0	0	0	63	0	139	0	0	248	263	0	308	169	0	0	1485	5513
5:45 PM	299	0	0	0	56	0	155	0	0	251	247	0	271	120	0	0	1399	5677

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	1180	0	0	0	252	0	556	0	0	992	1052	0	1232	676	0	0	5940
Heavy Trucks	8	0	0		0	0	4		0	0	16		12	8	0		48
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Railroad																	
Stopped Buses																	

Comments:

Report generated on 12/6/2011 3:07 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: Intersection Peak

Method for determining peak hour: Total Entering Volume

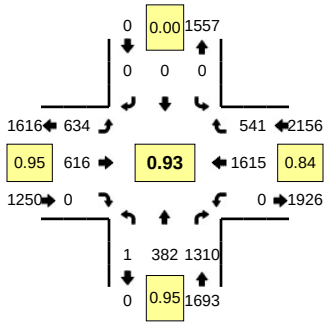
LOCATION: US 101 NB Ramps -- Sir Francis Drake Blvd

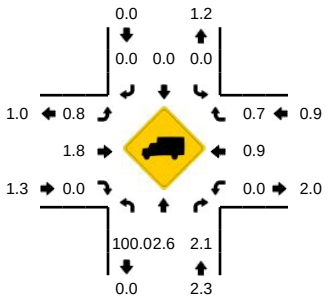
QC JOB #: 10663532

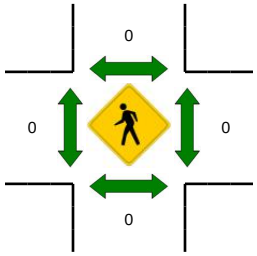
CITY/STATE: Marin County/Larkspur, CA

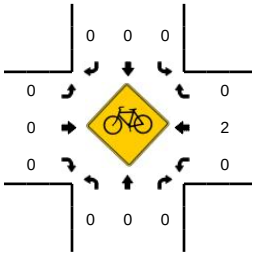
DATE: Thu, Oct 06 2011

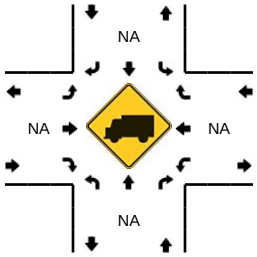
Peak-Hour: 4:45 PM -- 5:45 PM
Peak 15-Min: 5:30 PM -- 5:45 PM

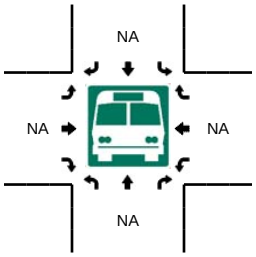












15-Min Count Period Beginning At	US 101 NB Ramps (Northbound)				US 101 NB Ramps (Southbound)				Sir Francis Drake Blvd (Eastbound)				Sir Francis Drake Blvd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	98	320	0	0	0	0	0	203	155	0	0	0	341	99	0	1216	
4:15 PM	0	115	324	0	0	0	0	0	182	179	0	0	0	341	69	0	1210	
4:30 PM	1	99	347	0	0	0	0	0	182	177	0	0	0	309	79	0	1194	
4:45 PM	1	106	361	0	0	0	0	0	164	125	0	0	0	324	76	0	1157	4777
5:00 PM	0	90	326	0	0	0	0	0	164	155	0	0	0	420	209	0	1364	4925
5:15 PM	0	98	308	0	0	0	0	0	154	175	0	0	0	392	84	0	1211	4926
5:30 PM	0	88	315	0	0	0	0	0	152	161	0	0	0	479	172	0	1367	5099
5:45 PM	0	90	305	0	0	0	0	0	171	130	0	0	0	361	73	0	1130	5072

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	352	1260	0	0	0	0	0	608	644	0	0	0	1916	688	0	5468
Heavy Trucks	0	16	8		0	0	0		0	4	0		0	16	0		44
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Railroad																	
Stopped Buses																	

Comments:

Report generated on 12/6/2011 3:07 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: Intersection Peak

Method for determining peak hour: Total Entering Volume

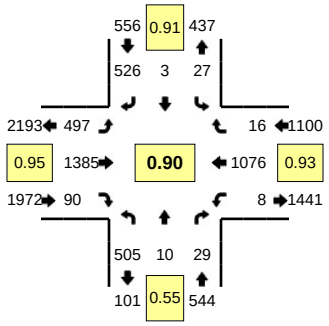
LOCATION: W Larkspur Landing -- E Sir Francis Drake Blvd

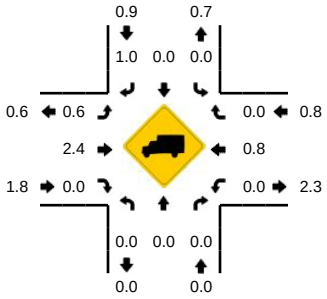
QC JOB #: 10663541

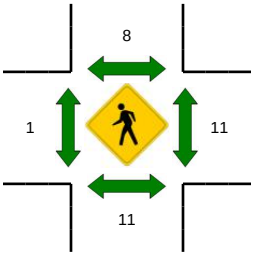
CITY/STATE: Marin County/Larkspur, CA

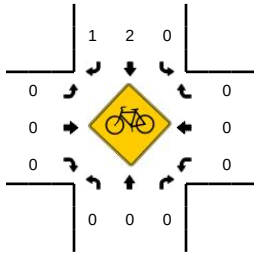
DATE: Thu, Oct 06 2011

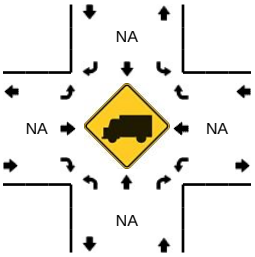
Peak-Hour: 5:00 PM -- 6:00 PM
Peak 15-Min: 5:00 PM -- 5:15 PM

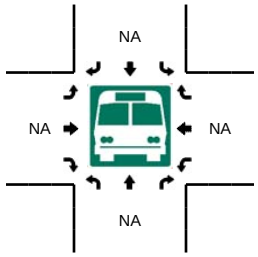












15-Min Count Period Beginning At	W Larkspur Landing (Northbound)				W Larkspur Landing (Southbound)				E Sir Francis Drake Blvd (Eastbound)				E Sir Francis Drake Blvd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	102	0	4	0	4	0	92	0	77	364	21	17	2	219	4	0	906	
4:15 PM	11	2	0	0	5	0	113	0	104	411	9	14	0	275	1	1	946	
4:30 PM	12	0	2	0	6	0	140	0	103	393	17	7	1	224	3	0	908	
4:45 PM	33	0	1	0	6	2	105	0	70	355	22	7	3	252	4	0	860	3620
5:00 PM	234	4	15	0	8	1	128	0	113	364	20	30	4	230	3	0	1154	3868
5:15 PM	53	1	3	0	3	2	148	0	90	343	32	20	1	293	3	0	992	3914
5:30 PM	203	5	9	0	8	0	116	0	112	366	23	21	1	274	6	0	1144	4150
5:45 PM	15	0	2	0	8	0	134	0	96	312	15	15	2	279	4	0	882	4172

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	936	16	60	0	32	4	512	0	452	1456	80	120	16	920	12	0	4616
Heavy Trucks	0	0	0		0	0	4		4	56	0		0	16	0		80
Pedestrians		0				12				0				20			32
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Railroad																	
Stopped Buses																	

Comments:

Report generated on 12/6/2011 3:07 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: Intersection Peak

Method for determining peak hour: Total Entering Volume

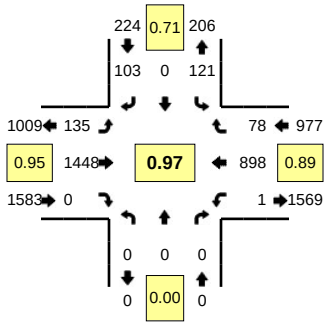
LOCATION: E Larkspur Landing -- E Sir Francis Drake Blvd

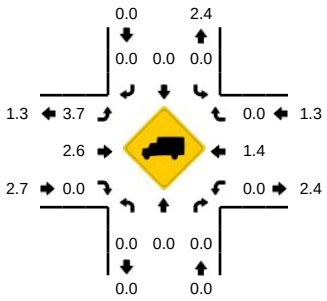
QC JOB #: 10663538

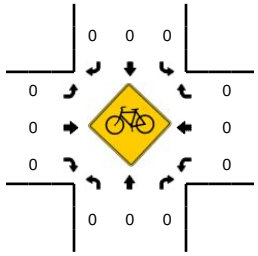
CITY/STATE: Marin County/Larkspur, CA

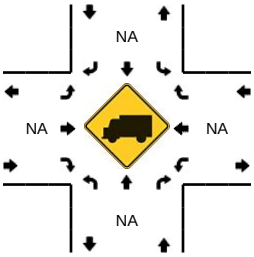
DATE: Thu, Oct 06 2011

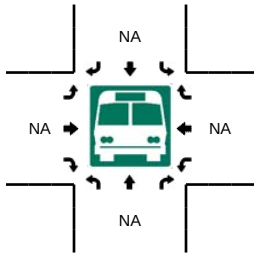
Peak-Hour: 4:15 PM -- 5:15 PM
Peak 15-Min: 4:15 PM -- 4:30 PM











15-Min Count Period Beginning At	E Larkspur Landing (Northbound)				E Larkspur Landing (Southbound)				E Sir Francis Drake Blvd (Eastbound)				E Sir Francis Drake Blvd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	0	0	0	12	0	26	0	33	308	0	2	0	200	17	0	598	
4:15 PM	0	0	0	0	20	0	30	0	38	368	0	0	0	238	24	0	718	
4:30 PM	0	0	0	0	32	0	26	1	45	368	0	5	0	204	21	1	703	
4:45 PM	0	0	0	0	22	0	14	0	21	357	0	1	0	259	13	0	687	2706
5:00 PM	0	0	0	0	46	0	33	0	23	355	0	2	0	197	20	0	676	2784
5:15 PM	0	0	0	0	17	0	28	0	27	346	0	1	0	262	21	0	702	2768
5:30 PM	0	0	0	0	16	0	39	0	36	336	0	1	0	253	13	0	694	2759
5:45 PM	0	0	0	0	13	0	26	0	38	310	0	0	0	281	18	0	686	2758

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	0	0	0	80	0	120	0	152	1472	0	0	0	952	96	0	2872
Heavy Trucks	0	0	0		0	0	0		8	36	0		0	8	0		52
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Railroad																	
Stopped Buses																	

Comments:

Report generated on 12/6/2011 3:07 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

TJKM Intersection Turning Movement Summary

Project:	260-020	Control	Speed Limit	Survey Date:	10/6/2011	DAY:	Thursday
N-S Approach:	101 SB Ramp	Signal		Survey Time:	7:30 AM	To:	9:30 AM
E-W Approach:	Sir Francis Drake Blvd	Signal		City:	Marin Co./Larkspur	Recorder:	Quality Counts

PEAK HOUR 7:30 AM TO 8:30 AM

101 SB Ramp

North

Sir Francis Drake Blvd

4	0	487
0	902	0
0	902	0
0	1319	0
0	0	0

TOTAL 2,712

Arrival / Departure Volumes

PHF = 0.92

491	0	
1,323		1,319
902		1,389
0	0	

PHF = 0.86 PHF = 0.86

PHF = 0.87

PHF = #DIV/0!

Bikes/Peds During Vehicle Peak Hour

BIKES (Thru Only)

	0	
1		0
	0	

PEDESTRIANS

	0	
0		0
	0	

Time Period			Northbound			Southbound			Eastbound			Westbound			NEB Thru	SB Thru	EB Thru	WB Thru	N leg	S leg	E leg	W leg	
From		To	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Bikes	Bikes	Bikes	Bikes	Peds	Peds	Peds	Peds	Total
TOTAL BY PERIOD																							
7:30 AM	---	7:45 AM	-	-	-	134	-	0	-	263	-	-	384	-	-	0	0	0	0	0	0	0	781
7:45 AM	---	8:00 AM	-	-	-	124	-	1	-	212	-	-	362	-	-	0	1	0	0	0	0	0	699
8:00 AM	---	8:15 AM	-	-	-	127	-	1	-	198	-	-	305	-	-	0	0	0	0	0	0	0	631
8:15 AM	---	8:30 AM	-	-	-	102	-	2	-	229	-	-	268	-	-	0	0	0	0	0	0	0	601
8:30 AM	---	8:45 AM	-	-	-	83	-	0	-	202	-	-	259	-	-	0	0	0	0	0	0	0	544
8:45 AM	---	9:00 AM	-	-	-	107	-	0	-	199	-	-	344	-	-	0	0	0	0	0	0	0	650
9:00 AM	---	9:15 AM	-	-	-	135	-	1	-	250	-	-	371	-	-	0	0	0	0	0	0	0	757
9:15 AM	---	9:30 AM	-	-	-	101	-	0	-	217	-	-	409	-	-	0	0	0	0	0	0	0	727
HOURLY TOTALS																							
7:30 AM	---	8:30 AM	0	0	0	487	0	4	0	902	0	0	1319	0	0	0	1	0	0	0	0	0	2,712
7:45 AM	---	8:45 AM	0	0	0	436	0	4	0	841	0	0	1194	0	0	0	1	0	0	0	0	0	2,475
8:00 AM	---	9:00 AM	0	0	0	419	0	3	0	828	0	0	1176	0	0	0	0	0	0	0	0	0	2,426
8:15 AM	---	9:15 AM	0	0	0	427	0	3	0	880	0	0	1242	0	0	0	0	0	0	0	0	0	2,552
8:30 AM	---	9:30 AM	0	0	0	426	0	1	0	868	0	0	1383	0	0	0	0	0	0	0	0	0	2,678

Synchro CSV file Format	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	NBB	SBB	EBB	WBB	NlegP	SlegP	ElegP	WlegP	Total
Vol	0	0	0	487	0	4	0	902	0	0	1319	0	0	0	1	0	0	0	0	0	2,712
Peds	0		0	0		0	0		0	0		0									0
Bikes			0			0			1			0									0
PHF	#DIV/0!	#DIV/0!	#DIV/0!	0.92	0.92	0.92	0.86	0.86	0.86	0.86	0.86	0.86									0.87
PHF by Movement	#DIV/0!	#DIV/0!	#DIV/0!	0.91	#DIV/0!	0.50	#DIV/0!	0.86	#DIV/0!	#DIV/0!	0.86	#DIV/0!									Overall
PHF by Approach	#DIV/0!			0.92			0.86			0.86											0.87

TJKM Intersection Turning Movement Summary

Project:	260-020	Control	Speed Limit	Survey Date:	10/6/2011	DAY:	Thursday
N-S Approach:	101 SB Ramp	Signal		Survey Time:	4:00 PM	To	6:00 PM
E-W Approach:	Sir Francis Drake Blvd	Signal		City:	Marin Co./Larkspur	Recorder:	Quality Counts

PEAK HOUR 5:00 PM TO 6:00 PM

101 SB Ramp

North

Sir Francis Drake Blvd

0	0	258
0	TOTAL 2,971	0
1012		1701
0		0
0	0	0

Arrival / Departure Volumes

PHF = 0.78

258	0	
1,701		1,701
1,012		1,270
0	0	

PHF = 0.98

PHF = 0.89

PHF = #DIV/0!

PHF = 0.94

Bikes/Peds During Vehicle Peak Hour

BIKES (Thru Only)

	0	
0		1
	0	

PEDESTRIANS

	0	
0		0
	0	

Time Period			Northbound			Southbound			Eastbound			Westbound			NEB Thru	SB Thru	EB Thru	WB Thru	N leg	S leg	E leg	W leg	
From		To	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Bikes	Bikes	Bikes	Bikes	Peds	Peds	Peds	Peds	Total
TOTAL BY PERIOD																							
4:00 PM	---	4:15 PM	-	-	-	52	-	0	-	308	-	-	323	-	-	0	0	0	0	0	0	0	683
4:15 PM	---	4:30 PM	-	-	-	58	-	1	-	287	-	-	342	-	-	0	0	0	0	0	0	0	688
4:30 PM	---	4:45 PM	-	-	-	74	-	1	-	282	-	-	323	-	-	0	0	0	0	0	0	0	680
4:45 PM	---	5:00 PM	-	-	-	48	-	0	-	241	-	-	322	-	-	0	0	1	0	0	0	0	611
5:00 PM	---	5:15 PM	-	-	-	56	-	0	-	254	-	-	419	-	-	0	0	1	0	0	0	0	729
5:15 PM	---	5:30 PM	-	-	-	83	-	0	-	259	-	-	414	-	-	0	0	0	0	0	0	0	756
5:30 PM	---	5:45 PM	-	-	-	63	-	0	-	248	-	-	477	-	-	0	0	0	0	0	0	0	788
5:45 PM	---	6:00 PM	-	-	-	56	-	0	-	251	-	-	391	-	-	0	0	0	0	0	0	0	698
HOURLY TOTALS																							
4:00 PM	---	5:00 PM	0	0	0	232	0	2	0	1118	0	0	1310	0	0	0	0	1	0	0	0	0	2,662
4:15 PM	---	5:15 PM	0	0	0	236	0	2	0	1064	0	0	1406	0	0	0	0	2	0	0	0	0	2,708
4:30 PM	---	5:30 PM	0	0	0	261	0	1	0	1036	0	0	1478	0	0	0	0	2	0	0	0	0	2,776
4:45 PM	---	5:45 PM	0	0	0	250	0	0	0	1002	0	0	1632	0	0	0	0	2	0	0	0	0	2,884
5:00 PM	---	6:00 PM	0	0	0	258	0	0	0	1012	0	0	1701	0	0	0	0	1	0	0	0	0	2,971

Synchro CSV file Format	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	NBB	SBB	EBB	WBB	NlegP	SlegP	ElegP	WlegP	Total
Vol	0	0	0	258	0	0	0	1012	0	0	1701	0	0	0	0	1	0	0	0	0	2,971
Peds	0		0	0		0	0		0	0		0									0
Bikes			0			0			0			1									0
PHF	#DIV/0!	#DIV/0!	#DIV/0!	0.78	0.78	0.78	0.98	0.98	0.98	0.89	0.89	0.89									0.94

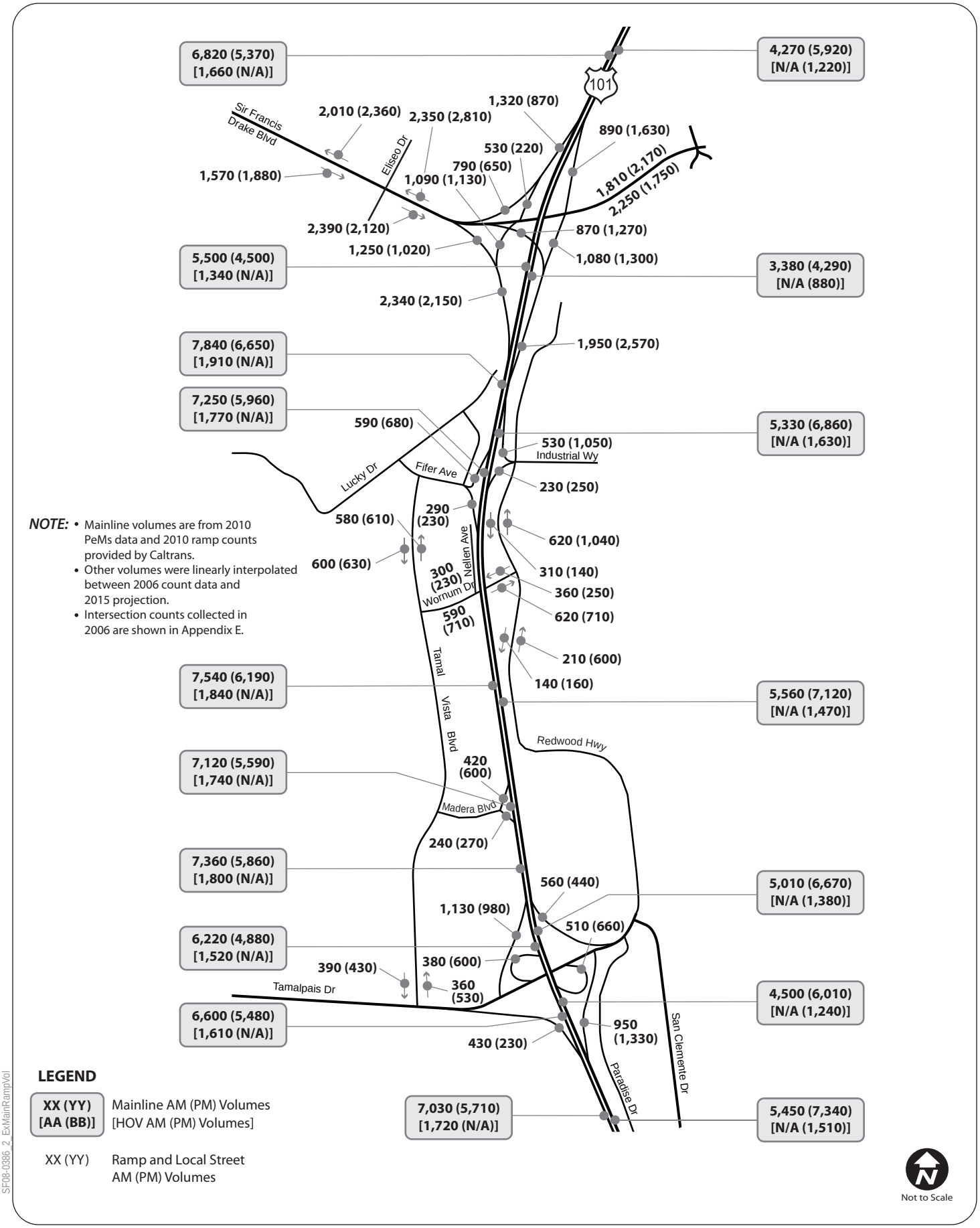
PHF by Movement	#DIV/0!	#DIV/0!	#DIV/0!	0.78	#DIV/0!	#DIV/0!	#DIV/0!	0.98	#DIV/0!	#DIV/0!	0.89	#DIV/0!	Overall
PHF by Approach	#DIV/0!			0.78			0.98			0.89			0.94

APPENDIX A-4

MAINLINE TRAFFIC COUNTS
FROM HIGHWAY 101 GREENBRAE CORRIDOR IMPROVEMENT PROJECT

FIGURE 2

EXISTING CONDITIONS (2010) PEAK HOUR MAINLINE AND RAMP VOLUMES



NOTE:
- Mainline volumes are from 2010 PeMs data and 2010 ramp counts provided by Caltrans.
- Other volumes were linearly interpolated between 2006 count data and 2015 projection.
- Intersection counts collected in 2006 are shown in Appendix E.

LEGEND

XX (YY) **[AA (BB)]**	Mainline AM (PM) Volumes [HOV AM (PM) Volumes]
XX (YY)	Ramp and Local Street AM (PM) Volumes

SF08-0386_2_ExMainRampVol

2010 Mainline Volume Calculations

Northbound

Mainline Segment	Ramp	2010 Volumes[1]		2011 Comparison Volumes[2]			
		AM	PM	AM	PM	AM	PM
South of Tamalpais Drive		5,450	7,343				
	Tamalpais Off	951	1,326				
	Tamalpais On (Hook)	508	660				
Tamalpais Drive On-Ramp (Loop)		5,007	6,677				
	Tamalpais On	557	441				
Tamalpais to Industrial		5,564	7,118				
	Industrial Way Off	234	259				
	Industrial Way On	533	1,054				
SFDB Off-Ramp		5,863	7,913	5,851	7,480	0%	-5%
	SFDB Off	1,951	2,567				
SFDB		3,379	4,292				
	SFDB On	891	1,634				
North of SFDB		4,270	5,926				

1. Northbound volumes based on PeMS detector located at postmile 7.00. Ramp volumes were provided by Caltrans. Both sets of counts are from May 2010.

2. Comparison volumes are from mainline counts taken in 2011 at the Lucky Drive pedestrian overcrossing bridge.

Southbound

Mainline Segment	Ramp	2010 Volumes[1]		2011 Comparison Volumes[2]			
		AM	PM	AM	PM	AM	PM
North of SFDB		6,831	5,368				
	SFDB Off	1321	872				
SFDB		5,510	4,496				
	SFDB On[3]	2335	2152				
Sir Francis Drake Boulevard to Fifer Avenue		7,845	6,648	7,864	6,291	0%	-5%
	Fifer Off	593	682				
	Fifer On	296	306				
Fifer Avenue to Madera Boulevard		7,548	6,272				
	Madera Off	419	603				
	Madera On	417	461				
Madera Boulevard to Tamalpais Drive		7,546	6,130				
	Tamalpais Off	1134	983				
Tamalpais Drive Off-Ramp to Loop On		6,412	5,147	6,359	5,148	-1%	0%
	Tamalpais On (Hook)	380	603				
WB Tamalpais Drive On-Ramp (loop)		6,792	5,750				
	Tamalpais On	533	497				
South of Tamalpais Drive		7,325	6,247				

1. Southbound volumes based on PeMS detector located at postmile 9.05. Ramp volumes were provided by Caltrans. Both sets of counts are from May 2010.
2. Comparison volumes are from mainline counts taken in 2011 at the Lucky Drive pedestrian overcrossing bridge and from the PeMS detectors at postmile 7.05.
3. On-ramp volumes at this location were faulty due to counts volumes exceeding capacity of ramp. On-ramp volumes are from manual counts collected in 2006.

Northbound

From Detector located at 7.00 south of Tamalpais

AM Peak Hour

Date	Flow		% Recorded
5/4/2010 7:00	4,218	60	100
5/4/2010 8:00	5,413	60	100
5/5/2010 7:00	4,082	60	100
5/5/2010 8:00	5,578	60	100
5/6/2010 7:00	4,225	60	100
5/6/2010 8:00	5,463	60	100
5/11/2010 7:00	4,200	60	100
5/11/2010 8:00	5,649	60	100
5/12/2010 7:00	4,133	60	100
5/12/2010 8:00	5,049	60	100
5/13/2010 7:00	4,228	60	100
5/13/2010 8:00	5,581	60	100
5/18/2010 7:00	4,021	60	100
5/18/2010 8:00	5,661	60	100
5/25/2010 7:00	3,954	60	100
5/25/2010 8:00	5,452	60	100
5/26/2010 7:00	3,841	60	100
5/26/2010 8:00	5,412	60	100
5/27/2010 7:00	3,829	60	100
5/27/2010 8:00	5,240	60	100

Grey Shaded cells indicate peak hour

Average 5,450

PM Peak Hour

Date	Flow		% Recorde
5/4/2010 16:00	7,487	60	100
5/4/2010 17:00	7,121	60	100
5/5/2010 16:00	7,160	60	100
5/5/2010 17:00	7,221	60	100
5/5/2010 18:00	6,095	60	100
5/6/2010 17:00	7,375	60	100
5/11/2010 16:00	7,524	60	100
5/11/2010 17:00	7,022	60	100
5/12/2010 16:00	7,143	60	100
5/12/2010 17:00	7,276	60	100
5/13/2010 16:00	7,496	60	100
5/13/2010 17:00	7,273	60	100
5/25/2010 16:00	6,839	60	100
5/25/2010 17:00	6,910	60	100
5/26/2010 16:00	7,458	60	100
5/26/2010 17:00	7,124	60	100

Grey Shaded cells indicate peak hour

Average 7,343

LDS 404017: (Not Specified)

Current Location

Maps: Real-Time | Performance | Inventory

SR101-N @ CA PM 7.00 (Abs PM 448.3)
Marin County , City of Corte Madera

Controller Details

Owner	Caltrans
Aliases	*None*

VDSs and Detectors

VDS	Type	Lane	Detector
402579	Mainline	1	412833
402579	Mainline	2	412834
402579	Mainline	3	412835
402579	Mainline	4	412836
402579	Mainline	5	412837

Quick Links

View another LDS Go

Tools

Holidays
Data Clearinghouse
PeMS Forum (External Site)

Detector Health | Events

Detector Health > Summary

ABOUT THIS REPORT

Date May 5 2010

Group By VDS

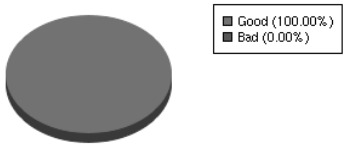
Owner All

Station Types Coll/Dist, HOV, Off Ramp, Fwy-Fwy, Mainline, On Ramp

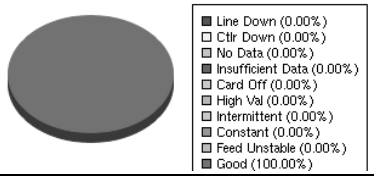
Show Values As % / Count

VIEW TABLE

% Working



Suspected Errors



Status by VDS

VDS	# Det	% Good	% Bad	Suspected Error: Line Down	Ctlr Down	No Data	Insufficient Data	Card Off	High Val	Intermittent	Constant	Feed Unstable
402579	5	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Totals	**5**	**100.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**

Related Detector Health Reports: Summary • Detail • Time Series • Samples • Raw Data

Copyright © 2011 State of California Conditions of Use Email Technical Support Powered by BTS, Inc.

Mainline VDS 402579 - 4A5334 loc 17

Current Location

Maps: Real-Time | Performance | Inventory

SR101-N @ CA PM 7.00 (Abs PM 448.3)
Marin County , City of Corte Madera

Station Details

Aliases	IRM N5-N-27-101-00700
LDS	404017
Owner	Caltrans
Assoc. Traffic Census Station	*None*
Speeds	Estimated
Max Cap.	149.4 Veh/Min (07/31/2010)
Vehicle Classification	*N/A*

Lane Detection

Lane	Slot	ID	Type
1		412833	Mainline
2		412834	Mainline
3		412835	Mainline
4		412836	Mainline
5		412837	Mainline

Diagnostics

Threshold Set	Urban
Flow = 0, Occ > 0 (Intermittent)	2%
High Flow Threshold	20
High Occ Threshold	.7
High Occupancy (High Val)	20%
Occ = 0; Flow > 0 (Intermittent)	50%
Repeat Occupancy (Constant)	50
Occupancy = 0 (Card Off)	59%

Quick Links

View another VDS Go

Tools

Holidays
Data Clearinghouse
PeMS Forum (External Site)

Change Log | Performance | Data Quality | Events

Performance > Aggregates > Time Series

ABOUT THIS REPORT

From May 1 2010 0 — **To** May 31 2010 23 — *Max Range:3 months*

Time of Day All / 07:00 to 08:59

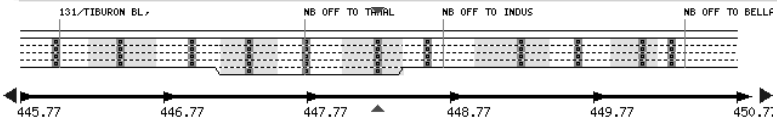
Include Days Su Mo Tu We Th Fr Sa Holidays

Quantity Flow — **Granularity** Hour — **Lanes** Agg 1 2 3 4 5

Second Quantity – None –

DRAW PLOT | VIEW TABLE | EXPORT TEXT | EXPORT to XLS

			Data Quality	
Hour	**Lane 5 Flow (Veh/Hour)**	**Flow (Veh/Hour)**	**# Lane Points**	**% Observed**
05/04/2010 07:00	399	4,218	60	100.0
05/04/2010 08:00	675	5,413	60	100.0
05/05/2010 07:00	345	4,082	60	100.0
05/05/2010 08:00	745	5,578	60	100.0
05/06/2010 07:00	387	4,225	60	100.0
05/06/2010 08:00	707	5,463	60	100.0
05/11/2010 07:00	395	4,200	60	100.0
05/11/2010 08:00	716	5,649	60	100.0
05/12/2010 07:00	378	4,133	60	100.0
05/12/2010 08:00	738	5,049	60	100.0
05/13/2010 07:00	383	4,228	60	100.0
05/13/2010 08:00	707	5,581	60	100.0
05/18/2010 07:00	366	4,021	60	100.0
05/18/2010 08:00	757	5,661	60	100.0
05/19/2010 07:00	358	3,959	60	0.0
05/19/2010 08:00	734	5,417	60	0.0
05/20/2010 07:00	372	4,166	60	0.0
05/20/2010 08:00	715	5,572	60	0.0
05/25/2010 07:00	375	3,954	60	100.0
05/25/2010 08:00	737	5,452	60	100.0
05/26/2010 07:00	375	3,841	60	100.0
05/26/2010 08:00	741	5,412	60	100.0
05/27/2010 07:00	362	3,829	60	100.0
05/27/2010 08:00	742	5,240	60	100.0
Total			**1,440**	**83.3**



Related Aggregates Reports: Time Series • Time of Day • Day of Week • Quantity Relationships

Copyright © 2011 State of California Conditions of Use Email Technical Support Powered by BTS, Inc.

Mainline VDS 402579 - 4A5334 loc 17

Current Location

Maps: Real-Time | Performance | Inventory

SR101-N @ CA PM 7.00 (Abs PM 448.3)
Marin County , City of Corte Madera

Station Details

Aliases	IRM N5-N-27-101-00700
LDS	404017
Owner	Caltrans
Assoc. Traffic Census Station	*None*
Speeds	Estimated
Max Cap.	149.4 Veh/Min (07/31/2010)
Vehicle Classification	*N/A*

Lane Detection

Lane	Slot	ID	Type
1		412833	Mainline
2		412834	Mainline
3		412835	Mainline
4		412836	Mainline
5		412837	Mainline

Diagnostics

Threshold Set	Urban
Flow = 0, Occ > 0 (Intermittent)	2%
High Flow Threshold	20
High Occ Threshold	.7
High Occupancy (High Val)	20%
Occ = 0; Flow > 0 (Intermittent)	50%
Repeat Occupancy (Constant)	50
Occupancy = 0 (Card Off)	59%

Quick Links

View another VDS Go

Tools

Holidays
Data Clearinghouse
PeMS Forum (External Site)

Change Log | Performance | Data Quality | Events

Performance > Aggregates > Time Series

ABOUT THIS REPORT

From May 1 2010 0
*Max Range:*3 months

To May 31 2010 23

Time of Day All / 16:00 to 18:59

Include Days Su Mo Tu We Th Fr Sa Holidays

Quantity Flow

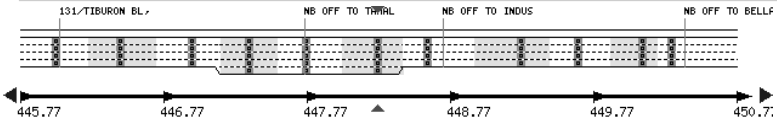
Granularity Hour

Lanes Agg 1 2 3 4 5

Second Quantity – None –

DRAW PLOT | VIEW TABLE | EXPORT TEXT | EXPORT to XLS

		Data Quality	
Hour	**Flow (Veh/Hour)**	**# Lane Points**	**% Observed**
05/04/2010 16:00	7,487	60	100.0
05/04/2010 17:00	7,121	60	100.0
05/04/2010 18:00	6,280	60	100.0
05/05/2010 16:00	7,160	60	100.0
05/05/2010 17:00	7,221	60	100.0
05/05/2010 18:00	6,095	60	100.0
05/06/2010 16:00	7,228	60	100.0
05/06/2010 17:00	7,375	60	100.0
05/06/2010 18:00	6,521	60	100.0
05/11/2010 16:00	7,524	60	100.0
05/11/2010 17:00	7,022	60	100.0
05/11/2010 18:00	6,423	60	100.0
05/12/2010 16:00	7,143	60	100.0
05/12/2010 17:00	7,276	60	100.0
05/12/2010 18:00	6,494	60	100.0
05/13/2010 16:00	7,496	60	100.0
05/13/2010 17:00	7,273	60	100.0
05/13/2010 18:00	6,601	60	100.0
05/18/2010 16:00	7,279	60	0.0
05/18/2010 17:00	7,070	60	0.0
05/18/2010 18:00	6,271	60	0.0
05/19/2010 16:00	7,211	60	0.0
05/19/2010 17:00	7,148	60	0.0
05/19/2010 18:00	6,404	60	0.0
05/20/2010 16:00	7,382	60	0.0
05/20/2010 17:00	7,338	60	0.0
05/20/2010 18:00	6,496	60	0.0
05/25/2010 16:00	6,839	60	100.0
05/25/2010 17:00	6,910	60	100.0
05/25/2010 18:00	6,116	60	100.0
05/26/2010 16:00	7,458	60	100.0
05/26/2010 17:00	7,124	60	100.0
05/26/2010 18:00	6,612	60	100.0
05/27/2010 16:00	6,944	60	100.0
05/27/2010 17:00	6,466	60	75.0
05/27/2010 18:00	6,558	60	0.0
Total		**2,160**	**71.5**



Related Aggregates Reports: Time Series • Time of Day • Day of Week • Quantity Relationships

Copyright © 2011 State of California Conditions of Use Email Technical Support Powered by BTS, Inc.

Southbound

From Detector located at 9.05 in between SFDB and Andersen Drive

AM Peak Hour

Hour	Flow (Veh/	# Lane Po	% Observed
5/4/2010 7:00	6,581	48	100
5/4/2010 8:00	6,815	48	100
5/5/2010 7:00	6,706	48	100
5/5/2010 8:00	7,014	48	100
5/6/2010 7:00	6,723	48	100
5/6/2010 8:00	6,889	48	100
5/11/2010 7:00	6,520	48	100
5/11/2010 8:00	6,846	48	100
5/12/2010 7:00	6,577	48	100
5/12/2010 8:00	7,010	48	100
5/13/2010 7:00	6,470	48	100
5/13/2010 8:00	6,956	48	100
5/18/2010 7:00	6,678	48	100
5/18/2010 8:00	6,803	48	100
5/25/2010 7:00	6,087	48	100
5/25/2010 8:00	6,784	48	100
5/26/2010 7:00	6,614	48	100
5/26/2010 8:00	6,884	48	100
5/27/2010 7:00	5,959	48	100
5/27/2010 8:00	6,308	48	100

Average 6,831

PM Peak Hour

Hour	Flow (Veh/	# Lane Po	% Observe
5/3/2011 16:00	4,673	48	100
5/3/2011 17:00	5,232	48	100
5/4/2011 16:00	4,702	48	100
5/4/2011 17:00	5,258	48	100
5/5/2011 16:00	4,926	48	100
5/5/2011 17:00	5,423	48	100
5/10/2011 16:00	4,901	48	100
5/10/2011 17:00	5,555	48	100
5/11/2011 16:00	4,939	48	100
5/11/2011 17:00	5,670	48	100
5/12/2011 16:00	4,924	48	100
5/12/2011 17:00	5,262	48	100
5/17/2011 16:00	4,487	48	100
5/17/2011 17:00	5,005	48	100
5/18/2011 16:00	4,793	48	100
5/18/2011 17:00	5,248	48	100
5/19/2011 16:00	5,039	48	100
5/19/2011 17:00	5,439	48	100
5/24/2011 16:00	4,970	48	100
5/24/2011 17:00	5,544	48	100
5/25/2011 16:00	4,980	48	100
5/25/2011 17:00	5,540	48	100
5/26/2011 16:00	4,684	48	100
5/26/2011 17:00	5,461	48	100
5/31/2011 16:00	4,800	48	100
5/31/2011 17:00	5,142	48	100

Average 5,368

LDS 404026: (Not Specified)

Current Location

Maps: Real-Time | Performance | Inventory

SR101-S @ CA PM 9.05 (Abs PM 449.7)
Marin County , City of San Rafael

Controller Details

Owner	Caltrans
Aliases	*None*

VDSs and Detectors

VDS	Type	Lane	Detector
402588	Mainline	1	412871
402588	Mainline	2	412872
402588	Mainline	3	412873
402588	Mainline	4	412874

Quick Links

View another LDS Go

Tools

Holidays
Data Clearinghouse
PeMS Forum (External Site)

Detector Health | Events

Detector Health > Summary

ABOUT THIS REPORT

Date: May 5 2010

Group By: VDS

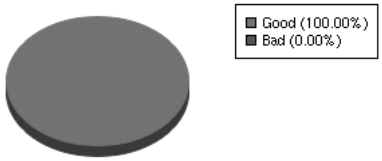
Owner: All

Station Types: ☑ Coll/Dist ☑ HOV ☑ Off Ramp ☑ Fwy-Fwy ☑ Mainline ☑ On Ramp

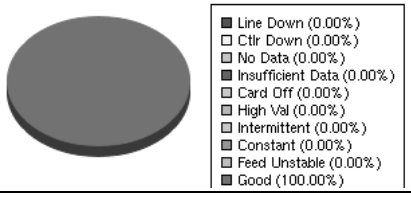
Show Values As: ◉ % ○ Count

VIEW TABLE

% Working



Suspected Errors



Status by VDS

VDS	# Det	% Good	% Bad	Suspected Error: Line Down	Ctlr Down	No Data	Insufficient Data	Card Off	High Val	Intermittent	Constant	Feed Unstable
402588	4	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Totals	**4**	**100.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**

Related Detector Health Reports: Summary • Detail • Time Series • Samples • Raw Data

Copyright © 2011 State of California Conditions of Use Email Technical Support Powered by BTS, Inc.

Mainline VDS 402588 - 4A5334 loc 23

Current Location

Maps: Real-Time | Performance | Inventory

SR101-S @ CA PM 9.05 (Abs PM 449.7)
Marin County , City of San Rafael

Station Details

Aliases	IRM N4-S-27-101-00905
LDS	404026
Owner	Caltrans
Assoc. Traffic Census Station	*None*
Speeds	Estimated
Max Cap.	131.8 Veh/Min (07/31/2010)
Vehicle Classification	*N/A*

Lane Detection

Lane	Slot	ID	Type
1		412871	Mainline
2		412872	Mainline
3		412873	Mainline
4		412874	Mainline

Diagnostics

Threshold Set	Urban
Flow = 0, Occ > 0 (Intermittent)	2%
High Flow Threshold	20
High Occ Threshold	.7
High Occupancy (High Val)	20%
Occ = 0; Flow > 0 (Intermittent)	50%
Repeat Occupancy (Constant)	50
Occupancy = 0 (Card Off)	59%

Quick Links

View another VDS Go

Tools

Holidays
Data Clearinghouse
PeMS Forum (External Site)

Change Log | Performance | Data Quality | Events

Performance > Aggregates > Time Series

ABOUT THIS REPORT

From May 1 2011 0
Max Range: 3 months

To May 31 2011 23

Time of Day All / 16:00 to 17:59

Include Days Su Mo Tu We Th Fr Sa Holidays

Quantity Flow

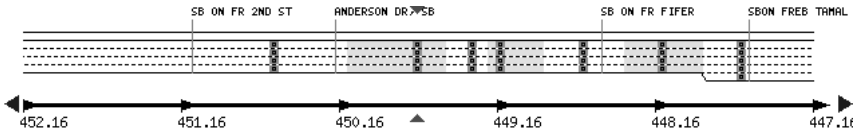
Granularity Hour

Lanes Agg 1 2 3 4

Second Quantity – None –

DRAW PLOT | VIEW TABLE | EXPORT TEXT | EXPORT to XLS

		Data Quality	
Hour	**Flow (Veh/Hour)**	**# Lane Points**	**% Observed**
05/03/2011 16:00	4,673	48	100.0
05/03/2011 17:00	5,232	48	100.0
05/04/2011 16:00	4,702	48	100.0
05/04/2011 17:00	5,258	48	100.0
05/05/2011 16:00	4,926	48	100.0
05/05/2011 17:00	5,423	48	100.0
05/10/2011 16:00	4,901	48	100.0
05/10/2011 17:00	5,555	48	100.0
05/11/2011 16:00	4,939	48	100.0
05/11/2011 17:00	5,670	48	100.0
05/12/2011 16:00	4,924	48	100.0
05/12/2011 17:00	5,262	48	100.0
05/17/2011 16:00	4,487	48	100.0
05/17/2011 17:00	5,005	48	100.0
05/18/2011 16:00	4,793	48	100.0
05/18/2011 17:00	5,248	48	100.0
05/19/2011 16:00	5,039	48	100.0
05/19/2011 17:00	5,439	48	100.0
05/24/2011 16:00	4,970	48	100.0
05/24/2011 17:00	5,544	48	100.0
05/25/2011 16:00	4,980	48	100.0
05/25/2011 17:00	5,540	48	100.0
05/26/2011 16:00	4,684	48	100.0
05/26/2011 17:00	5,461	48	100.0
05/31/2011 16:00	4,800	48	100.0
05/31/2011 17:00	5,142	48	100.0
Total		**1,248**	**100.0**



Related Aggregates Reports: Time Series • Time of Day • Day of Week • Quantity Relationships

Copyright © 2011 State of California Conditions of Use Email Technical Support Powered by BTS, Inc.

Mainline VDS 402588 - 4A5334 loc 23

Current Location

Maps: Real-Time | Performance | Inventory

SR101-S @ CA PM 9.05 (Abs PM 449.7)
Marin County , City of San Rafael

Station Details

Aliases	IRM N4-S-27-101-00905
LDS	404026
Owner	Caltrans
Assoc. Traffic Census Station	*None*
Speeds	Estimated
Max Cap.	131.8 Veh/Min (07/31/2010)
Vehicle Classification	*N/A*

Lane Detection

Lane	Slot	ID	Type
1		412871	Mainline
2		412872	Mainline
3		412873	Mainline
4		412874	Mainline

Diagnostics

Threshold Set	Urban
Flow = 0, Occ > 0 (Intermittent)	2%
High Flow Threshold	20
High Occ Threshold	.7
High Occupancy (High Val)	20%
Occ = 0; Flow > 0 (Intermittent)	50%
Repeat Occupancy (Constant)	50
Occupancy = 0 (Card Off)	59%

Quick Links

View another VDS Go

Tools

Holidays
Data Clearinghouse
PeMS Forum (External Site)

Change Log | Performance | Data Quality | Events

Performance > Aggregates > Time Series

ABOUT THIS REPORT

From May 1 2010 0
*Max Range:*3 months

To May 31 2010 23

Time of Day All / 07:00 to 08:59

Include Days Su Mo Tu We Th Fr Sa Holidays

Quantity Flow

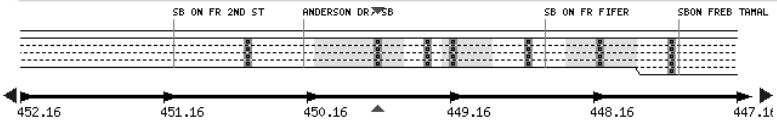
Granularity Hour

Lanes Agg 1 2 3 4

Second Quantity – None –

DRAW PLOT | VIEW TABLE | EXPORT TEXT | EXPORT to XLS

		Data Quality	
Hour	**Flow (Veh/Hour)**	**# Lane Points**	**% Observed**
05/04/2010 07:00	6,581	48	100.0
05/04/2010 08:00	6,815	48	100.0
05/05/2010 07:00	6,706	48	100.0
05/05/2010 08:00	7,014	48	100.0
05/06/2010 07:00	6,723	48	100.0
05/06/2010 08:00	6,889	48	100.0
05/11/2010 07:00	6,520	48	100.0
05/11/2010 08:00	6,846	48	100.0
05/12/2010 07:00	6,577	48	100.0
05/12/2010 08:00	7,010	48	100.0
05/13/2010 07:00	6,470	48	100.0
05/13/2010 08:00	6,956	48	100.0
05/18/2010 07:00	6,678	48	100.0
05/18/2010 08:00	6,803	48	100.0
05/19/2010 07:00	5,855	48	0.0
05/19/2010 08:00	5,706	48	0.0
05/20/2010 07:00	5,897	48	0.0
05/20/2010 08:00	5,467	48	0.0
05/25/2010 07:00	6,087	48	100.0
05/25/2010 08:00	6,784	48	100.0
05/26/2010 07:00	6,614	48	100.0
05/26/2010 08:00	6,884	48	100.0
05/27/2010 07:00	5,959	48	100.0
05/27/2010 08:00	6,308	48	100.0
Total		**1,152**	**83.3**



Related Aggregates Reports: Time Series • Time of Day • Day of Week • Quantity Relationships

Copyright © 2011 State of California Conditions of Use Email Technical Support Powered by BTS, Inc.

LDS 404020: (Not Specified)

Current Location

Maps: Real-Time | Performance | Inventory

SR101-S @ CA PM 7.50 (Abs PM 448.1)
Marin County , City of Corte Madera

Controller Details

Owner	Caltrans
Aliases	*None*

VDSs and Detectors

VDS	Type	Lane	Detector
402582	Mainline	1	412847
402582	Mainline	2	412848
402582	Mainline	3	412849
402582	Mainline	4	412850

Quick Links

View another LDS Go

Tools

Holidays
Data Clearinghouse
PeMS Forum (External Site)

Detector Health | Events

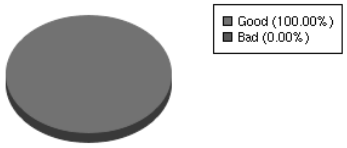
Detector Health > Summary

ABOUT THIS REPORT

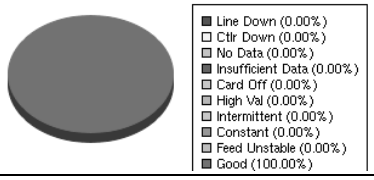
Date: May 4 2010
Group By: VDS
Owner: All
Station Types: Coll/Dist, HOV, Off Ramp, Fwy-Fwy, Mainline, On Ramp
Show Values As: % / Count

VIEW TABLE

% Working



Suspected Errors



Status by VDS

VDS	# Det	% Good	% Bad	Suspected Error: Line Down	Ctlr Down	No Data	Insufficient Data	Card Off	High Val	Intermittent	Constant	Feed Unstable
402582	4	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Totals	**4**	**100.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**

Related Detector Health Reports: Summary • Detail • Time Series • Samples • Raw Data

Copyright © 2011 State of California Conditions of Use Email Technical Support Powered by BTS, Inc.

Mainline VDS 402582 - 4A5334 loc 19

Current Location

Maps: Real-Time | Performance | Inventory

SR101-S @ CA PM 7.50 (Abs PM 448.1)
Marin County , City of Corte Madera

Station Details

Aliases	IRM N4-S-27-101-00750
LDS	404020
Owner	Caltrans
Assoc. Traffic Census Station	*None*
Speeds	Estimated
Max Cap.	121.0 Veh/Min (07/31/2010)
Vehicle Classification	*N/A*

Lane Detection

Lane	Slot	ID	Type
1		412847	Mainline
2		412848	Mainline
3		412849	Mainline
4		412850	Mainline

Diagnostics

Threshold Set	Urban
Flow = 0, Occ > 0 (Intermittent)	2%
High Flow Threshold	20
High Occ Threshold	.7
High Occupancy (High Val)	20%
Occ = 0; Flow > 0 (Intermittent)	50%
Repeat Occupancy (Constant)	50
Occupancy = 0 (Card Off)	59%

Quick Links

View another VDS Go

Tools

Holidays
Data Clearinghouse
PeMS Forum (External Site)

Change Log | Performance | Data Quality | Events

Performance > Aggregates > Time Series

ABOUT THIS REPORT

From May 1 2010 0
*Max Range:*3 months

To May 31 2010 23

Time of Day All / 07:00 to 08:59

Include Days Su Mo Tu We Th Fr Sa Holidays

Quantity Flow

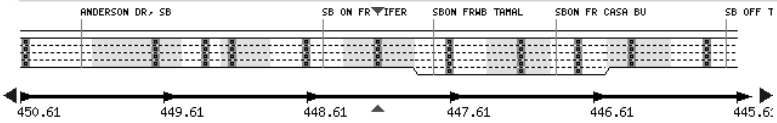
Granularity Hour

Lanes Agg 1 2 3 4

Second Quantity – None –

DRAW PLOT | VIEW TABLE | EXPORT TEXT | EXPORT to XLS

		Data Quality	
Hour	**Flow (Veh/Hour)**	**# Lane Points**	**% Observed**
05/04/2010 07:00	6,010	48	100.0
05/04/2010 08:00	6,189	48	100.0
05/05/2010 07:00	5,688	48	0.0
05/05/2010 08:00	6,009	48	0.0
05/06/2010 07:00	5,794	48	0.0
05/06/2010 08:00	6,273	48	0.0
05/11/2010 07:00	5,949	48	100.0
05/11/2010 08:00	6,361	48	100.0
05/12/2010 07:00	6,028	48	100.0
05/12/2010 08:00	6,396	48	100.0
05/13/2010 07:00	5,964	48	100.0
05/13/2010 08:00	6,472	48	100.0
05/18/2010 07:00	5,840	48	0.0
05/18/2010 08:00	6,104	48	0.0
05/19/2010 07:00	5,805	48	0.0
05/19/2010 08:00	6,452	48	0.0
05/20/2010 07:00	5,934	48	0.0
05/20/2010 08:00	6,508	48	0.0
05/25/2010 07:00	5,524	48	100.0
05/25/2010 08:00	6,320	48	100.0
05/26/2010 07:00	5,994	48	100.0
05/26/2010 08:00	6,414	48	100.0
05/27/2010 07:00	5,906	48	0.0
05/27/2010 08:00	6,186	48	0.0
Total		**1,152**	**50.0**



Related Aggregates Reports: Time Series • Time of Day • Day of Week • Quantity Relationships

Copyright © 2011 State of California Conditions of Use Email Technical Support Powered by BTS, Inc.

Mainline VDS 402582 - 4A5334 loc 19

Current Location

Maps: Real-Time | Performance | Inventory

SR101-S @ CA PM 7.50 (Abs PM 448.1)
Marin County , City of Corte Madera

Station Details

Aliases	IRM N4-S-27-101-00750
LDS	404020
Owner	Caltrans
Assoc. Traffic Census Station	*None*
Speeds	Estimated
Max Cap.	121.0 Veh/Min (07/31/2010)
Vehicle Classification	*N/A*

Lane Detection

Lane	Slot	ID	Type
1		412847	Mainline
2		412848	Mainline
3		412849	Mainline
4		412850	Mainline

Diagnostics

Threshold Set	Urban
Flow = 0, Occ > 0 (Intermittent)	2%
High Flow Threshold	20
High Occ Threshold	.7
High Occupancy (High Val)	20%
Occ = 0; Flow > 0 (Intermittent)	50%
Repeat Occupancy (Constant)	50
Occupancy = 0 (Card Off)	59%

Quick Links

View another VDS Go

Tools

Holidays
Data Clearinghouse
PeMS Forum (External Site)

Change Log | Performance | Data Quality | Events

Performance > Aggregates > Time Series

ABOUT THIS REPORT

From May 1 2010 0
*Max Range:*3 months

To May 31 2010 23

Time of Day All / 17:00 to 18:59

Include Days Su Mo Tu We Th Fr Sa Holidays

Quantity Flow

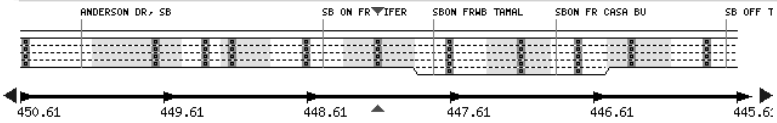
Granularity Hour

Lanes Agg 1 2 3 4

Second Quantity – None –

DRAW PLOT | VIEW TABLE | EXPORT TEXT | EXPORT to XLS

		Data Quality	
Hour	**Flow (Veh/Hour)**	**# Lane Points**	**% Observed**
05/04/2010 17:00	5,009	48	100.0
05/04/2010 18:00	4,126	48	100.0
05/05/2010 17:00	4,893	48	0.0
05/05/2010 18:00	4,014	48	0.0
05/06/2010 17:00	5,093	48	0.0
05/06/2010 18:00	4,199	48	0.0
05/11/2010 17:00	5,379	48	100.0
05/11/2010 18:00	4,115	48	100.0
05/12/2010 17:00	5,262	48	100.0
05/12/2010 18:00	4,397	48	100.0
05/13/2010 17:00	5,244	48	100.0
05/13/2010 18:00	4,194	48	100.0
05/18/2010 17:00	5,020	48	0.0
05/18/2010 18:00	4,100	48	0.0
05/19/2010 17:00	5,126	48	0.0
05/19/2010 18:00	4,270	48	0.0
05/20/2010 17:00	5,213	48	0.0
05/20/2010 18:00	4,246	48	0.0
05/25/2010 17:00	4,848	48	100.0
05/25/2010 18:00	3,936	48	100.0
05/26/2010 17:00	5,126	48	0.0
05/26/2010 18:00	4,270	48	0.0
05/27/2010 17:00	5,244	48	0.0
05/27/2010 18:00	4,194	48	0.0
Total		**1,152**	**41.7**

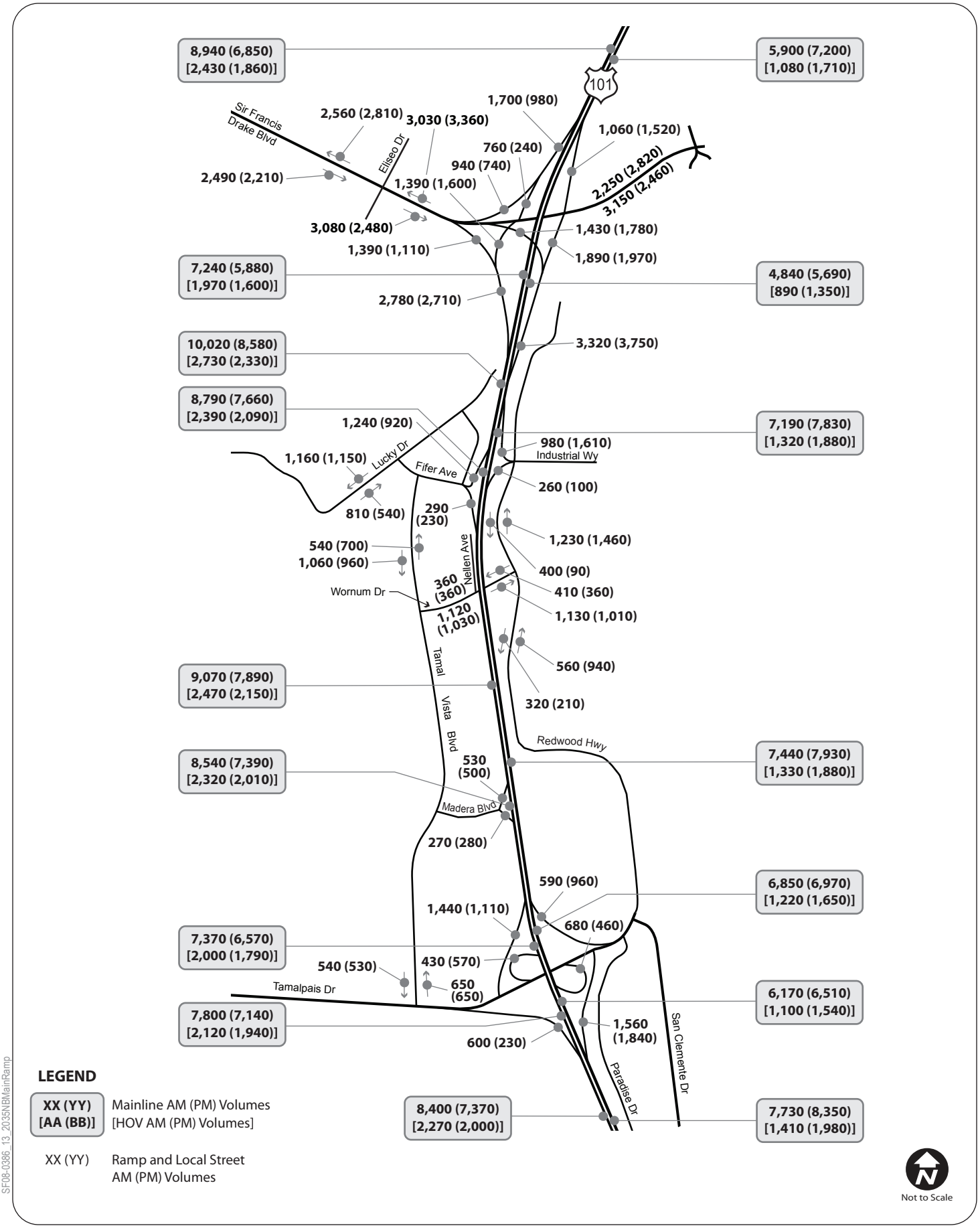


Related Aggregates Reports: Time Series • Time of Day • Day of Week • Quantity Relationships

Copyright © 2011 State of California Conditions of Use Email Technical Support Powered by BTS, Inc.

FIGURE 16

DESIGN YEAR (2035) NO BUILD ALTERNATIVE PEAK HOUR DEMAND VOLUMES



APPENDIX A-5

LUCKY DRIVE PEDESTRIAN OVERCROSSING COUNTS FROM HIGHWAY 101 GREENBRAE CORRIDOR IMPROVEMENT PROJECT

Appendix A: Greenbrae/Twin Cities Corridor Improvement Project Pedestrian Overcrossing Counts

Saturday, May 11, 2013			Sunday, May 12, 2013			Monday, May 13, 2013			Tuesday, May 14, 2013			
Time	Pedestrians	Bicyclists	Time	Pedestrians	Bicyclists	Time	Pedestrians	Bicyclists	Time	Pedestrians	Bicyclists	Other
12:00 AM	5	0	12:00 AM	2	0	12:00 AM	0	0	12:00 AM	1	0	0
1:00 AM	0	0	1:00 AM	0	0	1:00 AM	1	0	1:00 AM	0	1	0
2:00 AM	0	0	2:00 AM	0	0	2:00 AM	0	0	2:00 AM	1	0	0
3:00 AM	0	0	3:00 AM	2	0	3:00 AM	1	1	3:00 AM	1	0	0
4:00 AM	1	1	4:00 AM	1	0	4:00 AM	0	0	4:00 AM	0	0	0
5:00 AM	3	1	5:00 AM	0	1	5:00 AM	3	1	5:00 AM	1	1	0
6:00 AM	3	0	6:00 AM	1	1	6:00 AM	14	3	6:00 AM	11	5	0
7:00 AM	12	1	7:00 AM	12	3	7:00 AM	26	9	7:00 AM	30	8	0
8:00 AM	16	2	8:00 AM	11	2	8:00 AM	22	1	8:00 AM	16	3	0
9:00 AM	27	3	9:00 AM	13	2	9:00 AM	18	1	9:00 AM	10	0	0
10:00 AM	16	3	10:00 AM	12	3	10:00 AM	9	5	10:00 AM	14	2	0
11:00 AM	11	5	11:00 AM	27	6	11:00 AM	14	4	11:00 AM	11	11	0
12:00 PM	18	11	12:00 PM	14	0	12:00 PM	14	7	12:00 PM	16	3	0
1:00 PM	10	5	1:00 PM	8	5	1:00 PM	15	2	1:00 PM	12	2	2
2:00 PM	13	4	2:00 PM	13	5	2:00 PM	20	5	2:00 PM	22	0	0
3:00 PM	21	5	3:00 PM	12	7	3:00 PM	24	4	3:00 PM	23	4	0
4:00 PM	12	6	4:00 PM	11	5	4:00 PM	25	4	4:00 PM	18	7	1
5:00 PM	22	3	5:00 PM	7	8	5:00 PM	29	5	5:00 PM	24	6	1
6:00 PM	13	4	6:00 PM	16	4	6:00 PM	23	5	6:00 PM	22	4	0
7:00 PM	5	1	7:00 PM	8	3	7:00 PM	20	6	7:00 PM	15	1	0
8:00 PM	5	0	8:00 PM	4	7	8:00 PM	12	0	8:00 PM	13	1	0
9:00 PM	7	0	9:00 PM	5	0	9:00 PM	8	2	9:00 PM	9	1	0
10:00 PM	3	0	10:00 PM	3	0	10:00 PM	2	0	10:00 PM	3	1	0
11:00 PM	0	0	11:00 PM	3	0	11:00 PM	2	1	11:00 PM	2	1	0
Total	**223**	**55**	**Total**	**185**	**62**	**Total**	**302**	**66**	**Total**	**275**	**62**	**4**

Wednesday, May 22, 2013			Thursday, May 16, 2013			Friday, May 17, 2013		
Time	Pedestrians	Bicyclists	Time	Pedestrians	Bicyclists	Time	Pedestrians	Bicyclists
12:00 AM	0	0	12:00 AM	2	0	12:00 AM	2	0
1:00 AM	0	0	1:00 AM	0	0	1:00 AM	0	0
2:00 AM	0	0	2:00 AM	0	0	2:00 AM	0	0
3:00 AM	1	0	3:00 AM	2	0	3:00 AM	1	0
4:00 AM	1	0	4:00 AM	0	0	4:00 AM	4	0
5:00 AM	2	1	5:00 AM	2	2	5:00 AM	2	3
6:00 AM	3	1	6:00 AM	13	1	6:00 AM	8	0
7:00 AM	26	6	7:00 AM	28	3	7:00 AM	32	5
8:00 AM	25	6	8:00 AM	19	4	8:00 AM	29	1
9:00 AM	15	1	9:00 AM	12	3	9:00 AM	22	1
10:00 AM	13	0	10:00 AM	6	2	10:00 AM	10	3
11:00 AM	7	2	11:00 AM	4	4	11:00 AM	9	4
12:00 PM	12	1	12:00 PM	18	3	12:00 PM	18	6
1:00 PM	15	4	1:00 PM	15	3	1:00 PM	10	2
2:00 PM	19	0	2:00 PM	25	3	2:00 PM	17	8
3:00 PM	22	3	3:00 PM	15	9	3:00 PM	30	4
4:00 PM	24	2	4:00 PM	18	2	4:00 PM	22	7
5:00 PM	21	7	5:00 PM	20	1	5:00 PM	18	8
6:00 PM	30	6	6:00 PM	20	5	6:00 PM	32	9
7:00 PM	8	1	7:00 PM	13	2	7:00 PM	17	6
8:00 PM	12	0	8:00 PM	12	1	8:00 PM	3	3
9:00 PM	5	3	9:00 PM	3	2	9:00 PM	8	0
10:00 PM	1	0	10:00 PM	3	0	10:00 PM	8	0
11:00 PM	4	0	11:00 PM	3	1	11:00 PM	4	0
Total	**266**	**44**	**Total**	**253**	**51**	**Total**	**306**	**70**

	Daily		AM Peak Period		Mid-Day Peak Period		PM Peak Period		Weekend Mid-Day Peak Period (4 hour)	
	Peds	Bikes	Peds	Bikes	Peds	Bikes	Peds	Bikes	Peds	Bikes
Weekday										
Ave	280	59	51	9	29	7	48	11		
Weekend										
Ave	204	59							58	19

APPENDIX B

LOS ANALYSIS

APPENDIX B-1

INTERSECTION SIMULATION ANALYSIS (VISSIM)

Existing Conditions

VISSIM Post-Processor
Average Results from 10 Runs
Intersection Delay by Interval

Larkspur SMART SAP
Existing Conditions
AM Peak Hour

	Intersection	Control	Interval 1		Interval 2		Interval 3		Interval 4		Peak Hour	
			Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
4	SB US 101 Ramps/SFDB	Signal	12.6	B	15.5	B	17.8	B	20.4	C	20.4	C
5	NB 101 Ramps/SFDB	Signal	22.8	C	31.0	C	25.1	C	24.1	C	31.0	C
6	Landing Way West/SFDB	Signal	36.2	D	44.1	D	26.4	C	29.6	C	44.1	D
7	Landing Way East/SFDB	Signal	8.7	A	8.9	A	7.7	A	9.7	A	9.7	A
9	Tamal Vista/Fifer	Signal	16.1	B	17.2	B	17.9	B	16.1	B	17.9	B
10	Redwood Highway/NB Ramp-Industrial	Signal	6.2	A	6.6	A	8.0	A	9.1	A	9.1	A
3	Eliseo-SFDB/US 101 On Ramp/SFDB/E	Signal	63.8	E	85.4	F	106.2	F	114.3	F	114.3	F

Network Summary

Total Demand Volume (veh/hr)	21,664	21,664	21,664	21,664	21,664
Total Volume Served (veh/hr)	21,399	21,973	20,978	21,342	21,423
Percent Served	98.8%	101.4%	96.8%	98.5%	98.9%
GEH Statistic	1.8	2.1	4.7	2.2	1.6

Notes: Shading indicates peak 15-minute delay and LOS.

VISSIM Post-Processor
Average Results from 10 Runs
Intersection Volume and Delay

Larkspur SMART SAP
Existing Conditions
AM Peak Hour

	Intersection	Control	Volume (vph)		Percent	GEH	Delay (sec/veh)		Level of
			Demand	Served	Served		Average	Std. Dev.	Service
4	SB US 101 Ramps/SFDB	Signal	3,100	3,033	97.9%	1.2	20.4	6.7	C
5	NB 101 Ramps/SFDB	Signal	4,510	4,538	100.6%	0.4	31.0	6.4	C
6	Landing Way West/SFDB	Signal	3,922	3,877	98.9%	0.7	44.1	7.7	D
7	Landing Way East/SFDB	Signal	2,812	2,763	98.2%	0.9	9.7	1.9	A
9	Tamal Vista/Fifer	Signal	1,680	1,816	108.1%	3.3	17.9	2.9	B
10	Redwood Highway/NB Ramp-Industrial	Signal	780	840	107.7%	2.1	9.1	0.7	A
3	Eliseo-SFDB/US 101 On Ramp/SFDB/Barry V	Signal	4,860	4,556	93.8%	4.4	114.3	#N/A	F

Network Summary	
Total Demand Volume (veh/hr)	21,664
Total Volume Served (veh/hr)	21,423
Percent Served	98.9%
GEH Statistic	1.6

Notes: 1. Volume is measured for the entire peak hour.
2. Delay is measured for the peak 15 minutes in the peak hour.

Intersection 4 **SB US 101 Ramps/SFDB** **Signal**

		Volume (vph)		Percent	Total Delay (sec/veh)		
Direction	**Movement**	**Demand**	**Served**	**Served**	**Average**	**Std. Dev.**	**LOS**
NB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
SB	Left Turn	490	468	95.5%	69.2	23.7	E
	Through						
	Right Turn						
	Subtotal	**490**	**468**	**95.5%**	**69.2**	**23.7**	**E**
EB	Left Turn						
	Through	1,030	950	92.2%	15.4	1.4	B
	Right Turn						
	Subtotal	**1,030**	**950**	**92.2%**	**15.4**	**1.4**	**B**
WB	Left Turn						
	Through	1,580	1,615	102.2%	6.6	8.0	A
	Right Turn						
	Subtotal	**1,580**	**1,615**	**102.2%**	**6.6**	**8.0**	**A**
Total		**3,100**	**3,033**	**97.9%**	**20.4**	**6.7**	**C**

Intersection 5 **NB 101 Ramps/SFDB** **Signal**

		Volume (vph)		Percent	Total Delay (sec/veh)		
Direction	**Movement**	**Demand**	**Served**	**Served**	**Average**	**Std. Dev.**	**LOS**
NB	Left Turn						
	Through	210	262	124.6%	56.5	7.7	E
	Right Turn	1,040	1,055	101.4%	9.9	1.8	A
	Subtotal	**1,250**	**1,316**	**105.3%**	**19.4**	**2.0**	**B**
SB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
EB	Left Turn	440	425	96.5%	23.5	1.3	C
	Through	1,080	994	92.1%	4.8	0.8	A
	Right Turn						
	Subtotal	**1,520**	**1,419**	**93.4%**	**10.4**	**1.2**	**B**
WB	Left Turn						
	Through	1,570	1,622	103.3%	59.3	17.4	E
	Right Turn	170	181	106.4%	7.6	2.4	A
	Subtotal	**1,740**	**1,802**	**103.6%**	**54.0**	**15.8**	**D**
Total		**4,510**	**4,538**	**100.6%**	**31.0**	**6.4**	**C**

VISSIM Post-Processor | **Larkspur SMART SAP**
Average Results from 10 Runs | **Existing Conditions**
Volume and Delay by Movement | **AM Peak Hour**

Intersection 6 **Landing Way West/SFDB** **Signal**

		Volume (vph)		Percent	Total Delay (sec/veh)		
Direction	**Movement**	**Demand**	**Served**	**Served**	**Average**	**Std. Dev.**	**LOS**
NB	Left Turn	70	77	109.7%	32.7	8.6	C
	Through	2	0	0.0%			
	Right Turn						
	Subtotal	**72**	**77**	**106.7%**	**31.6**	**8.2**	**C**
SB	Left Turn	10	5	54.0%	32.7	25.9	C
	Through	20	1	6.0%	6.3	13.4	A
	Right Turn	250	271	108.3%	7.2	0.8	A
	Subtotal	**280**	**277**	**99.0%**	**7.4**	**1.4**	**A**
EB	Left Turn	350	289	82.7%	54.8	1.8	D
	Through	1,180	1,165	98.7%	24.2	1.9	C
	Right Turn	590	571	96.8%	5.9	0.6	A
	Subtotal	**2,120**	**2,025**	**95.5%**	**23.6**	**1.3**	**C**
WB	Left Turn	20	25	123.5%	112.4	22.9	F
	Through	1,420	1,465	103.1%	77.4	18.2	E
	Right Turn	10	9	90.0%	62.3	40.7	E
	Subtotal	**1,450**	**1,498**	**103.3%**	**77.8**	**18.2**	**E**
Total		**3,922**	**3,877**	**98.9%**	**44.1**	**7.7**	**D**

Intersection 7 **Landing Way East/SFDB** **Signal**

		Volume (vph)		Percent	Total Delay (sec/veh)		
Direction	**Movement**	**Demand**	**Served**	**Served**	**Average**	**Std. Dev.**	**LOS**
NB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
SB	Left Turn	68	34	49.3%	61.7	13.8	E
	Through						
	Right Turn	39	90	231.0%	3.1	0.1	A
	Subtotal	**107**	**124**	**115.5%**	**17.9**	**5.1**	**B**
EB	Left Turn	54	71	132.0%	56.9	18.3	E
	Through	1,126	1,126	100.0%	5.8	1.6	A
	Right Turn						
	Subtotal	**1,180**	**1,197**	**101.4%**	**9.0**	**2.0**	**A**
WB	Left Turn						
	Through	1,378	1,425	103.4%	9.4	2.3	A
	Right Turn	147	17	11.7%	7.8	6.2	A
	Subtotal	**1,525**	**1,442**	**94.6%**	**9.4**	**2.3**	**A**
Total		**2,812**	**2,763**	**98.2%**	**9.7**	**1.9**	**A**

Intersection 9 **Tamal Vista/Fifer** **Signal**

		Volume (vph)		Percent	Total Delay (sec/veh)		
Direction	**Movement**	**Demand**	**Served**	**Served**	**Average**	**Std. Dev.**	**LOS**
NB	Left Turn	400	385	96.2%	28.3	3.2	C
	Through	20	11	52.5%	18.1	12.5	B
	Right Turn	40	6	14.0%	11.7	16.6	B
	Subtotal	**460**	**401**	**87.2%**	**27.0**	**3.3**	**C**
SB	Left Turn	10	13	126.0%	22.3	9.9	C
	Through	20	17	84.5%	22.3	7.9	C
	Right Turn	10	1	12.0%	2.5	3.7	A
	Subtotal	**40**	**31**	**76.8%**	**19.4**	**6.1**	**B**
EB	Left Turn	10	6	63.0%	14.0	9.0	B
	Through	280	273	97.5%	18.7	5.3	B
	Right Turn	410	617	150.5%	13.7	3.7	B
	Subtotal	**700**	**896**	**128.0%**	**15.3**	**3.9**	**B**
WB	Left Turn	230	259	112.7%	22.4	3.1	C
	Through	240	224	93.4%	6.6	0.9	A
	Right Turn	10	5	50.0%	0.9	1.0	A
	Subtotal	**480**	**488**	**101.7%**	**15.1**	**2.1**	**B**
Total		**1,680**	**1,816**	**108.1%**	**17.9**	**2.9**	**B**

Intersection 10 **Redwood Highway/NB Ramp-Industrial** **Signal**

		Volume (vph)		Percent	Total Delay (sec/veh)		
Direction	**Movement**	**Demand**	**Served**	**Served**	**Average**	**Std. Dev.**	**LOS**
NB	Left Turn	420	521	124.0%	5.8	0.9	A
	Through	50	55	109.0%	12.9	2.2	B
	Right Turn	70	55	79.0%	5.9	1.8	A
	Subtotal	**540**	**631**	**116.8%**	**6.5**	**0.7**	**A**
SB	Left Turn						
	Through	70	38	53.6%	24.4	5.4	C
	Right Turn	70	79	112.6%	9.6	1.7	A
	Subtotal	**140**	**116**	**83.1%**	**14.2**	**2.1**	**B**
EB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
WB	Left Turn	40	29	72.8%	18.2	5.0	B
	Through	50	55	110.4%	16.9	3.4	B
	Right Turn	10	9	87.0%	7.7	5.9	A
	Subtotal	**100**	**93**	**93.0%**	**16.8**	**2.6**	**B**
Total		**780**	**840**	**107.7%**	**9.1**	**0.7**	**A**

VISSIM Post-Processor
Average Results from 10 Runs
Volume and Delay by Movement

Larkspur SMART SAP
Existing Conditions
AM Peak Hour

Intersection 3 **Eliseo-SFDB/US 101 On Ramp/SFDB/Barry Way** **Signal**

		Volume (vph)		Percent	Total Delay (sec/veh)		
Direction	**Movement**	**Demand**	**Served**	**Served**	**Average**	**Std. Dev.**	**LOS**
NB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
SB	Left Turn	140	93	66.4%	225.8	49.5	F
	Through	50	36	72.6%	190.7	20.6	F
	Right Turn	230	121	52.6%	141.6	14.5	F
	Subtotal	**420**	**250**	**59.5%**	**181.9**	**22.1**	**F**
SEB	Left Turn	40	40	99.0%	166.5	16.1	F
	Through	1,600	1,514	94.6%	159.7	49.4	F
	Right Turn	40	86	215.3%	112.3	13.8	F
	Subtotal	**1,680**	**1,640**	**97.6%**	**157.8**	**46.4**	**F**
NEB	Left Turn	40	61	153.3%	78.8	45.0	E
	Through	20	24	120.0%	118.8	71.1	F
	Right Turn	450	390	86.7%	130.9	85.6	F
	Subtotal	**510**	**475**	**93.2%**	**124.4**	**75.8**	**F**
WB	Left Turn	460	448	97.4%	156.4	61.8	F
	Through	1,740	1,701	97.8%	54.6	29.1	D
	Right Turn	50	42	84.0%	51.4	49.2	D
	Subtotal	**2,250**	**2,191**	**97.4%**	**54.6**	**29.1**	**D**
Total		**4,860**	**4,556**	**93.8%**	**114.3**	**30.4**	**F**

VISSIM Post-Processor
Average Results from 10 Runs
Intersection Delay by Interval

Larkspur SMART SAP
Existing Conditions
PM Peak Hour

	Intersection	Control	Interval 1		Interval 2		Interval 3		Interval 4		Peak Hour	
			Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
4	SB US 101 Ramps/SFDB	Signal	14.8	B	16.5	B	19.1	B	22.2	C	22.2	C
5	NB 101 Ramps/SFDB	Signal	36.4	D	38.9	D	39.3	D	52.9	D	52.9	D
6	Landing Way West/SFDB	Signal	34.0	C	29.1	C	34.5	C	30.9	C	34.5	C
7	Landing Way East/SFDB	Signal	20.5	C	27.6	C	22.2	C	28.0	C	28.0	C
9	Tamal Vista/Fifer	Signal	17.9	B	20.0	B	20.2	C	15.9	B	20.2	C
10	Redwood Highway/NB Ramp-Industrial	Signal	13.1	B	13.0	B	14.9	B	12.4	B	14.9	B
3	Eliseo-SFDB/US 101 On Ramp/SFDB/E	Signal	35.9	D	47.3	D	56.6	E	52.4	D	56.6	E

Network Summary

Total Demand Volume (veh/hr)	22,554	22,554	22,554	22,554	22,554
Total Volume Served (veh/hr)	22,920	23,724	23,410	22,442	23,124
Percent Served	101.6%	105.2%	103.8%	99.5%	102.5%
GEH Statistic	2.4	7.7	5.6	0.7	3.8

Notes: Shading indicates peak 15-minute delay and LOS.

VISSIM Post-Processor
Average Results from 10 Runs
Intersection Volume and Delay

Larkspur SMART SAP
Existing Conditions
PM Peak Hour

	Intersection	Control	Volume (vph)		Percent	GEH	Delay (sec/veh)		Level of
			Demand	Served	Served		Average	Std. Dev.	Service
4	SB US 101 Ramps/SFDB	Signal	3,030	2,931	96.7%	1.8	22.2	6.4	C
5	NB 101 Ramps/SFDB	Signal	4,820	4,902	101.7%	1.2	52.9	14.1	D
6	Landing Way West/SFDB	Signal	3,770	3,848	102.1%	1.3	34.5	1.8	C
7	Landing Way East/SFDB	Signal	2,814	2,939	104.4%	2.3	28.0	3.4	C
9	Tamal Vista/Fifer	Signal	1,690	1,924	113.8%	5.5	20.2	3.0	C
10	Redwood Highway/NB Ramp-Industrial	Signal	1,300	1,410	108.5%	3.0	14.9	1.4	B
3	Eliseo-SFDB/US 101 On Ramp/SFDB/Barry V	Signal	5,130	5,170	100.8%	0.6	56.6	#N/A	E

Network Summary	
Total Demand Volume (veh/hr)	22,554
Total Volume Served (veh/hr)	23,124
Percent Served	102.5%
GEH Statistic	3.8

Notes: 1. Volume is measured for the entire peak hour.
2. Delay is measured for the peak 15 minutes in the peak hour.

Intersection 4 **SB US 101 Ramps/SFDB** **Signal**

		Volume (vph)		Percent		Total Delay (sec/veh)		
Direction	**Movement**	**Demand**	**Served**	**Served**	**GEH**	**Average**	**Std. Dev.**	**LOS**
NB	Left Turn							
	Through							
	Right Turn							
	Subtotal							
SB	Left Turn	200	185	92.4%	1.1	81.3	25.9	F
	Through							
	Right Turn							
	Subtotal	**200**	**185**	**92.4%**	1.1	**81.3**	**25.9**	**F**
EB	Left Turn							
	Through	1,040	1,026	98.7%	0.4	21.5	8.2	C
	Right Turn							
	Subtotal	**1,040**	**1,026**	**98.7%**	0.4	**21.5**	**8.2**	**C**
WB	Left Turn							
	Through	1,790	1,720	96.1%	1.7	16.1	11.1	B
	Right Turn							
	Subtotal	**1,790**	**1,720**	**96.1%**	1.7	**16.1**	**11.1**	**B**
Total		**3,030**	**2,931**	**96.7%**	1.8	**22.2**	**6.4**	**C**

Intersection 5 **NB 101 Ramps/SFDB** **Signal**

		Volume (vph)		Percent		Total Delay (sec/veh)		
Direction	**Movement**	**Demand**	**Served**	**Served**	**GEH**	**Average**	**Std. Dev.**	**LOS**
NB	Left Turn							
	Through	510	550	107.9%	1.8	66.7	4.5	E
	Right Turn	990	1,091	110.2%	3.1	24.4	6.6	C
	Subtotal	**1,500**	**1,641**	**109.4%**	3.6	**38.6**	**6.2**	**D**
SB	Left Turn							
	Through							
	Right Turn							
	Subtotal							
EB	Left Turn	600	608	101.4%	0.3	41.0	1.9	D
	Through	650	605	93.1%	1.8	8.4	1.4	A
	Right Turn							
	Subtotal	**1,250**	**1,213**	**97.1%**	1.0	**25.1**	**1.3**	**C**
WB	Left Turn							
	Through	1,780	1,727	97.0%	1.3	91.6	39.1	F
	Right Turn	290	320	110.4%	1.7	23.5	18.7	C
	Subtotal	**2,070**	**2,048**	**98.9%**	0.5	**81.8**	**35.6**	**F**
Total		**4,820**	**4,902**	**101.7%**	1.2	**52.9**	**14.1**	**D**

Intersection 6 **Landing Way West/SFDB** **Signal**

		Volume (vph)		Percent		Total Delay (sec/veh)		
Direction	**Movement**	**Demand**	**Served**	**Served**	**GEH**	**Average**	**Std. Dev.**	**LOS**
NB	Left Turn	480	501	104.3%	0.9	53.1	3.8	D
	Through	10	0	0.0%	4.5			
	Right Turn	10	11	111.0%	0.3	16.6	8.0	B
	Subtotal	**500**	**512**	**102.3%**	0.5	**51.6**	**3.6**	**D**
SB	Left Turn	30	55	184.0%	3.9	56.8	9.8	E
	Through	10	0	0.0%	4.5			
	Right Turn	440	370	84.0%	3.5	8.7	2.2	A
	Subtotal	**480**	**425**	**88.5%**	2.6	**15.3**	**2.7**	**B**
EB	Left Turn	390	378	96.9%	0.6	51.2	4.8	D
	Through	1,170	1,231	105.2%	1.8	17.3	2.7	B
	Right Turn	70	71	100.7%	0.1	2.9	1.3	A
	Subtotal	**1,630**	**1,679**	**103.0%**	1.2	**24.2**	**2.3**	**C**
WB	Left Turn	10	8	78.0%	0.7	50.6	43.0	D
	Through	1,140	1,209	106.0%	2.0	44.1	5.2	D
	Right Turn	10	16	159.0%	1.6	45.7	14.6	D
	Subtotal	**1,160**	**1,232**	**106.2%**	2.1	**44.2**	**5.1**	**D**
Total		**3,770**	**3,848**	**102.1%**	1.3	**34.5**	**1.8**	**C**

Intersection 7 **Landing Way East/SFDB** **Signal**

		Volume (vph)		Percent		Total Delay (sec/veh)		
Direction	**Movement**	**Demand**	**Served**	**Served**	**GEH**	**Average**	**Std. Dev.**	**LOS**
NB	Left Turn							
	Through							
	Right Turn							
	Subtotal							
SB	Left Turn	153	205	133.9%	3.9	65.9	6.0	E
	Through							
	Right Turn	265	210	79.4%	3.5	10.8	4.8	B
	Subtotal	**418**	**415**	**99.3%**	0.1	**38.4**	**5.4**	**D**
EB	Left Turn	96	120	124.8%	2.3	68.5	18.2	E
	Through	1,105	1,200	108.6%	2.8	22.6	4.0	C
	Right Turn							
	Subtotal	**1,201**	**1,319**	**109.9%**	3.3	**26.5**	**4.4**	**C**
WB	Left Turn							
	Through	1,008	1,023	101.5%	0.5	26.0	4.4	C
	Right Turn	187	181	96.8%	0.4	23.2	4.5	C
	Subtotal	**1,195**	**1,204**	**100.7%**	0.3	**25.6**	**4.1**	**C**
Total		**2,814**	**2,939**	**104.4%**	2.3	**28.0**	**3.4**	**C**

Intersection 9 **Tamal Vista/Fifer** **Signal**

		Volume (vph)		Percent		Total Delay (sec/veh)		
Direction	Movement	Demand	Served	Served	GEH	Average	Std. Dev.	LOS
NB	Left Turn	460	503	109.3%	1.9	30.2	5.1	C
	Through	20	5	26.5%	4.1	16.4	17.3	B
	Right Turn	60	43	70.8%	2.4	27.6	7.5	C
	Subtotal	**540**	**551**	**101.9%**	0.4	**29.6**	**5.2**	**C**
SB	Left Turn	10	9	85.0%	0.5	25.3	14.1	C
	Through	20	20	100.0%	0.0	37.5	7.2	D
	Right Turn	10	18	175.0%	2.0	13.6	4.1	B
	Subtotal	**40**	**46**	**115.0%**	0.9	**25.7**	**6.8**	**C**
EB	Left Turn	10	13	131.0%	0.9	25.6	15.6	C
	Through	180	226	125.3%	3.2	21.8	4.3	C
	Right Turn	310	454	146.5%	7.4	10.6	2.1	B
	Subtotal	**500**	**693**	**138.5%**	7.9	**14.3**	**2.5**	**B**
WB	Left Turn	300	290	96.7%	0.6	27.7	4.3	C
	Through	300	342	114.0%	2.3	11.1	3.2	B
	Right Turn	10	3	26.0%	2.9	0.6	1.3	A
	Subtotal	**610**	**635**	**104.0%**	1.0	**18.6**	**3.2**	**B**
Total		**1,690**	**1,924**	**113.8%**	5.5	**20.2**	**3.0**	**C**

Intersection 10 **Redwood Highway/NB Ramp-Industrial** **Signal**

		Volume (vph)		Percent		Total Delay (sec/veh)		
Direction	Movement	Demand	Served	Served	GEH	Average	Std. Dev.	LOS
NB	Left Turn	920	1,000	108.7%	2.6	12.0	1.7	B
	Through	100	107	107.2%	0.7	8.0	1.4	A
	Right Turn	40	51	128.0%	1.7	7.6	1.1	A
	Subtotal	**1,060**	**1,158**	**109.3%**	3.0	**11.4**	**1.5**	**B**
SB	Left Turn	10	11	110.0%	0.3	36.8	17.2	D
	Through	50	43	85.6%	1.1	35.7	5.1	D
	Right Turn	80	87	108.1%	0.7	21.0	5.3	C
	Subtotal	**140**	**140**	**100.2%**	0.0	**27.0**	**4.5**	**C**
EB	Left Turn							
	Through							
	Right Turn							
	Subtotal							
WB	Left Turn	30	23	76.3%	1.4	31.9	11.3	C
	Through	60	74	123.2%	1.7	33.7	3.9	C
	Right Turn	10	15	149.0%	1.4	14.7	8.8	B
	Subtotal	**100**	**112**	**111.7%**	1.1	**31.1**	**4.6**	**C**
Total		**1,300**	**1,410**	**108.5%**	3.0	**14.9**	**1.4**	**B**

Intersection 3 **Eliseo-SFDB/US 101 On Ramp/SFDB/Barry Way** **Signal**

		Volume (vph)		Percent		Total Delay (sec/veh)		
Direction	**Movement**	**Demand**	**Served**	**Served**	**GEH**	**Average**	**Std. Dev.**	**LOS**
NB	Left Turn							
	Through							
	Right Turn							
	Subtotal							
SB	Left Turn	90	81	89.4%	1.0	66.8	13.2	E
	Through	40	41	102.8%	0.2	69.5	22.4	E
	Right Turn	60	62	104.0%	0.3	35.1	12.4	D
	Subtotal	**190**	**184**	**96.8%**	0.4	**57.0**	**13.2**	**E**
SEB	Left Turn	70	77	109.3%	0.8	67.1	16.6	E
	Through	1,720	1,673	97.3%	1.1	38.1	9.0	D
	Right Turn	50	55	110.6%	0.7	22.8	8.6	C
	Subtotal	**1,840**	**1,805**	**98.1%**	0.8	**39.0**	**8.8**	**D**
NEB	Left Turn	70	91	130.1%	2.4	50.6	6.1	D
	Through	50	54	108.6%	0.6	59.3	5.4	E
	Right Turn	260	255	97.9%	0.3	23.1	4.9	C
	Subtotal	**380**	**400**	**105.3%**	1.0	**34.4**	**3.0**	**C**
WB	Left Turn	470	473	100.6%	0.1	95.2	20.7	F
	Through	2,150	2,212	102.9%	1.3	66.0	20.0	E
	Right Turn	100	97	97.1%	0.3	45.2	17.9	D
	Subtotal	**2,720**	**2,782**	**102.3%**	1.2	**66.0**	**20.0**	**E**
Total		**5,130**	**5,170**	**100.8%**	0.6	**56.6**	**12.6**	**E**

Existing Plus Project Conditions

VISSIM Post-Processor
Average Results from 10 Runs
Intersection Delay by Interval

Larkspur SMART SAP
Existing Plus Project Conditions
AM Peak Hour

	Intersection	Control	Interval 1		Interval 2		Interval 3		Interval 4		Peak Hour	
			Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
4	SB US 101 Ramps/SFDB	Signal	14.9	B	17.6	B	20.5	C	24.7	C	24.7	C
5	NB 101 Ramps/SFDB	Signal	36.7	D	44.9	D	45.4	D	48.6	D	48.6	D
6	Landing Way West/SFDB	Signal	40.1	D	72.7	E	68.5	E	75.5	E	75.5	E
7	Landing Way East/SFDB	Signal	17.7	B	29.2	C	20.8	C	27.0	C	29.2	C
9	Tamal Vista/Fifer	Signal	15.6	B	16.2	B	16.3	B	15.8	B	16.3	B
10	Redwood Highway/NB Ramp-Industrial	Signal	6.5	A	6.8	A	8.3	A	9.0	A	9.0	A
3	Eliseo-SFDB/US 101 On Ramp/SFDB/E	Signal	60.1	E	98.9	F	133.6	F	146.4	F	146.4	F

Network Summary

Total Demand Volume (veh/hr)	22,922	22,922	22,922	22,922	22,922
Total Volume Served (veh/hr)	22,296	21,681	21,882	21,404	21,816
Percent Served	97.3%	94.6%	95.5%	93.4%	95.2%
GEH Statistic	4.2	8.3	7.0	10.2	7.4

Notes: Shading indicates peak 15-minute delay and LOS.

VISSIM Post-Processor
Average Results from 10 Runs
Intersection Volume and Delay

Larkspur SMART SAP
Existing Plus Project Conditions
AM Peak Hour

	Intersection	Control	Volume (vph)		Percent	GEH	Delay (sec/veh)		Level of
			Demand	Served	Served		Average	Std. Dev.	Service
4	SB US 101 Ramps/SFDB	Signal	3,220	3,066	95.2%	2.7	24.7	6.9	C
5	NB 101 Ramps/SFDB	Signal	4,882	4,701	96.3%	2.6	48.6	7.1	D
6	Landing Way West/SFDB	Signal	4,298	4,099	95.4%	3.1	75.5	9.7	E
7	Landing Way East/SFDB	Signal	3,056	2,864	93.7%	3.5	29.2	3.6	C
9	Tamal Vista/Fifer	Signal	1,704	1,818	106.7%	2.7	16.3	2.7	B
10	Redwood Highway/NB Ramp-Industrial	Signal	791	847	107.1%	1.9	9.0	0.6	A
3	Eliseo-SFDB/US 101 On Ramp/SFDB/Barry V	Signal	4,971	4,422	88.9%	8.0	146.4	#N/A	F

Network Summary	
Total Demand Volume (veh/hr)	22,922
Total Volume Served (veh/hr)	21,816
Percent Served	95.2%
GEH Statistic	7.4

Notes: 1. Volume is measured for the entire peak hour.
2. Delay is measured for the peak 15 minutes in the peak hour.

Intersection 4 **SB US 101 Ramps/SFDB** **Signal**

		Volume (vph)		Percent	Total Delay (sec/veh)		
Direction	**Movement**	**Demand**	**Served**	**Served**	**Average**	**Std. Dev.**	**LOS**
NB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
SB	Left Turn	515	493	95.7%	75.7	28.8	E
	Through						
	Right Turn						
	Subtotal	**515**	**493**	**95.7%**	**75.7**	**28.8**	**E**
EB	Left Turn						
	Through	1,066	945	88.7%	17.2	2.8	B
	Right Turn						
	Subtotal	**1,066**	**945**	**88.7%**	**17.2**	**2.8**	**B**
WB	Left Turn						
	Through	1,639	1,628	99.3%	12.0	10.1	B
	Right Turn						
	Subtotal	**1,639**	**1,628**	**99.3%**	**12.0**	**10.1**	**B**
Total		**3,220**	**3,066**	**95.2%**	**24.7**	**6.9**	**C**

Intersection 5 **NB 101 Ramps/SFDB** **Signal**

		Volume (vph)		Percent	Total Delay (sec/veh)		
Direction	**Movement**	**Demand**	**Served**	**Served**	**Average**	**Std. Dev.**	**LOS**
NB	Left Turn						
	Through	210	264	125.7%	54.3	6.9	D
	Right Turn	1,095	1,116	101.9%	11.0	3.4	B
	Subtotal	**1,305**	**1,380**	**105.7%**	**19.3**	**4.6**	**B**
SB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
EB	Left Turn	448	413	92.1%	20.5	1.6	C
	Through	1,134	1,026	90.5%	4.8	0.7	A
	Right Turn						
	Subtotal	**1,582**	**1,439**	**91.0%**	**9.3**	**0.9**	**A**
WB	Left Turn						
	Through	1,770	1,633	92.3%	119.2	29.5	F
	Right Turn	225	249	110.5%	19.1	14.0	B
	Subtotal	**1,995**	**1,882**	**94.3%**	**106.9**	**25.4**	**F**
Total		**4,882**	**4,701**	**96.3%**	**48.6**	**7.1**	**D**

VISSIM Post-Processor | **Larkspur SMART SAP**
Average Results from 10 Runs | **Existing Plus Project Conditions**
Volume and Delay by Movement | **AM Peak Hour**

Intersection 6 **Landing Way West/SFDB** **Signal**

		Volume (vph)		Percent	Total Delay (sec/veh)		
Direction	**Movement**	**Demand**	**Served**	**Served**	**Average**	**Std. Dev.**	**LOS**
NB	Left Turn	150	174	116.3%	38.3	8.4	D
	Through	2	0	0.0%			
	Right Turn	9	26	291.1%	11.9	5.6	B
	Subtotal	**161**	**201**	**124.6%**	**34.8**	**6.8**	**C**
SB	Left Turn	11	13	118.2%	44.5	21.9	D
	Through	20	1	6.0%	16.8	27.4	B
	Right Turn	308	321	104.1%	5.5	0.8	A
	Subtotal	**339**	**335**	**98.7%**	**7.1**	**1.3**	**A**
EB	Left Turn	366	298	81.3%	53.0	2.0	D
	Through	1,253	1,239	98.8%	17.1	2.4	B
	Right Turn	610	585	95.9%	5.7	1.0	A
	Subtotal	**2,229**	**2,121**	**95.2%**	**18.8**	**1.8**	**B**
WB	Left Turn	22	22	99.1%	192.0	22.6	F
	Through	1,536	1,407	91.6%	177.7	38.3	F
	Right Turn	11	14	122.7%	134.7	81.4	F
	Subtotal	**1,569**	**1,443**	**91.9%**	**177.5**	**38.1**	**F**
Total		**4,298**	**4,099**	**95.4%**	**75.5**	**9.7**	**E**

Intersection 7 **Landing Way East/SFDB** **Signal**

		Volume (vph)		Percent	Total Delay (sec/veh)		
Direction	**Movement**	**Demand**	**Served**	**Served**	**Average**	**Std. Dev.**	**LOS**
NB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
SB	Left Turn	61	51	83.4%	51.5	12.4	D
	Through						
	Right Turn	181	234	129.1%	5.6	1.1	A
	Subtotal	**242**	**285**	**117.6%**	**12.7**	**2.3**	**B**
EB	Left Turn	124	143	114.9%	71.5	34.8	E
	Through	1,139	1,149	100.8%	5.5	1.2	A
	Right Turn						
	Subtotal	**1,263**	**1,291**	**102.2%**	**13.0**	**5.9**	**B**
WB	Left Turn						
	Through	1,385	1,260	91.0%	50.7	6.0	D
	Right Turn	166	28	16.9%	44.5	12.2	D
	Subtotal	**1,551**	**1,288**	**83.0%**	**50.5**	**6.1**	**D**
Total		**3,056**	**2,864**	**93.7%**	**29.2**	**3.6**	**C**

Intersection 9 **Tamal Vista/Fifer** **Signal**

		Volume (vph)		Percent	Total Delay (sec/veh)		
Direction	**Movement**	**Demand**	**Served**	**Served**	**Average**	**Std. Dev.**	**LOS**
NB	Left Turn	400	381	95.2%	26.1	1.8	C
	Through	20	11	52.5%	16.2	11.5	B
	Right Turn	40	6	15.0%	10.2	14.8	B
	Subtotal	**460**	**397**	**86.3%**	**24.9**	**2.1**	**C**
SB	Left Turn	10	12	121.0%	18.6	11.0	B
	Through	20	18	88.0%	23.6	10.8	C
	Right Turn	10	1	12.0%	5.4	9.4	A
	Subtotal	**40**	**31**	**77.3%**	**18.2**	**6.9**	**B**
EB	Left Turn	10	6	57.0%	15.5	15.2	B
	Through	280	268	95.7%	16.8	4.0	B
	Right Turn	416	627	150.7%	11.7	3.8	B
	Subtotal	**706**	**901**	**127.5%**	**13.3**	**3.7**	**B**
WB	Left Turn	239	254	106.4%	22.9	3.5	C
	Through	249	229	92.0%	6.3	1.5	A
	Right Turn	10	6	59.0%	4.7	6.0	A
	Subtotal	**498**	**489**	**98.2%**	**15.1**	**2.7**	**B**
Total		**1,704**	**1,818**	**106.7%**	**16.3**	**2.7**	**B**

Intersection 10 **Redwood Highway/NB Ramp-Industrial** **Signal**

		Volume (vph)		Percent	Total Delay (sec/veh)		
Direction	**Movement**	**Demand**	**Served**	**Served**	**Average**	**Std. Dev.**	**LOS**
NB	Left Turn	431	530	123.1%	5.8	0.7	A
	Through	50	52	103.0%	11.0	1.9	B
	Right Turn	70	55	78.4%	6.1	2.0	A
	Subtotal	**551**	**637**	**115.6%**	**6.3**	**0.6**	**A**
SB	Left Turn						
	Through	70	39	55.3%	22.6	3.0	C
	Right Turn	70	78	111.0%	10.1	1.6	B
	Subtotal	**140**	**116**	**83.1%**	**14.3**	**1.9**	**B**
EB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
WB	Left Turn	40	28	70.8%	16.0	5.4	B
	Through	50	57	114.6%	18.2	2.8	B
	Right Turn	10	8	80.0%	8.8	6.6	A
	Subtotal	**100**	**94**	**93.6%**	**16.9**	**2.8**	**B**
Total		**791**	**847**	**107.1%**	**9.0**	**0.6**	**A**

VISSIM Post-Processor
Average Results from 10 Runs
Volume and Delay by Movement

Larkspur SMART SAP
Existing Plus Project Conditions
AM Peak Hour

Intersection 3 **Eliseo-SFDB/US 101 On Ramp/SFDB/Barry Way** **Signal**

		Volume (vph)		Percent	Total Delay (sec/veh)		
Direction	**Movement**	**Demand**	**Served**	**Served**	**Average**	**Std. Dev.**	**LOS**
NB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
SB	Left Turn	141	67	47.2%	370.6	71.1	F
	Through	51	23	44.9%	287.6	11.5	F
	Right Turn	230	86	37.3%	212.7	15.7	F
	Subtotal	**422**	**175**	**41.6%**	**289.3**	**37.7**	**F**
SEB	Left Turn	40	39	97.0%	167.8	59.9	F
	Through	1,624	1,517	93.4%	214.2	98.8	F
	Right Turn	40	86	214.8%	111.4	53.6	F
	Subtotal	**1,704**	**1,642**	**96.4%**	**207.7**	**97.2**	**F**
NEB	Left Turn	44	61	139.5%	262.2	123.6	F
	Through	20	20	99.5%	299.7	92.3	F
	Right Turn	455	336	73.8%	391.3	159.9	F
	Subtotal	**519**	**417**	**80.4%**	**371.4**	**149.2**	**F**
WB	Left Turn	504	456	90.4%	155.6	58.0	F
	Through	1,771	1,685	95.2%	41.7	28.6	D
	Right Turn	51	46	90.6%	39.6	40.7	D
	Subtotal	**2,326**	**2,187**	**94.0%**	**41.7**	**28.6**	**D**
Total		**4,971**	**4,422**	**88.9%**	**146.4**	**39.4**	**F**

VISSIM Post-Processor
Average Results from 10 Runs
Intersection Delay by Interval

Larkspur SMART SAP
Existing Plus Project Conditions
PM Peak Hour

	Intersection	Control	Interval 1		Interval 2		Interval 3		Interval 4		Peak Hour	
			Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
4	SB US 101 Ramps/SFDB	Signal	28.9	C	33.7	C	34.6	C	39.8	D	39.8	D
5	NB 101 Ramps/SFDB	Signal	41.1	D	45.6	D	49.2	D	54.9	D	54.9	D
6	Landing Way West/SFDB	Signal	36.2	D	32.9	C	43.6	D	46.9	D	46.9	D
7	Landing Way East/SFDB	Signal	26.7	C	36.1	D	28.6	C	37.2	D	37.2	D
9	Tamal Vista/Fifer	Signal	19.1	B	18.6	B	20.5	C	17.4	B	20.5	C
10	Redwood Highway/NB Ramp-Industrial	Signal	15.1	B	13.5	B	15.2	B	13.7	B	15.2	B
3	Eliseo-SFDB/US 101 On Ramp/SFDB/E	Signal	43.6	D	58.5	E	67.5	E	62.0	E	67.5	E

Network Summary

Total Demand Volume (veh/hr)	24,012	24,012	24,012	24,012	24,012
Total Volume Served (veh/hr)	24,258	24,304	24,588	23,418	24,142
Percent Served	101.0%	101.2%	102.4%	97.5%	100.5%
GEH Statistic	1.6	1.9	3.7	3.9	0.8

Notes: Shading indicates peak 15-minute delay and LOS.

VISSIM Post-Processor
Average Results from 10 Runs
Intersection Volume and Delay

Larkspur SMART SAP
Existing Plus Project Conditions
PM Peak Hour

	Intersection	Control	Volume (vph)		Percent	GEH	Delay (sec/veh)		Level of
			Demand	Served	Served		Average	Std. Dev.	Service
4	SB US 101 Ramps/SFDB	Signal	3,211	3,039	94.7%	3.1	39.8	9.7	D
5	NB 101 Ramps/SFDB	Signal	5,231	5,159	98.6%	1.0	54.9	11.8	D
6	Landing Way West/SFDB	Signal	4,180	4,170	99.7%	0.2	46.9	29.6	D
7	Landing Way East/SFDB	Signal	3,086	3,133	101.5%	0.9	37.2	3.7	D
9	Tamal Vista/Fifer	Signal	1,718	1,962	114.2%	5.7	20.5	2.7	C
10	Redwood Highway/NB Ramp-Industrial	Signal	1,327	1,464	110.3%	3.7	15.2	1.3	B
3	Eliseo-SFDB/US 101 On Ramp/SFDB/Barry V	Signal	5,259	5,215	99.2%	0.6	67.5	#N/A	E

Network Summary	
Total Demand Volume (veh/hr)	24,012
Total Volume Served (veh/hr)	24,142
Percent Served	100.5%
GEH Statistic	0.8

Notes: 1. Volume is measured for the entire peak hour.
2. Delay is measured for the peak 15 minutes in the peak hour.

Intersection 4 **SB US 101 Ramps/SFDB** **Signal**

		Volume (vph)		Percent		Total Delay (sec/veh)		
Direction	**Movement**	**Demand**	**Served**	**Served**	**GEH**	**Average**	**Std. Dev.**	**LOS**
NB	Left Turn							
	Through							
	Right Turn							
	Subtotal							
SB	Left Turn	250	226	90.6%	1.5	278.0	101.6	F
	Through							
	Right Turn							
	Subtotal	**250**	**226**	**90.6%**	1.5	**278.0**	**101.6**	**F**
EB	Left Turn							
	Through	1,122	1,050	93.6%	2.2	25.1	6.6	C
	Right Turn							
	Subtotal	**1,122**	**1,050**	**93.6%**	2.2	**25.1**	**6.6**	**C**
WB	Left Turn							
	Through	1,839	1,763	95.9%	1.8	16.0	9.8	B
	Right Turn							
	Subtotal	**1,839**	**1,763**	**95.9%**	1.8	**16.0**	**9.8**	**B**
Total		**3,211**	**3,039**	**94.7%**	3.1	**39.8**	**9.7**	**D**

Intersection 5 **NB 101 Ramps/SFDB** **Signal**

		Volume (vph)		Percent		Total Delay (sec/veh)		
Direction	**Movement**	**Demand**	**Served**	**Served**	**GEH**	**Average**	**Std. Dev.**	**LOS**
NB	Left Turn							
	Through	510	553	108.3%	1.8	66.6	7.2	E
	Right Turn	1,144	1,223	106.9%	2.3	27.3	8.8	C
	Subtotal	**1,654**	**1,775**	**107.3%**	2.9	**39.5**	**8.5**	**D**
SB	Left Turn							
	Through							
	Right Turn							
	Subtotal							
EB	Left Turn	617	583	94.5%	1.4	41.8	3.5	D
	Through	765	694	90.7%	2.6	11.6	1.5	B
	Right Turn							
	Subtotal	**1,382**	**1,277**	**92.4%**	2.9	**25.7**	**1.8**	**C**
WB	Left Turn							
	Through	1,887	1,769	93.7%	2.8	99.3	37.6	F
	Right Turn	308	338	109.7%	1.7	28.8	17.2	C
	Subtotal	**2,195**	**2,107**	**96.0%**	1.9	**88.0**	**34.0**	**F**
Total		**5,231**	**5,159**	**98.6%**	1.0	**54.9**	**11.8**	**D**

Intersection 6 **Landing Way West/SFDB** **Signal**

		Volume (vph)		Percent		Total Delay (sec/veh)		
Direction	**Movement**	**Demand**	**Served**	**Served**	**GEH**	**Average**	**Std. Dev.**	**LOS**
NB	Left Turn	518	545	105.1%	1.1	123.9	79.9	F
	Through	10	0	0.0%	4.5			
	Right Turn	14	12	82.9%	0.7	15.3	17.5	B
	Subtotal	**542**	**556**	**102.6%**	0.6	**115.3**	**75.9**	**F**
SB	Left Turn	31	62	199.0%	4.5	57.3	9.0	E
	Through	10	0	0.0%	4.5			
	Right Turn	451	373	82.6%	3.9	13.3	1.9	B
	Subtotal	**492**	**434**	**88.3%**	2.7	**19.7**	**2.1**	**B**
EB	Left Turn	466	422	90.6%	2.1	51.1	4.7	D
	Through	1,293	1,353	104.6%	1.6	13.0	2.7	B
	Right Turn	140	130	92.6%	0.9	2.7	0.9	A
	Subtotal	**1,899**	**1,905**	**100.3%**	0.1	**20.9**	**2.4**	**C**
WB	Left Turn	18	15	81.7%	0.8	88.1	55.1	F
	Through	1,216	1,225	100.7%	0.3	84.8	76.9	F
	Right Turn	13	35	266.9%	4.4	85.1	83.7	F
	Subtotal	**1,247**	**1,275**	**102.2%**	0.8	**84.8**	**76.9**	**F**
Total		**4,180**	**4,170**	**99.7%**	0.2	**46.9**	**29.6**	**D**

Intersection 7 **Landing Way East/SFDB** **Signal**

		Volume (vph)		Percent		Total Delay (sec/veh)		
Direction	**Movement**	**Demand**	**Served**	**Served**	**GEH**	**Average**	**Std. Dev.**	**LOS**
NB	Left Turn							
	Through							
	Right Turn							
	Subtotal							
SB	Left Turn	283	219	77.5%	4.0	61.6	6.1	E
	Through							
	Right Turn	226	304	134.3%	4.8	10.0	2.8	A
	Subtotal	**509**	**523**	**102.7%**	0.6	**31.6**	**3.5**	**C**
EB	Left Turn	215	248	115.2%	2.1	79.2	22.2	E
	Through	1,114	1,195	107.2%	2.4	21.4	3.4	C
	Right Turn							
	Subtotal	**1,329**	**1,442**	**108.5%**	3.0	**31.5**	**4.9**	**C**
WB	Left Turn							
	Through	1,022	972	95.1%	1.6	48.4	8.6	D
	Right Turn	226	196	86.9%	2.0	41.5	6.5	D
	Subtotal	**1,248**	**1,169**	**93.6%**	2.3	**47.2**	**8.2**	**D**
Total		**3,086**	**3,133**	**101.5%**	0.9	**37.2**	**3.7**	**D**

VISSIM Post-Processor
Average Results from 10 Runs
Volume and Delay by Movement

Larkspur SMART SAP
Existing Plus Project Conditions
PM Peak Hour

Intersection 9 **Tamal Vista/Fifer** **Signal**

		Volume (vph)		Percent		Total Delay (sec/veh)		
Direction	**Movement**	**Demand**	**Served**	**Served**	**GEH**	**Average**	**Std. Dev.**	**LOS**
NB	Left Turn	460	498	108.2%	1.7	30.7	3.2	C
	Through	20	6	31.0%	3.8	16.5	17.2	B
	Right Turn	60	40	66.5%	2.8	27.0	7.2	C
	Subtotal	**540**	**544**	**100.7%**	0.2	**30.0**	**3.2**	**C**
SB	Left Turn	10	8	80.0%	0.7	34.0	14.6	C
	Through	20	21	105.0%	0.2	34.0	9.3	C
	Right Turn	10	17	170.0%	1.9	12.8	5.6	B
	Subtotal	**40**	**46**	**115.0%**	0.9	**26.3**	**6.3**	**C**
EB	Left Turn	10	16	155.0%	1.5	22.5	6.7	C
	Through	180	228	126.9%	3.4	23.3	6.4	C
	Right Turn	323	464	143.8%	7.1	9.9	3.3	A
	Subtotal	**513**	**708**	**138.1%**	7.9	**14.5**	**4.3**	**B**
WB	Left Turn	308	294	95.4%	0.8	29.2	2.9	C
	Through	307	367	119.7%	3.3	11.0	3.3	B
	Right Turn	10	2	23.0%	3.1	0.0	0.0	A
	Subtotal	**625**	**664**	**106.2%**	1.5	**19.0**	**2.8**	**B**
Total		**1,718**	**1,962**	**114.2%**	5.7	**20.5**	**2.7**	**C**

Intersection 10 **Redwood Highway/NB Ramp-Industrial** **Signal**

		Volume (vph)		Percent		Total Delay (sec/veh)		
Direction	**Movement**	**Demand**	**Served**	**Served**	**GEH**	**Average**	**Std. Dev.**	**LOS**
NB	Left Turn	947	1,057	111.6%	3.5	12.7	1.7	B
	Through	100	105	104.6%	0.5	8.7	1.7	A
	Right Turn	40	51	128.5%	1.7	6.9	1.9	A
	Subtotal	**1,087**	**1,213**	**111.6%**	3.7	**12.1**	**1.5**	**B**
SB	Left Turn	10	11	112.0%	0.4	25.0	15.9	C
	Through	50	42	83.0%	1.3	36.2	6.6	D
	Right Turn	80	87	109.1%	0.8	20.8	5.2	C
	Subtotal	**140**	**140**	**100.0%**	0.0	**26.2**	**4.8**	**C**
EB	Left Turn							
	Through							
	Right Turn							
	Subtotal							
WB	Left Turn	30	23	77.3%	1.3	33.3	9.6	C
	Through	60	72	120.2%	1.5	34.6	5.8	C
	Right Turn	10	16	157.0%	1.6	12.9	6.8	B
	Subtotal	**100**	**111**	**111.0%**	1.1	**31.2**	**4.0**	**C**
Total		**1,327**	**1,464**	**110.3%**	3.7	**15.2**	**1.3**	**B**

Intersection 3 **Eliseo-SFDB/US 101 On Ramp/SFDB/Barry Way** **Signal**

		Volume (vph)		Percent		Total Delay (sec/veh)		
Direction	**Movement**	**Demand**	**Served**	**Served**	**GEH**	**Average**	**Std. Dev.**	**LOS**
NB	Left Turn							
	Through							
	Right Turn							
	Subtotal							
SB	Left Turn	93	84	90.3%	1.0	87.4	39.9	F
	Through	40	43	106.5%	0.4	63.7	19.4	E
	Right Turn	60	61	100.8%	0.1	35.0	8.0	C
	Subtotal	**193**	**187**	**96.9%**	0.4	**66.3**	**21.7**	**E**
SEB	Left Turn	70	74	105.3%	0.4	81.6	29.3	F
	Through	1,768	1,702	96.3%	1.6	69.5	57.1	E
	Right Turn	50	59	118.2%	1.2	40.3	35.2	D
	Subtotal	**1,888**	**1,835**	**97.2%**	1.2	**69.5**	**55.8**	**E**
NEB	Left Turn	76	91	119.6%	1.6	49.5	5.1	D
	Through	51	56	110.2%	0.7	49.8	7.9	D
	Right Turn	274	259	94.4%	0.9	46.4	36.4	D
	Subtotal	**401**	**406**	**101.2%**	0.2	**47.1**	**19.7**	**D**
WB	Left Turn	505	511	101.1%	0.3	94.9	21.4	F
	Through	2,171	2,179	100.4%	0.2	64.0	20.0	E
	Right Turn	101	98	96.9%	0.3	47.7	19.7	D
	Subtotal	**2,777**	**2,787**	**100.4%**	0.2	**64.0**	**20.0**	**E**
Total		**5,259**	**5,215**	**99.2%**	0.6	**67.5**	**26.5**	**E**

Existing Plus Project Conditions – With Mitigations

VISSIM Post-Processor
Average Results from 10 Runs
Intersection Delay by Interval

Larkspur SMART SAP
Existing Plus Project Conditions - Mitigated
AM Peak Hour

	Intersection	Control	Interval 1		Interval 2		Interval 3		Interval 4		Peak Hour	
			Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
4	SB US 101 Ramps/SFDB	Signal	13.9	B	16.7	B	17.5	B	22.6	C	22.6	C
5	NB 101 Ramps/SFDB	Signal	18.8	B	21.5	C	18.5	B	22.2	C	22.2	C
6	Landing Way West/SFDB	Signal	17.7	B	17.4	B	16.3	B	17.9	B	17.9	B
7	Landing Way East/SFDB	Signal	16.4	B	11.6	B	11.8	B	14.0	B	16.4	B
9	Tamal Vista/Fifer	Signal	15.4	B	16.8	B	17.6	B	16.2	B	17.6	B
10	Redwood Highway/NB Ramp-Industrial	Signal	6.8	A	6.7	A	8.2	A	9.3	A	9.3	A
3	Eliseo-SFDB/US 101 On Ramp/SFDB/E	Signal	44.3	D	51.2	D	66.5	E	92.1	F	92.1	F

Network Summary

Total Demand Volume (veh/hr)	22,922	22,922	22,922	22,922	22,922
Total Volume Served (veh/hr)	22,947	23,194	22,178	22,378	22,674
Percent Served	100.1%	101.2%	96.8%	97.6%	98.9%
GEH Statistic	0.2	1.8	5.0	3.6	1.6

Notes: Shading indicates peak 15-minute delay and LOS.

VISSIM Post-Processor
Average Results from 10 Runs
Intersection Volume and Delay

Larkspur SMART SAP
Existing Plus Project Conditions - Mitigated
AM Peak Hour

	Intersection	Control	Volume (vph)		Percent	GEH	Delay (sec/veh)		Level of
			Demand	Served	Served		Average	Std. Dev.	Service
4	SB US 101 Ramps/SFDB	Signal	3,220	3,236	100.5%	0.3	22.6	4.7	C
5	NB 101 Ramps/SFDB	Signal	4,882	4,849	99.3%	0.5	22.2	3.6	C
6	Landing Way West/SFDB	Signal	4,298	4,193	97.6%	1.6	17.9	1.0	B
7	Landing Way East/SFDB	Signal	3,056	3,003	98.3%	1.0	16.4	4.9	B
9	Tamal Vista/Fifer	Signal	1,704	1,835	107.7%	3.1	17.6	2.5	B
10	Redwood Highway/NB Ramp-Industrial	Signal	791	850	107.5%	2.1	9.3	1.0	A
3	Eliseo-SFDB/US 101 On Ramp/SFDB/Barry V	Signal	4,971	4,708	94.7%	3.8	92.1	#N/A	F

Network Summary	
Total Demand Volume (veh/hr)	22,922
Total Volume Served (veh/hr)	22,674
Percent Served	98.9%
GEH Statistic	1.6

Notes: 1. Volume is measured for the entire peak hour.
2. Delay is measured for the peak 15 minutes in the peak hour.

Intersection 4 **SB US 101 Ramps/SFDB** **Signal**

		Volume (vph)		Percent	Total Delay (sec/veh)		
Direction	**Movement**	**Demand**	**Served**	**Served**	**Average**	**Std. Dev.**	**LOS**
NB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
SB	Left Turn	515	502	97.5%	86.0	26.2	F
	Through						
	Right Turn						
	Subtotal	**515**	**502**	**97.5%**	**86.0**	**26.2**	**F**
EB	Left Turn						
	Through	1,066	1,026	96.2%	14.9	2.2	B
	Right Turn						
	Subtotal	**1,066**	**1,026**	**96.2%**	**14.9**	**2.2**	**B**
WB	Left Turn						
	Through	1,639	1,708	104.2%	6.7	6.2	A
	Right Turn						
	Subtotal	**1,639**	**1,708**	**104.2%**	**6.7**	**6.2**	**A**
Total		**3,220**	**3,236**	**100.5%**	**22.6**	**4.7**	**C**

Intersection 5 **NB 101 Ramps/SFDB** **Signal**

		Volume (vph)		Percent	Total Delay (sec/veh)		
Direction	**Movement**	**Demand**	**Served**	**Served**	**Average**	**Std. Dev.**	**LOS**
NB	Left Turn						
	Through	210	261	124.1%	64.3	16.2	E
	Right Turn	1,095	1,113	101.7%	13.2	4.6	B
	Subtotal	**1,305**	**1,374**	**105.3%**	**23.2**	**7.0**	**C**
SB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
EB	Left Turn	448	449	100.3%	23.8	0.9	C
	Through	1,134	1,079	95.2%	5.3	0.8	A
	Right Turn						
	Subtotal	**1,582**	**1,529**	**96.6%**	**10.7**	**0.7**	**B**
WB	Left Turn						
	Through	1,770	1,715	96.9%	33.6	10.6	C
	Right Turn	225	231	102.7%	6.0	1.3	A
	Subtotal	**1,995**	**1,946**	**97.5%**	**30.9**	**9.6**	**C**
Total		**4,882**	**4,849**	**99.3%**	**22.2**	**3.6**	**C**

Intersection 6 **Landing Way West/SFDB** **Signal**

		Volume (vph)		Percent	Total Delay (sec/veh)		
Direction	**Movement**	**Demand**	**Served**	**Served**	**Average**	**Std. Dev.**	**LOS**
NB	Left Turn	150	155	103.1%	30.7	4.3	C
	Through	2	0	0.0%			
	Right Turn	9	24	261.1%	7.6	3.7	A
	Subtotal	**161**	**178**	**110.7%**	**27.8**	**4.0**	**C**
SB	Left Turn	11	13	120.0%	44.2	14.5	D
	Through	20	1	6.5%	6.8	15.4	A
	Right Turn	308	322	104.6%	5.1	0.8	A
	Subtotal	**339**	**337**	**99.3%**	**6.9**	**1.6**	**A**
EB	Left Turn	366	310	84.7%	52.5	1.9	D
	Through	1,253	1,244	99.3%	18.0	1.7	B
	Right Turn	610	615	100.8%	5.7	1.2	A
	Subtotal	**2,229**	**2,169**	**97.3%**	**19.4**	**1.0**	**B**
WB	Left Turn	22	28	125.0%	66.5	9.0	E
	Through	1,536	1,468	95.6%	16.0	1.5	B
	Right Turn	11	14	130.9%	8.7	6.7	A
	Subtotal	**1,569**	**1,510**	**96.2%**	**16.8**	**1.7**	**B**
Total		**4,298**	**4,193**	**97.6%**	**17.9**	**1.0**	**B**

Intersection 7 **Landing Way East/SFDB** **Signal**

		Volume (vph)		Percent	Total Delay (sec/veh)		
Direction	**Movement**	**Demand**	**Served**	**Served**	**Average**	**Std. Dev.**	**LOS**
NB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
SB	Left Turn	61	47	76.7%	48.2	8.0	D
	Through						
	Right Turn	181	208	115.0%	2.4	0.2	A
	Subtotal	**242**	**255**	**105.4%**	**11.2**	**2.7**	**B**
EB	Left Turn	124	146	117.8%	72.7	55.1	E
	Through	1,139	1,149	100.9%	5.1	2.0	A
	Right Turn						
	Subtotal	**1,263**	**1,295**	**102.5%**	**13.8**	**10.7**	**B**
WB	Left Turn						
	Through	1,385	1,297	93.6%	19.6	4.6	B
	Right Turn	166	156	94.1%	17.2	4.2	B
	Subtotal	**1,551**	**1,453**	**93.7%**	**19.4**	**4.6**	**B**
Total		**3,056**	**3,003**	**98.3%**	**16.4**	**2.8**	**B**

Intersection 9 **Tamal Vista/Fifer** **Signal**

		Volume (vph)		Percent	Total Delay (sec/veh)		
Direction	**Movement**	**Demand**	**Served**	**Served**	**Average**	**Std. Dev.**	**LOS**
NB	Left Turn	400	383	95.8%	27.2	1.9	C
	Through	20	10	50.0%	26.9	8.6	C
	Right Turn	40	6	14.8%	9.4	15.7	A
	Subtotal	**460**	**399**	**86.7%**	**26.4**	**1.9**	**C**
SB	Left Turn	10	12	124.0%	23.3	12.1	C
	Through	20	17	86.5%	23.9	9.5	C
	Right Turn	10	1	12.0%	1.0	2.1	A
	Subtotal	**40**	**31**	**77.3%**	**18.8**	**6.1**	**B**
EB	Left Turn	10	6	56.0%	17.5	20.8	B
	Through	280	269	96.2%	20.3	5.1	C
	Right Turn	416	629	151.3%	12.9	3.0	B
	Subtotal	**706**	**904**	**128.1%**	**15.0**	**3.5**	**B**
WB	Left Turn	239	263	110.0%	22.8	2.9	C
	Through	249	233	93.6%	6.3	2.0	A
	Right Turn	10	5	50.0%	2.5	3.6	A
	Subtotal	**498**	**501**	**100.6%**	**15.4**	**2.5**	**B**
Total		**1,704**	**1,835**	**107.7%**	**17.6**	**2.5**	**B**

Intersection 10 **Redwood Highway/NB Ramp-Industrial** **Signal**

		Volume (vph)		Percent	Total Delay (sec/veh)		
Direction	**Movement**	**Demand**	**Served**	**Served**	**Average**	**Std. Dev.**	**LOS**
NB	Left Turn	431	533	123.7%	6.0	0.9	A
	Through	50	55	109.4%	14.2	2.2	B
	Right Turn	70	55	78.1%	7.4	2.7	A
	Subtotal	**551**	**643**	**116.6%**	**6.8**	**0.7**	**A**
SB	Left Turn						
	Through	70	36	51.7%	23.6	5.3	C
	Right Turn	70	79	112.1%	9.4	1.3	A
	Subtotal	**140**	**115**	**81.9%**	**14.0**	**2.1**	**B**
EB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
WB	Left Turn	40	30	74.5%	16.5	3.1	B
	Through	50	56	111.2%	18.0	5.2	B
	Right Turn	10	7	74.0%	10.1	6.6	B
	Subtotal	**100**	**93**	**92.8%**	**17.2**	**4.2**	**B**
Total		**791**	**850**	**107.5%**	**9.3**	**1.0**	**A**

Intersection 3 **Eliseo-SFDB/US 101 On Ramp/SFDB/Barry Way** **Signal**

		Volume (vph)		Percent	Total Delay (sec/veh)		
Direction	**Movement**	**Demand**	**Served**	**Served**	**Average**	**Std. Dev.**	**LOS**
NB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
SB	Left Turn	141	68	47.9%	373.7	107.2	F
	Through	51	22	42.5%	312.2	43.9	F
	Right Turn	230	80	34.6%	235.8	51.0	F
	Subtotal	**422**	**169**	**40.0%**	**306.7**	**77.0**	**F**
SEB	Left Turn	40	40	100.8%	98.4	44.6	F
	Through	1,624	1,651	101.6%	142.2	100.9	F
	Right Turn	40	102	254.0%	48.4	34.3	D
	Subtotal	**1,704**	**1,793**	**105.2%**	**135.6**	**95.5**	**F**
NEB	Left Turn	44	69	156.6%	85.1	77.6	F
	Through	20	22	112.0%	76.7	56.6	E
	Right Turn	455	373	82.0%	183.5	169.3	F
	Subtotal	**519**	**465**	**89.5%**	**165.3**	**152.7**	**F**
WB	Left Turn	504	490	97.2%	93.2	29.3	F
	Through	1,771	1,743	98.4%	24.2	8.3	C
	Right Turn	51	50	97.8%	15.5	6.8	B
	Subtotal	**2,326**	**2,282**	**98.1%**	**24.2**	**8.3**	**C**
Total		**4,971**	**4,708**	**94.7%**	**92.1**	**43.5**	**F**

VISSIM Post-Processor
Average Results from 10 Runs
Intersection Delay by Interval

Larkspur SMART SAP
Existing Plus Project Conditions - Mitigated
PM Peak Hour

	Intersection	Control	Interval 1		Interval 2		Interval 3		Interval 4		Peak Hour	
			Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
4	SB US 101 Ramps/SFDB	Signal	28.4	C	34.4	C	34.9	C	35.2	D	35.2	D
5	NB 101 Ramps/SFDB	Signal	39.8	D	42.3	D	49.8	D	52.6	D	52.6	D
6	Landing Way West/SFDB	Signal	35.8	D	33.9	C	46.8	D	54.6	D	54.6	D
7	Landing Way East/SFDB	Signal	26.8	C	38.1	D	28.9	C	37.6	D	38.1	D
9	Tamal Vista/Fifer	Signal	19.1	B	18.2	B	18.7	B	17.3	B	19.1	B
10	Redwood Highway/NB Ramp-Industrial	Signal	13.8	B	13.9	B	15.3	B	13.7	B	15.3	B
3	Eliseo-SFDB/US 101 On Ramp/SFDB/E	Signal	42.3	D	48.3	D	52.6	D	49.1	D	52.6	D

Network Summary

Total Demand Volume (veh/hr)	24,012	24,012	24,012	24,012	24,012
Total Volume Served (veh/hr)	24,319	24,682	24,548	23,674	24,306
Percent Served	101.3%	102.8%	102.2%	98.6%	101.2%
GEH Statistic	2.0	4.3	3.4	2.2	1.9

Notes: Shading indicates peak 15-minute delay and LOS.

VISSIM Post-Processor
Average Results from 10 Runs
Intersection Volume and Delay

Larkspur SMART SAP
Existing Plus Project Conditions - Mitigated
PM Peak Hour

	Intersection	Control	Volume (vph)		Percent	GEH	Delay (sec/veh)		Level of
			Demand	Served	Served		Average	Std. Dev.	Service
4	SB US 101 Ramps/SFDB	Signal	3,211	3,086	96.1%	2.2	35.2	7.2	D
5	NB 101 Ramps/SFDB	Signal	5,231	5,207	99.5%	0.3	52.6	14.0	D
6	Landing Way West/SFDB	Signal	4,180	4,195	100.4%	0.2	54.6	41.5	D
7	Landing Way East/SFDB	Signal	3,086	3,155	102.2%	1.2	38.1	4.6	D
9	Tamal Vista/Fifer	Signal	1,718	1,964	114.3%	5.7	19.1	1.6	B
10	Redwood Highway/NB Ramp-Industrial	Signal	1,327	1,463	110.2%	3.6	15.3	2.0	B
3	Eliseo-SFDB/US 101 On Ramp/SFDB/Barry V	Signal	5,259	5,236	99.6%	0.3	52.6	14.0	D

Network Summary	
Total Demand Volume (veh/hr)	24,012
Total Volume Served (veh/hr)	24,306
Percent Served	101.2%
GEH Statistic	1.9

Notes: 1. Volume is measured for the entire peak hour.
2. Delay is measured for the peak 15 minutes in the peak hour.

Intersection 4 **SB US 101 Ramps/SFDB** **Signal**

		Volume (vph)		Percent		Total Delay (sec/veh)		
Direction	**Movement**	**Demand**	**Served**	**Served**	**GEH**	**Average**	**Std. Dev.**	**LOS**
NB	Left Turn							
	Through							
	Right Turn							
	Subtotal							
SB	Left Turn	250	227	90.7%	1.5	253.6	111.7	F
	Through							
	Right Turn							
	Subtotal	**250**	**227**	**90.7%**	1.5	**253.6**	**111.7**	**F**
EB	Left Turn							
	Through	1,122	1,103	98.3%	0.6	22.1	2.4	C
	Right Turn							
	Subtotal	**1,122**	**1,103**	**98.3%**	0.6	**22.1**	**2.4**	**C**
WB	Left Turn							
	Through	1,839	1,756	95.5%	2.0	13.8	9.0	B
	Right Turn							
	Subtotal	**1,839**	**1,756**	**95.5%**	2.0	**13.8**	**9.0**	**B**
Total		**3,211**	**3,086**	**96.1%**	2.2	**35.2**	**7.2**	**D**

Intersection 5 **NB 101 Ramps/SFDB** **Signal**

		Volume (vph)		Percent		Total Delay (sec/veh)		
Direction	**Movement**	**Demand**	**Served**	**Served**	**GEH**	**Average**	**Std. Dev.**	**LOS**
NB	Left Turn							
	Through	510	551	108.0%	1.8	63.8	8.4	E
	Right Turn	1,144	1,231	107.6%	2.5	27.7	11.1	C
	Subtotal	**1,654**	**1,781**	**107.7%**	3.1	**38.7**	**10.7**	**D**
SB	Left Turn							
	Through							
	Right Turn							
	Subtotal							
EB	Left Turn	617	609	98.7%	0.3	39.4	2.0	D
	Through	765	719	94.0%	1.7	11.1	1.2	B
	Right Turn							
	Subtotal	**1,382**	**1,328**	**96.1%**	1.5	**24.3**	**0.9**	**C**
WB	Left Turn							
	Through	1,887	1,760	93.3%	3.0	94.5	38.6	F
	Right Turn	308	337	109.5%	1.6	28.1	21.5	C
	Subtotal	**2,195**	**2,097**	**95.5%**	2.1	**83.9**	**35.3**	**F**
Total		**5,231**	**5,207**	**99.5%**	0.3	**52.6**	**14.0**	**D**

Intersection 6 **Landing Way West/SFDB** **Signal**

		Volume (vph)		Percent		Total Delay (sec/veh)		
Direction	Movement	Demand	Served	Served	GEH	Average	Std. Dev.	LOS
NB	Left Turn	518	545	105.2%	1.2	178.4	144.2	F
	Through	10	0	0.0%	4.5			
	Right Turn	14	11	81.4%	0.7	30.5	46.7	C
	Subtotal	**542**	**556**	**102.7%**	0.6	**167.9**	**140.2**	**F**
SB	Left Turn	31	62	199.0%	4.5	57.3	8.8	E
	Through	10	0	0.0%	4.5			
	Right Turn	451	373	82.6%	3.9	17.0	11.6	B
	Subtotal	**492**	**434**	**88.3%**	2.7	**22.7**	**8.8**	**C**
EB	Left Turn	466	432	92.6%	1.6	51.2	4.2	D
	Through	1,293	1,378	106.5%	2.3	13.7	4.1	B
	Right Turn	140	130	92.9%	0.9	2.9	1.2	A
	Subtotal	**1,899**	**1,939**	**102.1%**	0.9	**21.3**	**2.7**	**C**
WB	Left Turn	18	15	83.3%	0.7	113.3	66.9	F
	Through	1,216	1,216	100.0%	0.0	92.0	91.9	F
	Right Turn	13	34	263.1%	4.4	54.5	61.5	D
	Subtotal	**1,247**	**1,265**	**101.4%**	0.5	**91.0**	**90.9**	**F**
Total		**4,180**	**4,195**	**100.4%**	0.2	**54.6**	**41.5**	**D**

Intersection 7 **Landing Way East/SFDB** **Signal**

		Volume (vph)		Percent		Total Delay (sec/veh)		
Direction	Movement	Demand	Served	Served	GEH	Average	Std. Dev.	LOS
NB	Left Turn							
	Through							
	Right Turn							
	Subtotal							
SB	Left Turn	283	219	77.3%	4.1	64.7	10.2	E
	Through							
	Right Turn	226	304	134.3%	4.8	12.8	5.0	B
	Subtotal	**509**	**522**	**102.6%**	0.6	**34.9**	**8.9**	**C**
EB	Left Turn	215	249	115.9%	2.2	96.0	17.5	F
	Through	1,114	1,217	109.3%	3.0	23.2	3.8	C
	Right Turn							
	Subtotal	**1,329**	**1,467**	**110.3%**	3.7	**36.1**	**5.6**	**D**
WB	Left Turn							
	Through	1,022	970	94.9%	1.6	42.7	6.0	D
	Right Turn	226	196	86.6%	2.1	40.2	6.7	D
	Subtotal	**1,248**	**1,166**	**93.4%**	2.4	**42.2**	**5.9**	**D**
Total		**3,086**	**3,155**	**102.2%**	1.2	**38.1**	**4.6**	**D**

Intersection 9 **Tamal Vista/Fifer** **Signal**

		Volume (vph)		Percent		Total Delay (sec/veh)		
Direction	Movement	Demand	Served	Served	GEH	Average	Std. Dev.	LOS
NB	Left Turn	460	501	108.9%	1.9	30.6	2.8	C
	Through	20	6	31.5%	3.8	18.7	13.3	B
	Right Turn	60	40	66.5%	2.8	28.9	9.1	C
	Subtotal	**540**	**547**	**101.3%**	0.3	**30.2**	**3.3**	**C**
SB	Left Turn	10	8	79.0%	0.7	27.3	26.8	C
	Through	20	21	106.0%	0.3	35.4	7.0	D
	Right Turn	10	17	170.0%	1.9	8.6	6.3	A
	Subtotal	**40**	**46**	**115.3%**	0.9	**25.1**	**6.9**	**C**
EB	Left Turn	10	15	153.0%	1.5	18.7	11.5	B
	Through	180	228	126.8%	3.4	21.2	2.5	C
	Right Turn	323	464	143.7%	7.1	7.9	2.4	A
	Subtotal	**513**	**708**	**138.0%**	7.9	**12.5**	**2.0**	**B**
WB	Left Turn	308	294	95.6%	0.8	25.5	3.1	C
	Through	307	367	119.5%	3.3	9.8	1.6	A
	Right Turn	10	2	23.0%	3.1	4.8	6.8	A
	Subtotal	**625**	**664**	**106.2%**	1.5	**16.5**	**2.1**	**B**
Total		**1,718**	**1,964**	**114.3%**	5.7	**19.1**	**2.0**	**B**

Intersection 10 **Redwood Highway/NB Ramp-Industrial** **Signal**

		Volume (vph)		Percent		Total Delay (sec/veh)		
Direction	Movement	Demand	Served	Served	GEH	Average	Std. Dev.	LOS
NB	Left Turn	947	1,056	111.5%	3.4	12.3	1.9	B
	Through	100	106	106.0%	0.6	10.1	1.2	B
	Right Turn	40	51	128.3%	1.7	8.6	2.9	A
	Subtotal	**1,087**	**1,213**	**111.6%**	3.7	**11.9**	**1.8**	**B**
SB	Left Turn	10	11	111.0%	0.3	31.9	14.4	C
	Through	50	42	83.6%	1.2	35.8	4.3	D
	Right Turn	80	87	109.0%	0.8	23.2	9.7	C
	Subtotal	**140**	**140**	**100.1%**	0.0	**27.5**	**6.8**	**C**
EB	Left Turn							
	Through							
	Right Turn							
	Subtotal							
WB	Left Turn	30	23	76.3%	1.4	33.7	10.3	C
	Through	60	71	119.0%	1.4	33.1	3.6	C
	Right Turn	10	15	153.0%	1.5	12.4	7.5	B
	Subtotal	**100**	**110**	**109.6%**	0.9	**30.7**	**3.5**	**C**
Total		**1,327**	**1,463**	**110.2%**	3.6	**15.3**	**2.0**	**B**

Intersection 3 **Eliseo-SFDB/US 101 On Ramp/SFDB/Barry Way** **Signal**

		Volume (vph)		Percent		Total Delay (sec/veh)		
Direction	**Movement**	**Demand**	**Served**	**Served**	**GEH**	**Average**	**Std. Dev.**	**LOS**
NB	Left Turn							
	Through							
	Right Turn							
	Subtotal							
SB	Left Turn	93	84	90.2%	1.0	71.3	25.5	E
	Through	40	43	106.3%	0.4	54.9	13.6	D
	Right Turn	60	61	100.8%	0.1	38.1	15.7	D
	Subtotal	**193**	**187**	**96.8%**	0.4	**57.3**	**13.4**	**E**
SEB	Left Turn	70	74	105.3%	0.4	54.1	8.0	D
	Through	1,768	1,714	97.0%	1.3	37.3	16.5	D
	Right Turn	50	59	117.8%	1.2	21.9	6.7	C
	Subtotal	**1,888**	**1,847**	**97.8%**	1.0	**37.8**	**13.6**	**D**
NEB	Left Turn	76	92	120.8%	1.7	47.0	6.0	D
	Through	51	56	110.0%	0.7	52.5	5.2	D
	Right Turn	274	260	94.8%	0.9	26.1	16.6	C
	Subtotal	**401**	**408**	**101.7%**	0.3	**34.6**	**8.8**	**C**
WB	Left Turn	505	513	101.5%	0.3	88.5	23.9	F
	Through	2,171	2,185	100.6%	0.3	59.4	23.1	E
	Right Turn	101	98	96.9%	0.3	42.7	21.0	D
	Subtotal	**2,777**	**2,795**	**100.6%**	0.3	**59.4**	**23.1**	**E**
Total		**5,259**	**5,236**	**99.6%**	0.3	**52.6**	**15.1**	**D**

Cumulative No Project Conditions

VISSIM Post-Processor
Average Results from 10 Runs
Intersection Delay by Interval

Larkspur SMART SAP
Cumulative No Project
AM Peak Hour

	Intersection	Control	Interval 1		Interval 2		Interval 3		Interval 4		Peak Hour	
			Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
4	SB US 101 Ramps/SFDB	Signal	41.2	D	43.7	D	44.8	D	41.1	D	44.8	D
5	NB 101 Ramps/SFDB	Signal	27.0	C	30.6	C	28.5	C	29.9	C	30.6	C
6	Landing Way West/SFDB	Signal	15.6	B	15.0	B	14.4	B	11.6	B	15.6	B
7	Landing Way East/SFDB	Signal	24.9	C	23.7	C	20.9	C	22.9	C	24.9	C
9	Tamal Vista/Fifer-Industrial	Signal	41.0	D	51.9	D	55.0	D	48.0	D	55.0	D
10	Redwood Highway/NB Ramp	Signal	4.9	A	5.8	A	7.9	A	8.6	A	8.6	A
3	Eliseo-SFDB/US 101 On Ramp/SFDB/E	Signal	72.3	E	82.0	F	80.1	F	86.4	F	86.4	F

Network Summary

Total Demand Volume (veh/hr)	29,190	29,190	29,190	29,190	29,190
Total Volume Served (veh/hr)	23,866	24,614	25,008	24,183	24,418
Percent Served	81.8%	84.3%	85.7%	82.8%	83.7%
GEH Statistic	32.7	27.9	25.4	30.7	29.1

Notes: Shading indicates peak 15-minute delay and LOS.

VISSIM Post-Processor
Average Results from 10 Runs
Intersection Volume and Delay

Larkspur SMART SAP
Cumulative No Project
AM Peak Hour

	Intersection	Control	Volume (vph)		Percent	GEH	Delay (sec/veh)		Level of
			Demand	Served	Served		Average	Std. Dev.	Service
4	SB US 101 Ramps/SFDB	Signal	4,030	3,332	82.7%	11.5	44.8	5.0	D
5	NB 101 Ramps/SFDB	Signal	5,910	5,255	88.9%	8.8	30.6	5.6	C
6	Landing Way West/SFDB	Signal	5,160	4,492	87.0%	9.6	15.6	1.5	B
7	Landing Way East/SFDB	Signal	3,770	3,286	87.1%	8.2	24.9	1.5	C
9	Tamal Vista/Fifer-Industrial	Signal	2,660	1,959	73.6%	14.6	55.0	4.6	D
10	Redwood Highway/NB Ramp	Signal	1,240	1,139	91.8%	2.9	8.6	0.6	A
3	Eliseo-SFDB/US 101 On Ramp/SFDB/Barry V	Signal	6,420	4,956	77.2%	19.4	86.4	#N/A	F

Network Summary	
Total Demand Volume (veh/hr)	29,190
Total Volume Served (veh/hr)	24,418
Percent Served	83.7%
GEH Statistic	29.1

Notes: 1. Volume is measured for the entire peak hour.
2. Delay is measured for the peak 15 minutes in the peak hour.

VISSIM Post-Processor | **Larkspur SMART SAP**
Average Results from 10 Runs | **Cumulative No Project**
Volume and Delay by Movement | **AM Peak Hour**

Intersection 4 **SB US 101 Ramps/SFDB** **Signal**

		Volume (vph)		Percent	Total Delay (sec/veh)		
Direction	**Movement**	**Demand**	**Served**	**Served**	**Average**	**Std. Dev.**	**LOS**
NB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
SB	Left Turn	740	453	61.1%	287.5	39.4	F
	Through						
	Right Turn						
	Subtotal	**740**	**453**	**61.1%**	**287.5**	**39.4**	**F**
EB	Left Turn						
	Through	1,310	1,123	85.8%	7.8	0.8	A
	Right Turn						
	Subtotal	**1,310**	**1,123**	**85.8%**	**7.8**	**0.8**	**A**
WB	Left Turn						
	Through	1,980	1,756	88.7%	6.2	0.3	A
	Right Turn						
	Subtotal	**1,980**	**1,756**	**88.7%**	**6.2**	**0.3**	**A**
Total		**4,030**	**3,332**	**82.7%**	**44.8**	**5.0**	**D**

Intersection 5 **NB 101 Ramps/SFDB** **Signal**

		Volume (vph)		Percent	Total Delay (sec/veh)		
Direction	**Movement**	**Demand**	**Served**	**Served**	**Average**	**Std. Dev.**	**LOS**
NB	Left Turn						
	Through	330	381	115.4%	51.7	12.0	D
	Right Turn	1,530	1,398	91.4%	30.0	12.6	C
	Subtotal	**1,860**	**1,779**	**95.6%**	**34.5**	**12.4**	**C**
SB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
EB	Left Turn	530	452	85.2%	15.4	1.2	B
	Through	1,520	1,122	73.8%	7.4	2.1	A
	Right Turn						
	Subtotal	**2,050**	**1,574**	**76.8%**	**9.8**	**1.2**	**A**
WB	Left Turn						
	Through	1,840	1,754	95.3%	46.6	7.1	D
	Right Turn	160	149	92.8%	9.7	2.8	A
	Subtotal	**2,000**	**1,903**	**95.1%**	**43.4**	**6.9**	**D**
Total		**5,910**	**5,255**	**88.9%**	**30.6**	**5.6**	**C**

VISSIM Post-Processor | **Larkspur SMART SAP**
Average Results from 10 Runs | **Cumulative No Project**
Volume and Delay by Movement | **AM Peak Hour**

Intersection 6 **Landing Way West/SFDB** **Signal**

		Volume (vph)		Percent	Total Delay (sec/veh)		
Direction	**Movement**	**Demand**	**Served**	**Served**	**Average**	**Std. Dev.**	**LOS**
NB	Left Turn	10	14	137.0%	36.0	5.7	D
	Through	10	0	0.0%			
	Right Turn						
	Subtotal	**20**	**14**	**68.5%**	**23.2**	**4.0**	**C**
SB	Left Turn	40	31	77.3%	41.9	8.2	D
	Through	10	1	10.0%	7.4	16.8	A
	Right Turn	340	340	100.1%	47.4	4.3	D
	Subtotal	**390**	**372**	**95.4%**	**46.0**	**4.5**	**D**
EB	Left Turn	690	507	73.4%	28.3	2.2	C
	Through	1,690	1,498	88.6%	6.0	1.5	A
	Right Turn	650	490	75.4%	4.8	0.5	A
	Subtotal	**3,030**	**2,495**	**82.3%**	**10.4**	**1.3**	**B**
WB	Left Turn	40	34	86.0%	29.7	5.0	C
	Through	1,640	1,542	94.0%	15.4	2.4	B
	Right Turn	40	34	85.5%	11.2	4.2	B
	Subtotal	**1,720**	**1,611**	**93.6%**	**15.6**	**2.4**	**B**
Total		**5,160**	**4,492**	**87.0%**	**15.6**	**1.1**	**B**

Intersection 7 **Landing Way East/SFDB** **Signal**

		Volume (vph)		Percent	Total Delay (sec/veh)		
Direction	**Movement**	**Demand**	**Served**	**Served**	**Average**	**Std. Dev.**	**LOS**
NB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
SB	Left Turn	70	93	132.7%	45.3	4.6	D
	Through						
	Right Turn	90	6	7.0%	15.0	13.1	B
	Subtotal	**160**	**99**	**62.0%**	**39.9**	**10.8**	**D**
EB	Left Turn	170	70	41.0%	54.6	4.8	D
	Through	1,570	1,465	93.3%	5.1	1.3	A
	Right Turn						
	Subtotal	**1,740**	**1,534**	**88.2%**	**7.5**	**1.3**	**A**
WB	Left Turn						
	Through	1,630	1,604	98.4%	39.3	3.1	D
	Right Turn	240	48	20.2%	36.2	5.0	D
	Subtotal	**1,870**	**1,652**	**88.3%**	**39.3**	**3.1**	**D**
Total		**3,770**	**3,286**	**87.1%**	**24.9**	**2.3**	**C**

Intersection 9 **Tamal Vista/Fifer-Industrial** **Signal**

		Volume (vph)		Percent	Total Delay (sec/veh)		
Direction	**Movement**	**Demand**	**Served**	**Served**	**Average**	**Std. Dev.**	**LOS**
NB	Left Turn	530	394	74.4%	38.8	3.2	D
	Through	10	11	106.0%	29.8	20.2	C
	Right Turn	60	54	89.7%	13.7	5.2	B
	Subtotal	**600**	**459**	**76.5%**	**35.6**	**3.2**	**D**
SB	Left Turn	10	1	9.0%	16.0	27.0	B
	Through	40	29	73.0%	57.2	11.7	E
	Right Turn	10	7	65.0%	57.1	25.0	E
	Subtotal	**60**	**37**	**61.0%**	**49.1**	**8.8**	**D**
EB	Left Turn	10	5	53.0%	55.1	51.6	E
	Through	300	176	58.5%	115.5	18.7	F
	Right Turn	560	481	85.9%	102.2	17.0	F
	Subtotal	**870**	**662**	**76.1%**	**105.0**	**16.9**	**F**
WB	Left Turn	470	316	67.3%	43.1	5.3	D
	Through	640	474	74.0%	14.1	2.0	B
	Right Turn	20	11	57.0%	11.6	14.3	B
	Subtotal	**1,130**	**801**	**70.9%**	**25.8**	**2.9**	**C**
Total		**2,660**	**1,959**	**73.6%**	**55.0**	**4.6**	**D**

Intersection 10 **Redwood Highway/NB Ramp** **Signal**

		Volume (vph)		Percent	Total Delay (sec/veh)		
Direction	**Movement**	**Demand**	**Served**	**Served**	**Average**	**Std. Dev.**	**LOS**
NB	Left Turn	830	715	86.2%	4.2	0.7	A
	Through	30	66	221.3%	6.1	1.7	A
	Right Turn	120	128	106.9%	5.0	0.6	A
	Subtotal	**980**	**910**	**92.9%**	**4.4**	**0.6**	**A**
SB	Left Turn	10	2	17.0%	8.5	12.5	A
	Through	70	63	89.7%	26.6	5.1	C
	Right Turn	70	58	82.7%	10.7	2.9	B
	Subtotal	**150**	**122**	**81.6%**	**18.6**	**2.8**	**B**
EB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
WB	Left Turn	30	27	88.3%	31.5	7.4	C
	Through	70	68	97.7%	24.4	5.1	C
	Right Turn	10	12	115.0%	9.2	4.5	A
	Subtotal	**110**	**106**	**96.7%**	**24.2**	**4.2**	**C**
Total		**1,240**	**1,139**	**91.8%**	**8.6**	**0.6**	**A**

VISSIM Post-Processor
Average Results from 10 Runs
Volume and Delay by Movement

Larkspur SMART SAP
Cumulative No Project
AM Peak Hour

Intersection 3 **Eliseo-SFDB/US 101 On Ramp/SFDB/Barry Way** **Signal**

		Volume (vph)		Percent	Total Delay (sec/veh)		
Direction	**Movement**	**Demand**	**Served**	**Served**	**Average**	**Std. Dev.**	**LOS**
NB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
SB	Left Turn	250	101	40.6%	154.6	39.9	F
	Through	40	34	84.3%	137.2	41.6	F
	Right Turn	150	135	90.2%	99.5	51.8	F
	Subtotal	**440**	**270**	**61.5%**	**125.0**	**45.1**	**F**
SEB	Left Turn	50	36	72.8%	150.1	23.0	F
	Through	2,340	1,648	70.4%	114.4	10.6	F
	Right Turn	80	64	79.8%	100.3	20.8	F
	Subtotal	**2,470**	**1,748**	**70.8%**	**114.6**	**10.0**	**F**
NEB	Left Turn	60	57	95.5%	60.2	14.5	E
	Through	20	24	118.0%	60.7	13.8	E
	Right Turn	470	408	86.7%	41.6	6.8	D
	Subtotal	**550**	**489**	**88.8%**	**44.7**	**6.3**	**D**
WB	Left Turn	560	431	76.9%	72.3	12.7	E
	Through	2,320	1,958	84.4%	20.1	6.8	C
	Right Turn	80	60	75.5%	13.3	7.3	B
	Subtotal	**2,960**	**2,449**	**82.7%**	**20.1**	**6.8**	**C**
Total		**6,420**	**4,956**	**77.2%**	**86.4**	**4.5**	**F**

VISSIM Post-Processor
Average Results from 10 Runs
Intersection Delay by Interval

Larkspur SMART SAP
Cumulative No Project
PM Peak Hour

	Intersection	Control	Interval 1		Interval 2		Interval 3		Interval 4		Peak Hour	
			Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
4	SB US 101 Ramps/SFDB	Signal	7.7	A	7.7	A	7.5	A	8.1	A	8.1	A
5	NB 101 Ramps/SFDB	Signal	43.6	D	60.7	E	59.9	E	57.1	E	60.7	E
6	Landing Way West/SFDB	Signal	21.4	C	31.3	C	48.7	D	45.5	D	48.7	D
7	Landing Way East/SFDB	Signal	34.6	C	36.8	D	26.0	C	33.4	C	36.8	D
9	Tamal Vista/Fifer-Industrial	Signal	33.1	C	34.1	C	38.0	D	44.2	D	44.2	D
10	Redwood Highway/NB Ramp	Signal	23.2	C	77.0	E	113.3	F	67.4	E	113.3	F
3	Eliseo-SFDB/US 101 On Ramp/SFDB/E	Signal	66.7	E	58.1	E	64.4	E	65.4	E	66.7	E

Network Summary

Total Demand Volume (veh/hr)	29,210	29,210	29,210	29,210	29,210
Total Volume Served (veh/hr)	21,642	22,306	23,864	23,395	22,802
Percent Served	74.1%	76.4%	81.7%	80.1%	78.1%
GEH Statistic	47.5	43.0	32.8	35.9	39.7

Notes: Shading indicates peak 15-minute delay and LOS.

VISSIM Post-Processor
Average Results from 10 Runs
Intersection Volume and Delay

Larkspur SMART SAP
Cumulative No Project
PM Peak Hour

	Intersection	Control	Volume (vph)		Percent	GEH	Delay (sec/veh)		Level of
			Demand	Served	Served		Average	Std. Dev.	Service
4	SB US 101 Ramps/SFDB	Signal	3,900	3,289	84.3%	10.2	8.1	2.1	A
5	NB 101 Ramps/SFDB	Signal	6,010	4,992	83.1%	13.7	60.7	4.6	E
6	Landing Way West/SFDB	Signal	5,010	3,839	76.6%	17.6	48.7	4.4	D
7	Landing Way East/SFDB	Signal	3,960	3,112	78.6%	14.3	36.8	3.9	D
9	Tamal Vista/Fifer-Industrial	Signal	2,290	1,899	82.9%	8.5	44.2	17.0	D
10	Redwood Highway/NB Ramp	Signal	1,910	1,324	69.3%	14.6	113.3	30.1	F
3	Eliseo-SFDB/US 101 On Ramp/SFDB/Barry V	Signal	6,130	4,347	70.9%	24.6	66.7	#N/A	E

Network Summary	
Total Demand Volume (veh/hr)	29,210
Total Volume Served (veh/hr)	22,802
Percent Served	78.1%
GEH Statistic	39.7

Notes: 1. Volume is measured for the entire peak hour.
2. Delay is measured for the peak 15 minutes in the peak hour.

VISSIM Post-Processor | **Larkspur SMART SAP**
Average Results from 10 Runs | **Cumulative No Project**
Volume and Delay by Movement | **PM Peak Hour**

Intersection 3 **Eliseo-SFDB/US 101 On Ramp/SFDB/Barry Way** **Signal**

		Volume (vph)		Percent	Total Delay (sec/veh)		
Direction	**Movement**	**Demand**	**Served**	**Served**	**Average**	**Std. Dev.**	**LOS**
NB	Left Turn				#N/A	#N/A	#N/A
	Through				#N/A	#N/A	#N/A
	Right Turn				#N/A	#N/A	#N/A
	Subtotal				**#N/A**	**#N/A**	**#N/A**
SB	Left Turn	110	47	42.5%	#N/A	#N/A	#N/A
	Through	40	23	56.8%	#N/A	#N/A	#N/A
	Right Turn	60	37	60.8%	#N/A	#N/A	#N/A
	Subtotal	**210**	**106**	**50.5%**	**#N/A**	**#N/A**	**#N/A**
SEB	Left Turn	70	63	90.4%	#N/A	#N/A	#N/A
	Through	2,020	1,739	86.1%	#N/A	#N/A	#N/A
	Right Turn	70	66	94.9%	#N/A	#N/A	#N/A
	Subtotal	**2,160**	**1,869**	**86.5%**	**#N/A**	**#N/A**	**#N/A**
NEB	Left Turn	100	102	101.9%	#N/A	#N/A	#N/A
	Through	50	55	110.0%	#N/A	#N/A	#N/A
	Right Turn	290	273	94.2%	#N/A	#N/A	#N/A
	Subtotal	**440**	**430**	**97.8%**	**#N/A**	**#N/A**	**#N/A**
WB	Left Turn	570	308	54.0%	#N/A	#N/A	#N/A
	Through	2,620	1,538	58.7%	#N/A	#N/A	#N/A
	Right Turn	130	96	73.8%	#N/A	#N/A	#N/A
	Subtotal	**3,320**	**1,942**	**58.5%**	**#N/A**	**#N/A**	**#N/A**
Total		**6,130**	**4,347**	**70.9%**	**66.7**	**14.3**	**E**

Intersection 4 **SB US 101 Ramps/SFDB** **Signal**

		Volume (vph)		Percent	Total Delay (sec/veh)		
Direction	**Movement**	**Demand**	**Served**	**Served**	**Average**	**Std. Dev.**	**LOS**
NB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
SB	Left Turn	190	152	80.2%	50.5	10.2	D
	Through						
	Right Turn						
	Subtotal	**190**	**152**	**80.2%**	**50.5**	**10.2**	**D**
EB	Left Turn						
	Through	1,320	1,169	88.6%	9.7	5.3	A
	Right Turn						
	Subtotal	**1,320**	**1,169**	**88.6%**	**9.7**	**5.3**	**A**
WB	Left Turn						
	Through	2,390	1,968	82.3%	3.4	1.1	A
	Right Turn						
	Subtotal	**2,390**	**1,968**	**82.3%**	**3.4**	**1.1**	**A**
Total		**3,900**	**3,289**	**84.3%**	**8.1**	**2.1**	**A**

VISSIM Post-Processor | **Larkspur SMART SAP**
Average Results from 10 Runs | **Cumulative No Project**
Volume and Delay by Movement | **PM Peak Hour**

Intersection 5 **NB 101 Ramps/SFDB** **Signal**

		Volume (vph)		Percent	Total Delay (sec/veh)		
Direction	**Movement**	**Demand**	**Served**	**Served**	**Average**	**Std. Dev.**	**LOS**
NB	Left Turn						
	Through	290	481	165.7%	187.0	18.2	F
	Right Turn	1,520	982	64.6%	127.4	17.0	F
	Subtotal	**1,810**	**1,462**	**80.8%**	**146.7**	**16.8**	**F**
SB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
EB	Left Turn	830	727	87.6%	32.3	6.4	C
	Through	680	588	86.4%	5.6	1.2	A
	Right Turn						
	Subtotal	**1,510**	**1,315**	**87.1%**	**20.0**	**3.9**	**B**
WB	Left Turn						
	Through	2,330	1,973	84.7%	27.2	3.2	C
	Right Turn	360	241	66.9%	11.6	3.1	B
	Subtotal	**2,690**	**2,214**	**82.3%**	**25.5**	**2.9**	**C**
Total		**6,010**	**4,992**	**83.1%**	**60.7**	**4.6**	**E**

Intersection 6 **Landing Way West/SFDB** **Signal**

		Volume (vph)		Percent	Total Delay (sec/veh)		
Direction	**Movement**	**Demand**	**Served**	**Served**	**Average**	**Std. Dev.**	**LOS**
NB	Left Turn	670	402	60.0%	143.9	16.0	F
	Through	10	1	7.0%	64.4	104.1	E
	Right Turn	10	11	107.0%	49.4	29.2	D
	Subtotal	**690**	**413**	**59.9%**	**139.8**	**15.0**	**F**
SB	Left Turn	50	41	81.2%	77.3	27.8	E
	Through	10	0	0.0%			
	Right Turn	520	350	67.4%	87.6	21.5	F
	Subtotal	**580**	**391**	**67.4%**	**84.6**	**20.1**	**F**
EB	Left Turn	400	354	88.6%	55.8	5.5	E
	Through	1,740	1,151	66.2%	12.3	2.0	B
	Right Turn	50	40	80.2%	1.7	0.5	A
	Subtotal	**2,190**	**1,546**	**70.6%**	**21.8**	**1.8**	**C**
WB	Left Turn	20	19	95.5%	64.4	15.8	E
	Through	1,500	1,459	97.3%	22.7	3.0	C
	Right Turn	30	12	39.0%	16.1	10.4	B
	Subtotal	**1,550**	**1,490**	**96.1%**	**23.3**	**2.9**	**C**
Total		**5,010**	**3,839**	**76.6%**	**48.7**	**4.4**	**D**

Intersection 7 **Landing Way East/SFDB** **Signal**

		Volume (vph)		Percent	Total Delay (sec/veh)		
Direction	**Movement**	**Demand**	**Served**	**Served**	**Average**	**Std. Dev.**	**LOS**
NB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
SB	Left Turn	370	242	65.3%	39.2	5.0	D
	Through						
	Right Turn	200	170	85.0%	11.5	2.6	B
	Subtotal	**570**	**412**	**72.2%**	**27.8**	**3.5**	**C**
EB	Left Turn	90	38	41.7%	55.5	15.4	E
	Through	1,710	1,176	68.8%	11.1	3.2	B
	Right Turn						
	Subtotal	**1,800**	**1,213**	**67.4%**	**12.4**	**3.1**	**B**
WB	Left Turn						
	Through	1,370	1,313	95.9%	59.9	7.9	E
	Right Turn	220	174	79.0%	58.8	7.2	E
	Subtotal	**1,590**	**1,487**	**93.5%**	**59.8**	**7.7**	**E**
Total		**3,960**	**3,112**	**78.6%**	**36.8**	**3.9**	**D**

Intersection 9 **Tamal Vista/Fifer-Industrial** **Signal**

		Volume (vph)		Percent	Total Delay (sec/veh)		
Direction	**Movement**	**Demand**	**Served**	**Served**	**Average**	**Std. Dev.**	**LOS**
NB	Left Turn	670	522	77.9%	42.6	5.8	D
	Through	30	15	49.3%	40.8	18.9	D
	Right Turn	60	31	52.2%	21.7	7.7	C
	Subtotal	**760**	**568**	**74.7%**	**41.5**	**6.0**	**D**
SB	Left Turn	10	0	0.0%			
	Through	50	60	119.8%	58.5	12.4	E
	Right Turn	10	10	96.0%	54.1	46.3	D
	Subtotal	**70**	**70**	**99.3%**	**49.9**	**14.6**	**D**
EB	Left Turn	10	2	22.0%	11.7	22.9	B
	Through	190	105	55.2%	86.8	64.8	F
	Right Turn	360	376	104.4%	72.6	60.9	E
	Subtotal	**560**	**483**	**86.3%**	**74.7**	**60.7**	**E**
WB	Left Turn	350	307	87.7%	45.0	7.8	D
	Through	530	451	85.1%	15.2	2.0	B
	Right Turn	20	21	105.5%	12.1	4.8	B
	Subtotal	**900**	**779**	**86.6%**	**26.7**	**3.8**	**C**
Total		**2,290**	**1,899**	**82.9%**	**44.2**	**17.0**	**D**

VISSIM Post-Processor
Average Results from 10 Runs
Volume and Delay by Movement

Larkspur SMART SAP
Cumulative No Project
PM Peak Hour

Intersection 10 **Redwood Highway/NB Ramp** **Signal**

		Volume (vph)		Percent	Total Delay (sec/veh)		
Direction	**Movement**	**Demand**	**Served**	**Served**	**Average**	**Std. Dev.**	**LOS**
NB	Left Turn	1,350	778	57.6%	14.3	4.3	B
	Through	120	99	82.8%	9.3	2.6	A
	Right Turn	110	41	36.9%	9.2	2.4	A
	Subtotal	**1,580**	**918**	**58.1%**	**13.5**	**3.7**	**B**
SB	Left Turn	10	0	0.0%			
	Through	60	22	36.8%	531.9	470.1	F
	Right Turn	100	37	36.5%	943.3	581.2	F
	Subtotal	**170**	**59**	**34.5%**	**527.4**	**342.4**	**F**
EB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
WB	Left Turn	20	24	121.5%	302.6	81.2	F
	Through	130	324	248.9%	308.4	66.1	F
	Right Turn	10	0	0.0%			
	Subtotal	**160**	**348**	**217.4%**	**297.8**	**63.4**	**F**
Total		**1,910**	**1,324**	**69.3%**	**113.3**	**30.1**	**F**

Cumulative Plus Project Conditions

VISSIM Post-Processor
Average Results from 10 Runs
Intersection Delay by Interval

Larkspur SMART SAP
Cumulative Plus Project
AM Peak Hour

	Intersection	Control	Interval 1		Interval 2		Interval 3		Interval 4		Peak Hour	
			Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
4	SB US 101 Ramps/SFDB	Signal	42.8	D	42.3	D	45.5	D	42.8	D	45.5	D
5	NB 101 Ramps/SFDB	Signal	31.5	C	35.0	C	37.9	D	35.8	D	37.9	D
6	Landing Way West/SFDB	Signal	21.8	C	21.2	C	22.4	C	16.4	B	22.4	C
7	Landing Way East/SFDB	Signal	27.6	C	26.8	C	24.0	C	25.0	C	27.6	C
9	Tamal Vista/Fifer-Industrial	Signal	40.4	D	48.5	D	52.7	D	42.1	D	52.7	D
10	Redwood Highway/NB Ramp	Signal	5.3	A	5.7	A	8.4	A	9.3	A	9.3	A
3	Eliseo-SFDB/US 101 On Ramp/SFDB/E	Signal	74.4	E	79.1	E	87.1	F	81.4	F	87.1	F

Network Summary

Total Demand Volume (veh/hr)	30,420	30,420	30,420	30,420	30,420
Total Volume Served (veh/hr)	24,552	25,072	25,536	25,183	25,086
Percent Served	80.7%	82.4%	83.9%	82.8%	82.5%
GEH Statistic	35.4	32.1	29.2	31.4	32.0

Notes: Shading indicates peak 15-minute delay and LOS.

VISSIM Post-Processor
Average Results from 10 Runs
Intersection Volume and Delay

Larkspur SMART SAP
Cumulative Plus Project
AM Peak Hour

	Intersection	Control	Volume (vph)		Percent	GEH	Delay (sec/veh)		Level of
			Demand	Served	Served		Average	Std. Dev.	Service
4	SB US 101 Ramps/SFDB	Signal	4,160	3,467	83.3%	11.2	45.5	2.0	D
5	NB 101 Ramps/SFDB	Signal	6,270	5,470	87.2%	10.4	37.9	5.8	D
6	Landing Way West/SFDB	Signal	5,540	4,731	85.4%	11.3	22.4	1.6	C
7	Landing Way East/SFDB	Signal	4,000	3,374	84.3%	10.3	27.6	1.7	C
9	Tamal Vista/Fifer-Industrial	Signal	2,690	1,948	72.4%	15.4	52.7	6.3	D
10	Redwood Highway/NB Ramp	Signal	1,250	1,139	91.1%	3.2	9.3	0.9	A
3	Eliseo-SFDB/US 101 On Ramp/SFDB/Barry V	Signal	6,510	4,957	76.2%	20.5	87.1	#N/A	F

Network Summary	
Total Demand Volume (veh/hr)	30,420
Total Volume Served (veh/hr)	25,086
Percent Served	82.5%
GEH Statistic	32.0

Notes: 1. Volume is measured for the entire peak hour.
2. Delay is measured for the peak 15 minutes in the peak hour.

VISSIM Post-Processor | **Larkspur SMART SAP**
Average Results from 10 Runs | **Cumulative Plus Project**
Volume and Delay by Movement | **AM Peak Hour**

Intersection 4 **SB US 101 Ramps/SFDB** **Signal**

		Volume (vph)		Percent	Total Delay (sec/veh)		
Direction	**Movement**	**Demand**	**Served**	**Served**	**Average**	**Std. Dev.**	**LOS**
NB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
SB	Left Turn	760	451	59.4%	313.2	25.2	F
	Through						
	Right Turn	10	0	0.0%			
	Subtotal	**770**	**451**	**58.6%**	**306.4**	**24.3**	**F**
EB	Left Turn						
	Through	1,350	1,140	84.4%	8.1	0.9	A
	Right Turn						
	Subtotal	**1,350**	**1,140**	**84.4%**	**8.1**	**0.9**	**A**
WB	Left Turn						
	Through	2,040	1,876	92.0%	6.4	0.5	A
	Right Turn						
	Subtotal	**2,040**	**1,876**	**92.0%**	**6.4**	**0.5**	**A**
Total		**4,160**	**3,467**	**83.3%**	**45.5**	**2.0**	**D**

Intersection 5 **NB 101 Ramps/SFDB** **Signal**

		Volume (vph)		Percent	Total Delay (sec/veh)		
Direction	**Movement**	**Demand**	**Served**	**Served**	**Average**	**Std. Dev.**	**LOS**
NB	Left Turn						
	Through	330	383	116.2%	56.6	15.0	E
	Right Turn	1,580	1,418	89.8%	40.5	18.0	D
	Subtotal	**1,910**	**1,801**	**94.3%**	**43.9**	**17.1**	**D**
SB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
EB	Left Turn	540	457	84.6%	16.2	1.1	B
	Through	1,570	1,133	72.2%	10.2	2.6	B
	Right Turn						
	Subtotal	**2,110**	**1,590**	**75.4%**	**12.0**	**2.0**	**B**
WB	Left Turn						
	Through	2,040	1,876	92.0%	56.7	5.9	E
	Right Turn	210	202	96.3%	13.4	3.9	B
	Subtotal	**2,250**	**2,078**	**92.4%**	**52.3**	**5.4**	**D**
Total		**6,270**	**5,470**	**87.2%**	**37.9**	**5.8**	**D**

VISSIM Post-Processor | **Larkspur SMART SAP**
Average Results from 10 Runs | **Cumulative Plus Project**
Volume and Delay by Movement | **AM Peak Hour**

Intersection 6 **Landing Way West/SFDB** **Signal**

		Volume (vph)		Percent	Total Delay (sec/veh)		
Direction	**Movement**	**Demand**	**Served**	**Served**	**Average**	**Std. Dev.**	**LOS**
NB	Left Turn	90	103	114.1%	33.4	3.7	C
	Through	10	0	0.0%			
	Right Turn	10	20	197.0%	10.1	2.3	B
	Subtotal	**110**	**122**	**111.3%**	**28.1**	**3.4**	**C**
SB	Left Turn	40	38	96.0%	45.1	7.9	D
	Through	10	1	9.0%	4.8	10.5	A
	Right Turn	400	364	91.1%	62.6	12.2	E
	Subtotal	**450**	**404**	**89.7%**	**59.5**	**11.0**	**E**
EB	Left Turn	710	510	71.8%	35.0	2.7	C
	Through	1,760	1,526	86.7%	10.6	1.8	B
	Right Turn	670	494	73.7%	6.2	0.8	A
	Subtotal	**3,140**	**2,530**	**80.6%**	**14.7**	**1.2**	**B**
WB	Left Turn	40	34	84.3%	42.5	8.2	D
	Through	1,760	1,605	91.2%	24.1	2.7	C
	Right Turn	40	37	92.0%	20.1	4.8	C
	Subtotal	**1,840**	**1,676**	**91.1%**	**24.3**	**2.7**	**C**
Total		**5,540**	**4,731**	**85.4%**	**22.4**	**1.6**	**C**

Intersection 7 **Landing Way East/SFDB** **Signal**

		Volume (vph)		Percent	Total Delay (sec/veh)		
Direction	**Movement**	**Demand**	**Served**	**Served**	**Average**	**Std. Dev.**	**LOS**
NB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
SB	Left Turn	110	60	54.1%	45.7	9.3	D
	Through						
	Right Turn	150	128	85.3%	17.7	2.5	B
	Subtotal	**260**	**187**	**72.1%**	**27.2**	**4.4**	**C**
EB	Left Turn	220	126	57.1%	56.1	6.1	E
	Through	1,590	1,454	91.4%	5.6	1.6	A
	Right Turn						
	Subtotal	**1,810**	**1,579**	**87.2%**	**9.9**	**1.7**	**A**
WB	Left Turn						
	Through	1,690	1,546	91.5%	44.7	3.5	D
	Right Turn	240	61	25.5%	43.2	4.5	D
	Subtotal	**1,930**	**1,607**	**83.3%**	**44.6**	**3.5**	**D**
Total		**4,000**	**3,374**	**84.3%**	**27.6**	**2.7**	**C**

VISSIM Post-Processor
Average Results from 10 Runs
Volume and Delay by Movement

Larkspur SMART SAP
Cumulative Plus Project
AM Peak Hour

Intersection 9 **Tamal Vista/Fifer-Industrial** **Signal**

		Volume (vph)		Percent	Total Delay (sec/veh)		
Direction	**Movement**	**Demand**	**Served**	**Served**	**Average**	**Std. Dev.**	**LOS**
NB	Left Turn	530	380	71.8%	43.8	6.5	D
	Through	10	10	100.0%	39.5	18.1	D
	Right Turn	60	51	84.8%	13.4	5.0	B
	Subtotal	**600**	**441**	**73.6%**	**40.0**	**5.7**	**D**
SB	Left Turn	10	1	9.0%	18.6	30.5	B
	Through	40	30	75.5%	60.5	13.8	E
	Right Turn	10	6	56.0%	61.9	29.5	E
	Subtotal	**60**	**37**	**61.2%**	**53.1**	**12.6**	**D**
EB	Left Turn	10	6	58.0%	49.5	41.6	D
	Through	300	175	58.5%	102.9	20.9	F
	Right Turn	570	499	87.5%	89.6	17.3	F
	Subtotal	**880**	**680**	**77.3%**	**92.5**	**17.8**	**F**
WB	Left Turn	480	318	66.3%	42.4	6.8	D
	Through	650	463	71.3%	13.2	1.7	B
	Right Turn	20	9	46.0%	4.0	5.8	A
	Subtotal	**1,150**	**790**	**68.7%**	**25.0**	**2.7**	**C**
Total		**2,690**	**1,948**	**72.4%**	**52.7**	**6.3**	**D**

Intersection 10 **Redwood Highway/NB Ramp** **Signal**

		Volume (vph)		Percent	Total Delay (sec/veh)		
Direction	**Movement**	**Demand**	**Served**	**Served**	**Average**	**Std. Dev.**	**LOS**
NB	Left Turn	840	717	85.3%	4.6	0.9	A
	Through	30	66	220.7%	7.1	1.9	A
	Right Turn	120	127	106.2%	5.0	0.7	A
	Subtotal	**990**	**911**	**92.0%**	**4.9**	**0.8**	**A**
SB	Left Turn	10	1	9.0%	8.1	21.0	A
	Through	70	62	88.9%	31.3	6.0	C
	Right Turn	70	59	84.3%	11.9	4.8	B
	Subtotal	**150**	**122**	**81.4%**	**21.1**	**3.4**	**C**
EB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
WB	Left Turn	30	28	93.7%	28.7	6.2	C
	Through	70	67	95.3%	27.1	5.2	C
	Right Turn	10	11	114.0%	10.2	6.7	B
	Subtotal	**110**	**106**	**96.5%**	**25.5**	**3.9**	**C**
Total		**1,250**	**1,139**	**91.1%**	**9.3**	**0.9**	**A**

VISSIM Post-Processor
Average Results from 10 Runs
Volume and Delay by Movement

Larkspur SMART SAP
Cumulative Plus Project
AM Peak Hour

Intersection 3 **Eliseo-SFDB/US 101 On Ramp/SFDB/Barry Way** **Signal**

		Volume (vph)		Percent	Total Delay (sec/veh)		
Direction	**Movement**	**Demand**	**Served**	**Served**	**Average**	**Std. Dev.**	**LOS**
NB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
SB	Left Turn	250	106	42.4%	157.9	47.0	F
	Through	40	34	83.8%	141.2	49.8	F
	Right Turn	150	134	89.4%	91.1	44.9	F
	Subtotal	**440**	**274**	**62.2%**	**122.4**	**47.1**	**F**
SEB	Left Turn	50	34	68.0%	146.5	16.5	F
	Through	2,360	1,636	69.3%	116.6	12.3	F
	Right Turn	80	67	83.5%	99.8	21.1	F
	Subtotal	**2,490**	**1,737**	**69.7%**	**116.8**	**12.6**	**F**
NEB	Left Turn	60	60	100.0%	55.4	7.4	E
	Through	20	27	134.0%	62.0	14.1	E
	Right Turn	470	406	86.3%	41.4	6.3	D
	Subtotal	**550**	**492**	**89.5%**	**44.3**	**4.8**	**D**
WB	Left Turn	600	452	75.4%	74.4	18.4	E
	Through	2,350	1,940	82.6%	19.1	3.5	B
	Right Turn	80	63	78.4%	11.0	3.4	B
	Subtotal	**3,030**	**2,455**	**81.0%**	**19.1**	**3.5**	**B**
Total		**6,510**	**4,957**	**76.2%**	**87.1**	**5.2**	**F**

VISSIM Post-Processor
Average Results from 10 Runs
Intersection Delay by Interval

Larkspur SMART SAP
Cumulative Plus Project
PM Peak Hour

	Intersection	Control	Interval 1		Interval 2		Interval 3		Interval 4		Peak Hour	
			Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
4	SB US 101 Ramps/SFDB	Signal	9.7	A	8.2	A	8.7	A	11.1	B	11.1	B
5	NB 101 Ramps/SFDB	Signal	43.8	D	55.9	E	58.2	E	57.5	E	58.2	E
6	Landing Way West/SFDB	Signal	21.0	C	31.2	C	50.3	D	46.4	D	50.3	D
7	Landing Way East/SFDB	Signal	44.8	D	46.4	D	40.4	D	45.6	D	46.4	D
9	Tamal Vista/Fifer-Industrial	Signal	33.1	C	31.9	C	37.6	D	44.9	D	44.9	D
10	Redwood Highway/NB Ramp	Signal	28.7	C	86.1	F	118.2	F	83.9	F	118.2	F
3	Eliseo-SFDB/US 101 On Ramp/SFDB/E	Signal	70.1	E	65.7	E	63.3	E	69.1	E	70.1	E

Network Summary

Total Demand Volume (veh/hr)	30,390	30,390	30,390	30,390	30,390
Total Volume Served (veh/hr)	22,014	22,905	24,294	23,642	23,214
Percent Served	72.4%	75.4%	79.9%	77.8%	76.4%
GEH Statistic	51.7	45.9	36.9	41.1	43.8

Notes: Shading indicates peak 15-minute delay and LOS.

VISSIM Post-Processor
Average Results from 10 Runs
Intersection Volume and Delay

Larkspur SMART SAP
Cumulative Plus Project
PM Peak Hour

	Intersection	Control	Volume (vph)		Percent	GEH	Delay (sec/veh)		Level of
			Demand	Served	Served		Average	Std. Dev.	Service
4	SB US 101 Ramps/SFDB	Signal	4,090	3,380	82.7%	11.6	11.1	4.9	B
5	NB 101 Ramps/SFDB	Signal	6,420	5,132	79.9%	16.9	58.2	3.5	E
6	Landing Way West/SFDB	Signal	5,420	4,006	73.9%	20.6	50.3	3.8	D
7	Landing Way East/SFDB	Signal	3,950	3,140	79.5%	13.6	46.4	2.2	D
9	Tamal Vista/Fifer-Industrial	Signal	2,320	1,890	81.4%	9.4	44.9	12.3	D
10	Redwood Highway/NB Ramp	Signal	1,940	1,291	66.5%	16.2	118.2	23.6	F
3	Eliseo-SFDB/US 101 On Ramp/SFDB/Barry V	Signal	6,250	4,375	70.0%	25.7	70.1	#N/A	E

Network Summary	
Total Demand Volume (veh/hr)	30,390
Total Volume Served (veh/hr)	23,214
Percent Served	76.4%
GEH Statistic	43.8

Notes: 1. Volume is measured for the entire peak hour.
2. Delay is measured for the peak 15 minutes in the peak hour.

VISSIM Post-Processor | **Larkspur SMART SAP**
Average Results from 10 Runs | **Cumulative Plus Project**
Volume and Delay by Movement | **PM Peak Hour**

Intersection 3 **Eliseo-SFDB/US 101 On Ramp/SFDB/Barry Way** **Signal**

		Volume (vph)		Percent	Total Delay (sec/veh)		
Direction	**Movement**	**Demand**	**Served**	**Served**	**Average**	**Std. Dev.**	**LOS**
NB	Left Turn				#N/A	#N/A	#N/A
	Through				#N/A	#N/A	#N/A
	Right Turn				#N/A	#N/A	#N/A
	Subtotal				**#N/A**	**#N/A**	**#N/A**
SB	Left Turn	110	49	44.7%	#N/A	#N/A	#N/A
	Through	40	23	57.0%	#N/A	#N/A	#N/A
	Right Turn	60	37	61.0%	#N/A	#N/A	#N/A
	Subtotal	**210**	**109**	**51.7%**	**#N/A**	**#N/A**	**#N/A**
SEB	Left Turn	70	61	87.7%	#N/A	#N/A	#N/A
	Through	2,070	1,802	87.1%	#N/A	#N/A	#N/A
	Right Turn	70	63	89.7%	#N/A	#N/A	#N/A
	Subtotal	**2,210**	**1,926**	**87.2%**	**#N/A**	**#N/A**	**#N/A**
NEB	Left Turn	110	100	91.3%	#N/A	#N/A	#N/A
	Through	50	54	108.4%	#N/A	#N/A	#N/A
	Right Turn	300	276	91.9%	#N/A	#N/A	#N/A
	Subtotal	**460**	**430**	**93.5%**	**#N/A**	**#N/A**	**#N/A**
WB	Left Turn	600	322	53.7%	#N/A	#N/A	#N/A
	Through	2,640	1,495	56.6%	#N/A	#N/A	#N/A
	Right Turn	130	93	71.2%	#N/A	#N/A	#N/A
	Subtotal	**3,370**	**1,910**	**56.7%**	**#N/A**	**#N/A**	**#N/A**
Total		**6,250**	**4,375**	**70.0%**	**70.1**	**14.6**	**E**

Intersection 4 **SB US 101 Ramps/SFDB** **Signal**

		Volume (vph)		Percent	Total Delay (sec/veh)		
Direction	**Movement**	**Demand**	**Served**	**Served**	**Average**	**Std. Dev.**	**LOS**
NB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
SB	Left Turn	240	224	93.1%	54.5	7.8	D
	Through						
	Right Turn	10	0	0.0%			
	Subtotal	**250**	**224**	**89.4%**	**52.2**	**7.5**	**D**
EB	Left Turn						
	Through	1,400	1,248	89.1%	14.9	13.1	B
	Right Turn						
	Subtotal	**1,400**	**1,248**	**89.1%**	**14.9**	**13.1**	**B**
WB	Left Turn						
	Through	2,440	1,909	78.2%	3.6	1.0	A
	Right Turn						
	Subtotal	**2,440**	**1,909**	**78.2%**	**3.6**	**1.0**	**A**
Total		**4,090**	**3,380**	**82.7%**	**11.1**	**4.9**	**B**

Intersection 5 **NB 101 Ramps/SFDB** **Signal**

		Volume (vph)		Percent	Total Delay (sec/veh)		
Direction	**Movement**	**Demand**	**Served**	**Served**	**Average**	**Std. Dev.**	**LOS**
NB	Left Turn						
	Through	290	464	160.1%	183.1	19.0	F
	Right Turn	1,670	1,032	61.8%	120.2	14.2	F
	Subtotal	**1,960**	**1,496**	**76.3%**	**139.1**	**15.3**	**F**
SB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
EB	Left Turn	850	742	87.2%	34.3	4.1	C
	Through	790	720	91.2%	5.2	0.9	A
	Right Turn						
	Subtotal	**1,640**	**1,462**	**89.1%**	**20.1**	**1.9**	**C**
WB	Left Turn						
	Through	2,440	1,914	78.4%	33.9	3.2	C
	Right Turn	380	260	68.4%	20.7	3.5	C
	Subtotal	**2,820**	**2,174**	**77.1%**	**32.4**	**2.9**	**C**
Total		**6,420**	**5,132**	**79.9%**	**58.2**	**3.5**	**E**

Intersection 6 **Landing Way West/SFDB** **Signal**

		Volume (vph)		Percent	Total Delay (sec/veh)		
Direction	**Movement**	**Demand**	**Served**	**Served**	**Average**	**Std. Dev.**	**LOS**
NB	Left Turn	710	409	57.6%	165.1	18.4	F
	Through	10	1	7.0%	61.3	100.5	E
	Right Turn	10	13	132.0%	54.5	25.6	D
	Subtotal	**730**	**423**	**57.9%**	**159.7**	**19.3**	**F**
SB	Left Turn	50	45	89.6%	83.4	15.7	F
	Through	10	0	0.0%			
	Right Turn	530	361	68.1%	79.2	21.5	E
	Subtotal	**590**	**406**	**68.8%**	**77.4**	**20.1**	**E**
EB	Left Turn	480	399	83.2%	56.6	6.7	E
	Through	1,860	1,223	65.7%	13.0	1.9	B
	Right Turn	120	105	87.3%	2.5	0.7	A
	Subtotal	**2,460**	**1,727**	**70.2%**	**21.9**	**3.0**	**C**
WB	Left Turn	30	24	81.3%	72.0	16.8	E
	Through	1,580	1,398	88.5%	21.1	1.5	C
	Right Turn	30	28	93.0%	17.1	9.4	B
	Subtotal	**1,640**	**1,451**	**88.5%**	**22.0**	**1.3**	**C**
Total		**5,420**	**4,006**	**73.9%**	**50.3**	**3.8**	**D**

Intersection 7 **Landing Way East/SFDB** **Signal**

		Volume (vph)		Percent	Total Delay (sec/veh)		
Direction	**Movement**	**Demand**	**Served**	**Served**	**Average**	**Std. Dev.**	**LOS**
NB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
SB	Left Turn	240	232	96.5%	39.0	5.1	D
	Through						
	Right Turn	220	250	113.7%	13.6	2.8	B
	Subtotal	**460**	**482**	**104.7%**	**25.8**	**3.1**	**C**
EB	Left Turn	250	133	53.2%	60.5	11.3	E
	Through	1,670	1,163	69.6%	12.0	1.8	B
	Right Turn						
	Subtotal	**1,920**	**1,296**	**67.5%**	**16.9**	**2.7**	**B**
WB	Left Turn						
	Through	1,420	1,195	84.1%	83.8	5.1	F
	Right Turn	150	168	112.0%	81.0	5.7	F
	Subtotal	**1,570**	**1,363**	**86.8%**	**83.4**	**5.0**	**F**
Total		**3,950**	**3,140**	**79.5%**	**46.4**	**2.2**	**D**

Intersection 9 **Tamal Vista/Fifer-Industrial** **Signal**

		Volume (vph)		Percent	Total Delay (sec/veh)		
Direction	**Movement**	**Demand**	**Served**	**Served**	**Average**	**Std. Dev.**	**LOS**
NB	Left Turn	670	520	77.6%	43.6	6.6	D
	Through	30	14	47.0%	43.1	15.4	D
	Right Turn	60	30	50.7%	24.9	6.2	C
	Subtotal	**760**	**564**	**74.2%**	**42.6**	**6.1**	**D**
SB	Left Turn	10	0	0.0%			
	Through	50	61	122.6%	51.8	7.9	D
	Right Turn	10	8	78.0%	48.0	48.6	D
	Subtotal	**70**	**69**	**98.7%**	**44.7**	**11.8**	**D**
EB	Left Turn	10	3	25.0%	48.5	74.9	D
	Through	190	105	55.4%	87.3	46.9	F
	Right Turn	370	387	104.7%	72.2	45.3	E
	Subtotal	**570**	**495**	**86.9%**	**75.1**	**44.7**	**E**
WB	Left Turn	360	305	84.6%	44.6	3.0	D
	Through	540	436	80.8%	15.4	2.5	B
	Right Turn	20	20	100.0%	14.0	11.3	B
	Subtotal	**920**	**761**	**82.7%**	**26.9**	**2.7**	**C**
Total		**2,320**	**1,890**	**81.4%**	**44.9**	**12.3**	**D**

VISSIM Post-Processor
Average Results from 10 Runs
Volume and Delay by Movement

Larkspur SMART SAP
Cumulative Plus Project
PM Peak Hour

Intersection 10 **Redwood Highway/NB Ramp** **Signal**

		Volume (vph)		Percent	Total Delay (sec/veh)		
Direction	**Movement**	**Demand**	**Served**	**Served**	**Average**	**Std. Dev.**	**LOS**
NB	Left Turn	1,380	768	55.6%	16.0	3.4	B
	Through	120	95	78.8%	8.7	2.2	A
	Right Turn	110	42	38.3%	9.5	2.1	A
	Subtotal	**1,610**	**905**	**56.2%**	**14.9**	**3.1**	**B**
SB	Left Turn	10	0	0.0%			
	Through	60	20	33.5%	706.6	580.7	F
	Right Turn	100	29	29.1%	1139.3	539.0	F
	Subtotal	**170**	**49**	**28.9%**	**645.4**	**437.0**	**F**
EB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
WB	Left Turn	20	26	131.5%	317.1	64.1	F
	Through	130	311	239.0%	344.9	65.5	F
	Right Turn	10	0	0.0%			
	Subtotal	**160**	**337**	**210.6%**	**331.6**	**60.4**	**F**
Total		**1,940**	**1,291**	**66.5%**	**118.2**	**23.6**	**F**

Cumulative Plus Project Conditions – With Mitigations

VISSIM Post-Processor
Average Results from 10 Runs
Intersection Delay by Interval

Larkspur SMART SAP
Cumulative Plus Project
AM Peak Hour

	Intersection	Control	Interval 1		Interval 2		Interval 3		Interval 4		Peak Hour	
			Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
4	SB US 101 Ramps/SFDB	Signal	42.2	D	44.8	D	45.7	D	45.5	D	45.7	D
5	NB 101 Ramps/SFDB	Signal	36.5	D	47.4	D	50.3	D	49.2	D	50.3	D
6	Landing Way West/SFDB	Signal	19.9	B	21.5	C	25.5	C	19.8	B	25.5	C
7	Landing Way East/SFDB	Signal	27.4	C	26.0	C	22.3	C	25.5	C	27.4	C
9	Tamal Vista/Fifer-Industrial	Signal	38.3	D	49.6	D	54.4	D	46.5	D	54.4	D
10	Redwood Highway/NB Ramp	Signal	5.5	A	6.5	A	10.3	B	10.4	B	10.4	B
3	Eliseo-SFDB/US 101 On Ramp/SFDB/E	Signal	72.7	E	75.9	E	85.1	F	80.3	F	85.1	F

Network Summary

Total Demand Volume (veh/hr)	30,420	30,420	30,420	30,420	30,420
Total Volume Served (veh/hr)	25,024	25,733	25,992	25,618	25,592
Percent Served	82.3%	84.6%	85.4%	84.2%	84.1%
GEH Statistic	32.4	28.0	26.4	28.7	28.8

Notes: Shading indicates peak 15-minute delay and LOS.

VISSIM Post-Processor
Average Results from 10 Runs
Intersection Volume and Delay

Larkspur SMART SAP
Cumulative Plus Project
AM Peak Hour

	Intersection	Control	Volume (vph)		Percent	GEH	Delay (sec/veh)		Level of
			Demand	Served	Served		Average	Std. Dev.	Service
4	SB US 101 Ramps/SFDB	Signal	4,160	3,599	86.5%	9.0	45.7	5.3	D
5	NB 101 Ramps/SFDB	Signal	6,270	5,569	88.8%	9.1	50.3	7.6	D
6	Landing Way West/SFDB	Signal	5,540	4,781	86.3%	10.6	25.5	7.8	C
7	Landing Way East/SFDB	Signal	4,000	3,415	85.4%	9.6	27.4	2.3	C
9	Tamal Vista/Fifer-Industrial	Signal	2,690	1,949	72.4%	15.4	54.4	5.3	D
10	Redwood Highway/NB Ramp	Signal	1,250	1,126	90.1%	3.6	10.4	2.5	B
3	Eliseo-SFDB/US 101 On Ramp/SFDB/Barry V	Signal	6,510	5,155	79.2%	17.7	85.1	#N/A	F

Network Summary	
Total Demand Volume (veh/hr)	30,420
Total Volume Served (veh/hr)	25,592
Percent Served	84.1%
GEH Statistic	28.8

Notes: 1. Volume is measured for the entire peak hour.
2. Delay is measured for the peak 15 minutes in the peak hour.

Intersection 4 **SB US 101 Ramps/SFDB** **Signal**

		Volume (vph)		Percent	Total Delay (sec/veh)		
Direction	**Movement**	**Demand**	**Served**	**Served**	**Average**	**Std. Dev.**	**LOS**
NB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
SB	Left Turn	760	415	54.6%	355.0	64.0	F
	Through						
	Right Turn	10	0	0.0%			
	Subtotal	**770**	**415**	**53.9%**	**346.5**	**61.9**	**F**
EB	Left Turn						
	Through	1,350	1,299	96.2%	9.0	0.7	A
	Right Turn						
	Subtotal	**1,350**	**1,299**	**96.2%**	**9.0**	**0.7**	**A**
WB	Left Turn						
	Through	2,040	1,886	92.4%	6.9	0.4	A
	Right Turn						
	Subtotal	**2,040**	**1,886**	**92.4%**	**6.9**	**0.4**	**A**
Total		**4,160**	**3,599**	**86.5%**	**45.7**	**5.3**	**D**

Intersection 5 **NB 101 Ramps/SFDB** **Signal**

		Volume (vph)		Percent	Total Delay (sec/veh)		
Direction	**Movement**	**Demand**	**Served**	**Served**	**Average**	**Std. Dev.**	**LOS**
NB	Left Turn						
	Through	330	375	113.6%	70.6	12.8	E
	Right Turn	1,580	1,383	87.5%	63.2	16.6	E
	Subtotal	**1,910**	**1,758**	**92.0%**	**64.7**	**15.8**	**E**
SB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
EB	Left Turn	540	519	96.2%	16.2	1.6	B
	Through	1,570	1,190	75.8%	13.9	3.5	B
	Right Turn						
	Subtotal	**2,110**	**1,709**	**81.0%**	**14.6**	**2.1**	**B**
WB	Left Turn						
	Through	2,040	1,886	92.5%	73.0	9.3	E
	Right Turn	210	215	102.6%	20.2	6.9	C
	Subtotal	**2,250**	**2,102**	**93.4%**	**67.2**	**9.0**	**E**
Total		**6,270**	**5,569**	**88.8%**	**50.3**	**7.6**	**D**

VISSIM Post-Processor | **Larkspur SMART SAP**
Average Results from 10 Runs | **Cumulative Plus Project**
Volume and Delay by Movement | **AM Peak Hour**

Intersection 6 **Landing Way West/SFDB** **Signal**

		Volume (vph)		Percent	Total Delay (sec/veh)		
Direction	**Movement**	**Demand**	**Served**	**Served**	**Average**	**Std. Dev.**	**LOS**
NB	Left Turn	90	100	111.4%	49.6	11.0	D
	Through	10	0	0.0%			
	Right Turn	10	22	219.0%	9.6	2.7	A
	Subtotal	**110**	**122**	**111.1%**	**40.3**	**9.0**	**D**
SB	Left Turn	40	41	103.3%	37.0	7.0	D
	Through	10	1	9.0%	6.2	19.7	A
	Right Turn	400	394	98.5%	44.1	18.1	D
	Subtotal	**450**	**436**	**97.0%**	**42.6**	**16.2**	**D**
EB	Left Turn	710	501	70.6%	35.3	3.6	D
	Through	1,760	1,554	88.3%	10.5	1.3	B
	Right Turn	670	488	72.8%	6.7	0.8	A
	Subtotal	**3,140**	**2,543**	**81.0%**	**14.7**	**1.4**	**B**
WB	Left Turn	40	34	83.8%	43.0	8.3	D
	Through	1,760	1,606	91.2%	36.2	17.9	D
	Right Turn	40	40	100.5%	14.1	4.0	B
	Subtotal	**1,840**	**1,680**	**91.3%**	**35.7**	**17.1**	**D**
Total		**5,540**	**4,781**	**86.3%**	**25.5**	**7.8**	**C**

Intersection 7 **Landing Way East/SFDB** **Signal**

		Volume (vph)		Percent	Total Delay (sec/veh)		
Direction	**Movement**	**Demand**	**Served**	**Served**	**Average**	**Std. Dev.**	**LOS**
NB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
SB	Left Turn	110	58	53.0%	42.9	8.7	D
	Through						
	Right Turn	150	131	87.1%	17.0	2.2	B
	Subtotal	**260**	**189**	**72.7%**	**24.9**	**3.7**	**C**
EB	Left Turn	220	118	53.7%	50.7	10.2	D
	Through	1,590	1,494	94.0%	5.0	1.1	A
	Right Turn						
	Subtotal	**1,810**	**1,612**	**89.1%**	**8.5**	**1.6**	**A**
WB	Left Turn						
	Through	1,690	1,556	92.0%	46.0	4.8	D
	Right Turn	240	58	24.2%	46.0	6.9	D
	Subtotal	**1,930**	**1,614**	**83.6%**	**46.0**	**4.8**	**D**
Total		**4,000**	**3,415**	**85.4%**	**27.4**	**2.5**	**C**

VISSIM Post-Processor | **Larkspur SMART SAP**
Average Results from 10 Runs | **Cumulative Plus Project**
Volume and Delay by Movement | **AM Peak Hour**

Intersection 9 **Tamal Vista/Fifer-Industrial** **Signal**

		Volume (vph)		Percent	Total Delay (sec/veh)		
Direction	**Movement**	**Demand**	**Served**	**Served**	**Average**	**Std. Dev.**	**LOS**
NB	Left Turn	530	381	71.8%	41.9	3.6	D
	Through	10	10	97.0%	22.8	16.5	C
	Right Turn	60	55	91.2%	15.0	6.3	B
	Subtotal	**600**	**445**	**74.2%**	**37.9**	**3.1**	**D**
SB	Left Turn	10	1	9.0%	23.6	31.2	C
	Through	40	30	75.5%	59.3	13.0	E
	Right Turn	10	6	56.0%	45.9	35.9	D
	Subtotal	**60**	**37**	**61.2%**	**50.5**	**13.0**	**D**
EB	Left Turn	10	6	63.0%	91.3	54.2	F
	Through	300	174	57.8%	114.6	18.7	F
	Right Turn	570	489	85.7%	101.6	16.0	F
	Subtotal	**880**	**668**	**75.9%**	**104.8**	**16.5**	**F**
WB	Left Turn	480	322	67.1%	39.8	4.7	D
	Through	650	466	71.8%	13.5	2.8	B
	Right Turn	20	10	50.0%	6.7	8.6	A
	Subtotal	**1,150**	**799**	**69.5%**	**24.3**	**3.1**	**C**
Total		**2,690**	**1,949**	**72.4%**	**54.4**	**5.3**	**D**

Intersection 10 **Redwood Highway/NB Ramp** **Signal**

		Volume (vph)		Percent	Total Delay (sec/veh)		
Direction	**Movement**	**Demand**	**Served**	**Served**	**Average**	**Std. Dev.**	**LOS**
NB	Left Turn	840	710	84.5%	5.1	1.4	A
	Through	30	63	210.7%	6.6	1.9	A
	Right Turn	120	125	103.8%	5.3	0.8	A
	Subtotal	**990**	**898**	**90.7%**	**5.2**	**1.2**	**A**
SB	Left Turn	10	1	12.0%	3.1	5.8	A
	Through	70	64	91.6%	29.5	5.2	C
	Right Turn	70	57	81.9%	18.0	15.8	B
	Subtotal	**150**	**123**	**81.7%**	**23.1**	**8.8**	**C**
EB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
WB	Left Turn	30	27	89.0%	35.6	6.1	D
	Through	70	68	97.3%	30.0	5.4	C
	Right Turn	10	11	109.0%	13.1	7.7	B
	Subtotal	**110**	**106**	**96.1%**	**29.5**	**4.3**	**C**
Total		**1,250**	**1,126**	**90.1%**	**10.4**	**2.5**	**B**

VISSIM Post-Processor
Average Results from 10 Runs
Volume and Delay by Movement

Larkspur SMART SAP
Cumulative Plus Project
AM Peak Hour

Intersection 3 **Eliseo-SFDB/US 101 On Ramp/SFDB/Barry Way** **Signal**

		Volume (vph)		Percent	Total Delay (sec/veh)		
Direction	**Movement**	**Demand**	**Served**	**Served**	**Average**	**Std. Dev.**	**LOS**
NB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
SB	Left Turn	250	101	40.4%	372.2	61.6	F
	Through	40	35	86.8%	304.2	41.6	F
	Right Turn	150	135	90.1%	269.8	30.1	F
	Subtotal	**440**	**271**	**61.6%**	**314.5**	**43.2**	**F**
SEB	Left Turn	50	39	77.2%	75.8	9.3	E
	Through	2,360	1,922	81.4%	89.6	26.2	F
	Right Turn	80	79	99.1%	31.4	6.1	C
	Subtotal	**2,490**	**2,040**	**81.9%**	**86.7**	**22.6**	**F**
NEB	Left Turn	60	62	103.7%	56.6	11.7	E
	Through	20	25	126.5%	55.2	14.3	E
	Right Turn	470	399	84.9%	79.9	31.2	E
	Subtotal	**550**	**487**	**88.5%**	**76.3**	**25.8**	**E**
WB	Left Turn	600	442	73.7%	80.3	14.3	F
	Through	2,350	1,851	78.8%	18.6	4.1	B
	Right Turn	80	65	80.6%	11.5	3.8	B
	Subtotal	**3,030**	**2,357**	**77.8%**	**18.6**	**4.1**	**B**
Total		**6,510**	**5,155**	**79.2%**	**85.1**	**11.9**	**F**

VISSIM Post-Processor
Average Results from 10 Runs
Intersection Delay by Interval

Larkspur SMART SAP
Cumulative Plus Project - Mitigated
PM Peak Hour

	Intersection	Control	Interval 1		Interval 2		Interval 3		Interval 4		Peak Hour	
			Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
4	SB US 101 Ramps/SFDB	Signal	9.4	A	8.3	A	8.7	A	10.1	B	10.1	B
5	NB 101 Ramps/SFDB	Signal	46.0	D	58.0	E	57.0	E	54.9	D	58.0	E
6	Landing Way West/SFDB	Signal	19.5	B	28.8	C	45.2	D	42.3	D	45.2	D
7	Landing Way East/SFDB	Signal	44.6	D	45.4	D	42.3	D	47.8	D	47.8	D
9	Tamal Vista/Fifer-Industrial	Signal	33.8	C	34.5	C	40.9	D	46.1	D	46.1	D
10	Redwood Highway/NB Ramp	Signal	24.8	C	87.9	F	116.2	F	85.0	F	116.2	F
3	Eliseo-SFDB/US 101 On Ramp/SFDB/E	Signal	53.8	D	49.1	D	56.2	E	62.9	E	62.9	E

Network Summary

Total Demand Volume (veh/hr)	30,390	30,390	30,390	30,390	30,390
Total Volume Served (veh/hr)	21,403	22,722	24,209	24,081	23,104
Percent Served	70.4%	74.8%	79.7%	79.2%	76.0%
GEH Statistic	55.8	47.1	37.4	38.2	44.6

Notes: Shading indicates peak 15-minute delay and LOS.

VISSIM Post-Processor
Average Results from 10 Runs
Intersection Volume and Delay

Larkspur SMART SAP
Cumulative Plus Project - Mitigated
PM Peak Hour

	Intersection	Control	Volume (vph)		Percent	GEH	Delay (sec/veh)		Level of
			Demand	Served	Served		Average	Std. Dev.	Service
4	SB US 101 Ramps/SFDB	Signal	4,090	3,341	81.7%	12.3	10.1	1.7	B
5	NB 101 Ramps/SFDB	Signal	6,420	5,112	79.6%	17.2	58.0	2.8	E
6	Landing Way West/SFDB	Signal	5,420	3,997	73.7%	20.7	45.2	2.1	D
7	Landing Way East/SFDB	Signal	3,950	3,116	78.9%	14.0	47.8	4.3	D
9	Tamal Vista/Fifer-Industrial	Signal	2,320	1,880	81.0%	9.6	46.1	16.5	D
10	Redwood Highway/NB Ramp	Signal	1,940	1,279	65.9%	16.5	116.2	24.2	F
3	Eliseo-SFDB/US 101 On Ramp/SFDB/Barry V	Signal	6,250	4,378	70.0%	25.7	62.9	#N/A	E

Network Summary	
Total Demand Volume (veh/hr)	30,390
Total Volume Served (veh/hr)	23,104
Percent Served	76.0%
GEH Statistic	44.6

Notes: 1. Volume is measured for the entire peak hour.
2. Delay is measured for the peak 15 minutes in the peak hour.

Intersection 3 **Eliseo-SFDB/US 101 On Ramp/SFDB/Barry Way** **Signal**

		Volume (vph)		Percent	Total Delay (sec/veh)		
Direction	**Movement**	**Demand**	**Served**	**Served**	**Average**	**Std. Dev.**	**LOS**
NB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
SB	Left Turn	110	48	43.6%	645.4	114.9	F
	Through	40	25	63.0%	582.6	95.5	F
	Right Turn	60	38	64.0%	544.0	118.9	F
	Subtotal	**210**	**112**	**53.1%**	**597.2**	**99.3**	**F**
SEB	Left Turn	70	60	85.7%	295.6	137.5	F
	Through	2,070	1,759	85.0%	61.3	9.6	E
	Right Turn	70	64	91.6%	36.0	12.1	D
	Subtotal	**2,210**	**1,883**	**85.2%**	**68.4**	**13.5**	**E**
NEB	Left Turn	110	108	98.5%	125.6	43.6	F
	Through	50	53	106.8%	169.6	52.3	F
	Right Turn	300	278	92.5%	56.4	13.7	E
	Subtotal	**460**	**439**	**95.5%**	**86.8**	**23.3**	**F**
WB	Left Turn	600	332	55.3%	68.7	14.3	E
	Through	2,640	1,521	57.6%	13.7	4.0	B
	Right Turn	130	91	70.3%	9.4	4.1	A
	Subtotal	**3,370**	**1,944**	**57.7%**	**13.7**	**4.0**	**B**
Total		**6,250**	**4,378**	**70.0%**	**62.9**	**5.9**	**E**

Intersection 4 **SB US 101 Ramps/SFDB** **Signal**

		Volume (vph)		Percent	Total Delay (sec/veh)		
Direction	**Movement**	**Demand**	**Served**	**Served**	**Average**	**Std. Dev.**	**LOS**
NB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
SB	Left Turn	240	219	91.1%	63.6	15.3	E
	Through						
	Right Turn	10	0	0.0%			
	Subtotal	**250**	**219**	**87.4%**	**61.0**	**14.7**	**E**
EB	Left Turn						
	Through	1,400	1,218	87.0%	11.2	5.6	B
	Right Turn						
	Subtotal	**1,400**	**1,218**	**87.0%**	**11.2**	**5.6**	**B**
WB	Left Turn						
	Through	2,440	1,904	78.0%	3.4	1.5	A
	Right Turn						
	Subtotal	**2,440**	**1,904**	**78.0%**	**3.4**	**1.5**	**A**
Total		**4,090**	**3,341**	**81.7%**	**10.1**	**1.7**	**B**

Intersection 5 **NB 101 Ramps/SFDB** **Signal**

		Volume (vph)		Percent	Total Delay (sec/veh)		
Direction	**Movement**	**Demand**	**Served**	**Served**	**Average**	**Std. Dev.**	**LOS**
NB	Left Turn						
	Through	290	463	159.7%	183.1	12.6	F
	Right Turn	1,670	1,036	62.1%	120.9	10.7	F
	Subtotal	**1,960**	**1,500**	**76.5%**	**139.8**	**10.5**	**F**
SB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
EB	Left Turn	850	722	84.9%	33.4	2.5	C
	Through	790	704	89.1%	6.5	1.6	A
	Right Turn						
	Subtotal	**1,640**	**1,426**	**86.9%**	**20.0**	**1.9**	**B**
WB	Left Turn						
	Through	2,440	1,911	78.3%	25.8	1.2	C
	Right Turn	380	277	72.8%	13.5	2.4	B
	Subtotal	**2,820**	**2,187**	**77.6%**	**24.1**	**1.0**	**C**
Total		**6,420**	**5,112**	**79.6%**	**58.0**	**2.8**	**E**

Intersection 6 **Landing Way West/SFDB** **Signal**

		Volume (vph)		Percent	Total Delay (sec/veh)		
Direction	**Movement**	**Demand**	**Served**	**Served**	**Average**	**Std. Dev.**	**LOS**
NB	Left Turn	710	408	57.5%	158.5	16.8	F
	Through	10	1	7.0%	42.6	89.9	D
	Right Turn	10	14	143.0%	48.2	12.0	D
	Subtotal	**730**	**423**	**58.0%**	**153.2**	**16.3**	**F**
SB	Left Turn	50	41	82.8%	73.6	22.8	E
	Through	10	0	0.0%			
	Right Turn	530	402	75.8%	43.0	16.8	D
	Subtotal	**590**	**443**	**75.1%**	**43.8**	**16.1**	**D**
EB	Left Turn	480	387	80.6%	54.2	6.2	D
	Through	1,860	1,222	65.7%	12.8	1.4	B
	Right Turn	120	103	85.5%	2.8	0.8	A
	Subtotal	**2,460**	**1,712**	**69.6%**	**20.8**	**1.3**	**C**
WB	Left Turn	30	24	78.3%	65.6	10.3	E
	Through	1,580	1,367	86.5%	18.5	1.6	B
	Right Turn	30	29	95.3%	10.5	4.9	B
	Subtotal	**1,640**	**1,419**	**86.5%**	**19.1**	**1.5**	**B**
Total		**5,420**	**3,997**	**73.7%**	**45.2**	**2.1**	**D**

Intersection 7 **Landing Way East/SFDB** **Signal**

		Volume (vph)		Percent	Total Delay (sec/veh)		
Direction	**Movement**	**Demand**	**Served**	**Served**	**Average**	**Std. Dev.**	**LOS**
NB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
SB	Left Turn	240	233	97.2%	37.7	2.9	D
	Through						
	Right Turn	220	246	111.6%	12.6	2.9	B
	Subtotal	**460**	**479**	**104.1%**	**24.5**	**1.8**	**C**
EB	Left Turn	250	137	54.6%	60.8	14.0	E
	Through	1,670	1,151	68.9%	11.3	2.5	B
	Right Turn						
	Subtotal	**1,920**	**1,287**	**67.1%**	**17.0**	**4.1**	**B**
WB	Left Turn						
	Through	1,420	1,175	82.8%	89.6	9.3	F
	Right Turn	150	175	116.6%	88.4	8.9	F
	Subtotal	**1,570**	**1,350**	**86.0%**	**89.4**	**9.2**	**F**
Total		**3,950**	**3,116**	**78.9%**	**47.8**	**4.3**	**D**

Intersection 9 **Tamal Vista/Fifer-Industrial** **Signal**

		Volume (vph)		Percent	Total Delay (sec/veh)		
Direction	**Movement**	**Demand**	**Served**	**Served**	**Average**	**Std. Dev.**	**LOS**
NB	Left Turn	670	522	77.9%	43.9	7.6	D
	Through	30	16	52.0%	44.7	24.5	D
	Right Turn	60	31	52.2%	27.9	13.9	C
	Subtotal	**760**	**569**	**74.8%**	**42.8**	**8.0**	**D**
SB	Left Turn	10	0	0.0%			
	Through	50	60	119.2%	60.5	15.5	E
	Right Turn	10	9	90.0%	56.5	41.5	E
	Subtotal	**70**	**69**	**98.0%**	**50.8**	**16.8**	**D**
EB	Left Turn	10	3	28.0%	31.5	43.1	C
	Through	190	106	55.7%	92.5	67.0	F
	Right Turn	370	382	103.2%	77.8	61.1	E
	Subtotal	**570**	**491**	**86.1%**	**79.8**	**60.4**	**E**
WB	Left Turn	360	302	83.8%	48.6	8.8	D
	Through	540	429	79.4%	15.8	2.4	B
	Right Turn	20	22	108.5%	13.3	7.1	B
	Subtotal	**920**	**753**	**81.8%**	**28.4**	**3.8**	**C**
Total		**2,320**	**1,880**	**81.0%**	**46.1**	**16.5**	**D**

Intersection 10 **Redwood Highway/NB Ramp** **Signal**

		Volume (vph)		Percent	Total Delay (sec/veh)		
Direction	**Movement**	**Demand**	**Served**	**Served**	**Average**	**Std. Dev.**	**LOS**
NB	Left Turn	1,380	765	55.4%	15.0	3.0	B
	Through	120	96	79.9%	9.7	2.6	A
	Right Turn	110	39	35.4%	8.7	2.2	A
	Subtotal	**1,610**	**900**	**55.9%**	**14.2**	**2.8**	**B**
SB	Left Turn	10	0	0.0%			
	Through	60	18	30.7%	749.9	597.6	F
	Right Turn	100	27	27.1%	1052.8	487.7	F
	Subtotal	**170**	**46**	**26.8%**	**656.1**	**487.6**	**F**
EB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
WB	Left Turn	20	23	117.0%	338.7	79.3	F
	Through	130	310	238.4%	329.5	46.0	F
	Right Turn	10	0	0.0%			
	Subtotal	**160**	**333**	**208.3%**	**319.7**	**44.1**	**F**
Total		**1,940**	**1,279**	**65.9%**	**116.2**	**24.2**	**F**

APPENDIX B-2

ISOLATED INTERSECTION ANALYSIS (SYNCHRO)

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	131	1284	86	115	1026	155	48	11	104	391	29	256
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	12	12	10	12	10	12	12	12	12	12	12
Total Lost time (s)	4.0	5.5		4.0	3.6			4.0	4.0		4.2	4.2
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00	1.00		1.00	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00			1.00	0.99		1.00	1.00
Flpb, ped/bikes	1.00	1.00		1.00	1.00			1.00	1.00		1.00	1.00
Frt	1.00	0.99		1.00	0.98			1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00			0.96	1.00		0.96	1.00
Satd. Flow (prot)	1652	3179		1652	3158			1790	1563		1602	1583
Flt Permitted	0.95	1.00		0.95	1.00			0.14	1.00		0.60	1.00
Satd. Flow (perm)	1652	3179		1652	3158			260	1563		1005	1583
Peak-hour factor, PHF	0.91	0.91	0.91	0.85	0.85	0.85	0.48	0.48	0.48	0.82	0.82	0.82
Adj. Flow (vph)	144	1411	95	135	1207	182	100	23	217	477	35	312
RTOR Reduction (vph)	0	5	0	0	0	0	0	0	150	0	0	56
Lane Group Flow (vph)	144	1501	0	135	1389	0	0	123	67	0	512	256
Confl. Peds. (#/hr)	7		2	2		7						
Confl. Bikes (#/hr)			3						1			
Heavy Vehicles (%)	2%	7%	2%	2%	13%	2%	2%	2%	2%	2%	2%	2%
Parking (#/hr)		0									0	
Turn Type	Prot			Prot			Perm		Perm	Perm		Perm
Protected Phases	5	2		1	6			8			4	
Permitted Phases							8		8	4		4
Actuated Green, G (s)	11.0	60.6		10.8	60.1			26.0	26.0		25.8	25.8
Effective Green, g (s)	11.0	59.7		10.8	61.4			26.0	26.0		25.8	25.8
Actuated g/C Ratio	0.10	0.54		0.10	0.56			0.24	0.24		0.23	0.23
Clearance Time (s)	4.0	4.6		4.0	4.9			4.0	4.0		4.2	4.2
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	165	1725		162	1763			61	369		236	371
v/s Ratio Prot	c0.09	c0.47		0.08	0.44							
v/s Ratio Perm								0.47	0.04		c0.51	0.16
v/c Ratio	0.87	0.87		0.83	0.79			2.02	0.18		2.17	0.69
Uniform Delay, d1	48.8	21.8		48.7	19.2			42.0	33.5		42.1	38.5
Progression Factor	1.04	0.98		0.94	1.15			1.00	1.00		1.00	1.00
Incremental Delay, d2	34.6	6.0		27.3	3.4			509.9	0.2		540.1	5.5
Delay (s)	85.6	27.3		72.9	25.5			551.9	33.8		582.2	43.9
Level of Service	F	C		E	C			F	C		F	D
Approach Delay (s)		32.4			29.7			221.2			378.4	
Approach LOS		C			C			F			F	

Intersection Summary			
HCM Average Control Delay	112.0	HCM Level of Service	F
HCM Volume to Capacity ratio	1.16		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	8.2
Intersection Capacity Utilization	85.9%	ICU Level of Service	E
Analysis Period (min)	15		

Description: WBR: has flashing "No Right Turn" when ped goes on.

c Critical Lane Group

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	1169	538	793	847	267	483
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	10	10	10	10	11	11
Total Lost time (s)	3.6	3.6	4.0	3.6	4.5	4.5
Lane Util. Factor	0.95	1.00	0.97	0.95	0.97	1.00
Frpb, ped/bikes	1.00	0.99	1.00	1.00	1.00	0.99
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	3149	1456	3204	2982	3319	1510
Flt Permitted	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (perm)	3149	1456	3204	2982	3319	1510
Peak-hour factor, PHF	0.92	0.92	0.78	0.78	0.89	0.89
Adj. Flow (vph)	1271	585	1017	1086	300	543
RTOR Reduction (vph)	0	206	0	0	0	338
Lane Group Flow (vph)	1271	379	1017	1086	300	205
Confl. Peds. (#/hr)		1	1			1
Confl. Bikes (#/hr)		2				
Heavy Vehicles (%)	7%	2%	2%	13%	2%	2%
Turn Type		Perm	Prot			Perm
Protected Phases	2		1	6	4	
Permitted Phases		2				4
Actuated Green, G (s)	44.6	44.6	32.3	80.9	19.7	19.7
Effective Green, g (s)	45.9	45.9	32.3	82.2	19.7	19.7
Actuated g/C Ratio	0.42	0.42	0.29	0.75	0.18	0.18
Clearance Time (s)	4.9	4.9	4.0	4.9	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	1314	608	941	2228	594	270
v/s Ratio Prot	c0.40		c0.32	0.36	0.09	
v/s Ratio Perm		0.26				c0.14
v/c Ratio	0.97	0.62	1.08	0.49	0.51	0.76
Uniform Delay, d1	31.3	25.2	38.9	5.5	40.7	42.9
Progression Factor	0.90	1.00	1.25	1.31	1.00	1.00
Incremental Delay, d2	3.0	0.4	49.4	0.5	0.7	11.5
Delay (s)	31.2	25.7	98.0	7.8	41.4	54.4
Level of Service	C	C	F	A	D	D
Approach Delay (s)	29.5			51.4	49.8	
Approach LOS	C			D	D	

Intersection Summary			
HCM Average Control Delay	42.7	HCM Level of Service	D
HCM Volume to Capacity ratio	0.96		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	12.1
Intersection Capacity Utilization	73.4%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	142	971	1328	446	30	189
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Hourly flow rate (vph)	146	1001	1369	460	31	195
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		TWLTL	TWLTL			
Median storage veh)		2	2			
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1829				2663	1369
vC1, stage 1 conf vol					1369	
vC2, stage 2 conf vol					1294	
vCu, unblocked vol	1829				2663	1369
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)					5.4	
tF (s)	2.2				3.5	3.3
p0 queue free %	56				74	0
cM capacity (veh/h)	334				118	179

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1
Volume Total	146	1001	1369	460	226
Volume Left	146	0	0	0	31
Volume Right	0	0	0	460	195
cSH	334	1700	1700	1700	167
Volume to Capacity	0.44	0.59	0.81	0.27	1.35
Queue Length 95th (ft)	54	0	0	0	339
Control Delay (s)	24.0	0.0	0.0	0.0	243.3
Lane LOS	C				F
Approach Delay (s)	3.1		0.0		243.3
Approach LOS					F

Intersection Summary			
Average Delay	18.2		
Intersection Capacity Utilization	101.1%	ICU Level of Service	G
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	247	1090	21	17	1305	518	22	4	15	262	1	192
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	12	12	10	12	10	12	12	12	12	12	12
Total Lost time (s)	4.0	5.5		4.0	3.6			4.0	4.0		4.2	4.2
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00	1.00		1.00	1.00
Frpb, ped/bikes	1.00	1.00		1.00	0.99			1.00	0.99		1.00	1.00
Flpb, ped/bikes	1.00	1.00		1.00	1.00			1.00	1.00		1.00	1.00
Frt	1.00	1.00		1.00	0.96			1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00			0.96	1.00		0.95	1.00
Satd. Flow (prot)	1652	3227		1652	3238			1787	1563		1597	1583
Flt Permitted	0.95	1.00		0.95	1.00			0.42	1.00		0.69	1.00
Satd. Flow (perm)	1652	3227		1652	3238			790	1563		1152	1583
Peak-hour factor, PHF	0.91	0.91	0.91	0.85	0.85	0.85	0.48	0.48	0.48	0.82	0.82	0.82
Adj. Flow (vph)	271	1198	23	20	1535	609	46	8	31	320	1	234
RTOR Reduction (vph)	0	1	0	0	0	0	0	0	24	0	0	56
Lane Group Flow (vph)	271	1220	0	20	2144	0	0	54	7	0	321	178
Confl. Peds. (#/hr)	7		2	2		7						
Confl. Bikes (#/hr)			3						1			
Heavy Vehicles (%)	2%	6%	2%	2%	7%	2%	2%	2%	2%	2%	2%	2%
Parking (#/hr)		0									0	
Turn Type	Prot			Prot			Perm		Perm	Perm		Perm
Protected Phases	5	2		1	6			8			4	
Permitted Phases							8		8	4		4
Actuated Green, G (s)	26.1	83.2		3.2	60.0			31.0	31.0		30.8	30.8
Effective Green, g (s)	26.1	82.3		3.2	61.3			31.0	31.0		30.8	30.8
Actuated g/C Ratio	0.20	0.63		0.02	0.47			0.24	0.24		0.24	0.24
Clearance Time (s)	4.0	4.6		4.0	4.9			4.0	4.0		4.2	4.2
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	332	2043		41	1527			188	373		273	375
v/s Ratio Prot	c0.16	0.38		0.01	c0.66							
v/s Ratio Perm								0.07	0.00		c0.28	0.11
v/c Ratio	0.82	0.60		0.49	1.40			0.29	0.02		1.18	0.47
Uniform Delay, d1	49.7	14.1		62.6	34.4			40.5	37.9		49.6	42.6
Progression Factor	1.15	0.84		0.93	0.97			1.00	1.00		1.00	1.00
Incremental Delay, d2	13.7	1.2		6.7	184.9			0.8	0.0		110.7	0.9
Delay (s)	70.8	13.1		64.6	218.2			41.3	37.9		160.3	43.6
Level of Service	E	B		E	F			D	D		F	D
Approach Delay (s)		23.6			216.7			40.1			111.1	
Approach LOS		C			F			D			F	

Intersection Summary			
HCM Average Control Delay	132.5	HCM Level of Service	F
HCM Volume to Capacity ratio	1.22		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	11.8
Intersection Capacity Utilization	97.9%	ICU Level of Service	F
Analysis Period (min)	15		

Description: WBR: has flashing "No Right Turn" when ped goes on.

c Critical Lane Group

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	1103	209	507	1239	448	512
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	10	10	10	10	11	11
Total Lost time (s)	3.6	3.6	4.0	3.6	4.5	4.5
Lane Util. Factor	0.95	1.00	0.97	0.95	0.97	1.00
Frpb, ped/bikes	1.00	0.99	1.00	1.00	1.00	0.99
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	3179	1456	3204	3149	3319	1510
Flt Permitted	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (perm)	3179	1456	3204	3149	3319	1510
Peak-hour factor, PHF	0.92	0.92	0.78	0.78	0.89	0.89
Adj. Flow (vph)	1199	227	650	1588	503	575
RTOR Reduction (vph)	0	73	0	0	0	248
Lane Group Flow (vph)	1199	154	650	1588	503	327
Confl. Peds. (#/hr)		1	1			1
Confl. Bikes (#/hr)		2				
Heavy Vehicles (%)	6%	2%	2%	7%	2%	2%
Turn Type		Perm	Prot			Perm
Protected Phases	2		1	6	4	
Permitted Phases		2				4
Actuated Green, G (s)	52.8	52.8	30.8	87.6	33.0	33.0
Effective Green, g (s)	54.1	54.1	30.8	88.9	33.0	33.0
Actuated g/C Ratio	0.42	0.42	0.24	0.68	0.25	0.25
Clearance Time (s)	4.9	4.9	4.0	4.9	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	1323	606	759	2153	843	383
v/s Ratio Prot	c0.38		c0.20	0.50	0.15	
v/s Ratio Perm		0.11				c0.22
v/c Ratio	0.91	0.25	0.86	0.74	0.60	0.85
Uniform Delay, d1	35.6	24.8	47.5	13.1	42.6	46.2
Progression Factor	0.74	0.44	1.04	1.32	1.00	1.00
Incremental Delay, d2	7.9	0.7	7.0	1.7	1.1	16.7
Delay (s)	34.1	11.5	56.1	19.0	43.8	62.9
Level of Service	C	B	E	B	D	E
Approach Delay (s)	30.5			29.8	54.0	
Approach LOS	C			C	D	

Intersection Summary			
HCM Average Control Delay	35.5	HCM Level of Service	D
HCM Volume to Capacity ratio	0.88		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	12.1
Intersection Capacity Utilization	69.4%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	173	1304	1027	450	77	123
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Hourly flow rate (vph)	180	1358	1070	469	80	128
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		TWLTL	TWLTL			
Median storage veh)		2	2			
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1539				2789	1070
vC1, stage 1 conf vol					1070	
vC2, stage 2 conf vol					1719	
vCu, unblocked vol	1539				2789	1070
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)					5.4	
tF (s)	2.2				3.5	3.3
p0 queue free %	58				7	52
cM capacity (veh/h)	432				87	269

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1
Volume Total	180	1358	1070	469	208
Volume Left	180	0	0	0	80
Volume Right	0	0	0	469	128
cSH	432	1700	1700	1700	148
Volume to Capacity	0.42	0.80	0.63	0.28	1.40
Queue Length 95th (ft)	50	0	0	0	334
Control Delay (s)	19.2	0.0	0.0	0.0	273.6
Lane LOS	C				F
Approach Delay (s)	2.2		0.0		273.6
Approach LOS					F

Intersection Summary			
Average Delay	18.4		
Intersection Capacity Utilization	87.1%	ICU Level of Service	E
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	131	1297	86	115	1044	156	48	11	104	393	29	256
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	12	12	10	12	10	12	12	12	12	12	12
Total Lost time (s)	4.0	5.5		4.0	3.6			4.0	4.0		4.2	4.2
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00	1.00		1.00	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00			1.00	0.99		1.00	1.00
Flpb, ped/bikes	1.00	1.00		1.00	1.00			1.00	1.00		1.00	1.00
Frt	1.00	0.99		1.00	0.98			1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00			0.96	1.00		0.96	1.00
Satd. Flow (prot)	1652	3180		1652	3158			1790	1563		1602	1583
Flt Permitted	0.95	1.00		0.95	1.00			0.14	1.00		0.60	1.00
Satd. Flow (perm)	1652	3180		1652	3158			260	1563		1005	1583
Peak-hour factor, PHF	0.91	0.91	0.91	0.85	0.85	0.85	0.48	0.48	0.48	0.82	0.82	0.82
Adj. Flow (vph)	144	1425	95	135	1228	184	100	23	217	479	35	312
RTOR Reduction (vph)	0	5	0	0	0	0	0	0	149	0	0	56
Lane Group Flow (vph)	144	1515	0	135	1412	0	0	123	68	0	514	256
Confl. Peds. (#/hr)	7		2	2		7						
Confl. Bikes (#/hr)			3						1			
Heavy Vehicles (%)	2%	7%	2%	2%	13%	2%	2%	2%	2%	2%	2%	2%
Parking (#/hr)		0									0	
Turn Type	Prot			Prot			Perm		Perm	Perm		Perm
Protected Phases	5	2		1	6			8			4	
Permitted Phases							8		8	4		4
Actuated Green, G (s)	11.0	60.6		10.8	60.1			26.0	26.0		25.8	25.8
Effective Green, g (s)	11.0	59.7		10.8	61.4			26.0	26.0		25.8	25.8
Actuated g/C Ratio	0.10	0.54		0.10	0.56			0.24	0.24		0.23	0.23
Clearance Time (s)	4.0	4.6		4.0	4.9			4.0	4.0		4.2	4.2
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	165	1726		162	1763			61	369		236	371
v/s Ratio Prot	c0.09	c0.48		0.08	0.45							
v/s Ratio Perm								0.47	0.04		c0.51	0.16
v/c Ratio	0.87	0.88		0.83	0.80			2.02	0.18		2.18	0.69
Uniform Delay, d1	48.8	22.0		48.7	19.4			42.0	33.5		42.1	38.5
Progression Factor	1.04	0.98		0.94	1.14			1.00	1.00		1.00	1.00
Incremental Delay, d2	34.7	6.3		27.2	3.6			509.9	0.2		543.8	5.5
Delay (s)	85.6	27.9		72.9	25.7			551.9	33.8		585.9	43.9
Level of Service	F	C		E	C			F	C		F	D
Approach Delay (s)		32.9			29.8			221.2			381.2	
Approach LOS		C			C			F			F	

Intersection Summary			
HCM Average Control Delay	112.2	HCM Level of Service	F
HCM Volume to Capacity ratio	1.16		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	8.2
Intersection Capacity Utilization	86.4%	ICU Level of Service	E
Analysis Period (min)	15		

Description: WBR: has flashing "No Right Turn" when ped goes on.

c Critical Lane Group

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	1184	538	809	865	267	492
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	10	10	10	10	11	11
Total Lost time (s)	3.6	3.6	4.0	3.6	4.5	4.5
Lane Util. Factor	0.95	1.00	0.97	0.95	0.97	1.00
Frpb, ped/bikes	1.00	0.99	1.00	1.00	1.00	0.99
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	3149	1456	3204	2982	3319	1510
Flt Permitted	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (perm)	3149	1456	3204	2982	3319	1510
Peak-hour factor, PHF	0.92	0.92	0.78	0.78	0.89	0.89
Adj. Flow (vph)	1287	585	1037	1109	300	553
RTOR Reduction (vph)	0	203	0	0	0	337
Lane Group Flow (vph)	1287	382	1037	1109	300	216
Confl. Peds. (#/hr)		1	1			1
Confl. Bikes (#/hr)		2				
Heavy Vehicles (%)	7%	2%	2%	13%	2%	2%
Turn Type		Perm	Prot			Perm
Protected Phases	2		1	6	4	
Permitted Phases		2				4
Actuated Green, G (s)	44.6	44.6	32.0	80.6	20.0	20.0
Effective Green, g (s)	45.9	45.9	32.0	81.9	20.0	20.0
Actuated g/C Ratio	0.42	0.42	0.29	0.74	0.18	0.18
Clearance Time (s)	4.9	4.9	4.0	4.9	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	1314	608	932	2220	603	275
v/s Ratio Prot	c0.41		c0.32	0.37	0.09	
v/s Ratio Perm		0.26				c0.14
v/c Ratio	0.98	0.63	1.11	0.50	0.50	0.79
Uniform Delay, d1	31.6	25.3	39.0	5.7	40.5	42.9
Progression Factor	0.90	1.01	1.25	1.29	1.00	1.00
Incremental Delay, d2	4.1	0.4	61.8	0.6	0.6	13.7
Delay (s)	32.7	25.9	110.4	8.0	41.1	56.6
Level of Service	C	C	F	A	D	E
Approach Delay (s)	30.5			57.5	51.2	
Approach LOS	C			E	D	

Intersection Summary			
HCM Average Control Delay	46.0	HCM Level of Service	D
HCM Volume to Capacity ratio	0.98		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	12.1
Intersection Capacity Utilization	74.3%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	144	1005	1349	446	30	194
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Hourly flow rate (vph)	148	1036	1391	460	31	200
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		TWLTL	TWLTL			
Median storage veh)		2	2			
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1851				2724	1391
vC1, stage 1 conf vol					1391	
vC2, stage 2 conf vol					1333	
vCu, unblocked vol	1851				2724	1391
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)					5.4	
tF (s)	2.2				3.5	3.3
p0 queue free %	55				72	0
cM capacity (veh/h)	327				111	174

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1
Volume Total	148	1036	1391	460	231
Volume Left	148	0	0	0	31
Volume Right	0	0	0	460	200
cSH	327	1700	1700	1700	162
Volume to Capacity	0.45	0.61	0.82	0.27	1.43
Queue Length 95th (ft)	57	0	0	0	364
Control Delay (s)	24.8	0.0	0.0	0.0	276.4
Lane LOS	C				F
Approach Delay (s)	3.1		0.0		276.4
Approach LOS					F

Intersection Summary			
Average Delay	20.7		
Intersection Capacity Utilization	102.6%	ICU Level of Service	G
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	247	1090	21	17	1305	518	22	4	15	262	1	192
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	12	12	10	12	10	12	12	12	12	12	12
Total Lost time (s)	4.0	5.5		4.0	3.6			4.0	4.0		4.2	4.2
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00	1.00		1.00	1.00
Frpb, ped/bikes	1.00	1.00		1.00	0.99			1.00	0.99		1.00	1.00
Flpb, ped/bikes	1.00	1.00		1.00	1.00			1.00	1.00		1.00	1.00
Frt	1.00	1.00		1.00	0.96			1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00			0.96	1.00		0.95	1.00
Satd. Flow (prot)	1652	3227		1652	3238			1787	1563		1597	1583
Flt Permitted	0.95	1.00		0.95	1.00			0.42	1.00		0.69	1.00
Satd. Flow (perm)	1652	3227		1652	3238			790	1563		1152	1583
Peak-hour factor, PHF	0.91	0.91	0.91	0.85	0.85	0.85	0.48	0.48	0.48	0.82	0.82	0.82
Adj. Flow (vph)	271	1198	23	20	1535	609	46	8	31	320	1	234
RTOR Reduction (vph)	0	1	0	0	0	0	0	0	24	0	0	56
Lane Group Flow (vph)	271	1220	0	20	2144	0	0	54	7	0	321	178
Confl. Peds. (#/hr)	7		2	2		7						
Confl. Bikes (#/hr)			3						1			
Heavy Vehicles (%)	2%	6%	2%	2%	7%	2%	2%	2%	2%	2%	2%	2%
Parking (#/hr)		0									0	
Turn Type	Prot			Prot			Perm		Perm	Perm		Perm
Protected Phases	5	2		1	6			8			4	
Permitted Phases							8		8	4		4
Actuated Green, G (s)	26.1	83.2		3.2	60.0			31.0	31.0		30.8	30.8
Effective Green, g (s)	26.1	82.3		3.2	61.3			31.0	31.0		30.8	30.8
Actuated g/C Ratio	0.20	0.63		0.02	0.47			0.24	0.24		0.24	0.24
Clearance Time (s)	4.0	4.6		4.0	4.9			4.0	4.0		4.2	4.2
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	332	2043		41	1527			188	373		273	375
v/s Ratio Prot	c0.16	0.38		0.01	c0.66							
v/s Ratio Perm								0.07	0.00		c0.28	0.11
v/c Ratio	0.82	0.60		0.49	1.40			0.29	0.02		1.18	0.47
Uniform Delay, d1	49.7	14.1		62.6	34.4			40.5	37.9		49.6	42.6
Progression Factor	1.15	0.84		0.93	0.97			1.00	1.00		1.00	1.00
Incremental Delay, d2	13.7	1.2		6.7	184.9			0.8	0.0		110.7	0.9
Delay (s)	70.8	13.1		64.6	218.2			41.3	37.9		160.3	43.6
Level of Service	E	B		E	F			D	D		F	D
Approach Delay (s)		23.6			216.7			40.1			111.1	
Approach LOS		C			F			D			F	

Intersection Summary			
HCM Average Control Delay	132.5	HCM Level of Service	F
HCM Volume to Capacity ratio	1.22		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	11.8
Intersection Capacity Utilization	97.9%	ICU Level of Service	F
Analysis Period (min)	15		

Description: WBR: has flashing "No Right Turn" when ped goes on.

c Critical Lane Group

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	1103	209	507	1239	448	512
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	10	10	10	10	11	11
Total Lost time (s)	3.6	3.6	4.0	3.6	4.5	4.5
Lane Util. Factor	0.95	1.00	0.97	0.95	0.97	1.00
Frpb, ped/bikes	1.00	0.99	1.00	1.00	1.00	0.99
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	3179	1456	3204	3149	3319	1510
Flt Permitted	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (perm)	3179	1456	3204	3149	3319	1510
Peak-hour factor, PHF	0.92	0.92	0.78	0.78	0.89	0.89
Adj. Flow (vph)	1199	227	650	1588	503	575
RTOR Reduction (vph)	0	73	0	0	0	248
Lane Group Flow (vph)	1199	154	650	1588	503	327
Confl. Peds. (#/hr)		1	1			1
Confl. Bikes (#/hr)		2				
Heavy Vehicles (%)	6%	2%	2%	7%	2%	2%
Turn Type		Perm	Prot			Perm
Protected Phases	2		1	6	4	
Permitted Phases		2				4
Actuated Green, G (s)	52.8	52.8	30.8	87.6	33.0	33.0
Effective Green, g (s)	54.1	54.1	30.8	88.9	33.0	33.0
Actuated g/C Ratio	0.42	0.42	0.24	0.68	0.25	0.25
Clearance Time (s)	4.9	4.9	4.0	4.9	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	1323	606	759	2153	843	383
v/s Ratio Prot	c0.38		c0.20	0.50	0.15	
v/s Ratio Perm		0.11				c0.22
v/c Ratio	0.91	0.25	0.86	0.74	0.60	0.85
Uniform Delay, d1	35.6	24.8	47.5	13.1	42.6	46.2
Progression Factor	0.74	0.44	1.04	1.32	1.00	1.00
Incremental Delay, d2	7.9	0.7	7.0	1.7	1.1	16.7
Delay (s)	34.1	11.5	56.1	19.0	43.8	62.9
Level of Service	C	B	E	B	D	E
Approach Delay (s)	30.5			29.8	54.0	
Approach LOS	C			C	D	

Intersection Summary			
HCM Average Control Delay	35.5	HCM Level of Service	D
HCM Volume to Capacity ratio	0.88		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	12.1
Intersection Capacity Utilization	69.4%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	173	1304	1027	450	77	123
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Hourly flow rate (vph)	180	1358	1070	469	80	128
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		TWLTL	TWLTL			
Median storage veh)		2	2			
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1539				2789	1070
vC1, stage 1 conf vol					1070	
vC2, stage 2 conf vol					1719	
vCu, unblocked vol	1539				2789	1070
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)					5.4	
tF (s)	2.2				3.5	3.3
p0 queue free %	58				7	52
cM capacity (veh/h)	432				87	269

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1
Volume Total	180	1358	1070	469	208
Volume Left	180	0	0	0	80
Volume Right	0	0	0	469	128
cSH	432	1700	1700	1700	148
Volume to Capacity	0.42	0.80	0.63	0.28	1.40
Queue Length 95th (ft)	50	0	0	0	334
Control Delay (s)	19.2	0.0	0.0	0.0	273.6
Lane LOS	C				F
Approach Delay (s)	2.2		0.0		273.6
Approach LOS					F

Intersection Summary			
Average Delay	18.4		
Intersection Capacity Utilization	87.1%	ICU Level of Service	E
Analysis Period (min)	15		

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	144	1005	1349	446	30	194
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	1.00	1.00	0.85	0.88	
Flt Protected	0.95	1.00	1.00	1.00	0.99	
Satd. Flow (prot)	1770	1863	1863	1583	1634	
Flt Permitted	0.95	1.00	1.00	1.00	0.99	
Satd. Flow (perm)	1770	1863	1863	1583	1634	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	148	1036	1391	460	31	200
RTOR Reduction (vph)	0	0	0	71	171	0
Lane Group Flow (vph)	148	1036	1391	389	60	0
Turn Type	Prot			Perm		
Protected Phases	5	2	6		4	
Permitted Phases				6		
Actuated Green, G (s)	14.7	116.0	97.3	97.3	10.5	
Effective Green, g (s)	14.7	116.0	97.3	97.3	10.5	
Actuated g/C Ratio	0.11	0.86	0.72	0.72	0.08	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	193	1607	1348	1145	128	
v/s Ratio Prot	c0.08	0.56	c0.75		c0.04	
v/s Ratio Perm				0.25		
v/c Ratio	0.77	0.64	1.03	0.34	0.47	
Uniform Delay, d1	58.2	2.9	18.6	6.8	59.3	
Progression Factor	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	16.5	0.9	33.1	0.2	2.7	
Delay (s)	74.8	3.8	51.7	7.0	62.0	
Level of Service	E	A	D	A	E	
Approach Delay (s)		12.6	40.6		62.0	
Approach LOS		B	D		E	

Intersection Summary			
HCM Average Control Delay	32.0	HCM Level of Service	C
HCM Volume to Capacity ratio	0.95		
Actuated Cycle Length (s)	134.5	Sum of lost time (s)	12.0
Intersection Capacity Utilization	102.6%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	173	1304	1027	450	77	123
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	1.00	1.00	0.85	0.92	
Flt Protected	0.95	1.00	1.00	1.00	0.98	
Satd. Flow (prot)	1770	1863	1863	1583	1676	
Flt Permitted	0.95	1.00	1.00	1.00	0.98	
Satd. Flow (perm)	1770	1863	1863	1583	1676	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	180	1358	1070	469	80	128
RTOR Reduction (vph)	0	0	0	139	59	0
Lane Group Flow (vph)	180	1358	1070	330	149	0
Turn Type	Prot			Perm		
Protected Phases	5	2	6		4	
Permitted Phases				6		
Actuated Green, G (s)	11.0	77.2	62.2	62.2	13.8	
Effective Green, g (s)	11.0	77.2	62.2	62.2	13.8	
Actuated g/C Ratio	0.11	0.78	0.63	0.63	0.14	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	197	1453	1170	995	234	
v/s Ratio Prot	0.10	c0.73	0.57		c0.09	
v/s Ratio Perm				0.21		
v/c Ratio	0.91	0.93	0.91	0.33	0.64	
Uniform Delay, d1	43.5	8.9	16.1	8.6	40.2	
Progression Factor	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	40.5	11.3	11.0	0.2	5.6	
Delay (s)	84.1	20.2	27.0	8.8	45.9	
Level of Service	F	C	C	A	D	
Approach Delay (s)		27.7	21.5		45.9	
Approach LOS		C	C		D	

Intersection Summary			
HCM Average Control Delay	25.9	HCM Level of Service	C
HCM Volume to Capacity ratio	0.89		
Actuated Cycle Length (s)	99.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	87.1%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	340	1670	90	120	1360	330	50	20	110	670	30	430
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	12	12	10	12	10	12	12	12	12	12	12
Total Lost time (s)	4.0	5.5		4.0	3.6			4.0	4.0		4.2	4.2
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00	1.00		1.00	1.00
Frpb, ped/bikes	1.00	1.00		1.00	0.99			1.00	0.99		1.00	1.00
Flpb, ped/bikes	1.00	1.00		1.00	1.00			1.00	1.00		1.00	1.00
Frt	1.00	0.99		1.00	0.97			1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00			0.97	1.00		0.95	1.00
Satd. Flow (prot)	1652	3184		1652	3139			1799	1563		1600	1583
Flt Permitted	0.95	1.00		0.95	1.00			0.13	1.00		0.55	1.00
Satd. Flow (perm)	1652	3184		1652	3139			245	1563		921	1583
Peak-hour factor, PHF	0.91	0.91	0.91	0.85	0.85	0.85	0.48	0.48	0.48	0.82	0.82	0.82
Adj. Flow (vph)	374	1835	99	141	1600	388	104	42	229	817	37	524
RTOR Reduction (vph)	0	4	0	0	0	0	0	0	135	0	0	56
Lane Group Flow (vph)	374	1930	0	141	1988	0	0	146	94	0	854	468
Confl. Peds. (#/hr)	7		2	2		7						
Confl. Bikes (#/hr)			3						1			
Heavy Vehicles (%)	2%	7%	2%	2%	13%	2%	2%	2%	2%	2%	2%	2%
Parking (#/hr)		0									0	
Turn Type	Prot			Prot			Perm		Perm	Perm		Perm
Protected Phases	5	2		1	6			8			4	
Permitted Phases							8		8	4		4
Actuated Green, G (s)	11.0	60.5		10.9	60.1			26.0	26.0		25.8	25.8
Effective Green, g (s)	11.0	59.6		10.9	61.4			26.0	26.0		25.8	25.8
Actuated g/C Ratio	0.10	0.54		0.10	0.56			0.24	0.24		0.23	0.23
Clearance Time (s)	4.0	4.6		4.0	4.9			4.0	4.0		4.2	4.2
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	165	1725		164	1752			58	369		216	371
v/s Ratio Prot	c0.23	0.61		0.09	c0.63							
v/s Ratio Perm								0.60	0.06		c0.93	0.30
v/c Ratio	2.27	1.12		0.86	1.13			2.52	0.25		3.95	1.26
Uniform Delay, d1	49.5	25.2		48.8	24.3			42.0	34.1		42.1	42.1
Progression Factor	1.01	1.00		0.93	1.02			1.00	1.00		1.00	1.00
Incremental Delay, d2	588.4	61.8		26.3	66.4			730.9	0.4		1340.2	137.8
Delay (s)	638.6	87.1		71.6	91.1			772.9	34.5		1382.3	179.9
Level of Service	F	F		E	F			F	C		F	F
Approach Delay (s)		176.5			89.8			322.0			925.1	
Approach LOS		F			F			F			F	

Intersection Summary			
HCM Average Control Delay	322.1	HCM Level of Service	F
HCM Volume to Capacity ratio	2.00		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	11.8
Intersection Capacity Utilization	122.6%	ICU Level of Service	H
Analysis Period (min)	15		

Description: WBR: has flashing "No Right Turn" when ped goes on.

c Critical Lane Group

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	1500	770	960	1130	510	780
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	10	10	10	10	11	11
Total Lost time (s)	3.6	3.6	4.0	3.6	4.5	4.5
Lane Util. Factor	0.95	1.00	0.97	0.95	0.97	1.00
Frpb, ped/bikes	1.00	0.99	1.00	1.00	1.00	0.99
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	3149	1456	3204	2982	3319	1510
Flt Permitted	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (perm)	3149	1456	3204	2982	3319	1510
Peak-hour factor, PHF	0.92	0.92	0.78	0.78	0.89	0.89
Adj. Flow (vph)	1630	837	1231	1449	573	876
RTOR Reduction (vph)	0	230	0	0	0	309
Lane Group Flow (vph)	1630	607	1231	1449	573	567
Confl. Peds. (#/hr)		1	1			1
Confl. Bikes (#/hr)		2				
Heavy Vehicles (%)	7%	2%	2%	13%	2%	2%
Turn Type		Perm	Prot			Perm
Protected Phases	2		1	6	4	
Permitted Phases		2				4
Actuated Green, G (s)	44.6	44.6	26.0	74.6	26.0	26.0
Effective Green, g (s)	45.9	45.9	26.0	75.9	26.0	26.0
Actuated g/C Ratio	0.42	0.42	0.24	0.69	0.24	0.24
Clearance Time (s)	4.9	4.9	4.0	4.9	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	1314	608	757	2058	784	357
v/s Ratio Prot	c0.52		c0.38	0.49	0.17	
v/s Ratio Perm		0.42				c0.38
v/c Ratio	1.24	1.00	1.63	0.70	0.73	1.59
Uniform Delay, d1	32.0	32.0	42.0	10.3	38.8	42.0
Progression Factor	1.03	1.10	1.16	0.99	1.00	1.00
Incremental Delay, d2	108.9	10.7	286.9	1.7	3.5	277.3
Delay (s)	142.0	46.0	335.7	11.9	42.3	319.3
Level of Service	F	D	F	B	D	F
Approach Delay (s)	109.4			160.7	209.8	
Approach LOS	F			F	F	

Intersection Summary			
HCM Average Control Delay	152.3	HCM Level of Service	F
HCM Volume to Capacity ratio	1.43		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	12.1
Intersection Capacity Utilization	97.0%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	430	1190	1440	450	50	380
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Hourly flow rate (vph)	443	1227	1485	464	52	392
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		TWLTL	TWLTL			
Median storage veh)		2	2			
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1948				3598	1485
vC1, stage 1 conf vol					1485	
vC2, stage 2 conf vol					2113	
vCu, unblocked vol	1948				3598	1485
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)					5.4	
tF (s)	2.2				3.5	3.3
p0 queue free %	0				0	0
cM capacity (veh/h)	300				0	153

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1
Volume Total	443	1227	1485	464	443
Volume Left	443	0	0	0	52
Volume Right	0	0	0	464	392
cSH	300	1700	1700	1700	0
Volume to Capacity	1.48	0.72	0.87	0.27	Err
Queue Length 95th (ft)	617	0	0	0	Err
Control Delay (s)	264.7	0.0	0.0	0.0	Err
Lane LOS	F				F
Approach Delay (s)	70.3		0.0		Err
Approach LOS					F

Intersection Summary			
Average Delay	Err		
Intersection Capacity Utilization	135.9%	ICU Level of Service	H
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	320	1270	30	20	1640	640	30	10	20	430	10	360
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	12	12	10	12	10	12	12	12	12	12	12
Total Lost time (s)	4.0	5.5		4.0	3.6			4.0	4.0		4.2	4.2
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00	1.00		1.00	1.00
Frpb, ped/bikes	1.00	1.00		1.00	0.99			1.00	0.99		1.00	1.00
Flpb, ped/bikes	1.00	1.00		1.00	1.00			1.00	1.00		1.00	1.00
Frt	1.00	1.00		1.00	0.96			1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00			0.96	1.00		0.95	1.00
Satd. Flow (prot)	1652	3225		1652	3239			1796	1563		1598	1583
Flt Permitted	0.95	1.00		0.95	1.00			0.11	1.00		0.65	1.00
Satd. Flow (perm)	1652	3225		1652	3239			212	1563		1095	1583
Peak-hour factor, PHF	0.91	0.91	0.91	0.85	0.85	0.85	0.48	0.48	0.48	0.82	0.82	0.82
Adj. Flow (vph)	352	1396	33	24	1929	753	62	21	42	524	12	439
RTOR Reduction (vph)	0	1	0	0	0	0	0	0	32	0	0	63
Lane Group Flow (vph)	352	1428	0	24	2682	0	0	83	10	0	536	376
Confl. Peds. (#/hr)	7		2	2		7						
Confl. Bikes (#/hr)			3						1			
Heavy Vehicles (%)	2%	6%	2%	2%	7%	2%	2%	2%	2%	2%	2%	2%
Parking (#/hr)		0									0	
Turn Type	Prot			Prot			Perm		Perm	Perm		Perm
Protected Phases	5	2		1	6			8			4	
Permitted Phases							8		8	4		4
Actuated Green, G (s)	30.6	81.7		4.7	55.5			31.0	31.0		30.8	30.8
Effective Green, g (s)	30.6	80.8		4.7	56.8			31.0	31.0		30.8	30.8
Actuated g/C Ratio	0.24	0.62		0.04	0.44			0.24	0.24		0.24	0.24
Clearance Time (s)	4.0	4.6		4.0	4.9			4.0	4.0		4.2	4.2
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	389	2004		60	1415			51	373		259	375
v/s Ratio Prot	c0.21	0.44		0.01	c0.83							
v/s Ratio Perm								0.39	0.01		c0.49	0.24
v/c Ratio	0.90	0.71		0.40	1.90			1.63	0.03		2.07	1.00
Uniform Delay, d1	48.3	16.7		61.3	36.6			49.5	37.9		49.6	49.6
Progression Factor	1.17	0.88		0.93	0.94			1.00	1.00		1.00	1.00
Incremental Delay, d2	23.2	2.1		1.7	404.0			355.1	0.0		494.4	46.9
Delay (s)	79.8	16.7		58.5	438.3			404.6	38.0		544.0	96.5
Level of Service	E	B		E	F			F	D		F	F
Approach Delay (s)		29.2			434.9			281.4			342.5	
Approach LOS		C			F			F			F	

Intersection Summary			
HCM Average Control Delay	286.0	HCM Level of Service	F
HCM Volume to Capacity ratio	1.68		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	11.8
Intersection Capacity Utilization	124.9%	ICU Level of Service	H
Analysis Period (min)	15		

Description: WBR: has flashing "No Right Turn" when ped goes on.

c Critical Lane Group

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	1200	430	530	1530	650	670
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	10	10	10	10	11	11
Total Lost time (s)	3.6	3.6	4.0	3.6	4.5	4.5
Lane Util. Factor	0.95	1.00	0.97	0.95	0.97	1.00
Frpb, ped/bikes	1.00	0.99	1.00	1.00	1.00	0.99
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	3179	1456	3204	3149	3319	1510
Flt Permitted	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (perm)	3179	1456	3204	3149	3319	1510
Peak-hour factor, PHF	0.92	0.92	0.78	0.78	0.89	0.89
Adj. Flow (vph)	1304	467	679	1962	730	753
RTOR Reduction (vph)	0	136	0	0	0	225
Lane Group Flow (vph)	1304	331	679	1962	730	528
Confl. Peds. (#/hr)		1	1			1
Confl. Bikes (#/hr)		2				
Heavy Vehicles (%)	6%	2%	2%	7%	2%	2%
Turn Type		Perm	Prot			Perm
Protected Phases	2		1	6	4	
Permitted Phases		2				4
Actuated Green, G (s)	54.1	54.1	22.0	80.1	40.5	40.5
Effective Green, g (s)	55.4	55.4	22.0	81.4	40.5	40.5
Actuated g/C Ratio	0.43	0.43	0.17	0.63	0.31	0.31
Clearance Time (s)	4.9	4.9	4.0	4.9	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	1355	620	542	1972	1034	470
v/s Ratio Prot	0.41		c0.21	c0.62	0.22	
v/s Ratio Perm		0.23				c0.35
v/c Ratio	0.96	0.53	1.25	0.99	0.71	1.12
Uniform Delay, d1	36.3	27.7	54.0	24.1	39.5	44.8
Progression Factor	0.80	0.58	1.03	1.19	1.00	1.00
Incremental Delay, d2	2.6	0.3	125.9	17.2	2.2	79.7
Delay (s)	31.5	16.4	181.7	46.0	41.7	124.4
Level of Service	C	B	F	D	D	F
Approach Delay (s)	27.5			80.9	83.7	
Approach LOS	C			F	F	

Intersection Summary			
HCM Average Control Delay	65.6	HCM Level of Service	E
HCM Volume to Capacity ratio	1.07		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	8.5
Intersection Capacity Utilization	81.9%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	410	1800	1060	450	80	310
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Hourly flow rate (vph)	427	1875	1104	469	83	323
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		TWLTL	TWLTL			
Median storage veh)		2	2			
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1573				3833	1104
vC1, stage 1 conf vol					1104	
vC2, stage 2 conf vol					2729	
vCu, unblocked vol	1573				3833	1104
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)					5.4	
tF (s)	2.2				3.5	3.3
p0 queue free %	0				0	0
cM capacity (veh/h)	419				0	257

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1
Volume Total	427	1875	1104	469	406
Volume Left	427	0	0	0	83
Volume Right	0	0	0	469	323
cSH	419	1700	1700	1700	0
Volume to Capacity	1.02	1.10	0.65	0.28	Err
Queue Length 95th (ft)	329	0	0	0	Err
Control Delay (s)	80.9	0.0	0.0	0.0	Err
Lane LOS	F				F
Approach Delay (s)	15.0		0.0		Err
Approach LOS					F

Intersection Summary			
Average Delay	Err		
Intersection Capacity Utilization	124.9%	ICU Level of Service	H
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	340	1680	90	120	1370	330	50	20	110	670	30	430
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	12	12	10	12	10	12	12	12	12	12	12
Total Lost time (s)	4.0	5.5		4.0	3.6			4.0	4.0		4.2	4.2
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00	1.00		1.00	1.00
Frpb, ped/bikes	1.00	1.00		1.00	0.99			1.00	0.99		1.00	1.00
Flpb, ped/bikes	1.00	1.00		1.00	1.00			1.00	1.00		1.00	1.00
Frt	1.00	0.99		1.00	0.97			1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00			0.97	1.00		0.95	1.00
Satd. Flow (prot)	1652	3184		1652	3140			1799	1563		1600	1583
Flt Permitted	0.95	1.00		0.95	1.00			0.13	1.00		0.55	1.00
Satd. Flow (perm)	1652	3184		1652	3140			245	1563		921	1583
Peak-hour factor, PHF	0.91	0.91	0.91	0.85	0.85	0.85	0.48	0.48	0.48	0.82	0.82	0.82
Adj. Flow (vph)	374	1846	99	141	1612	388	104	42	229	817	37	524
RTOR Reduction (vph)	0	4	0	0	0	0	0	0	135	0	0	56
Lane Group Flow (vph)	374	1941	0	141	2000	0	0	146	94	0	854	468
Confl. Peds. (#/hr)	7		2	2		7						
Confl. Bikes (#/hr)			3						1			
Heavy Vehicles (%)	2%	7%	2%	2%	13%	2%	2%	2%	2%	2%	2%	2%
Parking (#/hr)		0									0	
Turn Type	Prot			Prot			Perm		Perm	Perm		Perm
Protected Phases	5	2		1	6			8			4	
Permitted Phases							8		8	4		4
Actuated Green, G (s)	11.0	60.5		10.9	60.1			26.0	26.0		25.8	25.8
Effective Green, g (s)	11.0	59.6		10.9	61.4			26.0	26.0		25.8	25.8
Actuated g/C Ratio	0.10	0.54		0.10	0.56			0.24	0.24		0.23	0.23
Clearance Time (s)	4.0	4.6		4.0	4.9			4.0	4.0		4.2	4.2
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	165	1725		164	1753			58	369		216	371
v/s Ratio Prot	c0.23	0.61		0.09	c0.64							
v/s Ratio Perm								0.60	0.06		c0.93	0.30
v/c Ratio	2.27	1.13		0.86	1.14			2.52	0.25		3.95	1.26
Uniform Delay, d1	49.5	25.2		48.8	24.3			42.0	34.1		42.1	42.1
Progression Factor	1.01	1.00		0.93	1.01			1.00	1.00		1.00	1.00
Incremental Delay, d2	588.4	64.4		26.1	68.9			730.9	0.4		1340.2	137.8
Delay (s)	638.5	89.7		71.5	93.6			772.9	34.5		1382.3	179.9
Level of Service	F	F		E	F			F	C		F	F
Approach Delay (s)		178.2			92.1			322.0			925.1	
Approach LOS		F			F			F			F	

Intersection Summary			
HCM Average Control Delay	322.9	HCM Level of Service	F
HCM Volume to Capacity ratio	2.01		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	11.8
Intersection Capacity Utilization	122.9%	ICU Level of Service	H
Analysis Period (min)	15		

Description: WBR: has flashing "No Right Turn" when ped goes on.

c Critical Lane Group

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	1510	770	970	1140	510	780
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	10	10	10	10	11	11
Total Lost time (s)	3.6	3.6	4.0	3.6	4.5	4.5
Lane Util. Factor	0.95	1.00	0.97	0.95	0.97	1.00
Frpb, ped/bikes	1.00	0.99	1.00	1.00	1.00	0.99
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	3149	1456	3204	2982	3319	1510
Flt Permitted	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (perm)	3149	1456	3204	2982	3319	1510
Peak-hour factor, PHF	0.92	0.92	0.78	0.78	0.89	0.89
Adj. Flow (vph)	1641	837	1244	1462	573	876
RTOR Reduction (vph)	0	228	0	0	0	309
Lane Group Flow (vph)	1641	609	1244	1462	573	567
Confl. Peds. (#/hr)		1	1			1
Confl. Bikes (#/hr)		2				
Heavy Vehicles (%)	7%	2%	2%	13%	2%	2%
Turn Type		Perm	Prot			Perm
Protected Phases	2		1	6	4	
Permitted Phases		2				4
Actuated Green, G (s)	44.6	44.6	26.0	74.6	26.0	26.0
Effective Green, g (s)	45.9	45.9	26.0	75.9	26.0	26.0
Actuated g/C Ratio	0.42	0.42	0.24	0.69	0.24	0.24
Clearance Time (s)	4.9	4.9	4.0	4.9	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	1314	608	757	2058	784	357
v/s Ratio Prot	c0.52		c0.39	0.49	0.17	
v/s Ratio Perm		0.42				c0.38
v/c Ratio	1.25	1.00	1.64	0.71	0.73	1.59
Uniform Delay, d1	32.0	32.0	42.0	10.4	38.8	42.0
Progression Factor	1.03	1.10	1.16	0.99	1.00	1.00
Incremental Delay, d2	112.6	11.2	294.5	1.8	3.5	277.3
Delay (s)	145.8	46.5	343.3	12.0	42.3	319.3
Level of Service	F	D	F	B	D	F
Approach Delay (s)	112.2			164.3	209.8	
Approach LOS	F			F	F	

Intersection Summary			
HCM Average Control Delay	154.8	HCM Level of Service	F
HCM Volume to Capacity ratio	1.44		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	12.1
Intersection Capacity Utilization	97.2%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	430	1220	1460	450	50	380
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Hourly flow rate (vph)	443	1258	1505	464	52	392
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		TWLTL	TWLTL			
Median storage veh)		2	2			
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1969				3649	1505
vC1, stage 1 conf vol					1505	
vC2, stage 2 conf vol					2144	
vCu, unblocked vol	1969				3649	1505
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)					5.4	
tF (s)	2.2				3.5	3.3
p0 queue free %	0				0	0
cM capacity (veh/h)	294				0	149

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1
Volume Total	443	1258	1505	464	443
Volume Left	443	0	0	0	52
Volume Right	0	0	0	464	392
cSH	294	1700	1700	1700	0
Volume to Capacity	1.51	0.74	0.89	0.27	Err
Queue Length 95th (ft)	630	0	0	0	Err
Control Delay (s)	277.0	0.0	0.0	0.0	Err
Lane LOS	F				F
Approach Delay (s)	72.2		0.0		Err
Approach LOS					F

Intersection Summary			
Average Delay	Err		
Intersection Capacity Utilization	136.9%	ICU Level of Service	H
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	320	1290	30	20	1650	640	30	10	20	430	10	360
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	12	12	10	12	10	12	12	12	12	12	12
Total Lost time (s)	4.0	5.5		4.0	3.6			4.0	4.0		4.2	4.2
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00	1.00		1.00	1.00
Frpb, ped/bikes	1.00	1.00		1.00	0.99			1.00	0.99		1.00	1.00
Flpb, ped/bikes	1.00	1.00		1.00	1.00			1.00	1.00		1.00	1.00
Frt	1.00	1.00		1.00	0.96			1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00			0.96	1.00		0.95	1.00
Satd. Flow (prot)	1652	3225		1652	3240			1796	1563		1598	1583
Flt Permitted	0.95	1.00		0.95	1.00			0.11	1.00		0.65	1.00
Satd. Flow (perm)	1652	3225		1652	3240			212	1563		1095	1583
Peak-hour factor, PHF	0.91	0.91	0.91	0.85	0.85	0.85	0.48	0.48	0.48	0.82	0.82	0.82
Adj. Flow (vph)	352	1418	33	24	1941	753	62	21	42	524	12	439
RTOR Reduction (vph)	0	1	0	0	0	0	0	0	32	0	0	63
Lane Group Flow (vph)	352	1450	0	24	2694	0	0	83	10	0	536	376
Confl. Peds. (#/hr)	7		2	2		7						
Confl. Bikes (#/hr)			3						1			
Heavy Vehicles (%)	2%	6%	2%	2%	7%	2%	2%	2%	2%	2%	2%	2%
Parking (#/hr)		0									0	
Turn Type	Prot			Prot			Perm		Perm	Perm		Perm
Protected Phases	5	2		1	6			8			4	
Permitted Phases							8		8	4		4
Actuated Green, G (s)	30.6	81.7		4.7	55.5			31.0	31.0		30.8	30.8
Effective Green, g (s)	30.6	80.8		4.7	56.8			31.0	31.0		30.8	30.8
Actuated g/C Ratio	0.24	0.62		0.04	0.44			0.24	0.24		0.24	0.24
Clearance Time (s)	4.0	4.6		4.0	4.9			4.0	4.0		4.2	4.2
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	389	2004		60	1416			51	373		259	375
v/s Ratio Prot	c0.21	0.45		0.01	c0.83							
v/s Ratio Perm								0.39	0.01		c0.49	0.24
v/c Ratio	0.90	0.72		0.40	1.90			1.63	0.03		2.07	1.00
Uniform Delay, d1	48.3	16.9		61.3	36.6			49.5	37.9		49.6	49.6
Progression Factor	1.17	0.88		0.93	0.94			1.00	1.00		1.00	1.00
Incremental Delay, d2	23.3	2.2		1.7	407.2			355.1	0.0		494.4	46.9
Delay (s)	79.7	17.1		58.5	441.5			404.6	38.0		544.0	96.5
Level of Service	E	B		E	F			F	D		F	F
Approach Delay (s)		29.3			438.1			281.4			342.5	
Approach LOS		C			F			F			F	

Intersection Summary			
HCM Average Control Delay	286.9	HCM Level of Service	F
HCM Volume to Capacity ratio	1.69		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	11.8
Intersection Capacity Utilization	125.2%	ICU Level of Service	H
Analysis Period (min)	15		

Description: WBR: has flashing "No Right Turn" when ped goes on.

c Critical Lane Group

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	1220	430	540	1540	650	680
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	10	10	10	10	11	11
Total Lost time (s)	3.6	3.6	4.0	3.6	4.5	4.5
Lane Util. Factor	0.95	1.00	0.97	0.95	0.97	1.00
Frpb, ped/bikes	1.00	0.99	1.00	1.00	1.00	0.99
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	3179	1456	3204	3149	3319	1510
Flt Permitted	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (perm)	3179	1456	3204	3149	3319	1510
Peak-hour factor, PHF	0.92	0.92	0.78	0.78	0.89	0.89
Adj. Flow (vph)	1326	467	692	1974	730	764
RTOR Reduction (vph)	0	133	0	0	0	224
Lane Group Flow (vph)	1326	334	692	1974	730	540
Confl. Peds. (#/hr)		1	1			1
Confl. Bikes (#/hr)		2				
Heavy Vehicles (%)	6%	2%	2%	7%	2%	2%
Turn Type		Perm	Prot			Perm
Protected Phases	2		1	6	4	
Permitted Phases		2				4
Actuated Green, G (s)	54.1	54.1	22.0	80.1	40.5	40.5
Effective Green, g (s)	55.4	55.4	22.0	81.4	40.5	40.5
Actuated g/C Ratio	0.43	0.43	0.17	0.63	0.31	0.31
Clearance Time (s)	4.9	4.9	4.0	4.9	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	1355	620	542	1972	1034	470
v/s Ratio Prot	0.42		c0.22	c0.63	0.22	
v/s Ratio Perm		0.23				c0.36
v/c Ratio	0.98	0.54	1.28	1.00	0.71	1.15
Uniform Delay, d1	36.7	27.8	54.0	24.3	39.5	44.8
Progression Factor	0.80	0.60	1.03	1.19	1.00	1.00
Incremental Delay, d2	3.9	0.3	136.1	18.6	2.2	88.9
Delay (s)	33.4	17.0	191.8	47.6	41.7	133.6
Level of Service	C	B	F	D	D	F
Approach Delay (s)	29.1			85.0	88.7	
Approach LOS	C			F	F	

Intersection Summary			
HCM Average Control Delay	69.1	HCM Level of Service	E
HCM Volume to Capacity ratio	1.09		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	8.5
Intersection Capacity Utilization	83.0%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	410	1820	1100	450	80	310
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Hourly flow rate (vph)	427	1896	1146	469	83	323
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		TWLTL	TWLTL			
Median storage veh)		2	2			
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1615				3896	1146
vC1, stage 1 conf vol					1146	
vC2, stage 2 conf vol					2750	
vCu, unblocked vol	1615				3896	1146
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)					5.4	
tF (s)	2.2				3.5	3.3
p0 queue free %	0				0	0
cM capacity (veh/h)	404				0	243

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1
Volume Total	427	1896	1146	469	406
Volume Left	427	0	0	0	83
Volume Right	0	0	0	469	323
cSH	404	1700	1700	1700	0
Volume to Capacity	1.06	1.12	0.67	0.28	Err
Queue Length 95th (ft)	355	0	0	0	Err
Control Delay (s)	93.4	0.0	0.0	0.0	Err
Lane LOS	F				F
Approach Delay (s)	17.2		0.0		Err
Approach LOS					F

Intersection Summary			
Average Delay	Err		
Intersection Capacity Utilization	126.0%	ICU Level of Service	H
Analysis Period (min)	15		

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	430	1220	1460	450	50	380
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	1.00	1.00	0.85	0.88	
Flt Protected	0.95	1.00	1.00	1.00	0.99	
Satd. Flow (prot)	1770	1863	1863	1583	1631	
Flt Permitted	0.95	1.00	1.00	1.00	0.99	
Satd. Flow (perm)	1770	1863	1863	1583	1631	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	443	1258	1505	464	52	392
RTOR Reduction (vph)	0	0	0	84	181	0
Lane Group Flow (vph)	443	1258	1505	380	263	0
Turn Type	Prot			Perm		
Protected Phases	5	2	6		4	
Permitted Phases				6		
Actuated Green, G (s)	25.0	117.0	88.0	88.0	25.0	
Effective Green, g (s)	25.0	117.0	88.0	88.0	25.0	
Actuated g/C Ratio	0.17	0.78	0.59	0.59	0.17	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	295	1453	1093	929	272	
v/s Ratio Prot	c0.25	0.68	c0.81		c0.16	
v/s Ratio Perm				0.24		
v/c Ratio	1.50	0.87	1.38	0.41	0.97	
Uniform Delay, d1	62.5	11.2	31.0	16.9	62.1	
Progression Factor	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	242.7	7.1	175.4	1.3	46.9	
Delay (s)	305.2	18.3	206.4	18.2	109.0	
Level of Service	F	B	F	B	F	
Approach Delay (s)		93.1	162.1		109.0	
Approach LOS		F	F		F	

Intersection Summary			
HCM Average Control Delay	127.8	HCM Level of Service	F
HCM Volume to Capacity ratio	1.33		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	136.9%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	410	1820	1100	450	80	310
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	1.00	1.00	0.85	0.89	
Flt Protected	0.95	1.00	1.00	1.00	0.99	
Satd. Flow (prot)	1770	1863	1863	1583	1646	
Flt Permitted	0.95	1.00	1.00	1.00	0.99	
Satd. Flow (perm)	1770	1863	1863	1583	1646	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	427	1896	1146	469	83	323
RTOR Reduction (vph)	0	0	0	112	93	0
Lane Group Flow (vph)	427	1896	1146	357	313	0
Turn Type	Prot			Perm		
Protected Phases	5	2	6		4	
Permitted Phases				6		
Actuated Green, G (s)	28.0	116.0	84.0	84.0	26.0	
Effective Green, g (s)	28.0	116.0	84.0	84.0	26.0	
Actuated g/C Ratio	0.19	0.77	0.56	0.56	0.17	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	330	1441	1043	886	285	
v/s Ratio Prot	0.24	c1.02	0.62		c0.19	
v/s Ratio Perm				0.23		
v/c Ratio	1.29	1.32	1.10	0.40	1.10	
Uniform Delay, d1	61.0	17.0	33.0	18.8	62.0	
Progression Factor	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	153.0	147.1	58.9	1.4	81.7	
Delay (s)	214.0	164.1	91.9	20.1	143.7	
Level of Service	F	F	F	C	F	
Approach Delay (s)		173.3	71.1		143.7	
Approach LOS		F	E		F	

Intersection Summary			
HCM Average Control Delay	132.5	HCM Level of Service	F
HCM Volume to Capacity ratio	1.28		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	126.0%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

Timing Reports (Sir Francis Drake Boulevard)

Phase Number	1	2	4	5	6	8
Movement	WBL	EBT	SBTL	EBL	WBT	NBTL
Lead/Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize				Yes	Yes	
Recall Mode	None	C-Max	None	None	C-Min	None
Maximum Split (s)	15	65	30	15	65	30
Maximum Split (%)	13.6%	59.1%	27.3%	13.6%	59.1%	27.3%
Minimum Split (s)	10	16.6	17.2	10	28.9	16
Yellow Time (s)	3	3.6	3.2	3	3.9	3
All-Red Time (s)	1	1	1	1	1	1
Minimum Initial (s)	4	6	9	4	7	9
Vehicle Extension (s)	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0
Walk Time (s)					8	
Flash Dont Walk (s)					16	
Dual Entry	No	No	Yes	No	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	100.9	5.9	70.9	100.9	5.9	70.9
End Time (s)	5.9	70.9	100.9	5.9	70.9	100.9
Yield/Force Off (s)	1.9	66.3	96.7	1.9	66	96.9
Yield/Force Off 170(s)	1.9	66.3	96.7	1.9	50	96.9
Local Start Time (s)	34.9	49.9	4.9	34.9	49.9	4.9
Local Yield (s)	45.9	0.3	30.7	45.9	0	30.9
Local Yield 170(s)	45.9	0.3	30.7	45.9	94	30.9

Intersection Summary	
Cycle Length	110
Control Type	Actuated-Coordinated
Natural Cycle	120
Offset: 66 (60%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow	

Splits and Phases: 1: Sir Francis Drake Blvd & Wolfe Grade

Phase Number	1	2	4	6
Movement	WBL	EBT	NBL	WBT
Lead/Lag	Lead	Lag		
Lead-Lag Optimize				
Recall Mode	None	C-Min	None	C-Min
Maximum Split (s)	30	49.5	30.5	79.5
Maximum Split (%)	27.3%	45.0%	27.7%	72.3%
Minimum Split (s)	10	26.9	30.5	18.9
Yellow Time (s)	3	3.9	3.5	3.9
All-Red Time (s)	1	1	1	1
Minimum Initial (s)	4	7	8	7
Vehicle Extension (s)	3	3	3	3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)		8	8	
Flash Dont Walk (s)		14	18	
Dual Entry	No	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	99.4	19.4	68.9	99.4
End Time (s)	19.4	68.9	99.4	68.9
Yield/Force Off (s)	15.4	64	94.9	64
Yield/Force Off 170(s)	15.4	50	76.9	64
Local Start Time (s)	35.4	65.4	4.9	35.4
Local Yield (s)	61.4	0	30.9	0
Local Yield 170(s)	61.4	96	12.9	0

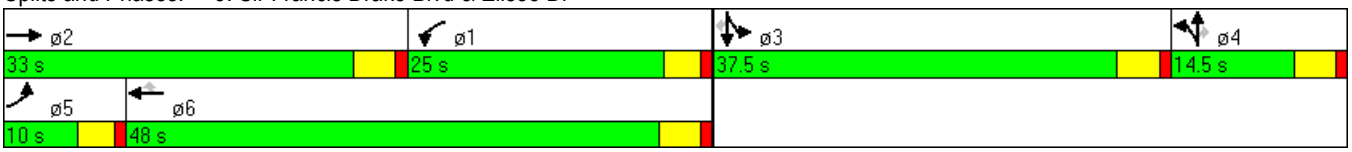
Intersection Summary	
Cycle Length	110
Control Type	Actuated-Coordinated
Natural Cycle	130
Offset: 64 (58%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow	

Splits and Phases: 2: Sir Francis Drake Blvd & Bon Air Rd

Phase Number	1	2	3	4	5	6
Movement	WBL	EBT	SBTL	NBTL	EBL	WBT
Lead/Lag	Lag	Lead	Lead	Lag	Lead	Lag
Lead-Lag Optimize			Yes	Yes		
Recall Mode	None	Min	None	None	None	Min
Maximum Split (s)	25	33	37.5	14.5	10	48
Maximum Split (%)	22.7%	30.0%	34.1%	13.2%	9.1%	43.6%
Minimum Split (s)	10	31.5	37.5	14.5	10	24.5
Yellow Time (s)	3	3.5	3.5	3.5	3	3.5
All-Red Time (s)	1	1	1	1	1	1
Minimum Initial (s)	6	9	10	10	6	9
Vehicle Extension (s)	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0
Walk Time (s)		7	7			7
Flash Dont Walk (s)		20	26			13
Dual Entry	No	Yes	No	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	33	0	58	95.5	0	10
End Time (s)	58	33	95.5	0	10	58
Yield/Force Off (s)	54	28.5	91	105.5	6	53.5
Yield/Force Off 170(s)	54	28.5	65	105.5	6	53.5
Local Start Time (s)	4.5	81.5	29.5	67	81.5	91.5
Local Yield (s)	25.5	0	62.5	77	87.5	25
Local Yield 170(s)	25.5	0	36.5	77	87.5	25

Intersection Summary	
Cycle Length	110
Control Type	Actuated-Uncoordinated
Natural Cycle	145

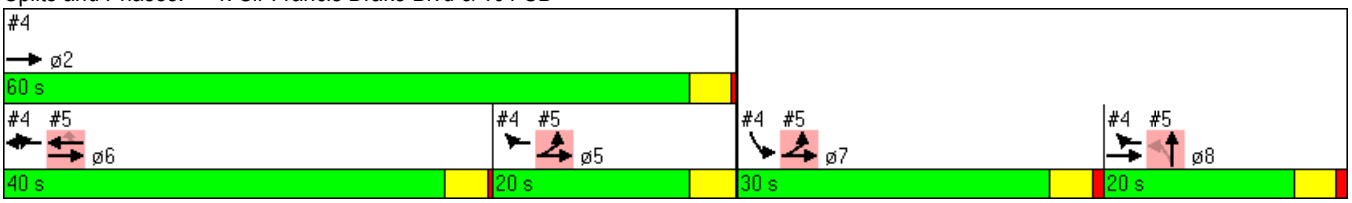
Splits and Phases: 3: Sir Francis Drake Blvd & Eliseo Dr



Phase Number	2	5	6	7	8
Node Number	4	4	4	4	4
Movement	EBT	WBR	WBT	SBL	EBT
Lead/Lag		Lag	Lead	Lead	Lag
Lead-Lag Optimize		Yes	Yes	Yes	Yes
Recall Mode	Min	None	Min	Max	None
Maximum Split (s)	60	20	40	30	20
Maximum Split (%)	54.5%	18.2%	36.4%	27.3%	18.2%
Minimum Split (s)	13.5	5	17.4	16.5	12
Yellow Time (s)	3.5	4	3.5	3.5	3.5
All-Red Time (s)	0.5	0	0.5	1	1
Minimum Initial (s)	9	1	13	12	4
Vehicle Extension (s)	3	3	3	3	3
Minimum Gap (s)	3.5	1.2	2	1	2
Time Before Reduce (s)	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0
Walk Time (s)					
Flash Dont Walk (s)					
Dual Entry	Yes	No	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes
Start Time (s)	0	40	0	60	90
End Time (s)	60	60	40	90	0
Yield/Force Off (s)	56	56	36	85.5	105.5
Yield/Force Off 170(s)	56	56	36	85.5	105.5
Local Start Time (s)	74	4	74	24	54
Local Yield (s)	20	20	0	49.5	69.5
Local Yield 170(s)	20	20	0	49.5	69.5

Intersection Summary	
Cycle Length	110
Control Type	Actuated-Uncoordinated
Natural Cycle	150

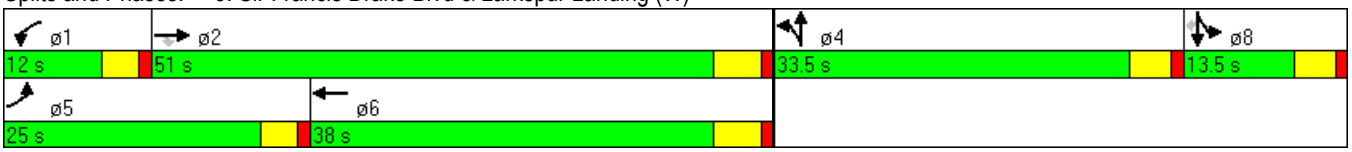
Splits and Phases: 4: Sir Francis Drake Blvd & 101 SB



Phase Number	1	2	4	5	6	8
Movement	WBL	EBT	NBTL	EBL	WBT	SBTL
Lead/Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize				Yes	Yes	
Recall Mode	None	C-Min	None	None	C-Min	None
Maximum Split (s)	12	51	33.5	25	38	13.5
Maximum Split (%)	10.9%	46.4%	30.5%	22.7%	34.5%	12.3%
Minimum Split (s)	10	31	33.5	10	36	13.5
Yellow Time (s)	3	4	3.5	3	4	3.5
All-Red Time (s)	1	1	1	1	1	1
Minimum Initial (s)	4	9	9	4	8	9
Vehicle Extension (s)	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0
Walk Time (s)		7	7		7	
Flash Dont Walk (s)		19	22		24	
Dual Entry	No	Yes	Yes	No	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	70	82	23	70	95	56.5
End Time (s)	82	23	56.5	95	23	70
Yield/Force Off (s)	78	18	52	91	18	65.5
Yield/Force Off 170(s)	78	109	30	91	104	65.5
Local Start Time (s)	52	64	5	52	77	38.5
Local Yield (s)	60	0	34	73	0	47.5
Local Yield 170(s)	60	91	12	73	86	47.5

Intersection Summary	
Cycle Length	110
Control Type	Actuated-Coordinated
Natural Cycle	145
Offset: 18 (16%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow	

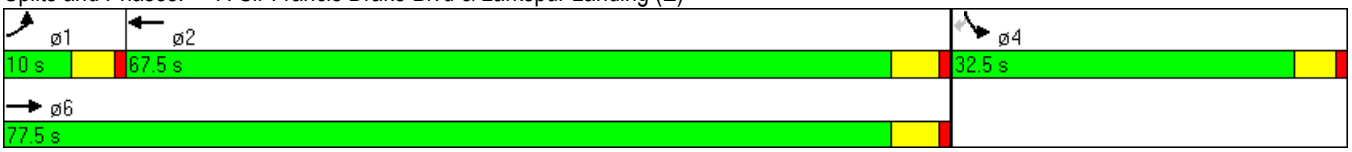
Splits and Phases: 6: Sir Francis Drake Blvd & Larkspur Landing (W)



Phase Number	1	2	4	6
Movement	EBL	WBT	SBL	EBT
Lead/Lag	Lead	Lag		
Lead-Lag Optimize				
Recall Mode	None	C-Min	None	C-Min
Maximum Split (s)	10	67.5	32.5	77.5
Maximum Split (%)	9.1%	61.4%	29.5%	70.5%
Minimum Split (s)	10	29.9	32.5	29.9
Yellow Time (s)	3.5	3.9	3.5	3.9
All-Red Time (s)	1	1	1	1
Minimum Initial (s)	4	8	9	8
Vehicle Extension (s)	3	3	3	3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)		7	7	7
Flash Dont Walk (s)		18	21	18
Dual Entry	No	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	39.4	49.4	6.9	39.4
End Time (s)	49.4	6.9	39.4	6.9
Yield/Force Off (s)	44.9	2	34.9	2
Yield/Force Off 170(s)	44.9	94	13.9	94
Local Start Time (s)	37.4	47.4	4.9	37.4
Local Yield (s)	42.9	0	32.9	0
Local Yield 170(s)	42.9	92	11.9	92

Intersection Summary	
Cycle Length	110
Control Type	Actuated-Coordinated
Natural Cycle	100
Offset: 2 (2%), Referenced to phase 2:WBT and 6:EBT, Start of Yellow	

Splits and Phases: 7: Sir Francis Drake Blvd & Larkspur Landing (E)



Phase Number	1	2	4	5	6	8
Movement	WBL	EBT	SBTL	EBL	WBT	NBTL
Lead/Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize				Yes	Yes	
Recall Mode	None	C-Max	None	None	C-Max	None
Maximum Split (s)	12	83	35	37	58	35
Maximum Split (%)	9.2%	63.8%	26.9%	28.5%	44.6%	26.9%
Minimum Split (s)	10	22.6	17.2	10	28.9	16
Yellow Time (s)	3	3.6	3.2	3	3.9	3
All-Red Time (s)	1	1	1	1	1	1
Minimum Initial (s)	4	6	9	4	7	9
Vehicle Extension (s)	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0
Walk Time (s)		8			8	
Flash Dont Walk (s)		10			16	
Dual Entry	No	Yes	Yes	No	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	89.9	101.9	54.9	89.9	126.9	54.9
End Time (s)	101.9	54.9	89.9	126.9	54.9	89.9
Yield/Force Off (s)	97.9	50.3	85.7	122.9	50	85.9
Yield/Force Off 170(s)	97.9	40.3	85.7	122.9	34	85.9
Local Start Time (s)	39.9	51.9	4.9	39.9	76.9	4.9
Local Yield (s)	47.9	0.3	35.7	72.9	0	35.9
Local Yield 170(s)	47.9	120.3	35.7	72.9	114	35.9

Intersection Summary	
Cycle Length	130
Control Type	Actuated-Coordinated
Natural Cycle	150
Offset: 50 (38%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow	

Splits and Phases: 1: Sir Francis Drake Blvd & Wolfe Grade

Phase Number	1	2	4	6
Movement	WBL	EBT	NBL	WBT
Lead/Lag	Lead	Lag		
Lead-Lag Optimize	Yes	Yes		
Recall Mode	None	C-Min	None	C-Min
Maximum Split (s)	26	59	45	85
Maximum Split (%)	20.0%	45.4%	34.6%	65.4%
Minimum Split (s)	10	26.9	30.5	11.9
Yellow Time (s)	3	3.9	3.5	3.9
All-Red Time (s)	1	1	1	1
Minimum Initial (s)	4	7	8	7
Vehicle Extension (s)	3	3	3	3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)		8	8	
Flash Dont Walk (s)		14	18	
Dual Entry	No	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	94.9	120.9	49.9	94.9
End Time (s)	120.9	49.9	94.9	49.9
Yield/Force Off (s)	116.9	45	90.4	45
Yield/Force Off 170(s)	116.9	31	72.4	45
Local Start Time (s)	49.9	75.9	4.9	49.9
Local Yield (s)	71.9	0	45.4	0
Local Yield 170(s)	71.9	116	27.4	0

Intersection Summary	
Cycle Length	130
Control Type	Actuated-Coordinated
Natural Cycle	90
Offset: 45 (35%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow	

Splits and Phases: 2: Sir Francis Drake Blvd & Bon Air Rd

Phase Number	1	2	3	4	5	6
Movement	WBL	EBT	SBTL	NBTL	EBL	WBT
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize			Yes	Yes		
Recall Mode	None	Min	None	None	None	Min
Maximum Split (s)	30	47.5	37.5	15	10	67.5
Maximum Split (%)	23.1%	36.5%	28.8%	11.5%	7.7%	51.9%
Minimum Split (s)	10	31.5	37.5	14.5	10	24.5
Yellow Time (s)	3	3.5	3.5	3.5	3	3.5
All-Red Time (s)	1	1	1	1	1	1
Minimum Initial (s)	6	9	10	10	6	9
Vehicle Extension (s)	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0
Walk Time (s)		7	7			7
Flash Dont Walk (s)		20	26			13
Dual Entry	No	Yes	No	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	0	30	77.5	115	0	10
End Time (s)	30	77.5	115	0	10	77.5
Yield/Force Off (s)	26	73	110.5	125.5	6	73
Yield/Force Off 170(s)	26	73	84.5	125.5	6	73
Local Start Time (s)	57	87	4.5	42	57	67
Local Yield (s)	83	0	37.5	52.5	63	0
Local Yield 170(s)	83	0	11.5	52.5	63	0

Intersection Summary	
Cycle Length	130
Control Type	Actuated-Uncoordinated
Natural Cycle	145

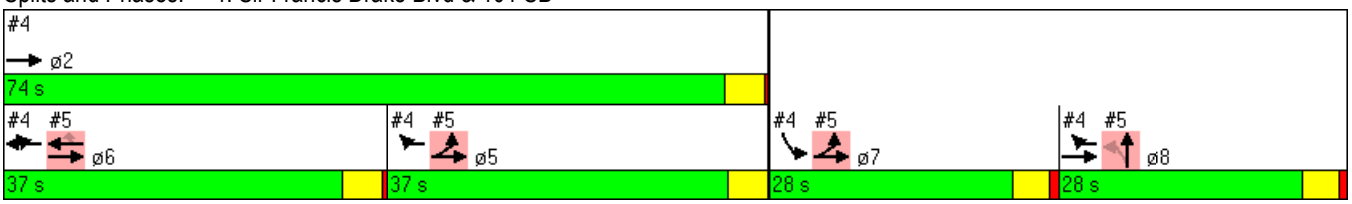
Splits and Phases: 3: Sir Francis Drake Blvd & Eliseo Dr

Phase Number	2	5	6	7	8
Node Number	4	4	4	4	4
Movement	EBT	WBR	WBT	SBL	EBT
Lead/Lag		Lag	Lead	Lead	Lag
Lead-Lag Optimize		Yes	Yes	Yes	Yes
Recall Mode	C-Min	None	C-Min	Min	None
Maximum Split (s)	74	37	37	28	28
Maximum Split (%)	56.9%	28.5%	28.5%	21.5%	21.5%
Minimum Split (s)	13.5	8	17.4	16.5	10
Yellow Time (s)	3.9	4	3.9	3.5	3.5
All-Red Time (s)	0.5	0	0.5	1	1
Minimum Initial (s)	9	4	13	12	4
Vehicle Extension (s)	4.5	3	3	2	3
Minimum Gap (s)	3.5	1.2	2	1	2
Time Before Reduce (s)	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0
Walk Time (s)					
Flash Dont Walk (s)					
Dual Entry	Yes	No	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes
Start Time (s)	113.4	20.4	113.4	57.4	85.4
End Time (s)	57.4	57.4	20.4	85.4	113.4
Yield/Force Off (s)	53	53.4	16	80.9	108.9
Yield/Force Off 170(s)	53	53.4	16	80.9	108.9
Local Start Time (s)	97.4	4.4	97.4	41.4	69.4
Local Yield (s)	37	37.4	0	64.9	92.9
Local Yield 170(s)	37	37.4	0	64.9	92.9

Intersection Summary	
Cycle Length	130
Control Type	Actuated-Coordinated
Natural Cycle	150

Offset: 16 (12%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow

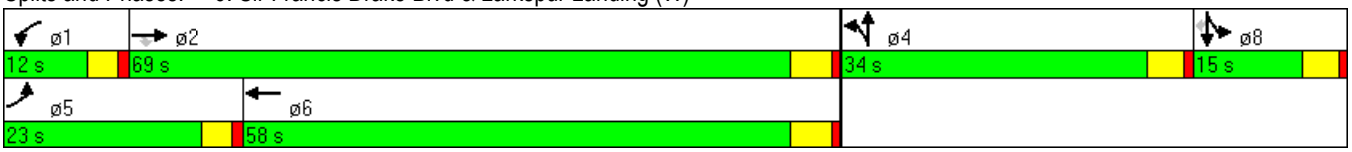
Splits and Phases: 4: Sir Francis Drake Blvd & 101 SB



Phase Number	1	2	4	5	6	8
Movement	WBL	EBT	NBTL	EBL	WBT	SBTL
Lead/Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize				Yes	Yes	
Recall Mode	None	C-Min	None	None	C-Min	None
Maximum Split (s)	12	69	34	23	58	15
Maximum Split (%)	9.2%	53.1%	26.2%	17.7%	44.6%	11.5%
Minimum Split (s)	10	31	33.5	10	36	13.5
Yellow Time (s)	3	4	3.5	3	4	3.5
All-Red Time (s)	1	1	1	1	1	1
Minimum Initial (s)	4	9	9	4	8	9
Vehicle Extension (s)	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0
Walk Time (s)		7	7		7	
Flash Dont Walk (s)		19	22		24	
Dual Entry	No	Yes	Yes	No	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	4	16	85	4	27	119
End Time (s)	16	85	119	27	85	4
Yield/Force Off (s)	12	80	114.5	23	80	129.5
Yield/Force Off 170(s)	12	61	92.5	23	56	129.5
Local Start Time (s)	54	66	5	54	77	39
Local Yield (s)	62	0	34.5	73	0	49.5
Local Yield 170(s)	62	111	12.5	73	106	49.5

Intersection Summary	
Cycle Length	130
Control Type	Actuated-Coordinated
Natural Cycle	145
Offset: 80 (62%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow	

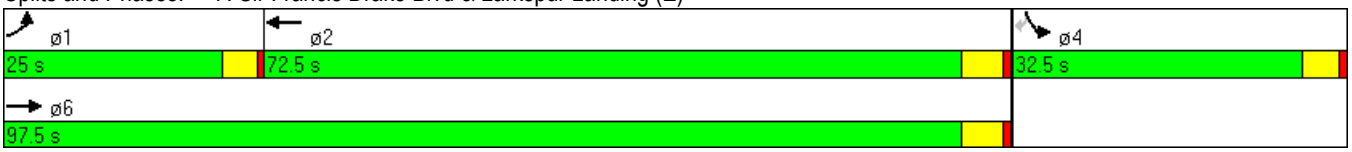
Splits and Phases: 6: Sir Francis Drake Blvd & Larkspur Landing (W)



Phase Number	1	2	4	6
Movement	EBL	WBT	SBL	EBT
Lead/Lag	Lead	Lag		
Lead-Lag Optimize	Yes	Yes		
Recall Mode	None	C-Min	None	C-Min
Maximum Split (s)	25	72.5	32.5	97.5
Maximum Split (%)	19.2%	55.8%	25.0%	75.0%
Minimum Split (s)	10	29.9	32.5	29.9
Yellow Time (s)	3.5	3.9	3.5	3.9
All-Red Time (s)	0.5	1	1	1
Minimum Initial (s)	4	8	9	8
Vehicle Extension (s)	3	3	3	3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)		7	7	7
Flash Dont Walk (s)		18	21	18
Dual Entry	No	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	21.4	46.4	118.9	21.4
End Time (s)	46.4	118.9	21.4	118.9
Yield/Force Off (s)	42.4	114	16.9	114
Yield/Force Off 170(s)	42.4	96	125.9	96
Local Start Time (s)	37.4	62.4	4.9	37.4
Local Yield (s)	58.4	0	32.9	0
Local Yield 170(s)	58.4	112	11.9	112

Intersection Summary	
Cycle Length	130
Control Type	Actuated-Coordinated
Natural Cycle	90
Offset: 114 (88%), Referenced to phase 2:WBT and 6:EBT, Start of Yellow	

Splits and Phases: 7: Sir Francis Drake Blvd & Larkspur Landing (E)



Phase Number	1	2	4	5	6	8
Movement	WBL	EBT	SBTL	EBL	WBT	NBTL
Lead/Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize				Yes	Yes	
Recall Mode	None	C-Max	None	None	C-Min	None
Maximum Split (s)	15	65	30	15	65	30
Maximum Split (%)	13.6%	59.1%	27.3%	13.6%	59.1%	27.3%
Minimum Split (s)	10	16.6	17.2	10	28.9	16
Yellow Time (s)	3	3.6	3.2	3	3.9	3
All-Red Time (s)	1	1	1	1	1	1
Minimum Initial (s)	4	6	9	4	7	9
Vehicle Extension (s)	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0
Walk Time (s)					8	
Flash Dont Walk (s)					16	
Dual Entry	No	No	Yes	No	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	100.9	5.9	70.9	100.9	5.9	70.9
End Time (s)	5.9	70.9	100.9	5.9	70.9	100.9
Yield/Force Off (s)	1.9	66.3	96.7	1.9	66	96.9
Yield/Force Off 170(s)	1.9	66.3	96.7	1.9	50	96.9
Local Start Time (s)	34.9	49.9	4.9	34.9	49.9	4.9
Local Yield (s)	45.9	0.3	30.7	45.9	0	30.9
Local Yield 170(s)	45.9	0.3	30.7	45.9	94	30.9

Intersection Summary	
Cycle Length	110
Control Type	Actuated-Coordinated
Natural Cycle	120
Offset: 66 (60%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow	

Splits and Phases: 1: Sir Francis Drake Blvd & Wolfe Grade

Phase Number	1	2	4	6
Movement	WBL	EBT	NBL	WBT
Lead/Lag	Lead	Lag		
Lead-Lag Optimize				
Recall Mode	None	C-Min	None	C-Min
Maximum Split (s)	30	49.5	30.5	79.5
Maximum Split (%)	27.3%	45.0%	27.7%	72.3%
Minimum Split (s)	10	26.9	30.5	18.9
Yellow Time (s)	3	3.9	3.5	3.9
All-Red Time (s)	1	1	1	1
Minimum Initial (s)	4	7	8	7
Vehicle Extension (s)	3	3	3	3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)		8	8	
Flash Dont Walk (s)		14	18	
Dual Entry	No	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	99.4	19.4	68.9	99.4
End Time (s)	19.4	68.9	99.4	68.9
Yield/Force Off (s)	15.4	64	94.9	64
Yield/Force Off 170(s)	15.4	50	76.9	64
Local Start Time (s)	35.4	65.4	4.9	35.4
Local Yield (s)	61.4	0	30.9	0
Local Yield 170(s)	61.4	96	12.9	0

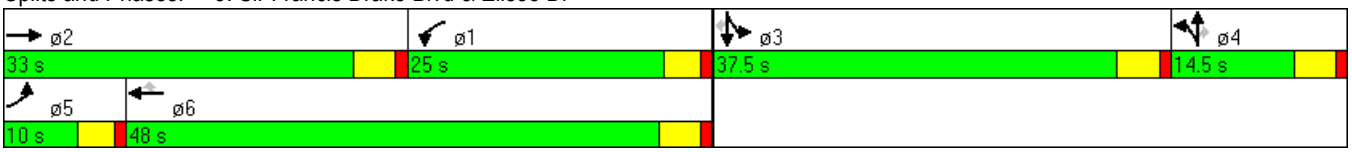
Intersection Summary	
Cycle Length	110
Control Type	Actuated-Coordinated
Natural Cycle	130
Offset: 64 (58%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow	

Splits and Phases: 2: Sir Francis Drake Blvd & Bon Air Rd

Phase Number	1	2	3	4	5	6
Movement	WBL	EBT	SBTL	NBTL	EBL	WBT
Lead/Lag	Lag	Lead	Lead	Lag	Lead	Lag
Lead-Lag Optimize			Yes	Yes		
Recall Mode	None	Min	None	None	None	Min
Maximum Split (s)	25	33	37.5	14.5	10	48
Maximum Split (%)	22.7%	30.0%	34.1%	13.2%	9.1%	43.6%
Minimum Split (s)	10	31.5	37.5	14.5	10	24.5
Yellow Time (s)	3	3.5	3.5	3.5	3	3.5
All-Red Time (s)	1	1	1	1	1	1
Minimum Initial (s)	6	9	10	10	6	9
Vehicle Extension (s)	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0
Walk Time (s)		7	7			7
Flash Dont Walk (s)		20	26			13
Dual Entry	No	Yes	No	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	33	0	58	95.5	0	10
End Time (s)	58	33	95.5	0	10	58
Yield/Force Off (s)	54	28.5	91	105.5	6	53.5
Yield/Force Off 170(s)	54	28.5	65	105.5	6	53.5
Local Start Time (s)	4.5	81.5	29.5	67	81.5	91.5
Local Yield (s)	25.5	0	62.5	77	87.5	25
Local Yield 170(s)	25.5	0	36.5	77	87.5	25

Intersection Summary	
Cycle Length	110
Control Type	Actuated-Uncoordinated
Natural Cycle	145

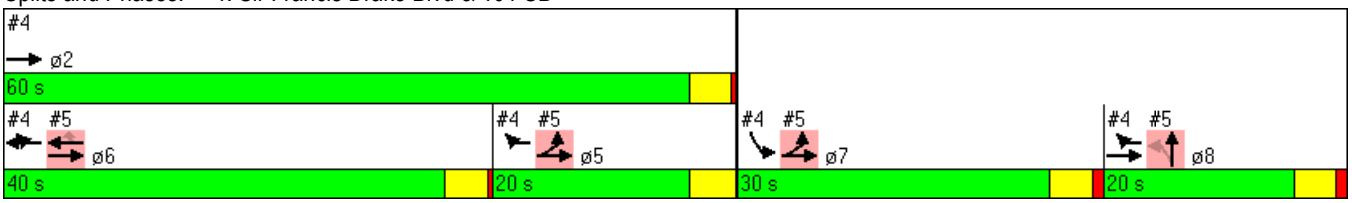
Splits and Phases: 3: Sir Francis Drake Blvd & Eliseo Dr



Phase Number	2	5	6	7	8
Node Number	4	4	4	4	4
Movement	EBT	WBR	WBT	SBL	EBT
Lead/Lag		Lag	Lead	Lead	Lag
Lead-Lag Optimize		Yes	Yes	Yes	Yes
Recall Mode	Min	None	Min	Max	None
Maximum Split (s)	60	20	40	30	20
Maximum Split (%)	54.5%	18.2%	36.4%	27.3%	18.2%
Minimum Split (s)	13.5	5	17.4	16.5	12
Yellow Time (s)	3.5	4	3.5	3.5	3.5
All-Red Time (s)	0.5	0	0.5	1	1
Minimum Initial (s)	9	1	13	12	4
Vehicle Extension (s)	3	3	3	3	3
Minimum Gap (s)	3.5	1.2	2	1	2
Time Before Reduce (s)	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0
Walk Time (s)					
Flash Dont Walk (s)					
Dual Entry	Yes	No	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes
Start Time (s)	0	40	0	60	90
End Time (s)	60	60	40	90	0
Yield/Force Off (s)	56	56	36	85.5	105.5
Yield/Force Off 170(s)	56	56	36	85.5	105.5
Local Start Time (s)	74	4	74	24	54
Local Yield (s)	20	20	0	49.5	69.5
Local Yield 170(s)	20	20	0	49.5	69.5

Intersection Summary	
Cycle Length	110
Control Type	Actuated-Uncoordinated
Natural Cycle	150

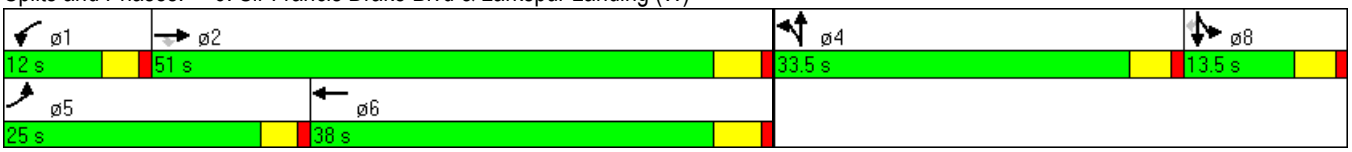
Splits and Phases: 4: Sir Francis Drake Blvd & 101 SB



Phase Number	1	2	4	5	6	8
Movement	WBL	EBT	NBTL	EBL	WBT	SBTL
Lead/Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize				Yes	Yes	
Recall Mode	None	C-Min	None	None	C-Min	None
Maximum Split (s)	12	51	33.5	25	38	13.5
Maximum Split (%)	10.9%	46.4%	30.5%	22.7%	34.5%	12.3%
Minimum Split (s)	10	31	33.5	10	36	13.5
Yellow Time (s)	3	4	3.5	3	4	3.5
All-Red Time (s)	1	1	1	1	1	1
Minimum Initial (s)	4	9	9	4	8	9
Vehicle Extension (s)	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0
Walk Time (s)		7	7		7	
Flash Dont Walk (s)		19	22		24	
Dual Entry	No	Yes	Yes	No	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	70	82	23	70	95	56.5
End Time (s)	82	23	56.5	95	23	70
Yield/Force Off (s)	78	18	52	91	18	65.5
Yield/Force Off 170(s)	78	109	30	91	104	65.5
Local Start Time (s)	52	64	5	52	77	38.5
Local Yield (s)	60	0	34	73	0	47.5
Local Yield 170(s)	60	91	12	73	86	47.5

Intersection Summary	
Cycle Length	110
Control Type	Actuated-Coordinated
Natural Cycle	145
Offset: 18 (16%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow	

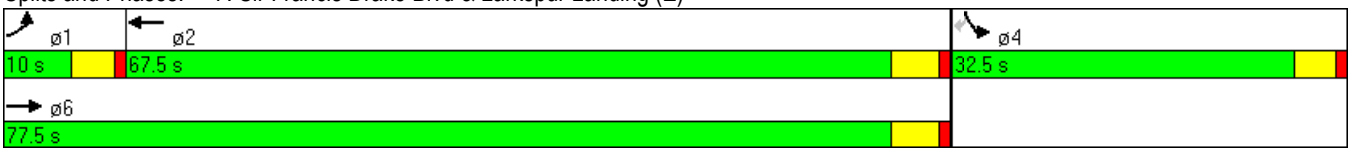
Splits and Phases: 6: Sir Francis Drake Blvd & Larkspur Landing (W)



Phase Number	1	2	4	6
Movement	EBL	WBT	SBL	EBT
Lead/Lag	Lead	Lag		
Lead-Lag Optimize				
Recall Mode	None	C-Min	None	C-Min
Maximum Split (s)	10	67.5	32.5	77.5
Maximum Split (%)	9.1%	61.4%	29.5%	70.5%
Minimum Split (s)	10	29.9	32.5	29.9
Yellow Time (s)	3.5	3.9	3.5	3.9
All-Red Time (s)	1	1	1	1
Minimum Initial (s)	4	8	9	8
Vehicle Extension (s)	3	3	3	3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)		7	7	7
Flash Dont Walk (s)		18	21	18
Dual Entry	No	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	39.4	49.4	6.9	39.4
End Time (s)	49.4	6.9	39.4	6.9
Yield/Force Off (s)	44.9	2	34.9	2
Yield/Force Off 170(s)	44.9	94	13.9	94
Local Start Time (s)	37.4	47.4	4.9	37.4
Local Yield (s)	42.9	0	32.9	0
Local Yield 170(s)	42.9	92	11.9	92

Intersection Summary	
Cycle Length	110
Control Type	Actuated-Coordinated
Natural Cycle	100
Offset: 2 (2%), Referenced to phase 2:WBT and 6:EBT, Start of Yellow	

Splits and Phases: 7: Sir Francis Drake Blvd & Larkspur Landing (E)



Phase Number	1	2	4	5	6	8
Movement	WBL	EBT	SBTL	EBL	WBT	NBTL
Lead/Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize				Yes	Yes	
Recall Mode	None	C-Max	None	None	C-Max	None
Maximum Split (s)	12	83	35	37	58	35
Maximum Split (%)	9.2%	63.8%	26.9%	28.5%	44.6%	26.9%
Minimum Split (s)	10	22.6	17.2	10	28.9	16
Yellow Time (s)	3	3.6	3.2	3	3.9	3
All-Red Time (s)	1	1	1	1	1	1
Minimum Initial (s)	4	6	9	4	7	9
Vehicle Extension (s)	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0
Walk Time (s)		8			8	
Flash Dont Walk (s)		10			16	
Dual Entry	No	Yes	Yes	No	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	89.9	101.9	54.9	89.9	126.9	54.9
End Time (s)	101.9	54.9	89.9	126.9	54.9	89.9
Yield/Force Off (s)	97.9	50.3	85.7	122.9	50	85.9
Yield/Force Off 170(s)	97.9	40.3	85.7	122.9	34	85.9
Local Start Time (s)	39.9	51.9	4.9	39.9	76.9	4.9
Local Yield (s)	47.9	0.3	35.7	72.9	0	35.9
Local Yield 170(s)	47.9	120.3	35.7	72.9	114	35.9

Intersection Summary	
Cycle Length	130
Control Type	Actuated-Coordinated
Natural Cycle	150
Offset: 50 (38%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow	

Splits and Phases: 1: Sir Francis Drake Blvd & Wolfe Grade

Phase Number	1	2	4	6
Movement	WBL	EBT	NBL	WBT
Lead/Lag	Lead	Lag		
Lead-Lag Optimize	Yes	Yes		
Recall Mode	None	C-Min	None	C-Min
Maximum Split (s)	26	59	45	85
Maximum Split (%)	20.0%	45.4%	34.6%	65.4%
Minimum Split (s)	10	26.9	30.5	11.9
Yellow Time (s)	3	3.9	3.5	3.9
All-Red Time (s)	1	1	1	1
Minimum Initial (s)	4	7	8	7
Vehicle Extension (s)	3	3	3	3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)		8	8	
Flash Dont Walk (s)		14	18	
Dual Entry	No	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	94.9	120.9	49.9	94.9
End Time (s)	120.9	49.9	94.9	49.9
Yield/Force Off (s)	116.9	45	90.4	45
Yield/Force Off 170(s)	116.9	31	72.4	45
Local Start Time (s)	49.9	75.9	4.9	49.9
Local Yield (s)	71.9	0	45.4	0
Local Yield 170(s)	71.9	116	27.4	0

Intersection Summary	
Cycle Length	130
Control Type	Actuated-Coordinated
Natural Cycle	90
Offset: 45 (35%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow	

Splits and Phases: 2: Sir Francis Drake Blvd & Bon Air Rd

Phase Number	1	2	3	4	5	6
Movement	WBL	EBT	SBTL	NBTL	EBL	WBT
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize			Yes	Yes		
Recall Mode	None	Min	None	None	None	Min
Maximum Split (s)	30	47.5	37.5	15	10	67.5
Maximum Split (%)	23.1%	36.5%	28.8%	11.5%	7.7%	51.9%
Minimum Split (s)	10	31.5	37.5	14.5	10	24.5
Yellow Time (s)	3	3.5	3.5	3.5	3	3.5
All-Red Time (s)	1	1	1	1	1	1
Minimum Initial (s)	6	9	10	10	6	9
Vehicle Extension (s)	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0
Walk Time (s)		7	7			7
Flash Dont Walk (s)		20	26			13
Dual Entry	No	Yes	No	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	0	30	77.5	115	0	10
End Time (s)	30	77.5	115	0	10	77.5
Yield/Force Off (s)	26	73	110.5	125.5	6	73
Yield/Force Off 170(s)	26	73	84.5	125.5	6	73
Local Start Time (s)	57	87	4.5	42	57	67
Local Yield (s)	83	0	37.5	52.5	63	0
Local Yield 170(s)	83	0	11.5	52.5	63	0

Intersection Summary	
Cycle Length	130
Control Type	Actuated-Uncoordinated
Natural Cycle	145

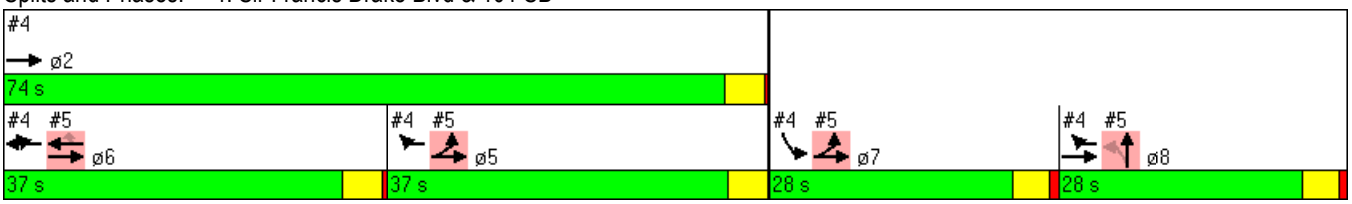
Splits and Phases: 3: Sir Francis Drake Blvd & Eliseo Dr

Phase Number	2	5	6	7	8
Node Number	4	4	4	4	4
Movement	EBT	WBR	WBT	SBL	EBT
Lead/Lag		Lag	Lead	Lead	Lag
Lead-Lag Optimize		Yes	Yes	Yes	Yes
Recall Mode	C-Min	None	C-Min	Min	None
Maximum Split (s)	74	37	37	28	28
Maximum Split (%)	56.9%	28.5%	28.5%	21.5%	21.5%
Minimum Split (s)	13.5	8	17.4	16.5	10
Yellow Time (s)	3.9	4	3.9	3.5	3.5
All-Red Time (s)	0.5	0	0.5	1	1
Minimum Initial (s)	9	4	13	12	4
Vehicle Extension (s)	4.5	3	3	2	3
Minimum Gap (s)	3.5	1.2	2	1	2
Time Before Reduce (s)	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0
Walk Time (s)					
Flash Dont Walk (s)					
Dual Entry	Yes	No	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes
Start Time (s)	113.4	20.4	113.4	57.4	85.4
End Time (s)	57.4	57.4	20.4	85.4	113.4
Yield/Force Off (s)	53	53.4	16	80.9	108.9
Yield/Force Off 170(s)	53	53.4	16	80.9	108.9
Local Start Time (s)	97.4	4.4	97.4	41.4	69.4
Local Yield (s)	37	37.4	0	64.9	92.9
Local Yield 170(s)	37	37.4	0	64.9	92.9

Intersection Summary	
Cycle Length	130
Control Type	Actuated-Coordinated
Natural Cycle	150

Offset: 16 (12%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow

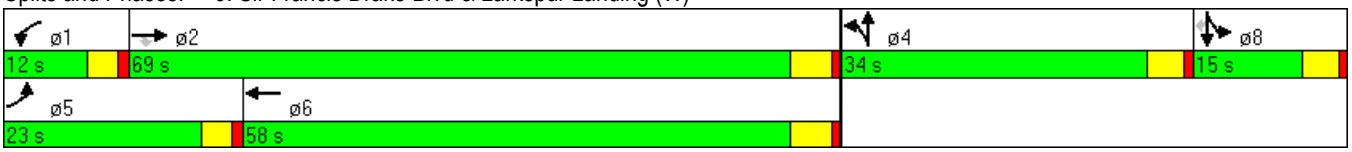
Splits and Phases: 4: Sir Francis Drake Blvd & 101 SB



Phase Number	1	2	4	5	6	8
Movement	WBL	EBT	NBTL	EBL	WBT	SBTL
Lead/Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize				Yes	Yes	
Recall Mode	None	C-Min	None	None	C-Min	None
Maximum Split (s)	12	69	34	23	58	15
Maximum Split (%)	9.2%	53.1%	26.2%	17.7%	44.6%	11.5%
Minimum Split (s)	10	31	33.5	10	36	13.5
Yellow Time (s)	3	4	3.5	3	4	3.5
All-Red Time (s)	1	1	1	1	1	1
Minimum Initial (s)	4	9	9	4	8	9
Vehicle Extension (s)	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0
Walk Time (s)		7	7		7	
Flash Dont Walk (s)		19	22		24	
Dual Entry	No	Yes	Yes	No	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	4	16	85	4	27	119
End Time (s)	16	85	119	27	85	4
Yield/Force Off (s)	12	80	114.5	23	80	129.5
Yield/Force Off 170(s)	12	61	92.5	23	56	129.5
Local Start Time (s)	54	66	5	54	77	39
Local Yield (s)	62	0	34.5	73	0	49.5
Local Yield 170(s)	62	111	12.5	73	106	49.5

Intersection Summary	
Cycle Length	130
Control Type	Actuated-Coordinated
Natural Cycle	145
Offset: 80 (62%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow	

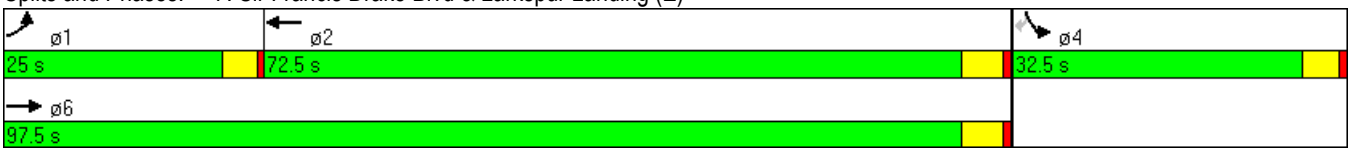
Splits and Phases: 6: Sir Francis Drake Blvd & Larkspur Landing (W)



Phase Number	1	2	4	6
Movement	EBL	WBT	SBL	EBT
Lead/Lag	Lead	Lag		
Lead-Lag Optimize	Yes	Yes		
Recall Mode	None	C-Min	None	C-Min
Maximum Split (s)	25	72.5	32.5	97.5
Maximum Split (%)	19.2%	55.8%	25.0%	75.0%
Minimum Split (s)	10	29.9	32.5	29.9
Yellow Time (s)	3.5	3.9	3.5	3.9
All-Red Time (s)	0.5	1	1	1
Minimum Initial (s)	4	8	9	8
Vehicle Extension (s)	3	3	3	3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)		7	7	7
Flash Dont Walk (s)		18	21	18
Dual Entry	No	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	21.4	46.4	118.9	21.4
End Time (s)	46.4	118.9	21.4	118.9
Yield/Force Off (s)	42.4	114	16.9	114
Yield/Force Off 170(s)	42.4	96	125.9	96
Local Start Time (s)	37.4	62.4	4.9	37.4
Local Yield (s)	58.4	0	32.9	0
Local Yield 170(s)	58.4	112	11.9	112

Intersection Summary	
Cycle Length	130
Control Type	Actuated-Coordinated
Natural Cycle	90
Offset: 114 (88%), Referenced to phase 2:WBT and 6:EBT, Start of Yellow	

Splits and Phases: 7: Sir Francis Drake Blvd & Larkspur Landing (E)



Phase Number	1	2	4	5	6	8
Movement	WBL	EBT	SBTL	EBL	WBT	NBTL
Lead/Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize				Yes	Yes	
Recall Mode	None	C-Max	None	None	C-Min	None
Maximum Split (s)	15	65	30	15	65	30
Maximum Split (%)	13.6%	59.1%	27.3%	13.6%	59.1%	27.3%
Minimum Split (s)	10	16.6	17.2	10	28.9	16
Yellow Time (s)	3	3.6	3.2	3	3.9	3
All-Red Time (s)	1	1	1	1	1	1
Minimum Initial (s)	4	6	9	4	7	9
Vehicle Extension (s)	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0
Walk Time (s)					8	
Flash Dont Walk (s)					16	
Dual Entry	No	No	Yes	No	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	100.9	5.9	70.9	100.9	5.9	70.9
End Time (s)	5.9	70.9	100.9	5.9	70.9	100.9
Yield/Force Off (s)	1.9	66.3	96.7	1.9	66	96.9
Yield/Force Off 170(s)	1.9	66.3	96.7	1.9	50	96.9
Local Start Time (s)	34.9	49.9	4.9	34.9	49.9	4.9
Local Yield (s)	45.9	0.3	30.7	45.9	0	30.9
Local Yield 170(s)	45.9	0.3	30.7	45.9	94	30.9

Intersection Summary	
Cycle Length	110
Control Type	Actuated-Coordinated
Natural Cycle	120
Offset: 66 (60%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow	

Splits and Phases: 1: Sir Francis Drake Blvd & Wolfe Grade

Phase Number	1	2	4	6
Movement	WBL	EBT	NBL	WBT
Lead/Lag	Lead	Lag		
Lead-Lag Optimize				
Recall Mode	None	C-Min	None	C-Min
Maximum Split (s)	30	49.5	30.5	79.5
Maximum Split (%)	27.3%	45.0%	27.7%	72.3%
Minimum Split (s)	10	26.9	30.5	18.9
Yellow Time (s)	3	3.9	3.5	3.9
All-Red Time (s)	1	1	1	1
Minimum Initial (s)	4	7	8	7
Vehicle Extension (s)	3	3	3	3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)		8	8	
Flash Dont Walk (s)		14	18	
Dual Entry	No	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	99.4	19.4	68.9	99.4
End Time (s)	19.4	68.9	99.4	68.9
Yield/Force Off (s)	15.4	64	94.9	64
Yield/Force Off 170(s)	15.4	50	76.9	64
Local Start Time (s)	35.4	65.4	4.9	35.4
Local Yield (s)	61.4	0	30.9	0
Local Yield 170(s)	61.4	96	12.9	0

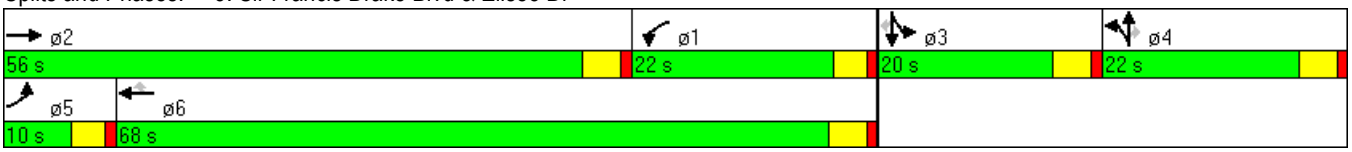
Intersection Summary	
Cycle Length	110
Control Type	Actuated-Coordinated
Natural Cycle	130
Offset: 64 (58%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow	

Splits and Phases: 2: Sir Francis Drake Blvd & Bon Air Rd

Phase Number	1	2	3	4	5	6
Movement	WBL	EBT	SBTL	NBTL	EBL	WBT
Lead/Lag	Lag	Lead	Lead	Lag	Lead	Lag
Lead-Lag Optimize			Yes	Yes		
Recall Mode	None	Min	None	None	None	Min
Maximum Split (s)	22	56	20	22	10	68
Maximum Split (%)	18.3%	46.7%	16.7%	18.3%	8.3%	56.7%
Minimum Split (s)	10	31.5	37.5	14.5	10	24.5
Yellow Time (s)	3	3.5	3.5	3.5	3	3.5
All-Red Time (s)	1	1	1	1	1	1
Minimum Initial (s)	6	9	10	10	6	9
Vehicle Extension (s)	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0
Walk Time (s)		7	7			7
Flash Dont Walk (s)		20	26			13
Dual Entry	No	Yes	No	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	56	0	78	98	0	10
End Time (s)	78	56	98	0	10	78
Yield/Force Off (s)	74	51.5	93.5	115.5	6	73.5
Yield/Force Off 170(s)	74	51.5	67.5	115.5	6	73.5
Local Start Time (s)	4.5	68.5	26.5	46.5	68.5	78.5
Local Yield (s)	22.5	0	42	64	74.5	22
Local Yield 170(s)	22.5	0	16	64	74.5	22

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Uncoordinated
Natural Cycle	145

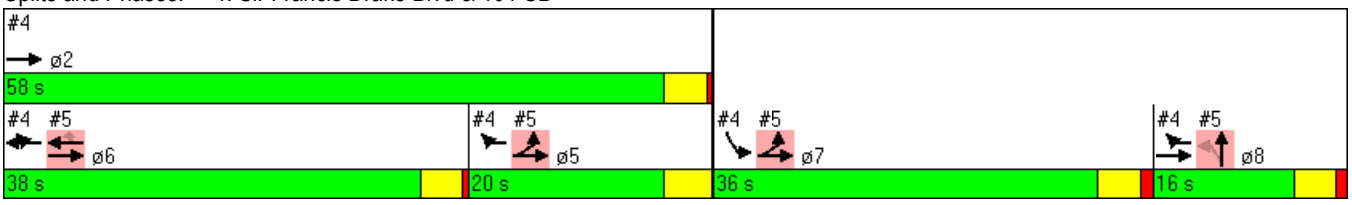
Splits and Phases: 3: Sir Francis Drake Blvd & Eliseo Dr



Phase Number	2	5	6	7	8
Node Number	4	4	4	4	4
Movement	EBT	WBR	WBT	SBL	EBT
Lead/Lag		Lag	Lead	Lead	Lag
Lead-Lag Optimize		Yes	Yes	Yes	Yes
Recall Mode	Min	None	Min	Max	None
Maximum Split (s)	58	20	38	36	16
Maximum Split (%)	52.7%	18.2%	34.5%	32.7%	14.5%
Minimum Split (s)	13.5	5	17.4	16.5	12
Yellow Time (s)	3.5	4	3.5	3.5	3.5
All-Red Time (s)	0.5	0	0.5	1	1
Minimum Initial (s)	9	1	13	12	4
Vehicle Extension (s)	3	3	3	3	3
Minimum Gap (s)	3.5	1.2	2	1	2
Time Before Reduce (s)	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0
Walk Time (s)					
Flash Dont Walk (s)					
Dual Entry	Yes	No	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes
Start Time (s)	0	38	0	58	94
End Time (s)	58	58	38	94	0
Yield/Force Off (s)	54	54	34	89.5	105.5
Yield/Force Off 170(s)	54	54	34	89.5	105.5
Local Start Time (s)	76	4	76	24	60
Local Yield (s)	20	20	0	55.5	71.5
Local Yield 170(s)	20	20	0	55.5	71.5

Intersection Summary	
Cycle Length	110
Control Type	Actuated-Uncoordinated
Natural Cycle	150

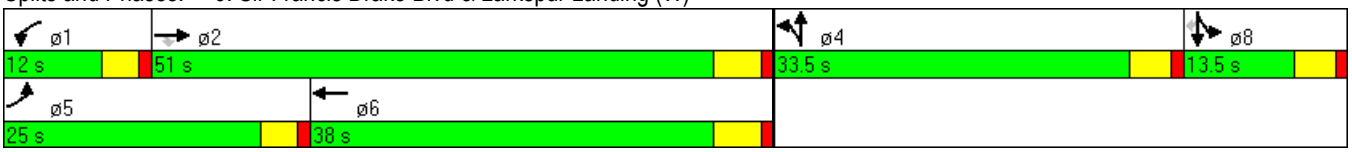
Splits and Phases: 4: Sir Francis Drake Blvd & 101 SB



Phase Number	1	2	4	5	6	8
Movement	WBL	EBT	NBTL	EBL	WBT	SBTL
Lead/Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize				Yes	Yes	
Recall Mode	None	C-Min	None	None	C-Min	None
Maximum Split (s)	12	51	33.5	25	38	13.5
Maximum Split (%)	10.9%	46.4%	30.5%	22.7%	34.5%	12.3%
Minimum Split (s)	10	31	33.5	10	36	13.5
Yellow Time (s)	3	4	3.5	3	4	3.5
All-Red Time (s)	1	1	1	1	1	1
Minimum Initial (s)	4	9	9	4	8	9
Vehicle Extension (s)	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0
Walk Time (s)		7	7		7	
Flash Dont Walk (s)		19	22		24	
Dual Entry	No	Yes	Yes	No	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	70	82	23	70	95	56.5
End Time (s)	82	23	56.5	95	23	70
Yield/Force Off (s)	78	18	52	91	18	65.5
Yield/Force Off 170(s)	78	109	30	91	104	65.5
Local Start Time (s)	52	64	5	52	77	38.5
Local Yield (s)	60	0	34	73	0	47.5
Local Yield 170(s)	60	91	12	73	86	47.5

Intersection Summary	
Cycle Length	110
Control Type	Actuated-Coordinated
Natural Cycle	145
Offset: 18 (16%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow	

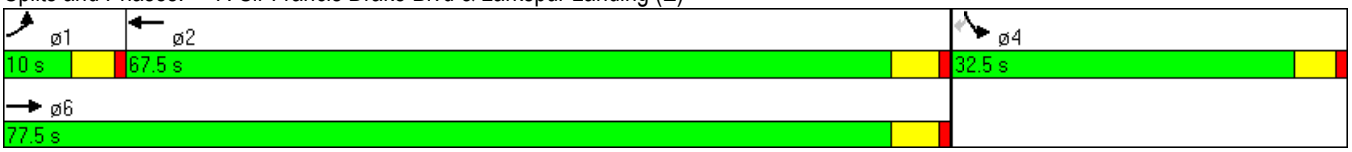
Splits and Phases: 6: Sir Francis Drake Blvd & Larkspur Landing (W)



Phase Number	1	2	4	6
Movement	EBL	WBT	SBL	EBT
Lead/Lag	Lead	Lag		
Lead-Lag Optimize				
Recall Mode	None	C-Min	None	C-Min
Maximum Split (s)	10	67.5	32.5	77.5
Maximum Split (%)	9.1%	61.4%	29.5%	70.5%
Minimum Split (s)	10	29.9	32.5	29.9
Yellow Time (s)	3.5	3.9	3.5	3.9
All-Red Time (s)	1	1	1	1
Minimum Initial (s)	4	8	9	8
Vehicle Extension (s)	3	3	3	3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)		7	7	7
Flash Dont Walk (s)		18	21	18
Dual Entry	No	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	39.4	49.4	6.9	39.4
End Time (s)	49.4	6.9	39.4	6.9
Yield/Force Off (s)	44.9	2	34.9	2
Yield/Force Off 170(s)	44.9	94	13.9	94
Local Start Time (s)	37.4	47.4	4.9	37.4
Local Yield (s)	42.9	0	32.9	0
Local Yield 170(s)	42.9	92	11.9	92

Intersection Summary	
Cycle Length	110
Control Type	Actuated-Coordinated
Natural Cycle	100
Offset: 2 (2%), Referenced to phase 2:WBT and 6:EBT, Start of Yellow	

Splits and Phases: 7: Sir Francis Drake Blvd & Larkspur Landing (E)



Phase Number	1	2	4	5	6	8
Movement	WBL	EBT	SBTL	EBL	WBT	NBTL
Lead/Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize				Yes	Yes	
Recall Mode	None	C-Max	None	None	C-Min	None
Maximum Split (s)	15	65	30	15	65	30
Maximum Split (%)	13.6%	59.1%	27.3%	13.6%	59.1%	27.3%
Minimum Split (s)	10	16.6	17.2	10	28.9	16
Yellow Time (s)	3	3.6	3.2	3	3.9	3
All-Red Time (s)	1	1	1	1	1	1
Minimum Initial (s)	4	6	9	4	7	9
Vehicle Extension (s)	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0
Walk Time (s)					8	
Flash Dont Walk (s)					16	
Dual Entry	No	No	Yes	No	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	100.9	5.9	70.9	100.9	5.9	70.9
End Time (s)	5.9	70.9	100.9	5.9	70.9	100.9
Yield/Force Off (s)	1.9	66.3	96.7	1.9	66	96.9
Yield/Force Off 170(s)	1.9	66.3	96.7	1.9	50	96.9
Local Start Time (s)	34.9	49.9	4.9	34.9	49.9	4.9
Local Yield (s)	45.9	0.3	30.7	45.9	0	30.9
Local Yield 170(s)	45.9	0.3	30.7	45.9	94	30.9

Intersection Summary	
Cycle Length	110
Control Type	Actuated-Coordinated
Natural Cycle	100
Offset: 66 (60%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow	

Splits and Phases: 1: Sir Francis Drake Blvd & Wolfe Grade

Phase Number	1	2	4	6
Movement	WBL	EBT	NBL	WBT
Lead/Lag	Lead	Lag		
Lead-Lag Optimize				
Recall Mode	None	C-Min	None	C-Min
Maximum Split (s)	30	49.5	30.5	79.5
Maximum Split (%)	27.3%	45.0%	27.7%	72.3%
Minimum Split (s)	10	26.9	30.5	18.9
Yellow Time (s)	3	3.9	3.5	3.9
All-Red Time (s)	1	1	1	1
Minimum Initial (s)	4	7	8	7
Vehicle Extension (s)	3	3	3	3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)		8	8	
Flash Dont Walk (s)		14	18	
Dual Entry	No	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	99.4	19.4	68.9	99.4
End Time (s)	19.4	68.9	99.4	68.9
Yield/Force Off (s)	15.4	64	94.9	64
Yield/Force Off 170(s)	15.4	50	76.9	64
Local Start Time (s)	35.4	65.4	4.9	35.4
Local Yield (s)	61.4	0	30.9	0
Local Yield 170(s)	61.4	96	12.9	0

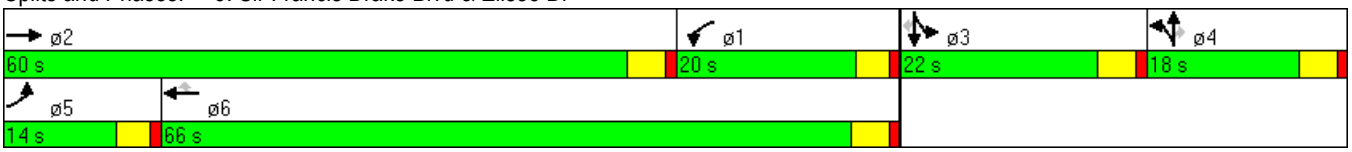
Intersection Summary	
Cycle Length	110
Control Type	Actuated-Coordinated
Natural Cycle	150
Offset: 64 (58%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow	

Splits and Phases: 2: Sir Francis Drake Blvd & Bon Air Rd

Phase Number	1	2	3	4	5	6
Movement	WBL	EBT	SBTL	NBTL	EBL	WBT
Lead/Lag	Lag	Lead	Lead	Lag	Lead	Lag
Lead-Lag Optimize			Yes	Yes		
Recall Mode	None	Min	None	None	None	Min
Maximum Split (s)	20	60	22	18	14	66
Maximum Split (%)	16.7%	50.0%	18.3%	15.0%	11.7%	55.0%
Minimum Split (s)	10	31.5	37.5	14.5	10	24.5
Yellow Time (s)	3	3.5	3.5	3.5	3	3.5
All-Red Time (s)	1	1	1	1	1	1
Minimum Initial (s)	6	9	10	10	6	9
Vehicle Extension (s)	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0
Walk Time (s)		7	7			7
Flash Dont Walk (s)		20	26			13
Dual Entry	No	Yes	No	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	60	0	80	102	0	14
End Time (s)	80	60	102	0	14	80
Yield/Force Off (s)	76	55.5	97.5	115.5	10	75.5
Yield/Force Off 170(s)	76	55.5	71.5	115.5	10	75.5
Local Start Time (s)	4.5	64.5	24.5	46.5	64.5	78.5
Local Yield (s)	20.5	0	42	60	74.5	20
Local Yield 170(s)	20.5	0	16	60	74.5	20

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Uncoordinated
Natural Cycle	145

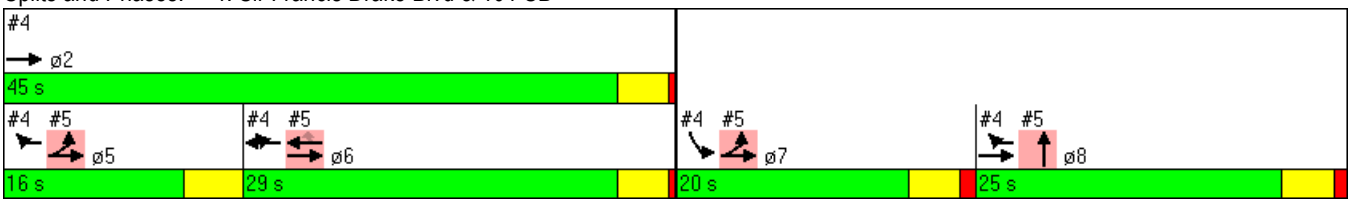
Splits and Phases: 3: Sir Francis Drake Blvd & Eliseo Dr



Phase Number	2	5	6	7	8
Node Number	4	4	4	4	4
Movement	EBT	WBR	WBT	SBL	EBT
Lead/Lag		Lead	Lag	Lead	Lag
Lead-Lag Optimize		Yes	Yes	Yes	Yes
Recall Mode	Min	None	Min	Max	None
Maximum Split (s)	45	16	29	20	25
Maximum Split (%)	50.0%	17.8%	32.2%	22.2%	27.8%
Minimum Split (s)	13.5	5	17.4	16.5	12
Yellow Time (s)	3.5	4	3.5	3.5	3.5
All-Red Time (s)	0.5	0	0.5	1	1
Minimum Initial (s)	9	1	13	12	4
Vehicle Extension (s)	3	3	3	3	3
Minimum Gap (s)	3.5	1.2	2	1	2
Time Before Reduce (s)	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0
Walk Time (s)					
Flash Dont Walk (s)					
Dual Entry	Yes	No	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes
Start Time (s)	0	0	16	45	65
End Time (s)	45	16	45	65	0
Yield/Force Off (s)	41	12	41	60.5	85.5
Yield/Force Off 170(s)	41	12	41	60.5	85.5
Local Start Time (s)	49	49	65	4	24
Local Yield (s)	0	61	0	19.5	44.5
Local Yield 170(s)	0	61	0	19.5	44.5

Intersection Summary	
Cycle Length	90
Control Type	Actuated-Uncoordinated
Natural Cycle	150

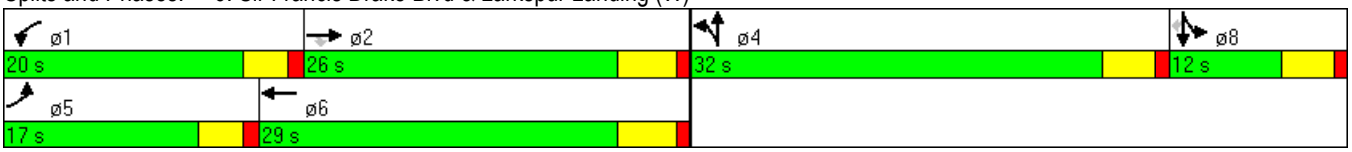
Splits and Phases: 4: Sir Francis Drake Blvd & 101 SB



Phase Number	1	2	4	5	6	8
Movement	WBL	EBT	NBTL	EBL	WBT	SBTL
Lead/Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize				Yes	Yes	
Recall Mode	None	C-Min	None	None	C-Min	None
Maximum Split (s)	20	26	32	17	29	12
Maximum Split (%)	22.2%	28.9%	35.6%	18.9%	32.2%	13.3%
Minimum Split (s)	10	31	33.5	10	36	13.5
Yellow Time (s)	3	4	3.5	3	4	3.5
All-Red Time (s)	1	1	1	1	1	1
Minimum Initial (s)	4	9	9	4	8	9
Vehicle Extension (s)	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0
Walk Time (s)		7	7		7	
Flash Dont Walk (s)		19	22		24	
Dual Entry	No	Yes	Yes	No	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	49	69	5	49	66	37
End Time (s)	69	5	37	66	5	49
Yield/Force Off (s)	65	0	32.5	62	0	44.5
Yield/Force Off 170(s)	65	71	10.5	62	66	44.5
Local Start Time (s)	49	69	5	49	66	37
Local Yield (s)	65	0	32.5	62	0	44.5
Local Yield 170(s)	65	71	10.5	62	66	44.5

Intersection Summary	
Cycle Length	90
Control Type	Actuated-Coordinated
Natural Cycle	145
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow	

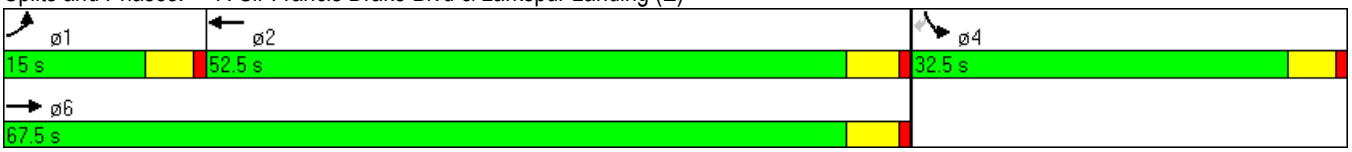
Splits and Phases: 6: Sir Francis Drake Blvd & Larkspur Landing (W)



Phase Number	1	2	4	6
Movement	EBL	WBT	SBL	EBT
Lead/Lag	Lead	Lag		
Lead-Lag Optimize				
Recall Mode	None	C-Min	None	C-Min
Maximum Split (s)	15	52.5	32.5	67.5
Maximum Split (%)	15.0%	52.5%	32.5%	67.5%
Minimum Split (s)	10	29.9	32.5	29.9
Yellow Time (s)	3.5	3.9	3.5	3.9
All-Red Time (s)	1	1	1	1
Minimum Initial (s)	4	8	9	8
Vehicle Extension (s)	3	3	3	3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)		7	7	7
Flash Dont Walk (s)		18	21	18
Dual Entry	No	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	37.4	52.4	4.9	37.4
End Time (s)	52.4	4.9	37.4	4.9
Yield/Force Off (s)	47.9	0	32.9	0
Yield/Force Off 170(s)	47.9	82	11.9	82
Local Start Time (s)	37.4	52.4	4.9	37.4
Local Yield (s)	47.9	0	32.9	0
Local Yield 170(s)	47.9	82	11.9	82

Intersection Summary	
Cycle Length	100
Control Type	Actuated-Coordinated
Natural Cycle	150
Offset: 0 (0%), Referenced to phase 2:WBT and 6:EBT, Start of Yellow	

Splits and Phases: 7: Sir Francis Drake Blvd & Larkspur Landing (E)



Phase Number	1	2	4	5	6	8
Movement	WBL	EBT	SBTL	EBL	WBT	NBTL
Lead/Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize				Yes	Yes	
Recall Mode	None	C-Max	None	None	C-Max	None
Maximum Split (s)	12	83	35	37	58	35
Maximum Split (%)	9.2%	63.8%	26.9%	28.5%	44.6%	26.9%
Minimum Split (s)	10	22.6	17.2	10	28.9	16
Yellow Time (s)	3	3.6	3.2	3	3.9	3
All-Red Time (s)	1	1	1	1	1	1
Minimum Initial (s)	4	6	9	4	7	9
Vehicle Extension (s)	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0
Walk Time (s)		8			8	
Flash Dont Walk (s)		10			16	
Dual Entry	No	Yes	Yes	No	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	89.9	101.9	54.9	89.9	126.9	54.9
End Time (s)	101.9	54.9	89.9	126.9	54.9	89.9
Yield/Force Off (s)	97.9	50.3	85.7	122.9	50	85.9
Yield/Force Off 170(s)	97.9	40.3	85.7	122.9	34	85.9
Local Start Time (s)	39.9	51.9	4.9	39.9	76.9	4.9
Local Yield (s)	47.9	0.3	35.7	72.9	0	35.9
Local Yield 170(s)	47.9	120.3	35.7	72.9	114	35.9

Intersection Summary	
Cycle Length	130
Control Type	Actuated-Coordinated
Natural Cycle	130
Offset: 50 (38%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow	

Splits and Phases: 1: Sir Francis Drake Blvd & Wolfe Grade

Phase Number	1	2	4	6
Movement	WBL	EBT	NBL	WBT
Lead/Lag	Lead	Lag		
Lead-Lag Optimize	Yes	Yes		
Recall Mode	None	C-Min	None	C-Min
Maximum Split (s)	26	59	45	85
Maximum Split (%)	20.0%	45.4%	34.6%	65.4%
Minimum Split (s)	10	26.9	30.5	11.9
Yellow Time (s)	3	3.9	3.5	3.9
All-Red Time (s)	1	1	1	1
Minimum Initial (s)	4	7	8	7
Vehicle Extension (s)	3	3	3	3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)		8	8	
Flash Dont Walk (s)		14	18	
Dual Entry	No	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	94.9	120.9	49.9	94.9
End Time (s)	120.9	49.9	94.9	49.9
Yield/Force Off (s)	116.9	45	90.4	45
Yield/Force Off 170(s)	116.9	31	72.4	45
Local Start Time (s)	49.9	75.9	4.9	49.9
Local Yield (s)	71.9	0	45.4	0
Local Yield 170(s)	71.9	116	27.4	0

Intersection Summary	
Cycle Length	130
Control Type	Actuated-Coordinated
Natural Cycle	110
Offset: 45 (35%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow	

Splits and Phases: 2: Sir Francis Drake Blvd & Bon Air Rd

Phase Number	1	2	3	4	5	6
Movement	WBL	EBT	SBTL	NBTL	EBL	WBT
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize			Yes	Yes		
Recall Mode	None	Min	None	None	None	Min
Maximum Split (s)	25	85	9	11	8	102
Maximum Split (%)	19.2%	65.4%	6.9%	8.5%	6.2%	78.5%
Minimum Split (s)	10	31.5	37.5	14.5	10	24.5
Yellow Time (s)	3	3.5	3.5	3.5	3	3.5
All-Red Time (s)	1	1	1	1	1	1
Minimum Initial (s)	6	9	10	10	6	9
Vehicle Extension (s)	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0
Walk Time (s)		7	7			7
Flash Dont Walk (s)		20	26			13
Dual Entry	No	Yes	No	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	0	25	110	119	0	8
End Time (s)	25	110	119	0	8	110
Yield/Force Off (s)	21	105.5	114.5	125.5	4	105.5
Yield/Force Off 170(s)	21	105.5	88.5	125.5	4	105.5
Local Start Time (s)	24.5	49.5	4.5	13.5	24.5	32.5
Local Yield (s)	45.5	0	9	20	28.5	0
Local Yield 170(s)	45.5	0	113	20	28.5	0

Intersection Summary	
Cycle Length	130
Control Type	Actuated-Uncoordinated
Natural Cycle	145

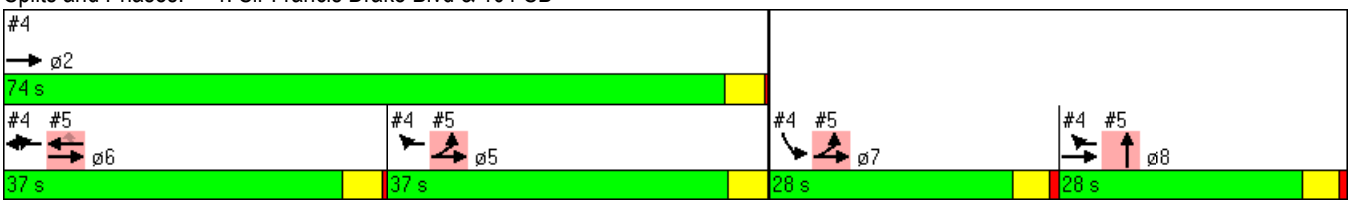
Splits and Phases: 3: Sir Francis Drake Blvd & Eliseo Dr

Phase Number	2	5	6	7	8
Node Number	4	4	4	4	4
Movement	EBT	WBR	WBT	SBL	EBT
Lead/Lag		Lag	Lead	Lead	Lag
Lead-Lag Optimize		Yes	Yes	Yes	Yes
Recall Mode	C-Min	None	C-Min	Min	None
Maximum Split (s)	74	37	37	28	28
Maximum Split (%)	56.9%	28.5%	28.5%	21.5%	21.5%
Minimum Split (s)	13.5	8	17.4	16.5	10
Yellow Time (s)	3.9	4	3.9	3.5	3.5
All-Red Time (s)	0.5	0	0.5	1	1
Minimum Initial (s)	9	4	13	12	4
Vehicle Extension (s)	4.5	3	3	2	3
Minimum Gap (s)	3.5	1.2	2	1	2
Time Before Reduce (s)	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0
Walk Time (s)					
Flash Dont Walk (s)					
Dual Entry	Yes	No	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes
Start Time (s)	113.4	20.4	113.4	57.4	85.4
End Time (s)	57.4	57.4	20.4	85.4	113.4
Yield/Force Off (s)	53	53.4	16	80.9	108.9
Yield/Force Off 170(s)	53	53.4	16	80.9	108.9
Local Start Time (s)	97.4	4.4	97.4	41.4	69.4
Local Yield (s)	37	37.4	0	64.9	92.9
Local Yield 170(s)	37	37.4	0	64.9	92.9

Intersection Summary	
Cycle Length	130
Control Type	Actuated-Coordinated
Natural Cycle	150

Offset: 16 (12%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow

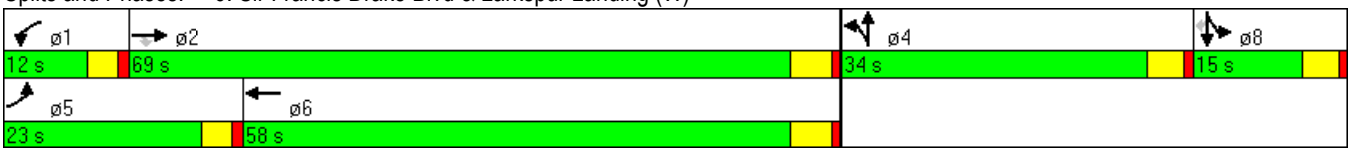
Splits and Phases: 4: Sir Francis Drake Blvd & 101 SB



Phase Number	1	2	4	5	6	8
Movement	WBL	EBT	NBTL	EBL	WBT	SBTL
Lead/Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize				Yes	Yes	
Recall Mode	None	C-Min	None	None	C-Min	None
Maximum Split (s)	12	69	34	23	58	15
Maximum Split (%)	9.2%	53.1%	26.2%	17.7%	44.6%	11.5%
Minimum Split (s)	10	31	33.5	10	36	13.5
Yellow Time (s)	3	4	3.5	3	4	3.5
All-Red Time (s)	1	1	1	1	1	1
Minimum Initial (s)	4	9	9	4	8	9
Vehicle Extension (s)	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0
Walk Time (s)		7	7		7	
Flash Dont Walk (s)		19	22		24	
Dual Entry	No	Yes	Yes	No	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	4	16	85	4	27	119
End Time (s)	16	85	119	27	85	4
Yield/Force Off (s)	12	80	114.5	23	80	129.5
Yield/Force Off 170(s)	12	61	92.5	23	56	129.5
Local Start Time (s)	54	66	5	54	77	39
Local Yield (s)	62	0	34.5	73	0	49.5
Local Yield 170(s)	62	111	12.5	73	106	49.5

Intersection Summary	
Cycle Length	130
Control Type	Actuated-Coordinated
Natural Cycle	145
Offset: 80 (62%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow	

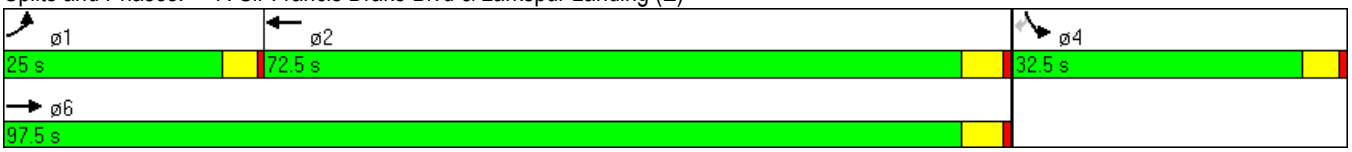
Splits and Phases: 6: Sir Francis Drake Blvd & Larkspur Landing (W)



Phase Number	1	2	4	6
Movement	EBL	WBT	SBL	EBT
Lead/Lag	Lead	Lag		
Lead-Lag Optimize	Yes	Yes		
Recall Mode	None	C-Min	None	C-Min
Maximum Split (s)	25	72.5	32.5	97.5
Maximum Split (%)	19.2%	55.8%	25.0%	75.0%
Minimum Split (s)	10	29.9	32.5	29.9
Yellow Time (s)	3.5	3.9	3.5	3.9
All-Red Time (s)	0.5	1	1	1
Minimum Initial (s)	4	8	9	8
Vehicle Extension (s)	3	3	3	3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)		7	7	7
Flash Dont Walk (s)		18	21	18
Dual Entry	No	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	21.4	46.4	118.9	21.4
End Time (s)	46.4	118.9	21.4	118.9
Yield/Force Off (s)	42.4	114	16.9	114
Yield/Force Off 170(s)	42.4	96	125.9	96
Local Start Time (s)	37.4	62.4	4.9	37.4
Local Yield (s)	58.4	0	32.9	0
Local Yield 170(s)	58.4	112	11.9	112

Intersection Summary	
Cycle Length	130
Control Type	Actuated-Coordinated
Natural Cycle	120
Offset: 114 (88%), Referenced to phase 2:WBT and 6:EBT, Start of Yellow	

Splits and Phases: 7: Sir Francis Drake Blvd & Larkspur Landing (E)



Phase Number	1	2	4	5	6	8
Movement	WBL	EBT	SBTL	EBL	WBT	NBTL
Lead/Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize				Yes	Yes	
Recall Mode	None	C-Max	None	None	C-Min	None
Maximum Split (s)	15	65	30	15	65	30
Maximum Split (%)	13.6%	59.1%	27.3%	13.6%	59.1%	27.3%
Minimum Split (s)	10	16.6	17.2	10	28.9	16
Yellow Time (s)	3	3.6	3.2	3	3.9	3
All-Red Time (s)	1	1	1	1	1	1
Minimum Initial (s)	4	6	9	4	7	9
Vehicle Extension (s)	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0
Walk Time (s)					8	
Flash Dont Walk (s)					16	
Dual Entry	No	No	Yes	No	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	100.9	5.9	70.9	100.9	5.9	70.9
End Time (s)	5.9	70.9	100.9	5.9	70.9	100.9
Yield/Force Off (s)	1.9	66.3	96.7	1.9	66	96.9
Yield/Force Off 170(s)	1.9	66.3	96.7	1.9	50	96.9
Local Start Time (s)	34.9	49.9	4.9	34.9	49.9	4.9
Local Yield (s)	45.9	0.3	30.7	45.9	0	30.9
Local Yield 170(s)	45.9	0.3	30.7	45.9	94	30.9

Intersection Summary	
Cycle Length	110
Control Type	Actuated-Coordinated
Natural Cycle	100
Offset: 66 (60%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow	

Splits and Phases: 1: Sir Francis Drake Blvd & Wolfe Grade

Phase Number	1	2	4	6
Movement	WBL	EBT	NBL	WBT
Lead/Lag	Lead	Lag		
Lead-Lag Optimize				
Recall Mode	None	C-Min	None	C-Min
Maximum Split (s)	30	49.5	30.5	79.5
Maximum Split (%)	27.3%	45.0%	27.7%	72.3%
Minimum Split (s)	10	26.9	30.5	18.9
Yellow Time (s)	3	3.9	3.5	3.9
All-Red Time (s)	1	1	1	1
Minimum Initial (s)	4	7	8	7
Vehicle Extension (s)	3	3	3	3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)		8	8	
Flash Dont Walk (s)		14	18	
Dual Entry	No	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	99.4	19.4	68.9	99.4
End Time (s)	19.4	68.9	99.4	68.9
Yield/Force Off (s)	15.4	64	94.9	64
Yield/Force Off 170(s)	15.4	50	76.9	64
Local Start Time (s)	35.4	65.4	4.9	35.4
Local Yield (s)	61.4	0	30.9	0
Local Yield 170(s)	61.4	96	12.9	0

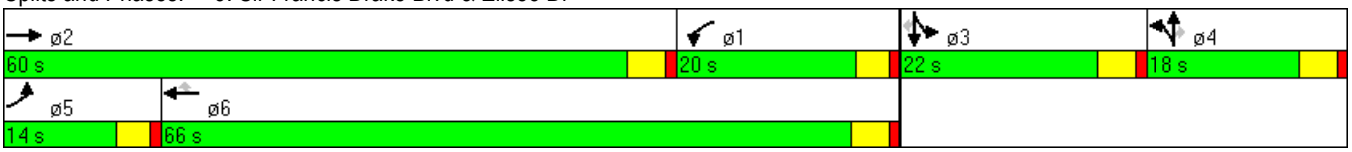
Intersection Summary	
Cycle Length	110
Control Type	Actuated-Coordinated
Natural Cycle	150
Offset: 64 (58%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow	

Splits and Phases: 2: Sir Francis Drake Blvd & Bon Air Rd

Phase Number	1	2	3	4	5	6
Movement	WBL	EBT	SBTL	NBTL	EBL	WBT
Lead/Lag	Lag	Lead	Lead	Lag	Lead	Lag
Lead-Lag Optimize			Yes	Yes		
Recall Mode	None	Min	None	None	None	Min
Maximum Split (s)	20	60	22	18	14	66
Maximum Split (%)	16.7%	50.0%	18.3%	15.0%	11.7%	55.0%
Minimum Split (s)	10	31.5	37.5	14.5	10	24.5
Yellow Time (s)	3	3.5	3.5	3.5	3	3.5
All-Red Time (s)	1	1	1	1	1	1
Minimum Initial (s)	6	9	10	10	6	9
Vehicle Extension (s)	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0
Walk Time (s)		7	7			7
Flash Dont Walk (s)		20	26			13
Dual Entry	No	Yes	No	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	60	0	80	102	0	14
End Time (s)	80	60	102	0	14	80
Yield/Force Off (s)	76	55.5	97.5	115.5	10	75.5
Yield/Force Off 170(s)	76	55.5	71.5	115.5	10	75.5
Local Start Time (s)	4.5	64.5	24.5	46.5	64.5	78.5
Local Yield (s)	20.5	0	42	60	74.5	20
Local Yield 170(s)	20.5	0	16	60	74.5	20

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Uncoordinated
Natural Cycle	145

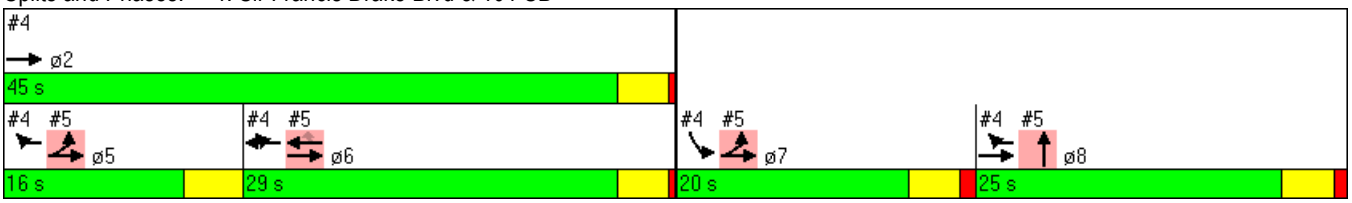
Splits and Phases: 3: Sir Francis Drake Blvd & Eliseo Dr



Phase Number	2	5	6	7	8
Node Number	4	4	4	4	4
Movement	EBT	WBR	WBT	SBL	EBT
Lead/Lag		Lead	Lag	Lead	Lag
Lead-Lag Optimize		Yes	Yes	Yes	Yes
Recall Mode	Min	None	Min	Max	None
Maximum Split (s)	45	16	29	20	25
Maximum Split (%)	50.0%	17.8%	32.2%	22.2%	27.8%
Minimum Split (s)	13.5	5	17.4	16.5	12
Yellow Time (s)	3.5	4	3.5	3.5	3.5
All-Red Time (s)	0.5	0	0.5	1	1
Minimum Initial (s)	9	1	13	12	4
Vehicle Extension (s)	3	3	3	3	3
Minimum Gap (s)	3.5	1.2	2	1	2
Time Before Reduce (s)	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0
Walk Time (s)					
Flash Dont Walk (s)					
Dual Entry	Yes	No	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes
Start Time (s)	0	0	16	45	65
End Time (s)	45	16	45	65	0
Yield/Force Off (s)	41	12	41	60.5	85.5
Yield/Force Off 170(s)	41	12	41	60.5	85.5
Local Start Time (s)	49	49	65	4	24
Local Yield (s)	0	61	0	19.5	44.5
Local Yield 170(s)	0	61	0	19.5	44.5

Intersection Summary	
Cycle Length	90
Control Type	Actuated-Uncoordinated
Natural Cycle	150

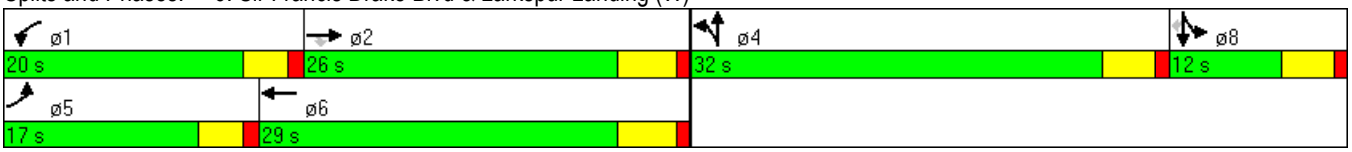
Splits and Phases: 4: Sir Francis Drake Blvd & 101 SB



Phase Number	1	2	4	5	6	8
Movement	WBL	EBT	NBTL	EBL	WBT	SBTL
Lead/Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize				Yes	Yes	
Recall Mode	None	C-Min	None	None	C-Min	None
Maximum Split (s)	20	26	32	17	29	12
Maximum Split (%)	22.2%	28.9%	35.6%	18.9%	32.2%	13.3%
Minimum Split (s)	10	31	33.5	10	36	13.5
Yellow Time (s)	3	4	3.5	3	4	3.5
All-Red Time (s)	1	1	1	1	1	1
Minimum Initial (s)	4	9	9	4	8	9
Vehicle Extension (s)	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0
Walk Time (s)		7	7		7	
Flash Dont Walk (s)		19	22		24	
Dual Entry	No	Yes	Yes	No	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	49	69	5	49	66	37
End Time (s)	69	5	37	66	5	49
Yield/Force Off (s)	65	0	32.5	62	0	44.5
Yield/Force Off 170(s)	65	71	10.5	62	66	44.5
Local Start Time (s)	49	69	5	49	66	37
Local Yield (s)	65	0	32.5	62	0	44.5
Local Yield 170(s)	65	71	10.5	62	66	44.5

Intersection Summary	
Cycle Length	90
Control Type	Actuated-Coordinated
Natural Cycle	145
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow	

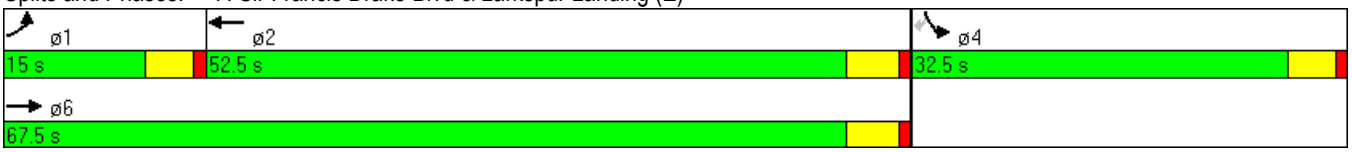
Splits and Phases: 6: Sir Francis Drake Blvd & Larkspur Landing (W)



Phase Number	1	2	4	6
Movement	EBL	WBT	SBL	EBT
Lead/Lag	Lead	Lag		
Lead-Lag Optimize				
Recall Mode	None	C-Min	None	C-Min
Maximum Split (s)	15	52.5	32.5	67.5
Maximum Split (%)	15.0%	52.5%	32.5%	67.5%
Minimum Split (s)	10	29.9	32.5	29.9
Yellow Time (s)	3.5	3.9	3.5	3.9
All-Red Time (s)	1	1	1	1
Minimum Initial (s)	4	8	9	8
Vehicle Extension (s)	3	3	3	3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)		7	7	7
Flash Dont Walk (s)		18	21	18
Dual Entry	No	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	37.4	52.4	4.9	37.4
End Time (s)	52.4	4.9	37.4	4.9
Yield/Force Off (s)	47.9	0	32.9	0
Yield/Force Off 170(s)	47.9	82	11.9	82
Local Start Time (s)	37.4	52.4	4.9	37.4
Local Yield (s)	47.9	0	32.9	0
Local Yield 170(s)	47.9	82	11.9	82

Intersection Summary	
Cycle Length	100
Control Type	Actuated-Coordinated
Natural Cycle	150
Offset: 0 (0%), Referenced to phase 2:WBT and 6:EBT, Start of Yellow	

Splits and Phases: 7: Sir Francis Drake Blvd & Larkspur Landing (E)



Phase Number	1	2	4	5	6	8
Movement	WBL	EBT	SBTL	EBL	WBT	NBTL
Lead/Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize				Yes	Yes	
Recall Mode	None	C-Max	None	None	C-Max	None
Maximum Split (s)	12	83	35	37	58	35
Maximum Split (%)	9.2%	63.8%	26.9%	28.5%	44.6%	26.9%
Minimum Split (s)	10	22.6	17.2	10	28.9	16
Yellow Time (s)	3	3.6	3.2	3	3.9	3
All-Red Time (s)	1	1	1	1	1	1
Minimum Initial (s)	4	6	9	4	7	9
Vehicle Extension (s)	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0
Walk Time (s)		8			8	
Flash Dont Walk (s)		10			16	
Dual Entry	No	Yes	Yes	No	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	89.9	101.9	54.9	89.9	126.9	54.9
End Time (s)	101.9	54.9	89.9	126.9	54.9	89.9
Yield/Force Off (s)	97.9	50.3	85.7	122.9	50	85.9
Yield/Force Off 170(s)	97.9	40.3	85.7	122.9	34	85.9
Local Start Time (s)	39.9	51.9	4.9	39.9	76.9	4.9
Local Yield (s)	47.9	0.3	35.7	72.9	0	35.9
Local Yield 170(s)	47.9	120.3	35.7	72.9	114	35.9

Intersection Summary	
Cycle Length	130
Control Type	Actuated-Coordinated
Natural Cycle	130
Offset: 50 (38%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow	

Splits and Phases: 1: Sir Francis Drake Blvd & Wolfe Grade

Phase Number	1	2	4	6
Movement	WBL	EBT	NBL	WBT
Lead/Lag	Lead	Lag		
Lead-Lag Optimize	Yes	Yes		
Recall Mode	None	C-Min	None	C-Min
Maximum Split (s)	26	59	45	85
Maximum Split (%)	20.0%	45.4%	34.6%	65.4%
Minimum Split (s)	10	26.9	30.5	11.9
Yellow Time (s)	3	3.9	3.5	3.9
All-Red Time (s)	1	1	1	1
Minimum Initial (s)	4	7	8	7
Vehicle Extension (s)	3	3	3	3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)		8	8	
Flash Dont Walk (s)		14	18	
Dual Entry	No	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	94.9	120.9	49.9	94.9
End Time (s)	120.9	49.9	94.9	49.9
Yield/Force Off (s)	116.9	45	90.4	45
Yield/Force Off 170(s)	116.9	31	72.4	45
Local Start Time (s)	49.9	75.9	4.9	49.9
Local Yield (s)	71.9	0	45.4	0
Local Yield 170(s)	71.9	116	27.4	0

Intersection Summary	
Cycle Length	130
Control Type	Actuated-Coordinated
Natural Cycle	110
Offset: 45 (35%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow	

Splits and Phases: 2: Sir Francis Drake Blvd & Bon Air Rd

Phase Number	1	2	3	4	5	6
Movement	WBL	EBT	SBTL	NBTL	EBL	WBT
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize			Yes	Yes		
Recall Mode	None	Min	None	None	None	Min
Maximum Split (s)	25	85	9	11	8	102
Maximum Split (%)	19.2%	65.4%	6.9%	8.5%	6.2%	78.5%
Minimum Split (s)	10	31.5	37.5	14.5	10	24.5
Yellow Time (s)	3	3.5	3.5	3.5	3	3.5
All-Red Time (s)	1	1	1	1	1	1
Minimum Initial (s)	6	9	10	10	6	9
Vehicle Extension (s)	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0
Walk Time (s)		7	7			7
Flash Dont Walk (s)		20	26			13
Dual Entry	No	Yes	No	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	0	25	110	119	0	8
End Time (s)	25	110	119	0	8	110
Yield/Force Off (s)	21	105.5	114.5	125.5	4	105.5
Yield/Force Off 170(s)	21	105.5	88.5	125.5	4	105.5
Local Start Time (s)	24.5	49.5	4.5	13.5	24.5	32.5
Local Yield (s)	45.5	0	9	20	28.5	0
Local Yield 170(s)	45.5	0	113	20	28.5	0

Intersection Summary	
Cycle Length	130
Control Type	Actuated-Uncoordinated
Natural Cycle	145

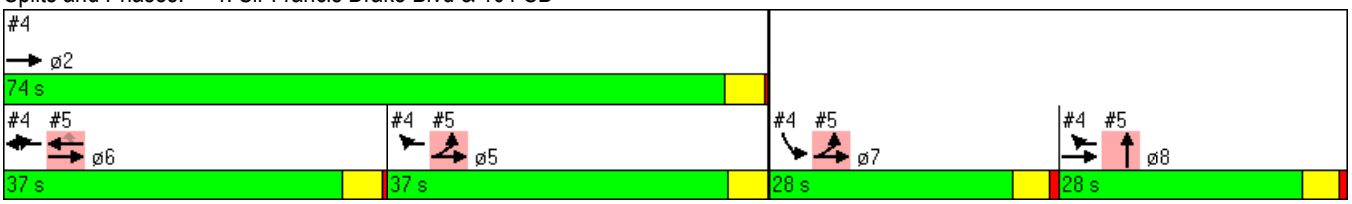
Splits and Phases: 3: Sir Francis Drake Blvd & Eliseo Dr

Phase Number	2	5	6	7	8
Node Number	4	4	4	4	4
Movement	EBT	WBR	WBT	SBL	EBT
Lead/Lag		Lag	Lead	Lead	Lag
Lead-Lag Optimize		Yes	Yes	Yes	Yes
Recall Mode	C-Min	None	C-Min	Min	None
Maximum Split (s)	74	37	37	28	28
Maximum Split (%)	56.9%	28.5%	28.5%	21.5%	21.5%
Minimum Split (s)	13.5	8	17.4	16.5	10
Yellow Time (s)	3.9	4	3.9	3.5	3.5
All-Red Time (s)	0.5	0	0.5	1	1
Minimum Initial (s)	9	4	13	12	4
Vehicle Extension (s)	4.5	3	3	2	3
Minimum Gap (s)	3.5	1.2	2	1	2
Time Before Reduce (s)	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0
Walk Time (s)					
Flash Dont Walk (s)					
Dual Entry	Yes	No	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes
Start Time (s)	113.4	20.4	113.4	57.4	85.4
End Time (s)	57.4	57.4	20.4	85.4	113.4
Yield/Force Off (s)	53	53.4	16	80.9	108.9
Yield/Force Off 170(s)	53	53.4	16	80.9	108.9
Local Start Time (s)	97.4	4.4	97.4	41.4	69.4
Local Yield (s)	37	37.4	0	64.9	92.9
Local Yield 170(s)	37	37.4	0	64.9	92.9

Intersection Summary	
Cycle Length	130
Control Type	Actuated-Coordinated
Natural Cycle	150

Offset: 16 (12%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow

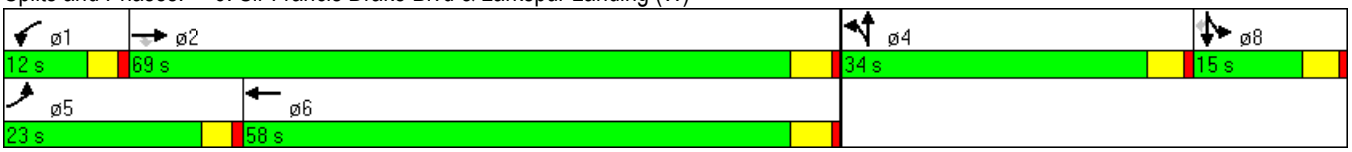
Splits and Phases: 4: Sir Francis Drake Blvd & 101 SB



Phase Number	1	2	4	5	6	8
Movement	WBL	EBT	NBTL	EBL	WBT	SBTL
Lead/Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize				Yes	Yes	
Recall Mode	None	C-Min	None	None	C-Min	None
Maximum Split (s)	12	69	34	23	58	15
Maximum Split (%)	9.2%	53.1%	26.2%	17.7%	44.6%	11.5%
Minimum Split (s)	10	31	33.5	10	36	13.5
Yellow Time (s)	3	4	3.5	3	4	3.5
All-Red Time (s)	1	1	1	1	1	1
Minimum Initial (s)	4	9	9	4	8	9
Vehicle Extension (s)	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0
Walk Time (s)		7	7		7	
Flash Dont Walk (s)		19	22		24	
Dual Entry	No	Yes	Yes	No	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	4	16	85	4	27	119
End Time (s)	16	85	119	27	85	4
Yield/Force Off (s)	12	80	114.5	23	80	129.5
Yield/Force Off 170(s)	12	61	92.5	23	56	129.5
Local Start Time (s)	54	66	5	54	77	39
Local Yield (s)	62	0	34.5	73	0	49.5
Local Yield 170(s)	62	111	12.5	73	106	49.5

Intersection Summary	
Cycle Length	130
Control Type	Actuated-Coordinated
Natural Cycle	145
Offset: 80 (62%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow	

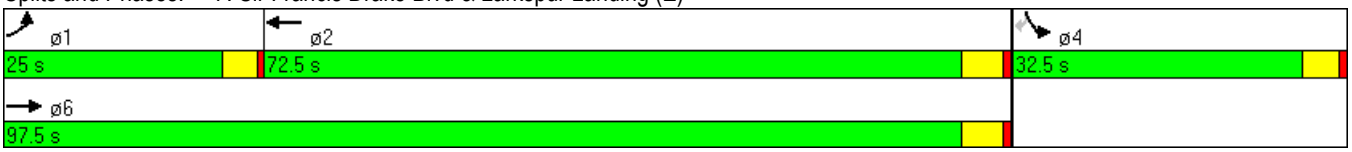
Splits and Phases: 6: Sir Francis Drake Blvd & Larkspur Landing (W)



Phase Number	1	2	4	6
Movement	EBL	WBT	SBL	EBT
Lead/Lag	Lead	Lag		
Lead-Lag Optimize	Yes	Yes		
Recall Mode	None	C-Min	None	C-Min
Maximum Split (s)	25	72.5	32.5	97.5
Maximum Split (%)	19.2%	55.8%	25.0%	75.0%
Minimum Split (s)	10	29.9	32.5	29.9
Yellow Time (s)	3.5	3.9	3.5	3.9
All-Red Time (s)	0.5	1	1	1
Minimum Initial (s)	4	8	9	8
Vehicle Extension (s)	3	3	3	3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)		7	7	7
Flash Dont Walk (s)		18	21	18
Dual Entry	No	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	21.4	46.4	118.9	21.4
End Time (s)	46.4	118.9	21.4	118.9
Yield/Force Off (s)	42.4	114	16.9	114
Yield/Force Off 170(s)	42.4	96	125.9	96
Local Start Time (s)	37.4	62.4	4.9	37.4
Local Yield (s)	58.4	0	32.9	0
Local Yield 170(s)	58.4	112	11.9	112

Intersection Summary	
Cycle Length	130
Control Type	Actuated-Coordinated
Natural Cycle	120
Offset: 114 (88%), Referenced to phase 2:WBT and 6:EBT, Start of Yellow	

Splits and Phases: 7: Sir Francis Drake Blvd & Larkspur Landing (E)



APPENDIX B-3

MAINLINE ANALYSIS

Existing Freeway PM Peak-Hour V/C Ratio and LOS					
Freeway Segment	Direction	Existing Volume	Theoretical Capacity	V/C	LOS
Hwy 101, N of SFDB (A)	NB	5920	9900	0.60	A
Hwy 101, N of Industrial (B)	NB	7910	8800	0.90	D
Hwy 101, N of Tamalpais, S of Industrial (C)	NB	7120	7700	0.92	E
Hwy 101, N of SFDB (A)	SB	5370	9900	0.54	A
Hwy 101, N of Fifer (B)	SB	6650	8800	0.76	C
Hwy 101, N of Madera, S of Fifer (C)	SB	6190	8800	0.70	C

Existing + Project Freeway PM Peak-Hour V/C Ratio and LOS					
Freeway Segment	Direction	Existing + Project Volume	Theoretical Capacity	V/C	LOS
Hwy 101, N of SFDB (A)	NB	5938	9900	0.60	A
Hwy 101, N of Industrial (B)	NB	8064	8800	0.92	E
Hwy 101, N of Tamalpais, S of Madera (D)	NB	7247	7700	0.94	E
Hwy 101, N of SFDB (A)	SB	5420	9900	0.55	A
Hwy 101, N of Fifer (B)	SB	6725	8800	0.76	C
Hwy 101, N of Madera, S of Fifer (C)	SB	6250	8800	0.71	C

Cumulative Freeway PM Peak-Hour V/C Ratio and LOS					
Freeway Segment	Direction	Cumulative Volume	Theoretical Capacity	V/C	LOS
Hwy 101, N of SFDB (A)	NB	7200	9900	0.73	C
Hwy 101, N of Industrial (B)	NB	9440	8800	1.07	F
Hwy 101, N of Tamalpais, S of Madera (D)	NB	7930	7700	1.03	F
Hwy 101, N of SFDB (A)	SB	6850	9900	0.69	B
Hwy 101, N of Fifer (B)	SB	8580	8800	0.98	E
Hwy 101, N of Madera, S of Fifer (C)	SB	7890	8800	0.90	D

Cumulative + Project Freeway PM Peak-Hour V/C Ratio and LOS					
Freeway Segment	Direction	Cumulative + Project Volume	Theoretical Capacity	V/C	LOS
Hwy 101, N of SFDB (A)	NB	7218	9900	0.73	C
Hwy 101, N of Industrial (B)	NB	9594	8800	1.09	F
Hwy 101, N of Tamalpais, S of Madera (D)	NB	8057	7700	1.05	F
Hwy 101, N of SFDB (A)	SB	6900	9900	0.70	B
Hwy 101, N of Fifer (B)	SB	8655	8800	0.98	E
Hwy 101, N of Madera, S of Fifer (C)	SB	7950	8800	0.90	E

APPENDIX C

EIR TRAFFIC ANALYSIS ASSUMPTIONS MEMO

FEHR PEERS

MEMORANDUM

Date:	March 14, 2013 (Updated March 20, 2013)
To:	Neal Toft and Julia Capasso, City of Larkspur
CC:	Amy Paulsen, LSA Associates Barbara Maloney and Elizabeth Foster, BMS David Parisi, Parisi Associates
From:	Matt Goyne and Bob Grandy, Fehr & Peers
Subject:	**Larkspur SMART Station Area Plan: Draft EIR Traffic Analysis Assumptions**

SF12-0625

This memorandum documents the traffic analysis assumptions for the Larkspur SMART Station Area Plan Environmental Impact Report (EIR). The development plan for the Larkspur SMART Station Area Plan ("Proposed Project") includes a mix of new residential, retail, and office space in the Station Area Plan. The assumptions documented in this memorandum include the trip generation, distribution, and assignment for the Proposed Project as well as a list of study intersections. Finally, Cumulative Baseline assumptions are presented.

PROJECT DESCRIPTION

Table 1 shows the land uses included in the Proposed Project. The Proposed Project includes new land uses in two locations: Larkspur Landing and the Ferry Terminal (Sub-Area 1a) and Drakes Landing (Sub-Area 1b). The trip generation is calculated separately for each of these two sub-areas as they will have different trip generation characteristics.

TABLE 1: OPPORTUNITY SITE DEVELOPMENT PROJECTIONS SUMMARY

Opportunity Site	Existing		Proposed Development		Proposed Project	
	Type	Amount	Type	Amount	Type	Amount
Larkspur Landing and the Ferry Terminal (Sub-Area 1a) [1]						
1. Ferry Terminal	Public Facility	25,000 sf	Residential Retail	300 DU 2,500 sf	Residential Retail Public Facility	300 DU 2,500 sf 25,000 sf
2. Airporter	Public Facility	2,500 sf	Transit Parking	--	Public Facility Transit Parking	2,500 sf --
3. Larkspur Offices and Cinema	Office Cinema	190,000 sf 16,000 sf	Office Retail	50,000 sf 35,000 sf	Office Retail Cinema	240,000 sf 35,000 sf 16,000 sf
4. Marin Country Mart	Office Retail	45,000 sf 175,000 sf	Residential Retail	300 DU 40,000 sf	Residential Retail	300 DU 215,000 sf
6. Sanitary District	Vacant	--	Residential Hotel Office	250 DU 60,000 sf 12,500 sf	Residential Hotel Office	250 DU 60,000 sf 12,500 sf
Drakes Landing (Sub-Area 1b)						
7. Drake's Landing	Office	126,000 sf	Residential	70 DU	Residential Office	70 DU 126,000 sf
8. Offices	Office	18,000 sf	Office	22,000 sf	Office	40,000 sf

Notes:

1. Existing residential land uses and the hotel at Larkspur Landing will not change as a part of the proposed project and therefore are not shown in the above table.

Source: Larkspur SMART Station Area Plan Project Description, February 27, 2013

TRIP GENERATION

Background Information

Methods commonly used by traffic engineers overestimate the impacts of mixed-use development because they do not accurately reflect the amount of internal trip linking or the level of trips made by transit, biking, and/or walking. This results in increased development costs

due to oversized infrastructure, skewed public perception, and resistance to approving smart growth. The Institute of Transportation Engineers (ITE) *Trip Generation Handbook* does not adequately account for key variables that influence travel such as development density and scale, location efficiency, land use mix, urban design and transit orientation. For 27 mixed-use sites that were surveyed, the ITE Handbook methodology overestimated daily traffic generation by 24% and peak hour traffic by 35% to 37%.

Two significant new research studies provide the opportunity to improve the state of practice. One study sponsored by the US EPA[1] and another by the Transportation Research Board[2] have developed means to improve trip generation estimation for mixed-use development (MXD). The two studies examined over 260 mixed-use development sites throughout the U.S. and, using different approaches, developed new quantification methods. Fehr & Peers has reviewed the two methods, including the basis, capabilities, and appropriate uses of each, to produce a new method (MXD+) that combines the strengths of the two individual advances to best practice. MXD+ recognizes that traffic generation by mixed-use and other forms of sustainable development relate closely to the density, diversity, design, destination accessibility, transit proximity, and scale of development.

The MXD+ method explains 97% of the variation in trip generation among mixed-use developments, compared to 65% for the methods previously recommended by ITE. While remaining slightly (2%-4%) conservative to avoid systematically understating impacts, it substantially reduces the 35% - 37% average overestimate of traffic generation produced by conventional ITE methods.

MXD+ improves the accuracy of impact estimation and gives planners a tool to rationally balance land use mix and to incorporate urban design, context compatibility, and transit orientation to create lower impact development.

---

[1] *Traffic Generated by Mixed-Use Developments—A Six-Region Study Using Consistent Built Environmental Measures* (Ewing et al, ASCE UP0146, Sept 2011)

[2] National Cooperative Highway Research Program (NCHRP) Report 684 *Enhancing Internal Trip Capture Estimation for Mixed-Use Developments* (Bochner et al, March 2011)

Plan+ Validation

The Plan+ quick-response tool developed by Fehr & Peers was used to develop trip generation estimates. Plan+ includes individual tools such as MXD+, the Urban Land Institute's (ULI) Shared Parking tool, and Fehr & Peer's vehicle miles travelled (VMT) tool. Plan+ uses built environment factors such as the density and diversity of land uses, design of the pedestrian and bicycling environment, demographics of the site, and distance to transit to develop more realistic trip generation estimates for mixed-use and transit oriented developments than traditional traffic engineering methods. This tool has been locally validated to dozens of transit oriented development (TOD) sites in the Bay Area and across the country. Outputs of this tool include external vehicle trip generation, internal trips, external walking/bicycling/transit trips, greenhouse gas reductions, and shared parking demand.

The trip generation model was applied to the existing land uses at Larkspur Landing area (Sub-Area 1a) shown in **Table 2**. The model was validated to Sub-Area 1a by comparing the model outputs to the existing traffic counts. The results of the validation process shown in **Table 3** indicate that the Plan+ tool is well calibrated to the existing land uses, and better suited than ITE at accurately predicting peak hour trip generation at this type of mixed-use development.

TABLE 2: LARKSPUR LANDING EXISTING LAND USES

Land Use	Quantity	Units	ITE Code
Single Family Residential	120	DU	210
Multi-Family Residential	500	DU	220
General Retail	140	ksf	820
Bank[1]	5	ksf	912
Health Club[1]	20	ksf	492
Sit-Down Restaurant[1]	10	ksf	932
General Office	336	ksf	710
Hotel	137	Rooms	310
Movie Theater	4	Screens	445

Notes: DU = dwelling units. KSF = 1,000 square feet.

1. Existing land uses at time the parking counts were collected in September 2012. Remaining retail site was assumed to act as a shopping center with a mix of retail uses.

Source: *Larkspur SMART Station Area Plan - Market Analysis*, BAE, July 2012, Fehr & Peers, March 2013.

TABLE 3: PLAN+ MODEL VALIDATION		
Type of Trip	**Peak Hour Trip Generation**	
	AM	**PM**
ITE *Trip Generation* Prediction	1,310	2,120
Plan+ Tool Trip Generation Prediction	1,070	1,630
Larkspur Ferry Terminal (from counts)	770	630
ITE Total	**2,080**	**2,750**
Plan+ Total	**1,840**	**2,260**
Existing Driveway Counts[1]	1,730	2,340
Difference between ITE and Counts	+20.2%	+17.5%
Difference between Plan+ and Counts	+6.4%	-3.4%
Source: Fehr & Peers, March 2013.		

In addition to this local validation, the Plan+ model (through its use of MXD methods) has been approved for use by the EPA[3], peer-reviewed in the ASCE Journal of Urban Planning and Development[4], peer-reviewed in a 2012 TRB paper evaluating various smart growth trip generation methodologies[5], recommended by SANDAG for use on mixed-use smart growth developments[6], and has been used successfully in multiple certified EIRs in California. **Appendix A** presents a list of certified EIRs that have used Plan+ or its predecessors.

The Plan+ model was not applied to Drakes Landing due to the relatively low amount of development that is proposed for this location.

---

[3] Trip Generation Tool for Mixed-Use Developments (2012). www.epa.gov/dced/mxd_tripgeneration.html

[4] "Traffic Generated by Mixed-Use Developments—Six-Region Study Using Consistent Built Environmental Measures." Journal of Urban Planning and Development, 137(3), 248–261.

[5] Shafizadeh, Kevan et al. "Evaluation of the Operation and Accuracy of Available Smart Growth Trip Generation Methodologies for Use in California". Presented at 91st Annual Meeting of the Transportation Research Board, Washington, D.C., 2012.

[6] SANDAG Smart Growth Trip Generation and Parking Study.
http://www.sandag.org/index.asp?projectid=378&fuseaction=projects.detail

Comparisons with Mode Share Data

2000 Bay Area Travel Survey (BATS) data was used to check the reasonability of the Plan+ tool results presented above.

BATS 2000 provides mode share tables that include all trip purposes. **Table 4** presents the mode share data for North Bay and Bay Area residents. The data shows that when all trip purposes are considered that the Proposed Project forecasts of non-auto travel are higher than those in the North Bay (Marin, Sonoma and Napa Counties) but comparable to those for the Bay Area as a whole.

TABLE 4: BAY AREA TRAVEL SURVEY DAILY MODE SHARE

Mode	North Bay	Bay Area	Proposed Project
Automobile	87%	80%	81%
Non-Motorized[1]	13%	20%	19%

1. Non-motorized includes walking, biking, and transit. Internalization as measured by Plan+ was assumed to be non-motorized within the site. BATS did not collect internalization specific data.

Source: Bay Area Travel Survey (BATS) 2000, as summarized by Fehr & Peers, March 2013.

Project Trip Generation

To estimate trip generation of the Proposed Project, adjustments to the Plan+ Tool were made to account for the improved density and diversity of land uses, pedestrian and bicycle connectivity, and transit service in the future. **Appendix B** presents the input values and data sources for the Plan+ tool. **Table 5** summarizes the estimated trip generation for the Proposed Project using the Plan+ tool.

As shown in **Table 5**, the Proposed Project is estimated to generate about 2,200 AM peak hour trips and 2,670 PM peak hour trips. The Proposed Project would generate 18 percent more trips than the existing land uses.

TABLE 5: LARKSPUR LANDING EXTERNAL VEHICLE TRIP GENERATION COMPARISON				
	Existing[1]		**Proposed Project[1]**	
	AM	**PM**	**AM**	**PM**
Larkspur Landing	1,070	1,630	1,360	2,040
Larkspur Ferry Terminal	770	630	770	630
Total	**1,840**	**2,260**	**2,130**	**2,670**
Percent Increase from Existing	--	--	16%	18%

Notes: Trip generation numbers are rounded for this summary.

1. The existing trip generation includes an 18% and 23% reduction when compared to ITE estimates for the AM and PM peak hours respectively.
2. The proposed project trip generation includes a 25% and 29% reduction when compared to ITE estimates for the AM and PM peak hours respectively.

Source: Fehr & Peers, March 2013.

Table 6 shows the net new trip generation for the proposed land uses at Larkspur Landing. **Table 7** shows the new trips that will be generated by the proposed land uses at Drakes Landing.

TABLE 6: LARKSPUR LANDING VEHICLE TRIP GENERATION										
Land Use	**Quantity**	**Units[1]**	**ITE Code**	**Daily**	**AM Peak Hour**			**PM Peak Hour**		
					In	**Out**	**Total**	**In**	**Out**	**Total**
Single Family Residential[2]	120	DU	210	1,230	23	70	93	78	46	124
Multi-Family Residential[3]	1,350	DU	220	8,305	133	532	665	494	266	760
General Retail[4]	215	ksf	820	11,169	148	94	242	520	542	1,062
Bank[5]	5	ksf	912	741	35	27	62	65	65	129
Health Club[6]	20	ksf	492	659	13	15	28	40	31	71
Sit-Down Restaurant[7]	10	ksf	932	1,272	60	55	115	66	46	112
General Office[8]	354	ksf	710	3,527	453	62	515	81	394	475
Hotel[9]	168	Rooms	310	1,373	57	37	94	52	47	99

Movie Theater[10]	4	Screens	445	701	0	0	0	25	30	55
Sub-Total (ITE External Vehicle Estimate)				*28,977*	*922*	*892*	*1,814*	*1,421*	*1,467*	*2,887*
ITE Reductions[11]				19%	25%			29%		
Sub-Total after Reductions				23,471	692	669	1,361	1,009	1,042	2,050
Existing Trips[12]				*-15,969*	*-563*	*-387*	*-950*	*-693*	*-898*	*-1,591*
Net New Project Trips				**7,502**	**129**	**282**	**411**	**316**	**144**	**459**

Notes:

1. DU = dwelling units. KSF = 1,000 square feet.
2. ITE *Trip Generation (8th Edition)* land use category 210 (Single-Family Detached):
   Daily: Ln(T) = 0.92*ln(X) + 2.71
   AM Peak Hour: T = 0.70(X) + 9.74 (25% in, 75% out)
   PM Peak Hour: Ln(T) = 0.90*ln(X) + 0.51 (63% in, 37% out)
3. ITE *Trip Generation (8th Edition)* land use category 220 (Apartment):
   Daily: T = 6.06(X) + 123.56
   AM Peak Hour: T = 0.49(X) + 3.73 (20% in, 80% out)
   PM Peak Hour: T = 0.55(X) + 17.65 (65% in, 35% out)
4. ITE *Trip Generation (8th Edition)* land use category 820 (Shopping Center):
   Daily: Ln(T) = 0.65*ln(X) + 5.83
   AM Peak Hour: Ln(T) = 0.59*ln(X) + 2.32 (61% in, 39% out)
   PM Peak Hour: Ln(T) = 0.67*ln(X) + 3.37 (49% in, 51% out)
5. ITE *Trip Generation (8th Edition)* land use category 912 (Drive-in Bank):
   Daily: T = 148.15(X)
   AM Peak Hour: T = 12.35(X) (56% in, 44% out)
   PM Peak Hour: 25.82(X) (50% in, 50% out)
6. ITE *Trip Generation (8th Edition)* land use category 492 (Health/Fitness Club):
   Daily: T = 32.93(X)
   AM Peak Hour: T = 1.38(X) (45% in, 55% out)
   PM Peak Hour: T = 3.53(X) (57% in, 43% out)
7. ITE *Trip Generation (8th Edition)* land use category 932 (High-Turnover (Sit-Down) Restaurant):
   Daily: T = 127.15(X)
   AM Peak Hour: T = 11.52(X) (52% in, 48% out)
   PM Peak Hour: T = 11.15(X) (59% in, 41% out)
8. ITE *Trip Generation (8th Edition)* land use category 710 (General Office):
   Daily: Ln(T) = 0.77*ln(X) + 3.65
   AM Peak Hour: Ln(T) = 0.80*ln(X) + 1.55 (88% in, 12% out)
   PM Peak Hour: T = 1.12(X) + 78.81 (17% in, 83% out)
9. ITE *Trip Generation (8th Edition)* land use category 310 (Hotel):
   Daily: T = 8.17(X)
   AM Peak Hour: T = 1.24*ln(X) - 2.00 (61% in, 39% out)
   PM Peak Hour: T = 0.59(X) (53% in, 47% out)
10. ITE *Trip Generation (8th Edition)* land use category 445 (Multiplex Movie Theater):
    Daily: T = 175.29(X)
    AM Peak Hour: T = 0
    PM Peak Hour: T = 13.64(X) (45% in, 55% out)
11. ITE reductions based on application of MXD model: Daily = 18%, AM Peak Hour = 23%, PM Peak Hour = 28%
12. Based on traffic counts collected in 2011 for the *Program for Arterial System Synchronization (PASS) for Marin County, City of Larkspur and Caltrans, Task 2A: Draft Existing Conditions Analysis (TJKM, December 2011)*. Daily

counts were not available and were estimated by applying the ratio of (ITE Daily/ITE PM) to the existing PM peak hour counts.

Source: Fehr & Peers, March 2013.

TABLE 7: DRAKES LANDING VEHICLE TRIP GENERATION

Land Use	Quantity	Units[1]	ITE Code	Daily	AM Peak Hour			PM Peak Hour		
					In	Out	Total	In	Out	Total
Multi-Family Residential[2]	70	DU	220	470	7	29	36	28	15	43
General Office[3]	22	ksf	710	242	30	4	34	6	27	33
ITE External Vehicle Estimate[4]				*712*	*37*	*33*	*70*	*34*	*42*	*76*

Notes:

1. DU = dwelling units. KSF = 1,000 square feet.
2. ITE *Trip Generation (8th Edition)* land use category 220 (Apartment):
   Daily: T = 6.06(X) + 123.56
   AM Peak Hour: T = 0.49(X) + 3.73 (20% in, 80% out)
   PM Peak Hour: T = 0.55(X) + 17.65 (65% in, 35% out)
3. ITE *Trip Generation (8th Edition)* land use category 710 (General Office):
   Daily: Ln(T) = 0.77*ln(X) + 3.65
   AM Peak Hour: Ln(T) = 0.80*ln(X) + 1.55 (88% in, 12% out)
   PM Peak Hour: T = 1.12(X) + 78.81 (17% in, 83% out)
4. The Plan+ tool was not applied to this site due to the relatively small size of the site and the lower internalization and transit vehicle trip reduction that would occur at this site. This results in a conservative traffic analysis.

Source: Fehr & Peers, March 2013.

TRIP DISTRIBUTION

The traffic increase due to the Proposed Project will be added to Sir Francis Drake Boulevard in a similar manner to the existing traffic generated by the site. Regional travel patterns to/from the site were identified using the Marin County Travel Demand model for each type of land use. **Figure 1** shows the projected trip distribution patterns. **Appendix C** compares the trip distribution patterns for the Proposed Project to those prepared for the Highway 101 Greenbrae/Twin Cities Corridor Improvement Project and to data from the 2000 Journey to Work Census. Trip distribution patterns will be similar for both Larkspur Landing and Drakes Landing.

STUDY ROADWAY FACILITIES

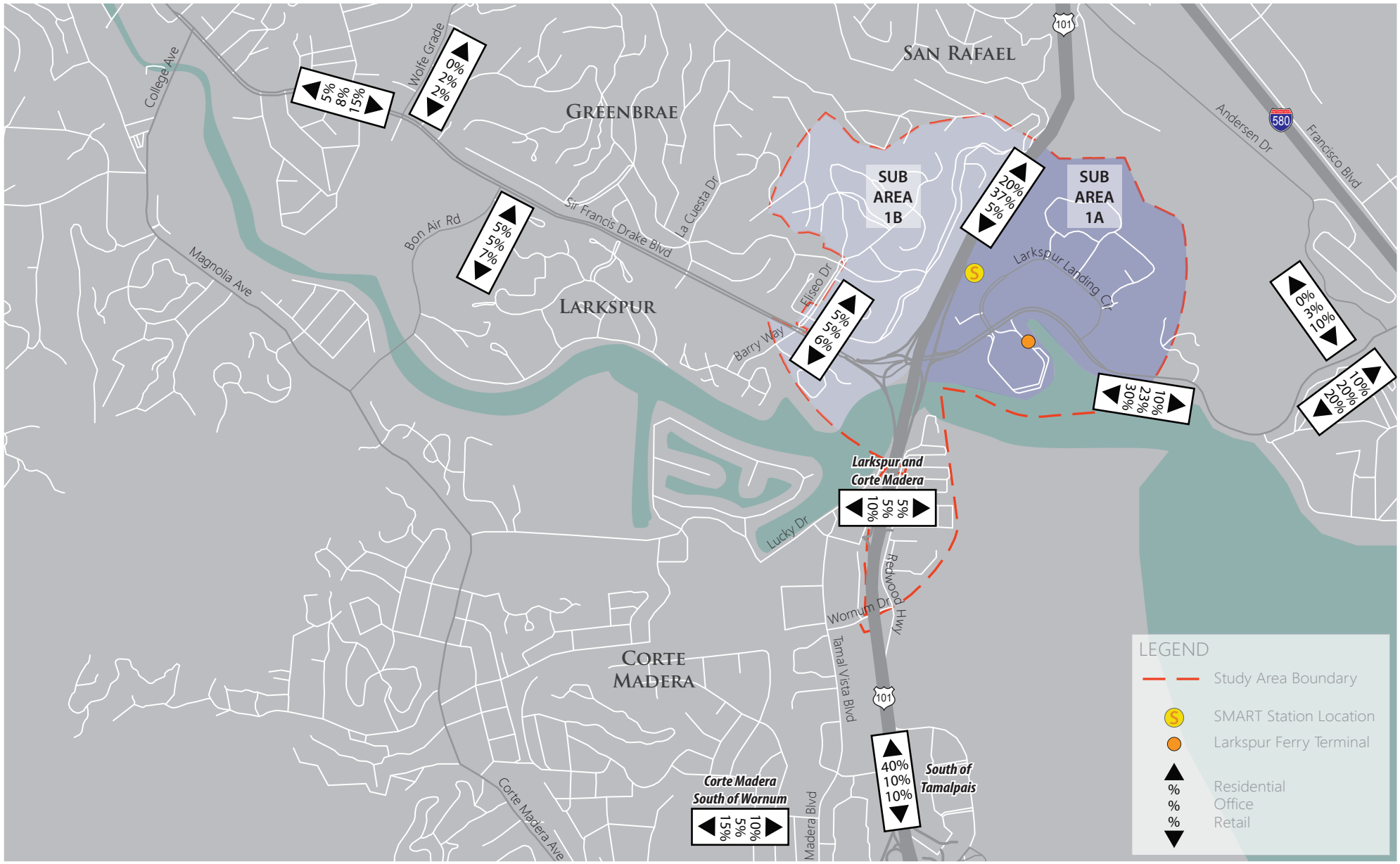
Figure 2 shows the proposed study intersections and freeway segments. The following study intersections and freeway segments will be analyzed in the Larkspur EIR:

Study Intersections

1. Sir Francis Drake Boulevard / Wolfe Grade
2. Sir Francis Drake Boulevard / Bon Air Road
3. Sir Francis Drake Boulevard / Eliseo Drive
4. US-101 Southbound Ramps / Sir Francis Drake Boulevard
5. US-101 Northbound Ramps / Sir Francis Drake Boulevard
6. Sir Francis Drake Boulevard / Larkspur Landing Circle West / Ferry Terminal Entrance
7. Sir Francis Drake Boulevard / Larkspur Landing Circle East
8. Sir Francis Drake Boulevard / Andersen Drive
9. US-101 Northbound Ramps / Redwood Highway / Industrial Way
10. Tamal Vista Boulevard / Fifer Avenue

Study Freeway Segments

A. US-101 North of Sir Francis Drake Boulevard (Northbound and Southbound)
B. US-101 Sir Francis Drake Boulevard to Industrial Way / Fifer Avenue (Northbound and Southbound)
C. US-101 Tamalpais Drive to Industrial Way (Northbound); US-101 Fifer Avenue to Madera Boulevard (Southbound)



N

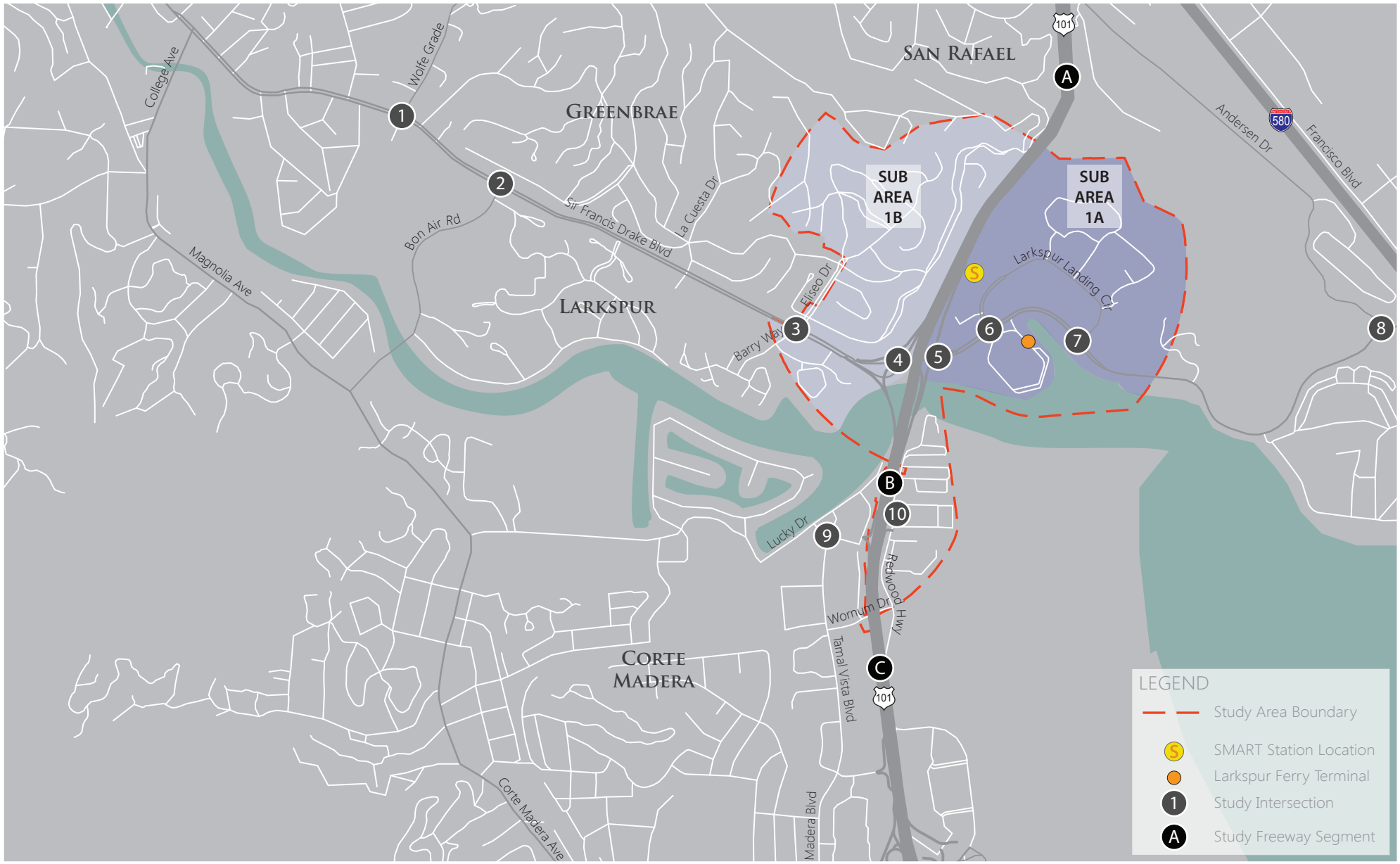
Not to Scale

FEHR PEERS

SF12-0625_Larkspur_SMART_Station_Area_Plan\Graphics

TRIP DISTRIBUTION

FIGURE 1



N

Not to Scale

FEHR PEERS

SF12-0625_Larkspur_SMART_Station_Area_Plan\Graphics

STUDY INTERSECTIONS AND FREEWAY SEGMENTS

FIGURE 2

TRIP ASSIGNMENT

Traffic will be assigned to the roadway network in a similar manner to existing conditions. **Table 8** shows the split of vehicles that currently use Larkspur Landing East and Larkspur Landing West to access Larkspur Landing from Sir Francis Drake Boulevard. Our proposed split would be applied to all land uses except for the development at the Ferry Terminal (which would enter at the Ferry Terminal Driveway) and the Sanitary District Site (which is located adjacent to Larkspur Landing East and would primarily enter this driveway).

TABLE 8: EXISTING LARKSPUR LANDING DRIVEWAY SPLIT

Peak Hour	AM Peak Hour		PM Peak Hour		Proposed Project[1]
	Number	Percent	Number	Percent	Percent
West Driveway	674	73%	1,079	71%	75%
East Driveway	248	27%	437	29%	25%

Notes: Based on peak hour counts collected in 2011.

1. This percentage will be applied to all net new project trips with the exception of the Sanitary District, which would exclusively use Larkspur Landing East.

Source: Fehr & Peers, March 2013.

Table 9 shows the approximate number and location of parking at the opportunity sites at Larkspur Landing (excluding the Ferry Terminal and Sanitary District as discussed above). The parking for the Proposed Project will be distributed through the site in a similar manner to the existing lots. Therefore, travel patterns into Larkspur Landing are in general expected to remain the same.

Net new project vehicle trips generated by the Proposed Project will be assigned to the roadway system based on the trip distribution patterns shown on **Figure 2**.

TABLE 9: PROPOSED PROJECT PARKING LOCATION AT LARKSPUR LANDING

Opportunity Site[1]	Existing		Proposed	
	Supply	**Percent of Total**	**Supply**	**Percent of Total**
2. Airporter	340	16%	820	26%
3. Larkspur Offices and Cinema	630	30%	810	25%
4. Marin Country Mart	810	39%	1,270	40%
Other Offices	314	15%	314	10%
Total (not including Ferry Terminal and Sanitary District Site)	*2,094*	*100%*	*3,214*	*100%*

Notes:

1. Traffic generated by the Ferry Terminal and Sanitary District site will be assigned to the Larkspur Landing Circle intersections separately from the above land uses. The Ferry Terminal traffic will continue to use the Ferry Terminal entrance while vehicles traveling to the Sanitary District site will exclusively use the Larkspur Landing Circle East driveway.

Source: Fehr & Peers, March 2013.

CUMULATIVE BASELINE ASSUMPTIONS

There are several key cumulative baseline assumptions that are included in the cumulative year traffic modeling.

Larkspur Ferry Terminal Parking

Due to the current parking demand at the site, it is unlikely the District will accept less parking than currently exists at the Ferry Terminal site so any new development will most likely need to accommodate the existing number of parking spaces. Under this assumption, we would not shift any peak hour Ferry Terminal traffic to the Marin Airporter under the Proposed Project.

Cumulative Geometric Assumptions

We assume that the improvements to US-101 proposed as a part of the US-101 Corridor Greenbrae Corridor study will not be in place under Cumulative Conditions due to the uncertainty of this project at this time. This will primarily affect freeway operations analysis, as the existing freeway congestion will continue to worsen in the future without geometric improvements. This has the potential to result in significant impacts to freeway operations if project traffic exceeds trip thresholds (compared to with the US-101 Greenbrae Corridor Improvement Project Build scenario which forecasts acceptable freeway operations in the future).

APPENDIX A:
CERTIFIED EIRS USING MXD TRIP GENERATION METHODOLOGY

APPENDIX A
LARKSPUR SMART STATION AREA PLAN EIR
CERTIFIED EIRS USING PLAN+ (MXD/4Ds) MODEL

Name	Date Published	Jurisdiction	Description	% Reduction from ITE
Treasure Island DEIR[1]	July 2010	City of San Francisco	8,000 DUs 140,000 SF retail 100,000 SF office 311,000 SF commercial flex 274,000 SF other	56-61% reduction
Candlestick Point / Hunters Point DEIR[2]	November 2009	City of San Francisco	10,500 DUs 885,000 SF retail 2,650,000 SF office/R&D	44-50% reduction
Parkmerced DEIR[3]	May 2010	City of San Francisco	8,900 DUs 230,000 SF retail 105,000 SF office 164,000 SF other	34-38% reduction
Fairfield Train Station DEIR[4]	December 2010	City of Fairfield	6,790 DUs 150,000 SF retail	25% reduction
Redwood City Downtown Precise Plan DEIR[5]	August 2010	Redwood City	2,500 DUs 221,000 SF retail 275,000 SF office	21-29% reduction
Pittsburg/Bay Point BART Station Master Plan DEIR[6]	June 2011	City of Pittsburg	1,168 DU 95,000 SF retail 50,000 SF office	26-32% reduction
Newhall Ranch Draft EIS/EIR[7]	April 2009	Los Angeles County U.S. Army Corps of Engineers	21,000 DUs 5,500,000 SF commercial	29-33% reduction

1. http://sfplanning.org/index.aspx?page=1828#2007_0903E
2. http://sfplanning.org/index.aspx?page=1828#2007_0946E
3. http://sfplanning.org/index.aspx?page=1828#2008_0021E
4. http://www.fairfield.ca.gov/gov/depts/cd/planning/train_station_deir.asp
5. http://www.redwoodcity.org/phed/planning/precise/FINAL-DTPP/EIR.htm
6. http://www.ci.pittsburg.ca.us/index.aspx?page=225
7. http://www.dfg.ca.gov/regions/5/newhall/final/

Source: Fehr and Peers, 2013.

APPENDIX B:
MIXED-USE DEVELOPMENT (MXD) TRIP GENERATION ASSUMPTIONS

TABLE B-1: MXD MODEL INPUTS			
Input Variable	**Scenario**	**Input Value**	**Source**
Developed Area	Existing	90 acres	Project site plan (does not include Sanitary District site)
	Proposed Project	100 acres	Project site plan
Intersections per Square Mile	Existing	90	Project site plan
	Proposed Project	170	Project site plan (includes increased connectivity)
Percentage of households within ¼ mile of site	Existing	25%	Project site plan
	Proposed Project	100%	Project site plan (with SMART line, entire site will function as TOD)
Average Household Size	Both	2.21	Census 2000 and ACS 2011 data
Average Vehicles Owned per Dwelling Unit	Both	1.62	Census 2000 and ACS 2011 data
Employment within 1 Mile of the Project Site	Both	3,900	MTC Travel Demand Model
Employment within a 30 minute trip by transit	Existing	11,191	MTC Travel Demand Model
	Proposed Project	25,000	MTC Travel Demand Model (includes employment along SMART)

Source: Fehr & Peers, March 2013.

APPENDIX C:
TRIP DISTRIBUTION COMPARISONS

Appendix C: Larkspur SMART SAP Trip Distribution Summary

	Residential			Office			Retail[4]		
	GCIP[1]	Census[2]	Lark SAP[3]	GCIP	Census	Lark SAP	GCIP	Census	Lark SAP
North on US-101 (San Rafael and north)	17%	17%	20%	58%	39%	45%	0%	--	5%
South on US-101 (Mill Valley/Tiburon and south)	43%	40%	40%	7%	18%	15%	11%	--	10%
East on Sir Francis Drake Boulevard (Richmond-San Rafael Bridge)	12%	7%	10%	12%	22%	15%	48%	--	30%[4]
West on Sir Francis Drake Boulevard (Larkspur and Ross Valley)	14%	10%	15%	17%	10%	15%	33%	--	30%[4]
Lucky Drive / Doherty Drive / Redwood (Larkspur and Corte Madera North)	5%	25%	5%	2%	12%	5%	6%	--	15%
Madera Boulevard and Tamalpais Drive (Corte Madera South)	10%		10%	3%		5%	2%	--	10%
Total	*100%*	*100%*	*100%*	*100%*	*100%*	*100%*	*100%*	--	*100%*

Notes:

1. Trip distribution from the US-101 Greenbrae Corridor Improvement Project (GCIP). Trip distribution patterns for the GCIP were developed using the Marin County Travel Demand model maintained by the Transportation Authority of Marin. Trip distribution patterns were developed for each Traffic Analysis Zone (TAZ) and did not include separate trip distribution patterns by land use type. Trip distribution patterns shown in this table are estimated for each type of land use based on the assumption that all inbound AM peak hour trips are office generated trips and all outbound AM trips are residential trips. This distribution patterns are assumed to be consistent (but in the reverse direction) in the PM peak hour. Retail trip distribution was assumed to be the remaining PM peak hour trips.

2. Journey to Work data from the 2000 census. Data shown for Census Tract 1212 which includes all of Larkspur and Corte Madera east of US-101. Trips to Larkspur and Corte Madera are grouped together to include Census Tracts 1212 (East of US-101), 1200, and 1211 (West of US-101). Note that this local percentage is high for the residential trip distribution as it includes some local trips within the Larkspur Landing area itself.

3. "Lark SAP" trip distribution percentages include engineering judgment and knowledge of the study area to round the trip distribution to the nearest five percent.

4. Pass-by or linked trips along SFDB (mostly between Ross Valley and Richmond-San Rafael Bridge) contribute to making the GCIP Calculated rate greater higher on these approaches.

Source: Fehr & Peers, March 2013

APPENDIX D

TRANSIT RIDERSHIP CALCULATIONS

Existing Transit Riders in Study Area

From Golden Gate Transit District (2011 Counts)

	Daily	AM	PM
Ferry	5,065	--	--
Ferry by Walk[1]	1,266		
Bus	82	--	--

Forecasted SMART EIR Riders (2005 Study)[2]

	Daily	Peak	Non-Peak
Walk	119	86	33
Drive/Drop Off	74	--	--
Total	193	--	--

Percent of Future Riders[3]

	Total Daily	Daily %
1/3 Ferry by Walk	1,266	94%
Bus	82	6%
SMART	119	

Projected Ridership

From Plan+ Model

	Daily	AM	PM
Existing Sub-Area 1a	430	50	70
Proposed Project	1,090	130	180
Net New Transit Riders	660	80	110

New Transit Ridership by Service[4]

	Daily	AM	PM
Ferry	520	40	70
Bus	30	0-10	0-10
SMART	110	40	40

Notes:

1. Existing walk mode share is 25% per the "A Strategic Vision for Golden Gate Ferry Larkspur Service" presentation to the Golden Gate Transit District Board of Directors Transportation Committee (February 21, 2013)
2. From SMART EIR, Travel Demand Forecasting Report (September 2005).
3. Assuming no service expansions as none are funded.
4. 90% of the daily transit ridership from Larkspur Landing, remaining is assumed to be proportional to existing ridership.

Source: Ferh & Peers, May 2013

Golden Gate Transit Ridership
FY 2011-2012

				Route Info							Weekday					Saturday														Sunday												Total		
Seq	TP	On Street		Cross Street	Zone	Stop ID	Route	Direction	Pattern	Source	WD Pax O	WD Pax O	WD Bk Or	WD Bk Off	WD WC O	SAT Pax (	SAT Pax (	SAT Bk O	SAT Bk O	SAT WC (	SAT WC (	SUN Pax (	SUN Pax (	SUN Bk O	SUN Bk O	SUN WC (	SUN WC (	TOT On	TOT Off	TOT Pax		
	19	Y	E SIR FRANCIS DRAKE	NS	LARKSPUR LANDING CIR	3	328	29	WB	A	2011 Ridecheck	3	4	0	0	0													3	4	7	
	19	Y	E SIR FRANCIS DRAKE	NS	LARKSPUR LANDING CIR	3	328	29	WB	B	2011 Ridecheck	9	23	0	0	0	0												9	23	32	
	31	Y	E SIR FRANCIS DRAKE	FS	LARKSPUR FERRY TERM.	3	471	29	EB	A	2011 Ridecheck	22	11	0	0	0	0												22	11	33	
	17	Y	E SIR FRANCIS DRAKE	FS	LARKSPUR FERRY TERM.	3	471	29	EB	B	2011 Ridecheck	4	6	0	0	0	0	10	8	1	0	0	0						5	6	11	
	30	Y	SIR FRANCIS DRAKE BL	FS	ELISEO DR	3	324	29	EB	A	2011 Ridecheck	12	5	1	0	0	0												12	5	17	
	16	Y	SIR FRANCIS DRAKE BL	FS	ELISEO DR	3	324	29	EB	B	2011 Ridecheck	2	2	0	0	0	0	6	3	0	0	0	0						3	2	5	
	6	Y	SIR FRANCIS DRAKE BL	FS	ELISEO DR	3	324	222	SB	A	Nov 2012 APC	0	0																0	0	0	
	20	Y	SIR FRANCIS DRAKE BL	FS	ELISEO DR	3	325	29	WB	A	2011 Ridecheck	2	3	0	0	0	0												2	3	5	
	20	Y	SIR FRANCIS DRAKE BL	FS	ELISEO DR	3	325	29	WB	B	2011 Ridecheck	6	8	0	0	0	0												6	8	14	
	10	Y	SIR FRANCIS DRAKE BL	FS	ELISEO DR	3	325	222	NB	A	Nov 2012 APC	0	0																0	0	0	
	2	Y	US HWY 101	AT	LUCKY DR BUS PAD	3	267	17	SB	A	2011 Ridecheck	25	18	0	0	0	0	2	16	0	0	0	0	2	12	0	1	0	0	18	17	35	
	2	Y	US HWY 101	AT	LUCKY DR BUS PAD	3	267	17	SB	B	2011 Ridecheck	0	Remaining	0	0	0	0												0	#VALUE!	#VALUE!	
	15	Y	US HWY 101	AT	LUCKY DR BUS PAD	3	267	36	SB	C	2011 Ridecheck	4	25	0	0	0	0												4	25	29	
	15	N	US HWY 101	AT	LUCKY DR BUS PAD	3	267	71	SB	A	2012 Ridecheck	22	49	0	1	0	0	2	6	0	0	0	0	1	0	1	0	0	0	16	36	52	
	24	Y	US HWY 101	AT	LUCKY DR BUS PAD	3	268	17	NB	C	2011 Ridecheck	20	52	0	0	0	0	16	3	0	1	0	0	4	2	0	0	0	0	17	38	55	
	5	Y	US HWY 101	AT	LUCKY DR BUS PAD	3	268	36	NB	A	2011 Ridecheck	13	7	0	0	0	0												13	7	20	
	5	N	US HWY 101	AT	LUCKY DR BUS PAD	3	268	71	NB	A	2012 Ridecheck	29	11	2	0	0	0	2	0	0	0	0	0	1	2	0	0	0	0	21	8	29	
	9	Y	TRADER JOES	AT	REDWOOD HIGHWAY	3	1324	222	NB	A	Nov 2012 APC	1	2																1	2	3	
	8	Y	TRADER JOES	AT	REDWOOD HIGHWAY	3	1324	222	SB	A	Nov 2012 APC	1	0																1	0	1	

	Daily On	Off	Total
Sub-Area 1a Ridership	38	44	82

No bikes or wheelchairs in Sub-Area 1a

Golden Gate Transit Ridership
FY 2011-2012

Stop 267

Hour	# On	# Off	# Bikes On	# Bikes Off	# Wheelchair on	# Wheelchair Off
6 AM	0	10				
7 AM	0	3				
8 AM	3	4				
9 AM	1	7				
10 AM	0	4				
11 AM	1	1				
12 PM	0	5				
1 PM	0	1				
2 PM	12	6			1	
3 PM	2	7				
4 PM	1	0				
5 PM	2	1				
Grand Total	22	49			1	

Remaining to

Stop 268

Hour	# On	# Off	# Bikes On	# Bikes Off	# Wheelchair on	# Wheelchair Off
6 AM	3	1				
7 AM	1	1				
9 AM	0	2				
10 AM	2	0		1		
11 AM	1	0				
12 PM	5	2		0		1
1 PM	2	0				
2 PM	5			1		
3 PM	4					
5 PM	4	1				
7 PM	2	0				
Grand Total	29	11		2		1

Golden Gate Transit Ridership
FY 2011-2012

Lucky Drive Bus Pad Northbound, Coach Stop 268:

Weekday	Annual	Per Day	On %	On/Day	Off %	Off/Day
24	93,171	367	1.8%	7	8.7%	32
70	261,077	1,028	1.9%	19	1.9%	19
80	71,169	280	1.9%	5	1.9%	5
Weekend	Annual	Per Day	On %	On/Day	Off %	Off/Day
70	86,543	773	0.4%	3	1.5%	12
80	100,382	896	7.7%	69	10.3%	92

Lucky Drive Bus Pad Southbound, Coach Stop 267:

Weekday	Annual	Per Day	On %	On/Day	Off %	Off/Day
24	107,284	422	7.1%	30	1.1%	5
70	207,879	818	2.3%	19	1.8%	15
80	83,515	329	2.3%	8	1.8%	6
Weekend	Annual	Per Day	On %	On/Day	Off %	Off/Day
70	85,821	766	2.8%	22	2.4%	18
80	113,741	1,016	2.2%	22	2.2%	22

Sir Francis Drake & Eliseo Westbound, Coach Stop 325:

Weekday	Annual	Per Day	On %	On/Day	Off %	Off/Day
24	93,171	367	0.2%	1	8.7%	32

Sir Francis Drake & Barry Eastbound, Coach Stop 324:

Weekday	Annual	Per Day	On %	On/Day	Off %	Off/Day
24	107,284	422	8.0%	34	0.0%	0

Remaining to

Larkspur Ferry Terminal, Coach Stop 326:

Weekday	Annual	Per Day	On %	On/Day	Off %	Off/Day
24	7,659	30	51.4%	15	2.7%	1

Golden Gate Transit/Ferry Ridership
FY 2011-2012
Weekdays Only

Route	Total	Days	Avg/Day
24	200,455	254	789.2
29	220,870	254	869.6
97	10,650	254	41.9
LSSF	#######	252	5,065.1

Route 24:

Direction	Trip	Start	Total
N	2	1455	7,939
N	4	1525	6,167
N	6	1556	8,440
N	8	1624	8,736
N	10	1639	5,756
N	12	1649	6,974
N	14	1657	7,240
N	16	1709	6,972
N	18	1723	8,304
N	20	1737	7,521
N	22	1759	8,185
S	3	539	6,781
S	5	559	6,281
S	7	612	6,786
S	9		6,548
S	11		5,994
S	13	648	8,920
S	15	700	8,254
S	17	709	7,444
S	19	719	7,772
S	21	729	8,341
S	23	739	7,101
S	25	754	6,813
S	27	809	5,978
S	29	829	6,612

Route 29:

Direction	Trip	Start	Total
E	2	636	7,128
E	4	654	4,469
E	6	736	7,468
E	8	754	4,573
E	10	836	7,413
E	12	854	7,134
E	24	1436	7,862
E	26	1454	5,609
E	28	1536	5,326
E	30	1554	5,183
E	32	1634	3,923
E	34	1652	4,393
E	36	1752	3,158
W	1	630	2,709
W	3	700	5,148
W	5	730	4,219
W	7	800	4,764
W	21	1430	6,153
W	23	1500	11,186
W	25	1530	7,034
W	27	1600	7,618
W	29	1700	6,520
W	31	1800	4,980

Route 97:

Direction	Trip	Start	Total
S	1	522	9,865

Remaining to

Larkspur Ferry:

Direction	Trip	Start	Total
N	2	625	1,347
N	4	710	2,870
N	6	745	4,722
N	8	830	3,736
N	22	1500	45,655
N	24	1535	41,405
N	26	1625	82,280
N	28	1700	84,640
N	29	1720	59,601
N	31	1755	92,904
N	33	1820	67,187
S	3	635	61,202
S	5	710	94,898
S	7	750	102,136
S	9	820	103,441
S	25	1540	8,932
S	27	1615	14,353
S	30	1710	15,317
S	32	1735	9,828
S	34	1835	6,193

APPENDIX E

PARKING DEMAND ANALYSIS MEMORANDUM

FEHR & PEERS

MEMORANDUM

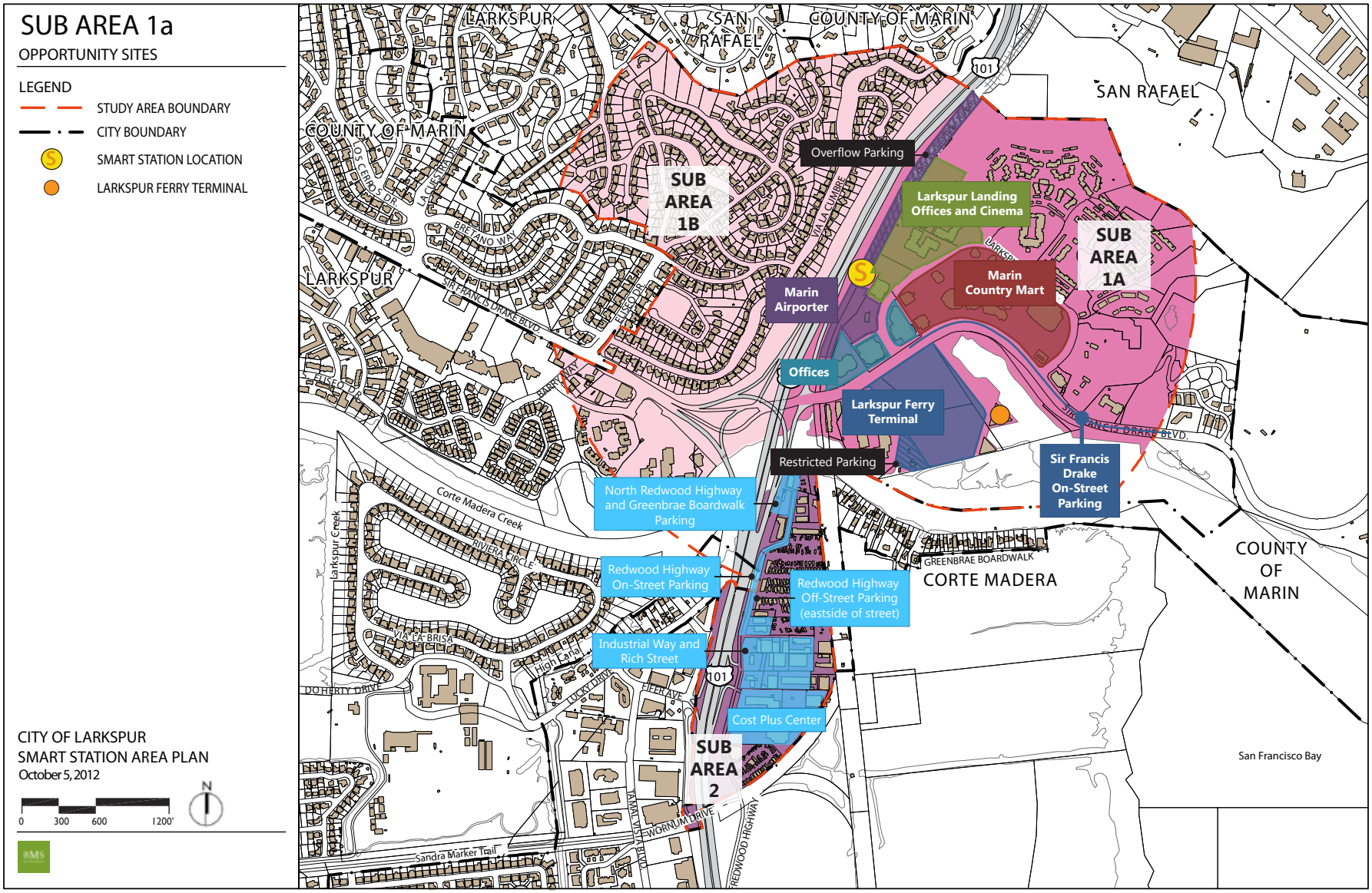
Date:	November 30, 2012
To:	Neal Toft and Julia Capasso, City of Larkspur
CC:	Barbara Maloney and Elizabeth Foster, BMS David Parisi, Parisi Associates
From:	Matt Goyne and Bob Grandy, Fehr & Peers
Subject:	**Larkspur SMART Station Area Plan: Parking Demand Analysis Memorandum**

SF12-0625

This memorandum documents the existing and future parking conditions for the Larkspur SMART Station Area (Station Area) and recommends parking ratios for residential and commercial developments. Fehr & Peers conducted parking occupancy surveys throughout the Station Area to estimate existing on- and off-street parking supply and demand within the Station area. Parking surveys were completed for both weekdays and weekends and shortfalls or surpluses during the peak parking periods are noted for each potential development site. The proposed parking ratios are based on the existing parking demand as well as parking ratios for existing transit oriented development (TOD's) throughout the San Francisco Bay Area.

EXISTING PARKING CONDITIONS

Fehr & Peers conducted parking occupancy surveys throughout the Station Area to estimate existing on- and off-street parking supply and demand within the Station area. The surveyed parking areas are shown in **Figure 1**. The results of the parking survey are included in **Appendix A**. The study locations and time periods for the parking surveys are presented below followed by the weekday and weekend peak parking demand.



Not to Scale

FEHR PEERS

PARKING SURVEY AREAS

FIGURE 1

SF12-0625_Larkspur_SMART_Station_Area_Plan\Graphics

Study Locations and Time Periods

Parking occupancy counts in the Station Area were collected on one mid-week day and one weekend day, when local schools were in session, and there were no holidays. Weekday counts were collected between 10:00 AM and 8:00 PM while weekend counts were collected between 11:00 AM and 3:00 PM. Based on these surveys, the peak parking demand for the Station Area was determined to be on weekdays between 10:00 AM and 2:00 PM.

To capture the unique parking characteristics associated with the range of different land uses in the Station Area, the occupancy data was collected for separate areas based on the land use and associated parking demand. These areas are as shown on **Figure 1** and are listed below.

Sub-Area 1a

Parking surveys conducted at Larkspur Landing and Marin Country Mart include the following areas:

- Marin County Mart
- Larkspur Landing Office Park (1100 Larkspur Landing Circle)
- Cinemark Theater/Larkspur Landing Office Park Overflow (office workers park in this lot during weekdays and theater goers use the lot during the evening and on the weekends)
- Marin Airporter/Ferry Terminal Overflow
- Other Offices (100 and 101 Larkspur Landing Circle and 17 East Sir Francis Drake Boulevard)

Parking surveys conducted at the Larkspur Ferry Terminal includes the following areas:

- Larkspur Ferry Terminal main lot
- Sir Francis Drake Boulevard On-Street Parking (primarily used by Ferry Terminal commuters so this parking demand is included with the Larkspur Ferry Terminal)

Sub-Area 2

Parking surveys conducted in Sub-Area 2 include the following areas:

- North Redwood Highway on-street parking and Greenbrae Boardwalk parking lot
- Redwood Highway On-Street parking (south of bike and pedestrian pathway)
- Redwood Highway Off-Street parking (on east side of street)
- Industrial Way and Rich Street
- Cost Plus Center

Parking data was not collected at businesses with restricted parking facilities that would not be subject to future shared parking arrangements.

Weekday Parking Demand

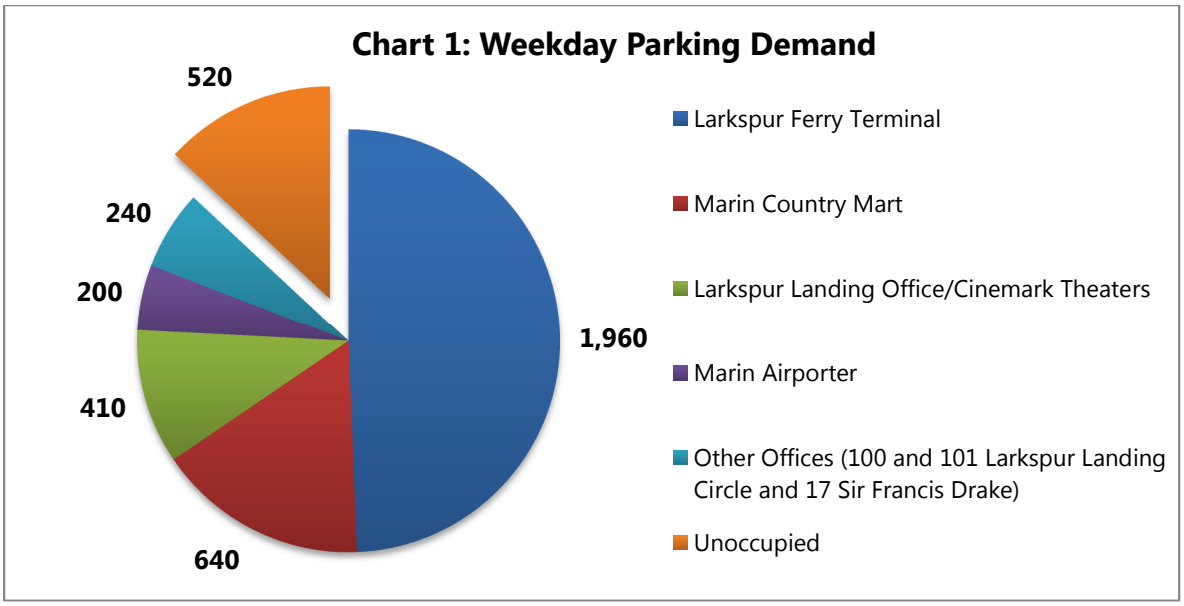
The retail and office space at the Marin Country Mart, Larkspur Landing Office Park, and 100 and 101 Larkspur Landing Circle currently have occupancies that range from 88 percent to 91 percent[1]. To establish desired parking demand rates for future development, Fehr & Peers adjusted the raw parking counts to account for full (100 percent) occupancy of these land uses. The parking demand shown in **Charts 1** through **4** is for full occupancy of these land uses.

Sub-Area 1a

Chart 1 shows the existing weekday peak parking demand for land uses in Sub-Area 1a. The peak parking demand for Sub-Area 1a occurs during the mid-day, around 1:00 PM when the collective parking needs of the offices, Ferry Terminal, and Marin Country Mart are highest.

Overall peak parking demand accounts for 87 percent of the total parking capacity. The Larkspur Ferry Terminal accounts for over half of the peak demand of the Station Area. The Marin Country Mart and Larkspur Landing offices and Cinemark each account for roughly 20 percent of the demand. The remaining demand is due to the Marin Airporter. The Larkspur Ferry Terminal exceeds its parking capacity and parking demand overflows into adjacent land uses.

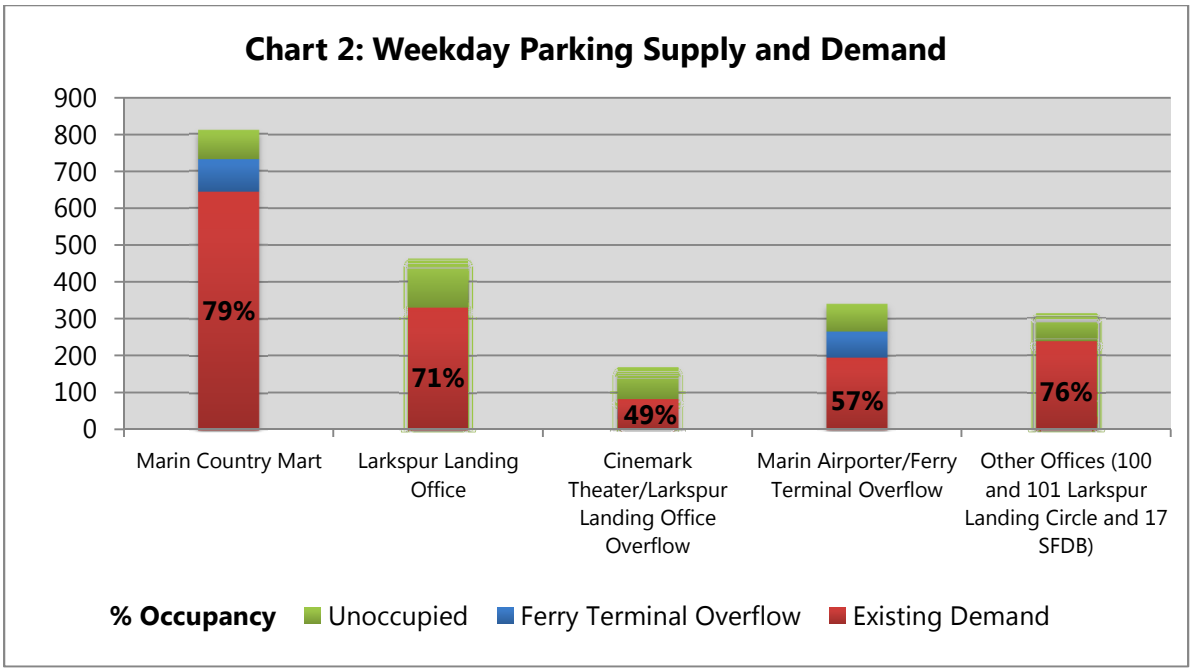
[1] Per memorandum titled "Larkspur SMART Station Area Plan – Market Analysis" by BAE, dated July 31, 2012.



Site observations and pedestrian counts were conducted at the Marin Country Mart and Marin Airporter parking lot to determine where overflow Larkspur Ferry Terminal patrons park. Based on the parking surveys, pedestrian counts, and site observations, the Ferry Terminal parking demand was determined to be distributed between the following parking lots:

- The Ferry Terminal parking lot has 1,800 parking spaces that were nearly full.
- The 60-70 parking spaces along Sir Francis Drake Boulevard were nearly full with Ferry Terminal patrons.
- 60 to 80 ferry patrons were observed parking in the Marin Airporter and Ferry Terminal overflow lots.
- 80 to 100 ferry patrons were observed parking in the Marin Country Mart and walking across the pedestrian bridge.

Chart 2 shows the parking demand compared to the capacity of each potential development site that has a current parking surplus. The red represents the parking demand due to each land use, the blue represents the amount of Ferry Terminal overflow, and the green indicates the existing unoccupied parking spaces.



Even with 100% occupancy of the land uses within Sub- Area 1a, there is excess parking at the existing Station Area, especially around the Larkspur Landing offices. This indicates that many of the retail and office uses within the existing Station Area have lower parking demand levels than similar uses in a typical suburban site and that there is available parking to accommodate increased demand from intensified land uses.

Sub-Areas 1b and 2

On- and off-street parking surveys were conducted at land uses in Sub-Area 2 that could potentially be redeveloped in the future. These included on-street counts along Redwood Highway, Rich Street, and Industrial Streets. Off-street counts were collected at the Cost Plus Plaza, the retail uses along Redwood Highway, and the Greenbrae Boardwalk parking lot at the end of Redwood Highway. On-street parking along Rich Street and Industrial Street were separated from the parking spaces on private properties, which were not counted.

As shown in **Appendix A**, the Cost Plus Plaza generates the most parking demand in Sub-Area 2. Although the Cost Plus Plaza did not exceed 50 percent occupancy during the weekday mid-day, the main parking in front of the plaza is often nearly full during the peak periods. Parking on the side and in the back of the Plaza has poor access to the Plaza and as a result was much less

heavily used. Other major generators in Sub-Area 2 include the Greenbrae Boardwalk housing and the informal park and ride on-street parking to the north of Industrial Way.

Parking counts were not collected in Sub-Area 1b. The residential neighborhoods to the north of Sir Francis Drake Boulevard are not included in the proposed development plan. Offices at Drake's Cove are expected to generate similar parking demand ratios as those in Sub-Area 1a.

Weekend Parking Demand

Sub-Area 1a

Chart 3 shows the peak weekend parking demand for the Sub-Area 1a land uses. On the weekends, the peak mid-day parking demand is 44 percent of the total parking capacity of the Station Area (1:00 PM). The majority of the excess parking supply on the weekends is at the Ferry Terminal and the offices in the Station Area. The parking at the Marin Country Mart is nearly 100 percent full due to the popular food trucks and farmers market events on the weekends. Overall, the Marin Country Mart accounts for almost half of the parking demand, the Ferry Terminal accounts for a third, and the remaining parking demand is primarily due to the Marin Airporter and the theater.

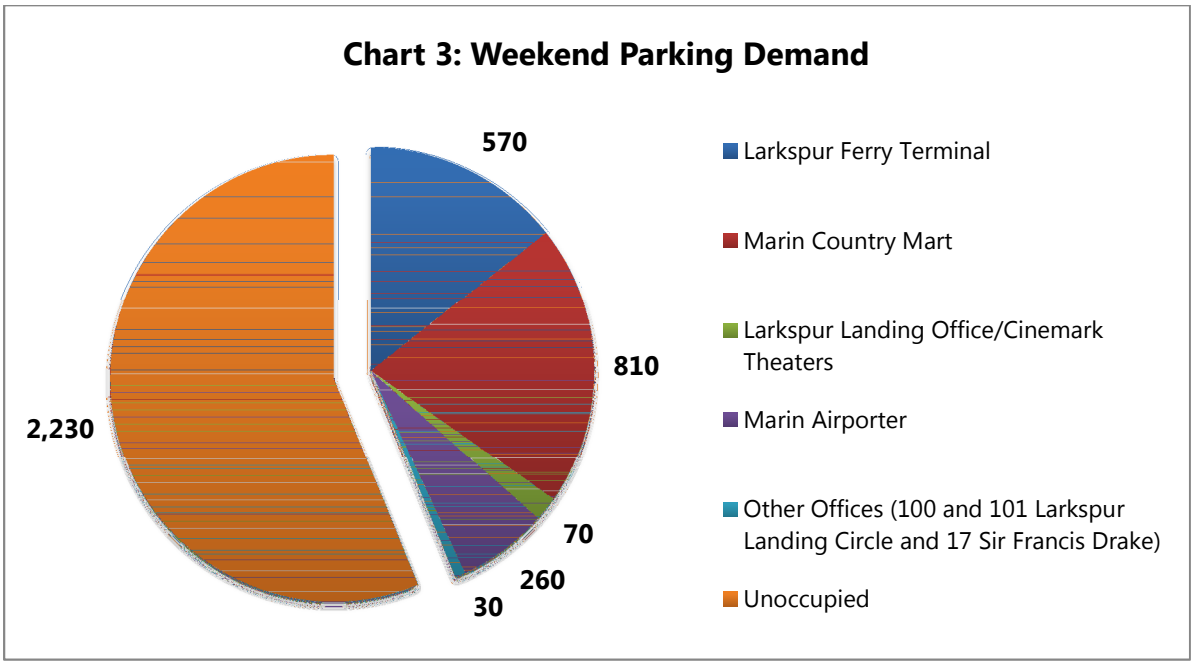
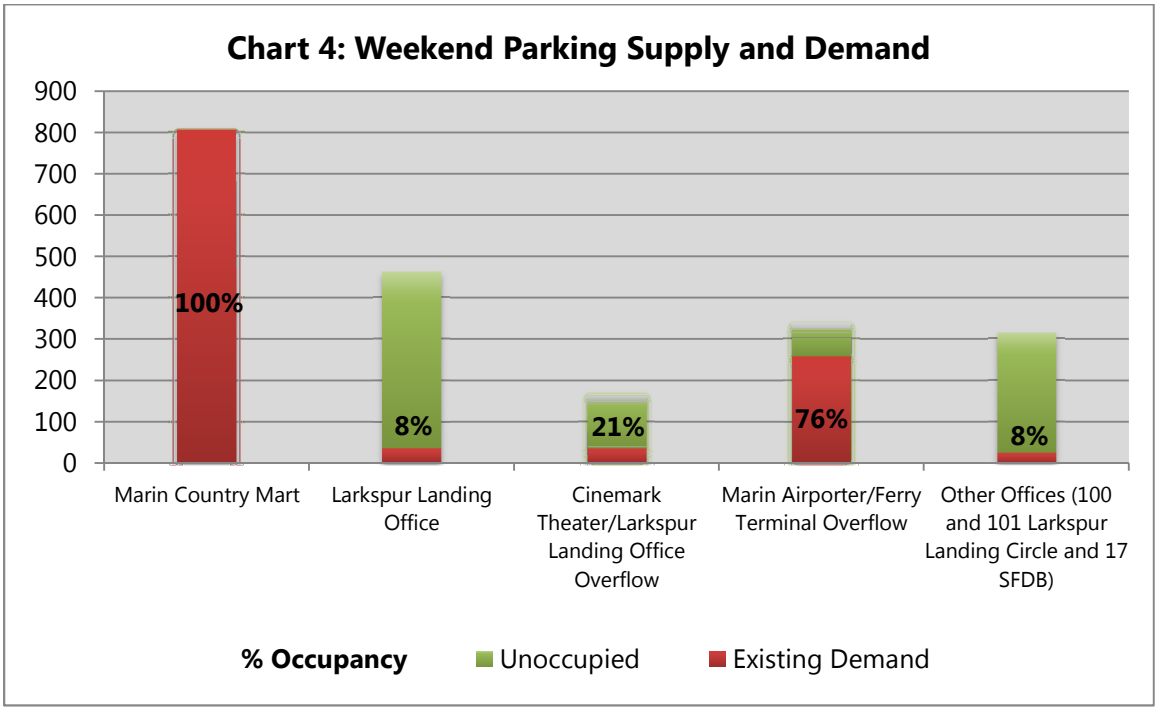


Chart 4 shows that the Marin Country Mart is fully occupied on the weekends while the remaining land uses are mostly unoccupied.



Sub-Areas 1b and 2

As shown in **Appendix A**, the busiest parking period at Cost Plus Plaza is on the weekend peak period. The front parking lot is nearly 100 percent full during this time while there is excess parking in the side and back parking lots.

Special Events

There are two main types of special events that create additional parking demand within the Station Area: special game day ferries to San Francisco Giants baseball games at AT&T Park and special events at the Marin Country Mart. These will be a consideration moving forward; however the demand for special events will not dictate the size of the parking facilities in the Station Area.

Special ferries to San Francisco Giants games are a popular way for Marin residents to attend baseball games at AT&T Park. Games typically occur on weekday evenings or on the weekends, when there is excess parking supply to accommodate these ferry riders. In addition, there are typically 8-12 weekday day games per season. The ferries for these games depart just before

noon, during times when parking demand within the Station Area is at its highest. Currently people get vouchers to park in the Marin Airporter lot (instead of paying 4 dollars) and the overflow lot mostly fills up.

Occasionally, parking demand due to special events at the Marin Country Mart spills over into the Ferry Terminal parking lot. These events typically occur at off-peak times on weekends or weekday evenings when there is available parking in the Ferry Terminal parking lot.

Existing Parking Requirements

The Larkspur Municipal Code defines off-street parking requirements in Chapter 18.56. **Table 1** shows the required amount of parking for each land use in the Station Area. Minimum parking requirements for multi-family housing range from 1.25 to 3 spaces per unit depending on the number of bedrooms in the unit. Minimum parking requirements for commercial uses range from four parking spaces per 1,000 square feet of office space to five parking spaces per 1,000 square feet of retail space.

TABLE 1: LARKSPUR OFF-STREET PARKING REQUIREMENTS

	Unit Type	**Rental**	**Condo**	**Guest Parking[1]**	**Range of Parking Ratios**
(A) Multi-Family Residential (for large complexes in Station Area)	Studio + 1-Bedroom	1/unit	1/unit	0.25 to 0.5/unit	1.25 to 3/unit
	2-Bedroom	1.5/unit	2/unit		
	3-Bedroom	2/unit	2.5/unit		
	4-Bedroom	2/unit	2.5/unit		
Commercial Uses	**Land Use**	**Parking Ratio**			
	(C) General Retail	5/1,000 SF			
	(F) Office	4/1,000 SF			

Notes: SF = Square Feet

1. Guest parking is allowed to include on-street parking if it is available adjacent to the building which it serves. However, there is limited on-street parking in the Station Area.

Source: Fehr & Peers, November 2012.

PROPOSED PARKING RATIOS

Proposed parking ratios were determined through a three step process. First, the existing parking demand ratios for each land use were determined based on the parking survey results and census data. Second, the parking demand ratios were adjusted to a desired 85 percent occupancy level for commercial uses.[2] Third, when opportunities to share spaces between land uses arose, fewer total spaces were provided. The proposed parking ratios are then compared to typical parking ratios for TODs throughout the country and around the Bay Area.

Parking Demand Rates

Parking demand ratios for the retail and office land uses in Sub-Area 1a were determined based on the weekday peak period parking survey results. The weekday peak parking demand represents the overall peak parking time for the Station Area. The parking demand ratio represents the number of observed parked cars during the weekday peak period per 1,000 square feet for each land use. As shown in **Table 2**, the existing peak parking demand at the Marin Country Mart is 3.7 spaces per 1,000 square feet and for the offices are 2.2 spaces per 1,000 square feet.

Parking demand ratios for residential uses were determined based on census data of vehicle ownership in the Station Area. Data from the 2010 census shows that households in the Station Area own an average of 1.6 vehicles per household.[3] This is within the range of parking demand rates compiled from national surveys of multi-family residential units in the Institute of Transportation Engineers (ITE) *Parking Generation*, 4th Edition, and the Urban Land Institute's (ULI) *The Dimensions of Parking,* 4th Edition. More information on these national rates is presented in **Appendix B**.

Parking Supply Rates (Adjusted for Desired 85% Occupancy of Commercial Uses)

To determine the required parking ratios for future development, the parking demand ratios were adjusted to a desired 85 percent occupancy level for commercial uses. This results in parking supply rates of 2.6 per ksf for office uses and 4.4 per ksf for retail uses would satisfy existing demand levels. These supply rates are 12 to 35 percent lower than the required parking ratios

---

[2] As recommended by UCLA Professor Donald Shoup in his landmark book on this topic, *The High Cost of Free Parking* (2005).

[3] Average number of vehicles owned per occupied unit at Larkspur Landing. Source: 2010 Census via American Factfinder at http://factfinder2.census.gov/faces/nav/jsf/pages/index.xhtml.

provided in the Larkspur Municipal Code. No adjustments were made to the residential parking demand rates.

TABLE 2: EXISTING PARKING DEMAND RATIOS – COMMERCIAL

Land Use	Amount of Land Uses			Parking Ratios			
	Amount (KSF)	Percent Occupied	Adjusted Size	Total Parked Vehicles	Demand Ratio[1]	Supply Ratio[2]	Larkspur Code
Marin Country Mart	175	89%	156	573	3.7	4.4	5.0
Larkspur Landing Offices	190	89%	169	368	2.2	2.6	4.0
Other Offices	111	89%	99	213	2.2	2.6	4.0

Notes: KSF = 1,000 square feet

1. Demand Parking Ratio is based on the adjusted size of the land use to account for the existing vacancies.
2. Supply ratio includes the existing demand adjusted for an 85 percent occupancy level.

Source: Fehr & Peers, November 2012.

Proposed Parking Ratios

The Urban Land Institute's (ULI) Shared Parking Model was used to determine the future parking demand for each development site within Sub-Area 1a. Different land uses have peak parking demand at different times of the day. For example, commercial land uses (retail and office) have the peak parking demand during the middle of the day on weekdays, while residential land uses have their peak parking demand overnight. The ULI Shared Parking Model determines the maximum shared parking demand on a weekday or weekend for a mix of land uses.[4]

The maximum shared parking demand was determined for each development site. The peak parking demand would occur during the weekday mid-day period at all of the development sites period with the following exceptions:

- Marin Country Mart – Similar to the existing counts, the maximum retail parking demand would occur during the weekend mid-day. However, as excess supply would be available on the weekends at the adjacent development sites (Larkspur Landing Offices and Ferry

[4] The Shared Parking Model was calibrated to existing commercial parking demand through the use of the Mode Adjustment Factor. These calibrations are shown in **Appendix C**. For residential land uses, the ULI base rate of 1.65 is nearly identical to the existing parking demand in the study area, therefore no adjustments were made.

Terminal), shared parking arrangements between development sites would allow overflow weekend retail parking demand to be accommodated at these sites. As a result, the parking supply at the Marin Country Mart should be designed to accommodate the weekday peak parking demand.

- Sanitary District – The maximum parking demand would occur overnight when residential and hotel parking demand is the highest. Therefore, the parking supply should be designed to accommodate the overnight parking demand.

Based on the peak shared parking demand, parking ratios were determined for each of the development sites and are shown in **Table 3**. The Sanitary District would require a higher residential parking ratio as it includes primarily residential uses with limited opportunities for shared parking.

TABLE 3: PROPOSED PARKING RATIOS

Development Site	Residential (per unit)	Retail (per 1,000 SF)	Office (per 1,000 SF)	Hotel (per room)
Sanitary District Site	1.6	--	--[1]	1.1
All other Development Sites	1.1	4.4	2.6	--

Notes:

1. The office's parking demand would be accommodated entirely within the shared parking with the residential uses.

Source: Fehr & Peers, November 2012.

Comparable TOD Parking Ratios

Table 4 summarizes TOD parking ratios at a variety of local and national sites. More information on sample parking ratios is presented in **Appendix B**.

TABLE 4: BEST PRACTICE PARKING RATIOS

	Residential (per unit)	Retail (per 1,000 SF)	Office (per 1,000 SF)
Regional and National Parking Ratios			
MTC Recommend Rates[1]	1.0 to 1.5	1.5 to 2.5 retail 3.0 to 5.0 restaurant	2.0 to 3.0
National Average Suburban Rates[2]	1.3	3.1	3.1
National Average Urban Rates[2]	1.0	1.5	1.5
Bay Area Average Rates[2]	1.2-1.3	N/A	N/A
Larkspur Parking Ratios			
City of Larkspur Parking Code	1.25 to 3.0	5.0	4.0
Proposed Parking Ratios	1.1 - 1.6[3]	4.4	2.6

Notes:

1. From *Reforming Parking Policies to Support Smart Growth Toolbox/Handbook* (June 2007) for a Suburban Town Center.
2. See **Appendix B** for the source of these rates.

Source: Fehr & Peers, November 2012.

Ferry Terminal Parking

Parking demand at the Ferry Terminal is expected to remain consistent in the future. Potential measures to reduce Ferry Terminal parking demand include the addition of SMART service to the Ferry Terminal and feeder shuttle services. These measures could also be coordinated with parking pricing and demand management strategies to provide incentive and funding to support these measures. These strategies should be coordinated with those presented below for the proposed TOD. As the feasibility of these measures are not clear at this time, no adjustment in Ferry Terminal parking demand was made to account for these measures. Future parking supplies should be designed to accommodate the existing parking demand at the Ferry Terminal unless future studies show these measures could substantially reduce parking demand.

PROPOSED PARKING POLICIES

Parking policies are one of the cornerstones of a successful Transit Oriented Development (TOD). Traveler behavior, urban design, and financial feasibility of the development can be directly affected, both positively and negatively, by the placement, price, and supply of parking. This section presents a summary of best practices for managing parking demand within the Station Area. Many of these practices are adapted from MTC's *Reforming Parking Policies to Support Smart Growth Toolbox/Handbook* (June 2007). Recommended bicycle parking strategies are also discussed at the end of this section.

Based on the unique needs and characteristics of Larkspur, we recommend the below parking policies. Successful implementation of these policies will require the support of more general parking strategies that focus on incentivizing transit and non-motorized modes through transportation demand management.

Parking Supply

1. Reduce off-street parking requirements:
    - Take advantage of shared-parking opportunities generated by mixed use development and the Ferry Terminal.
    - Set off-street parking maximums as shown in **Table 3.**
    - Allow developers to pay in-lieu fees to reduce parking provisions where appropriate.
2. Develop a parking management strategy:
    - Designate areas for short- and long-term parking
    - Employ innovative payment, information and monitoring technologies:
        - Offer "parking debit cards" or cell phone payment options at metered parking.
        - Coordinate off- and on-street parking availability via real-time message boards and mobile applications.
3. Where feasible, construct parking garages instead of parking lots. Avoid surrounding the transit station with surface parking:
    - Give developers flexibility to create space-efficient parking through the use of tandem, valet, and stacked mechanical parking.

- Include ground floor retail to integrate parking structures into the neighborhood design and pedestrian realm.

4. Market the parking supply strategy by providing a brochure with parking locations and information on alternative transportation options.

5. Provide on-street parking where possible (Note: this is often a product of reduced block sizes and enhanced pedestrian connections). Consider back-in or regular angled parking where feasible to maximize on-street parking opportunities.

Parking Demand

1. Encourage Alternative Modes (Transportation Demand Management or TDM):

   - Provide a transit subsidy ("commuter check" or "EcoPass") to all residents and employees.

   - Recruit and make provisions for Car-Share programs and neighborhood electric vehicle programs to reduce the need to have a car on site for occasional use.

   - Hire an on-site TDM Coordinator to manage and promote TDM programs and oversee monitoring to determine program effectiveness.

   - Integrate bicycle parking and support facilities, including signage and wayfinding, primarily to reduce trips within Larkspur and neighboring communities.

   - Provide a guaranteed ride home program.

   - Create incentives to tenants who use less than their share of the parking supply, work on-site, and for carpool and vanpool users.

   - Develop marketing and information programs to encourage alternative transportation modes.

2. Unbundle parking (separating the cost of parking in lease agreements with tenants) for offices and housing units to create more affordable live and work spaces, encourage developers to build less parking, and make the price of parking more transparent.

3. If feasible, charge for parking based on real-time demand:

   - Charge for all on-street parking within Sub-Area 1a.

   - Coordinate off- and on-street parking prices.

   - Set a variable market price for parking to ensure 15% vacancy at all times, thereby reducing cruising for parking and air pollution, and encouraging visitors to local businesses. This includes varying parking by time of day and proximity to destination.

- Include a premium for parking closest to the Ferry Terminal.
- Implement companion parking technologies (pay by cell phone, etc.) and parking informational brochure, website, and wayfinding signs.

4. Implement parking pricing at the Larkspur Ferry Terminal through coordination with the Golden Gate Transit District:
    - Institute minimal parking fees thereafter in the range of $1 to $3/day in line with BART station parking fees.
    - Charge a premium for parking located closest to the Ferry Terminal.
    - Use changeable message signs to direct Ferry Terminal patrons to available parking.
    - Provide reserved carpool and vanpool spaces conveniently located near the Ferry Terminal.
    - Work with Golden Gate Transit District to study the feasibility for shuttles or improved transit service to the Ferry Terminal to improve alternative mode access to the Ferry Terminal.
5. When charging for parking, employ these complementary measures:
    - Create residential parking permit zones on residential-only streets to prevent parking spillover into residential neighborhoods.
    - Return the parking revenue to the district by establishing Parking Benefit Districts.
    - Enforce parking cash-out programs if employers offer subsidized parking to employees.

Bicycle Parking Strategies

Bicycle parking strategies for convenient and secure on-street and off-street parking can make bicycling to Sub-Area 1a more appealing. When bicycling works for both short- and long-term visitors riding to employment, retail and entertainment destination, the total number of car trips is reduced. Because bicycling is much faster than walking, bicycle trips expand the area accessible without a car. Three main strategies support this:

- Provide bicycle parking and supporting facility requirements such as showers and lockers for new developments
- Consider in-street bicycle corrals to reduce sidewalk clutter, especially at high demand locations

- Consider expanding MTC's bike share program to Larkspur

Bicycle Parking Requirements

Bicycle parking requirements for all land uses creates designated places to safely store bicycles. Short-term bicycle parking is currently required at a rate of 10 percent of the number of required automobile parking spaces, and long-term requirements vary according to land uses. In some locations where parking reductions apply, more than 10 percent of automobile parking spaces may be beneficial, and short- and long-term bicycle parking could be substituted for automobile parking requirements. **Table 5** illustrates sample parking requirements for bicycles for different land uses within the Station Area.

To enhance the viability of bicycle travel within the Station Area, it is vital to provide sufficient bicycle parking opportunities. Bicycle parking ranges from short-term parking amenities, such as bicycle racks in highly visible and secure locations near building entrances, to long-term parking facilities, such as lockers or cages where bicycles are either locked individually (lockers) or with limited access (cages). As land uses develop and bicycle routes expand, it will be essential to provide safe and convenient places to store bicycles.

In-Street Bicycle Corrals

In-street bicycle corrals can be installed in any on-street parking space. Two vehicle parking spaces can accommodate a corral with 10-12 racks for 20-24 bikes. These are especially appropriate where bicycle parking is constrained at high-use areas that cater to bicyclist (such as bike shops) or are popular bicycle trip destinations (such as restaurants and entertainment venues). Bicycle corrals can also be used to buffer pedestrians and sidewalk seating from car activity.

Bicycle Share

Bicycle sharing programs are currently being studied by the MTC as a last-mile trip amenity for Caltrain riders in San Mateo County. The City of Larkspur should work with MTC and local employers at Larkspur Landing to determine if a similar program could be implemented at the Ferry Terminal and SMART station to create a local bikeshare system.

TABLE 5: BICYCLE PARKING REQUIREMENTS APPLICABLE TO THE LARKSPUR STATION AREA		
Type of Activity	**Long-term Requirement**	**Short-term Requirement**
Residential		
Multifamily Dwelling		
a) With private garage for each unit (A private locked storage unit may be considered as a private garage if a bicycle can fit into it)	No spaces required	0.10 spaces for each bedroom. Minimum is 2 spaces.
b) Without private garage for each unit	0.5 spaces for each bedroom. Minimum is 2 spaces.	0.10 spaces for each bedroom. Minimum is 2 spaces.
c) Senior Housing	0.5 spaces for each bedroom. Minimum is 2 spaces.	0.10 spaces for each bedroom. Minimum is 2 spaces.
Public Transportation		
Rail/bus terminals and stations/airports	Spaces for 7% of projected a.m. peak period daily ridership	Spaces for 2% of projected a.m. peak period daily ridership
Commercial		
General retail	1 space for each 10,000 s.f. of floor area. Minimum requirement is 2 spaces.	1 space for each 2,000 s.f. of floor area. Minimum requirement is 2 spaces.
Office	1 space for each 10,000 s.f. of floor area. Minimum requirement is 2 spaces.	1 space for each 20,000 s.f. of floor area. Minimum requirement is 2 spaces.
Off-street parking lots and garages available to the general public either without charge or on a fee basis	1 space for each 20 automobile spaces. Minimum requirement is 2 spaces. Unattended surface parking lots excepted.	Minimum of 6 spaces or 1 per 10 auto spaces. Unattended surface parking lots excepted.

Key: s.f. = square feet

Source: Based on the *Bicycle Parking Guidelines, 2nd Edition*, Association of Pedestrian and Bicycle Professionals (APBP / www.apbp.org) 2010

APPENDIX C

AIR QUALITY / GLOBAL CLIMATE CHANGE DATA

Larkspur SMART Station Area Plan

Bay Area AQMD Air District, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric
Bank (with Drive-Through)	5	1000sqft
General Office Building	354	1000sqft
Health Club	20	1000sqft
High Turnover (Sit Down Restaurant)	10	1000sqft
Hotel	168	Room
Movie Theater (No Matinee)	4	Screen
Apartments Mid Rise	1350	Dwelling Unit
Single Family Housing	120	Dwelling Unit
Strip Mall	215	1000sqft
Apartments Mid Rise	70	Dwelling Unit
General Office Building	22	1000sqft

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Utility Company**	Pacific Gas & Electric Company
Climate Zone	4	**Precipitation Freq (Days)**	64		

1.3 User Entered Comments

Project Characteristics -

Land Use -

Vehicle Trips - Trip generation rates account for reductions calculated in the project TIA

Mobile Land Use Mitigation -

Water Mitigation -

Area Mitigation -

Energy Mitigation -

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2011	1.50	12.24	6.91	0.01	1.24	0.62	1.86	0.58	0.62	1.19	0.00	1,074.86	1,074.86	0.12	0.00	1,077.42
2012	2.63	13.39	19.92	0.03	2.61	0.63	3.24	0.31	0.61	0.93	0.00	2,901.45	2,901.45	0.20	0.00	2,905.73
2013	2.66	12.24	21.44	0.04	2.44	0.57	3.02	0.05	0.55	0.60	0.00	3,289.11	3,289.11	0.20	0.00	3,293.39
2014	2.45	11.22	19.76	0.04	2.44	0.52	2.97	0.05	0.50	0.55	0.00	3,253.19	3,253.19	0.19	0.00	3,257.11
2015	2.26	10.24	18.28	0.04	2.44	0.48	2.92	0.05	0.46	0.50	0.00	3,214.90	3,214.90	0.17	0.00	3,218.51
2016	2.10	9.38	17.12	0.04	2.44	0.44	2.88	0.05	0.42	0.46	0.00	3,198.48	3,198.48	0.16	0.00	3,201.84
2017	1.94	8.55	15.87	0.04	2.44	0.40	2.83	0.05	0.38	0.43	0.00	3,150.50	3,150.50	0.15	0.00	3,153.59
2018	36.37	2.75	4.27	0.01	0.57	0.18	0.75	0.01	0.18	0.19	0.00	786.61	786.61	0.05	0.00	787.61
Total	**51.91**	**80.01**	**123.57**	**0.25**	**16.62**	**3.84**	**20.47**	**1.15**	**3.72**	**4.85**	**0.00**	**20,869.10**	**20,869.10**	**1.24**	**0.00**	**20,895.20**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2011	1.50	12.24	6.91	0.01	1.22	0.62	1.83	0.58	0.62	1.19	0.00	1,074.86	1,074.86	0.12	0.00	1,077.42
2012	2.63	13.39	19.92	0.03	0.77	0.63	1.41	0.31	0.61	0.93	0.00	2,901.45	2,901.45	0.20	0.00	2,905.73
2013	2.66	12.24	21.44	0.04	0.13	0.57	0.70	0.05	0.55	0.60	0.00	3,289.11	3,289.11	0.20	0.00	3,293.39
2014	2.45	11.22	19.76	0.04	0.13	0.52	0.65	0.05	0.50	0.55	0.00	3,253.19	3,253.19	0.19	0.00	3,257.11
2015	2.26	10.24	18.28	0.04	0.13	0.48	0.60	0.05	0.46	0.50	0.00	3,214.90	3,214.90	0.17	0.00	3,218.51
2016	2.10	9.38	17.12	0.04	0.13	0.44	0.57	0.05	0.42	0.46	0.00	3,198.48	3,198.48	0.16	0.00	3,201.84
2017	1.94	8.55	15.87	0.04	0.13	0.40	0.53	0.05	0.38	0.43	0.00	3,150.50	3,150.50	0.15	0.00	3,153.59
2018	36.37	2.75	4.27	0.01	0.03	0.18	0.21	0.01	0.18	0.19	0.00	786.61	786.61	0.05	0.00	787.61
Total	**51.91**	**80.01**	**123.57**	**0.25**	**2.67**	**3.84**	**6.50**	**1.15**	**3.72**	**4.85**	**0.00**	**20,869.10**	**20,869.10**	**1.24**	**0.00**	**20,895.20**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	35.42	0.47	40.87	0.02		0.00	4.26		0.00	4.26	418.10	269.07	687.17	0.66	0.03	710.12
Energy	0.22	1.98	1.28	0.01		0.00	0.15		0.00	0.15	0.00	7,609.57	7,609.57	0.29	0.13	7,656.86
Mobile	2.69	4.60	20.38	0.07	6.73	0.32	7.05	0.12	0.28	0.40	0.00	4,972.61	4,972.61	0.16	0.00	4,976.04
Waste						0.00	0.00		0.00	0.00	358.29	0.00	358.29	21.17	0.00	802.94
Water						0.00	0.00		0.00	0.00	0.00	428.90	428.90	6.01	0.16	603.37
Total	**38.33**	**7.05**	**62.53**	**0.10**	**6.73**	**0.32**	**11.46**	**0.12**	**0.28**	**4.81**	**776.39**	**13,280.15**	**14,056.54**	**28.29**	**0.32**	**14,749.33**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	13.81	0.13	11.53	0.00		0.00	0.11		0.00	0.11	0.00	639.12	639.12	0.03	0.01	643.27
Energy	0.20	1.81	1.17	0.01		0.00	0.14		0.00	0.14	0.00	7,279.71	7,279.71	0.28	0.13	7,324.96
Mobile	2.67	4.56	20.18	0.07	6.64	0.31	6.95	0.12	0.28	0.39	0.00	4,908.86	4,908.86	0.16	0.00	4,912.25
Waste						0.00	0.00		0.00	0.00	358.29	0.00	358.29	21.17	0.00	802.94
Water						0.00	0.00		0.00	0.00	0.00	428.90	428.90	6.01	0.16	603.37
Total	**16.68**	**6.50**	**32.88**	**0.08**	**6.64**	**0.31**	**7.20**	**0.12**	**0.28**	**0.64**	**358.29**	**13,256.59**	**13,614.88**	**27.65**	**0.30**	**14,286.79**

Larkspur SMART Station Area Plan
Bay Area AQMD Air District, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric
Bank (with Drive-Through)	5	1000sqft
General Office Building	354	1000sqft
Health Club	20	1000sqft
High Turnover (Sit Down Restaurant)	10	1000sqft
Hotel	168	Room
Movie Theater (No Matinee)	4	Screen
Apartments Mid Rise	1350	Dwelling Unit
Single Family Housing	120	Dwelling Unit
Strip Mall	215	1000sqft
Apartments Mid Rise	70	Dwelling Unit
General Office Building	22	1000sqft

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Utility Company**	Pacific Gas & Electric Company
Climate Zone	4	**Precipitation Freq (Days)**	64		

1.3 User Entered Comments

Project Characteristics -

Land Use -

Vehicle Trips - Trip generation rates account for reductions calculated in the project TIA

Mobile Land Use Mitigation -

Water Mitigation -

Area Mitigation -

Energy Mitigation -

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	864.61	25.15	1,855.70	3.20		0.00	263.51		0.00	263.51	33,645.13	9,422.14		110.57	1.06	45,717.20
Energy	1.23	10.83	6.99	0.07		0.00	0.85		0.00	0.85		13,383.99		0.26	0.25	13,465.44
Mobile	18.06	28.93	127.61	0.50	52.72	1.97	54.69	0.73	1.74	2.47		37,004.14		1.20		37,029.39
Total	**883.90**	**64.91**	**1,990.30**	**3.77**	**52.72**	**1.97**	**319.05**	**0.73**	**1.74**	**266.83**	**33,645.13**	**59,810.27**		**112.03**	**1.31**	**96,212.03**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	79.37	1.47	128.30	0.01		0.00	2.14		0.00	2.13	0.00	22,862.14		0.65	0.41	23,004.49
Energy	1.12	9.91	6.40	0.06		0.00	0.78		0.00	0.78		12,252.67		0.23	0.22	12,327.23
Mobile	17.92	28.70	126.23	0.49	52.02	1.94	53.96	0.72	1.72	2.44		36,528.57		1.19		36,553.52
Total	**98.41**	**40.08**	**260.93**	**0.56**	**52.02**	**1.94**	**56.88**	**0.72**	**1.72**	**5.35**	**0.00**	**71,643.38**		**2.07**	**0.63**	**71,885.24**

Larkspur SMART Station Area Plan

Bay Area AQMD Air District, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric
Bank (with Drive-Through)	5	1000sqft
General Office Building	354	1000sqft
Health Club	20	1000sqft
High Turnover (Sit Down Restaurant)	10	1000sqft
Hotel	168	Room
Movie Theater (No Matinee)	4	Screen
Apartments Mid Rise	1350	Dwelling Unit
Single Family Housing	120	Dwelling Unit
Strip Mall	215	1000sqft
Apartments Mid Rise	70	Dwelling Unit
General Office Building	22	1000sqft

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Utility Company**	Pacific Gas & Electric Company
Climate Zone	4	**Precipitation Freq (Days)**	64		

1.3 User Entered Comments

Project Characteristics -

Land Use -

Vehicle Trips - Trip generation rates account for reductions calculated in the project TIA

Mobile Land Use Mitigation -

Water Mitigation -

Area Mitigation -

Energy Mitigation -

2.0 Emissions Summary

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	864.61	25.15	1,855.70	3.20		0.00	263.51		0.00	263.51	33,645.13	9,422.14		110.57	1.06	45,717.20
Energy	1.23	10.83	6.99	0.07		0.00	0.85		0.00	0.85		13,383.99		0.26	0.25	13,465.44
Mobile	18.10	29.12	131.02	0.45	52.72	1.97	54.69	0.73	1.74	2.47		33,776.87		1.13		33,800.59
Total	**883.94**	**65.10**	**1,993.71**	**3.72**	**52.72**	**1.97**	**319.05**	**0.73**	**1.74**	**266.83**	**33,645.13**	**56,583.00**		**111.96**	**1.31**	**92,983.23**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	79.37	1.47	128.30	0.01		0.00	2.14		0.00	2.13	0.00	22,862.14		0.65	0.41	23,004.49
Energy	1.12	9.91	6.40	0.06		0.00	0.78		0.00	0.78		12,252.67		0.23	0.22	12,327.23
Mobile	17.94	28.88	129.81	0.44	52.02	1.95	53.96	0.72	1.72	2.44		33,343.65		1.12		33,367.09
Total	**98.43**	**40.26**	**264.51**	**0.51**	**52.02**	**1.95**	**56.88**	**0.72**	**1.72**	**5.35**	**0.00**	**68,458.46**		**2.00**	**0.63**	**68,698.81**

APPENDIX D

NOISE MODELING DATA

Project Number: BMD 1101
Project Name: Larkspur SMART Station Area Plan
Test Personnel: Cathy Brown

Sheet 1 of 6

Noise Measurement Survey

Site Number: ST-1 Date: 1/24/13 Time: From 11:31 To 11:46

Site Location: Marin RV Park/Pool. Pool enclosed by chain-link fence. Nearest RV is 10 ft. from pool. Small shower/restroom on N side of pool. Mgr. says pool is rarely used, even in summer. Minimal vegetation - several trees betw pool & highway.

Primary Noise Sources: Freeway (101) less than 100 yds from pool. Constant traffic moving freely at limit (N & S-bound)

Measurement Results

	dBA
Leq	65.1
Lmax	79.3
Lmin	60.3
Lpeak	—
L2	67.8
L8	66.8
L25	65.8
L50	64.8
SEL	—

Observed Noise Sources/Events

Time	Noise Source/Event	dBA

Comments:

Equipment: Larson Davis 720 SLM; Kestrel 3000 Calibration Offset: 27.5 dBA
Settings: A-Weighted☐ Other☐ _____ Slow☐ Fast☐ Windscreen☐

Atmospheric Conditions:

Maximum Wind Velocity (mph)	Average Wind Velocity (mph)	Temperature (F)	Relative Humidity (%)	
2.6	0.7	60.3	73	
Comments:	Blue sky visible through clouds, no precip			

Project Number: BMD 1101
Project Name: Larkspur SMART Station Area Plan
Test Personnel: Cathy Brown

Sheet 2 of 6

Noise Measurement Survey

Site Number: ST-2 Date: 1/24/13 Time: From 1:53 To 2:08

Site Location: Plaza between dwelling units & back of shopping/retail area (Bon-Air). Access road for deliveries, parking for customers & employees. Dwelling units have yards screened by 6 ft wooden fences. Many trees & shrubs. Observed peds, bikes, trucks (vans, delivery trucks, pick-ups)

Primary Noise Sources: Delivery vehicles, HVAC on roof of commercial bldg, seagulls, utility meter squeak, minor remodeling/cleanup activity.

Measurement Results

	dBA
Leq	51.9
Lmax	72.3
Lmin	43.7
Lpeak	
L2	60.7
L8	55.6
L25	49.4
L50	47.0
SEL	-0-

Observed Noise Sources/Events

Time	Noise Source/Event	dBA

Comments:

Equipment: Larson Davis 720 SLM; Kestrel 3000 Calibration Offset: 27.5 dBA
Settings: A-Weighted☐ Other☐ _____ Slow☐ Fast☐ Windscreen☐

Atmospheric Conditions:

Maximum Wind Velocity (mph)	Average Wind Velocity (mph)	Temperature (F)	Relative Humidity (%)	
2.2	0.8	65.4	72	
Comments:				

Project Number: BMO 1101
Project Name: Larkspur SMART Station Area Plan
Test Personnel: Cathy Brown

Sheet 3 of 6

Noise Measurement Survey

Site Number: ST-3 Date: 1/24/13 Time: From 10:53 To 11:08

Site Location: Greenbrae School Park, approx 1-acre bounded by ~~residences~~ road on N + S sides, and residences on E + W. Residences ~~are~~ on E + W are protected w/ wood fences (6 ft) + vegetation

Primary Noise Sources: Leaf blower continued intermittently for 10 min. from beginning of monitoring, 100 yds away. Occasional vehicle passing by. Garbage truck backing up 100 yds away.

Measurement Results

	dBA
Leq	50.4
Lmax	73.9
Lmin	40.5
Lpeak	
L2	58.2
L8	53.2
L25	51.5
L50	46.2
SEL	-0-

Observed Noise Sources/Events

Time	Noise Source/Event	dBA

Comments: No people in park during monitoring

Equipment: Larson Davis 720 SLM; Kestrel 3000 Calibration Offset: 27.4 dBA
Settings: A-Weighted☐ Other☐ _____ Slow☐ Fast☐ Windscreen☐

Atmospheric Conditions:

Maximum Wind Velocity (mph)	Average Wind Velocity (mph)	Temperature (F)	Relative Humidity (%)	
3.3	1.0	58.4	82	
Comments:				

Project Number: BMD 1101
Project Name: Larkspur SMART Station Area Plan
Test Personnel: Cathy Brown

Noise Measurement Survey

Site Number: ST-4 Date: 1/24/13 Time: From 12:39 To 12:54

Site Location: Open courtyard to units 951-956 Bldg. 19 2-story multi-family residential. Lots of shrubbery & trees

Primary Noise Sources: Circulating water feature, occasional car/truck, small hand tools from remodeling activity, back-up beepers, voices in residences.

Measurement Results

	dBA
Leq	45.9
Lmax	73.5
Lmin	39.9
Lpeak	
L2	51.4
L8	47.9
L25	45.0
L50	43.0
SEL	—

Observed Noise Sources/Events

Time	Noise Source/Event	dBA

Comments:

Equipment: Larson Davis 720 SLM; Kestrel 3000 Calibration Offset: 27.5 dBA
Settings: A-Weighted☐ Other☐ _____ Slow☐ Fast☐ Windscreen☐

Atmospheric Conditions:

Maximum Wind Velocity (mph)	Average Wind Velocity (mph)	Temperature (F)	Relative Humidity (%)	
2.1	1	59.7	75	
Comments:				

Project Number: BMD 1101
Project Name: Larkspur SMART Station Area Plan
Test Personnel: Cathy Brown

Sheet 5 of 6

Noise Measurement Survey

Site Number: ST-5 Date: 1/24/13 Time: From 3:17 To 3:32

Site Location: Neighborhood Park adjacent to daycare center. Larkspur Landing commercial/shopping center to SW, two-story multi-family residential to W, NW & N. Ross Valley Sanitary Dist open space to E.

Primary Noise Sources: Vehicles (trucks, busses, cars, Marin Airporter) from Larkspur Landing Circle Rd., birds, children's voices, distant freeway, distant construction or roofing activity

Measurement Results

	dBA
Leq	57.9
Lmax	76.8
Lmin	43.8
Lpeak	
L2	67.2
L8	60.4
L25	56.2
L50	50.7
SEL	-0-

Observed Noise Sources/Events

Time	Noise Source/Event	dBA

Comments:

Equipment: Larson Davis 720 SLM; Kestrel 3000 Calibration Offset: 27.5 dBA
Settings: A-Weighted☐ Other☐ _____ Slow☐ Fast☐ Windscreen☐

Atmospheric Conditions:

Maximum Wind Velocity (mph)	Average Wind Velocity (mph)	Temperature (F)	Relative Humidity (%)	
3.9	1.0	62.9	72	
Comments:				

Project Number: BMD 1101 Sheet 6 of 6
Project Name: Larkspur SMART Station Area Plan
Test Personnel: Cathy Brown

Noise Measurement Survey

Site Number: ST-6 Date: 1/24/13 Time: From 12:08 To 12:23

Site Location: Outdoor use area of office complex, open area surrounded by two-story office buildings. Many trees, most taller than bldgs. Pathways to parking lots

Primary Noise Sources: Constant hum from freeway (101), vehicles on nearby surface/access streets, HVAC, people talking, horn honking, dumpster lid banging

Measurement Results

	dBA
Leq	56.1
Lmax	89.5
Lmin	47.2
Lpeak	
L2	58.4
L8	52.7
L25	50.7
L50	49.8
SEL	81.2

Observed Noise Sources/Events

Time	Noise Source/Event	dBA

Comments:

Equipment: Larson Davis 720 SLM; Kestrel 3000 Calibration Offset: 27.4 dBA
Settings: A-Weighted☐ Other☐ Slow☐ Fast☐ Windscreen☐

Atmospheric Conditions:

Maximum Wind Velocity (mph)	Average Wind Velocity (mph)	Temperature (F)	Relative Humidity (%)	
3.0	1.1	61.0	74	
Comments:				

TABLE Existing-01
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 05/28/2013
ROADWAY SEGMENT: Highway 101 - Sir Francis Drake Boulevard to I-580
NOTES: Larkspur SMART - Existing

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 141000 SPEED (MPH): 65 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 48 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 79.12

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
349.7	747.7	1607.9	3462.3

TABLE Existing-01
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 05/28/2013
ROADWAY SEGMENT: Sir Francis Drake Boulevard - La Cuesta Drive to Eliseo Drive
NOTES: Larkspur SMART - Existing

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 41200 SPEED (MPH): 40 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 24 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 69.80

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
72.0	148.1	315.7	678.6

TABLE Existing-02
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 05/28/2013
ROADWAY SEGMENT: Sir Francis Drake Boulevard - Eliseo Drive to US-101 SB Ramps
NOTES: Larkspur SMART - Existing

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 47900 SPEED (MPH): 40 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 24 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 70.45

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
78.8	163.4	348.9	750.2

TABLE Existing-03
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 05/28/2013
ROADWAY SEGMENT: Sir Francis Drake Boulevard - US-101 NB Ramps to Larkspur Landing Circle
NOTES: Larkspur SMART - Existing

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 37100 SPEED (MPH): 40 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 30 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 68.96

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
70.0	139.5	294.9	632.7

TABLE Existing-04
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 05/28/2013
ROADWAY SEGMENT: Sir Francis Drake Boulevard - Larkspur Landing Circle to Larksput Landing Circle
NOTES: Larkspur SMART - Existing

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 23700 SPEED (MPH): 40 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 24 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 67.40

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	103.9	219.1	469.8

TABLE Existing-05
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 05/28/2013
ROADWAY SEGMENT: Sir Francis Drake Boulevard - Larkspur Landing Circle to Drakes Cove Road
NOTES: Larkspur SMART - Existing

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 25700 SPEED (MPH): 40 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 18 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 68.18

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	108.3	230.7	495.8

TABLE Existing-06
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 05/28/2013
ROADWAY SEGMENT: Eliseo Drive - Sir Fancis Drake Boulevard to Bretano Way
NOTES: Larkspur SMART - Existing

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 4100 SPEED (MPH): 25 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 12 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 55.87

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	0.0	0.0	70.5

TABLE Existing-07
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 05/28/2013
ROADWAY SEGMENT: Larkspur Landing Circle - Sir Francis Drake Boulevard to Old Quarry Road S.
NOTES: Larkspur SMART - Existing

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 8900 SPEED (MPH): 25 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 18 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 58.74

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	0.0	57.0	117.8

TABLE Existing-08
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 05/28/2013
ROADWAY SEGMENT: Larkspur Landing Circle - Drakes Way to Sir Francis Drake Boulevard
NOTES: Larkspur SMART - Existing

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 7100 SPEED (MPH): 25 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 18 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 57.76

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	0.0	0.0	101.7

TABLE Existing Plus Project-01
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 05/28/2013
ROADWAY SEGMENT: Sir Francis Drake Boulevard - La Cuesta Drive to Eliseo Drive
NOTES: Larkspur SMART - Existing Plus Project

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 42000 SPEED (MPH): 40 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 24 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 69.88

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
72.8	150.0	319.8	687.3

TABLE Existing Plus Project-02
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 05/28/2013
ROADWAY SEGMENT: Sir Francis Drake Boulevard - Eliseo Drive to US-101 SB Ramps
NOTES: Larkspur SMART - Existing Plus Project

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 49200 SPEED (MPH): 40 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 24 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 70.57

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
80.1	166.3	355.2	763.7

TABLE Existing Plus Project-03
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 05/28/2013
ROADWAY SEGMENT: Sir Francis Drake Boulevard - US-101 NB Ramps to Larkspur Landing Circle
NOTES: Larkspur SMART - Existing Plus Project

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 41100 SPEED (MPH): 40 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 30 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 69.41

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
74.1	148.9	315.6	677.3

TABLE Existing Plus Project-04
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 05/28/2013
ROADWAY SEGMENT: Sir Francis Drake Boulevard - Larkspur Landing Circle to Larksput Landing Circle
NOTES: Larkspur SMART - Existing Plus Project

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 25900 SPEED (MPH): 40 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 24 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 67.78

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	109.9	232.3	498.3

TABLE Existing Plus Project-05
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 05/28/2013
ROADWAY SEGMENT: Sir Francis Drake Boulevard - Larkspur Landing Circle to Drakes Cove Road
NOTES: Larkspur SMART - Existing Plus Project

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 26500 SPEED (MPH): 40 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 18 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 68.31

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
53.7	110.4	235.4	505.9

TABLE Existing Plus Project-06
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 05/28/2013
ROADWAY SEGMENT: Eliseo Drive - Sir Fancis Drake Boulevard to Bretano Way
NOTES: Larkspur SMART - Existing Plus Project

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 4200 SPEED (MPH): 25 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 12 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 55.97

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	0.0	0.0	71.6

TABLE Existing Plus Project-07
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 05/28/2013
ROADWAY SEGMENT: Larkspur Landing Circle - Sir Francis Drake Boulevard to Old Quarry Road S.
NOTES: Larkspur SMART - Existing Plus Project

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 9900 SPEED (MPH): 25 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 18 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 59.20

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	0.0	60.7	126.2

TABLE Existing Plus Project-08
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 05/28/2013
ROADWAY SEGMENT: Larkspur Landing Circle - Drakes Way to Sir Francis Drake Boulevard
NOTES: Larkspur SMART - Existing Plus Project

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 9500 SPEED (MPH): 25 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 18 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 59.02

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	0.0	59.2	122.9

TABLE Cumulative No Project-01
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 05/28/2013
ROADWAY SEGMENT: Sir Francis Drake Boulevard - La Cuesta Drive to Eliseo Drive
NOTES: Larkspur SMART - Cumulative No Project

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 49400 SPEED (MPH): 40 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 24 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 70.59

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
80.3	166.7	356.1	765.7

TABLE Cumulative No Project-02
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 05/28/2013
ROADWAY SEGMENT: Sir Francis Drake Boulevard - Eliseo Drive to US-101 SB Ramps
NOTES: Larkspur SMART - Cumulative No Project

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 57400 SPEED (MPH): 40 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 24 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 71.24

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
88.0	183.9	393.4	846.2

TABLE Cumulative No Project-03
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 05/28/2013
ROADWAY SEGMENT: Sir Francis Drake Boulevard - US-101 NB Ramps to Larkspur Landing Circle
NOTES: Larkspur SMART - Cumulative No Project

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 48900 SPEED (MPH): 40 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 30 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 70.16

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
81.7	166.5	354.0	760.4

TABLE Cumulative No Project-04
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 05/28/2013
ROADWAY SEGMENT: Sir Francis Drake Boulevard - Larkspur Landing Circle to Larksput Landing Circle
NOTES: Larkspur SMART - Cumulative No Project

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 33600 SPEED (MPH): 40 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 24 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 68.91

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
63.9	129.8	275.9	592.4

TABLE Cumulative No Project-05
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 05/28/2013
ROADWAY SEGMENT: Sir Francis Drake Boulevard - Larkspur Landing Circle to Drakes Cove Road
NOTES: Larkspur SMART - Cumulative No Project

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 36700 SPEED (MPH): 40 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 18 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 69.73

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
65.4	136.6	292.2	628.4

TABLE Cumulative No Project-06
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 05/28/2013
ROADWAY SEGMENT: Eliseo Drive - Sir Fancis Drake Boulevard to Bretano Way
NOTES: Larkspur SMART - Cumulative No Project

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 4600 SPEED (MPH): 25 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 12 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 56.37

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	0.0	0.0	76.0

TABLE Cumulative No Project-07
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 05/28/2013
ROADWAY SEGMENT: Larkspur Landing Circle - Sir Francis Drake Boulevard to Old Quarry Road S.
NOTES: Larkspur SMART - Cumulative No Project

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 10200 SPEED (MPH): 25 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 18 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 59.33

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	0.0	61.8	128.7

TABLE Cumulative No Project-08
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 05/28/2013
ROADWAY SEGMENT: Larkspur Landing Circle - Drakes Way to Sir Francis Drake Boulevard
NOTES: Larkspur SMART - Cumulative No Project

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 8800 SPEED (MPH): 25 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 18 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 58.69

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	0.0	56.6	116.9

TABLE Cumulative Plus Project-01
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 05/28/2013
ROADWAY SEGMENT: Sir Francis Drake Boulevard - La Cuesta Drive to Eliseo Drive
NOTES: Larkspur SMART - Cumulative Plus Project

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 50200 SPEED (MPH): 40 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 24 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 70.66

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
81.0	168.5	359.9	774.0

TABLE Cumulative Plus Project-02
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 05/28/2013
ROADWAY SEGMENT: Sir Francis Drake Boulevard - Eliseo Drive to US-101 SB Ramps
NOTES: Larkspur SMART - Cumulative Plus Project

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 58500 SPEED (MPH): 40 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 24 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 71.32

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
89.0	186.2	398.4	857.0

TABLE Cumulative Plus Project-03
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 05/28/2013
ROADWAY SEGMENT: Sir Francis Drake Boulevard - US-101 NB Ramps to Larkspur Landing Circle
NOTES: Larkspur SMART - Cumulative Plus Project

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 52800 SPEED (MPH): 40 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 30 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 70.50

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
85.4	174.9	372.4	800.2

TABLE Cumulative Plus Project-04
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 05/28/2013
ROADWAY SEGMENT: Sir Francis Drake Boulevard - Larkspur Landing Circle to Larksput Landing Circle
NOTES: Larkspur SMART - Cumulative Plus Project

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 35600 SPEED (MPH): 40 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 24 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 69.16

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
66.1	134.7	286.6	615.7

TABLE Cumulative Plus Project-05
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 05/28/2013
ROADWAY SEGMENT: Sir Francis Drake Boulevard - Larkspur Landing Circle to Drakes Cove Road
NOTES: Larkspur SMART - Cumulative Plus Project

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 37500 SPEED (MPH): 40 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 18 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 69.82

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
66.3	138.5	296.4	637.5

TABLE Cumulative Plus Project-06
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 05/28/2013
ROADWAY SEGMENT: Eliseo Drive - Sir Fancis Drake Boulevard to Bretano Way
NOTES: Larkspur SMART - Cumulative Plus Project

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 4600 SPEED (MPH): 25 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 12 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 56.37

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	0.0	0.0	76.0

TABLE Cumulative Plus Project-07
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 05/28/2013
ROADWAY SEGMENT: Larkspur Landing Circle - Sir Francis Drake Boulevard to Old Quarry Road S.
NOTES: Larkspur SMART - Cumulative Plus Project

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 11100 SPEED (MPH): 25 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 18 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 59.70

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	0.0	65.1	136.0

TABLE Cumulative Plus Project-08
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 05/28/2013
ROADWAY SEGMENT: Larkspur Landing Circle - Drakes Way to Sir Francis Drake Boulevard
NOTES: Larkspur SMART - Cumulative Plus Project

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 11300 SPEED (MPH): 25 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 18 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 59.78

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	0.0	65.9	137.6

APPENDIX E

INFRASTRUCTURE NEEDS ANALYSIS TECHNICAL REPORT

LARKSPUR STATION AREA PLAN
Infrastructure Needs Analysis Technical Report
June 17, 2013 *(revised December 10, 2013)*

BKF Engineers has prepared an analysis of the anticipated infrastructure improvements associated with the Preferred Plan identified in the Land Use Alternatives Analysis Report for the Larkspur SMART Station Area Plan. The analysis includes utility and circulation infrastructure as well as new public parks and other amenities and improvements to two existing parks. This analysis will necessarily be refined as additional infrastructure improvements are identified during the EIR process and Station Area Plan development and will be included in the final plan.

The focus for utilities in this report is on sewer and water with respect to capacity and future impact. Joint trench utilities (power, phone, cable and natural gas) are already in place in the station area roads, and these utility providers are required to supply service to new customers upon request. For storm, state law mandates that developments over 10,000 sf shall not allow more water off-site than the current site condition does. This means that future development will not have a significant impact on the existing storm system.

1. Existing Utility Infrastructure

In order to document the utility infrastructure anticipated under the Preferred Land Use Plan, we first developed conceptual infrastructure demands for domestic water, sanitary sewer and storm drain based on the existing and proposed land uses and densities. We then compared these with our findings from the Existing Conditions report to confirm if adequate infrastructure is in place or if additional infrastructure mitigation is required to support the proposed uses.

Through research conducted in the Existing Conditions Report phase, we found that the station area benefits from well-developed regional and local water, sewer and storm infrastructure networks that in general have sufficient capacity to accommodate the proposed land uses and densities without modification to existing mains. New utility infrastructure improvements are therefore primarily limited to installation of utility services for new development parcels. No existing streets have been identified for re-alignment, modification or re-construction and no improvements to utility mains within the public streets are anticipated as a result of new construction in the station area.

A summary of the existing conditions of the water, sewer and storm systems within the station area follows:

Water

Marin Municipal Water District (MMWD) owns and operates the existing domestic water facilities within the SMART Station Area Plan. MMWD provides water to an area of 147 square miles within south and central Marin County through a distribution and transmission piping system of about 900 miles in total pipe length. The majority of water supplied to this region consists of surface water runoff from Lagunitas Creek stored in MMWD reservoirs. The balance of the water, approximately 25% of the total supply, comes from the Russian River Basin in Sonoma County under a contract with the Sonoma County Water Agency (SCWA).

MMWD has three water treatment plants that treat the reservoir water prior to distribution to the District's service area customers. Surface water that fills the reservoirs is treated at either the San Geronimo Treatment Plant in Woodacre or the Bon Tempe Treatment Plant in the Mt. Tamalpais Watershed. The balance of the water supply is imported from the SCWA and is treated at MMWD's Ignacio treatment facility.

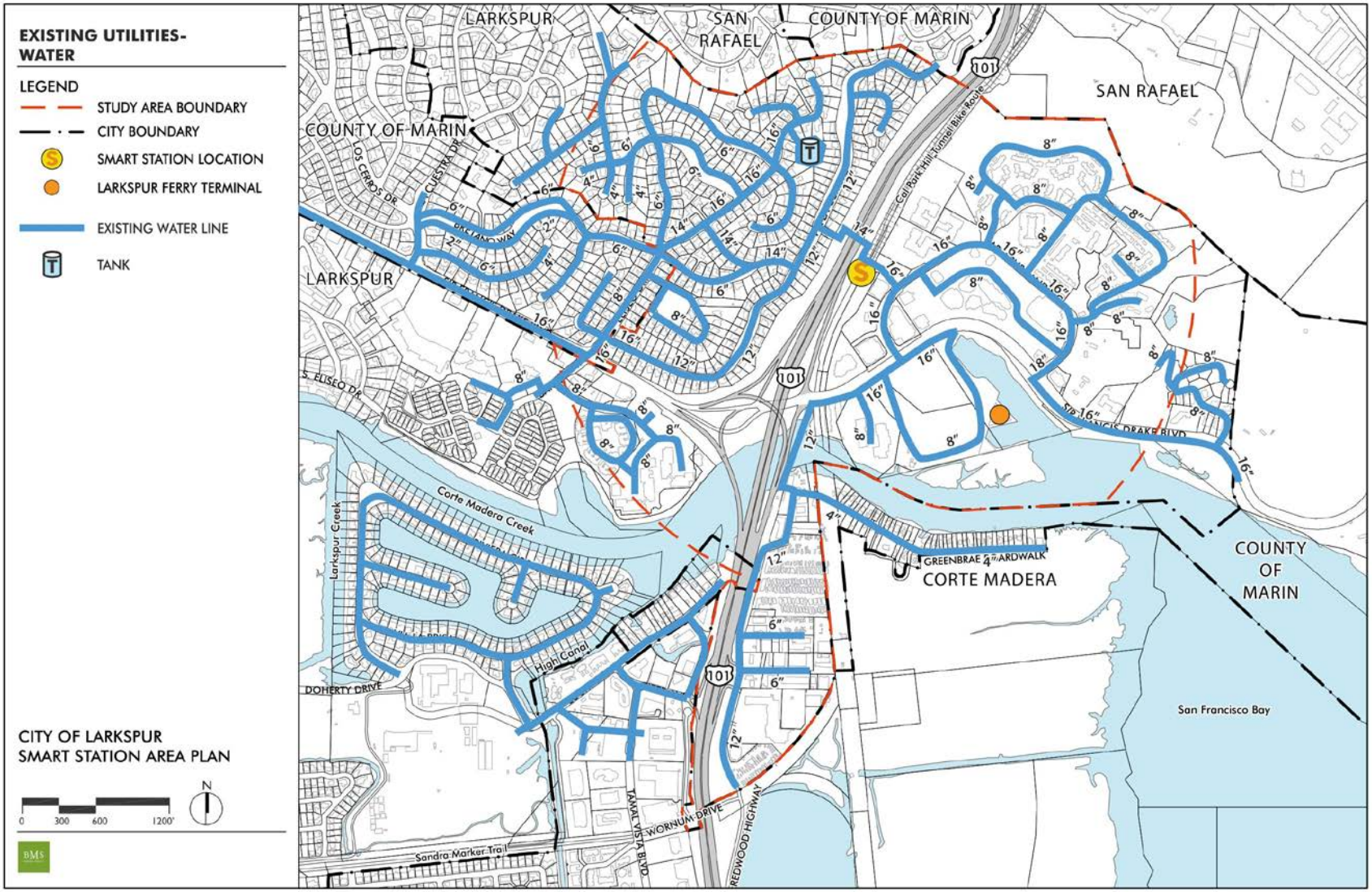
The Marin Municipal Water District (MMWD) water storage capacity, treatment capacity, and distribution systems are currently functioning within normal operating ranges. MMWD defines its service in the Larkspur SAP as very good with sufficiently sized pipes, modern construction, and good service pressures. Standard water service installations and the relocation of existing infrastructure may be necessary to support redevelopment. The redevelopment of the study area is not anticipated however to trigger improvements to regional storage capacity or treatment facilities. No new potable water supply projects are necessary to increase the amount of available potable water supply.

MMWD also has recycled water available that provides a drought-resistant supply of water to portions of their district for non-potable uses. The current recycled water service area includes portions of Terra Linda, Marinwood, Santa Venetia and the Marin Civic Center. Although a recycled water source has not yet been identified for the Larkspur area, redevelopment of the station area would likely require installation of recycled water infrastructure in anticipation of future availability.

Long term water supply for most communities within the San Francisco Bay Area region continues to be a concern. MMWD adopted the 2010 Urban Water Management Plan (UWMP) in July 2011. The UWMP included an assessment of water demand and supplies over a 25 year planning horizon (2010-2035). The conclusion of the assessment was that the District's commitment to water conservation and implementation of the Water Conservation Master Plan, as well as, its commitment to complying with the Water Conservation Bill of 2009 are projected to maintain water demand at a level that can be supplied from existing water supply sources. The Water Conservation Bill of 2009 includes elements of the 20x2020 Water Conservation Plan which was designed to reduce the statewide per capita urban water use by 20 percent by the year 2020.

In addition to the water conservation goals set by the state with the 20x2020 Plan, the City of Larkspur has recently adopted amendments to their Municipal Code with Ordinance 990 on May 1, 2013, which will assist in meeting the goals set by the 20x2020 Plan. For new residential construction, or residential alteration projects of various values, minimum levels of compliance with the 2010 Edition of the California Green Building Standards Code have been adopted. For new non-residential construction, or alterations of various values, minimum levels of compliance with LEED must be met. Both of these "green construction codes" have various options for compliance at their different levels which could reduce energy consumption and water consumption (and therefore wastewater production). This leaves room for selection as to how to meet the requirements for all projects. However, for all non-residential construction projects, the new Municipal Code specifies that LEED Water Efficiency Pre-requisite 1 (WE P1) must be met at a baseline as a minimum. WE P1 states that water consumption for the building must be 20% below its established baseline.

Figure 1: *Existing Water Infrastructure*



Sewer

Sewer facilities within the Study Area are owned and maintained by several different utility agencies within the region including Sanitary District No. 1 (Ross Valley Sanitary District), Sanitary District No. 2 (Corte Madera), and Central Marin Sanitation Agency. Sanitary District No. 1 is responsible for wastewater collection and maintenance of the sewer facilities in the Larkspur SAP sub-areas 1A and 1B. Sanitary Sewer Facilities located within SAP sub-area 2 full under the jurisdiction of Sanitary District No. 2. Both districts ultimately convey their sewage to the CMSA sanitation treatment plant located in San Rafael through the large 54" transmission force main in Sir Francis Drake Boulevard.

The Ross Valley Sanitary District service area includes the communities of Fairfax, San Anselmo, Ross, Larkspur, Bon Air, Sleepy Hollow, Kentfield, Kent Woodlands, Oak Manor, and Greenbrae, plus Murray Park and San Quentin Prison. RVSD's sewer facilities within the two sub-areas consist of gravity and pressure force mains of various sizes and materials including polyvinyl chloride (PVC), vitrified clay (VCP), high density polyethylene (HDPE), and cast iron (CIP).In addition to the over 40,000 linear feet of sewer pipes, RVSD also owns and maintains four sewer pump stations within the Larkspur SAP. These pump stations and associated force mains convey sewage within areas of flat topography where it is not feasible to provide gravity flow and to convey sewage to the CMSA facilities.

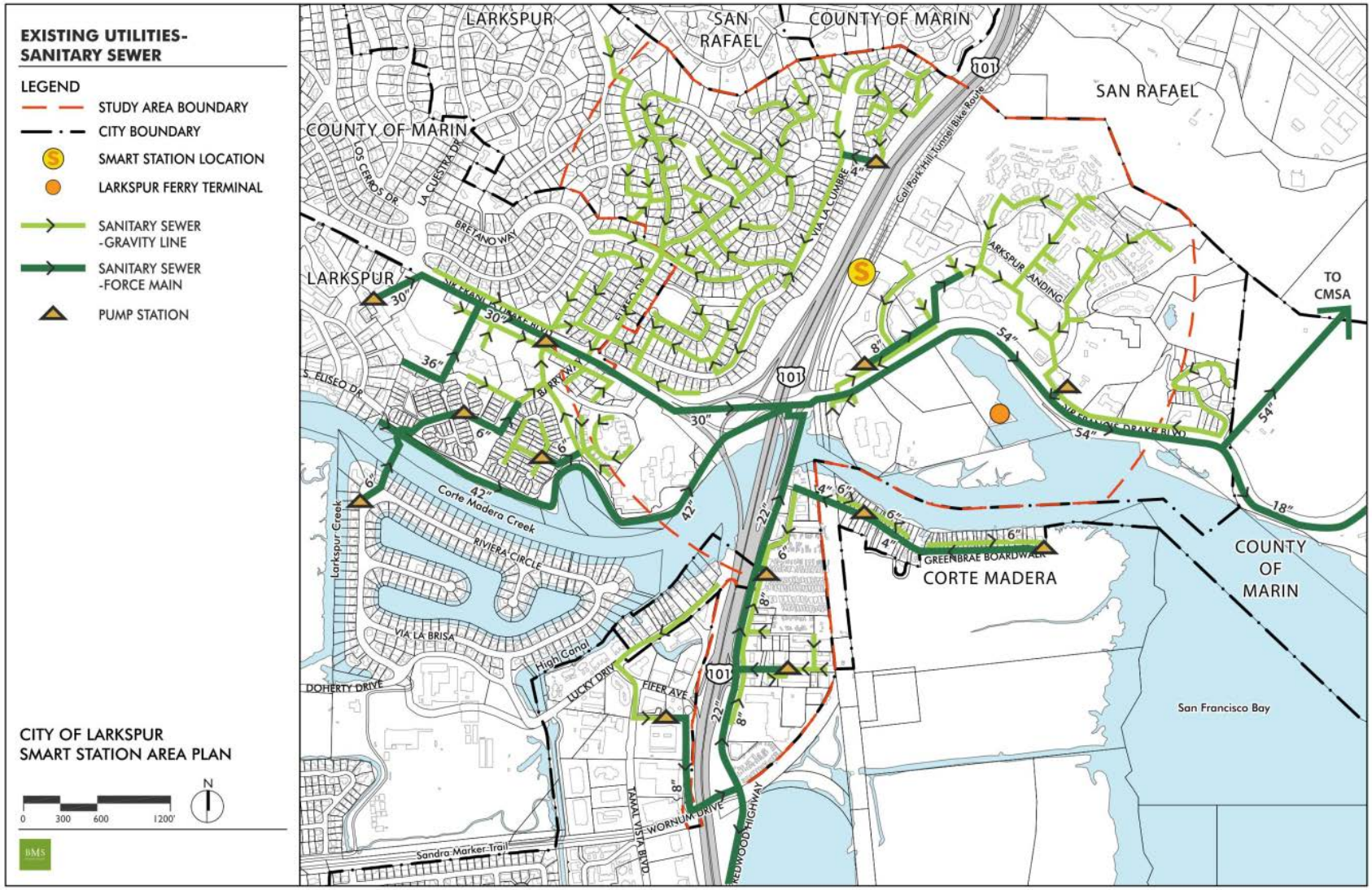
The major sewer trunk line within sub-area 2 is a 22" force main that conveys the areas sewer flow north within Redwood Highway with an ultimate connection to CMSA's 54" force main in Sir Francis Drake Boulevard at Hwy 101. Gravity mains within this sub-area are limited to a few service lines within the retail center and in Redwood Highway. Two pump stations located within sub-area 2 as well as one pump station located just west of the SAP at Fifer Avenue and Tamal Vista Boulevard pump to the 22" force main. Sanitary District No. 2 owns and maintains all of the sewer facilities within this sub-area with the exception of the maintenance for the pump stations. That maintenance is contracted out directly to CSMA.

Much of the sewer infrastructure within the Larkspur SAP is old. The District having been established in 1899, many of the facilities currently in service were installed prior to 1950. In January 2007, knowing that the system was aging, the District published their most recent Sewer System Replacement Plan. This plan documented a specific strategy for maintenance and replacement of existing lines on a timeline commensurate with the known state of the system at that time. Since 2011, the District has been in the process of performing a video assessment of the entire system. They are about 50% complete as of March 2013, and the process has been shedding new light on the condition of the existing sewer mains, although no new assessment or plan has yet been published. Most recently, on March 25, 2013, the San Francisco Bay Region of the California Regional Water Quality Control Board issued a Tentative Cease and Desist Order for the Ross Valley Sanitary District. A public hearing will be held on May 8, 2012. In light of the recent discovery of the deteriorated state of the system, a new, more accelerated rate of main replacement is likely to be implemented. A complete, new evaluation and report of the system is yet to be completed, and it is not clear at this time if lines in the station area are included among the ones of highest concern. In either case, replacement of sewer lines due to age is something that would necessarily occur, regardless of new development in any area of the District.

As private properties within the Larkspur SAP are developed, project-specific capacity and condition analysis of the applicable sewer facilities adjacent to the project should be performed to identify any impacts to the system. Impacted facilities may require mitigation, which could include modifications to the pump stations. Extensions of the main lines and construction of new services may also be required for the areas of the study that have limited existing infrastructure. Modifications such as these would be the responsibility of the private development.

The Central Marin Sanitation Agency (CMSA) wastewater treatment plant treats an average of about 11 million gallons of wastewater per day and serves the communities of Larkspur, San Rafael, Ross Valley, and Corte Madera. As part of their NPDES permit requirements, CMSA completed improvements to their treatment facilities in 2010 that increased their treatment capacity from 90 MGD to 125 MGD and their hydraulic capacity from 90 MGD to over 155 MGD. Additionally, the requirements for future reduction of water use set by the 20x2020 Plan and the Municipal Code will mean a corresponding reduction in production of wastewater per land use. Further, in order to meet LEED compliance goals, larger non-residential projects may opt to install grey water systems to treat and reuse wastewater on-site. Redevelopment of the Larkspur SAP is not anticipated to significantly impact the capacity of the CMSA treatment plant.

Figure 2: *Existing Sewer Infrastructure*



Storm

Major Storm Drainage infrastructure within the Study Area is owned and operated by the City of Larkspur and maintained by the City's maintenance division. The City is responsible for maintaining the drainage infrastructure from drain pipes to flood channels to natural creeks. Specifically, the City is responsible for protecting the City citizens from flooding. Local collection systems consisting of underground pipes, concrete channels, culverts, and swales collect and convey storm drainage to the creeks and San Francisco Bay.

The Larkspur Specific Plan consists of parcels that range from developed land with high percentages of impervious areas (sub-areas 1A and 2) to parcels that contain more landscaping and open space (sub-area 1B north of SFD). It is assumed that the majority of storm water runoff currently flows from these parcels directly into the public storm drain infrastructure with little to no retention or treatment. This can have negative impacts on downstream capacity as well as water quality in the creeks and Bay.

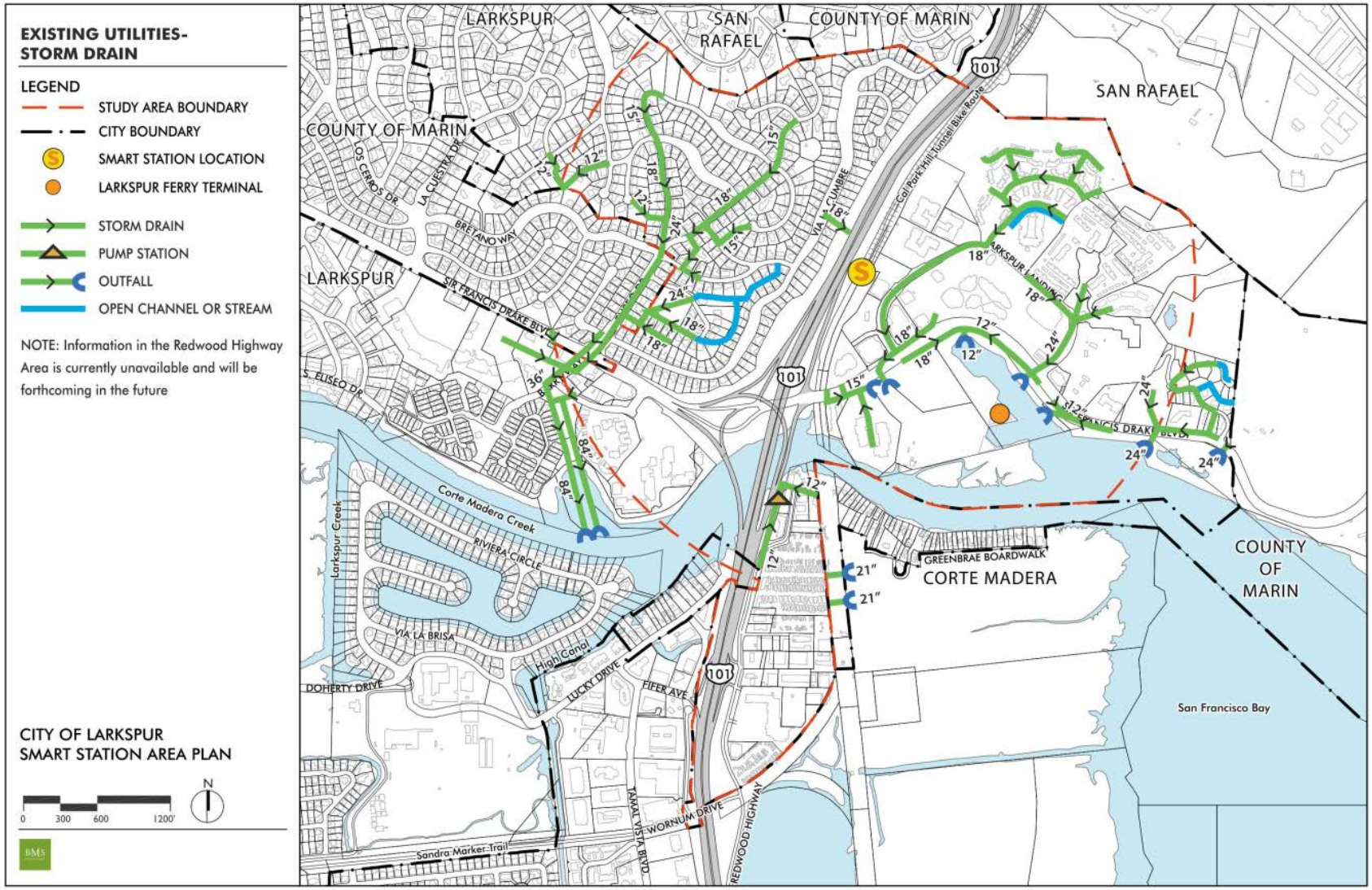
As development occurs, changes in the amount of impervious surface within each parcel can impact the runoff characteristics of the region. Both new development and redevelopment projects that would increase the amount of storm water runoff will be subject to mitigating these increases so that post-construction storm water runoff is not greater than the pre-construction condition. By managing storm water runoff through development, also referred to as hydromodification, the water capacity and quality of the streams and receiving waters can be preserved.

Storm water quality also needs to be taken into consideration as the station area redevelops. New developments that create or replace more than 10,000 square feet of impervious surface must comply with Provision C.3 of the Marin County municipal storm water permit and with the California State Water Board. Commonly accepted measures for water quality treatment include such treatment methods as bioswales, flow-through planters and detention basins, as well as green roofs. Both individual project level as well as regional level storm water management programs should be considered to achieve overall storm water quality compliance. Marin County coordinates stormwater requirements primarily through their MCSTOPPP program: Marin County Stormwater Pollution Prevention Program.

In addition to County C.3 requirements, the new adoption of green building requirements into the City's Municipal Code presents the opportunity for developers to meet minimum thresholds by implementing measures to reduce stormwater runoff or improve stormwater quality.

The end result of all the current state and regional storm water regulations is that future development will, as a legal necessity, have a negligible impact on the existing storm drain system. Over time, it is more likely that peak flows in the system will be less than present-day, and, the water conveyed to the Bay will be higher quality.

Figure 3: *Existing Storm Infrastructure*



2. Infrastructure Demands

The Preferred Plan, Alternative 4, developed by the station area plan has targeted development rates and land uses for the identified opportunity sites. Land use for the Preferred Plan compared to current land use is detailed in Table 1 for all opportunity sites.

Table 1: *Preferred Plan Matrix*

Site	Existing Land Use		Alternative 4 Preferred Plan			
1	Public Facility/Transit	25,000 sf	Residential	35 dus/ac	300	dus
			Public Facility/Transit to remain		25,000	sf
FERRY			Public Park		1	ac
			Retail - ground floor		2,500	sf
2	Public Facility/Transit	2,500 sf	Public Facility/Transit to remain		2,500	sf
AIRPORTER						
3	Office (Admin & Prof)	190,000 sf	Office to remain		190,000	sf
LARKSPUR OFFICES	Cinema	16,000 sf	Office (additional)		50,000	sf
& CINEMA			Cinema to remain		16,000	sf
			Retail		35,000	sf
4	Office	45,000 sf	Residential	30 dus/ac	300	dus
MARIN CNTRY MT	Retail (Gen Commercial)	175,000 sf	Retail (additional)		40,000	sf
			Retail to remain		175,000	sf
5	Vacant*	0 sf	Residential	35 dus/ac	250	dus
SANITARY DISTR			Hotel	60,000 sf =	100	rooms
			Office		12,500	sf
6	Office (Admin & Prof)	126,000 sf	Residential	30 dus/ac	70	dus
DRAKES LANDING			Office to remain		126,000	sf
7	Office (Admin & Prof)	18,000 sf	Office	0.5 FAR	40,000	sf
OFFICES						

*Ordinances 951 and 954 approved the precise development plans for the residential and hotel portions of the development (respectively). Reso. 34/05 amended the land use category for a portion of the parcel to Public Facilities; however, there was never a precise plan approval for exact square footage allowances and other development standards for the public facilties portion of the property.

Based on the above numbers for land use by study area site (numbered 1-7), water demands were estimated for existing and proposed conditions and calculations were made to determine the changes in demand. Estimates represent an "order of magnitude" study which would be refined with specific project design in the future. Estimated rates of water use were assigned to each land use based on current usage rates (not accounting for future conservation measures which may reduce expected demands by customers). Water consumption rates represent average daily rates per land use as observed by another Bay Area water agency, as MMWD did not have rates available.

Table 2: *Water Consumption Rates by Land Use*

	Water Consumption Rates				
	Office/ Public	**Hotel**	**Retail/ Cinema**	**Residential**	**Industrial/ Auto-Serving**
Unit →	**GPD/SF**	**GPD/Room**	**GPD/SF**	**GPD**	**GPD/SF**
	0.1035	175.00	0.2820	179	0.1035

Assigning the Water Consumption Rates shown in Table 2 to the existing land uses on the opportunity sites summarized in Table 1, the following daily rates of consumption are estimated. In total, existing water demand for the station area opportunity sites is estimated to amount to approximately 0.1 Million Gallons per Day (MGD).

Table 3: *Estimated Water Usage for Opportunity Sites' Existing Land Use*

		Estimated Water Demand: Existing Land Use				
		Office/ Public	**Hotel**	**Retail/ Cinema**	**Residential**	**Industrial/ Auto-Serving**
Site ↓	**Unit →**	**GPD**	**GPD**	**GPD**	**GPD**	**GPD**
1		2,588	0	0	0	0
2		259	0	0	0	0
3		19,665	0	4,512	0	0
4		4,658	0	49,350	0	0
5		0	0	0	0	0
6		13,041	0	0	0	0
7		1,863	0	0	0	0
	Total →	**42,073**	**0**	**53,862**	**0**	**0**

Assigning the Water Consumption Rates shown in Table 2 to the proposed land uses for opportunity sites in the Preferred Alternate plan as shown in Table 1, the following rates of consumption are estimated. In total, applying current water usage rates, future water demand for opportunity sites in the station area is estimated to amount to approximately 0.3 MGD. When considering compliance with the California Green Building Standards Code requirements, the projection is reduced to 0.24 MGD. Table 4 below shows the future rates with current usages.

Table 4: *Water Usage for Preferred Plan Opportunity Sites*

		Alternative 4: Preferred Plan				
		Office/ Public	Hotel	Retail/ Cinema	Residential	Industrial/ Auto-Serving
Site ↓	**Unit →**	**GPD**	**GPD**	**GPD**	**GPD**	**GPD**
1		2,588	0	705	53,700	0
2		259	0	0	0	0
3		24,840	0	14,382	0	0
4		0	0	60,630	53,700	0
5		1,294	17,500	0	44,750	0
6		13,041	0	0	12,530	0
7		4,140	0	0	0	0
	Total →	**46,161**	**17,500**	**75,717**	**164,680**	**0**

The Marin Municipal Water District (MMWD) Urban Water Management Plan (UWMP) accounts for some regional growth in their future estimates for water demand and system design. Development proposed by the Preferred Plan represents more than a 300% increase in water demand as compared with the current demand in the station area. The 300% increase is reduced to 254% if looking at the 20% reduced future use rates. Only a portion of this increase is accounted for in the UWMP. The 2010 UWMP is based on ABAG's predictions for population growth published in 2009, showing a population increase in Larkspur of 1,100 residents from 2010 to 2030. This Preferred Plan estimates that the development will bring in 2,033 new residents. The MMWD will publish a new UWMP in 2015. They are anticipating inclusion of updated growth estimates for the City of Larkspur based on this Preferred Plan. At this time, it is estimated that current MMWD storage facilities and distribution network are adequate to accommodate the growth, however water supply must be confirmed. New projects may be required to install infrastructure for recycled water, although it is not clear at this time what standards will trigger implementation.

As a general estimate, sewer flows for dry weather can be estimated as 90% of the water usage rates. Using this rule, existing land uses in the station area would generate an estimated 0.09 MGD of sewer flow in dry weather, while the future flows with the proposed Preferred Plan would be approximately 0.27 MGD, or an additional 0.19 MGD of sewer flow. Since the Central Marin Sanitation Agency (CMSA) wastewater treatment plant currently treats an average of 11 MGD, the anticipated flows represent about 2.5% of current treatment rates. However, with the current capacity of the plant at 125 MGD, it represents only about 0.2% of total capacity. Again, the future numbers will be lower than anticipated after the 20x2020 Plan is fully implemented. It's important to note that, while the existing lines may require replacement in the near future due to deteriorating structural integrity, the current line sizes appear to be adequate to support the development of the Preferred Plan for the station area. Aging lines requiring repair or replacement would require the work whether or not there was any new development in the area.

Since current State storm water requirements mandate that new developments or re-developed areas greater than 10,000 sf must maintain post-construction stormwater flows from the site at

pre-construction levels, no changes are anticipated for the study area as a whole. However, projects will need to treat their generated flows individually to ensure flows are not increased, whether the projects are public or private. Additionally, all stormwater flows will need to be treated to prevent pollution. Commonly accepted measures include such treatment methods as bioswales, flow-through planters and detention basins, as well as green roofs.

Joint trench utilities (power, phone, cable and natural gas) are already in place in the station area roads. These utility providers are required to supply service to new customers upon request. Relocation of roadways would necessitate relocation of joint trench utilities, and construction on currently undeveloped parcels would likely require new services be connected.

Based on the above findings, there are not anticipated to be any significant City of Larkspur costs associated with utility modifications or upgrades to mains. Standard operations and maintenance practices and schedules already in place are expected to accommodate functionality of existing lines. Private development projects would be responsible for extending utilities to their site or modifying existing services. If determination is made in the future that a given development would have a negative impact on public facilities, that development would be required to facilitate modifications.

3. Circulation Improvements

The Preferred Plan includes a number of circulation improvements throughout the station area that are proposed under other projects, including the Central Marin Ferry Connection and the Greenbrae Corridor Improvement Project. Additional circulation infrastructure improvements being proposed under this Station Area Plan include sidewalk and street crossing improvements intended to facilitate better pedestrian circulation throughout the Larkspur Landing Area (see Figure 4). Improvements include linking existing pedestrian walkways and installing new street crosswalks. The analysis does not take into consideration costs associated with land acquisition to establish public right-of-way or private improvement modifications to mitigate conflicts if existing rights-of-way are insufficient for the new sidewalks.

Our analysis includes soft costs for Design, Inspection, Staking, Construction Administration and Project Management.

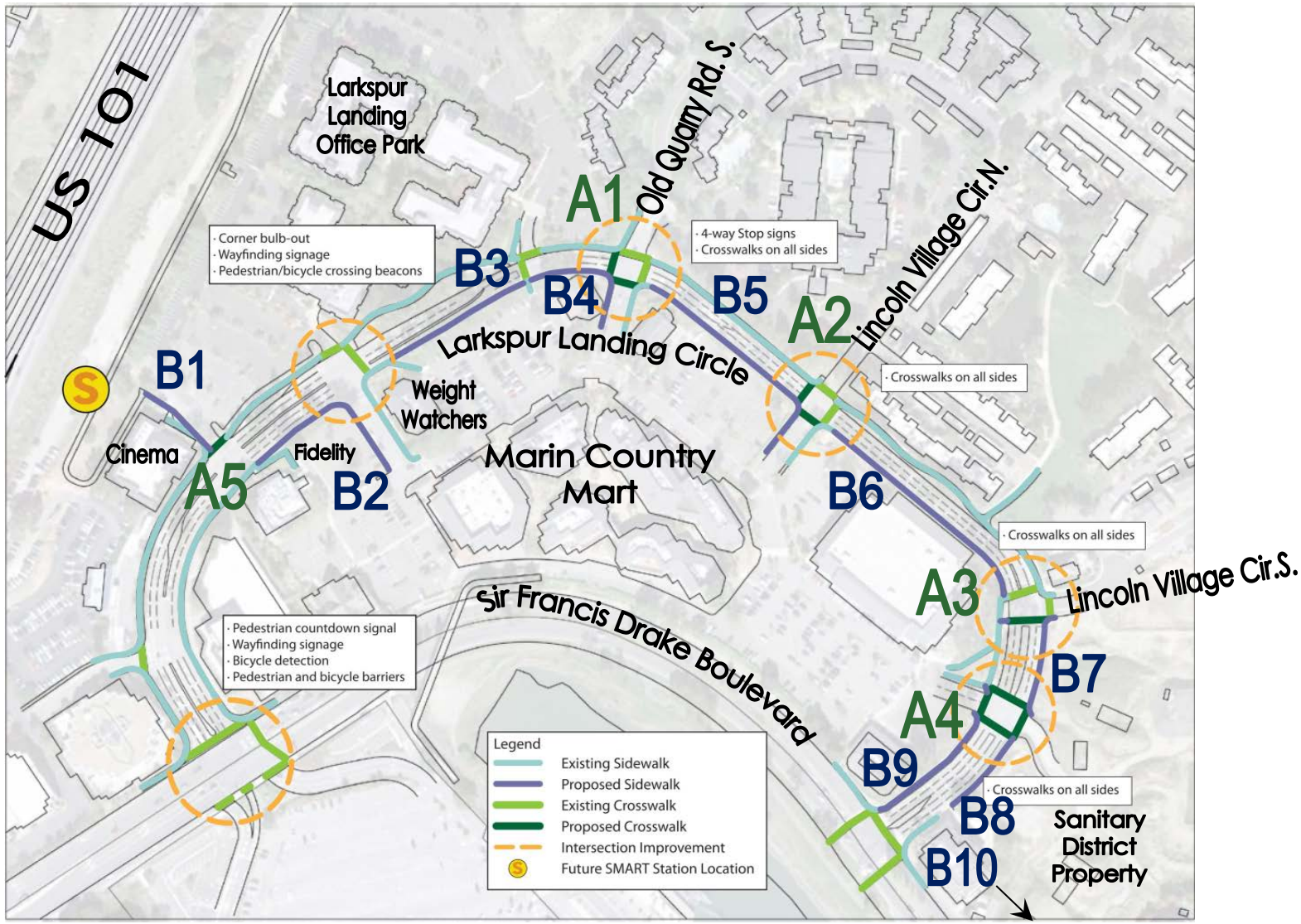
<u>Local Crosswalk Improvements</u>

Five existing intersections along Larkspur Landing Circle have been identified for crosswalk upgrades to improve pedestrian circulation for the ultimate buildout of the station area (See Figure 5). These intersections identified for additional improvements are at Larkspur Landing Circle and:

A1. Old Quarry Road South
A2. Lincoln Village Circle (North)
A3. Lincoln Village Circle (South)
A4. Sanitary District Property entrance/Marin Country Mart south entrance
A5. Entry to Cinema site

Costs associated with these improvements were estimated based on generally expected site conditions and reflect industry average construction costs. New crosswalks were assumed to be striped to match existing crossings, with the of addition in-pavement lighting.

Figure 4: *Larkspur Landing Circle Improvements*



New Sidewalk Improvements

Existing sidewalk along the length of Larkspur Landing Circle is not continuous on either side. Along with the crosswalk improvements identified above, unimproved segments of sidewalk were identified for installation. Similar to our methodology for assigning cost values to the previously mentioned crosswalk improvements, we have assigned costs based on specific improvements generally expected in standard conditions. These include landscape and irrigation, street lighting, street trees, signage and stormwater BMPs in addition to the demo, grading, earthwork, base rock and concrete required for the sidewalk itself.

The following sidewalk segments are proposed:

B1. Cinema Frontage off Larkspur Landing Circle (LLC)
B2. LLC (South frontage) Fidelity building to Marin Country Mart (MCM) entry
B3. LLC (South frontage) Weight Watchers building to Office Park east entry
B4. LLC (South frontage) Office Park east entry to Old Quarry Road S. into MCM
B5. LLC (South frontage) Old Quarry Road S. to Lincoln Village Circle N. and into MCM
B6. LLC (South frontage) Lincoln Village Circle N. Lincoln Village Circle S.
B7. LLC (East frontage) Lincoln Village Circle S. to Sanitary District Site
B8. LLC (Southeast frontage) Sanitary District Site to Offices
B9. LLC (Northwest frontage) MCM south entry to Sir Francis Drake Blvd.
B10. Sir Francis Drake Blvd. (North frontage) east of the Melting Pot

A summary of the estimated costs associated with the proposed crosswalk and sidewalk improvements is provided in Table 5 below. In addition to the other assumptions, the sidewalk along Sir Francis Drake Boulevard is assumed to not require any major earthwork or retaining wall work and that ample flat space exists along the existing roadway, but that a safety rail would be required.

Table 5: *Circulation Improvements Costs*

ITEM	DESCRIPTION	UNITS	UNIT COST	QUANTITY	COST
A	LOCAL CROSSWALK IMPROVEMENTS				
1	Larkspur Landing Circle & Old Quarry Rd. S.	EA	$26,300	2	$53,000
2	Larkspur Landing Circle & Lincoln Village Circle N.	EA	$26,300	2	$53,000
3	Larkspur Landing Circle & Lincoln Village Circle S.	EA	$26,300	1	$30,000
4	Larkspur Landing Circle & Sanitary Dist. Site	EA	$26,300	4	$110,000
5	Larkspur Landing Circle & Cinema Site	EA	$26,300	1	$30,000
	LOCAL CROSSWALK IMPROVEMENTS SUBTOTAL				**$276,000**
				Design, Soft Costs, Mapping (at 15%)	$41,400
				Inspection, Staking, C/A (at 10%)	$27,600
				Project Management (at 5%)	$13,800
				TOTAL CONSTRUCTION COST	**$358,800**
B	NEW SIDEWALK IMPROVEMENTS				
1	Cinema Frontage off Larkspur Landing Circle (LLC)	LF	$300	165	$49,500
2	LLC (South frontage) Fidelity bldg to Marin Country Mart (MCM) entry	LF	$300	335	$100,500
3	LLC (South frontage) Weight Watchers bldg to Office Park east entry	LF	$300	280	$84,000
4	LLC (South frontage) Office Park east entry to Old Quarry Road S. into MCM	LF	$300	290	$87,000
5	LLC (South frontage) Old Quarry Road S. to Lincoln Village Circle N. and into MCM	LF	$300	500	$150,000
6	LLC (South frontage) Lincoln Village Circle N. Lincoln Village Circle S.	LF	$300	435	$130,500
7	LLC (East frontage) Lincoln Village Circle S. to Sanitary District Site	LF	$300	195	$58,500
8	LLC (Southeast frontage) Sanitary District Site to Offices	LF	$300	170	$51,000
9	LLC (Northwest frontage) MCM south entry to Sir Francis Drake Blvd.	LF	$300	270	$81,000
10	Sir Francis Drake Blvd. (North frontage) east of the Melting Pot [6]	LF	$250	400	$100,000
	NEW SIDEWALK IMPROVEMENTS SUBTOTAL				**$892,000**
				Design, Soft Costs, Mapping (at 15%)	$133,800
				Inspection, Staking, C/A (at 10%)	$89,200
				Project Management (at 5%)	$44,600
				TOTAL CONSTRUCTION COST	**$1,159,600**

4. Public Facilities and Open Space Improvements

In addition to the circulation and pedestrian improvements described above, the Preferred Plan proposes the provision of new public open space as well as improvements to existing public parks. Two public plazas are proposed, including one along the frontage of the Marin Country Mart, overlooking Sir Francis Drake Boulevard and the bayfront and another at the south end of the Ferry Terminal parking lot. While these facilities are not yet precisely defined, some assumptions have been made as to spacing of pedestrian lighting, paving and landscaping in order to provide estimates for planning purposes. These should be considered "order of magnitude" estimates.

Along with the new plaza areas, existing facilities have been recommended for upgrades along Sir Francis Drake Boulevard. The existing medians from the US 101 north-bound off and on ramps to the Melting Pot, just to the east of Larkspur Landing Circle are currently partially paved and partially landscaped. Although Sir Francis Drake Boulevard is Caltrans right-of-way in this area, the medians are maintained by the City of Larkspur. An estimate is provided to cover new landscaping and trees on the three lengths of median, approximately 28,000 sf, here. There is also an existing trail approximately 2,800 feet in length along the south side of Sir Francis Drake Boulevard, from the Ferry Terminal to Remillard Park. Some costs are estimated here for improvements to the trail in the form of landscaping, lighting and occasional benches.

Also as a part of this analysis, cost estimates for improvements to Miwok Park and Remillard Park, which were originally detailed in a May 1999 report titled "Larkspur Mini Parks Master Plan," have been updated for 2013 costs. The original report provided itemized improvements and costs and was updated in July 2000. A 45% rate of inflation was applied to the costs shown from 1999. This rate was taken from the Turner Construction Cost Index. Our updates also include soft costs for Design, Inspection, Staking, Construction Administration and Project Management and are summarized in Table 6. A summary of the proposed park improvements is included in the Urban Design Guidelines section of the Station Area Plan.

Table 6: *Public Facility Improvements Costs*

C	PUBLIC FACILITY IMPROVEMENTS				
1	Marin Country Mart Promenade	SF	$300	37,000	$11,100,000
2	Ferry Terminal Plaza	SF	$300	34,000	$10,200,000
3	Upgrades to Existing Path: Ferry Terminal to Remillard Park	LF	$140	2,765	$387,100
4	Upgrades to Existing Median: Sir Francis Drake Blvd, US 101 to Melting Pot	SF	$26	28,000	$728,000
5	Upgrades to Existing Facilities: Miwok Park	LS	$478,700	1	$478,700
6	Upgrades to Existing Facilities: Remillard Park	LS	$165,400	1	$165,400
	PUBLIC FACILITY IMPROVEMENTS SUBTOTAL				**$23,059,200**
				Design, Soft Costs, Mapping (at 15%)	$3,458,880
				Inspection, Staking, C/A (at 10%)	$2,305,920
				Project Management (at 5%)	$1,152,960
				TOTAL CONSTRUCTION COST	**$29,976,960**

The Larkspur SMART station platform and parking improvements would be funded through SMART at a future date and are not included in this analysis as a public facility improvement cost to be incurred by the City of Larkspur.

Figure 5: *Public Facilities and Open Space Improvements*

5. Phasing

Each of the proposed improvement projects would be relatively simple to conduct in self-contained phasing. Since there are no lengths of roadway planned for modification, there will not be a need to redirect traffic through significant detours. Pedestrian crossing upgrades can be conducted one-half street width at a time with traffic control as needed. The intersections and sidewalk segments could be done one at a time or spread out over time depending on availability of funding. For the larger improvements at the SMART station and Ferry Terminal, minor traffic control would be needed onsite for the duration of the projects and projects could be completed as funding is available.

6. Funding Strategy *[Provided by BAE Urban Economics]*

The physical improvements proposed by BKF Engineering for the Station Area Plan are of two primary types:

1) A combination of crosswalk, sidewalk and existing site improvement which are relatively modest in scale (approximately $2 million) and can reasonably be achieved in a relatively short time-frame (1-5 years). The City's existing Capital Improvement Plan (CIP) Fund would be the primary source for funding these improvements drawing on a range of sources that have historically been used to fund infrastructure in Larkspur. These improvements would also enhance the overall walkability and transit connectivity of the area and would likely be considered very competitive for OneBay Area Grant (OBAG) Funding from MTC[1]. According to the City's most recently adopted budget, the most important sources for the Capital Improvements Fund include:

- State and Regional Funds (Including those identified as part of the OBAG Program)
- Nonmotorized Transportation Pilot Program (NTTP) Grants (Included under Federal SAFETEA described below and also allocated through the OBAG process).
- Transfers from City General Fund
- General Plan Fees
- Public Private Partner Program

2) Major public facilities improvements, primarily to the Marin Country Mart and the Ferry Plaza Terminal. The approximately $30 million in needed improvements for public facilities will require more significant planning and financial resources and potentially a longer time-frame for implementation. In order to fund these improvements, value capture[2] mechanisms such as Community Benefits Districts and other types of Special Assessment Districts (SADs) will likely be needed to bridge the gap between existing public resources and overall project financing needs.

More specific information on potential funding sources is included in Appendix A.

---

[1] More information from MTC can be obtained here: www.mtc.ca.gov/funding/onebayarea/

[2] Value capture encompasses a set of public financing approaches which attempt to recapture all or part of the increased land values that accrue to property owners as the result of infrastructure investments. Common value capture mechanisms include Special Assessment Districts, Fees, Exactions and a variety of public-private partnership models.

APPENDIX A: POTENTIAL FUNDING SOURCES

Infrastructure Financing District (IFD)
With the dissolution of California Redevelopment, infrastructure financing districts (IFDs) provide an alternative mechanism for California communities to collect tax increment to fund necessary infrastructure and other improvements. Jurisdictions must specify the portion of tax increment to collect over the designated period, as well as the list of projects that the IFD would fund. Once approved, the local government can collect tax increment within the district for use in infrastructure projects, including site acquisition.

There are two challenges to creating an IFD. First, the jurisdiction must get approval from all other taxing entities that would forfeit a portion of their tax revenues. Each entity must pass a resolution accepting the creation of the IFD and the portion of increment they would commit. Second, the creation of an IFD requires approval from a two-thirds majority of registered district voters. Obtaining approval from both the other taxing entities and voters could be difficult, particularly in the current economic climate.

Legislation was considered in the State legislature in 2012 which would have made the formation of IFDs as an alternative to Redevelopment somewhat less cumbersome, but was vetoed by Governor Brown. New legislation may be taken up in 2013.

Sources and Examples:

Rincon Hill IFD, 2010 – Prepared by Keyser Marston
Port of San Francisco IFD Policy, December, 2012
Basic Information from CA State Senate wb site:
senweb03.senate.ca.gov/committee/standing/GOVERNANCE/IFDINFORMATION.HTM

Assessment Districts (Including Community Benefits Districts)
Assessment districts provide a mechanism for property owners to choose to levy an additional tax upon themselves for identified purposes. California law allows the creation of assessment districts for a wide variety of purposes; these can either fund capital improvements, or be established for operating costs (such as lighting and landscaping districts).

There are two primary challenges in establishing assessment districts, particularly for already developed areas. The first challenge is that total property taxes can only rise a certain amount before new development is disadvantaged relative to properties not subject to an assessment. The second challenge is that assessment districts require a majority vote of property owners weighted by property value to pass. In an area with numerous small properties and extensive residential development the prospect of a tax increase may be difficult to pass.

A Business Improvement District (BID) is a type of assessment district that can assess either business owners or property owners (or both) to fund promotional, marketing, and other activities including additional maintenance or other public services or improvements. Related to the traditional BID model, Community Benefits Districts have recently been established in various

California cities to provide a steady stream of funding for services and programs in primarily infill areas[3].

Development Impact Fees
Cities and counties levy impact fees upon new development to mitigate the effects of that development. The establishment of an impact fee requires documentation through a study that meets the requirements of AB1600 for establishment of a clear nexus between the fee to be collected and the improvements that will mitigate the impact of development.

Revenue Bonds
Public activities that are revenue generating, and create sufficient cash flow to cover operating costs and debt service can potentially issue tax-free municipal debt to cover the cost of capital improvements. A common example of this is revenue bonds for parking garage construction where there is pay parking.

General Fund Debt Obligations
New commercial and lodging projects could generate significant new sales tax and transit occupancy (lodging) tax revenues that will flow into the City's General Fund. This new money could be used to finance debt service on tax-exempt debt obligations so that existing activities provided through the General Fund are not impacted. Such a General Obligation bond, however, requires a two-thirds vote of local residents (except for educational facilities) to approve. Alternatively, for facilities that can serve as collateral for debt, certificates of participation are a public finance technique that does not necessarily require a public vote.

State Sources

Most of these are administered regionally through the MTC OBAG funding process which now favors infill areas. In Marin County, 50% of all County-dedicated OBAG funding ($10 Million for the current four year cycle) will be allocated to urban, infill areas like the Community Plan project area.

Safe Routes to School (SR2S)
Like the Federal Safe Routes to School (SRTS), the State's Safe Routes to School program can provide funding for infrastructure projects that are located within the vicinity of a school. Round 10 of funding provides $45 million over two years for these projects. Cities and counties apply to Caltrans for grants and must match 10 percent of funds. The maximum grant allowed is $450,000 for a $500,000 project. AB 57 extended this program indefinitely.

Proposition 1B Programs
In 2007, Californians passed Proposition 1B (Prop 1B), the Highway Safety, Traffic Reduction, Air Quality, and Port Security Bond Act of 2006. Prop 1B provided $19.925 billion for a variety of transportation improvements across California. Although the State has spent most of the funds from Prop 1B, approximately $4 billion remains available for transportation infrastructure improvements. After 2012, California will have likely exhausted this resource.

[3] More information on CFDs can be obtained here: newcityamerica.com/whatiscbd.asp

Bicycle Transportation Account
Caltrans provides grants for infrastructure projects that benefit bicycle commuters through its Bicycle Transportation Account. The project must increase the safety and convenience of bicycle commuters. Cities and counties interested in this funding source must create a Bicycle Transportation Plan (BTP) and submit it to their Regional Transportation Planning Agencies for approval.

Federal Sources

SAFETEA-LU/Surface Transportation Reauthorization Program
President Obama wants to replace the 55-program SAFETEA-LU with the Surface Transportation Reauthorization Program. This program serves the entire Department of Transportation (FWHA), and includes several departments, including the Federal Highway Administration ($70.5 billion) and the Federal Transit Administration ($22.2 billion). Congress has not yet passed the Surface Transportation Reauthorization Program, but keeps extending SAFETEA-LU. SAFETEA-LU grants are highly competitive, often drawing in more funding requests than available monies.

Congestion Mitigation and Air Quality Improvement Program (CMAQ)
Cities and counties can apply to Caltrans and their local COGs and regional transportation entities for FWHA grants that fund infrastructure and transportation improvements that improve air quality. These grants exist under the current SAFETEA-LU program, and require 20 percent matching funds. In FY 2011-2012, CMAQ contributed $491.8 million to California, with an average grant of $14 per person served.4

Transportation, Community, and System Preservation (TCSP) Program
Caltrans typically awards TCSP grants, which exist under the current SAFETEA-LU program. TCSP grants provide funding for projects that reduce the impacts of transportation on the environment, reduce the need for costly future investments in public infrastructure, or provides efficient access to jobs, services, and centers of trade. As with other FWHA grants, TCSP funds require a 20 percent match.

Transportation Investment Generating Economic Recovery (TIGER) Grants
In 2009, the Federal government provided funding for "shovel ready" infrastructure projects to stimulate the economy. This was part of the American Recovery and Reinvestment Act of 2009 (ARRA). Although ARRA is over, the Federal government will use other funding sources to continue providing TIGER grants. These grants can be used to fund transportation projects that promise significant economic and environmental impacts to a region, state, or nation.

Transit Investments for Greenhouse Gas and Energy Reduction (TIGGER) Grants
Cities, counties, states, or transportation agencies can apply for TIGGER grants to fund projects that reduce the energy consumption or the greenhouse gas emissions of transportation systems. These grants are very competitive and require zero to 20 percent matching.

---

[4] Caltrans reports the populations and total grants per region, but does not provide a list of projects. Thus, the average grant is reported on a per capita basis.

Safe Routes to School (SRTS)
Under SAFETEA-LU, the Federal government provides grants to fund infrastructure improvements that calm traffic or provide better bicycle and pedestrian access within two miles of a school. These grants can be used for streetscape improvements, as well as traffic calming infrastructure projects.

Recreation Trails Program
The Federal Highway Administration (FHWA) provides funding to states to develop and maintain recreational trails and trail-related facilities for both non-motorized and motorized recreation trail uses. The FWHA has apportioned $2.7 million to California for fiscal year 2012-13. There is no match required.

National Scenic Byways Program
The FWHA provides funding for improvements to scenic byways. The grants provide merit based funding for byway projects each year and require a 20 percent match. Projects can include signage, pedestrian access improvements, planning, or any activity that improves a scenic byway.

CDBG Infrastructure Financing
For cities and counties not under the HUD CDBG entitlement program, HUD offers grants that can fund infrastructure improvements, provided that low-income residents represent 51 percent of project benefactors. There are two kinds of grants:

- **General Allocation Grants:** The project must address a health and safety need. More competitive projects will benefit a larger percentage of low-income persons. Typical award is $500,000.
- **Over the Counter (OTC) Grants:** Typically award $2.5 million per project. These grants support off-site infrastructure to support business or economic development.

State Loan Programs

Infrastructure State Revolving Loan Fund (ISRF)
The California Infrastructure and Economic Development Bank (I-Bank) loans money for infrastructure projects around the state. The I-Bank is the state's general purpose financing authority that finances public infrastructure and private development projects that promote economic development and revitalize communities.

Federal Loan Programs

Transportation Infrastructure Finance and Innovation Act of 1998 (TIFIA)
Under the Transportation Infrastructure Finance and Innovation Act of 1998 (TIFIA), the FWHA provides Federal credit assistance in the form of direct loans, loan guarantees, and standby lines of credit to finance surface transportation projects of national and regional significance. TIFIA credit assistance provides improved access to capital markets, flexible repayment terms, and potentially more favorable interest rates than can be found in private capital markets for similar instruments. Surface transportation projects, including transit infrastructure projects are eligible for these loans.