

B. TRANSPORTATION AND CIRCULATION

This section evaluates potential transportation and circulation impacts, at a program-level of analysis, that may result from implementing the Larkspur SMART Station Area Plan (proposed project). The evaluation of environmental effects presented in this section focuses on the potential transportation and circulation impacts associated with the full range of transportation concerns, including vehicle traffic circulation, public transit use, bicycle circulation, and pedestrian circulation. Mitigation measures to reduce or eliminate potential significant impacts of the project are included, where feasible and necessary.

1. Setting

Implementation of the Station Area Plan includes a mix of new residential, retail, and office space in the Plan area. 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). Figure IV.B-1 illustrates the Plan area and its relationship to the surrounding road system.

This section includes descriptions of the scope of analysis, methods used for the analysis, existing setting for multi-modal transportation and circulation issues, assumptions regarding future transportation and circulation conditions, and regulatory context. Transportation and circulation impacts that would likely occur with implementation of the Station Area Plan are analyzed and documented following the Setting section, as described below.

This section includes a description of the study locations, the traffic scenarios analyzed, the analysis methods, existing transportation conditions, and the regulatory context.

a. Study Locations. This analysis evaluates the impacts of the proposed project on key roadway facilities, including 10 intersections and five freeway segments. The study area for the traffic analysis was selected based on local traffic patterns, input from local authorities, and engineering judgment. The study area is comprehensive; the impacts of the proposed project are well-contained within it and no measurable impacts are anticipated beyond these borders. The study locations are listed below and shown on Figure IV.B-1.¹ All study intersections are controlled by a traffic signal, except Intersection #8 East Sir Francis Drake Boulevard/Andersen Drive.

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 U.S. 101 Southbound Ramps/Sir Francis Drake Boulevard
- #5 U.S. 101 Northbound Ramps/Sir Francis Drake Boulevard
- #6 Sir Francis Drake Boulevard/Larkspur Landing Circle (West)/Ferry Terminal Entrance

¹ Intersection #1 (Sir Francis Drake Boulevard/Wolfe Grade), Intersection #2 (Sir Francis Drake Boulevard/Bon Air Road), Intersection #8 (Sir Francis Drake Boulevard/Andersen Drive), and Intersection #9 (Tamal Vista Boulevard/Fifer Avenue) are located outside the Plan area.

- #7 Sir Francis Drake Boulevard/Larkspur Landing Circle (East)
- #8 Sir Francis Drake Boulevard/Andersen Drive (left turns from Andersen Drive are stop sign-controlled)
- #9 Tamal Vista Boulevard/Fifer Avenue
- #10 U.S. 101 Northbound Ramps/Redwood Highway/Industrial Way

Freeway Segments

- A. U.S. 101 North of Sir Francis Drake Boulevard (Northbound and Southbound)
- B. U.S. 101 Sir Francis Drake Boulevard to Industrial Way/Fifer Avenue (Northbound and Southbound)
- C. U.S. 101 Tamalpais Drive to Industrial Way (Northbound); U.S. 101 Fifer Avenue to Madera Boulevard (Southbound)

b. Analysis Scenarios. The operations of the study intersections and the freeway segments were evaluated during the time periods when traffic volumes are highest, i.e., during the one hour when morning and evening traffic is highest between 7:00 to 9:00 a.m. and 4:30 to 6:30 p.m. The operations of these facilities were evaluated for the following scenarios:

- **Existing Conditions:** Existing traffic volumes on local roadways were obtained from counts collected in 2006 for the Highway 101 Twin Cities/Greenbrae Corridor Improvement Project (GCIP)² and cross-checked against counts collected in 2011. This comparison indicates that the 2011 counts were generally similar to or lower than the 2006 counts and that the GCIP analysis would serve as a conservative baseline. Mainline freeway counts obtained from counts collected in 2010 for the GCIP after the completion of the U.S. 101 Gap Closure Project.
- **Existing Plus Project Conditions:** Existing traffic volumes plus new traffic from the project.
- **Cumulative No Project Conditions:** Projected conditions in 2035 without the project.
- **Cumulative Plus Project Conditions:** Projected conditions in 2035 with the project. This scenario is based on the Highway 101 Twin Cities/Greenbrae Corridor Improvement Project (GCIP) “No Build” (no changes to U.S. 101) Cumulative Conditions scenario developed for the GCIP. The GCIP model assumed land uses in Sub-area 1A and Sub-area 1B that are similar to the proposed project.

²Fehr & Peers, 2012. *Highway 101 Greenbrae/Twin Cities Corridor Improvements Project Approval/Environmental Document - Final Traffic Operations Report*. October.



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FIGURE IV.B-1

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Table IV.B-1 shows the maximum density of land uses included in the proposed project. The proposed project includes new land uses in two locations: Larkspur Landing and the Larkspur Ferry Terminal (Sub-area 1A) and Drakes Landing (Sub-area 1B). For conservative purposes, the maximum density of land uses, implemented over a 20-year period, was assumed for this analysis. Less intensive development within the Plan area would result in fewer traffic effects than described in this section.

Table IV.B-1: Land Use Assumptions for the Station Area Plan

Opportunity Site	Existing		Proposed New Development		Total Proposed	
	Type	Amount	Type	Amount	Type	Amount
Larkspur Landing and the Ferry Terminal (Sub-area 1A)						
1. Ferry Terminal ^a	Public Facility/ Transit	25,000 sf	Public Facility/ Transit	- sf	Public Facility/ Transit (to remain)	25,000 sf
			Residential	300 DU	Residential	300 DU
			Retail	2,500 sf	Retail	2,500 sf
2. Marin Airporter	Public Facility/ Transit	2,500 sf	Public Facility/ Transit	- sf	Public Facility/ Transit (to remain)	2,500 sf
3. Larkspur Offices and Cinema	Office (Admin & Prof)	190,000 sf	Office	50,000 sf	Office	240,000 sf
	Retail (Cinema)	16,000 sf	Retail	35,000 sf	Retail (incl. Cinema)	51,000 sf
4. Marin Country Mart ^c	Office (Admin & Prof)	45,000 sf	Residential	300 DU	Residential	300 DU
	Retail (Cinema)	175,000 sf	Retail	40,000 sf	Retail	215,000 sf
5. Sanitary District	Vacant ^b	-	Residential	250 DU	Residential	250 DU
			Hotel	60,000 sf	Hotel	60,000 sf
			Office	12,500 sf	Office	12,500 sf
Drake's Landing (Sub-area 1B)						
6. Drake's Landing Office Park	Office (Admin & Prof)	126,000 sf	Office	- sf	Office (to remain)	126,000 sf
			Residential	70 DU	Residential	70 DU
7. Offices on Drake's Landing Road	Office (Admin & Prof)	18,000 sf	Office	22,000 sf	Office	40,000 sf

Notes:

- ^a Shared parking strategies and parking counts on all sites will be subject to the parking ratios and parking demand management strategies described in Chapter 5 of the Station Area Plan.
- ^b Ordinances 951 and 954 approved the precise development plans for residential (126 DUs) and hotel (64,000 sf) 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 facilities portion of the property.
- ^c Under the Opportunity Site Development Projections, 45,000 sf of office space would be removed from Opportunity Site 4, the Marin Country Mart.

Source: *Larkspur SMART Station Area Plan, Public Review Draft*. February, 2014.

c. Analysis Methods. Evaluation of traffic conditions on local streets involves analysis of intersection operations, as intersections typically represent the locations where the roadway capacity is most constrained, and freeway mainline segment operations. Intersection and freeway mainline segment operations were evaluated with level of service calculations. Level of service (LOS) is a qualitative description of operations ranging from LOS A, when the roadway facility has excess capacity and vehicles experience little or no delay, to LOS F, where the volume of vehicles exceeds the capacity, resulting in long queues and excessive delays. Typically, LOS E represents “at-capacity”

conditions and LOS F represents “over-capacity” conditions. At signalized intersections operating at LOS F, for example, drivers may have to wait through multiple signal cycles to proceed.³

Ten study intersections were analyzed during the AM and PM peak hours and six freeway segments (three northbound and three southbound) were analyzed during the PM peak hour. A comprehensive analysis of seven of the ten study intersections⁴ along Sir Francis Drake Boulevard was completed recently for the Highway 101 Twin Cities/Greenbrae Corridor Improvement Project (GCIP). This intersection analysis was completed using a VISSIM traffic simulation model. VISSIM is a micro-simulation software that analyzes the traffic operations of cars, trucks, transit vehicles, pedestrians, and bicycles. This software is used to account for the closely spaced intersections and existing congestion through the Sir Francis Drake Boulevard and U.S. 101 interchange per guidelines set forth in the Transportation Research Board’s 2000 Highway Capacity Manual (HCM). To determine whether the existing GCIP VISSIM model was adequate for use in this study, more recent traffic counts collected in 2011⁵ were compared to the 2006 traffic counts that served as a baseline for the existing traffic analysis in the GCIP. This comparison indicates that the 2011 counts were generally similar to or lower than the traffic volumes in the existing GCIP VISSIM model. Therefore, the existing GCIP VISSIM model was determined to be adequate for this study and also represents a conservative roadway analysis. The remaining study intersections were analyzed using the Synchro traffic analysis software. Synchro is adequate for isolated intersections analysis per the HCM guidelines. Mainline U.S. 101 segments were analyzed using volume to capacity ratios per Marin County Congestion Management Program (CMP) standards.

As noted above, the VISSIM traffic simulation model and Synchro traffic analysis software were used to evaluate study area intersections and roadway segments; a different analysis method that evaluates an arterial roadway’s segment volume to capacity ratio was considered but not included in this study, for the following reasons. While volume-to-capacity ratios can be used as an analysis technique for arterial roadways, this approach presents a less refined analysis than the corridor simulation analysis conducted in VISSIM, as it does not account for upstream or downstream bottlenecks (which act to limit the number of vehicles that can pass through a location), queuing between intersections, lane configurations at intersections, or cross street traffic volumes. In addition, conclusions based on a volume-to-capacity analysis of future conditions could be more speculative, as it tends to overestimate the number of vehicles on the roadway by not accounting for existing upstream bottlenecks that currently limit the traffic through the study area. The VISSIM analysis that was used is based on existing counts and conditions and, therefore, takes into account existing and projected bottlenecks and traffic operations.

³ Often, some approaches of intersections may operate worse than others. Per Chapter 16 of the Highway Capacity Manual (HCM), the reported LOS for a signalized intersection is the average delay per vehicle of all the approaches. For example, if one approach is over capacity and operates at LOS F while another is under capacity and operates at LOS B, the reported LOS could be LOS C or D reflecting the average delay per vehicle.

⁴ The GCIP VISSIM model includes all study intersections along Sir Francis Drake Boulevard between Eliseo Drive and Larkspur Landing Circle (East) in addition to the study intersections of Tamal Vista Boulevard/Fifer Avenue and Redwood Highway/Industrial Way/U.S. 101 Northbound Ramps south of Corte Madera Creek.

⁵ The 2011 counts were collected for the recent County of Marin led signal timing study for Sir Francis Drake Boulevard. These counts are presented in the following report: TJKM, 2011, *Task 2A: Draft Existing Conditions Analysis, MTC Program for Arterial System Synchronization (PASS) for Marin County, City of Larkspur, and Caltrans (Sir Francis Drake Boulevard PASS study)*.

Each method is briefly described below.

(1) **Signalized Intersections – 2000 Highway Capacity Manual (HCM).** The method from Chapter 16 of the HCM bases signalized intersection operations on the average control delay experienced by motorists traveling through it. Control delay incorporates delay associated with deceleration, acceleration, stopping, and moving up in the queue. This method uses various intersection characteristics (such as traffic volumes, lane geometry, and signal phasing) to estimate the average control delay. Table IV.B-2 summarizes the relationship between average delay per vehicle and LOS for signalized intersections according to the 2000 HCM method.

(2) **Signalized Intersections – Simulations.** The Chapter 16 HCM method is appropriate only when intersection operations are not influenced by upstream or downstream intersections. When intersections are congested, or when their operations are otherwise influenced by adjacent intersections, the HCM recommends using simulation analysis tools. With simulation, detailed models are prepared to evaluate the effects of individual vehicles moving on the roadway system. Average delay values are obtained from the model output and correlated to LOS based on the thresholds presented in Table IV.B-2. A VISSIM simulation model was used for the following seven study intersections⁶:

- #3 Sir Francis Drake Boulevard/Eliseo Drive
- #4 U.S. 101 Southbound Ramps/Sir Francis Drake Boulevard
- #5 U.S. 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)
- #9 Tamal Vista Boulevard/Fifer Avenue
- #10 U.S. 101 Northbound Ramps/Redwood Highway/Industrial Way

Table IV.B-2: Signalized Intersection LOS Criteria

Level of Service	Description	Average Control Delay Per Vehicle (Seconds)
A	Operations with very low delay occurring with favorable progression and/or short cycle length.	≤ 10
B	Operations with low delay occurring with good progression and/or short cycle lengths.	> 10 and ≤ 20
C	Operations with average delays resulting from fair progression and/or longer cycle lengths. Individual cycle failures begin to appear.	> 20 and ≤ 35
D	Operations with longer delays due to a combination of unfavorable progression, long cycle lengths, or high volume-to-capacity (V/C) ratios. Many vehicles stop and individual cycle failures are noticeable.	> 35 and ≤ 55
E	Operations with high delay values indicating poor progression, long cycle lengths, and high V/C ratios. Individual cycle failures are frequent occurrences. This is considered to be the limit of acceptable delay.	> 55 and ≤ 80
F	Operation with delays unacceptable to most drivers occurring due to over saturation, poor progression, or very long cycle lengths.	> 80

Source: Transportation Research Board, 2000. *Highway Capacity Manual – Special Report 209*.

⁶ Intersection #1 (Sir Francis Drake Boulevard/Wolfe Grade), Intersection #2 (Sir Francis Drake Boulevard/Bon Air Road), and Intersection #8 (Sir Francis Drake Boulevard/Andersen Drive) operate as isolated intersections and were analyzed in Synchro.

(3) Unsignalized Intersections. Traffic conditions at Intersection #8 Sir Francis Drake Boulevard/Andersen Drive (the only stop sign-controlled study intersection) were evaluated using the method from Chapter 17 of the 2000 HCM. With this method, operations are defined by the average control delay per vehicle (measured in seconds) for each stop-controlled movement or movement that must yield the right-of-way. At four-way stop-controlled intersections, the control delay is calculated for the entire intersection and for each approach. The delays and corresponding LOS for the entire intersection are reported. At two-way stop-controlled intersections the movement with the highest delay and corresponding LOS is reported. Table IV.B-3 summarizes the relationship between delay and LOS for unsignalized intersections. Generally, the delay ranges for each LOS are lower than for signalized intersections because drivers expect to have less delay at unsignalized intersections.

Table IV.B-3: Unsignalized Intersection LOS Criteria

Level of Service	Description	Average Control Delay Per Vehicle (Seconds)
A	Little or no traffic delays	≤ 10
B	Short traffic delays	> 10 and ≤ 15
C	Average traffic delays	> 15 and ≤ 25
D	Long traffic delays	> 25 and ≤ 35
E	Very long traffic delays	> 35 and ≤ 50
F	Extreme traffic delays with intersection capacity exceeded	> 50

Source: Transportation Research Board, 2000. *Highway Capacity Manual – Special Report 209*.

(4) Freeway Mainline Operations. Freeway segments on U.S. 101 are analyzed using volume-to-capacity (V/C) ratios. The capacities of the study freeway facilities were obtained from the 2000 HCM.

According to the HCM, for a freeway segment with minimum 12-foot travel lane widths, 6-foot shoulder widths, 2-foot median lateral clearance, a traffic stream composed entirely of passenger cars, interchange spacing greater than two miles, level terrain, and a driver population composed principally of regular users, the ideal freeway capacity is 2,400 vehicles per hour per lane. However, segments of U.S. 101 through the Plan area have many features that reduce the capacity flow rates from the ideal, including:

- Heavy vehicles, including trucks, buses, and recreational vehicles, represent approximately five percent of vehicles on U.S. 101;
- Locations with short merge distances for on-ramps; and
- Interchange spacing substantially less than two miles.

Therefore, the capacity of 2,200 vehicles per hour per lane was selected as an appropriate approximation of freeway lane capacity. Through the Plan area, U.S. 101 is three lanes in each direction with a high occupancy (HOV) lane in the peak direction. This analysis assumes HOV lane capacity is 50 percent of a mixed-flow lane. Although an HOV lane has a lower vehicle flow rate, there is a higher passenger flow rate due to the increased number of passengers per vehicle. Table IV.B-4 summarizes the relationship between V/C and LOS for freeway segments.

Table IV.B-4: Freeway Segment LOS Criteria

Level of Service ^a	Description	Maximum Volume-to-Capacity Ratio
A	Free flow operations with average operating speeds at, or above, the speed limit. Vehicles are unimpeded in their ability to maneuver.	0.30
B	Free flow operations with average operating speeds at the speed limit. Ability to maneuver is slightly restricted. Minor incidents cause some local deterioration in operations.	0.50
C	Stable operations with average operating speeds near the speed limit. Freedom to maneuver is noticeably restricted. Minor incidents cause substantial local deterioration in service.	0.71
D	Speeds begin to decline slightly with increasing flows. Freedom to maneuver is more noticeably restricted. Minor incidents create queuing.	0.89
E	Operations at capacity. Vehicle spacing causes little room to maneuver. Any disruption to the traffic stream can cause a wave of delay that propagates throughout the upstream traffic flow. Minor incidents cause serious breakdown of service with extensive queuing. Maneuverability is extremely limited.	1.00
F	Operations with breakdowns in vehicle flow. Volumes exceed capacity causing bottlenecks and queue formation.	N/A

^a Freeway mainline LOS based on a 65 mph free-flow speed.

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

d. Existing Conditions. This section describes the existing transportation system in the Plan area encompassing the project site. First, the major components of the transportation system are described. Then the existing AM and PM peak-hour traffic volumes and lane configurations for the study intersections are presented, followed by the operational analysis results (LOS calculations and VISSIM model results). Existing freeway volumes and operations are also presented.

(1) Public Transit System. Public transit services in the Plan area include local buses, express buses, shuttles, and ferry service. A majority of the public transit trips through the area are commuters who use the bus stops at Lucky Drive, students heading to and from school, and people using the corridor along Sir Francis Drake Boulevard. In addition to the local and regional bus service, ferry service is provided via the Larkspur Ferry Terminal, which provides commuter service to San Francisco. The Larkspur Ferry Terminal is heavily used by commuters, with approximately 5,300 people passing through the terminal each day.

Bus Service. Bus service in Marin County is provided by the Golden Gate Transit (GGT) and Marin County Transit District (Marin Transit). The two public transit operators provide service as follows:

- GGT is provided through the Golden Gate Bridge, Highway and Transportation District and operates bus service in Marin, San Francisco, and Sonoma counties. GGT provides basic and commuter service between Marin County and San Francisco, as well as local service within Marin County. Whistlestop Wheels is the paratransit service for GGT. The Larkspur Ferry Terminal and the San Rafael Transit Center serve as major hubs and transfer points to the system.

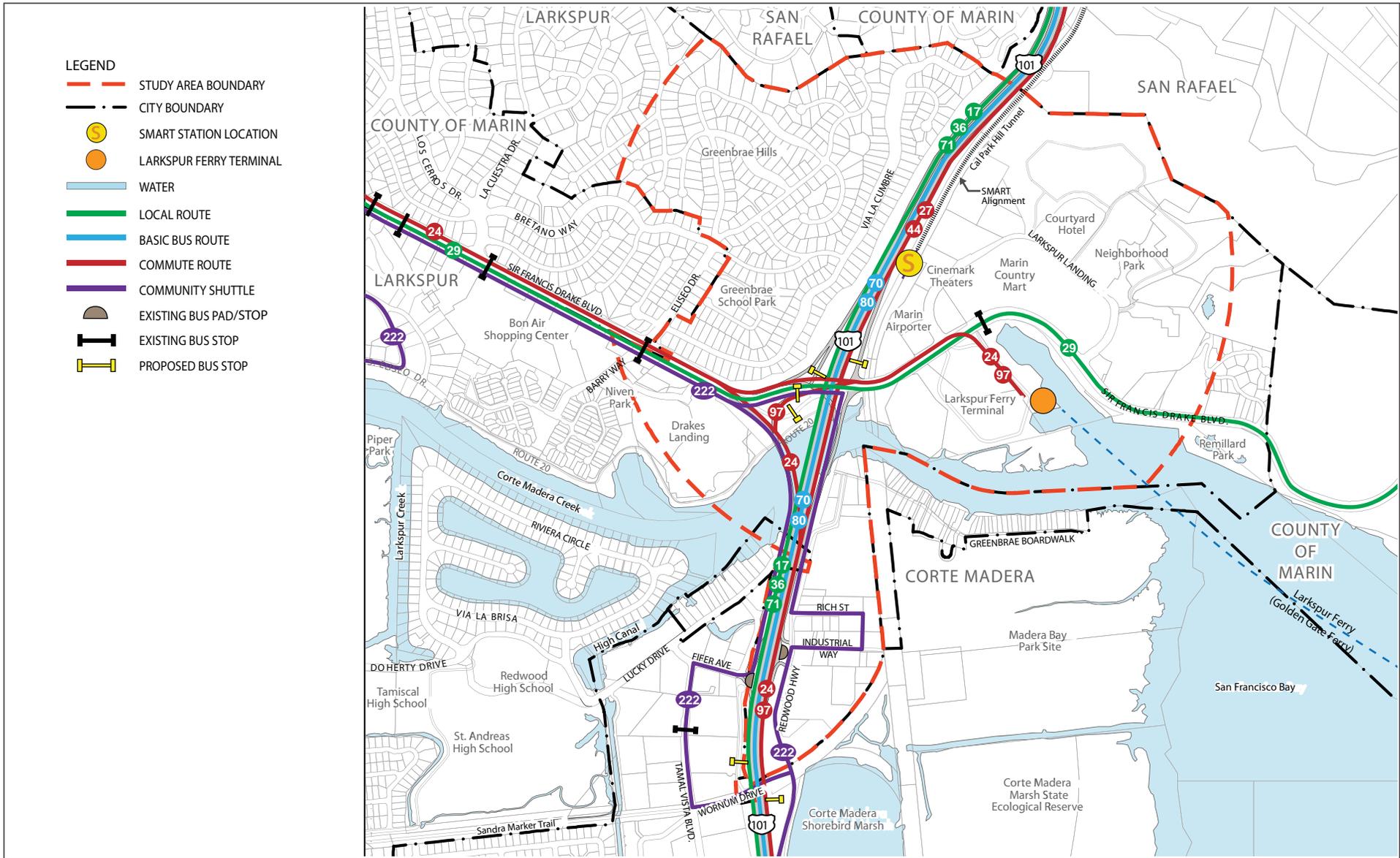
- Marin Transit is responsible for providing local public transit service within Marin County. Marin Transit directly operates public transit, but also contracts with other providers, including Golden Gate Transit and Whistlestop Wheels, for local bus and paratransit services.

Types of Bus Service. Currently GGT operates a majority of the basic and commuter routes that provide service within the various communities of Marin as well as San Francisco, Sonoma, and Contra Costa counties, while Marin Transit is responsible for the local community routes. The routes that serve the Plan area are shown in Figure IV.B-2 and are described as follows:

- **Local Routes:** These routes are provided by GGT within Marin County on weekdays with limited weekend service under contract with Marin Transit. Local routes through the corridor include Routes 17, 29, 36, and 71.
- **Basic Routes:** Basic routes provide daily service throughout the day and evening between San Francisco, Marin, Sonoma and Contra Costa counties. Basic routes through the corridor include Routes 70 and 80, which both provide express service from Santa Rosa to San Francisco. Neither of these routes stop in the Plan area.
- **Commute Routes:** These bus routes provide commute period service, mornings and evenings, Monday through Friday except holidays, between San Francisco, Marin, and Sonoma counties. Commute service making stops within the Plan area includes Route 24 and 97.
- **Community Shuttles:** Shuttles provide limited service for local schools and other destinations. Route 222 shuttle provides service to areas near the Plan area, including Marin General Hospital, Bon Air Shopping Center, and Cost Plus Plaza (Cost Plus, Trader Joe's, BevMo and other stores).

Bus Connections to Larkspur Ferry. There are three bus routes that connect with the Larkspur Ferry Terminal:

- Route 24, a GGT service, operates along Sir Francis Drake Boulevard between Olema Boulevard in Fairfax and U.S. 101, on U.S. 101 between Sir Francis Drake Boulevard and the Golden Gate Bridge, and in San Francisco between the Golden Gate Bridge and the South of Market neighborhood. Route 24 headways are between 9 and 70 minutes during commute periods on weekday mornings and evenings. The bus stops at Larkspur Ferry Terminal only one time during the day, at 4:51 a.m. in the inbound direction. This bus arrives at 8th Street and Folsom Street in San Francisco at 5:32 a.m. All other times, the bus avoids this detour, which occurs between adjacent stops at the Greenbrae Hills neighborhood and the Lucky Drive Bus Pad on U.S. 101, located at Fifer Avenue.
- Route 97, a GGT service, operates on U.S. 101 between the Ferry Terminal and the Golden Gate Bridge, and in San Francisco between the Golden Gate Bridge and the South of Market neighborhood. Route 97 operates once a day, departing the Larkspur Ferry Terminal at 5:22 a.m. and arriving at 8th Street and Folsom Street in San Francisco at 6:07 a.m. It does not operate in the reverse direction.



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City of Larkspur SMART Station Area Plan EIR
Existing and Proposed Transit Facilities

SOURCE: FEHR & PEERS, MAY 2013.
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- Route 29 is a local bus service under contract with Marin Transit. It operates on weekdays only. It operates along Sir Francis Drake Boulevard between Olema Boulevard in Fairfax/San Anselmo Transit Hub and Larkspur Ferry Terminal, and east of the Ferry Terminal to San Rafael Transit Center at 3rd Street and Hetherton Street in southeast San Rafael. Headways are 30 minutes during peak periods (AM and school) for routes departing or arriving at the San Anselmo Transit Hub and 60 minutes for routes departing or arriving at Olema Boulevard in Fairfax, and 60 minutes otherwise during its service hours of 6:30 a.m. and 9:00 p.m. Weekend service along this route is provided by Route 28 with headways of 60 minutes between 6:30 a.m. and 7:30 p.m.

Ferry Service. The Larkspur Ferry Terminal is a heavily used passenger ferry terminal that provides commuter service to the San Francisco Ferry Terminal. Ferries run approximately 39 times per day between 6:00 a.m. and 10:00 p.m. on weekdays. Ferry service is provided approximately every 30-40 minutes in the peak direction during the peak periods (7:00 a.m. to 8:30 a.m. and 4:30 p.m. to 6:30 p.m.) and approximately hourly for the remainder of the ferry service. Ferry service on weekends includes four trips in each direction between 9:30 a.m. and 8:00 p.m.

Commuter traffic to the Ferry Terminal is a major contributor to peak hour congestion along Sir Francis Drake Boulevard. Most commuters using the ferry service are solo drivers who park in the terminal parking lot. Studies conducted to determine how to expand the ferry ridership have focused on improving the multi-modal connections or car-pooling as the current parking lot is at capacity.

Since 2006, nearly 2,000 vehicles are parked at and around the Larkspur Ferry Terminal on most weekdays. The parking lot regularly fills up on weekdays by 8:00 a.m. to 9:00 a.m. and overflows onto the periphery of the lot, onto the north side of East Sir Francis Drake Boulevard, at the Marin Country Mart, and on the overflow lot located on the railroad right-of-way above the Marin Airporter facility. With ferry ridership continuing to grow, the Golden Gate Bridge Highway and Transportation District (GGBHTD) has been exploring options for addressing the parking shortage, including building a parking garage on the Ferry Terminal site.

Currently, multi-modal connections to the Larkspur Ferry Terminal are limited. Connecting bus service is mainly provided by Route 29, which stops on Sir Francis Drake Boulevard outside the Ferry Terminal. Bus Route 24 offers limited service to the Ferry Terminal, with only one inbound trip available in the morning. Bus Route 97 operates one trip to San Francisco from the Larkspur Ferry Terminal before ferry service begins in the morning. Pedestrian and bicycle connections to the Larkspur Ferry Terminal are provided through several multi-use paths and signed bicycle routes. Secure bicycle parking provided within the station itself.

Marin Airporter. Marin Airporter is a privately operated bus that offers service between Marin County and the San Francisco International Airport (SFO) seven days a week, 365 days a year. There is scheduled bus service from six locations in Marin County, including Larkspur Terminal. The Larkspur Terminal is located at 300 Larkspur Landing Circle, next to the Larkspur Landing Century Theater. Buses leave from Larkspur every 30 minutes, on the hour and half-hour, from 4:00 a.m. until 11:00 p.m. The trip to SFO takes a minimum of one hour, depending on traffic conditions. Parking is available for \$4.00 per day.

(2) **Bicycle System.** Like many communities around the United States, Marin County continues to experience a strong growth in bicycling as a means of transportation. Marin County has a network of signed bicycle routes consisting of several different types of facilities. These facilities are based on Caltrans standards, which provide for three distinct types of bikeway facilities, as generally described below, and shown in Figure IV.B-3:

- **Class I Bikeway (Multi-Use Path):** Class I bikeways have independent rights-of-way physically separated from vehicle travel lanes. Motorized vehicle activity is prohibited. Paths are typically 10 to 12 feet wide.

Multi-use paths located adjacent and within the Plan area are also designated Class I Bike Paths within the Marin County Bicycle Network. These paths include Route 20 along the Corte Madera Creek, and Route 5, which uses the recently opened Cal Park Hill Tunnel. Immediately south of the Plan area is the Sandra Marker Trail (Route 16), and Route 17 along Redwood Highway.

- **Class II Bikeway (Bike Lane):** Class II bike lanes are on-street lanes dedicated and demarcated for bicycle travel. A bicycle lane is a portion of a road or highway that is designated by striping, signing, and pavement markings to provide preferential or exclusive use of the lane by bicyclists. Bike lanes are typically four to six feet wide. Due to their multi-modal function, improved roadway maintenance is particularly important to improve rider safety. In some cases, a curbside parking lane can be striped to allow a shared parking lane and bicycle travel. This is typically done in areas where a full bicycle lane is not feasible; however, it is discouraged where alternative means of providing a bicycle lane are possible.

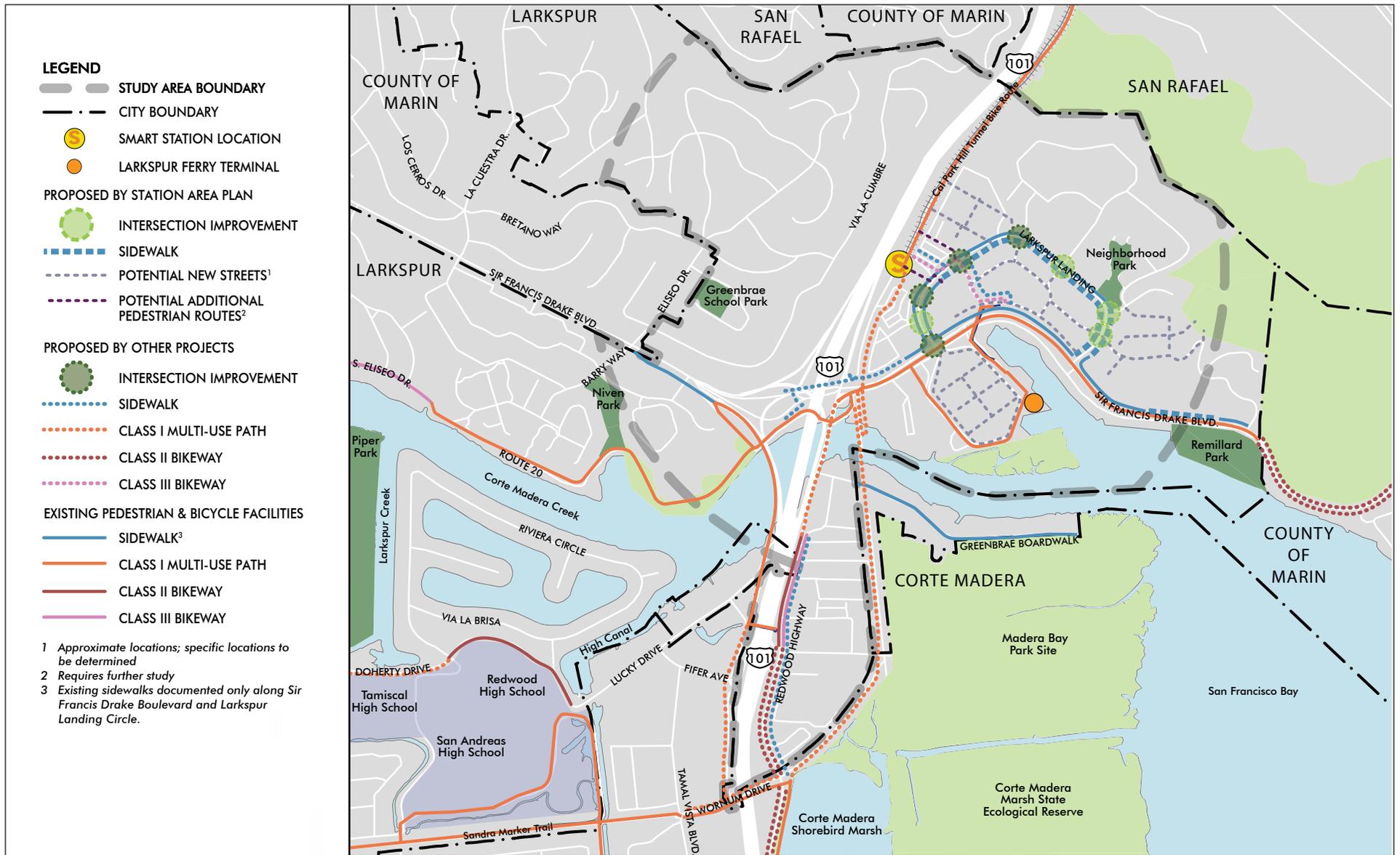
A new Class II bicycle lane was recently added to the west side of Redwood Highway between the Corte Madera Creek overcrossing and Industrial Way, serving southbound bicyclists.

- **Class III Bikeway (Bike Route):** Class III bikeways provide for a right-of-way designated by signs or pavement markings for shared use with pedestrians or motor vehicles. These are often located along roadways where dedicated bicycle lanes cannot fit or are not needed (for example, on a low volume street), but where providing continuity in a bicycle system is nevertheless important.

A shared-use arrow, or “sharrow,” can be marked in the outside lane on a Class III route to show the suggested path of travel for bicyclists. This is often done when the route has on-street parking, in order to encourage cyclists to ride a safe distance away from the parked vehicles’ “door zone.”

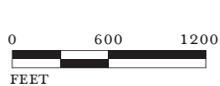
A new designated Class III route, with sharrows, was recently provided on the east side of Redwood Highway between Industrial Way and the Corte Madera Creek overcrossing, serving northbound bicyclists.

The most popular bicycle paths around and through the Plan area include the multi-use path along the Corte Madera Creek, the path along the southbound U.S. 101 on-ramp from Sir Francis Drake Boulevard, and the Cal Park Hill Tunnel Multi-Use Pathway. These paths are all heavily used by commuters and recreational users alike to access such destinations as the Larkspur Ferry Terminal and the shopping centers located south of the Plan area. Bicycle counts are shown in Table IV.B-5.



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FIGURE IV.B-3



SOURCE: CITY OF LARKSPUR, DECEMBER 2013.

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City of Larkspur SMART Station Area Plan EIR
Existing and Proposed Bicycle Facilities

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Table IV.B-5: Study Area Bicycle Counts

Count Location	Daily Counts (24-Hour Counts)	Weekday Peak Period Counts (Two Hour)			Weekend Mid-day (4 hour)
		AM	Mid-day	PM	
On-Street Counts					
Sir Francis Drake Boulevard/Wolfe Grade ^a	–	5	2	4	–
Sir Francis Drake Boulevard/Bon Air Road ^a	–	5	2	3	–
Sir Francis Drake Boulevard/Eliseo Drive/Barry Way ^a	–	8	4	6	–
Sir Francis Drake Boulevard/U.S. 101 Southbound Ramps ^a	–	1	1	2	–
Sir Francis Drake Boulevard/U.S. 101 Southbound Ramps ^a	–	0	1	2	–
Sir Francis Drake Boulevard/Larkspur Landing Circle (West) ^a	–	4	7	8	–
Sir Francis Drake Boulevard/Larkspur Landing Circle (East) ^a	–	0	0	1	–
Off-Street Counts					
Cal Park Tunnel ^b	327	73	–	–	166
Larkspur Ferry Terminal Bridge ^b	–	23	–	–	91
Sir Francis Drake Boulevard/Larkspur Landing Circle (West) ^{b, c}	–	74	–	–	151
Corte Madera Creek Path at U.S. 101 Northbound Off-Ramp ^b	533	103	–	–	216
U.S. 101 Pedestrian Crossing at Lucky Drive ^d	59	9	7	11	19

Notes: “–” No counts collected during this period.

^a Counts collected in October 2011 for the *MTC Program for Arterial System Synchronization for Marin County, City of Larkspur, and Caltrans* (TJKM, 2012).

^b Counts collected in March 2013 for the *Central Marin Ferry Connection Project (CMFCP) Use Projections and Benefit Assessment, DRAFT* (April 5, 2013, Alta Planning + Design/Transportation Authority of Marin)

^c Off-street counts collected at Sir Francis Drake Boulevard/Larkspur Landing Circle (West) include movements across intersection and on adjacent Class I multi-use path. Approximately two-thirds of these counts were noted to be exclusively using the Class I multi-use path.

^d Counts collected in May 2013 for the *Highway 101 Twin Cities/Greenbrae Corridor Improvement Project*.

Source: TJKM, Alta Planning + Design/Transportation Authority of Marin, Fehr & Peers, 2011-2013.

Though the Plan area and surrounding area have a number of bicycle paths and lanes, several obstacles limit the connectivity for bicyclists, including U.S. 101, the Corte Madera Creek, and Sir Francis Drake Boulevard.

U.S. 101 is a major barrier that hinders east-west connectivity. The only locations to cross U.S. 101 within the Plan area are at Wornum Drive, the pedestrian bridge at Lucky Drive, and the Corte Madera Creek multi-use path.

- Wornum Drive has an existing Class I path on the south side of the road under U.S. 101. However, Wornum Drive is not ideal for bicyclists traveling south on Redwood Highway to west on Wornum Drive as they have to cross Wornum Drive to access the multi-use path on the south side of the roadway. Many cars turn right onto Wornum Drive from Redwood Highway coming from the ramps at Industrial Way, making this crossing uncomfortable for less-experienced bicyclists.
- While the Lucky Drive pedestrian bridge is an important east-west pedestrian and bicycle link over U.S. 101, the bridge is not currently American with Disabilities Act (ADA) accessible and has substandard touchdown areas.

In addition, Corte Madera Creek and Sir Francis Drake Boulevard create north-south barriers to both pedestrians and bicyclists.

- The Corte Madera Creek crossings are considered acceptable for short-term, but will be inadequate to accommodate future demand. These crossings are a key link to any north-south bicycle route through Marin County.
- The path along the northbound off-ramp is very narrow and most bicyclists dismount before they cross the creek. The path on the southbound on-ramp is similar to the northbound ramp, but bicyclists are able to ride across as it is wider and has a concrete barrier separating it from traffic instead of a metal railing.
- The only place to cross Sir Francis Drake Boulevard via a grade separated crossing in the Plan area is at the bridge at the Larkspur Ferry Terminal. With the completion of the Cal Park Tunnel, this crossing is inconvenient as there is no direct north-south path connecting the terminus of the Cal Park Hill Tunnel across Sir Francis Drake Boulevard and the Corte Madera Creek.
- For residents in the Greenbrae Hills neighborhood, traveling east requires crossing several lanes of Sir Francis Drake at Eliseo Drive in order to reach the Corte Madera Creek trail. In addition, the topography of Greenbrae Hills presents a challenge for both pedestrians and bicyclists.

South of the creek, north-south connectivity is limited on either side of U.S. 101 due to the lack of dedicated bike facilities on either side of U.S. 101.

- An existing multi-use path connects the Corte Madera Creek crossing on the west side of U.S. 101 with the base of the Lucky Drive pedestrian bridge. The path across the creek is narrow and requires cyclists traveling in opposite directions to dismount in order to pass. From the base of the bridge, bicyclists travel south on Nellen Avenue, which is a low-volume roadway and ideal for most bicyclists but does not include a separated facility for bicyclists who are not comfortable to ride in the street, such as children.
- While recently added bike lanes on the east side of U.S. 101 have made bicycling safer, the lanes have some short gaps along Redwood Highway.

Bicycle access improvements are proposed throughout the Plan area as a part of the GCIP, Central Marin Ferry Connector, and San Quentin Area Bicycle and Pedestrian Access Study. Proposed improvements associated with other plans or potential projects in and adjacent to the Plan area are shown in Figure IV.B-3.

(3) Pedestrian Facilities. The primary pedestrian connection within the Plan area is the Corte Madera Creek Trail, a dedicated pathway that runs along East Sir Francis Drake Boulevard, starting near Drake's Cove and continuing west past the Larkspur Ferry Terminal, under the freeway overpass to Drake's Landing and the communities to the west. This path also connects to two Corte Madera Creek crossings, one on the U.S. 101 northbound off-ramp and the other on the southbound on-ramp. The Cal Park Hill Multi-Use Pathway is the other major pedestrian connection in the Plan area, linking Larkspur to San Rafael. Lastly, two multi-use pathways – the Sandra Marker Trail and the trail along Redwood Highway (south of Wornum Drive) – connect the Plan area to nearby schools and residential communities to the south. A map of these multi-use paths is shown in Figure IV.B-4.

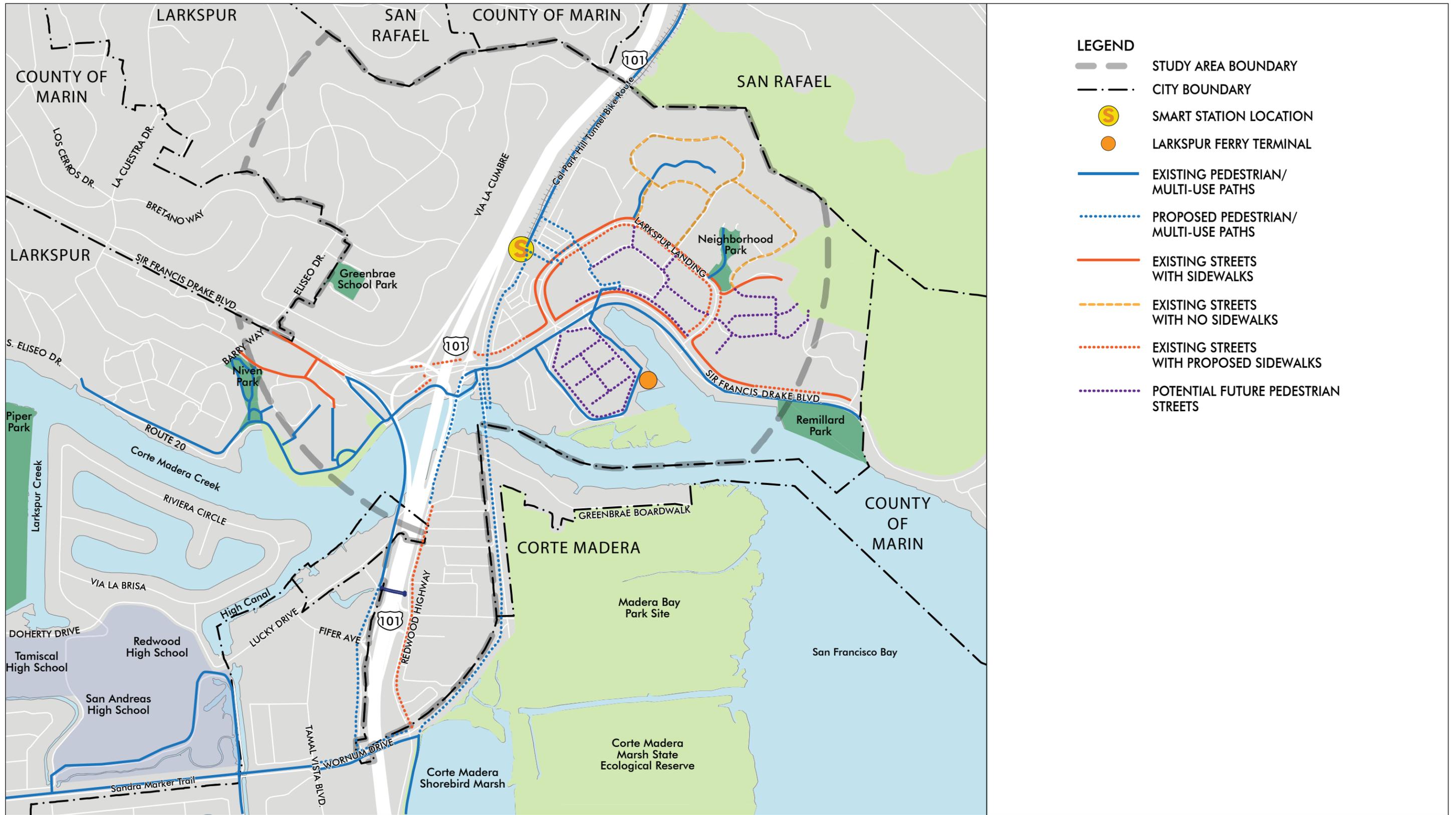


FIGURE IV.B-4



SOURCE: CITY OF LARKSPUR, DECEMBER 2013.

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The heaviest pedestrian use is located around the major constraint points, such as the pedestrian bridge at Lucky Drive, and public transit facilities including the Larkspur Ferry Terminal. These areas are used heavily for commuters parking their cars nearby and riding the bus or ferry. Pedestrian count locations are shown in Table IV.B-6.

Table IV.B-6: Study Area Pedestrian Counts

Count Location	Daily Counts (24-Hour Counts)	Weekday Peak Period Counts (Two Hour)			Weekend Mid-day (4 hour)
		AM	Mid-day	PM	
On-Street Counts					
Sir Francis Drake Boulevard/Wolfe Grade ^a	–	13	21	5	–
Sir Francis Drake Boulevard/Bon Air Road ^a	–	2	6	12	–
Sir Francis Drake Boulevard/Eliseo Drive/Barry Way ^a	–	11	16	39	–
Sir Francis Drake Boulevard/U.S. 101 Southbound Ramps ^a	–	0	0	0	–
Sir Francis Drake Boulevard/U.S. 101 Southbound Ramps ^a	–	0	0	0	–
Sir Francis Drake Boulevard/Larkspur Landing Circle (West) ^a	–	26	58	64	–
Sir Francis Drake Boulevard/Larkspur Landing Circle (East) ^a	–	6	10	10	–
Off-Street Counts					
Cal Park Tunnel ^b	61	1	–	–	36
Larkspur Ferry Terminal Bridge ^b	–	90	–	–	367
Sir Francis Drake Boulevard/Larkspur Landing Circle (West) ^{b, c}	–	32	–	–	120
Corte Madera Creek Path at U.S. 101 Northbound Off-Ramp ^b	400	33	–	–	178
U.S. 101 Pedestrian Crossing at Lucky Drive ^d	280	51	29	48	58

Notes: “–” No counts collected during this period.

^a Counts collected in October 2011 for the *MTC Program for Arterial System Synchronization for Marin County, City of Larkspur, and Caltrans* (TJKM, 2012).

^b Counts collected in March 2013 for the *Central Marin Ferry Connection Project (CMFCP) Use Projections and Benefit Assessment, DRAFT* (April 5, 2013, Alta Planning + Design/Transportation Authority of Marin)

^c Off-street counts collected at Sir Francis Drake Boulevard/Larkspur Landing Circle (West) include movements across intersection and on adjacent Class I multi-use path. Approximately two-thirds of these counts were noted to be exclusively using the Class I multi-use path.

^d Counts collected in May 2013 for the *Highway 101 Twin Cities/Greenbrae Corridor Improvement Project*.

Source: TJKM, Alta Planning + Design/Transportation Authority of Marin, Fehr & Peers, 2011-2013

Although the Plan area has a number of sidewalks and pedestrian paths, several obstacles limit the connectivity for pedestrians. These include poor east-west connections across U.S. 101 and limited north-south connections across Corte Madera Creek and Sir Francis Drake Boulevard:

- There are limited sidewalks on the east side of Redwood Highway between Wornum Drive and Industrial Way. This is a heavily used connection between the Lucky Drive pedestrian bridge and Corte Madera Creek crossing to the multi-use trails at Redwood Highway and Wornum Drive.
- Crosswalks across Sir Francis Drake are long and across multiple travel lanes serving high traffic demands. This is an issue for Greenbrae Hills residents accessing the Corte Madera Creek trail, as well as pedestrians and bicyclists getting off at the Cal Park Hill Tunnel and crossing at Larkspur Landing Circle (West).
- The sidewalk on the north side of Larkspur Landing Circle terminates at Drake’s Way, i.e., there is no sidewalk between Drakes Way and Sir Francis Drake Boulevard.

- Additional community concerns regarding pedestrians include improving access to regional bus stops and local schools.

Pedestrian access improvements are proposed throughout the Plan area as a part of the GCIP, Central Marin Ferry Connector, and San Quentin Area Bicycle and Pedestrian Access Study. Proposed improvements associated with other plans or potential projects in the Plan area are shown in Figure IV.B-4.

(4) Roadway Network. Regional auto access to the Plan area is provided by U.S. 101. City streets in the Plan area are Sir Francis Drake Boulevard, Redwood Highway, and Larkspur Landing Circle.

U.S. 101 is the only continuous north-south roadway in Marin County, connecting the communities of Marin and Sonoma counties to job centers and major destinations in San Francisco to the south and Contra Costa County to the east. Within the Plan area, U.S. 101 bisects the communities of Larkspur, and Corte Madera and serves both as the primary connection to regional destinations as well as the largest east-west barrier within the communities themselves. Local access interchanges are provided at Sir Francis Drake Boulevard, Lucky Drive/Fifer Avenue, and Industrial Way. Within the Plan area, the majority of the freeway segments consist of eight lanes (four lanes in each direction).

U.S. 101 in Marin County currently experiences heavy traffic congestion in the southbound direction during the AM peak hour and in the northbound direction during the PM peak hour due to commute traffic between Sonoma, Marin, San Francisco, and Contra Costa counties. The increasing congestion and delays experienced by motorists on U.S. 101 are a reflection of the increasing population and employment growth in Sonoma and Marin counties. As new housing and employment centers develop in both counties, commute trips within and between Sonoma and Marin counties are also increasing.

Sir Francis Drake Boulevard is an east-west principal arterial street that runs through Marin County, connecting the rural communities in the west to U.S. 101 and I-580. Within the Plan area, Sir Francis Drake Boulevard carries approximately 50,000 vehicles per day and has four through travel lanes at U.S. 101. Access to U.S. 101 is provided at an interchange in the City of Larkspur. The Larkspur Ferry Terminal is located on Sir Francis Drake Boulevard east of U.S. 101 and is a major generator of commuter traffic during the AM and PM peak periods.

Redwood Highway is the only north-south local street on the east side of U.S. 101 in the Plan area. This two- to four-lane roadway provides access to a variety of commercial, service and industrial uses as well as mobile home parks to the north of Wornum Drive. Redwood Highway provides access to northbound U.S. 101 at the Industrial Way on- and off-ramps. Redwood Highway carries approximately 7,000 vehicles per day south of Wornum Drive.

Larkspur Landing Circle is a two- to four-lane local street that circles the Marin Country Mart and has two signalized intersections with East Sir Francis Drake Boulevard. It provides access to the Cal Park Hill Tunnel, as well as the Marin Airporter, Century Larkspur Landing Theater, and various commercial and residential uses. Sidewalks are provided on most of the north side of the street, but are limited on the south side, between Sir Francis Drake Boulevard and the Theater.

(5) Intersection Traffic Volumes and Lane Configurations. Traffic count locations are illustrated in Figure IV.B-1. Figure IV.B-5 shows AM and PM peak hour vehicle turning movement counts, lane geometries, and intersection control for the study intersections. The counts were conducted during typical weekdays (Tuesday through Thursday) in September 2006 when schools were in session. The peak hour reflects the hour of the day that observes the highest traffic volumes for that intersection, typically occurring between 7:00–9:00 a.m. and 4:00–6:00 p.m. The count results were compared to the traffic counts used for the Sir Francis Drake Boulevard PASS Study conducted in 2011 and found that the 2011 counts were generally similar to or lower than the traffic volumes in the existing GCIP VISSIM model. The counts collected in 2006 and 2011 are shown in Appendix B. Each study intersection was analyzed using existing lane configurations and existing traffic signal timing data provided by the County of Marin, Caltrans, or the Town of Corte Madera.⁷

(6) Existing Intersection Operations. The locally accepted LOS standards for intersection operation and freeway segments are shown in Table IV.B-7. The jurisdictions call for LOS D to be maintained at signalized intersections for acceptable operations. However, as shown in Table IV.B-7, the Marin County Congestion Management Program (CMP) notes that Sir Francis Drake Boulevard operates at LOS E and F on several sections from east of Bon Air Road to I-580 including at the County controlled intersection of Sir Francis Drake Boulevard/Eliseo Drive. The primary cause of peak congestion on Sir Francis Drake Boulevard is the combination of heavy through volumes, traveling between Ross Valley, U.S. 101, and the Richmond-San Rafael Bridge. The Marin County General Plan notes the following regarding the segment between U.S. 101 and Eliseo Drive: “Consider widening from two to three lanes in each direction from U.S. 101 to Eliseo Drive” (p.3-155). In addition, Larkspur’s General Plan acknowledges that the intersections of Sir Francis Drake Boulevard with Eliseo Drive and Bon Air Drive currently operates at LOS E or F. However, it also notes that capacity improvements to Sir Francis Drake Boulevard would not be desirable for the community due to upstream and downstream bottlenecks and potential impacts to the Larkspur quality of life.

Table IV.B-7: Locally Acceptable LOS Criteria

Jurisdiction	Facility Type	Worst Acceptable LOS	Maximum Acceptable Average Vehicular Delay or V/C Ratio
City of Larkspur	Signalized Intersections	LOS D ^a	55 seconds/vehicle ^b
City of Larkspur	Unsignalized Intersections	LOS C	25 seconds/vehicle ^b
Town of Corte Madera	Signalized Intersections	LOS D	55 seconds/vehicle ^b
County of Marin	Signalized Intersections	LOS D	55 seconds/vehicle ^b
City of San Rafael	Signalized Intersections	LOS D	55 seconds/vehicle ^b
City of San Rafael	Unsignalized Intersections	LOS D	35 seconds/vehicle ^b
Transportation Authority of Marin	Freeway Segments	LOS E	V/C = 1.00 ^b

^a The Larkspur General Plan Policy Quality of Life Goal 4, Policy d states that the following intersections are recognized to operate at LOS “E” and should not be improved due to the undesirable impacts which the improvements would cause: Sir Francis Drake Boulevard with Eliseo Drive, La Cuesta Drive, and Bon Air Drive.

^b Based on 2000 Highway Capacity Manual (HCM).

Sources: City of Larkspur General Plan, 1990; Town of Corte Madera General Plan, 2009; The City of San Rafael General Plan 2020, 2004; Marin County Congestion Management Program, 2011.

⁷ Signal timings along Sir Francis Drake Boulevard were updated in May 2012 based on the findings of the *MTC Program for Arterial System Synchronization for Marin County, City of Larkspur, and Caltrans*. These signal timings were updated in the VISSIM simulation model to reflect the existing conditions at the time of the NOP.

The results of the existing intersection LOS analysis are presented in Table IV.B-8. The table shows that during the AM and PM peak hours, the following three intersections currently operate at LOS E or F:

- #1 Sir Francis Drake Boulevard/Wolfe Grade – LOS F during the AM and PM peak hours
- #3 Sir Francis Drake Boulevard/Eliseo Drive – LOS F during the AM peak hour and LOS E during the PM peak hour
- #8 Sir Francis Drake Boulevard/Andersen Drive – LOS F during the AM and PM peak hours

Table IV.B-8: Existing Intersection LOS Results

Intersection	Control	AM Peak Hour		PM Peak Hour	
		Delay ^a	LOS	Delay ^a	LOS
#1 Sir Francis Drake Boulevard/Wolfe Grade	Signal	>80	F	>80	F
#2 Sir Francis Drake Boulevard/Bon Air Road	Signal	43	D	34	C
#3 Sir Francis Drake Boulevard/Eliseo Drive b	Signal	>80	F	57	E
#4 Sir Francis Drake Boulevard/U.S. 101 Southbound Ramps ^b	Signal	29	C	22	C
#5 Sir Francis Drake Boulevard/U.S. 101 Northbound Ramps ^b	Signal	31	C	53	D
#6 Sir Francis Drake Boulevard/Larkspur Landing Circle (West)/Ferry Terminal Entrance ^b	Signal	44	D	35	C
#7 Sir Francis Drake Boulevard/Larkspur Landing Circle (East) ^b	Signal	<10	A	28	C
#8 Sir Francis Drake Boulevard/Andersen Drive	SSS ^c	>50	F	>50	F
#9 Tamal Vista Boulevard/Fifer Avenue ^b	Signal	17	B	20	B
#10 U.S. 101 Northbound Ramps/Redwood Highway/Industrial Way ^b	Signal	<10	A	15	B

Notes: **Bold** = unacceptable LOS.

^a For signalized and all-way stop controlled intersections, the delay shown is the weighted average for all movements in seconds per vehicle. For side-street stop controlled intersection, the delay shown is the worst-operating approach delay.

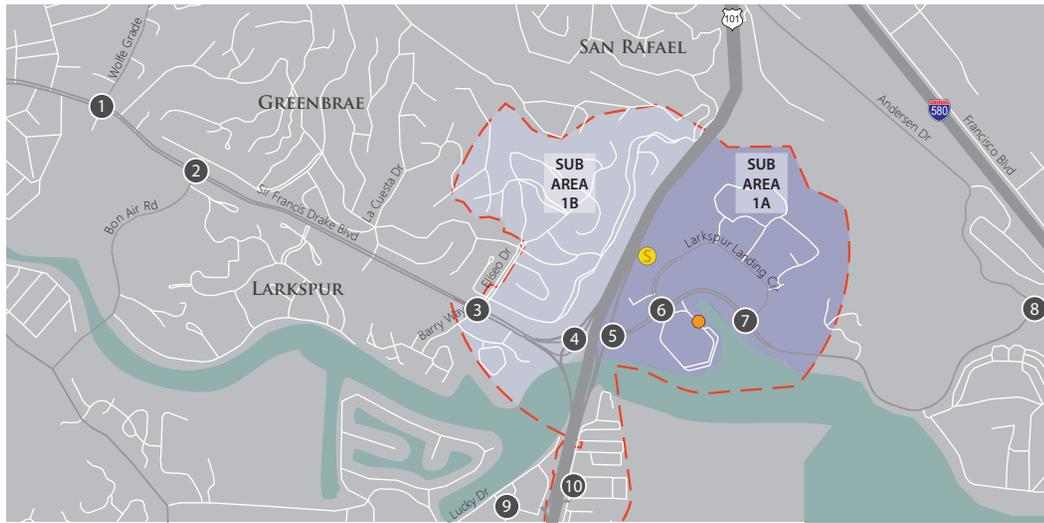
^b Intersection analyzed using the VISSIM microsimulation model.

^c SSS = Side-street stop.

Source: Fehr & Peers, May 2013.

The poor intersection operations at these locations are primarily due to the through traffic volumes traveling on Sir Francis Drake Boulevard between Ross Valley, U.S. 101, and I-580. In addition, two primary causes of congestion at Eliseo Drive are the high eastbound traffic on Sir Francis Drake Boulevard destined for the southbound on-ramp during the AM peak hour and westbound traffic turning left or making U-turns at Barry Way during the AM and PM peak hours. The southbound traffic on Andersen Drive and eastbound left-turning traffic on Sir Francis Drake Boulevard cause this side-street stop controlled intersection to operate at LOS F during the AM and PM peak hours due to the limited gaps in traffic along Sir Francis Drake Boulevard at this intersection.

The LOS calculations for the isolated intersection analysis and the VISSIM simulation model are included in Appendix B.

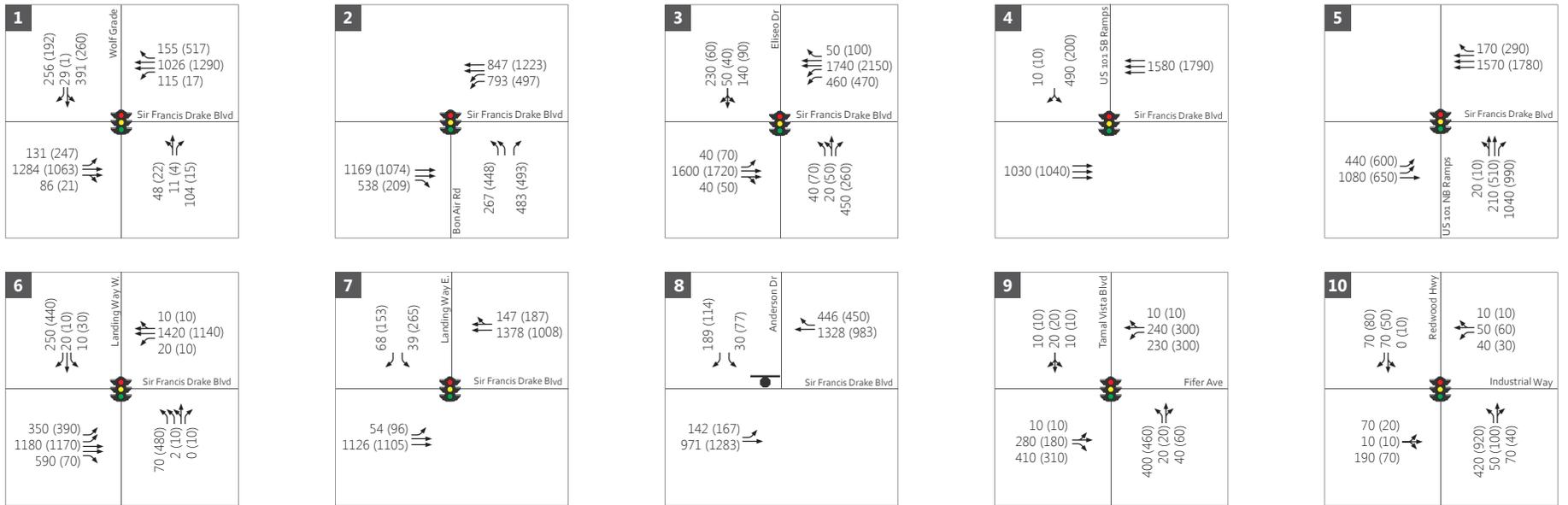


MAP KEY

- Study Area Boundary
- SMART Station Location
- Larkspur Ferry Terminal
- Study Intersection

VOLUMES KEY

- xx (yy) AM (PM) Peak Hour Traffic Volumes
- Traffic Signal
- Stop Sign



LSA

FIGURE IV.B-5

NOT TO SCALE



SOURCE: FEHR & PEERS, MAY 2013.

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City of Larkspur SMART Station Area Plan EIR
Existing Intersection Peak Hour Volumes,
Lane Configurations and Traffic Control Devices

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In addition to these intersections, several intersections operate at LOS D. Although LOS C or D conditions are typical during peak hours on East Sir Francis Drake Boulevard, occasionally traffic operates at near-capacity conditions (i.e. LOS E or F) between U.S. 101 and the Richmond-San Rafael Bridge. It is important to note that the LOS standard is calculated based on the average vehicle delay for all the vehicle movements over the course of the peak hour at the study intersections. Therefore, some vehicle movements may operate worse than the total intersection at different times of the peak hour, which causes congestion and queues to develop on some approaches but not others. The VISSIM simulation model analyzes the effects of the closely spaced intersections and existing congestion along Sir Francis Drake Boulevard between Eliseo Drive and Larkspur Landing Circle (East). Vehicle movements along this section of Sir Francis Drake Boulevard that currently operate at LOS E or F include the following:

- #3 Sir Francis Drake Boulevard/Eliseo Drive
 - a. All eastbound movements – LOS F in the AM peak hour
 - b. Eastbound left movement – LOS E in the PM peak hour
 - c. Westbound left movement – LOS F in the AM and PM peak hours
 - d. Westbound through movement – LOS E in the PM peak hour
- #5 Sir Francis Drake Boulevard/U.S. 101 Northbound Ramps
 - a. Westbound through movement – LOS E in the AM and PM peak hours
- #6 Sir Francis Drake Boulevard/Larkspur Landing Circle (West)/Ferry Terminal Entrance
 - a. All westbound movements at Larkspur Landing Circle (West) – LOS E in the AM peak hour
- #7 Sir Francis Drake Boulevard/Larkspur Landing Circle (East)
 - a. Eastbound left movement – LOS E in the AM and PM peak hours

These results match observed congestion along Sir Francis Drake Boulevard where vehicles traveling westbound between Larkspur Landing Circle (East) and Eliseo Drive, and eastbound between Eliseo Drive and U.S. 101, currently sit through one or more signal cycles and experience reoccurring queues. At Intersection #6 Sir Francis Drake Boulevard/Larkspur Landing Circle (West)/Ferry Terminal Entrance, traffic congestion on Sir Francis Drake Boulevard increases substantially before each ferry departure in the morning and after ferry arrivals in the evening. Peaks in Ferry Terminal traffic cause vehicle queues to extend along westbound Sir Francis Drake Boulevard between the Northbound U.S. 101 Ramps and Larkspur Landing Circle (East). However, the calculated total intersection LOS at these locations remains at LOS C or D during the AM and PM peak hours primarily due to the comparably low vehicle delay on eastbound Sir Francis Drake Boulevard.

Other congested movements that operate at LOS D eastbound left-turn at Larkspur Landing Circle (West) during the AM and PM peak hours, and westbound through movement at Larkspur Landing Circle (West) during the PM peak hour. On average over the course of the peak hour, vehicles on both of these approaches are served in one signal cycle and queues do not regularly extend to upstream intersections.

The detailed LOS calculations for the vehicle movements at all study intersections are shown in Appendix B.

(7) Freeway Volumes and Operations. Freeway volume count data were collected for the GCIP from the Performance Measurement System (PeMS) in 2010 and ramp volumes provided by Caltrans in 2010. PeMS is an online California Department of Transportation (Caltrans) database for traffic counts that includes traffic volume data from detectors embedded in the freeway at certain points. Volume data was collected from the detector station located in San Rafael (post mile 9.05) just north of Sir Francis Drake Boulevard off-ramp. The PeMS data gathered included PM (4:00-6:00 p.m.) peak period counts for all midweek days (Tuesday through Thursday) in May 2010, following the completion of the U.S. 101 Gap Closure Project through the Plan area. After discarding days where less than 100 percent of traffic was observed (potentially due to faults in the detector readings), the average of the peak hours was taken for each day to determine the overall average mainline peak hour volume. Northbound volumes were determined in a similar manner from data from the PeMS detector station located at post mile 7.00 to the south of Tamalpais Drive. The GCIP Traffic Operations Report documents that traffic volumes on the U.S. 101 mainline in and around the Plan area have increased by approximately 3 to 21 percent between 2006 and 2010. Therefore, the 2010 volumes represent a conservative analysis.

The resulting traffic volumes and freeway analysis results are presented in Table IV.B-9. The freeway operations vary depending on the direction and segment, ranging from LOS A to LOS E. No segments on U.S. 101 currently exceed their Congestion Management Program (CMP) LOS threshold.

Table IV.B-9: Existing Freeway Segment LOS Results

Direction	Freeway Segment	Theoretical Capacity ^a	Peak Hour	Volume	V/C ^b	LOS
Northbound U.S. 101	A. North of Sir Francis Drake Boulevard	9,900	PM	5,920	0.60	A
	B. North of Industrial Way	8,800	PM	7,910	0.90	D
	C. North of Tamalpais Drive, South of Industrial Way	7,700	PM	7,120	0.92	E
Southbound U.S. 101	A. North of Sir Francis Drake Boulevard	9,900	PM	5,370	0.54	A
	B. North of Fifer Avenue	8,800	PM	6,650	0.76	C
	C. South of Fifer Avenue, North of Madera Boulevard	8,800	PM	6,190	0.70	C

Notes: LOS F represents unacceptable LOS per Marin CMP. Only PM peak hour conditions are analyzed per the Marin CMP.

^a Assumes a mixed flow freeway capacity of 2,200 vehicles per hour per lane. HOV lane (peak direction only) capacity is 50 percent of a mixed flow freeway lane. Auxiliary lane (an added lane between interchanges) capacity is 50 percent of a mixed flow lane.

^b Freeway segment level of service based on volume to capacity ratio according to the Highway Capacity Manual. *Highway Capacity Manual, Transportation Research Board, 2000.*

Source: Fehr & Peers, May 2013.

e. Regulatory Context. Applicable State and local laws, regulations, and orders that pertain to project-related transportation issues are presented below. The City of Larkspur has jurisdiction over all City streets and City-operated traffic signals. State Routes, including U.S. 101, are under the jurisdiction of the California Department of Transportation (Caltrans). Public transit agencies with operations in the Plan area are the Marin County Transit District and Golden Gate Transit. In addition, there are several regional and local agencies with jurisdiction related to transportation in the Plan area.

(1) **California Department of Transportation.** Caltrans is responsible for the maintenance and operation of State routes and highways. In Larkspur, Caltrans is responsible for U.S. 101 including the on- and off-ramp connections to local streets. Caltrans maintains a volume monitoring program and reviews local agency planning documents (such as EIRs) to assist in its forecasting of future volumes and congestion points. The Guide for the Preparation of Traffic Impacts Studies (December 2002) published by Caltrans is intended to provide a consistent basis for evaluating traffic impacts to State facilities. The City recognizes that “Caltrans endeavors to maintain a target LOS at the transition between LOS ‘C’ and LOS ‘D’ on State highway facilities”; however, Caltrans acknowledges that this may not always be feasible and recommends that the lead agency consult with Caltrans to determine the appropriate target LOS. In addition, Caltrans states that for existing State highway facilities operating at less than the target LOS, the existing LOS should be maintained.

(2) **Metropolitan Transportation Commission.** The Metropolitan Transportation Commission (MTC) is the transportation planning, coordinating, and financing agency for the nine-county San Francisco Bay Area (Bay Area). It is responsible for developing the regional transportation plan and prioritizing regional transportation projects for State and federal funding.

(3) **Transportation Authority of Marin.** The Transportation Authority of Marin (TAM) is the Congestion Management Agency for Marin County, which includes maintaining a Congestion Management Plan (CMP). The CMP monitors levels of service on the County’s roadways and works to improve all methods of transportation locally and regionally. The CMP documents the existing levels of service (LOS) at key County roadways through the Plan area including U.S. 101 and Sir Francis Drake Boulevard.

The LOS for the CMP 2011 is determined by measuring the time travel and vehicle speeds for each segment. All of the CMP roadway segments in the Plan area have been identified as “grandfathered” roadway segments, which means that they have operated at a lower LOS than the standard which was established in 1991. The County of Marin allows grandfathered roadway segments to continue to operate at a lower LOS standard level until such time as they *are* improved or the traffic load is diverted.

The 2011 CMP Update includes PM peak hour LOS for the roadway segments shown in Table IV.B-10. The roadway segments studied in the CMP include northbound U.S. 101 from south of Tamalpais Drive to I-580, southbound U.S. 101 from I-580 to Sir Francis Drake Boulevard, as well as Sir Francis Drake Boulevard east of U.S. 101. The CMP defines U.S. 101 as a freeway and Sir Francis Drake Boulevard as an arterial. It is important to note that the roadway operations shown for Sir Francis Drake Boulevard do not necessarily reflect the congestion at individual intersections along the corridor.

The CMP states that the method of analysis for freeway segments should be based on segment weekday PM peak hour volume to capacity ratios, based on Chapter 23 and 24 of the 2000 Highway Capacity Manual.

Table IV.B-10: Marin CMP PM Peak Hour Roadway Segment Operations

Freeway Segment	From	To	LOS
Northbound U.S. 101	State Route 131 (Tiburon)	Tamalpais Drive	F
	Sir Francis Drake Blvd	I-580	D
Southbound U.S. 101	I-580	Sir Francis Drake Blvd	A
	Tamalpais Drive	State Route 131 (Tiburon)	A
Eastbound Sir Francis Drake Boulevard	College Avenue	U.S. 101	B ^a
	U.S. 101	Larkspur Landing Circle	C
Westbound Sir Francis Drake Boulevard	Larkspur Landing Circle	U.S. 101	D
	U.S. 101	College Avenue	A ^a

^a The actual roadway segment studied in the CMP is located between College Avenue and Wolfe Grade, to the east of the Larkspur SMART Plan area.

Source: TAM, 2011 CMP update.

(4) City of Larkspur General Plan. The City of Larkspur General Plan currently in place was adopted in 1990 and is currently in the process of being updated. The applicable circulation goals, policies, and programs related to transportation impacts are included below. It should be noted that the Station Area Plan recommends that the City amend the land use designations within the Plan area to allow a mix of land uses at higher densities and intensities than are currently permitted. Thus, adoption of the Station Area Plan by the City Council would trigger a new, separate planning process to amend the General Plan; it would not automatically amend the General Plan. The General Plan amendment process would require public outreach and review, environmental analysis of the proposed amendments, and public hearings before both the Planning Commission and City Council for adoption.

Circulation Element

Goal 1: Regard quality of life in Larkspur as more important than mobility of traffic.

Goal 2: Provide safe and efficient local-serving transportation facilities and services for the movement of people and goods.

Goal 3: Improved local or regional transit service should not negatively affect Larkspur.

- Policy a: Develop a coordinated system of roads, bike paths, foot paths, public transit, and Transportation demand Management (TDM) programs.
- Policy b: Remove hazards from the traffic system.
- Policy c: To minimize traffic increases on Sir Francis Drake Boulevard, properties north of Corte Madera Creek shall not generate additional PM peak traffic over existing levels by a change of use or building addition. Exempt from this policy are: (1) singly-developed single-family homes, (2) vacant properties, and (3) residential development projects where no less than: 15 percent of the units are dedicated to very-low income households and 10 percent to low-income households and 25 percent to moderate-income households, or where 50 percent of the units are senior and/or disabled housing. TSM (transportation system management) should be considered and may be used to maintain existing levels of traffic generation, where feasible.
- Policy d: Wherever possible, maintain standards for acceptable traffic Levels of Service during peak periods. Acceptable Level of Service (LOS) shall be defined for signalized intersections at the D level using planning procedures defined in Transportation Research Circular 212 or successor. The

City acknowledges that LOS E exists at the following intersections and that most measures which would alleviate traffic congestion there would not be desirable:

- Sir Francis Drake Boulevard at Eliseo Drive;
- Sir Francis Drake Boulevard at La Cuesta Drive; and
- Sir Francis Drake Boulevard at Bon Air Road.

For unsignalized intersections, service level C shall be the lowest level acceptable during peak periods. Because poor service levels at unsignalized intersections do not represent the same level of delay to motorists as at signalized intersections, the City should develop specific requirements on a case-by-case basis.

- Policy e: Conform to standard traffic engineering practices where practical.
- Policy h: Design circulation facilities that minimize disruption of neighborhoods and communities.
- Policy m: Sir Francis Drake Boulevard shall not be widened to allow additional through-traffic lanes.
 - Action Program [2]: Actively cooperate with the County of Marin to seek workable capacity improvements to Sir Francis Drake Boulevard that are not disruptive to the community.
 - Action Program [3]: Maintain and improve the existing median strip landscaping on Sir Francis Drake Boulevard.
 - Action Program [5]: Perform the following specific capacity and safety related improvements:
 - Add a southbound-to-eastbound left-turn lane on Eliseo Drive at the intersection with Sir Francis Drake Boulevard.

Goal 5: Encourage attractive alternatives to the use of single-occupant automobiles.

Goal 6: Increase transit service in Larkspur.

Goal 7: Aim for lower levels of peak hour automobile traffic.

Goal 8: Keep airport transit service for Larkspur.

- Policy o: Coordinate circulation and development so higher intensity uses such as commerce, professional offices, public services, and higher density residences are near major transit routes and are served by public transit facilities.
- Policy p: Encourage increased transit ridership and use of Transportation Demand Management (TDM) techniques.
- Policy r: Encourage all employers to cooperate in reducing peak hour automobile traffic.
- Policy t: Require adequate park-and-ride facilities.
- Policy u: Work with transit operators to provide service in Larkspur and to resolve any parking difficulties through designation of parking facilities controls as needed.
- Policy v: The following are the City's policies regarding future regional transit service in the Highway 101 Corridor:
 - Minimize the impact on Larkspur and the existing road system.
 - Use discrete and separate rights-of-way.

- Support a direct rail connection from the north via a new grade separation with Sir Francis Drake Boulevard along the approximate alignment of the existing trestle.
- Encourage eventual expansion of the rail line to the south.
- Action Program [7]: Cooperate with Golden Gate Transit, Marin Transit, and private transit providers to periodically review, modify, and upgrade transit service to best meet the needs of Larkspur residents, businesses, and schools.
- Action Program [8]: Cooperate with the transit agencies to provide amenities at transit stops, such as benches, shelters, lights, maps, and telephones.
- Action Program [9]: Using a Transportation Demand Management ordinance, encourage employers to allow flexible work hours and to help employees create vanpools or carpools.
- Action Program [12]: Encourage shared-ride service to or from transportation terminals, and consider an ordinance to allow jitney service.

Goal 10: Create better ties between Larkspur, neighboring communities, and the region.

- Action Program [13]: Encourage and cooperate with the appropriate jurisdictions to accomplish the following specific improvements:
 - Signalize the Sir Francis Drake Boulevard/Andersen Drive intersection.

Goal 11: Obtain safe freeway access for Larkspur.

- Action Program [14]: Actively cooperate with Caltrans, County of Marin, City of Corte Madera, and City of San Rafael to find workable capacity and safety improvements to the Greenbrae and Lucky Drive interchanges with Highway 101.

Goal 12: Reduce the need for long distance and/or frequent shopping travel by private automobile.

- Policy ab: Reduce demand for parking at retail areas.
- Action Program [15]: Explore the feasibility of providing a free shuttle service on one or more routes connecting Downtown, North Magnolia, Bon Air Shopping Center, Larkspur Landing, the Village in Corte Madera, and the Corte Madera Town Center.

Goal 14: Reduce the number and severity of transportation-related accidents.

- Policy ae: Place higher priority on safety as opposed to efficient traffic flow and speed.
- Action Program [17]: Install stop signs, pedestrian cross walks, and other safety-related improvements as warranted.

Goal 16: Circulation Improvements should not adversely affect the environment.

Goal 17: Mitigate the traffic impacts of new developments.

- Policy ak: Development should contribute to measures to mitigate local and regional traffic impacts.
- Policy al: Developers should pay for improvements to the existing street system to mitigate unacceptable impacts where such improvements are appropriate.
- Policy am: Improvements based on traffic mitigation are not to be considered the only way to reduce traffic impacts.
 - Action Program [22]: Continue to collect a traffic impact fee from developers to fund improvements.

- Action Program [24]: The City will use its traffic mitigation fees to carry out projects as soon as sufficient funds are received.

Bicycle and Pedestrian Trails and Paths Element

Goal 1: Make it easier to travel around Larkspur by non-motorized transportation modes.

Goal 2: Provide safe bicycle and pedestrian routes for all users, to schools, shopping and business areas, recreation facilities, open space preserves, and other communities, and associated amenities.

Goal 3: Coordinate existing and planned bicycle and pedestrian routes with the circulation plans of neighboring communities and the County.

- Policy e-e: Locate and design pedestrian and bike trails separate from streets and automobile traffic wherever possible. Designate on-street bike lanes where off-road paths are not possible.
- Policy f: Freeway improvements should include protected crossings for pedestrians and bicycles.
- Policy j: Secure better trail access to San Rafael.

Trail connections are needed between Tubb Lake and the Southern Heights Ridge; at Anderson Drive and East Sir Francis Drake Boulevard; and along Wolfe Grade.

- Policy j: Encourage neighborhood and local consumer services that can be reached by walking and bicycling.
- Policy k: Encourage means of travel to and between retail areas other than by private automobiles.
- Policy p: Develop and adopt design standards to reduce trail user conflicts and protect adjacent environmental resources.

The minimum paved width of most paths should be eight feet. Where more than modest use is anticipated, the paved section should be 10 feet, and an unpaved shoulder 18 inches wide should be provided along each side of the path for joggers.

- Policy r: Provide bicyclists and pedestrians with safe facilities for circulation.
- Policy s: Place higher priority on safety as opposed to efficient traffic flow and speed.
- Policy t: Identify streets that create a safety problem for pedestrians and bicyclists.
 - Action Program [1]: Require the submittal of a trails and paths plan for all new development or redevelopment.
 - Action Program [2]: Implement the Bicycle/Pedestrian Circulation Plan.
 - Action Program [8]: Require new development or redevelopment to provide appropriate sidewalks or paths.
 - Action Program [9]: Require, by ordinance, bike racks in commercial and park and recreation areas, and outside schools and other public buildings.

f. Related Plans and Projects. Related plans and projects that include proposed transportation improvements in and around the Plan area are discussed below.

(1) Sonoma Marin Area Rail Transit (SMART). SMART is a passenger train and multi-use pathway project that is planned to run along 70 miles of the historic Northwestern Pacific Railroad alignment. The rail line will serve 14 stations from Cloverdale in Sonoma County to the San Francisco-bound Ferry Terminal in Larkspur.

The SMART rail parallels U.S. 101 and will provide an alternative to this already-congested corridor. The rail project is projected to take more than 1.4 million car trips off U.S. 101 annually and reduce greenhouse gases by at least 124,000 pounds per day. SMART's environmental studies project 5,000 to 6,000 passenger trips per day will be made on the train and 7,000 to 10,000 daily trips will be made on the bicycle/pedestrian pathway.

Commuter-oriented passenger train service will be provided by an estimated 14 round-trip trains per day, operating at 30-minute intervals in the morning and evening peak commuting hours during the week. Bicycles will be allowed on board the trains; weekend service also is planned.

Larkspur SMART Station. The future SMART Larkspur Station will be located within the SMART corridor right-of-way behind the Century Larkspur Landing Cinema. It will be a double-track, two-platform station. Current plans show provision of 80 parking spaces. It is approximately 1,500 feet north of the existing Larkspur Ferry Terminal. In order to access the ferry terminal, passenger rail riders will use the Cal Park Hill Tunnel Multi-Use Pathway to reach Larkspur Landing Circle, cross Larkspur Landing Circle in an improved crosswalk and utilize the existing sidewalk and crosswalks at Sir Francis Drake Boulevard to reach the Ferry Terminal. Alternatively, SMART riders will be able to utilize the new bridge and improved connections implemented as part of the Central Marin Ferry Connection Multi-Use Pathway project.

Shuttle System. SMART proposes a local shuttle system, using small 12-25 passenger vehicles, to distribute SMART passengers at the work-end of their trip. The shuttles would be free, and would operate during the same hours as trains, in the morning and afternoon peak commute periods. There are nine proposed shuttle routes, each designed to complete a one-way loop in less than 30 minutes or the headway of the train. The shuttle route for Larkspur Ferry Station will serve four major activity centers—Larkspur Landing Circle, San Quentin Prison/Marin Country Mart and nearby offices, Marin General Hospital, and the College of Marin.

(2) Central Marin Ferry Connection Project (CMFC). In 2004, a study examined the feasibility of constructing a bicycle and pedestrian bridge over the Corte Madera Creek to improve connections to destinations south of the creek with the Larkspur Ferry Terminal and the Cal Park Hill Tunnel and multi-use trail. This site is located at the crossroads of many bicycle trips between central and southern Marin County and will improve pedestrian and bicycle connectivity and safety throughout the Plan area.

Subsequent to the feasibility study, the Transportation Authority of Marin (TAM) initiated an effort to develop and refine recommendations for the CMFC. This process has involved an additional feasibility study and a series of workshops to solicit public input. The Project has been divided into two phases as follows:

Phase 1. Phase 1 includes construction of a pedestrian and bicycle bridge across Sir Francis Drake Boulevard to connect the southern terminus of the Cal Park Hill Tunnel to the south side of Sir Francis Drake where the existing Route 20 multi-use path of the Marin County bicycle network is located. This overpass will provide connections from the Cal Park Hill Tunnel and the proposed SMART terminus to the Larkspur Ferry Terminal and locations to the south of Corte Madera Creek. It will also increase bicyclist and pedestrian safety as it will allow them to avoid crossing Sir Francis Drake Boulevard, which with 50,000 vehicles per day is one of the most heavily used roadways in

Marin County. Phase 1 also includes modifications to Redwood Highway to improve bicycle connectivity south to Wornum Drive from the existing Corte Madera Creek crossing.

In November 2011, TAM held an open house to solicit public input on the type of structure crossing over Sir Francis Drake. The preferred design was the Warren Truss, which was accepted by TAM and the Larkspur City Council. This project is expected to begin construction in 2014.

Phase 2. Phase 2 would continue the structure in Phase 1 across the Corte Madera Creek and extend the multi-use pathway along the railroad right-of-way or U.S. 101 off-ramp to Wornum Drive to connect with the existing multi-use trails at Wornum Drive and Redwood Highway. Currently, to cross Corte Madera Creek, bicyclists must dismount and walk their bikes along the heavily used four-foot-wide path along the Sir Francis Drake Boulevard off-ramp. This path is not appealing as vehicles exiting the freeway are just a few feet away, separated by a concrete barrier and metal railing. One option is to build a new structure to replace the existing railroad trestle across the Corte Madera Creek. The second option would be to widen and enhance the existing narrow path along the U.S. 101 off-ramp to Sir Francis Drake Boulevard. With the completion of Phase 2, bicyclists and pedestrians will have a direct connection along dedicated facilities all the way from San Rafael in central Marin County to Corte Madera and Larkspur as well as destinations to the south. These two options are included for further study in the Transportation Authority of Marin proposed studies described below.

(3) Transportation Authority of Marin Proposed Studies. The following are a list of improvement projects recommended for Regional Measure 2 funding by the Transportation Authority of Marin Board in the September 26, 2013 meeting, for consideration by MTC.

- Resolution #1 – Study feasibility of widening East Sir Francis Drake Boulevard from one to two lanes where lane drop occurs. This study would include an Andersen Drive evaluation of intersection improvements.
- Resolution #2 – Study feasibility of building a freeway to freeway connector between northbound U.S. 101 to eastbound I-580.
- Resolution #3 – Create new regional and local bus stops at the Sir Francis Drake Boulevard/U.S. 101 interchange. Install new pedestrian-friendly intersection improvements and access routes (including new sidewalks) to existing and new bus stop locations.
- Resolution #4 – Widen the existing pedestrian and bicycle path along the northbound off-ramp to provide 10-12 foot Class I multi-use pathway.
- Resolutions #5 and 7 – Conduct further study on Phase 2 of the Central Marin Ferry Connector to continue the structure in Phase 1 across the Corte Madera Creek and extend the multi-use pathway along the railroad right-of-way to Wornum Drive to connect with the existing multi-use trails at Wornum Drive and Redwood Highway. These studies include potential intersection undercrossing along Wornum Drive.
- Resolution #6 – Construct a sidewalk on the east side of Redwood Highway between Wornum Drive and Industrial Way.
- Resolution #8 – Construct a Class I multi-use path along Nellen Avenue on the west side of U.S. 101 between Wornum Drive and Fifer Avenue.
- Resolution #9 – Enhance pedestrian and bicycle crossings of U.S. 101 at Wornum Drive.

- Resolution #10 – Widen eastbound Sir Francis Drake Boulevard to three lanes from just west of Eliseo Drive to the southbound U.S. 101 on-ramp.
- Resolution #11 – Extend Sir Francis Drake Boulevard eastbound auxiliary lane to eastbound I-580.
- Resolution #12 – Re-direct Regional Measure 2 funds to SMART for the extension to Larkspur.

The Transportation Authority of Marin is currently studying these improvement projects which is expected to be complete in 2015-2016.

(4) Marin County Unincorporated Bicycle and Pedestrian Master Plan (2008).⁸ This plan was developed to analyze the bicycle and pedestrian facilities in unincorporated Marin County. Although this Plan focuses on unincorporated Marin County, it contains countywide recommendations for best practices and proposed facilities. Key recommended facilities include the north-south bikeway, which would extend from the Golden Gate Bridge in the south to Sonoma County in the north, an east-west bikeway along Sir Francis Drake Boulevard, and the potential use of abandoned railroad tunnels and rights-of-way for multi-use paths. Recommendations include locating vital infrastructure improvements near key destinations to promote and encourage increased bicycle and pedestrian activity and using best practice designs such as colored bike lanes to increase pedestrian and bicycle safety. As proposed in the 2001 Plan, the County has developed and is in the process of implementing a countywide bicycle route sign system. This system of bicycle route signs guides cyclists along the safest and most accessible routes between cities and towns throughout the County.

(5) San Quentin Bicycle and Pedestrian Access Study. The San Quentin study area was identified as one of the top priority projects in Marin County in the *Marin County Unincorporated Bicycle and Pedestrian Master Plan*.⁹ The study area consisted of a 1.5 mile long study corridor along Sir Francis Drake Boulevard and I-580, connecting the Richmond-San Rafael Bridge to the east and the existing bicycle path at Remillard Park to the west. This study identified a series of key issues that bicyclists and pedestrians face along this corridor and provided recommendations along the entire corridor and for these specific locations. Recommendations for several alternatives include new bicycle lanes or a Class I multi-use path along Sir Francis Drake Boulevard and a new signal or undercrossing at Sir Francis Drake Boulevard/Andersen Drive.

(6) City of Larkspur Bicycle and Pedestrian Master Plan (2004). The *Larkspur Bicycle and Pedestrian Master Plan*¹⁰ examines existing bicycle and pedestrian facilities within the City of Larkspur and lays the framework for development of future facilities and policies that will make bicycling and walking an integral part of daily life in Larkspur. Recommendations include improving the visibility of pedestrians around Sir Francis Drake Boulevard and local schools, providing secure bicycle parking at key destinations within the city, improving east-west connections across U.S. 101, and making bus facilities safer and more accessible to pedestrians.

⁸ Marin County Board of Supervisors, 2008. *Marin County Unincorporated Bicycle and Pedestrian Master Plan*.

⁹ Ibid.

¹⁰ Larkspur, City of, 2004. *Larkspur Bicycle and Pedestrian Master Plan*. August.

(7) **Corte Madera Bicycle Master Plan (2008).** The *Corte Madera Bicycle Master Plan*¹¹ was adopted by the Town Council in September 2008 and proposes several improvements to the bicycle network within Corte Madera. These improvements include designating Class III bicycle routes on Lucky Drive from Doherty Drive to Fifer Avenue, Fifer Avenue from Lucky Drive to Tamal Vista Boulevard, and Tamal Vista Boulevard from Fifer Avenue to Madera Boulevard. These proposed bicycle routes will include bicycle signage indicating shared right-of-way and shared roadway bicycle stencils (sharrows) painted onto the roadway to improve the visibility and safety of bicyclists. The plan also proposed numerous bicycle parking facilities through the City at major destinations and transit stops to help encourage trips with multi-modal connections and commuter trips.

2. Impacts and Mitigation Measures

This section evaluates the transportation-related impacts related to implementation of the Station Area Plan and identifies appropriate mitigation measures where feasible. Traffic impacts are evaluated under existing and cumulative conditions.

a. **Criteria of Significance.** The significance criteria below are used to determine whether implementation of the Station Area Plan results in significant environmental impacts that require mitigation. These criteria were developed using the *CEQA Guidelines* (Appendix G, Environmental Checklist Form), and in consultation with the City of Larkspur staff.

Implementation of the Station Area Plan would have a significant impact if it were to result in:

- An increase in traffic that is substantial in relation to the existing traffic load and capacity of the street system (i.e., a substantial increase in either the number of vehicle trips, the volume-to-capacity ratio on roads, or congestion at intersections);
- Exceedance, either individually or cumulatively, of the level of service (LOS) standard established by the county Congestion Management Agency or City of Larkspur for designated roads or highways;
- Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks;
- Substantially increase hazards due to a design feature (i.e., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment);
- Inadequate emergency access;
- Inadequate parking capacity; or
- A conflict with adopted policies, plans, or programs supporting alternative transportation (e.g., bus turnouts, bicycle racks).

The following criteria are derived from Appendix G of the State *CEQA Guidelines* and from General Plan Circulation Element Policy D that established LOS D as the minimum acceptable threshold for signalized intersections and LOS C as the threshold for unsignalized intersections. The minimum LOS D operating standard is also consistent with prior traffic analyses conducted within the City of

¹¹ Corte Madera, City of, 2008. *Corte Madera Bicycle Master Plan*.

Larkspur. The Transportation Authority of Marin (TAM) has developed LOS thresholds for freeway segments as part of their Congestion Management Program (CMP).

(1) Traffic Impact Criteria. A project will result in a significant traffic impact at intersections if:

- Except for singly-developed single-family homes and vacant properties, proposed changes in existing use shall not add traffic to Sir Francis Drake Boulevard.
- If a signalized intersection with baseline traffic volumes is operating at an acceptable LOS (LOS D for signalized intersections and LOS C for unsignalized intersections) deteriorates to an unacceptable operation with the addition of project traffic; or
- If a signalized intersection with baseline traffic volumes is at an unacceptable LOS and project traffic causes an increase in the delay of five seconds or more; or
- For side-street stop controlled intersections, the proposed project would cause an intersection with critical movements operating at acceptable LOS C or better under conditions without the project to deteriorate to unacceptable LOS F during the AM or PM peak hour; and the expected AM or PM peak hour traffic volumes at the intersection meet the peak hour volume traffic signal warrant criteria contained in the *Manual on Uniform Traffic Control Devices*, 2003 Edition; or exacerbate conditions at an intersection where critical movements are operating unacceptably under conditions without the project by causing the critical movement delay to increase by 5 or more seconds per vehicle during the AM or PM peak hour; and the expected AM or PM peak hour traffic volumes at the intersection meet the peak hour volume traffic signal warrant criteria contained in the *Manual on Uniform Traffic Control Devices*, 2003 Edition.

(2) Freeway Segment Impact Criteria. A project will result in a significant traffic impact on roadway segments:

- If operations on U.S. 101 deteriorate from LOS E or better under conditions without the project to LOS F during the AM or PM peak hour; or
- If operations on U.S. 101 operating at unacceptable LOS F under conditions without the project by causing the freeway volume over capacity ratio (v/c) to increase by 0.01 or more (i.e., 1 percent of the freeway segment capacity) during the AM or PM peak hour.

(3) Design Review Considerations. A roadway design impact is considered significant when the project introduces a design feature that presents safety concerns.

(4) Emergency Access Impact Criteria. An emergency vehicle access impact is considered to be significant if the proposed project would provide inadequate design features to accommodate emergency vehicle access and circulation.

(5) Pedestrian Impact Criteria. A pedestrian impact is considered significant if it would disrupt existing pedestrian facilities, interfere with planned pedestrian facilities, or create inconsistencies with adopted pedestrian system plans, guidelines, policies, or standards.

(6) Bicycle Impact Criteria. A bicycle impact is considered significant if it would disrupt existing bicycle facilities; interfere with planned bicycle facilities; conflict or create inconsistencies

with adopted bicycle system plans, guidelines, policies, or standards; or not provide secure and safe bicycle parking in adequate proportion to anticipated demand.

(7) Transit Impact Criteria. A transit impact is considered significant if it would result in a significant unanticipated increase in transit patronage or result in development that is inaccessible to transit riders.

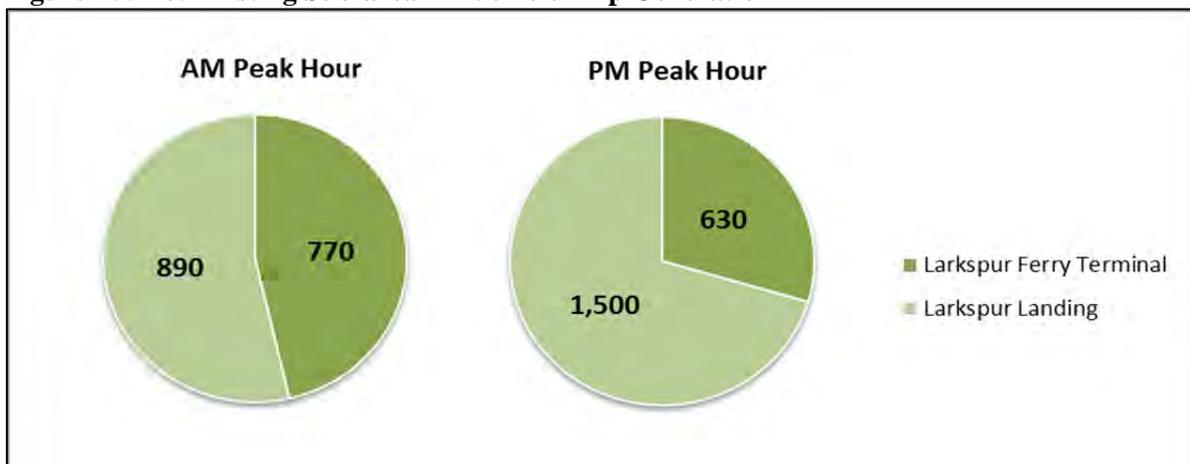
(8) Parking Impact Criteria. A parking impact is considered significant if it results in significant parking demand that would exceed the available supply of parking and result in off-site and indirect impacts such as noise and air quality impacts.

b. Impact Analysis. The following section summarizes the analysis of various Plan area transportation circulation factors. This section includes and analyzes existing conditions as well as cumulative (2035) conditions.

(1) Existing Conditions. Vehicle access to Sub-area 1A is provided through the two signalized intersections of Larkspur Landing Circle (East and West) and Sir Francis Drake Boulevard. Traffic counts at these intersections show that 1,660 and 2,130 vehicles are generated by the existing study area land uses during the AM and PM peak hours, respectively. As shown in Figure IV.B-6, nearly half (46 percent) of the AM peak hour trips and a third (30 percent) of PM peak hour trips are associated with the Larkspur Ferry Terminal. The remaining vehicle trips are associated with the residential and commercial land uses at Larkspur Landing.

Existing traffic counts also show that 85 to 90 percent of all vehicle trips generated from the Larkspur Landing area travel westbound on Sir Francis Drake Boulevard to U.S. 101 or destinations to the west. The remaining vehicles travel eastbound the two-lane segment of Sir Francis Drake Boulevard to the east.

Figure IV.B-6: Existing Sub-area 1A Vehicle Trip Generation



Source: Fehr & Peers, May 2013.

Traffic volumes traveling through Sub-area 1A along Sir Francis Drake Boulevard can be calculated from existing traffic counts at the intersections of Larkspur Landing Circle. Locally generated and through traffic volumes for the AM and PM peak hours are compared in Table IV.B-11. Key trends for existing traffic congestion on Sir Francis Drake Boulevard include the following:

- Through Traffic – Traffic between U.S. 101 and the Richmond-San Rafael Bridge is highest in the westbound direction during the morning and in the eastbound direction during the evening.
- Locally Generated (Sub-area 1A) Traffic – The existing land uses generate far more inbound traffic than outbound traffic in the AM peak hour, with the reverse true for the PM peak hour.

Table IV.B-11: Traffic Volumes on Sir Francis Drake Boulevard

	West of Site ^a				East of Site ^b			
	AM		PM		AM		PM	
	EB	WB	EB	WB	EB	WB	EB	WB
Trips Generated by Existing Sub-area 1A Land Uses	1,058	371	722	1,134	69	162	177	102
Through Trips	906	1,188	1,250	874	906	1,188	1,250	874
Total Trips on SFDB	1,964	1,559	1,972	2,008	975	1,350	1,427	976
Percent of Trips on SFDB Generated by Existing Uses	54%	24%	37%	56%	7%	12%	12%	10%

Notes: EB = Eastbound, WB = Westbound, SFDB = Sir Francis Drake Boulevard

^a West of Site refers to traffic volumes on Sir Francis Drake Boulevard between the U.S. 101 northbound ramps and Larkspur Landing Circle (West)/Ferry Terminal Entrance.

^b East of Site refers to traffic volumes to the east of Larkspur Landing Circle (East) on the two-lane segment of Sir Francis Drake Boulevard.

Sources: Fehr & Peers, May 2013.

These trends indicate that while the roadway may operate near capacity (i.e., within an acceptable LOS) in the peak direction in the AM and PM peak hours, some excess capacity is present in the non-peak direction. Traffic due to Larkspur Landing is typically spread out over the course of the peak hour and has less of an impact on peak congestion than the Ferry Terminal. These traffic patterns are important to consider when reviewing the traffic impacts for new development in Sub-area 1A.

(2) Vehicle Trip Generation Estimates. Vehicle trip estimates for implementation of the Station Area Plan were developed using the mixed-use trip generation methodology known as MXD+ described in Appendix B. The MXD+ method is based on site-specific reductions to trip generation rates presented in the Institute of Transportation Engineers (ITE) Trip Generation (8th Edition). The MXD+ method accounts for 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. Calibration and validation of the trip generation model and the methodology used in the model is presented in Appendix B. Table IV.B-12 shows the existing/existing plus project, and net new trips that will be generated by the existing and proposed land uses at Sub-area 1A. The proposed land uses at Sub-area 1A are anticipated to generate approximately 7,500 daily trips, including 410 AM peak-hour trips, and 460 PM peak-hour trips.

Table IV.B-12: Vehicle Trip Generation Summary – Sub-area 1A: Larkspur Landing

Land Use	Quantity	Units ^a	ITE Code ^b	Daily Trips	AM Peak Hour Trips			PM Peak Hour Trips		
					In	Out	Total	In	Out	Total
Single Family Residential	120	DU	210	1,230	23	70	93	78	46	124
Multi-Family Residential	1,350	DU	220	8,305	133	532	665	494	266	760
General Retail	215	ksf	820	11,169	148	94	242	520	542	1,062
Bank	5	ksf	912	741	35	27	62	65	65	130
Health Club	20	ksf	492	659	13	15	28	40	31	71
Sit-Down Restaurant	10	ksf	932	1,272	60	55	115	66	46	112
General Office	354	ksf	710	3,527	453	62	515	81	394	475
Hotel	168	Rooms	310	1,373	57	37	94	52	47	99
Movie Theater	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 ^c				19%	25%			29%		
Sub-Total after Reductions (Existing Plus Project trips)				23,471	692	669	1,361	1,009	1,042	2,050
Existing Trips ^d				-15,969	-563	-387	-950	-693	-898	-1,591
Net New Project Trips				7,502	129	282	411	316	144	459

^a DU = dwelling units. KSF = 1,000 square feet.

^b Trip generation rates from the Institute of Transportation Engineers (ITE) Trip Generation 8th Edition are presented in Appendix C.

^c ITE reductions based on application of MXD model: Daily = 18%, AM Peak Hour = 23%, PM Peak Hour = 28%

^d Based on traffic counts collected in 2006 for the Highway 101 Twin Cities/Greenbrae Corridor Improvement Project. 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, May 2013.

The Station Area Plan includes goals and recommendations to include senior housing in Sub-area 1A. Constructing senior housing in the Plan area would reduce the residential trip generation as seniors drive less than other residents. Trip generation studies completed for the Institute of Transportation Engineers Trip Generation (8th Edition) show that residents of Attached Senior Adult Housing typically generate half the peak hour trips per unit compared to non-age restricted condominiums or townhomes. For conservative purposes, non-age restricted housing was assumed for this analysis.

Table IV.B-13 shows the new trips that will be generated by the proposed land uses at Drakes Landing. No site-specific reductions were applied to the ITE trip generation rates at Drake's Landing due to the relatively low amount of development and mixed-use trip generation reduction potential at this site. The proposed land uses at Sub-area 1B are anticipated to generate 700 daily trips, including 70 AM peak-hour trips, and almost 80 PM peak-hour trips.

Table IV.B-13: Vehicle Trip Generation Summary – Sub-area 1B: Drake’s Landing

Land Use	Quantity	Units ^a	ITE Code ^b	Daily Trips	AM Peak Hour Trips			PM Peak Hour Trips		
					In	Out	Total	In	Out	Total
Multi-Family Residential	70	DU	220	470	7	29	36	28	15	43
General Office	22	ksf	710	242	30	4	34	6	27	33
New Project Trips (ITE External Vehicle Estimate)				712	37	33	70	34	42	76

^a DU = dwelling units. KSF = 1,000 square feet.

^b Trip generation rates from the Institute of Transportation Engineers (ITE) Trip Generation 8th Edition are presented in Appendix C.

Source: Fehr & Peers, May 2013.

(3) Vehicle Trip Distribution. Trip distribution refers to the direction trips generated by the project would use to approach and depart the Plan area and the percentage of traffic using each direction. The traffic increase due to implementation of the Station Area Plan 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 IV.B-7 shows the projected trip distribution patterns. Appendix B compares the trip distribution patterns for the proposed project to those prepared for the GCIP and to data from the 2000 Journey to Work Census. Trip distribution patterns will be similar for both Larkspur Landing and Drakes Landing.

(4) Vehicle Trip Assignment. Trips generated by the proposed project were assigned to the roadway system based on the trip distribution patterns shown on Figure IV.B-7. The trip assignments used in the evaluation of Existing Plus Project Conditions are presented on Figure IV.B-8.

(5) Existing Plus Project Conditions. This chapter presents the results of the intersection and freeway level of service analysis for Existing Plus Project Conditions. Existing conditions form the baseline against which project-related impacts are evaluated. For conservative purposes, the maximum density of proposed land uses, implemented over a 20-year period, was assumed for this analysis. Less intensive development within the Plan area or for specific housing types (i.e., senior or affordable housing) would result in fewer traffic effects than described in this section.

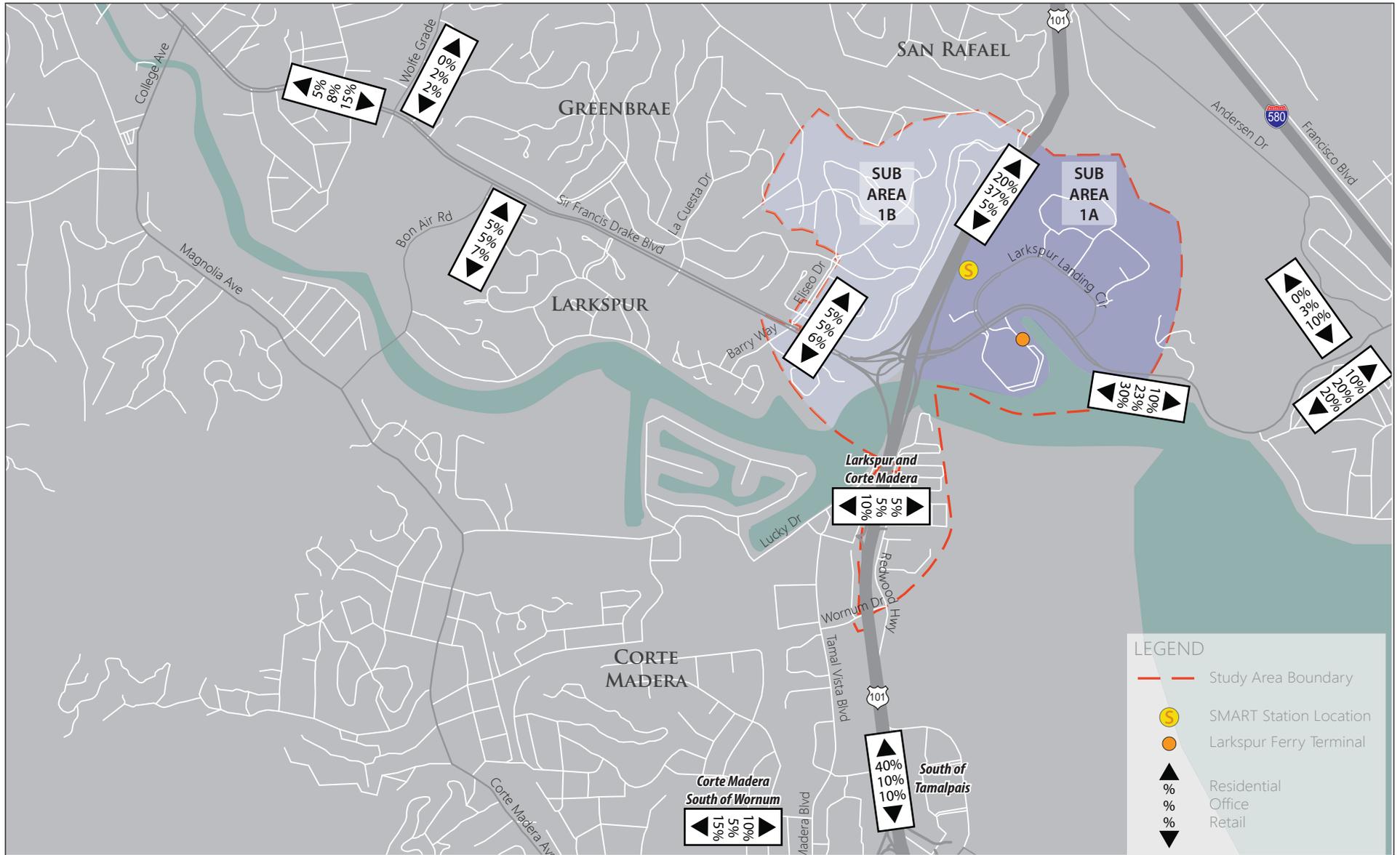
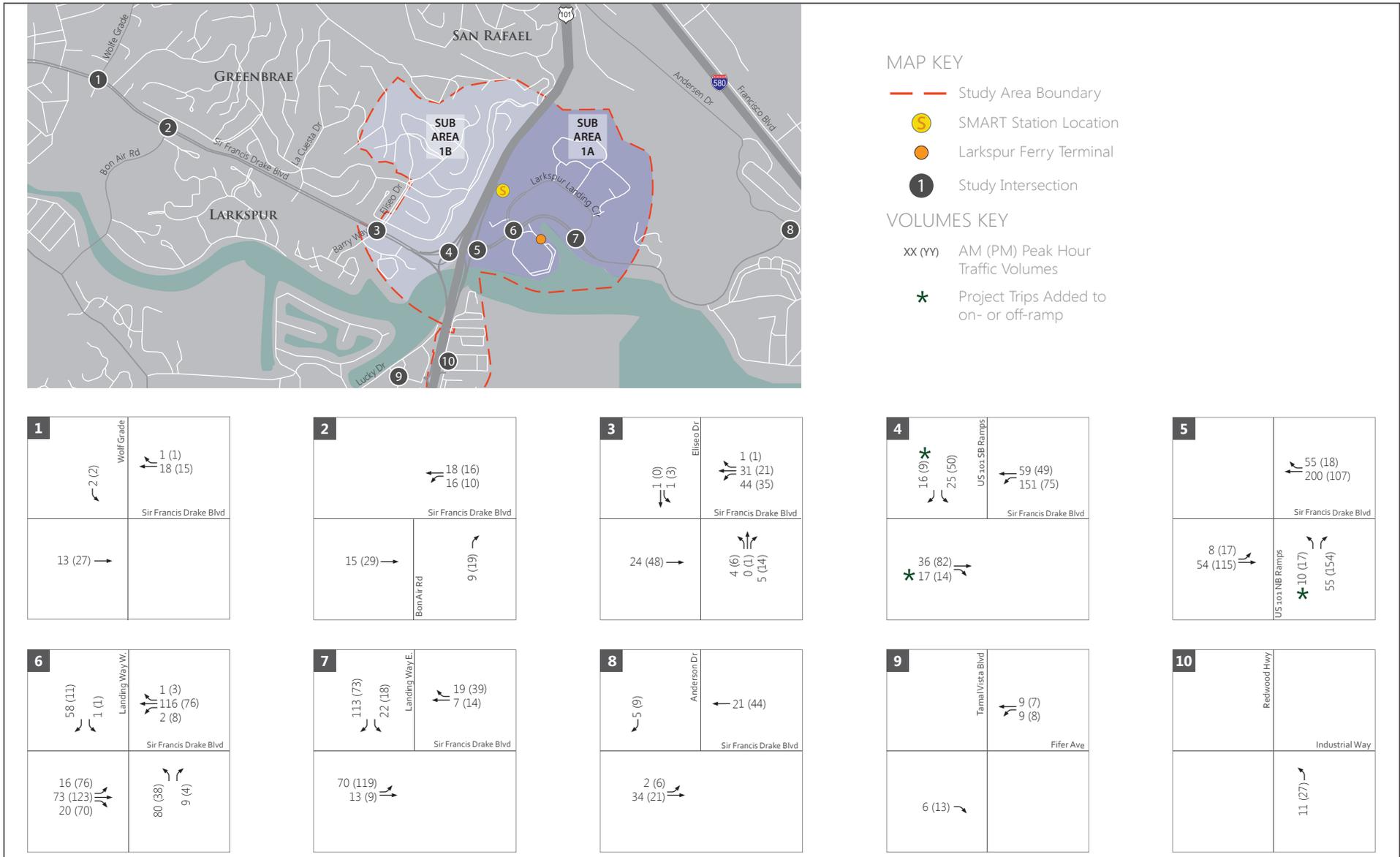


FIGURE IV.B-7

LSA

NOT TO SCALE





LSA

FIGURE IV.B-8

NOT TO SCALE



Intersection Operations. Existing intersection volumes plus new vehicle trips due to the proposed project are shown on Figure IV.B-9. Existing Plus Project intersection operations are shown in Table IV.B-14. The proposed project would add vehicle trips to Sir Francis Drake Boulevard. This is considered a significant project impact per Quality of Life Policy C of the City of Larkspur General Plan. New vehicle trips generated by the proposed project would add traffic to movements that currently operate at LOS E or F at Eliseo Drive, the U.S. 101 Northbound Off-Ramp, and Andersen Drive. These added project trips would cause the overall intersection LOS at several intersections along Sir Francis Drake Boulevard to significantly worsen compared to Existing Conditions. These are considered significant impacts as described below.

Impact TRANS-1: The addition of PM peak hour trips to Sir Francis Drake Boulevard would conflict with Circulation Element Policy C in the City of Larkspur General Plan. (S)

Implementation of the following mitigation measure would reduce this impact to a less-than-significant level.

Mitigation Measure TRANS-1: The Draft Station Area Plan Implementation Chapter recommends a policy to amend the Larkspur General Plan to eliminate Circulation Element Policy C. Implementation of this policy would reduce this impact to less-than-significant levels. The City will be required to take this action prior to approval of individual projects within the Plan area. (LTS)

Impact TRANS-2: The addition of traffic associated with implementation of the Station Area Plan could increase the average delay during the AM and PM peak hours by more than 5 seconds at Intersection #3 Sir Francis Drake Boulevard/Eliseo Drive, which would operate at unacceptable LOS under Existing Plus Project Conditions. (S)

Implementation of the following mitigation measure would reduce this impact to a less-than-significant level.

Mitigation Measure TRANS-2: Add a short auxiliary lane to serve as a third eastbound through lane on Sir Francis Drake Boulevard approaching Eliseo Drive through to the U.S. 101 southbound on-ramp. This improvement would be consistent with recommendations in the County of Marin General Plan and TAM Resolution 10 from the September 26, 2013 Transportation Authority of Marin Board Meeting.¹² However, Circulation Element Policy M of the Larkspur General Plan states that Intersection #3 currently operates at LOS E or F and that the City may have to accept this LOS as roadway expansion would be unacceptable to the community. This mitigation measure therefore conflicts with Larkspur General Plan Policy M. The Draft Station Area Plan Implementation Chapter recommends a policy to amend the Larkspur General Plan to eliminate Circulation Element Policy M. Implementing the short auxiliary lane on Sir Francis Drake Boulevard and amending the General Plan would reduce this impact to less-than-significant levels. The City will be required to take these actions prior to approval of individual projects within the Plan area. (LTS)

¹² Per September 26th, 2013 TAM Board Meeting. "Recommendation to Assign Excess Regional Measure 2 Funds (Action) Item 10" (TAM Board Memo, October 24th, 2013).

Table IV.B-14: Existing Plus Project Intersection LOS Results

Intersection	Control	Existing				Existing Plus Proposed Project			
		AM		PM		AM		PM	
		Delay ^a	LOS	Delay ^a	LOS	Delay ^a	LOS	Delay ^a	LOS
1. Sir Francis Drake Boulevard/Wolfe Grade	Signal	>80 ^d	F	>80	F	>80	F	>80	F
2. Sir Francis Drake Boulevard/Bon Air Road	Signal	43	D	34	C	46	D	36	D
3. Sir Francis Drake Boulevard/Eliseo Drive ^b	Signal	>80 ^e	F	57	E	>80	F	68	E
4. Sir Francis Drake Boulevard/U.S. 101 Southbound Ramps ^b	Signal	29	C	22	C	25	C	40	D
5. Sir Francis Drake Boulevard/U.S. 101 Northbound Ramps ^b	Signal	31	C	53	D	49	D	55	D
6. Sir Francis Drake Boulevard/Larkspur Landing Circle (West)/Ferry Terminal Entrance ^b	Signal	44	D	35	C	76	E	47	D
7. Sir Francis Drake Boulevard/Larkspur Landing Circle (East) ^b	Signal	<10	A	28	C	29	C	37	D
8. Sir Francis Drake Boulevard/Andersen Drive	SSS ^c	>50 ^f	F	>50	F	>50	F	>50	F
9. Tamal Vista Boulevard/Fifer Avenue ^b	Signal	17	B	20	B	17	B	20	B
10. U.S. 101 Northbound Ramps/Redwood Highway/Industrial Way ^b	Signal	<10	A	15	B	<10	A	15	B

Notes: **Bold** = unacceptable LOS. **Shaded** = Significant impact.

^a For signalized and all-way stop controlled intersections, the delay shown is the weighted average for all movements in seconds per vehicle. For side-street stop controlled intersection, the delay shown is the worst-operating approach delay.

^b Intersection analyzed using the VISSIM microsimulation model.

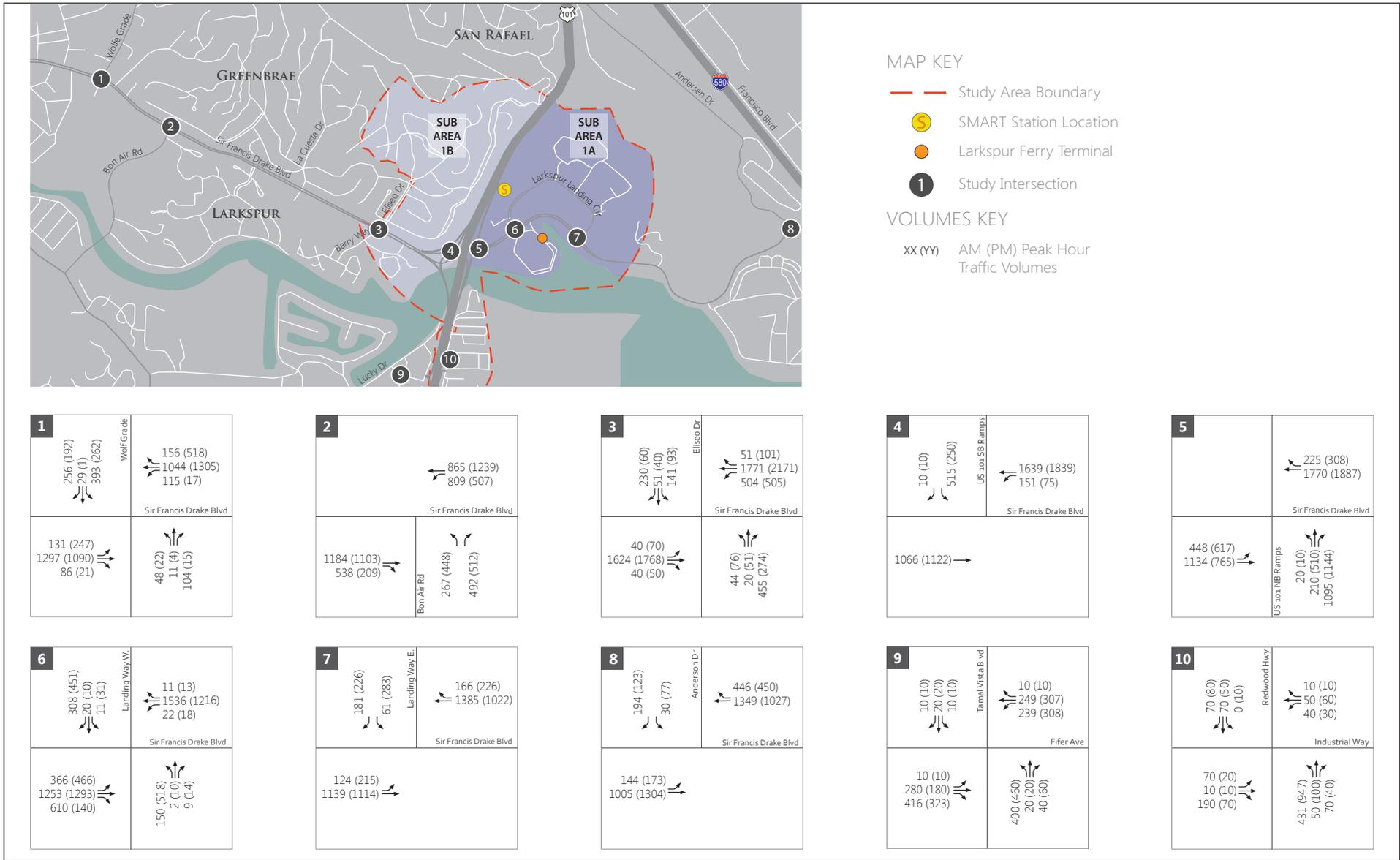
^c SSS = Side-street stop.

^d As shown in Appendix B of the transportation appendices, the project is expected to increase average delay at this study intersection by 1-2 seconds in the AM and PM peak hours.

^e As shown in Appendix B of the transportation appendices, the proposed project is forecasted to increase average vehicle delay at this intersection by 32 seconds in the AM peak hour and 6 seconds in the PM peak hour.

^f As shown in Appendix B of the transportation appendices, the proposed project is forecasted to increase average vehicle delay at this intersection by 33 seconds in the AM peak hour and 53 seconds in the PM peak hour.

Source: Fehr & Peers, May 2013.



LSA FIGURE IV.B-9



SOURCE: FEHR & PEERS, MAY 2013.
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Impact TRANS-3: Implementation of the Station Area Plan would result in the addition of project traffic to westbound Sir Francis Drake Boulevard and would cause Intersection #6 Sir Francis Drake Boulevard/Larkspur Landing Circle (West) to degrade from acceptable LOS D to unacceptable LOS E in the AM peak hour under Existing Plus Project Conditions. New project trips would worsen congestion on the westbound through movement at the U.S. 101 Northbound Ramps during the AM peak hour, which operates at LOS E under existing conditions, causing queues to back up to Larkspur Landing Circle (West) and increasing congestion at this intersection. (S)

Implementation of the following mitigation measure would reduce this impact to a less-than-significant level.

Mitigation Measure TRANS-3: Based on a determination of costs by the City, applicants for individual projects shall pay their fair share towards the addition of a third westbound through lane on Sir Francis Drake Boulevard at Larkspur Landing Circle West and to retime and optimize the traffic signals on Sir Francis Drake Boulevard at the U.S. 101 interchange to provide additional green time to the westbound approach at the U.S. 101 Northbound Ramps during the AM peak period. The funding for these improvements shall be balanced with regional transportation funding as appropriate. The additional westbound through lane could be constructed by repurposing the parking lane or removing portions of the median to create room for a third lane that extends back approximately 350 feet to the GGBHTD bus stop and pedestrian bridge. This additional lane would provide vehicle storage capacity to the westbound approach at Larkspur Landing Circle (West) and allow vehicles to position themselves to turn right into Larkspur Landing or onto the U.S. 101 northbound on-ramp. Adding the additional green time and capacity to westbound Sir Francis Drake Boulevard would reduce queues at the U.S. 101 Northbound Ramps such that they no longer inhibit operations at Intersection #6 Sir Francis Drake Boulevard/Larkspur Landing Circle (West). These mitigation measures were recommended previously in the traffic study and Mitigated Negative Declaration for the 2000 Larkspur Landing Circle mixed-use project and approved by the Larkspur City Council in 2005.¹³ These measures would improve intersection operations to an acceptable LOS D in the AM peak hour. The City will be required to take these actions prior to approval of individual projects within the Plan area. (LTS)

Impact TRANS-4: Implementation of the Station Area Plan would result in the addition of project traffic that would increase the average delay during the AM and PM peak hours by more than 5 seconds at Intersection #8 Sir Francis Drake Boulevard/Andersen Drive, which would operate at unacceptable LOS under Existing Plus Project Conditions. (S)

Implementation of the following mitigation measure would reduce this impact to a less-than-significant level. However, as this mitigation would need to be coordinated with the City of San Rafael and the City cannot guarantee that the mitigation measure would be implemented in time to mitigate the adverse impacts of the Station Area Plan, this impact is considered significant and unavoidable.

Mitigation Measure TRANS-4: Applicants for individual projects shall pay their fair share in coordination with other stakeholders including the City of San Rafael, County of Marin, and Caltrans towards a traffic signal or other means of improving the LOS at Intersection #8 Sir Francis Drake Boulevard/Andersen Drive. The San Rafael General Plan recommends a traffic

¹³ 2000 Larkspur Landing Circle Traffic Impact Assessment and Parking Report (Dowling Associates, 2003); City of Larkspur Ordinance Number 948, adopted by the Larkspur City Council on September 21, 2005.

signal at this location. Internal and External Circulation Linkages Program 13 (CL[13]), of the 1990 Larkspur General Plan notes that the City should encourage and cooperate with the appropriate jurisdictions to signalize this intersection. The project sponsor shall contribute a pro rata share to the improvement described in this measure or other improvements after consultation and a record of agreement or other legal instrument with other jurisdictions. As the feasibility of this improvement will require further study and coordination with other agencies for approval and is not under the sole jurisdiction of the City of Larkspur, this impact is considered significant and unavoidable. (SU)

The proposed project would add traffic to intersection #1 Sir Francis Drake Boulevard/Wolfe Grade which currently operates at LOS F in the AM and PM peak hours; however, the average intersection delay would not increase by more than 5 seconds. The remaining intersections would continue to operate at an acceptable LOS D or better with the proposed project. Impacts to these intersections would be less-than-significant under Existing Plus Project Conditions.

Freeway Operations. Existing freeway volumes plus new vehicle trips due to the proposed project are shown in Table IV.B-15. The freeway operation LOS would vary depending on the peak hour, direction, and segment, ranging from LOS B to LOS E. No segments on U.S. 101 would exceed their CMP LOS threshold with the proposed project under Existing Plus Project conditions.

(1) Cumulative Conditions. Cumulative conditions for this analysis were developed as a part of the GCIP. The Marin County Travel Demand Model served as the travel demand forecasting (TDF) model for the GCIP. The base year model was calibrated and validated for 2005 conditions and the forecast year model represents 2035 conditions. The future year model includes recently completed infrastructure projects and accounts for the increase traffic demand served through the Plan area due to these improvements. This model utilizes the EMME/2 software platform along with recent land use and road network information to forecast the regional demand to 2035. While the model was developed by Marin County, it covers the entire nine-county San Francisco Bay Area and includes detailed zone and network systems within Marin, Sonoma, and San Francisco Counties. Through the sub-area model calibration and validation process, the model was deemed acceptable for use in the GCIP and this study.¹⁴

To determine the adequacy of the GCIP model for this study, the existing and future forecasted traffic volumes were compared to the proposed project's trip generation. As shown in Figure IV.B-10, the proposed project would generate a similar or lower amount of traffic than what was forecast in the GCIP model. Therefore, the GCIP model was deemed appropriate to develop traffic volumes for Cumulative Plus Project Conditions. Intersection turning movement volumes for Cumulative Plus Project Conditions are shown on Figure IV.B-11. Additional information on the land use and roadway assumptions included under Cumulative Conditions is presented below.

¹⁴ Future year model calibration and validation process is described in the *Highway 101 Greenbrae/Twin Cities Corridor Improvements Project Approval/Environmental Document – Final Traffic Operations Report* (TAM, October 2012).

Table IV.B-15: Existing Plus Project Freeway Segment LOS Results

Direction	Freeway Segment	Theoretical Capacity ^a	Peak Hour	Existing			Existing Plus Project		
				Volume	V/C ^b	LOS	Volume	V/C ^b	LOS
Northbound U.S. 101	A. North of Sir Francis Drake Boulevard	9,900	PM	5,920	0.60	A	5,938	0.60	A
	B. North of Industrial Way	8,800	PM	7,910	0.90	D	8,064	0.92	E
	C. North of Tamalpais Drive, South of Industrial Way	7,700	PM	7,120	0.92	E	7,247	0.94	E
Southbound U.S. 101	A. North of Sir Francis Drake Boulevard	9,900	PM	5,370	0.54	A	5,420	0.55	A
	B. North of Fifer Avenue	8,800	PM	6,650	0.76	C	6,725	0.76	C
	C. South of Fifer Avenue, North of Madera Boulevard	8,800	PM	6,190	0.70	C	6,250	0.71	C

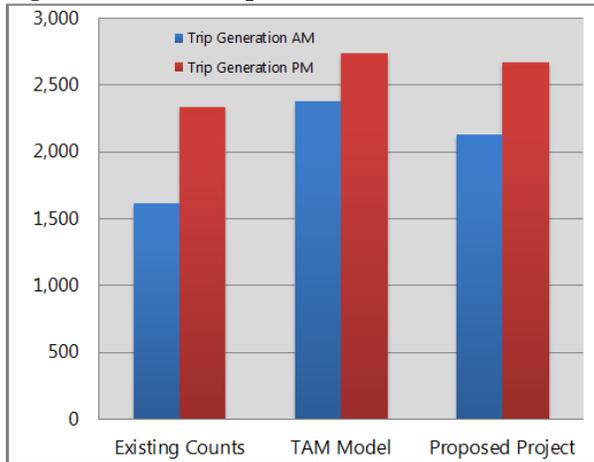
Notes:

^a Assumes a mixed flow freeway capacity of 2,200 vehicles per hour per lane. HOV lane (peak direction only) capacity is 50 percent of a mixed flow freeway lane. Auxiliary lane capacity is 50 percent of a mixed flow lane.

^b Freeway segment level of service based on volume to capacity ratio according to the Highway Capacity Manual. *Highway Capacity Manual, Transportation Research Board, 2000.*

Source: Fehr & Peers, May 2013.

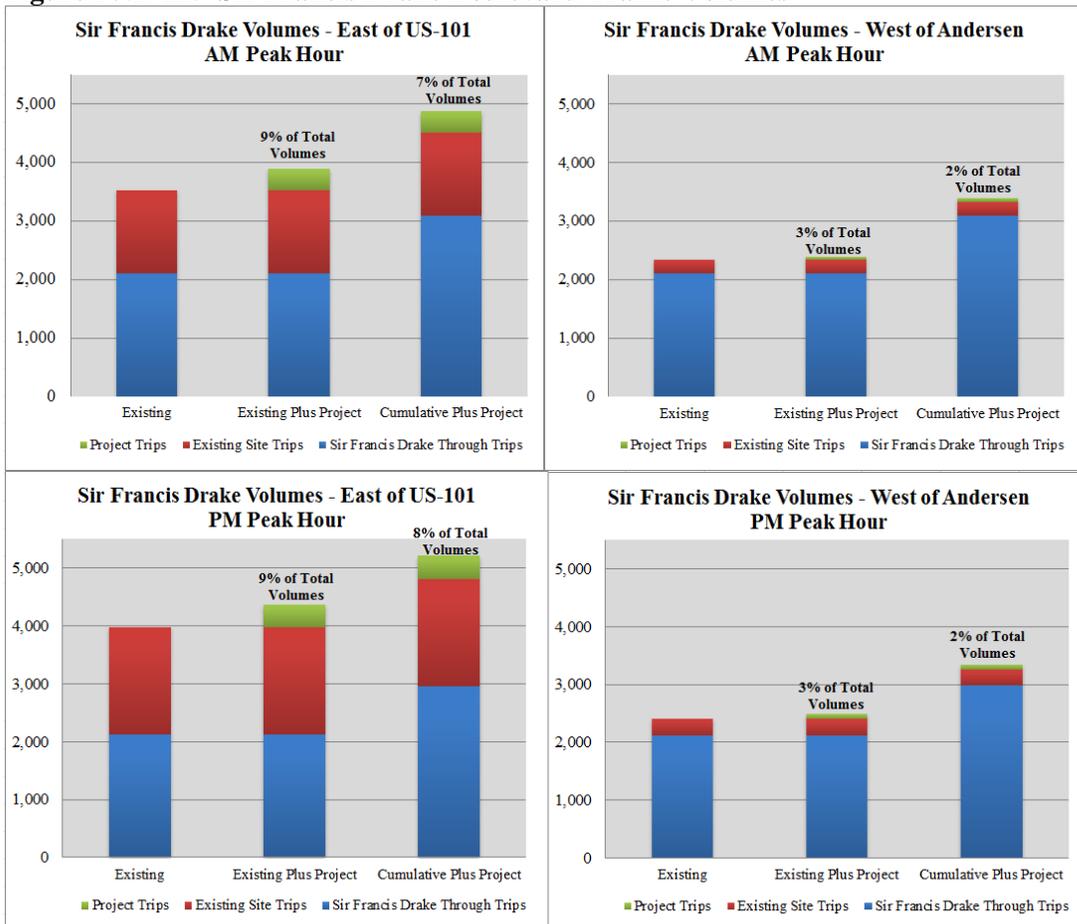
Figure IV.B-10: Trips Generated in Sub-area 1A



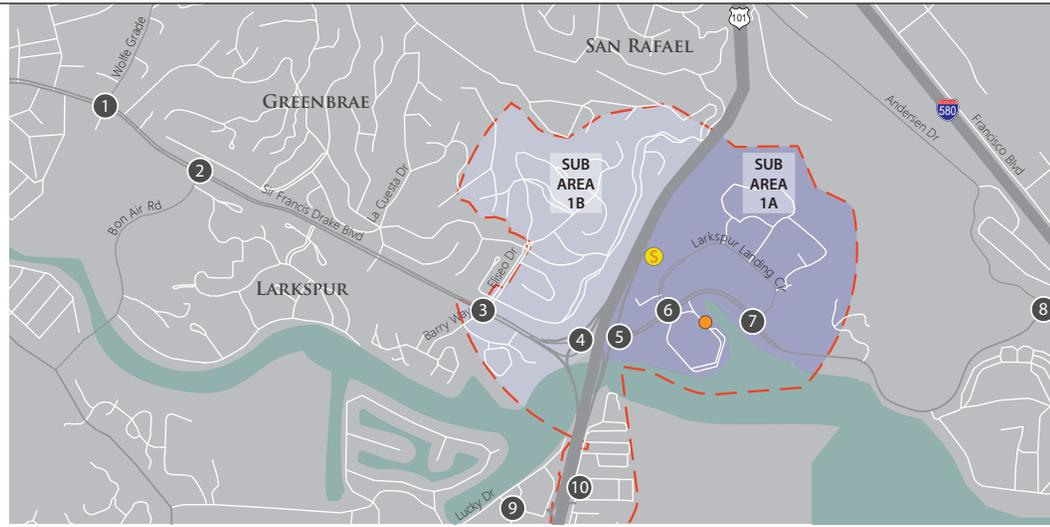
Traffic volumes along Sir Francis Drake Boulevard at two locations were compared between Existing Conditions, Existing Plus Project Conditions, and Cumulative Plus Project conditions. As shown in Figure IV.B-12, the added trips due to implementation of the Station Area Plan would represent a 7 to 9 percent of the total traffic on Sir Francis Drake Boulevard between U.S. 101 and Larkspur Landing Circle (West). The added project trips would represent 2 to 3 percent of the total traffic on Sir Francis Drake Boulevard between Larkspur Landing Circle (East) and Andersen Drive.

Source: Transportation Authority of Marin, 2012. *Highway 101 Greenbrae/Twin Cities Corridor Improvements Project Approval/ Environmental Document - Final Traffic Operations Report*. October.

Figure IV.B-12: Sir Francis Drake Boulevard Traffic Volumes



Source: Fehr & Peers, 2012. *Highway 101 Greenbrae/Twin Cities Corridor Improvements Project Approval/ Environmental Document - Final Traffic Operations Report*. October; Fehr & Peers, May 2013.

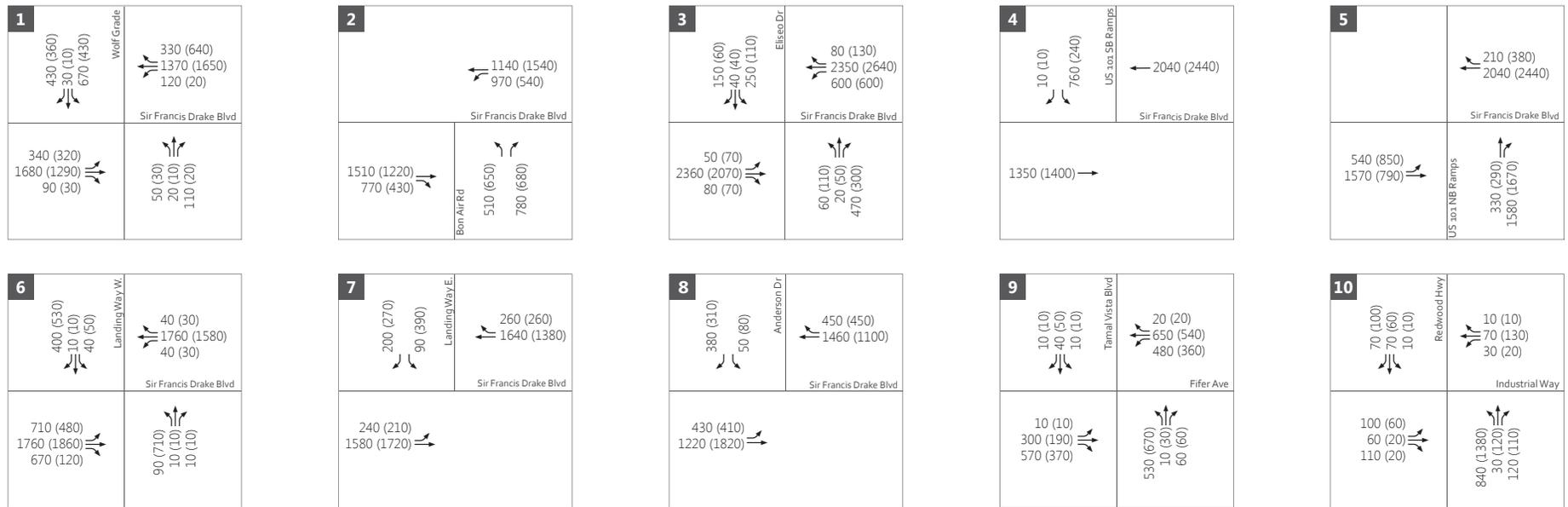


MAP KEY

- Study Area Boundary
- SMART Station Location
- Larkspur Ferry Terminal
- 1 Study Intersection

VOLUMES KEY

xx (yy) AM (PM) Peak Hour Traffic Volumes



LSA

NOT TO SCALE



FIGURE IV.B-11

City of Larkspur SMART Station Area Plan EIR
Cumulative Plus Project Conditions
Intersection Peak Hour Volumes

SOURCE: FEHR & PEERS, MAY 2013.

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Cumulative Land Use Assumptions. For purposes of the GCIP, it was necessary to produce forecasts for the Year 2035 (20 years after construction, scheduled to be completed by 2015) and to be consistent with the most recent set of regionally-adopted land use projections. At the time forecasts were completed, the Association of Bay Area Governments (ABAG) Projections 2005¹⁵ were the most recent regionally adopted land use projections. With agreement from the Transportation Authority of Marin (TAM) and Caltrans, Design Year (2035) land use forecasts were extrapolated from the 2005 ABAG projection data.¹⁶ Outside of Marin County, year 2030 projections contained in the Marin County Model were extrapolated linearly to Design Year (2035) conditions. Within Marin County, 2006 Countywide Plan land use projections including all cities within Marin County were modified to be consistent with the countywide Design Year (2035) extrapolated development totals. This approach allows for consistency with recent ABAG projections, while still reflecting the County’s expectation of zonal distribution of new development consistent with their most recent long-range planning efforts. Table IV.B-16 shows representative local projects that were included in the GCIP model.

Table IV.B-16: Land Use Forecasts in Marin County Model

Project	Description	Year Approved
Larkspur Station Area Plan	Transit-oriented development plan	Planning underway
Drake’s Cove	23 dwelling units	Construction underway
Rose Lane, Larkspur	91 dwelling units	2008
Drake’s Way, Larkspur	24 dwelling units	Completed in 2010
Drake’s Cove/Larkspur Landing Circle	126 dwelling units, plus hotel	Partially completed in 2010
Police Facility, Larkspur	New facility	Completed in 2012
MacFarlane Partners (WinCup Site), Corte Madera	180 dwelling units, plus 10,000 square feet of retail	Under construction
Marin General Hospital Expansion, Greenbrae	Hospital replacement project	Draft EIR released in August 2012
Village at Corte Madera Expansion	Addition to Nordstrom	Under construction
College of Marin	New Academic Center	Initial Study released in 2012
New school on San Clemente Drive, Corte Madera	350-450 students	Planning underway
Madera Vista Apartments	126 dwelling units	Renovation underway

Source: Fehr & Peers, December 2013.

The land use forecasts account for growth envisioned as part of the Marin County General Plan. For areas of potential future growth in Marin County such as San Quentin, where future development is uncertain, guidance from the Marin County General Plan was followed in developing the land use forecasts. The Marin County General Plan states in Policy PA-5.2: "San Quentin is expected to remain a state prison for the duration of this Countywide Plan and is therefore designated Public Facilities, reflecting its current use. No other designation or policy is established by this plan. However, should non-prison uses become feasible in the future, consideration could be given to development that is less than or equal to the energy and resource consumption and traffic generation of the current prison use." A comparison between the ABAG 2005 projections and the most recently completed ABAG 2009 projections was completed to determine what levels of growth are forecasted for the Plan area and Marin County. The 2005 ABAG growth projections were found to be 5 percent to 15 percent higher in the Plan area and Marin County than the most recent ABAG growth projections from 2009. Therefore, the cumulative forecasts prepared using the 2005 ABAG projections conservatively account for potential future growth in traffic through the Plan area.

¹⁵ Association of Bay Area Governments, 2005. *Projections 2005*.

¹⁶ Fehr & Peers, 2013. *Highway 101 Greenbrae/Twin Cities Corridor Improvements Project Approval/ Environmental Document - Final Traffic Operations Report*. October.

Cumulative Roadway Improvements. A number of roadway improvements are planned for construction in and around the Plan area prior to 2035. The Marin County Travel Demand Model was inspected and modified to ensure the 2035 roadway network included relevant improvements. Planned roadway improvements included in the model were reviewed and approved by TAM and Caltrans. Table IV.B-17 shows a list of transportation projects that were included in the GCIP model.

Table IV.B-17: Future Transportation Projects in Travel Demand Model

Project	Description	Year Approved	Assumed in Marin County Model Forecasts	Not Assumed in Marin County Model Forecasts
101 HOV Gap Closure Project	Completed in 2010	Early 2000s	X	
WB 580 to NB 101 Connector	Completed in 2011	2008/09	X	
Novato Narrows Widening	Widening of U.S. 101 to 3 lanes in each direction	Under construction	X	
SMART (to San Rafael)	New commuter rail service	2008		X
SMART (to Larkspur)	New commuter rail service	n/a		X
Richmond Bridge widening	Planned widening of Richmond Bridge to 3 lanes in each direction	n/a		X
Alto Tunnel Bikeway	Planned bikeway connection between Corte Madera and Mill Valley	n/a		X

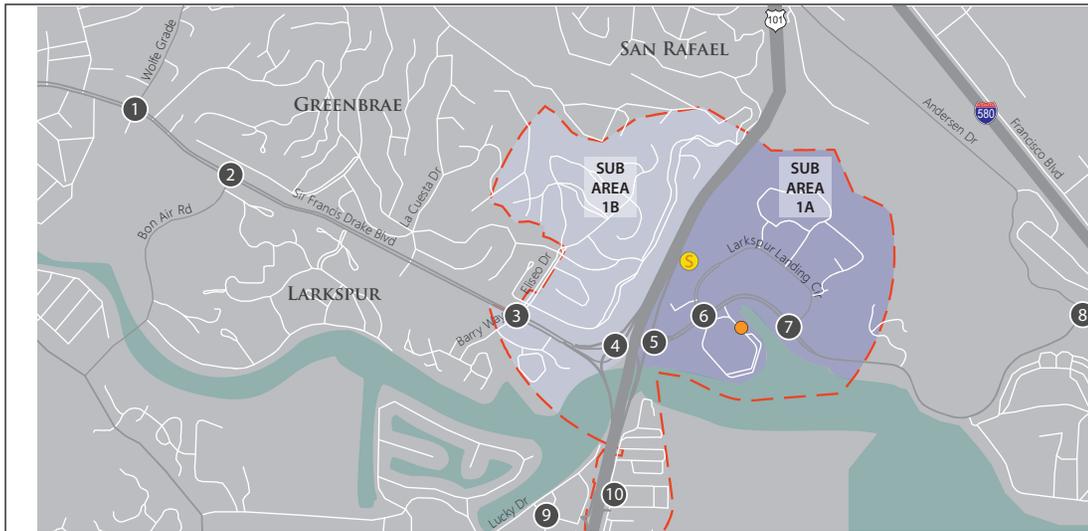
Source: Fehr & Peers, May 2013.

Cumulative No Project Conditions. As discussed above, the proposed project was included in the GCIP model to represent Cumulative Plus Project conditions. Cumulative No Project conditions were developed by removing the new AM and PM peak-hour trips for the proposed project. These vehicle trips were removed from the freeway segments, roadway segments, and intersection turning movements based on the directions of approach and departure shown in Figure IV.B-7. Intersection turning movement volumes for Cumulative No Project Conditions are shown on Figure IV.B-13. For conservative purposes, the maximum density of land uses, implemented over a 20-year period, was assumed for this analysis. Less intensive development within the Plan area (i.e., senior or affordable housing) would result in fewer traffic effects than described in this section.

Cumulative No Project Intersection Operations. The cumulative intersection operations under no project and project conditions are presented below.

Cumulative No Project. The intersection LOS analysis results for Cumulative Conditions are presented in Table IV.B-18. The LOS results show that the following study intersections would degrade to unacceptable intersection operations due to the cumulative traffic growth without the project:

- #2 Sir Francis Drake Boulevard/Bon Air Road – LOS F in the AM peak hour, LOS E in the PM peak hour.
- #3 Sir Francis Drake Boulevard/Wolfe Grade – LOS F in the AM and PM peak hours.
- #5 U.S. 101 Northbound Ramps/Sir Francis Drake Boulevard – LOS E in the PM peak hour.
- #10 U.S. 101 Northbound Ramps/Redwood Highway/Industrial Way – LOS F in the PM peak hour.

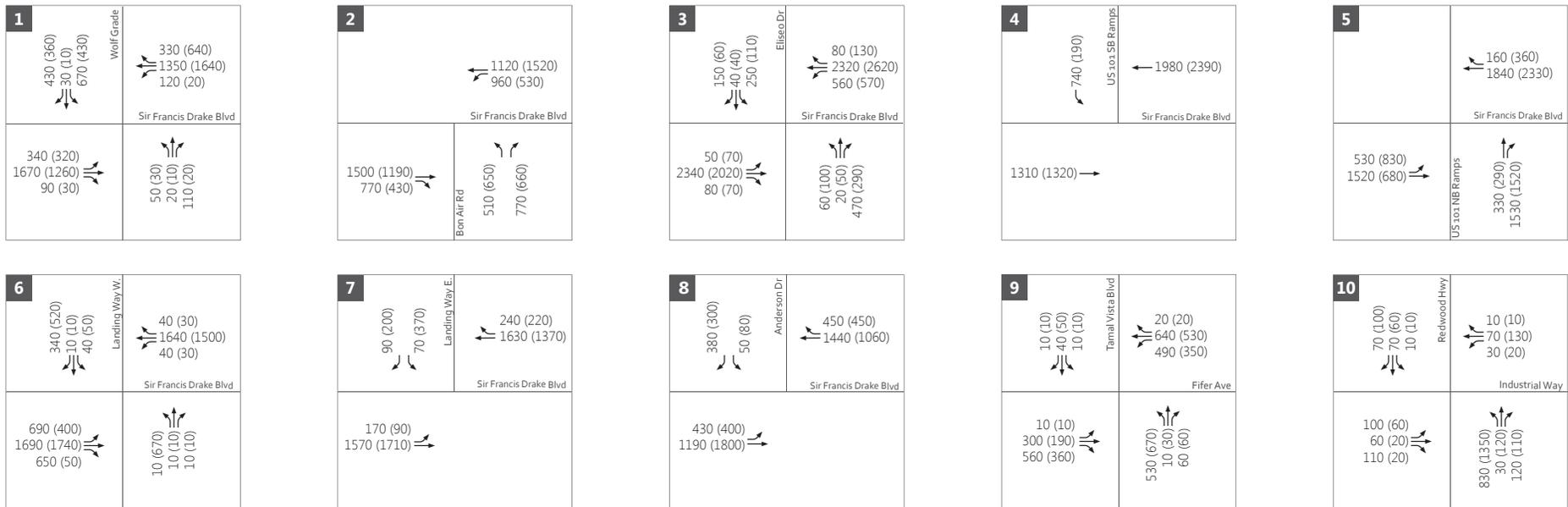


MAP KEY

- Study Area Boundary
- SMART Station Location
- Larkspur Ferry Terminal
- 1 Study Intersection

VOLUMES KEY

xx (yy) AM (PM) Peak Hour Traffic Volumes



LSA

FIGURE IV.B-13

NOT TO SCALE



City of Larkspur SMART Station Area Plan EIR
 Cumulative No Project Conditions
 Intersection Peak Hour Volumes

SOURCE: FEHR & PEERS, MAY 2013.

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Table IV.B-18: Cumulative Plus Project Intersection LOS Results

Intersection	Control	Cumulative No Project				Cumulative Plus Project			
		AM		PM		AM		PM	
		Delay ^a	LOS	Delay ^a	LOS	Delay ^a	LOS	Delay ^a	LOS
1. Sir Francis Drake Boulevard/Wolfe Grade	Signal	>80 ^d	F	>80	F	>80	F	>80	F
2. Sir Francis Drake Boulevard/Bon Air Road	Signal	>80 ^e	F	66	E	>80	F	69	E
3. Sir Francis Drake Boulevard/Eliseo Drive ^b	Signal	>80 ^f	F	67	E	>80	F	72	E
4. Sir Francis Drake Boulevard/U.S. 101 Southbound Ramps ^b	Signal	45	D	<10	A	46	D	12	B
5. Sir Francis Drake Boulevard/U.S. 101 Northbound Ramps ^b	Signal	31	C	61	E	38	D	58	E ⁱ
6. Sir Francis Drake Boulevard/Larkspur Landing Circle (West)/Ferry Terminal Entrance ^b	Signal	16	B	49	D	22	C	51	D
7. Sir Francis Drake Boulevard/Larkspur Landing Circle (East) ^b	Signal	25	C	37	D	28	C	46	D
8. Sir Francis Drake Boulevard/Andersen Drive	SSS ^c	>50 ^g	F	>50	F	>50	F	>50	F
9. Tamal Vista Boulevard/Fifer Avenue ^b	Signal	55	D	44	D	53	D	48	D
10. U.S. 101 Northbound Ramps/Redwood Highway/Industrial Way ^b	Signal	<10	A	>80 ^h	F	<10	A	>80	F

Notes: **Bold** = unacceptable LOS. **Shaded** = significant impact.

^a For signalized and all-way stop controlled intersections, the delay shown is the weighted average for all movements in seconds per vehicle. For side-street stop controlled intersection, the delay shown is the worst-operating approach delay.

^b Intersection analyzed using the VISSIM microsimulation model.

^c SSS = Side-street stop.

^d As shown in Appendix B of the transportation appendices, the proposed project is forecast to increase average vehicle delay by 1 seconds in the AM and PM peak hours.

^e As shown in Appendix B of the transportation appendices, the proposed project is forecast to increase average vehicle delay by 3-4 seconds in the AM and PM peak hours.

^f As shown in Appendix B of the transportation appendices, the proposed project is forecast to increase average vehicle delay by 1-3 seconds in the AM and PM peak hours.

^g As shown in Appendix B of the transportation appendices, the project would add traffic to the southbound approach which would not be able to enter Sir Francis Drake Boulevard during the AM and PM peak hours. In addition, the westbound left approach would operate at LOS F and the project would increase delay on this movement by 13 seconds in the PM peak hour.

^h As shown in Appendix B of the transportation appendices, the proposed project is forecast to increase average vehicle delay by less than 5 seconds in the PM peak hour.

ⁱ Average intersection delay slightly improves at this location under cumulative conditions due to the increase in traffic on the eastbound through movement which has relatively less congestion than the remainder of the intersection.

Source: Fehr & Peers, May 2013.

The degradation of Sir Francis Drake Boulevard/Bon Air Road and Sir Francis Drake Boulevard/U.S. 101 Northbound Ramps is due to an increase in through traffic along Sir Francis Drake Boulevard. U.S. 101 Northbound Ramps/Redwood Highway/Industrial Way degrades to LOS F due to worsening mainline and Sir Francis Drake Boulevard off-ramp conditions that cause queues to spill back on Redwood Highway.

Cumulative Plus Project. The proposed project would contribute traffic and increase delay by more than 5 seconds at the intersections of Sir Francis Drake Boulevard/Andersen Drive, which are operating at unacceptable levels of service during the AM and PM peak hours. The proposed project would add in excess of 5 seconds of delay to this intersection during the AM peak hour. Therefore, the project's impact at this intersection is significant.

Impact TRANS-5: The addition of Station Area Plan traffic would increase the average delay during the AM and PM peak hours by more than 5 seconds at Intersection #8 Sir Francis Drake Boulevard/Andersen Drive, which contributes to unacceptable intersection operations under Cumulative Plus Project Conditions. (S)

Implementation of the following mitigation measure would reduce this impact to a less-than-significant level. However, as this mitigation would need to be coordinated with the City of San Rafael, this impact is considered significant and unavoidable.

Mitigation Measure TRANS-5: Implementation of Mitigation Measure TRANS-4 would reduce vehicle delay at this intersection to less than without the project. As the feasibility of this improvement will require further study and coordination with other agencies for approval, this impact is considered significant and unavoidable. (SU)

The implementation of the Station Area Plan would add traffic to Intersection #1 Sir Francis Drake Boulevard/Wolfe Grade, Intersection #3 Sir Francis Drake Boulevard/Eliseo Drive, Intersection #5 Sir Francis Drake Boulevard/U.S. 101 Northbound Ramps, and Intersection #10 U.S. 101 Northbound Ramps/Redwood Highway/Industrial Way. These intersections would operate at unacceptable LOS E or F in the AM or PM peak hours under cumulative conditions; however, the average vehicle delay at these intersections would not increase by more than 5 seconds; primarily due to the fact that project trips would make up a smaller increase in traffic on Sir Francis Drake Boulevard when compared to the forecasted cumulative growth and that the signal timings would be optimized to meet the future traffic volumes. The remaining intersections would continue to operate at an acceptable LOS D or better with the proposed project. Therefore, impacts to these intersections would be less-than-significant under Cumulative Plus Project Conditions.

Freeway Operations. The cumulative freeway mainline operations under the Cumulative and Plus Project Conditions are presented below. The freeway traffic volumes and analysis results with the proposed project are presented in Table IV.B-19. The freeway operation LOS would vary depending on the peak hour, direction, and segment, ranging from LOS B to LOS F. The segments of northbound U.S. 101 North of Industrial Way and North of Tamalpais Drive, South of Industrial Way would exceed the CMP LOS threshold under Cumulative No Project and Plus Project Conditions. The proposed project would contribute traffic to these freeway segments greater than 1 percent of the freeway segment capacity, resulting in significant impacts to these freeway segments.

Table IV.B-19: Cumulative Plus Project Freeway Segment LOS Results

Direction	Freeway Segment	Theoretical Capacity ^a	Peak Hour	Cumulative			Cumulative Plus Project		
				Volume	V/C ^b	LOS	Volume	V/C ^b	LOS
Northbound U.S. 101	A. North of Sir Francis Drake Boulevard	9,900	PM	7,200	0.73	C	7,218	0.73	C
	B. North of Industrial Way	8,800	PM	9,440	1.07	F	9,594	1.09	F
	C. North of Tamalpais Drive, South of Industrial Way	7,700	PM	7,930	1.03	F	8,057	1.05	F
Southbound U.S. 101	A. North of Sir Francis Drake Boulevard	9,900	PM	6,850	0.69	B	6,900	0.70	B
	B. North of Fifer Avenue	8,800	PM	8,580	0.98	E	8,655	0.98	E
	C. South of Fifer Avenue, North of Madera Boulevard	8,800	PM	7,890	0.90	D	7,950	0.90	E

Notes: Bold = unacceptable **LOS** = unacceptable LOS. Shaded = significant impact.

^a Assumes a mixed flow freeway capacity of 2,200 vehicles per hour per lane. HOV lane (peak direction only) capacity is 50 percent of a mixed flow freeway lane. Auxiliary lane capacity is 50 percent of a mixed flow lane.

^b Freeway segment level of service based on volume to capacity ratio according to the Highway Capacity Manual. *Highway Capacity Manual, Transportation Research Board, 2000.*

Source: Fehr & Peers, May 2013.

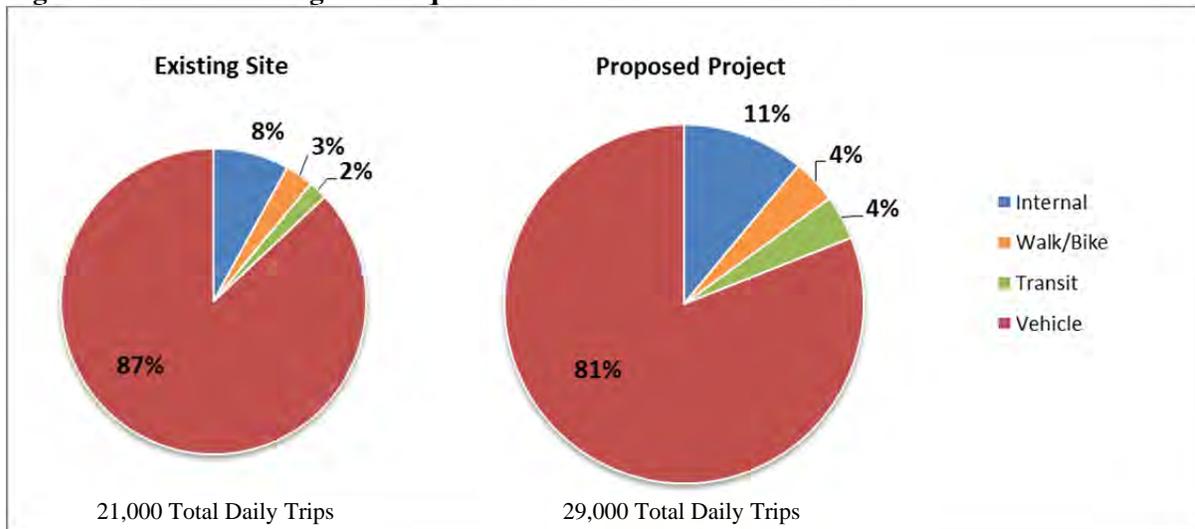
Impact TRANS-6: Implementation of the Station Area Plan would add traffic greater than 1 percent of the freeway segment capacity on the two segments of northbound U.S. 101 between Tamalpais Drive and Industrial Way, resulting in a significant project contribution under Cumulative Conditions. (S)

Mitigation Measure TRANS-6: Widening of northbound U.S. 101 to from three to four mixed-flow lanes (in addition to one HOV lane) from the Tamalpais Drive to Sir Francis Drake Boulevard interchanges would expand roadway capacity from 7,700 to 9,900 vehicles per hour between Tamalpais Drive and Industrial Way and from 8,800 to 11,000 vehicles per hour north of Industrial Way, thus providing acceptable operations. However, this roadway improvement is neither planned nor funded and is under the jurisdiction of Caltrans. Therefore, this impact is considered significant and unavoidable. (SU)

(2) **Other Transportation Impacts and Mitigations.** This section includes a discussion of the potential impacts of the project related to pedestrian, bike, and transit facilities; emergency access; air traffic; construction; transportation demand management; and parking.

Public Transit Facilities. As discussed previously, public transit service in the area is provided by GGT and Marin Transit. Key existing public transit services include the Larkspur Ferry Terminal and bus service operated by the GGT along Sir Francis Drake Boulevard. In addition to these services, the SMART train would provide service to the Plan area under project conditions. All three of these public transit services are within a quarter mile of the proposed land uses in Sub-area 1A. Public transit trips generated by the proposed project were determined based the existing transit mode split based on the 2000 Bay Area Travel Survey (BATS) data and the MXD+ trip generation forecasts. Figure IV.B-14 shows a comparison of forecasted transit mode share for Sub-area 1A under existing and project build out conditions.

Figure IV.B-14 Existing and Proposed Mode Share at Sub-area 1A



Source: Fehr & Peers, May 2013.

The MXD+ forecasts include transit ridership forecasts based on the project site characteristics and the accessibility of transit services at the site to employment. Table IV.B-20 shows the forecasted transit ridership for the proposed project based on the existing and future transit access at the site.

Table IV.B-20: Forecasted Public Transit Ridership Generated by the Proposed Project

Plan+ Tool Forecasts	Daily	AM Peak Hour	PM Peak Hour
Existing Sub-area 1A	430	50	70
Proposed Project	1,090	130	180
Net New Transit Riders	660	80	110

^a Applying the projected transit mode share to Sub-area 1B would result in less than 10 transit trips in the AM and PM peak hours (mode share of 4 percent X 70/76 trips during the AM/PM peak hours).

Source: Fehr & Peers, May 2013.

To determine which public transit services these new transit riders would use, the existing daily Ferry ridership and bus ridership in the Plan area were compared to the forecasted daily ridership prepared for the SMART EIR. As shown in Table IV.B-21, these proportions were then applied to the ridership forecasts, resulting in approximately 520 new daily ferry riders, 30 new bus riders, and 110 SMART riders generated by the proposed project.

Table IV.B-21: Forecasted Public Transit Ridership Generated by the Proposed Project

	Daily	AM Peak Hour	PM Peak Hour
Forecasted New Ferry Riders	520	60	90
Forecasted New Bus Riders	30	0-10	0-10
Forecasted SMART Riders	110	20	20

Note: Appendix B shows transit calculations.

Source: Fehr & Peers, May 2013.

The SMART ridership would not exceed the forecasted ridership presented in the SMART EIR and Ferry Terminal ridership is currently planning for increased ridership in the future. The proposed project would be built out over 20 years, allowing the GGBHTD time to address potential increases in ridership associated with growth from the site and region. The City would continue to coordinate with the GGBHTD regarding development proposed in the vicinity of the ferry and potential effects on the ferry parking and ridership. Implementation of the Station Area Plan would not cause an unanticipated increase in public transit ridership beyond what is forecasted for the transit services in the Plan area. Therefore, impacts to public transit conditions would be less-than-significant.

Pedestrian and Bicycle Facilities. Implementation of the Station Area Plan would result in increased pedestrian and bicycle activity in and around the Plan area. In general, the Station Area Plan would enhance pedestrian and bicycle operations through new and improved crossings along Larkspur Landing Circle and at Sir Francis Drake Boulevard, additional sidewalks along Sir Francis Drake Boulevard and Larkspur Landing Circle, and a network of pedestrian and bicycle oriented streets throughout the site. Proposed on-site pedestrian improvements are shown in Figures IV.B-15a and IV.B-15b.

The site plan associated with Station Area Plan implementation has not been finalized. The final project designs will be reviewed to ensure consistency with design standards. Considering the improvements shown in Figures IV.B-15a and IV.B-15b, implementation of the Station Area Plan would improve existing pedestrian and bicycle facilities, minimize on-site potential conflicts between various modes, and provide safe and efficient pedestrian, bicycle, and vehicle connections between the Larkspur Ferry Terminal, Larkspur Landing, and the surrounding circulation systems.

Additionally, off-site pedestrian and bicycle improvements are proposed as a part of the following plans:

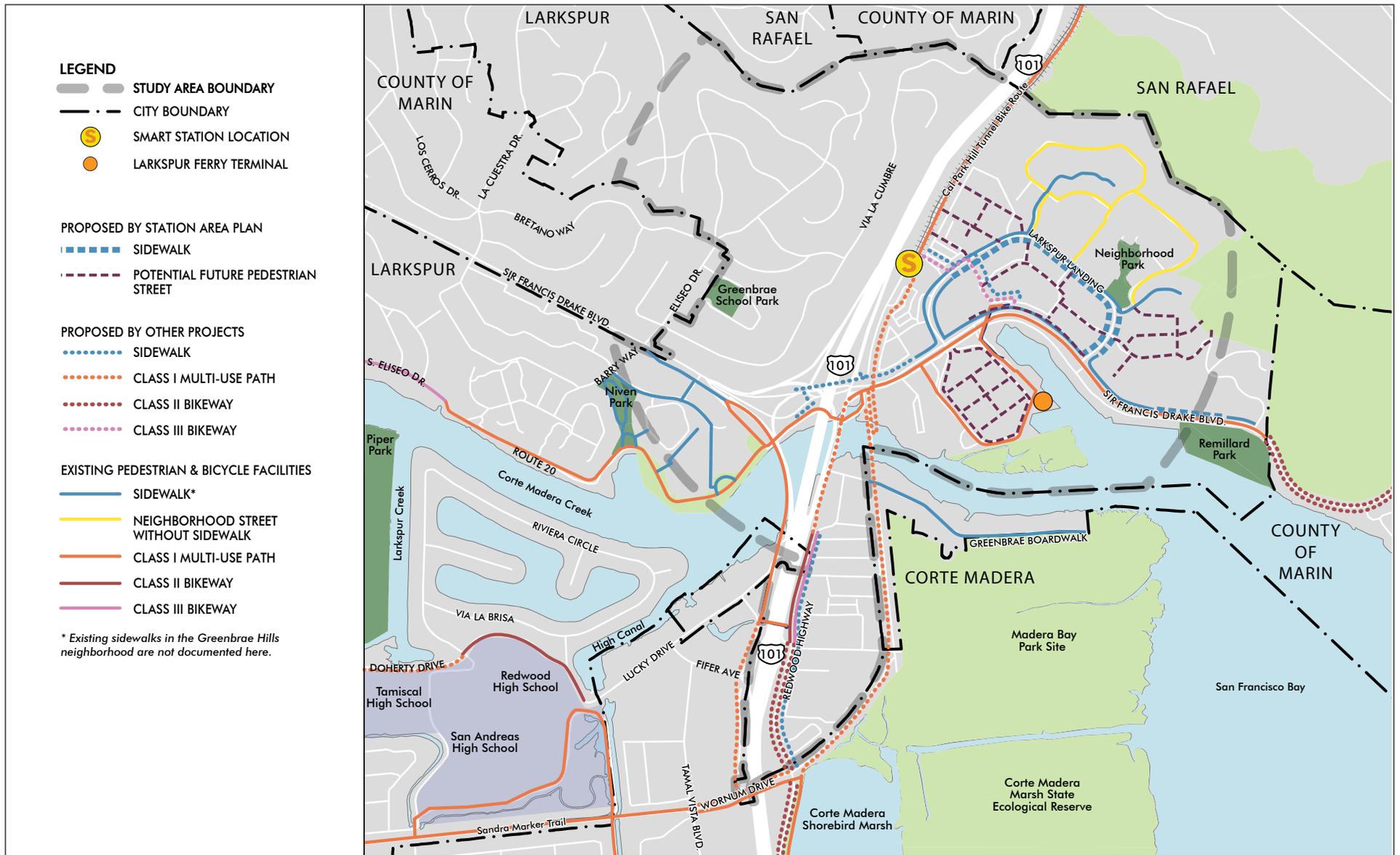
- Transportation Authority of Marin Proposed Studies
- Central Marin Ferry Connector
- San Quentin Access Study

A summary of applicable policies and plans was provided previously. The Station Area Plan is designed to be consistent with these policies, plans, and programs and would not preclude the development of bicycle and pedestrian facilities described in these plans. In addition, the proposed project would not cause a significant impact to existing pedestrian or bicycle facilities or substantially increasing traffic hazards to motor vehicles, bicycles, or pedestrians due to a design feature. Therefore, impacts to bicycle and pedestrian conditions would be less-than-significant.

Emergency Access. Emergency vehicles would be able to use the roadways surrounding the project site and through the project site, maintaining existing emergency access. Therefore, the proposed project would not result in emergency vehicle access impacts.

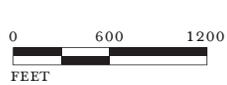
Air Traffic. Additional residents and employment associated with implementation of the Station Area Plan would not contribute substantially to demand for commercial flights. Therefore, the proposed project would not substantially increase flight operations. In addition, no buildings or features would be constructed on-site that would interfere with flight operations at local airports.

Construction. Project construction associated with implementation of the Station Area Plan would affect off-site circulation due to increased truck traffic to and from the development sites. Construction would also disrupt on-site travel due to the potential closure of sidewalks and blockage of bicycle facilities and transit routes during construction.



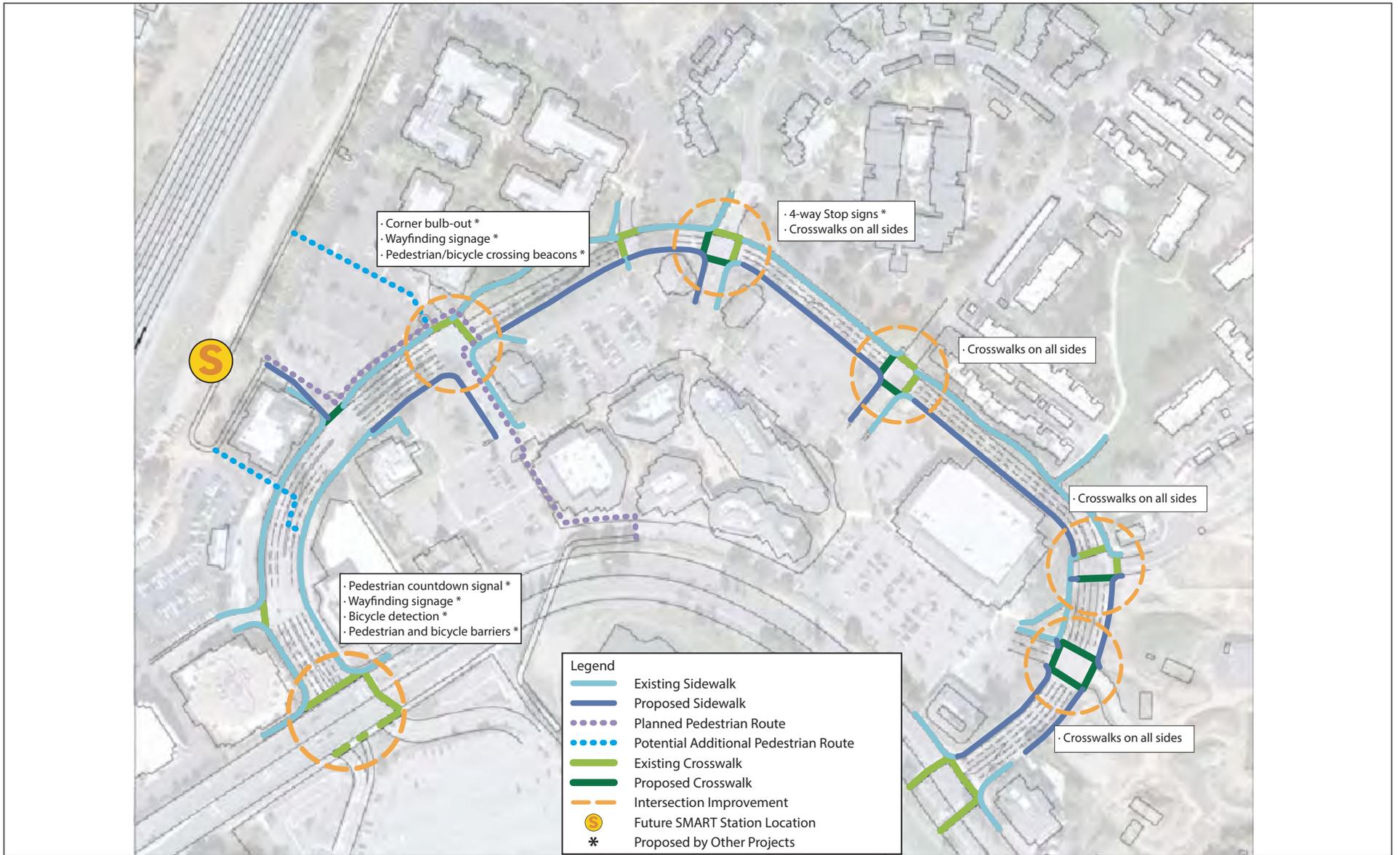
LSA

FIGURE IV.B-15a



SOURCE: CITY OF LARKSPUR, DECEMBER 2013.

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LSA

FIGURE IV.B-15b

NOT TO SCALE



SOURCE: CITY OF LARKSPUR, OCTOBER 2013.

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Impact TRANS-7: Project construction activities could interfere with circulation patterns. (S)

Implementation of the following mitigation measure would reduce this impact to a less-than-significant level:

Mitigation Measure TRANS-7: The City will require as a Condition of Approval that project applicants develop and submit construction management plans for City approval that specify measures that would reduce impacts to motor vehicle, bicycle, pedestrian, and transit circulation. Construction management plans shall include the following:

- Location of construction staging areas for materials, equipment, and vehicles;
- Notification procedures for adjacent property owners and public safety personnel regarding when major deliveries, detours, and lane closures will occur;
- Identification of haul routes for movement of construction vehicles that would minimize impacts on vehicular and pedestrian traffic, circulation, and safety; and provision for monitoring surface streets used for haul routes so that any damage and debris attributable to the haul trucks can be identified and corrected by the project sponsors;
- Provisions for removal of trash generated by project construction activity;
- A process for responding to, and tracking, complaints pertaining to construction activity, including identification of an on-site complaint manager; and
- Provisions for pedestrian and bicycle circulation through the congestion zone.

Project applicants shall implement construction management plans. (LTS)

Parking. The development associated with implementation of the Station Area Plan project in Sub-area 1A would include a total of 4,990 parking spaces in parking garages and on-street parking. This would represent an increase of approximately 1,410 parking spaces, or a 39 percent increase over the existing site. Parking would be shared among most uses to minimize the total amount of parking required at the site. The required parking code for the site and parking demand calculations are presented below. *Larkspur SMART Station Area Plan: Parking Demand Analysis Memorandum*¹⁷ in Appendix B documents the proposed parking demand and supply.

The Larkspur Municipal Code defines off-street parking requirements in Chapter 18.56. Table IV.B-23 shows the required amount of parking for each land use in the Station Area Plan. 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.

¹⁷ Fehr & Peers, 2012. *Larkspur SMART Station Area Plan: Parking Demand Analysis Memorandum*. November 30.

Table IV.B-22: Sub-area 1A Proposed Parking Supply

Opportunity Site	Existing	Proposed				Total
		Residential	Office	Retail	Other	
1. Ferry Terminal	1,800	330	0	0	1,800	2,130 (+380)
2. Marin Airporter	340	0	0	0	340	340 ^a (0)
3. Larkspur Landing Offices/Cinema	630	0	640	160	20	820 (+190)
4. Marin Country Mart	810	330	0	950	0	1,280 (+470)
5. Sanitary District	0	400	0	0	20	420 (+420)
Total Sub-area 1A	3,580	1,060	640	1,110	2,180	4,990 (+1,410)

^a Golden Gate Transit District is currently studying options to provide additional overflow parking at this location. These plans do not preclude additional parking at this site.

Source: Fehr & Peers, May 2013.

Table IV.B-23: Larkspur Off-Street Parking Requirements

Land Use	Unit Type	Rental	Condo	Guest Parking ^a	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	Use Type	Parking Ratio			
	(C) General Retail	5/1,000 SF			
	(F) Office	4/1,000 SF			

Notes:

SF = square feet

^a 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 Plan area.

Source: Fehr & Peers, May 2013.

Parking Demand and Supply. Parking occupancy surveys throughout the Plan area were conducted to estimate existing on- and off-street parking supply and demand within the area. Parking surveys were completed for both weekdays and weekends and shortfalls or surpluses during the peak parking periods were determined for each potential opportunity site (see Figure III-3). The proposed parking ratios and supply 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.

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. Table IV.B-24 shows the forecasted increased parking demand at each of the sites.

Table IV.B-24: Sub-area 1A Projected Parking Demand

Opportunity Site	Existing Demand	Additional ULI Shared Parking Demand ^a				Peak Parking Demand ^b	Parking Supply
		Residential	Office	Retail	Other		
1. Ferry Terminal	1,800 ^c	330	0	0	0	2,130	2,130
2. Marin Airporter	260 ^d	0	0	0	0	260	340
3. Larkspur Landing Offices/Cinema	610	30	230	160	20	820	820
4. Marin Country Mart	640	330	0	310	0	1,280	1,280
5. Sanitary District	0	400			20	420	420
Total	3,110	1,060	230	470	40	4,910	4,990

Notes:

^a ULI shared parking model assumes an optimum efficiency of 85-95 percent occupancy depending on the type of land use to account for the fact that a parking facilities will be perceived as full at somewhat less than its actual capacity. Residential demand parking rates are based on the ULI recommended rates, which are consistent with vehicle ownership levels in Marin County. Commercial parking demand rates are based on the survey of existing parking demand at the site.

^b Peak parking demand at the site occurs during the weekday mid-day.

^c Existing Ferry Terminal parking demand is assumed to be accommodated through a parking garage at the Ferry Terminal and a potential overflow parking garage at the Marin Airporter site. Excess demand beyond the current parking lot capacity is assumed to be accommodated at the Marin Airporter site.

^d Includes existing overflow parking demand from the Ferry Terminal and Marin Airporter parking demand.

Source: Fehr & Peers, May 2013.

Parking Supply. The proposed parking supply of 4,990 spaces would adequately accommodate the forecasted maximum parking demand of 4,910 at the site during the mid-day weekday peak. This maximum parking demand includes an optimum efficiency of 85-95 percent occupancy depending on the type of land use per the ULI Shared Parking model. Existing and future parking demand at the Ferry Terminal would be accommodated at the Ferry Terminal site and in an overflow parking garage at the Marin Airporter site. Other times of the day or week would have less parking demand, resulting in additional available parking.

Sub-area 1B would have limited opportunities for shared parking due to the relatively small mix of land uses at the site. Therefore, parking provided at the land uses in Sub-area 1B would be required to meet the requirements set forth in the City of Larkspur Parking Code. The Parking Code requires four spaces per 1,000 square feet for office land uses and 1.25 to 3 spaces per unit for residential land uses.

With implementation of the parking policies identified below, the projected parking supply for the Station Area Plan would adequately accommodate the maximum parking demand. Therefore, impacts to parking demand would be less-than-significant.

The future parking demand at the Ferry Terminal is unknown at this time. GGBHTD is continuing to study options that include additional parking structures or reducing Ferry Terminal parking demand through 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.

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. Based on the unique needs and characteristics of Larkspur, the proposed project includes the following parking policies. Many of these practices are adapted from MTC's *Reforming Parking Policies to Support Smart Growth Toolbox/Handbook* (June 2007).¹⁸ Proposed bicycle parking strategies are also discussed at the end of this section.

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. The City may consider adoption of these or other policies into the updated General Plan, Zoning Ordinance, and/or a Bicycle and Pedestrian Master Plan.

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.
 - 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.

¹⁸ Metropolitan Transportation Commission, 2007. *Reforming Parking Policies to Support Smart Growth Toolbox/Handbook*. June.

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 percent 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.
 - 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. 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.

Recommended Bicycle Parking Requirements

1. 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 IV.B-25 illustrates the parking requirements for bicycles for different land uses within the Plan area.
2. To enhance the viability of bicycle travel within the Plan 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 bike share system.

Table IV.B-25: Bicycle Parking Requirements for the Larkspur Station Area

Type of Activity	Long-Term Parking Requirement	Short-Term Parking 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 percent of projected AM peak period daily ridership	Spaces for 2 percent of projected AM peak period daily ridership
Commercial		
General retail	1 space for each 10,000 sf of floor area. Minimum requirement is 2 spaces.	1 space for each 2,000 sf of floor area. Minimum requirement is 2 spaces.
Office	1 space for each 10,000 sf of floor area. Minimum requirement is 2 spaces.	1 space for each 20,000 sf 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.

Notes: sf = square feet

Sources: Based on the *Bicycle Parking Guidelines, 2nd Edition*, Association of Pedestrian and Bicycle Professionals (APBP/www.apbp.org) 2010; Fehr & Peers, May 2013.

Transportation Demand Management and Trip Cap. The Station Area Plan includes a suite of Transportation Demand Management (TDM) strategies to reduce peak single-occupancy vehicle trips and encourage use of transit, walking, and biking as transportation modes. These strategies can significantly enhance mobility for people accessing the Plan area and will require close coordination among multiple agencies, including the GGTBHD, Transportation Authority of Marin, County of Marin, and Caltrans. These TDM strategies will be most effective when they are provided for all user groups in the Plan area, including residents, employees, shoppers, and transit riders. In addition, the

Station Area Plan also includes a vehicle trip cap will monitor effectiveness of the TDM program and the traffic generated from the Plan area. For the purpose of conducting a conservative traffic analysis, the TDM program and trip cap are not included in the travel demand calculations for the EIR traffic analysis. The TDM program has the potential to reduce traffic to the Plan area and the Larkspur Ferry Terminal. However, the feasibility, funding sources, and effectiveness for these mode shift strategies are unknown at this time. The proposed TDM program includes the following components:

- **Vehicle Trip Cap:** Mixed-use, transit-oriented development such as that proposed by the project generates less traffic than traditional, suburban-type development. The Station Area Plan includes a vehicle trip cap that will limit the increase in vehicle trips from the Plan area to approximately 10 percent above the existing traffic generated in the Plan area. A monitoring program will be put in place by the City to periodically measure this traffic to ensure that traffic conditions are not worsened by development in the Plan area.
- **TDM Coordinator and Transportation Management Strategies:** A TDM Coordinator provides information via flyers, posters, e-mail, and educational programs regarding non-auto access and circulation options. The TDM Coordinator's role may also include actively marketing alternative mode use, administering a neighborhood ride-matching program, and overseeing a Guaranteed Ride Home program (working with a local taxi service or rental car agency). A TDM Coordinator could also help implement or support the transportation management strategies listed below.
- **Guaranteed Ride Home Program/Taxi Service:** One of the reasons many commuters choose to drive to work and/or transit stations, rather than being dropped off or taking transit, is their inability to go home unexpectedly or the fear of being stranded if returning late without a car at the station. Guaranteed Ride Home programs are designed to allay these fears. With this program, transit riders are able to use a complimentary or reduced price taxi service to get home. Adequate taxi service is necessary for the Guaranteed Ride Home program to be successfully implemented.
- **Neighborhood Ride-Matching and Ridesharing:** Carpools consist of two or more people riding in one vehicle for commute purposes. A vanpool consists of seven to 15 passengers, including the driver, and the vehicle is either owned by one of the vanpoolers or their employer or leased by a vanpool rental company. Carpools and vanpool formations often require ride-matching assistance. Neighborhood carpooling could be incentivized through priority parking at the Larkspur SMART Station and Larkspur Ferry Terminal, and through transit fare reductions. Additionally, the Guaranteed Ride Home program would provide an insurance plan to those hesitant to join carpools for concerns of being unable to respond to an emergency, sick child, or other issue. To facilitate the formation of carpools, a TDM coordinator will administer an on-site carpool and vanpool matching service for commuters and maintain a list of available vanpools that provide service between the Plan area and various residential neighborhoods. The coordinator could also direct patrons to the 511.org Rideshare website to access additional ride-matching services.
- **Attended Parking:** Attended parking employs the service of a parking attendant who organizes efficient parking based on arrival and departure times. This strategy is well-suited for the Larkspur Ferry Terminal, Larkspur SMART Station, and Larkspur Landing offices, where arrivals and departures come in "waves" with ample time during the day to re-arrange vehicles for efficient storage and exiting. Unlike valet parking, where a valet parks a vehicle on arrival and retrieves the vehicle on departure, attended parking relies on

organized parking queues and is not intended as a luxury service. Drivers typically park and retrieve their own vehicles. A significant benefit of attended parking is the ability to utilize more capacity in a parking area.

- **Preferential Parking for Vanpool or Carpool:** Reserve convenient parking spaces for high-occupancy vehicles (HOVs) to encourage ridesharing. Preferential spaces could be striped and signed at a low cost. By implementing this strategy with attended parking, there would be minimal enforcement costs. Complementary strategies such as a Guaranteed Ride Home program and a ride-matching program would further encourage ridesharing.
- **Transit Discounts for Carpools or Vanpools:** In addition to preferential parking for carpools and vanpools, SMART or Larkspur Ferry Terminal patrons commuting via carpool or vanpool may receive subsidized transit travel as an additional incentive. HOV discounts for ferry or SMART fares would require significant monitoring and enforcement to prevent abuse of the system. This could be a responsibility of a TDM Coordinator who could issue the discounted fares.
- **Unbundled, Shared Parking:** The cost of parking is often “hidden” within the rent or purchase price of a residential or commercial unit. When parking is unbundled, parking spaces may be rented or sold separately rather than automatically included with the building space. Unbundling parking can also make housing more affordable for lower income households by providing the option of paying for housing without also paying for parking (if the household chooses not to or does not have a vehicle). Companion strategies of prohibiting street parking overnight, charging market rates for on street parking, and selling limited residential parking permits are often necessary to prevent spillover effects. Unbundled parking can also complement car-sharing programs. Unbundling parking is more equitable and efficient and it has been shown to reduce the total amount of parking required for a building when alternatives to driving are available in the area. Where parking provisions are not reduced, excess parking may be used as shared parking in mixed-use developments. Shared parking maximizes the use of parking facilities by making parking available for several land uses, especially those that have different time-of-day parking requirements. A potential shared parking scheme could include the following:
 - Parking spaces are sold separately from units, with the total parking supply equal to the amount described in the Parking Management section;
 - Surplus residential or employee parking is leased to SMART or Ferry Terminal patrons at market rates (on a monthly basis to control the population of users with access to the residential parking area); this program could be managed by a TDM Coordinator or by SMART and GGT; and
 - Available spaces are provided to residents first upon turnover should their parking needs change.
- **Bicycle Parking:** Bicycle parking strategies for convenient and secure on-street and off-street parking can make bicycling to the Plan area more appealing. When bicycling works for both short- and long-term visitors riding to employment, retail and entertainment destination, the total number of vehicle 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; and
- Consider expanding MTC's bike share program to Larkspur
- **Carsharing:** With carsharing, a fleet of vehicles is available to members of a carsharing group. Membership fees typically include insurance, fuel, and maintenance costs and may be paid on a per-hour or mile basis. Carsharing can be an alternative to car ownership or may encourage households within the Plan area to "shed" an extra car, or employees to take transit to the site knowing that they will have vehicles available if needed. Carsharing could complement other strategies such as unbundled parking or parking permits for residents and discounted transit passes and parking cash-out for employees.
- **Additional Strategies:**
 - Improved wayfinding and signage;
 - Station branding and visibility;
 - Station Area maps;
 - Variable real-time message signs (e.g., for parking);
 - Information kiosks and booths; and
 - Neighborhood ecopass.